TRANSPORT DELIVERY ACTION PLAN FOR BATH

2020 ONWARD

Phase 1: Current and Future Report

April 2020

Bath & North East Somerset Council

Jacobs

Foreword

Bath and North East Somerset Council recognises the very real challenge that climate change poses and as such we are taking a lead and have declared a Climate Emergency, pledging to become carbon neutral by 2030.

At 29% of total emissions, transport is the second biggest contributor to climate change within Bath and North East Somerset. It is one of a handful of sectors where emissions are continuing to rise. The scale of the transport challenge and action needed are huge.

In 2015, Bath and North East Somerset Council adopted the "Getting Around Bath Transport Strategy" which then identified sustainable transport as the overarching aim whilst supporting growth. Many components of that strategy have been delivered including targets for walking, cycling, and bus use; these have already been met and exceeded.

To progress the delivery of the strategy from 2020 onwards an updated "Transport Delivery Action Plan for Bath" is needed, raising the level of ambition, and taking into account recent developments including the Bath Clean Air Zone and the Climate Emergency. Whilst the vision and objectives are still applicable, the level of ambition and actions as well as the speed of change within the plan need to be significantly intensified to bring about the step change in walking, cycling, bus, and rail use required.

More recently the onset of the global coronavirus pandemic has resulted in huge impacts across all aspects of our lives, not least in the way we move around. The World Health Organization (WHO) declared COVID-19 a pandemic on 11th March and governments worldwide have taken wide-ranging measures to contain the spread of the virus. In the UK with a nationwide lockdown announced on 23rd March 2020 these steps have included social isolation and the need to stay at home and only make essential journeys.

This has resulted in far fewer trips being made overall and a significant drop in the levels of car and public transport use. Under the nationwide lockdown levels of motor vehicle usage have dropped by as much as 73% to levels not seen since 1955. During the same period however levels of cycling and walking have witnessed an increase in usage as people choose to walk and cycle in order to get their daily exercise, but also as a way to avoid crowded public transport systems. Levels of homeworking too have risen to an unprecedented level never witnessed before as businesses and organisations try to ensure that day-to-day life keeps going. Experts suggest that people who have learned how to work effectively from home may continue to do so for a day or two a week after the COVID-19 crisis is over.

It is not clear what the long-term modal shift will eventually look like, but it is understood from recent data in Wuhan, China that many people already have returned to the private vehicle; we need to counter act this to save the planet.

It is clear that the recovery state from the COVID-19 pandemic cannot simply be a return to business as usual. With the mobility that societies take for granted severely limited in many countries due to emergency measures, one area that calls for a critical re-assessment is how we can shift to more sustainable and efficient mobility.

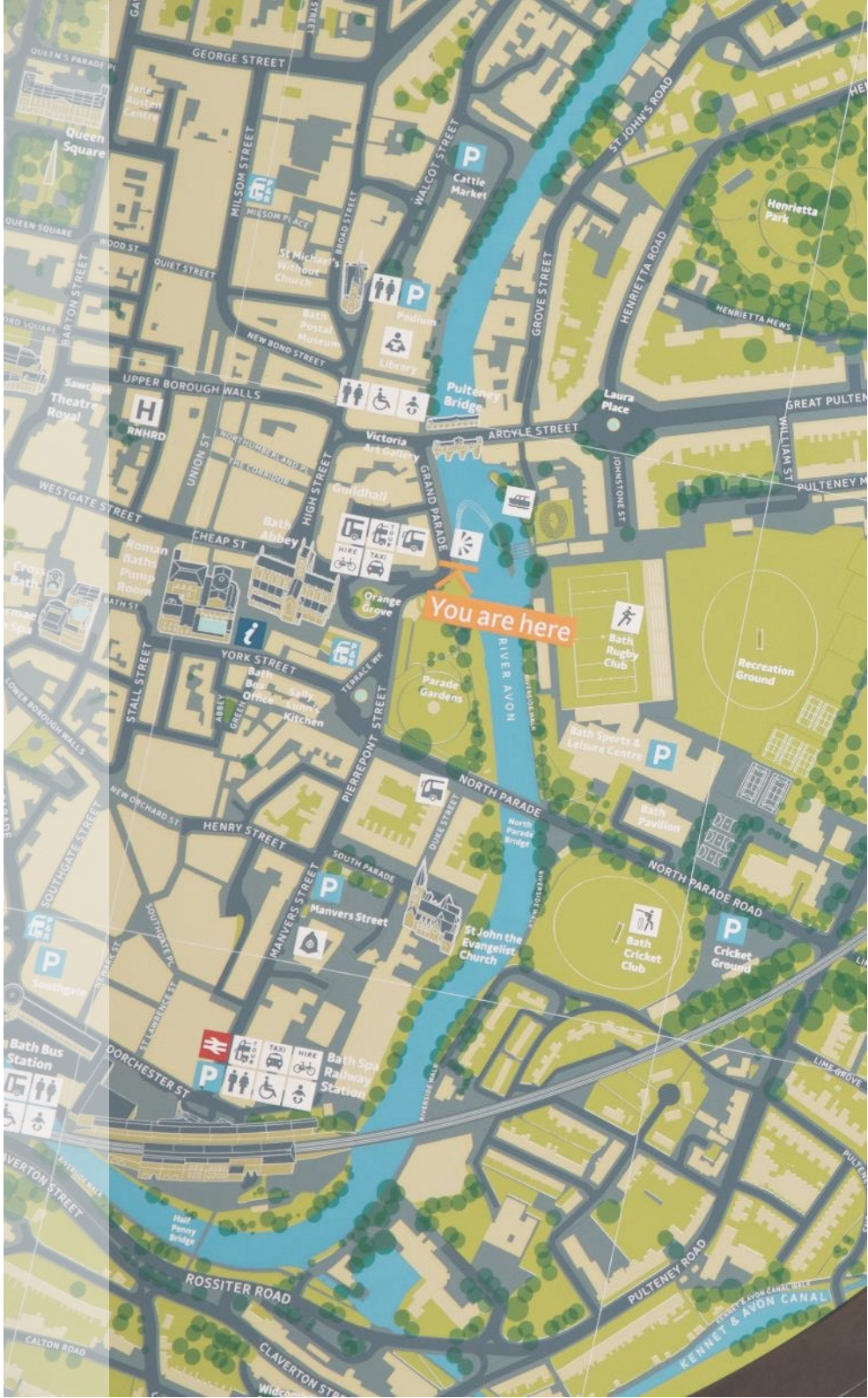
As an economic hub and major destination, Bath has a key role to play at a local, regional, national and international level. Continuing to improve sustainable access to the city centre, the creation of Low Traffic Neighbourhoods, and a step change in public transport provision, will all help tackle the climate emergency. The Transport Delivery Action Plan for Bath will set out how transport in Bath can contribute and achieve wider transport goals. This Phase 1 report sets out a clear and comprehensive evidence base to help inform future decisions. We cannot tackle the climate crisis only in Bath. Around three quarters of people driving to work in Bath do so from outside the city boundary. It is therefore important to look beyond the city, to rural areas and to neighbouring authorities to help tackle our transport challenges.

We are working closely with the other West of England authorities to develop and improve upon the Joint Local Transport Plan 4 by producing a new JLTP5 that will include a greater focus on the climate crisis. Only by the whole community, locally, nationally and internationally, working together can we tackle one of the greatest challenges of our time.

Councillor Joanna Wright **Councillor Neil Butters**

Cabinet Members for Transport Services

Content



1. Introduction

1.1 Introduction

Bath is widely regarded as one of the UK's most liveable cities and offers an excellent quality of life. The city's population is around 90,000, of which around 20% are students. Bath is well-known as an international visitor destination, thanks to its cultural and built heritage, thermal springs and landscape – encapsulated in its inscription as a UNESCO World Heritage Site. Bath is a key economic centre in the West of England and is also one of the most important places for learning in the South West. The city also serves as a regional shopping centre, characterised by independent and boutique shops..[1]

Transport is fundamental to the successful economy and wellbeing of the city, its residents and visitors. It also contributes to the unique environment of the city but the volume and impacts of vehicles are undermining the fabric of buildings, air quality, and is one of the biggest contributors to the climate crisis. Despite improvements in recent years, the historic core of Bath and key arterial routes still suffer from the intrusion of cars and the quality of life throughout the city is being adversely affected.[2]

Bath & North East Somerset Council (B&NES) have declared a Climate Emergency. The B&NES resolution commits the Council to providing the local leadership to enable Bath & North East Somerset to become carbon neutral by 2030.

A progress report to cabinet identified the scale of change required. It was estimated that transport contributes 29% of CO_2 emission in B&NES. Based on the current information a step change in sustainable transport provision will be required to achieve the CO_2 target which has been set. The scale of the measures required was indicated as being 25% reduction in vehicle miles per person and 7% cut in number of car journeys indicated by 2030. The baseline would be 2019.

The Getting Around Bath Transport Strategy (GABTS) was adopted in 2015 and covered the period up to 2029. The Strategy identifies sustainable transport as the key overarching aim whilst supporting growth. Performance targets up to 2020 have been set and the walking, cycling and bus passenger targets have now been met.

To progress the delivery of the Getting Around Bath Transport Strategy from 2020 onwards an updated Transport Delivery Action Plan is needed to include the aim for a step change in public transport taking into account recent developments including:

- Climate Change Emergency;
- West of England Joint Local Transport Plan 4;
- Bath Clean Air Zone plus supporting measures;
- Local Government Manifesto Commitments;
- Other emerging schemes and policies.

The plan will identify the short, medium, and long-term schemes and policies that should be implemented. The Transport Delivery Action Plan will be detailed enough to identify and quantify the benefits of the various schemes and phasing. This will enable business cases to be produced to help make the case to secure funding for the construction and delivery of transport schemes and policies.

The development of the Transport Delivery Action Plan for Bath is divided into four phases, as shown in Figure 1.1 below:

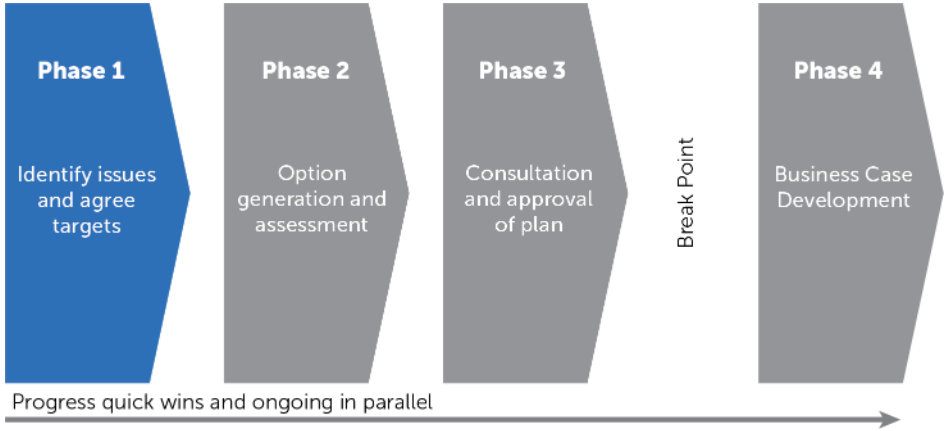


Figure 1.1: Developing the Transport Delivery Action Plan

This report forms Phase 1 of the Transport Delivery Action Plan. The remainder of this section sets out progress delivering the Getting Around Bath Transport Strategy, and how the Transport Delivery Action Plan will build on the Joint Local Transport Plan 4 and respond to the Climate Emergency.

[1] BANES (2017) Core Strategy & Placemaking Plan, District-wide Strategy and Policies

[1] BANES (2014) Getting Around Bath: A Transport Strategy for Bath

Section 2 sets out the policy context, describing how this Transport Action Delivery Plan compliments and builds on national, regional, and local policy.

Section 3 sets out the current situation, with in-depth analysis of travel patterns and movements, and a summary of previous transport consultation findings in Bath.

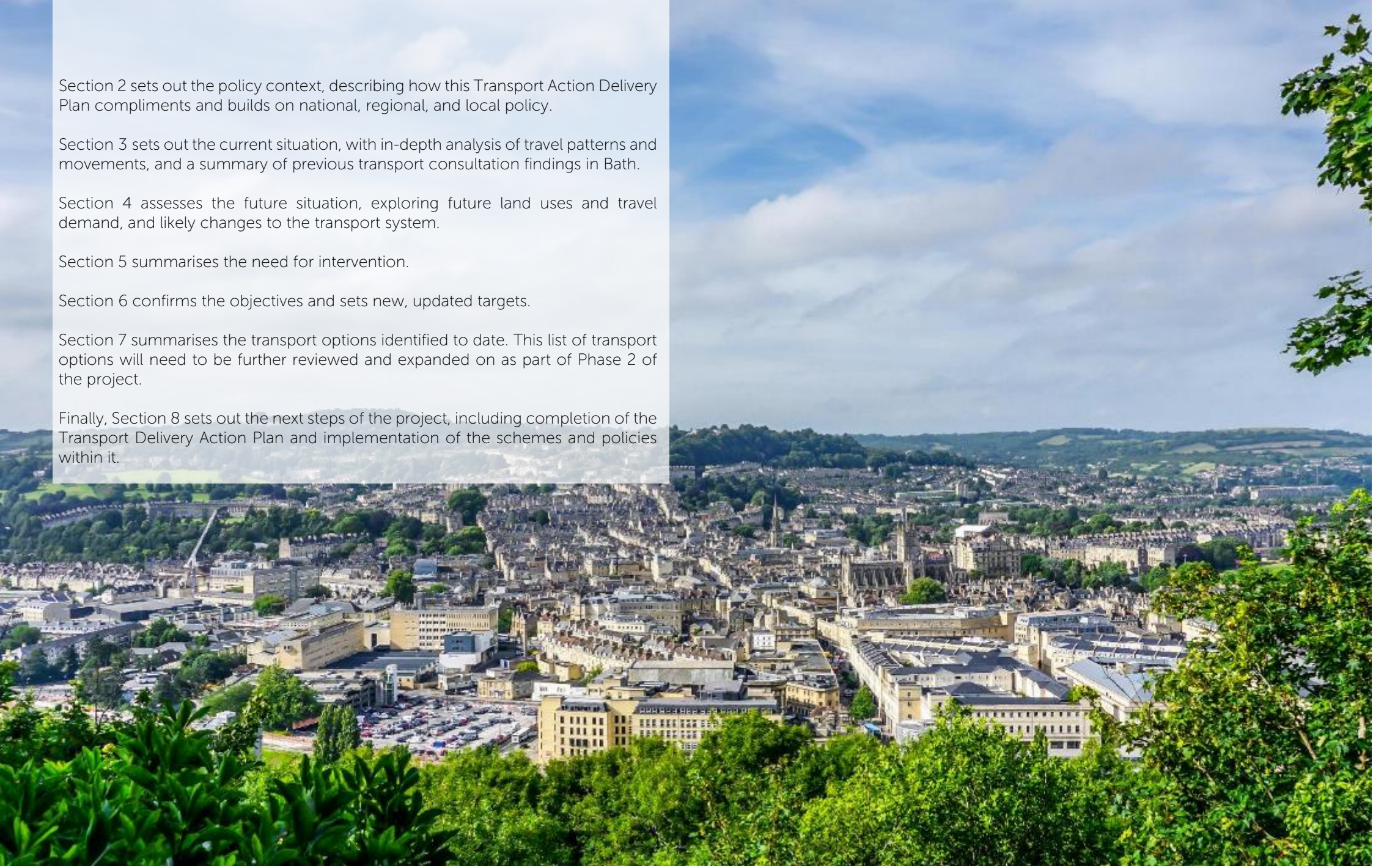
Section 4 assesses the future situation, exploring future land uses and travel demand, and likely changes to the transport system.

Section 5 summarises the need for intervention.

Section 6 confirms the objectives and sets new, updated targets.

Section 7 summarises the transport options identified to date. This list of transport options will need to be further reviewed and expanded on as part of Phase 2 of the project.

Finally, Section 8 sets out the next steps of the project, including completion of the Transport Delivery Action Plan and implementation of the schemes and policies within it.



1.2 Delivering the Getting Around Bath Transport Strategy

The Getting Around Bath Transport Strategy was adopted by B&NES in 2015 and covered the period up to 2029. The following section outlines the progress to date in delivering against its vision & objectives, policies, actions, and targets.

Vision & Objectives

Following a period of consultation, agreement was reached on the following vision:

"Bath will enhance its unique status by adopting measures that promote sustainable transport and reduce the intrusion of vehicles, particularly in the historic core. This will enable more economic activity and growth, while enhancing its special character and environment and improving the quality of life for local people".

The Getting Around Bath Transport Strategy identified sustainable transport as the key overarching aim whilst supporting growth, identifying the following objectives:

- Supporting and enabling economic growth, competitiveness and jobs;
- Improving air quality & health, reducing vehicle carbon emissions;
- Promoting sustainable mobility;
- Widening travel choice;
- Widening access to opportunities: jobs/learning/training;
- Safeguarding and enhancing the unique historic environment and World Heritage Site status;
- Improving the quality of life in the city.

Policies

Fifteen policies were historically identified as part of the Getting Around Bath Transport Strategy to help deliver the vision and objectives. These were:

Policy GABP1	That a strong emphasis should be given to **reducing the impact of vehicles** by supporting trips that are made by means other than car, particularly walking and cycling with more people using improved bus and rail networks.
Policy GABP2	That **walking be given highest priority** in the strategy. It creates a healthier population, an ambience to the historic core of the city and reduces the number of local car journeys. Bath should be an exemplar walking city demonstrating commitment to sustainable transport at a European level.
Policy GABP3	That **consideration for the needs of people with mobility impairments** is regarded as a core element of the strategy and the measures included within it.
Policy GABP4	Vehicle movement should be better managed to **reduce traffic impact and emissions**, particularly in the city centre where there is less space available.
Policy GABP5	That **cycling be promoted through better cycling routes** with appropriate infrastructure where needed, building a cycling culture for people of all abilities.
Policy GABP6	**The Enterprise Area is developed as part of an integrated approach with strong sustainable transport links** to the city centre and rail stations. The development will focus initially on office and related development at the eastern end of the site and have limited car parking. Subsequent housing development will also focus on accessibility by non-car modes.

Policy GABP7	Car parking is a central feature of the strategy, enabling other components to take effect. The policy of **reducing central area public parking and expanding long stay capacity at Park and Ride sites** should continue, enabling greater emphasis to be given to walking, cycling and bus services in the historic core and on key corridors.
Policy GABP8	Establish the need for **increased Park and Ride capacity** as part of a wider parking strategy.
Policy GABP9	**Improved bus services**, with ticketing and other improvements and measures to improve reliability, will provide alternative travel options to car use, promoted through travel plans and comprehensive marketing.
Policy GABP10	**Travel plans will be promoted** for all main activities in the city to support a move from car use to other means of travel and will be built into the planning process.
Policy GABP11	**Maintain the taxi network** as part of the wider range of transport options.
Policy GABP12	The **growth in rail capacity** and the range of services available as part of the Great Western Main Line electrification scheme and the development of MetroWest will support significantly more rail journeys to Bristol. Better services will be promoted to link Bath with the west Wiltshire towns. Access to local stations need to be improved and new stations may be appropriate.
Policy GABP13	**Coaches will continue to be promoted** as an important means of bringing visitors to the city.
Policy GABP14	That **freight movements be considered more fully**, particularly to promote consolidation of deliveries and reduce the impact of HGV's.
Policy GABP15	Allow the continued development of the **use of the river for tourism, and leisure uses and other uses** e.g. Taxi services.

Actions

The Getting Around Bath Transport Strategy identified 43 actions to help deliver against the vision, objectives, and policies. The majority of actions relate to ongoing initiatives that should be carried forward as part of the Transport Delivery Action Plan. For example, this includes environmental improvements in the city centre, considering the needs of those with impaired mobility, developing the cycle network, support for car clubs, and delivery of the Enterprise Area. The following seven actions are either completed or closed:

- GABA1 Review pedestrian network and in particular the quality of routes;
- GABA6 Commission Access and Inclusion Audit of the city centre to recommend reasonable adjustment to our plans for movement including transport in the city;
- GABA16 Traffic generated by developments in the Enterprise Area will be managed by effective parking standards to minimise the impact of traffic on the network;
- GABA17 Undertake further analysis of parking requirements to ensure that the proposal to retain 500 public parking spaces within the Enterprise Area is sufficient to maintain the vitality of the city centre economy and to encourage modal shift;
- GABA31 Continue to investigate how improvements to the rail network to the east could help with the development of a Park & Rail facility;
- GABA35 Find and additional coach park site near the city centre to complement the use of Weston Island;
- GABA40 Develop 'Leave and Collect' points for shopping, with drop offs at Park & Ride sites.

Additional actions will be identified through the development of the Transport Delivery Action Plan.

Targets

Performance targets up to 2020 (from a 2015 baseline) were set and the walking, cycling and bus passenger targets have already been met and exceeded as shown in Table 1.1 and Figure 1.2.

Table 1.1: Getting Around Bath Transport Strategy - Targets Summary

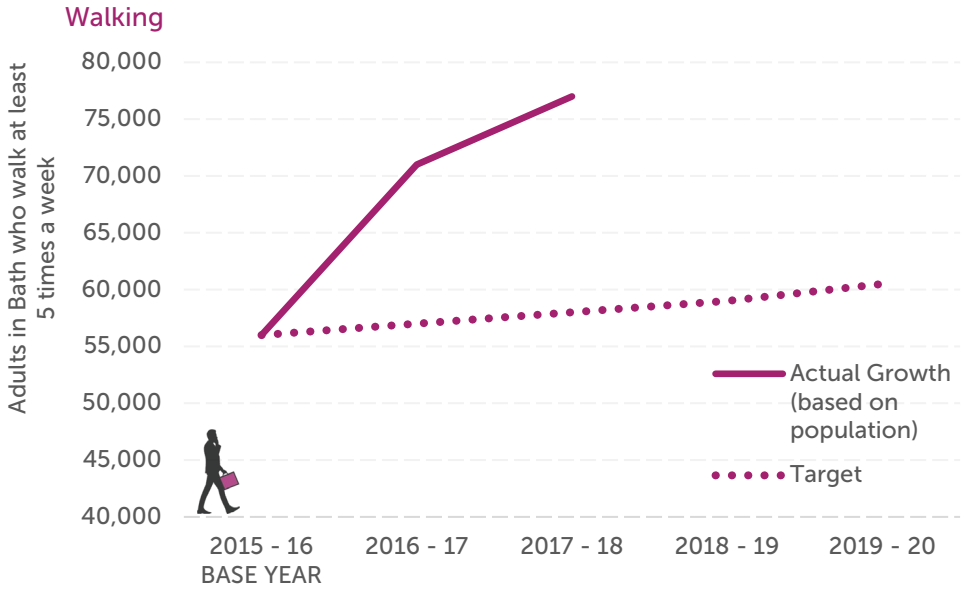
Mode	2020 Target	Achieved
Walking	8% increase	37% increase by 2017/18
Cycling	22% increase	37% increase by 2017/18
Bus Passengers	2.5% increase	13% increase by 2018/19
Rail Passengers	16% increase	2.5% increase by 2017/18

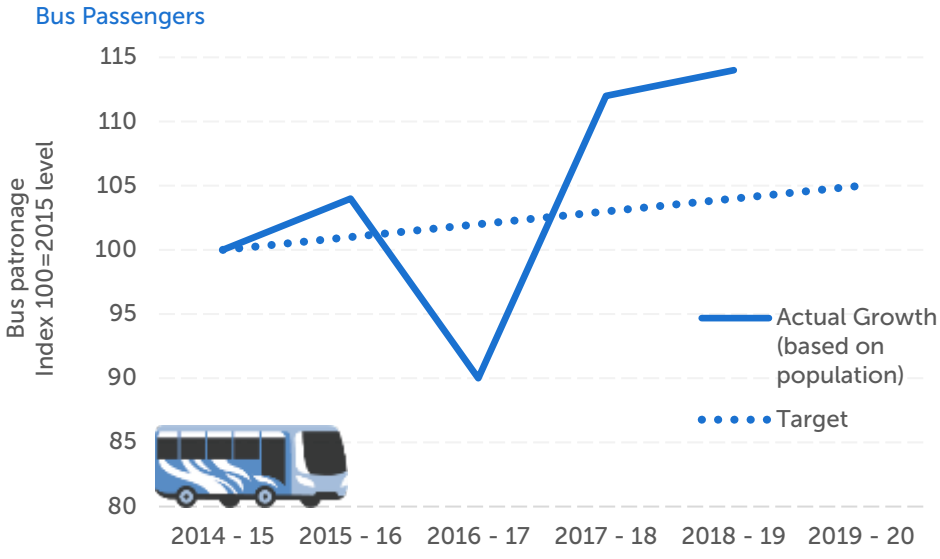
The overall trend is that total travel has increased significantly faster than anticipated, resulting in the walking, cycling, and bus targets being achieved, but also growth in motor traffic outside of Bath. Growth in rail patronage is slower than expected, in part due to the deferral of electrification of the Great Western Mainline through Bath. Further analysis of travel trends in Bath can be found in section 2.

It is clear that new targets and actions need to be set, to reflect the progress made to date, and as set out in the following sections, to respond to the Climate Emergency and the West of England Joint Local Transport Plan 4.

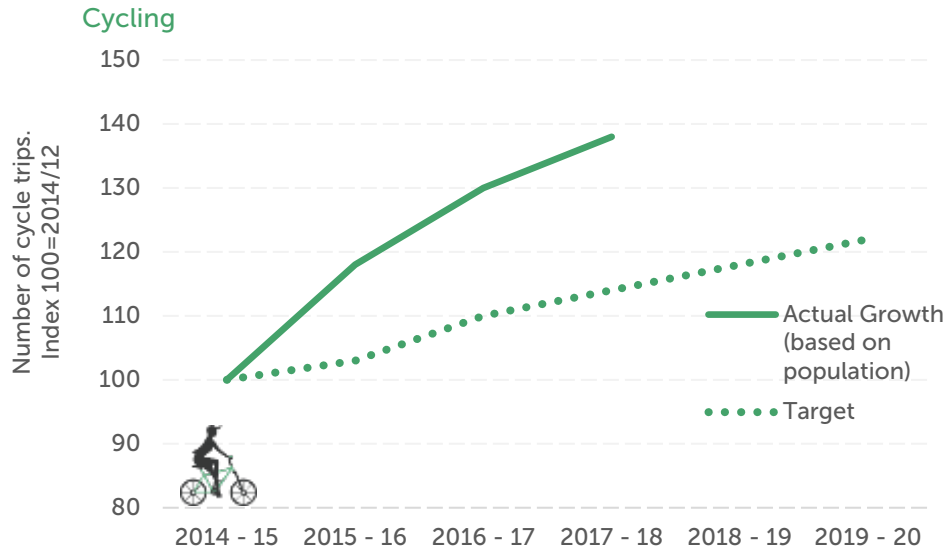
Key issues & opportunities identified

- Take into account recent developments including the Climate Emergency, Local Transport Plan 4, Bath Clean Air Zone and supporting measures, manifesto commitments, and other emerging schemes and policies;
- Build on and continue with successful delivery of the actions contained in the Getting Around Bath Transport Strategy;
- Growth in walking, cycling, and bus use has been faster than expected and further ambitious measures are needed to support and continue this trend;
- Rail growth has been slower than expected, although still growing and additional measures will be needed to support continuing growth in rail use.





*2016/2017 dip thought to be due to issue with first ticket machines



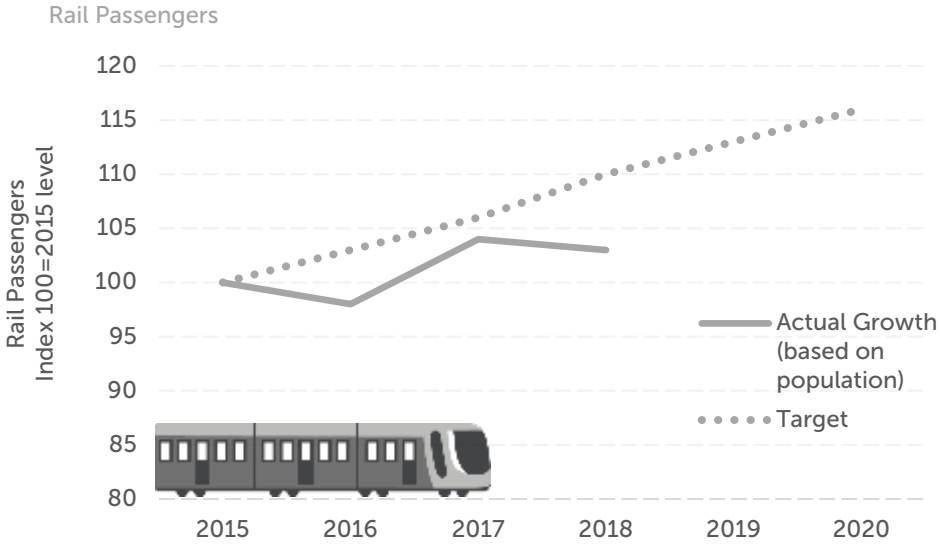


Figure 1.2: Progress against Getting Around Bath Transport Strategy targets

Track record of scheme delivery

The West of England has made significant progress delivering transport schemes in the seven years since JLTP3, spending over £500m on the delivery of transport projects, including the Bath Transport Package, Cycle City Ambition Fund, and walking and public realm schemes in Bath.

Walking & Public Realm

Recent examples of pedestrian improvements in the City include:

- High Street and Northumberland Place public realm improvement scheme: Completed in June 2013 and part-funded by the Bath Transportation Package, a £27m package of measures funded by the Department for Transport.
- Stall Street and Lower Borough Walls pedestrian improvements: Completed in late 2015 and part-funded by the Bath Transportation Package. As part of the Council's commitment to create a safer and more attractive city centre area, reducing the dominance of motor vehicles, the authority implemented new traffic restrictions during core shopping hours (10am to 6pm) on Lower Borough Walls & Stall Street enforced through rising bollards. This section of Bath accommodates over 25,000 pedestrians per day (12 hours, 7am -7pm, 2014) Reducing vehicle traffic this part of Bath has created a more pleasant space for local people and visitors.
- Seven Dials cyclist and pedestrian improvements: Completed in summer 2015 and was funded by the Department for Transport's Cycle City Ambition programme. Seven Dials is at the historic west gate of Bath where seven routes meet and is located to the west of the city's main shopping area. The Council sought to improve the public realm and allow pedestrians and cycles to move around more freely, through the use of shared space.

Park & Ride

Bath's first purpose-built Park and Ride site was opened at Newbridge in 1986 and this site together with those at Lansdown and Odd Down now provide over 2,700 spaces. The successful operation of these sites has contributed towards a 20% reduction in traffic entering the centre of Bath during since the year 2000 and have helped enable many of walking and public realm improvements outlined previously.

Surveys of Bath P&R users have shown that, if the Park & Ride site wasn't available, 58% of people would have driven for their entire trip, and a further 14% would not have made the journey at all. The remaining 28% would have used the bus (15%), rail (11%), or other modes such as walking, cycling, taxi, motorcycle, or other Park & Ride sites (2%).

The park and ride sites were key in achieving the planned re-provision of parking spaces lost through the introduction of residents parking zones. This resulted in a wholesale shift in parking provision resulting in parking spaces in Bath being transferred from the city centre to the periphery. The introduction of resident parking zones has been a successful policy and has proved to be an effective demand management tool to control the levels of traffic entering Bath.

1.3 Building on Joint Local Transport Plan 4

Transport in the West of England is planned, managed, delivered and funded by a number of organisations, shown in Figure 1.3 below, working together to improve transport provision and support our commitment to carbon reduction. In 2017, the West of England Combined Authority (WECA) was formed to help support increasing coordination of transport, housing and skills across the area.

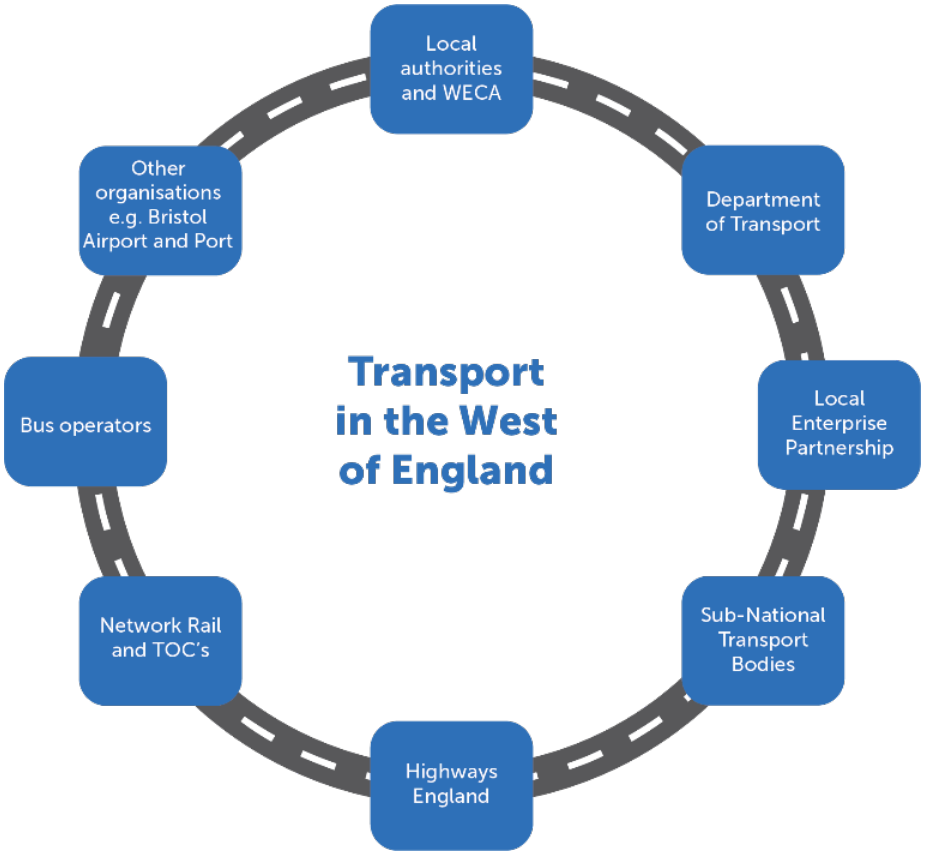


Figure 1.3: Governance of transport in the West of England[3]

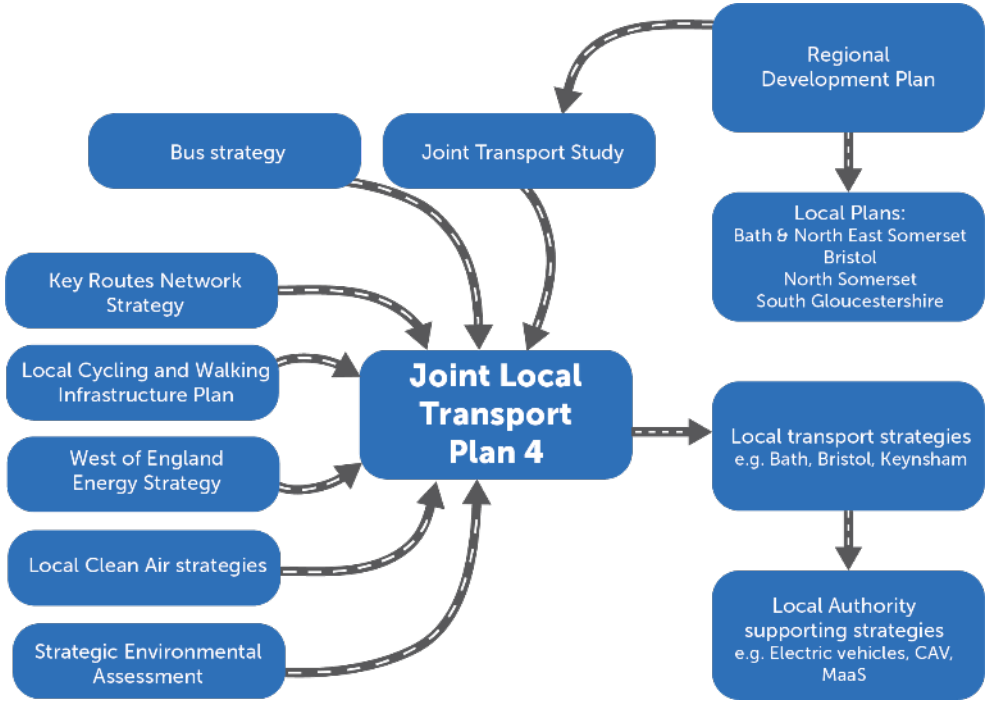


Figure 1.4: Relationship of JLTP4 to other plans[4]

The Joint Local Transport Plan 4 (JLTP4) adopted in March 2020 was prepared by WECA and the four West of England local authorities – Bath & North East Somerset Council, Bristol City Council, North Somerset Council, and South Gloucestershire Council. JLTP4 sets out transport policies and major schemes for the region and will support delivery of the more detailed interventions set out in local transport strategies as shown in Figure 1.4. This includes the Bath and Bristol Transport Strategies, and other supporting strategies for cycling, parking and other modes.

Whilst the JLTP4 sets out to decarbonise and promote cleaner and greener forms of transport it is unlikely to be enough to achieve transport carbon neutrality by 2030. For this reason, the West of England have committed to undertake an immediate review which will include further work to build up the evidence base and establish what will be required to reach the 2030 target and this will set the basis for the next JLTP.

[3] TOC = Train Operating Companies

[4] CAV = Connected and Autonomous Vehicles, MaaS = Mobility as a Service

Transport challenges identified in JLTP4

JLTP4 highlights a number of key transport challenges facing the region that are relevant to Bath:

- Transport is the largest contributor to carbon dioxide emissions in the West of England;
- Travel demand is growing and there is an increased need to improve the offer of more sustainable modes of transport;
- The common perception is that there are limited travel options;
- Parts of the road and rail networks are under strain;
- There are high levels of inequality and different accessibility needs;
- Transport impacts on safety, security, air quality, public health and public realm;
- There is a need to manage emerging technology and innovation;
- There has been limited transport funding.

Beyond West of England challenges:

- The Strategic Road Network has heavy traffic flows due to both longer distance through traffic and local movements that perceive the SRN to offer the best route;
- Both the Port of Bristol and Bristol Airport are planning to increase throughput, impacting on the area's transport infrastructure;
- HGV and other freight delivery movements are increasingly impacting on the already congested highway network.

Within West of England challenges:

- Congestion is currently experienced on the A4 and A36 in Bath;
- Managing parking supply;
- Bus and rail use is significantly lower than other major UK cities;
- Overcrowded trains deter people from using rail;
- Most business-related travel within the West of England is by road;
- Potential clustering of businesses is limited by the capacity of the transport network, including congestion in central areas;
- Climate change is impacting on the standard of our transport network.

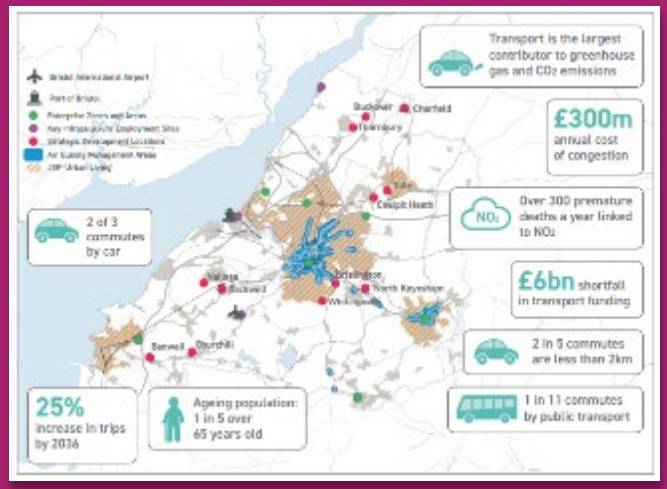


Figure 1.5: High-level summary of transport challenges

Local & neighbourhood challenges:

- Heavy traffic flows on local roads;
- Actual and perceived road safety and security concerns influence how people choose to travel;
- There is a lack of knowledge and confidence around cycling and using public transport;
- Local services and transport options are limited in many rural areas;
- There are areas of poor air quality;
- The dominance of traffic restricting the ability to reprioritise road space to other modes and improve public realm.

Vision & Objectives

JLTP4 sets out a vision and objectives for transport in the West of England, that are compatible with the vision and objectives set out in the Getting Around Bath Transport Strategy (see Table 1.2).

JLTP4 vision: "Connecting people and places for a vibrant, inclusive and carbon neutral West of England".

Table 1.2: Linking JLTP4 and Getting Around Bath Transport Strategy Objectives

JLTP4 Objective	Getting Around Bath Transport Strategy Objective
Support sustainable and inclusive economic growth	Supporting and enabling economic growth, competitiveness and jobs
Enable equality and improve accessibility	Promoting sustainable mobility Widening travel choice Widening access to opportunities: jobs/learning/training
Take action against climate change and address poor air quality	Improving air quality & health, reducing vehicle emissions
Contribute to better health, wellbeing, safety and security	Improving the quality of life in the city
Create better places	Safeguarding and enhancing the unique historic environment and World Heritage Site

Policies

A series of 14 policies are set out to help achieve the vision and objectives:

B1: Enhance competitiveness of major gateways and improve connectivity to international markets.

B2: Improve strategic resilience of the network for all trips.

W1: Provide more public transport options and improve service quality.

W2: Provide for journeys where public transport is not an option.

W3: Use, as appropriate, measures and technological advances to influence and better manage the demand of private car use.

W4: Improve resilience of the network, providing increased reliability.

W5: Enable business clustering and the efficient movement of freight.

L1: Enable walking and cycling, 'active modes of travel', to be the preferred choice for shorter journeys.

L2: Reduce the number and severity of casualties for all road users.

L3: Encourage residents and employees to make more sustainable and healthier travel choices.

L4: Support opportunities for all sectors of the population to access the services they require, wherever they live.

L5: Support the identification and implementation of measures that will improve air quality.

N1: Use master planning and local design to create better places.

N2: Facilitate the use of active modes for all short trips, including the first and last mile of longer journeys.

Actions & Targets

The Joint Local Transport Plan is intentionally ambitious, and the total cost of the major schemes within it expected to be at least £9bn, which, if delivered, will represent a step change in transport funding for the region.

A set of 43 interventions, and over 150 actions are set out in JLTP4, including delivery of the package of major schemes. Further details of JLTP4 major schemes relevant to Bath can be found in the schemes chapter.

Recognising manifesto commitments

In the May 2019 local elections the Liberal Democrats claimed overall control of Bath & North East Somerset Council for the first time, winning 37 of the total 59 seats. Key priorities include: addressing the climate emergency; modernising service delivery; helping people live healthier, more independent lives' and greater transparency. The Transport Delivery Action Plan will set out a package of measures that respond to these commitments and help achieve their aims.

- Clean up Bath's air by the end of 2021 and establish a **Clean Air Zone;**
- Set up **low traffic neighbourhoods** and tackling congestion and rat-running across B&NES;
- Creating maximum opportunity for **walking and cycling** and the use of **public transport** as an alternative to the use of private vehicles;
- Support the continued **development of all Enterprise Areas;**
- **Limit access to Bath's historic city centre to only permitted vehicles** at permitted times and work to reduce the number of coaches that simply drive through our city without contributing to the economy;
- Conduct a **comprehensive review of residents parking schemes in Bath with a view to expand them** where this is supported by residents;
- Work with all schools to **reduce school run traffic**, ensuring safe walking routes to schools and seek to introduce a school bus system;
- Create a traffic congestion management plan for Bath;
- **Tackle speeding and congestion;**
- Aim to complete a network of small car and bike parks on existing bus routes to the **East of Bath;**
- **Encourage use of existing Park & Rides** by pricing, extending the hours of operation and improving security;
- Change planning policies to give weight in favour **of low or no car developments** in central Bath;
- **Examine the case for mass transit solutions;**
- Create a **new dynamic partnership with bus operators** to increase bus usage that gives **buses priority on main roads;**
- **Improve bus services** in the Chew Valley and other rural areas;

Aim to **invest 15% of highway spending annually on walking and cycling routes.**

1.4 Responding to the Climate Emergency

The Council declared a Climate Emergency in March 2019, committing the Council to provide leadership to enable B&NES to achieve carbon neutrality by 2030. The Council resolved to:

- declare a climate emergency,
- provide leadership to enable carbon neutral B&NES by 2030,
- enable citizen engagement,
- oppose expansion of Bristol Airport.

The Full Council resolution came about as a response to the Intergovernmental Panel on Climate Change (IPCC) special report on the impacts of global warming of 1.5°C above pre-industrial levels, issued in October 2018. Subsequent UN reports found that existing international commitments were insufficient to ensure that global warming stays below 1.5°C, and that nations must triple their efforts in order to meet even the previous 2°C target. The UK Climate Change Committee, responsible for advising government on reducing emissions as part of the legally binding Climate Change Act 2008, has found that "progress is insufficient even for previous targets, and a major ramp-up is now needed for the net-zero target"[5].

More than half the UK's principal local authorities have now declared a climate emergency, along with the UK, Welsh and Scottish governments, making it one of the fastest growing environmental movements in recent history.

Responding to the Climate Emergency requires action across all aspects of society, from intergovernmental agreements, such as the Paris Agreement 2015, to real action by national governments and major corporations to deliver radical system change to stop the primary cause of carbon emissions from the burning of fossil fuels. It is this level of change that will enable individuals, households and local businesses to cut their carbon emissions and achieve net zero carbon by 2030.

Bath and North East Somerset Council will be playing its part not only to provide the leadership to enable change on the ground locally and through the West of England Combined Authority, but also by lobbying for change and for the powers and resources needed from central government.

In October 2019, the Council approved a Climate Emergency Outline Plan (CEOP), with engagement across different sectors and across the community, including a citizens' assembly, to follow on from that.

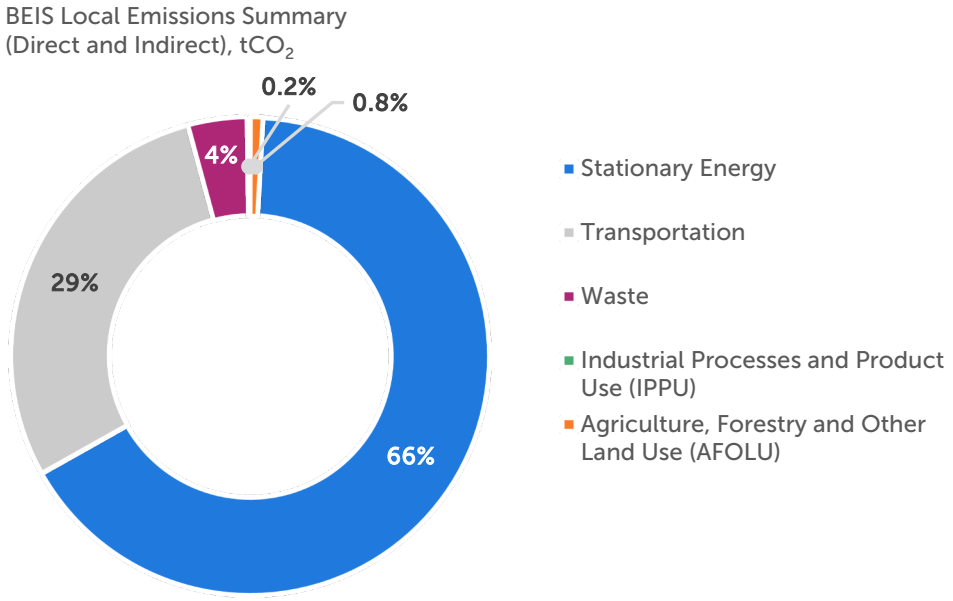


Figure 1.6: SCATTER Inventory: Direct and Indirect Emissions Summary, tCO_2e (BANES)[6]

[5] Source: https://www.theccc.org.uk/publication/reducing-uk-emissions-2019-progress-report-to-parliament/

[6] Source: https://www.bathnes.gov.uk/sites/default/files/sitedocuments/Environment/anthesis_bnes_climate_emergency_discussion_pack_final.pdf

The associated reports highlight that 29% of B&NES emissions excluding aviation come from transport (Figure 1.6) and highlight that the majority of emissions are generated by the most affluent residents in the area. The disparity in income and emissions is starkest for aviation. The average income of UK air passengers is approximately £60,000 – more than twice the national average. Across the UK, the highest income group has more than three times the household emissions of the lowest income group (see Table 1.3 and Figure 1.7)[7].

Table 1.3: Emissions by income decile and source of emissions for all UK households ($t.CO_2/yr$)

Disposable Household Income Decile	Household fuels	Car	Public transport	Aviation (fuel consumption only)	Aviation with radiative forcing	Total
1 (lowest income)	3.76	0.61	0.35	0.31	0.58	5.03
2	4.28	0.91	0.26	0.38	0.72	5.84
3	4.84	1.39	0.24	0.49	0.93	6.96
4	5.12	1.87	0.22	0.70	1.33	7.91
5	5.49	2.42	0.22	0.88	1.66	9.01
6	5.72	2.87	0.22	1.08	2.03	9.89
7	6.18	3.51	0.26	1.39	2.62	11.33
8	6.53	3.87	0.34	1.66	3.14	12.39
9	6.94	4.40	0.37	2.15	4.06	13.86
10 (highest income)	7.90	4.60	0.53	3.12	5.89	16.14

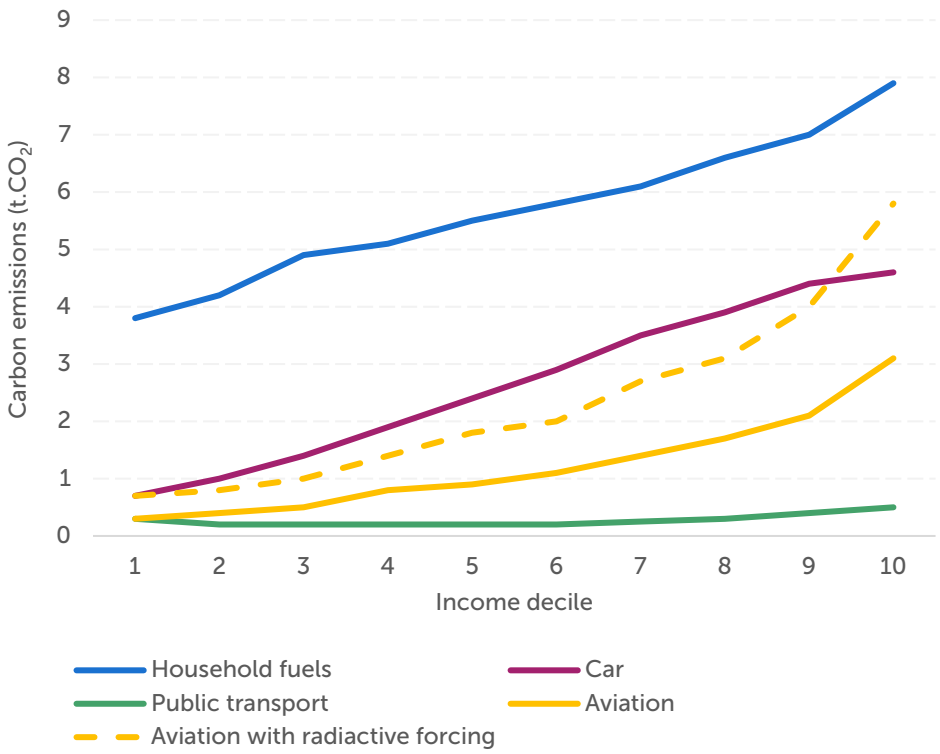


Figure 1.7. Emissions by income decile and source of emissions for UK households

Figure 1.7 UK household emissions from different sources by income decile (1 – lowest income households, 10 – highest income households) [Note: Data represents emissions at a household level] (Source: B&NES Climate Emergency Study Final Report, September 2019).

The recommendations include three immediate priorities:

- Energy efficiency improvement of the majority of existing buildings (domestic and non-domestic) and zero carbon new build;
- A major shift to mass transport, walking and cycling to reduce transport emissions; and
- A rapid and large-scale increase in local renewable energy generation.

[7]Source:https://www.bathnes.gov.uk/sites/default/files/sitedocuments/Environment/cse_citizen_emissions_report_bnes_climate_emergency_final.pdf

The proposed high-level targets for transport are shown in Table 1.4 below.

Table 1.4: Climate Emergency Outline Plan Transport Targets

Area	Headline Measures
On-road transport	• 25% reduction in vehicle km per person • Modal shift creates 7% reduction in car travel • Electric cars: 76% pure battery EV, 14% Petrol Hybrid EV • 76% electric buses, 24% hybrid buses
Freight	• 37% of rail freight is electric • Road freight remains diesel
Passenger Rails	• 100% passenger rail electrification

Overall, on-road transport is estimated to make the largest contribution to achieving carbon neutral status by 2030.

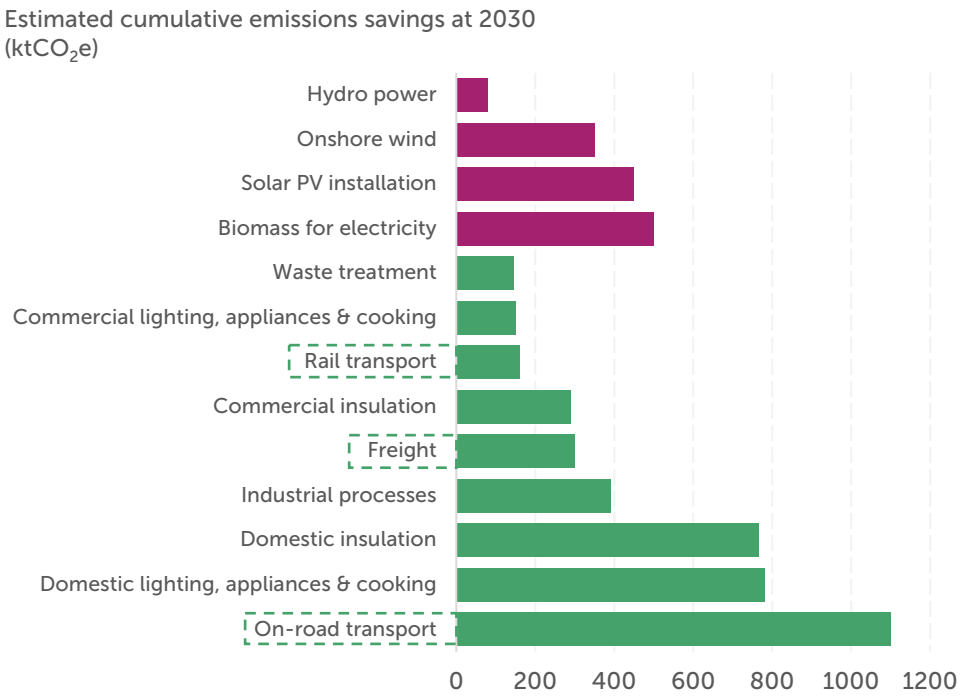


Figure 1.8: Estimated cumulative emissions savings at 2030 ($ktCO_2e$)[8]

The revolution for the transport system outlined in the Climate Emergency Outline Plan goes far beyond the measures currently included in the Getting Around Bath Transport Strategy and the Joint Local Transport Plan 4 and the 2017 Joint Transport Study, which in themselves are extremely ambitious.

The 2017 West of England Joint Transport Study (JTS) was prepared to inform the West of England JLTP4. It notes that the West of England will experience substantial growth in the next two decades. This will result in significant increases in the volume of future travel. It is estimated that there will be a 28% rise in people trips by all modes in the West of England, due to the increased numbers of people living and working in the area. Figure 1.9 below shows the forecast difference in the number of commuting trips by West of England residents between 2011 and 2036.

[8] Source: https://www.bathnes.gov.uk/sites/default/files/sitedocuments/Environment/anthesis_bnes_climate_emergency_discussion_pack_final.pdf

The JTS also forecasts a significant increase in goods traffic, with over 40% growth, between 2013 and 2036 if no action is taken in a "Do-Minimum" scenario. It notes it will be very challenging to manage this impact, and highlights potential enhanced roles for Freight Consolidation Centres, and moving freight to rail.

The increased number of trips in the Do Minimum scenario would counteract efforts to reduce transport carbon emissions. The increase in the number of people living and working in the West of England would be equivalent to a 22% increase from 2014 transport emissions. It will be extremely challenging to deliver a steep reduction in carbon emissions at the same time as a significant increase in trips associated with a growth in population.

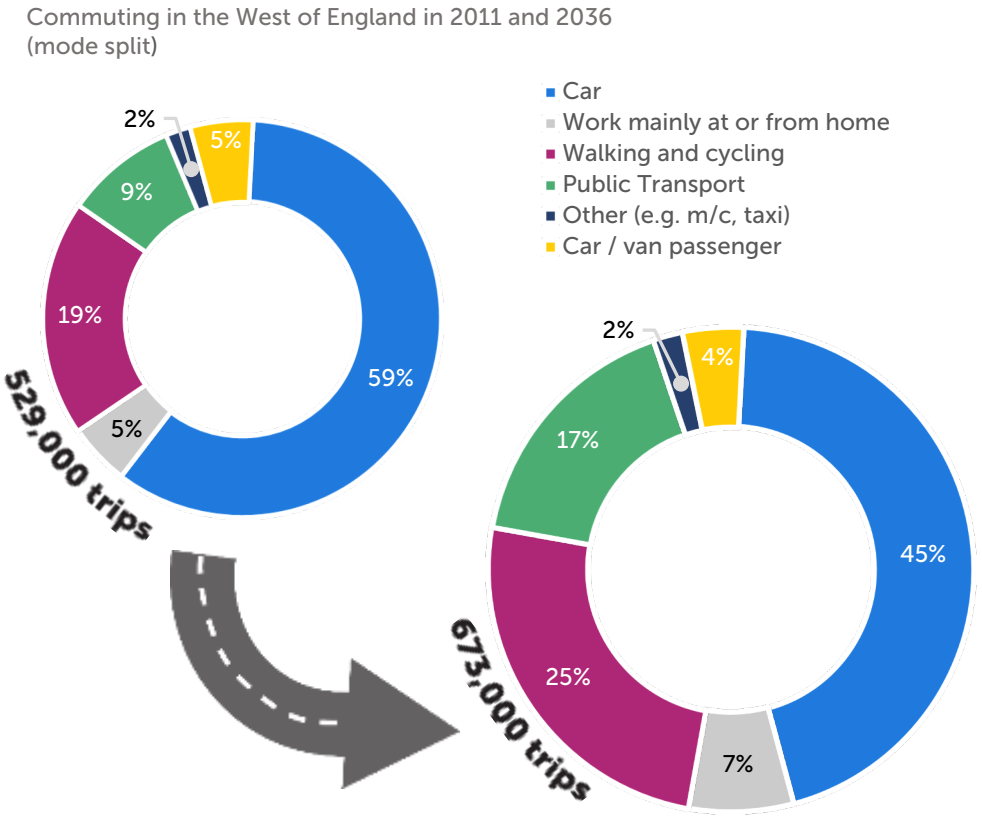


Figure 1.9: Commuting in the West of England in 2011 and 2036 (mode split)

The £9bn+ transport investment envisaged by the JTS results in an approximate 3% reduction in car driver trips. The JTS suggested that it will be possible to meet the current Climate Change Act target until the 2030s, but progress will not completely meet the previous West of England target. Significant further action for the transport sector will be required to meet the national aspiration for Net Zero by 2050, and further radical action still will be needed to meet the local aspirations and 2030 targets contained in the Climate Emergency Outline Plan.

Key issues & opportunities identified:

- The climate emergency requires rapid electrification of vehicles and a significant reduction in vehicle distance travelled. Significant additional transport measures in BANES and beyond are required including demand management measures, over and above the already ambitious Joint Transport Study Vision for the West of England.

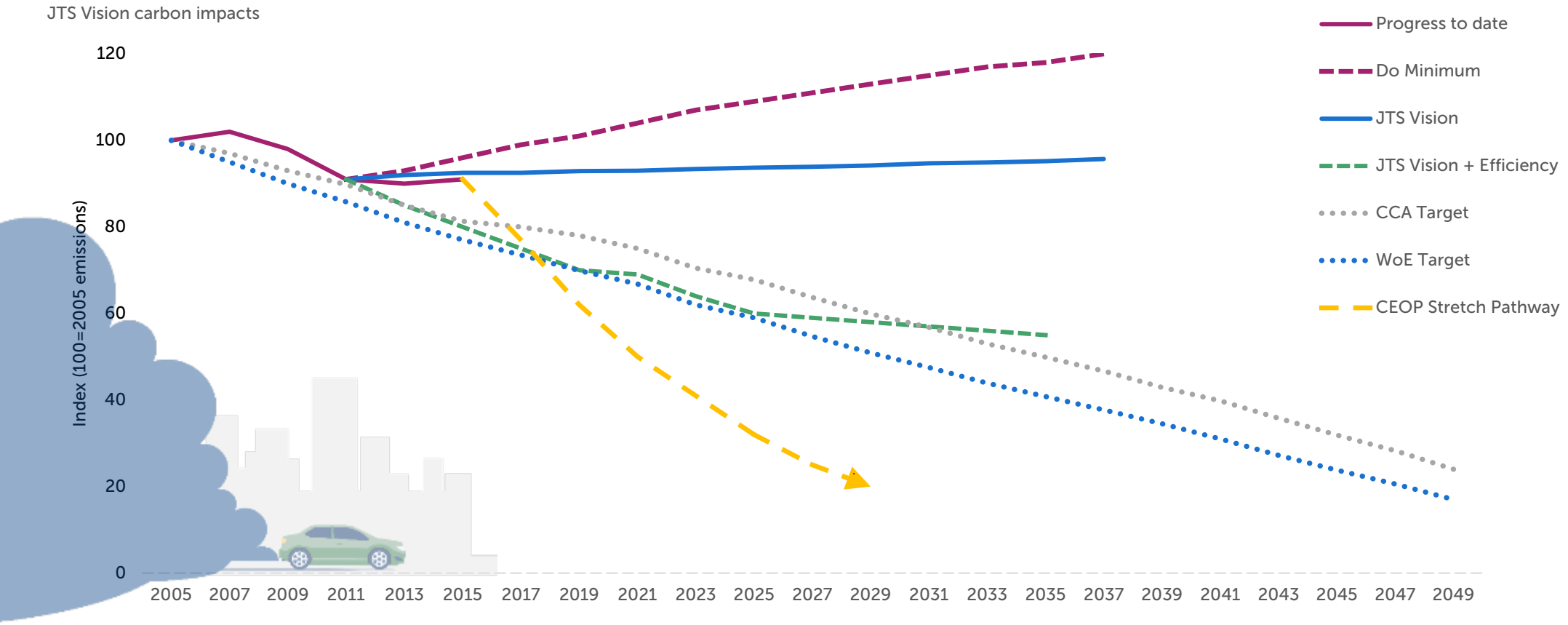


Figure 1.10: JTS Vision Carbon Impacts and Climate Emergency Outline Plan "Stretch Pathway"

2. Understanding the current situation

2.1 Description of the study area

As outlined in the introduction, Bath is widely regarded as one of the UK's most liveable cities and offers an excellent quality of life. In 1987 the entire city was inscribed on the UNESCO list of World Heritage Sites in recognition of its 'outstanding universal values'. This designation pays tribute to Bath's fascinating social history and to a range of remarkable features including its three hot springs, it's Roman archaeology and, not least, the harmony of sublime landscape setting, urban design, architecture and materials which reinvented the city in the 18th century. Indeed, by the end of that century, Bath was a recognised leader in the art of city-making. With its inspirational urbanism and architecture, its spa waters and its status as a centre for culture, pleasure and fashion, Bath kept ahead of competitors and its economy thrived.

Land use, socio economic, and demographic context

Today, Bath is a major economic hub within the West of England, acting as a key centre for employment and economic activity. The city contributed the majority of the economic output of £4.8 billion generated across the wider B&NES area in 2016. Further, B&NES was more productive than most benchmarks, achieving gross value added (GVA) per filled job of nearly £55,000, well above regional (<£51,000) and national (<£53,000) averages. B&NES also supports a buoyant tourist economy, driven by nearly 5 million day-trips and 1 million overnight trips by domestic and international visitors in 2014. In light of B&NES' strong economy, future economic growth and development in the region is earmarked for the city centre core as part of the Bath City Riverside Enterprise Area. This will further strengthen and build resilience in the B&NES economy.

The B&NES economy supported some 84,000 jobs in 2016. The sectoral split of employment in the area is presented in Table 2.1.

Around 30% of all employment in Bath is concentrated within the core of the city centre, with other main employment hubs including the universities and hospital. The hospital in particular attracts a high amount of car-based trips with 78% of staff and 74% of visitors travelling by car[9]. High value service sector jobs such as those within finance and insurance and information and communication are predominantly located within the city centre. Accommodation and food service activities account also account for a significant share of employment within the city centre.

Table 2.1: Sectoral Profile of Employment (Business Register and Employment Survey 2016)

Employment Sectors	Employment within the city centre	% of Employment within the city centre	Employment within Bath	% of Employment within Bath
Financial and insurance activities	1,200	5%	2,375	3%
Human health and social work activities	1,940	8%	14,630	9%
Accommodation and food service activities	4,680	19%	8,200	5%
Wholesale and retail trade; repair of motor vehicles and motorcycles	5,320	22%	13,320	9%
Education	1,215	5%	12,345	10%
Public administration and defence; compulsory social security	620	3%	1,975	2%
Other service activities	945	4%	2,020	2%
Information and communication	2,530	11%	4,145	4%
Real Estate activities	450	2%	1,520	1%
Professional, scientific and technical activities	2,080	9%	6,440	6%
Manufacturing	270	1%	4,330	4%
Construction	185	1%	3,985	4%
Transportation and storage	640	3%	1,305	1%
Arts, entertainment and recreation	900	4%	1,805	2%
Mining and quarrying	0	0%	30	0%
Electricity, gas, steam and air conditioning supply	0	0%	50	0%
Water supply; sewerage, waste mgmt. and remediation activities	0	0%	1,555	2%
Administrative and support service activities	1,030	4%	3,770	4%
Total	24,005	100%	83,800	100%

[9] https://www.bathnes.gov.uk/publisher/docs/90A3520AA88DFDC4DAB7483D0AB83678/Document-90A3520AA88DFDC4DAB7483D0AB83678.pdf

Tourism

Tourism plays a key role in the economy of Bath. It is widely recognised as a premier city break destination both domestically and in key overseas markets. The high quality of the public realm makes Bath an attractive and relaxing place to be. VisitEngland, the national tourism body, has endorsed this. However, York, Oxford and Chester rank higher than Bath as contemporary destinations.

Key facts about tourism in Bath include:

- 4.8 million day visitors to B&NES in 2014;
- Top attraction is the Roman Baths with 1 million visitors in 2015. £411 million was spent by tourists in B&NES in 2014, with over 9,000 people employed in the tourism industry;
- Research informing The Destination Marketing Strategy for Bath & North East Somerset indicates that on the whole those who visit have a very positive view of Bath with very few negatives[10];
- In 2018, Bath was the 11th most visited town or city in the UK by international staying visitors, welcoming an estimated 348,000 through the year. Large amounts of international visitors come from the USA (61,000), Germany (51,000), Italy (28,000), and Spain (25,000);
- It is estimated that Bath welcomed a further 419,000 day trip visits from international visitors, which is the fifth highest in the UK. Of these 55% were staying in London and 29% in the South West[11].

4.8m

DAY VISITORS TO B&NES IN 2014

£411m

SPENT ON TOURISTS IN B&NES IN 2014

11TH

MOST VISITED CITY IN THE UK IN 2018

419,000

DAY TRIP VISIT FROM INTERNATIONAL VISITORS

[10] Source: https://www.bathnes.gov.uk/services/your-council-and-democracy/local-research-and-statistics/wiki/tourism-and-visitor-economy

[11] Source: https://visitbath.co.uk/members/facts-and-figures/

Income deprivation and socio-demographics

While overall, Bath is an affluent city compared to other areas of the UK, there are pockets of income deprivation, particularly to the south and west of the city (Figure 2.1).

Figure 2.2- 2.5 shows the distribution of children, elderly, disabled, and residents without a car in the city.

Key issues & opportunities identified:

- Bath is one of the UK's most liveable cities, well known visitor destination, and World Heritage Site;
- Around 30% of all employment in Bath is concentrated in the city centre;
- Strong and diverse local economy. Relatively affluent compared to other areas of the UK;
- High student population (around 20% of residents);
- Need to manage and enhance the tourism offer, including ongoing to high quality public realm which is a key tourist attraction.

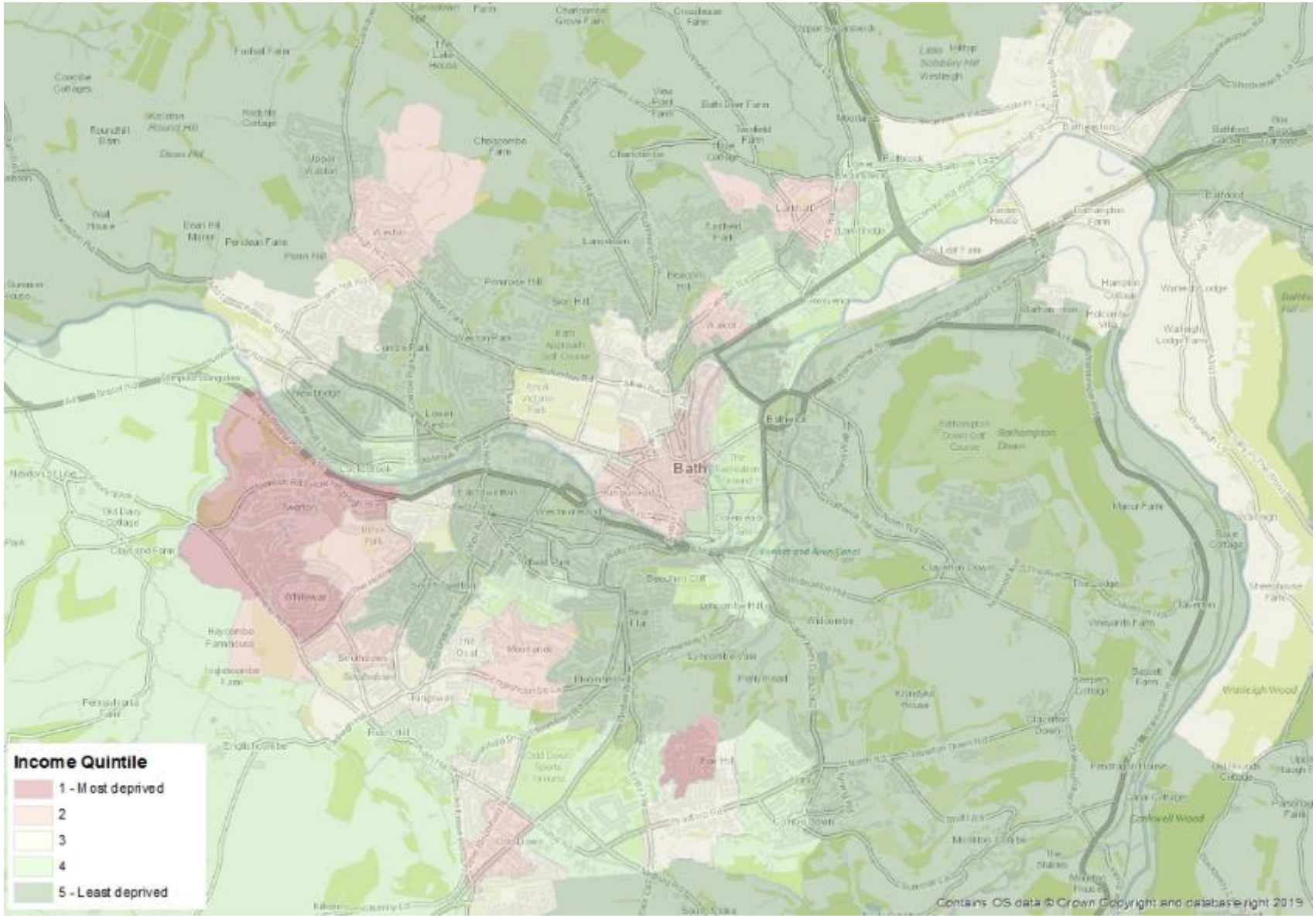


Figure 2.1: Income Deprivation in Bath

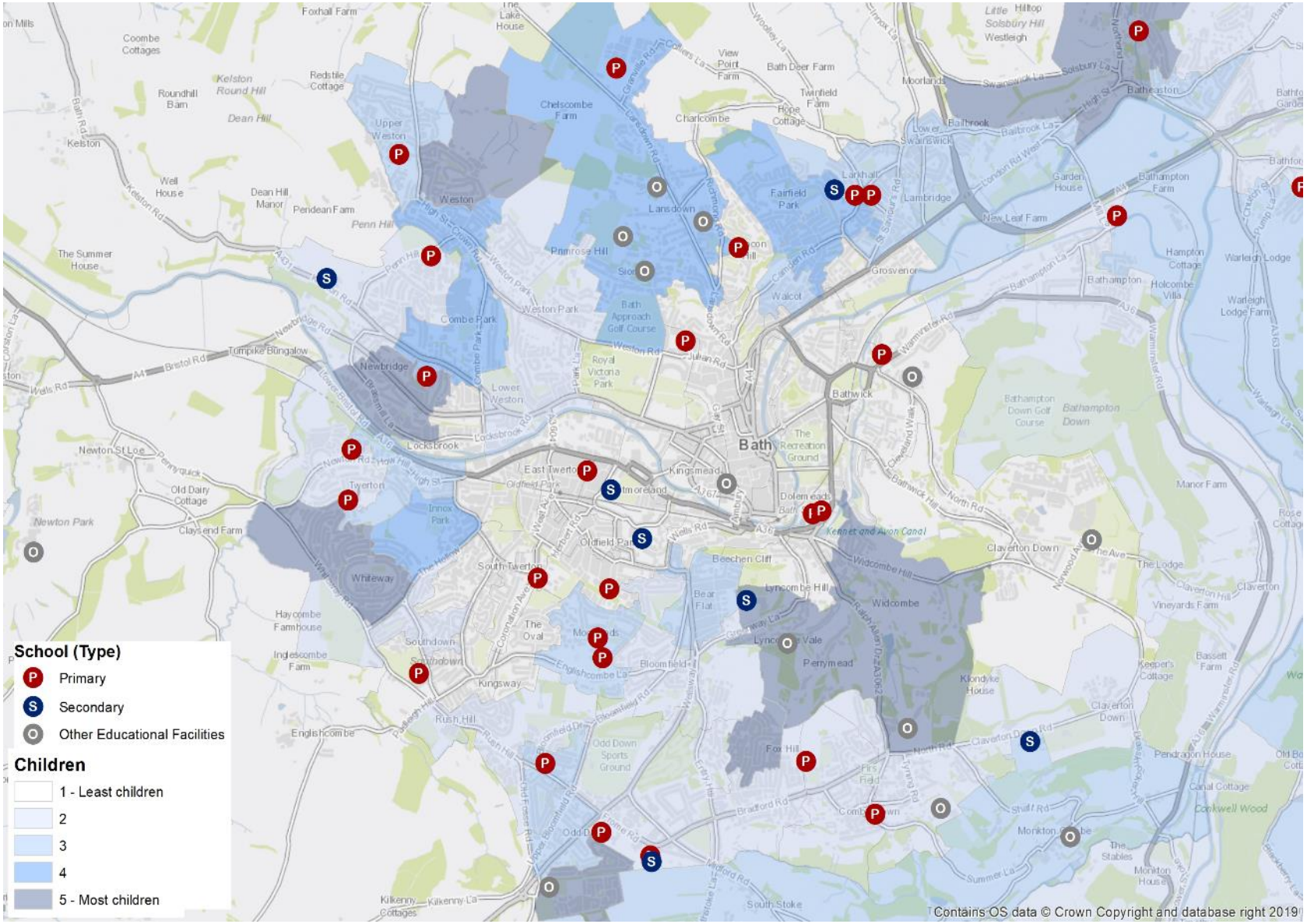


Figure 2.2: Distribution of children

Figure 2.3: Distribution of elderly

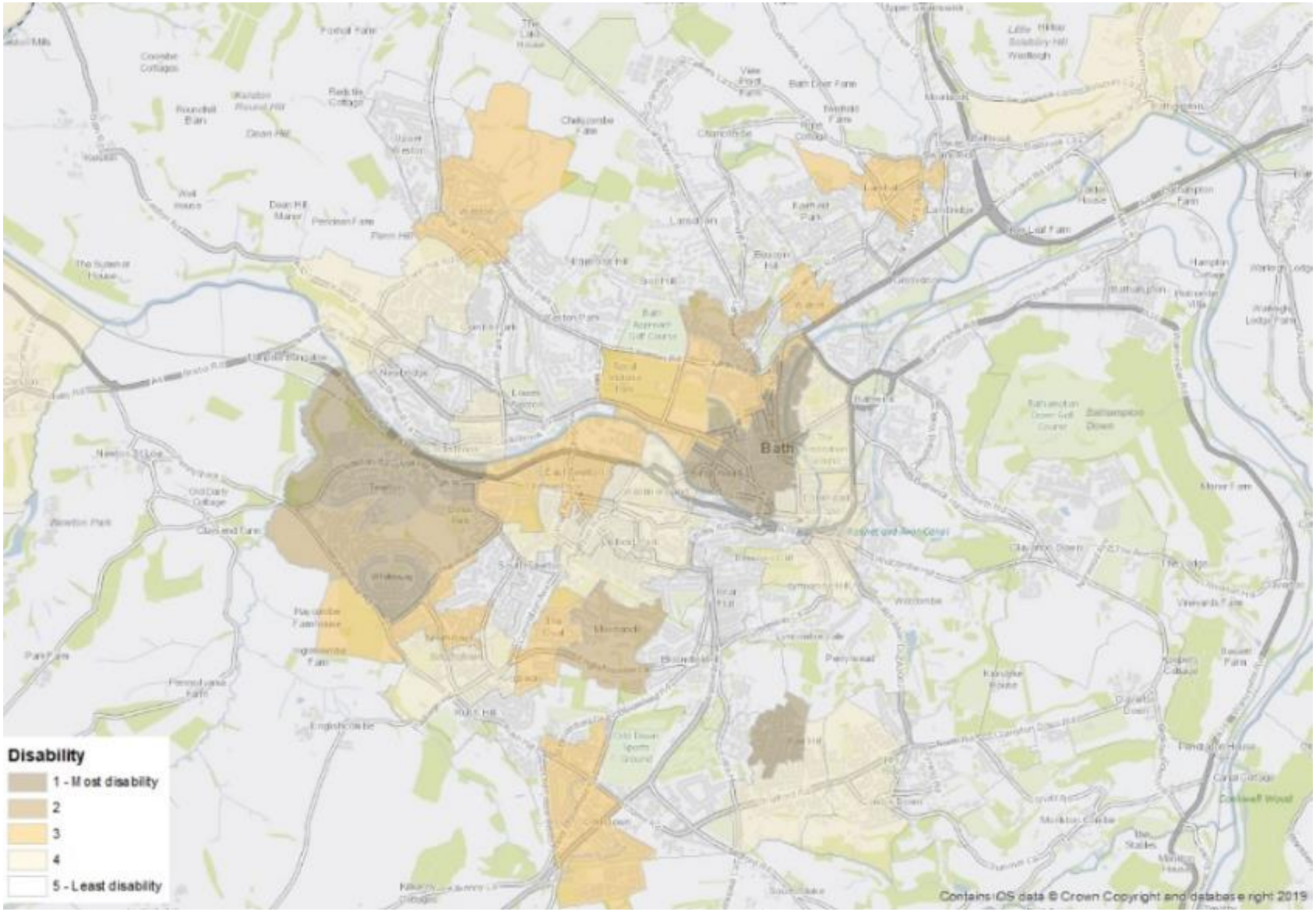


Figure 2.4: Distribution of disabled

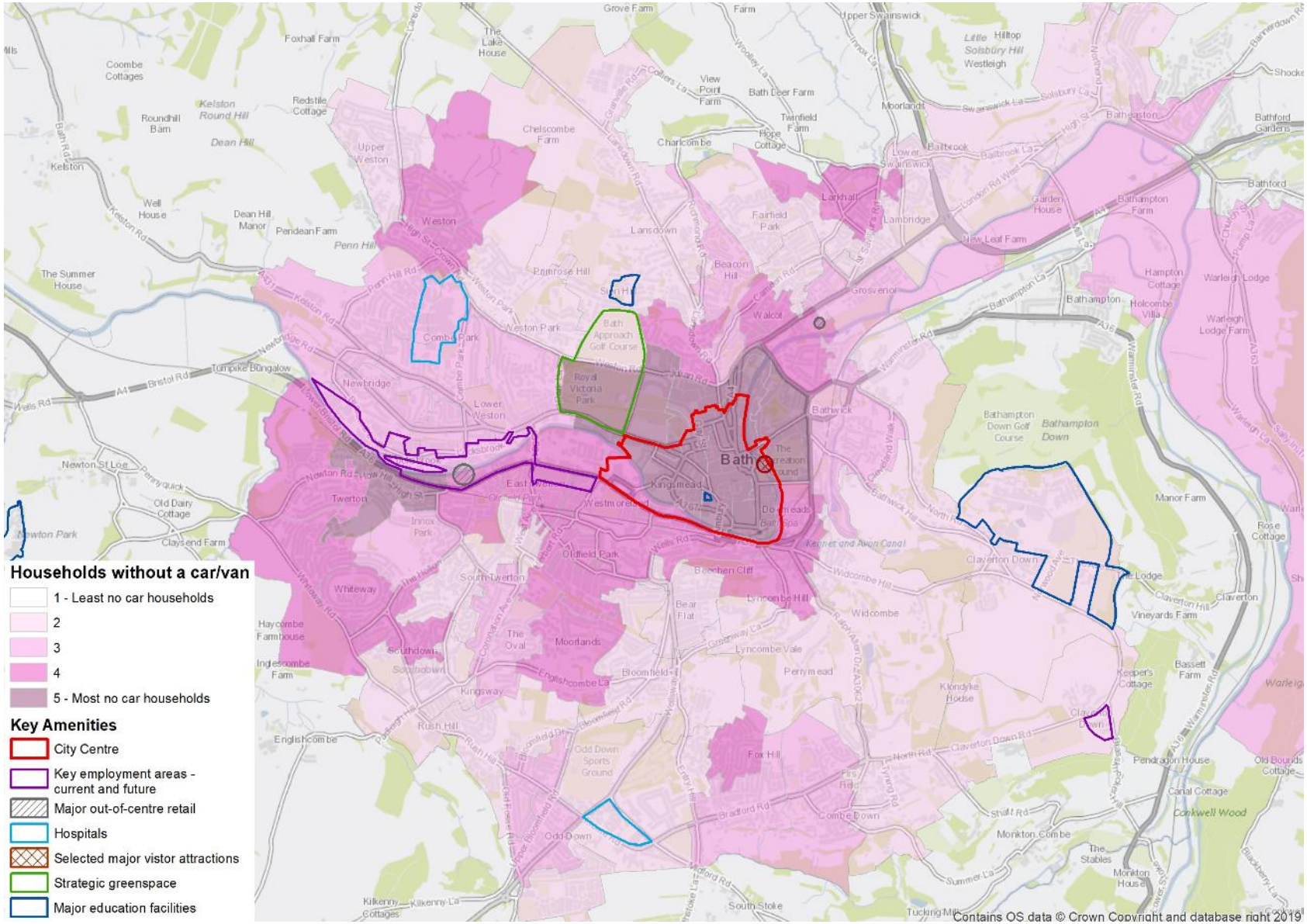


Figure 2.5: Distribution residents without a car

Physical and environmental constraints

Key constraint for many transport schemes is the width of the highway boundary, as associated with the narrow streets of a heritage city. Wider highway boundaries provide a greater range of opportunities in terms of the ability to improve public realm, cycle routes, bus lanes, or mass transit solutions.

Based on an assessment of highway widths undertaken as part of a previous study, the following characteristics were identified:

- From the west, the A36 and A4 are relatively wide, with pinch points including the bridge near Newbridge Park & Ride. The A431 has significant width constraints, particularly through Kelston;
- From the east, the A4 London Road is relatively wide, while the A36 Warminster Road, the A363 and the area around University of Bath all have width constraints;
- From the north, the route is generally wide, with some constraints towards Lansdown;
- From the south, the A367 from Odd Down is relatively wide, while the A3062 is narrow, with pinch points through Combe Down.

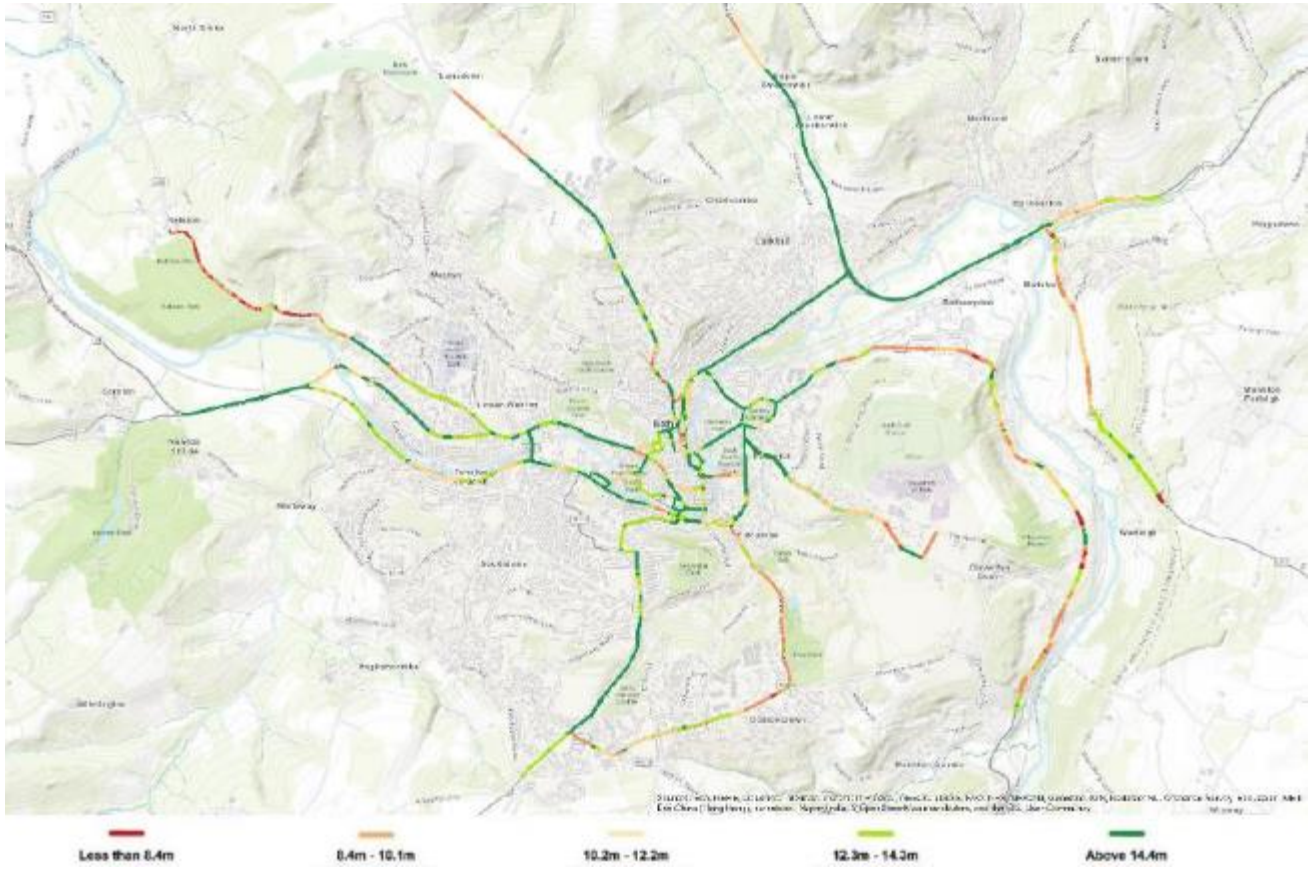


Figure 2.6: Highway Widths in Bath (Source: The potential introduction of trams in Bath, Atkins 2017)

The majority of highway widths in the city centre are above 10.2 m, with pinch points east of Queen Square (Charlotte Street and Monmouth Place). There are also highway width constraints to the north of the city centre at Broad Street/ Walcot Street.

Steep gradients is another typical constraint to many transport options associated with such a hilly city centre, for example it could deter people from walking and cycling, could make delivery of some light rail options challenging, and caused issues for previous electric bus trials due to the high battery usage on uphill sections of routes.

Figure 2.7: Highway Widths in Central Bath (Source: The potential introduction of trams in Bath, Atkins 2017)

The following characteristics were identified:

- From the north, there are significant gradients north of the city centre on Lansdown Road;
- There are also steep gradients on the A46 through Upper Swainswick as well as on the approach to the A4/A46 junction;
- From the south, the A367 varies in gradient, while there are steep gradients on the A3062 near to Prior Park;
- Steep gradients are present on the majority of BathwickHill towards the University of Bath to the east of the city centre.

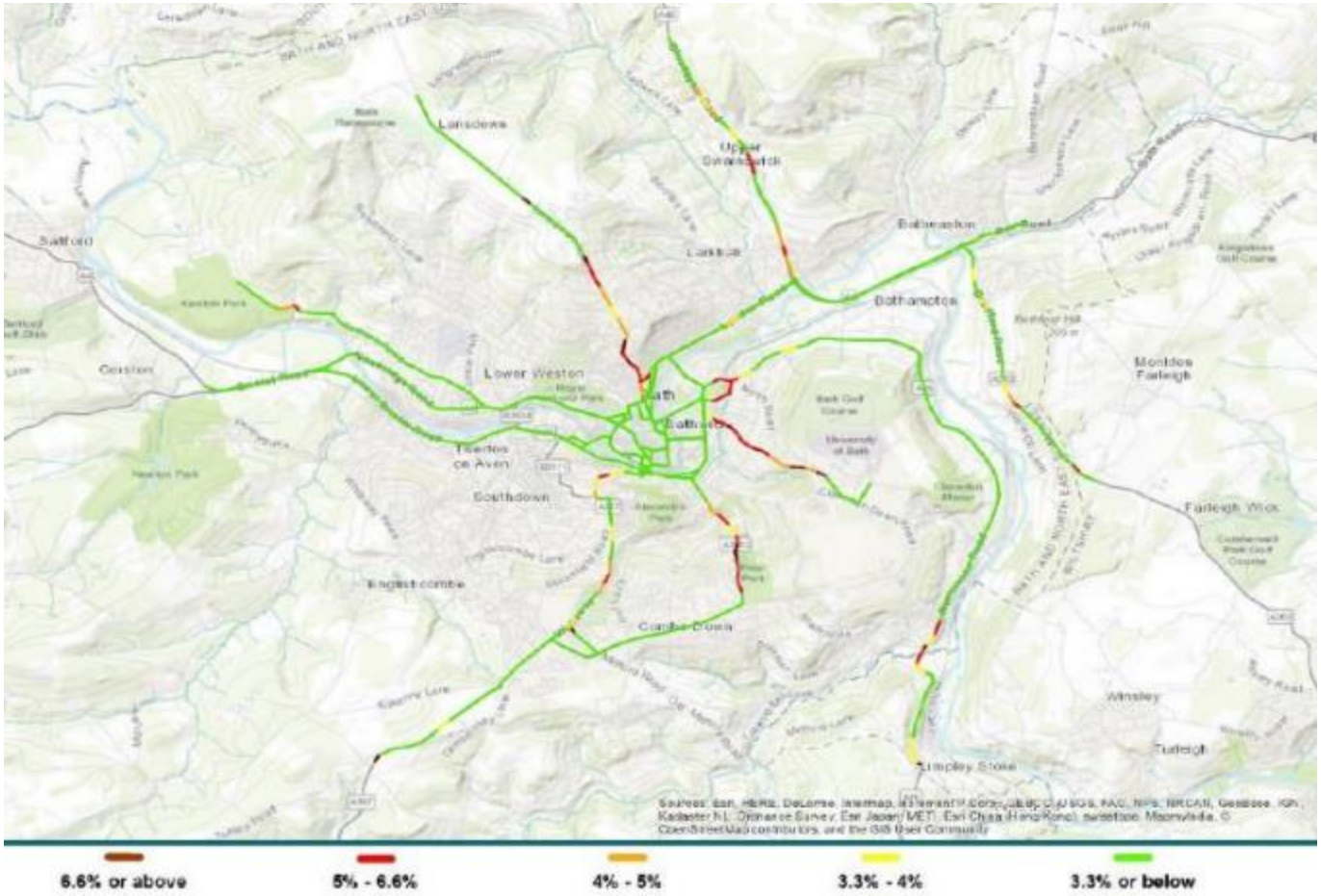


Figure 2.8: Gradients in Bath (Source: The potential introduction of trams in Bath, Atkins 2017

Three key environmental indicators were mapped: the Cotswold Area of Outstanding Natural Beauty (AONB), Green Belt and flood zone designations. The Bath Air Quality Management Area (AQMA) is also added for reference.

Green Belt surrounds Bath's built up area. This could affect the delivery of schemes on the periphery of Bath.

The Area of Outstanding Natural Beauty covers the south, east and north of Bath.

Flood zones follow the River Avon and run through the city centre. These would need to be considered for city centre based schemes.

The AQMA covers significant sections of the city centre and approach corridors, and schemes impacting on these areas would need to consider air quality impacts during construction and operation.

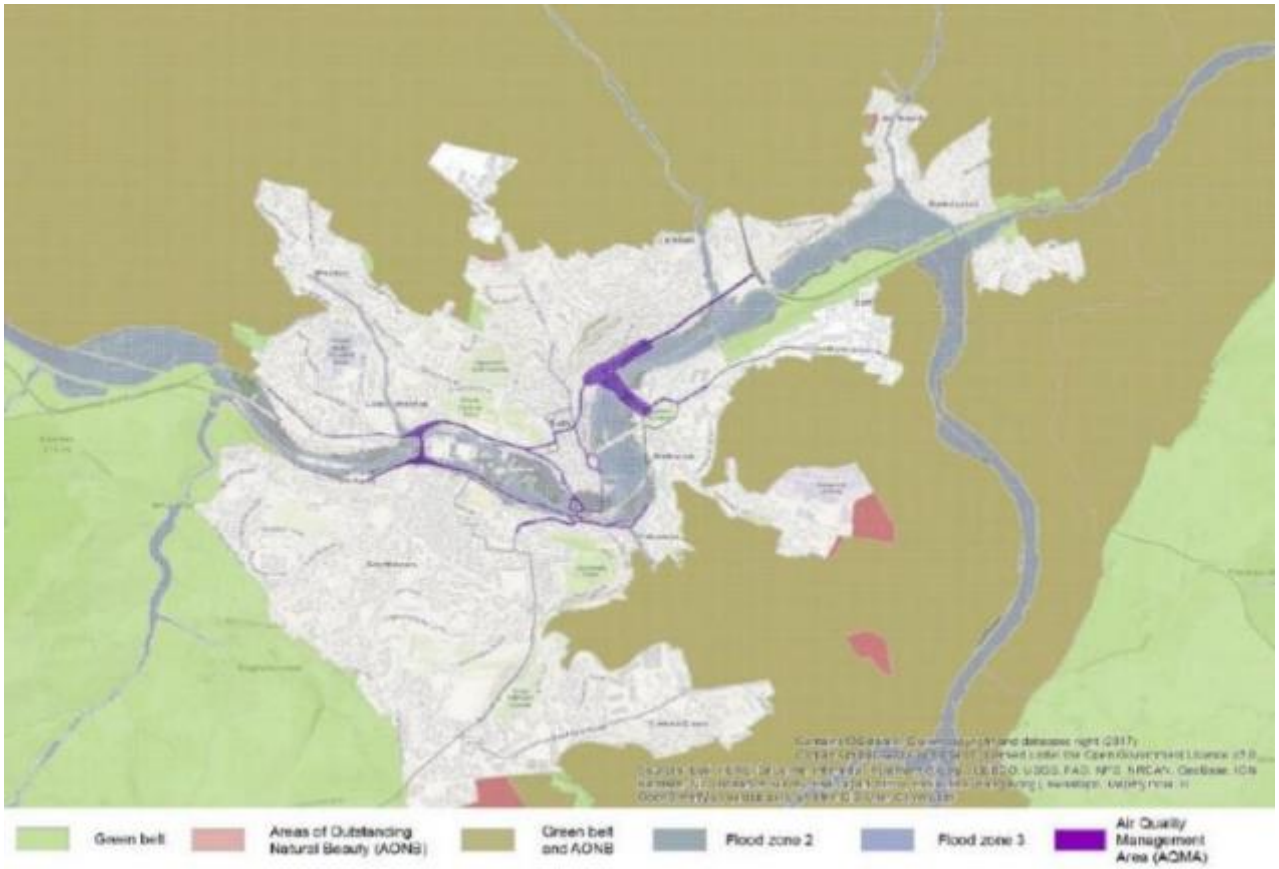


Figure 2.9: Environmental constraints (Source: The potential introduction of trams in Bath, Atkins 2017)

Heritage

With over 5,000 listed buildings, Bath has one of the highest concentrations of listed buildings in the country and a number of scheduled monuments including Bath City Walls, Palladian Bridge/Prior Park, The Eastgate, The Roman Baths and site of Roman town. On the outskirts of Bath, are further listed buildings and scheduled monuments including Beckford Tower, Bathampton camp and Solsbury Hill camp.

World Heritage Sites are defined as "places of outstanding universal value to the whole of humanity". UNESCO added The City of Bath as a "cultural site" to its World Heritage List in 1987, due to its Roman Remains, 18th Century Architecture, 18th Century Town Planning, Hot Springs, and Landscape Setting.

The City of Bath World Heritage Site Management Plan (2016-2022) priorities are:

- Managing Development;
- Transport;
- Public Realm;
- Interpretation and Education; and
- Environmental Resilience.

In terms of transport, the plan states that the congestion poses a major issue for the World Heritage Site (WHS) having detrimental impacts on air quality, residents and businesses. The plan sets out a series of objectives relating to transport including promoting less car use, reducing the impact of major road traffic routes, and continuing to implement public realm improvements.

The high concentration of listed buildings may act as a constraint for some transport options. In addition, several areas of central Bath have historic cellars that run under the streets, for example there are cellars under the majority of Manvers Street, and this may make delivery of some transport options more complex.

Key issues & opportunities identified:

- Limited highway widths and steep gradients on some key corridors will constrain some transport options;
- Need to consider environmental constraints including green belt, AONB, Air Quality Management Area, and Flood Zones particularly in the city centre;
- Congestion poses a major issue for the World Heritage Site having detrimental impacts on air quality, residents and businesses. There is a need to promote less car use and reduce the impact of traffic to protect and enhance the World Heritage Site and its setting.

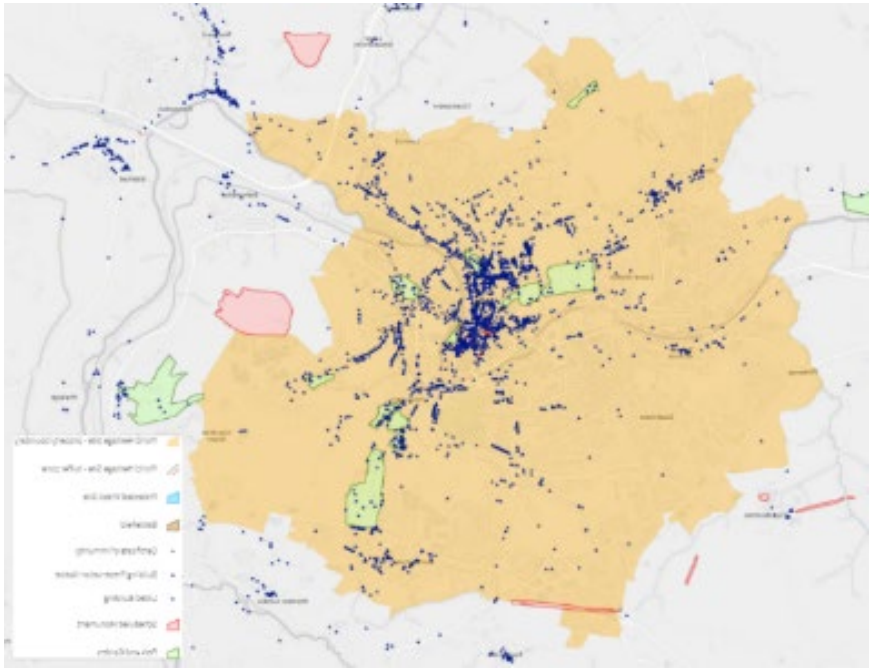


Figure 2.10: Heritage and Listed Buildings (Source: https://historicengland.org.uk/listing/the-list/map-search?clearresults=true)

2.2 Current levels of travel demand and transport issues

The following section outlines current levels of transport demand and transport issues in Bath, presenting a range of data exploring key issues. The section seeks to answer:

- Why we travel?
- Who is travelling?
- Where we travel?
- How we travel? With a detailed look at...
  - Walking
  - Cycling
  - Bus
  - Park & Ride
  - Coach
  - Train
  - Motor Traffic
  - Electric Vehicles
  - Parking
  - Freight & Taxis
  - Broadband
- What are the impacts of our travel?

Why we travel?

The average person living in England in 2018 made 986 trips, travelling 6,530 miles, and took 377 hours to do so. Or put another way, made an average of 2.7 trips per day, taking an average of 23 minutes per trip[12]. In England, 68% of trips are under 5 miles.

While the time people spend travelling has remained stable since at least the 1970's, the average distance travelled has grown by around 50%, largely as a result of increasing car availability and use (Figure 2.11). This indicates that in the long run people take advantage of better transport infrastructure to access additional destinations, rather than reduce the amount of time they spend travelling. That is, people are typically making around the same number of trips but travelling further due to the improved transport options available.

Trends in trips, miles travelled and hours spent travelling: 1972/73-2018

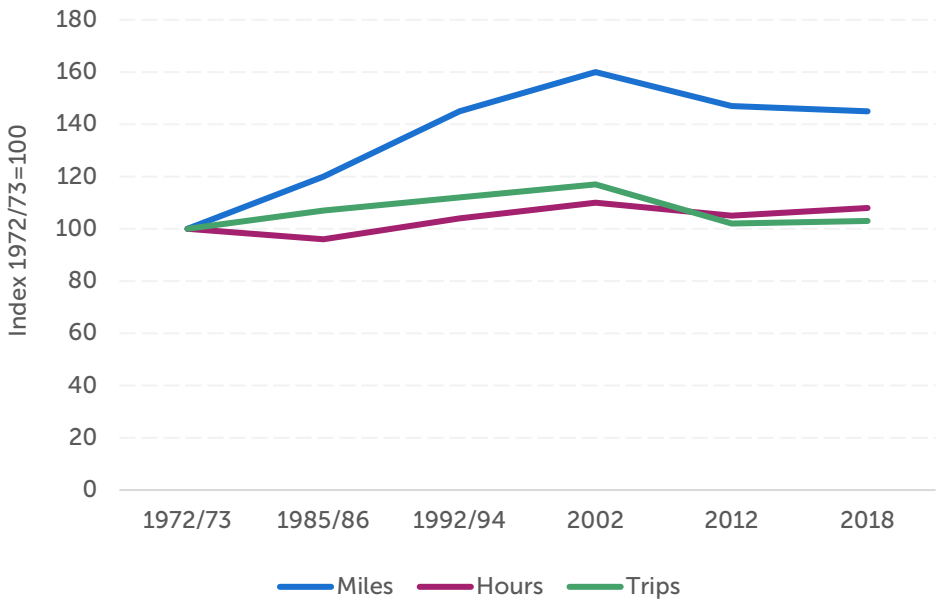


Figure 2.11: Trends in trips miles travelled and hours spent travelling in England

Commuting and leisure trips account for the most miles travelled, and these trip types tend to be the longest, with shopping and personal business trips accounting for a much smaller amount of total distance (Figure 2.12).

Average miles travelled per person per year for selected purposes: England, 2002-2018 [NTS0403]

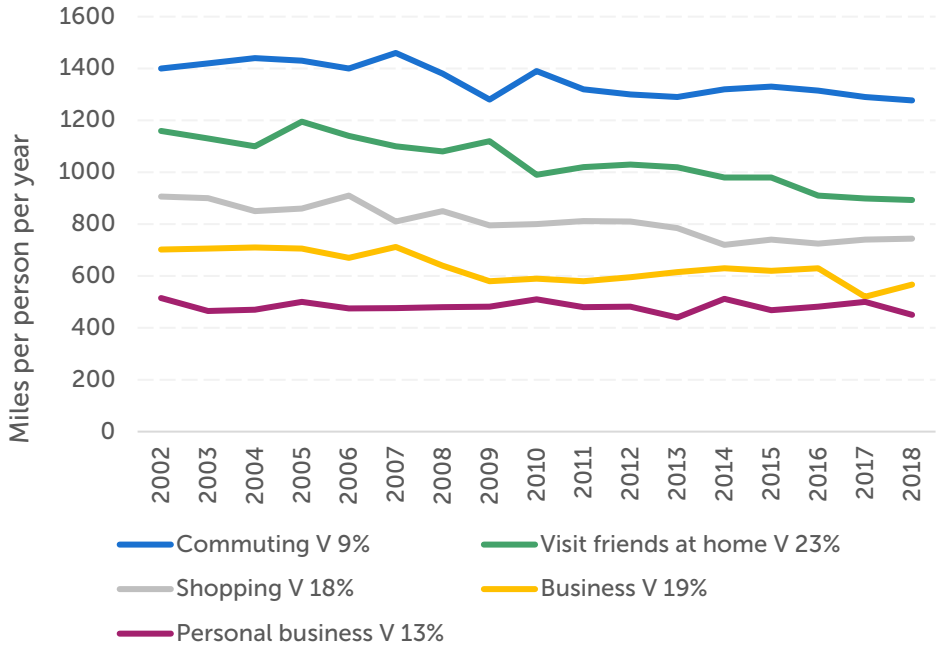


Figure 2.12: Average miles travelled per person per year for selected purposes in England

Analysis of local B&NES data from the National Travel Survey suggests that B&NES broadly follows the national trends set out above. Further detail on local trip purposes in Bath was obtained during Road Side Interview surveys undertaken in 2014. This survey showed that the majority of motor vehicle trips within Bath are commuting trips, with smaller volumes of business, education, and personal business trips such as visiting the local bank, dentist or doctor (Figure 2.13). During the peak periods in particular the majority of motor vehicle traffic is due to commuting trips (Figure 2.14).

[12] Source: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/823068/national-travel-survey-2018.pdf

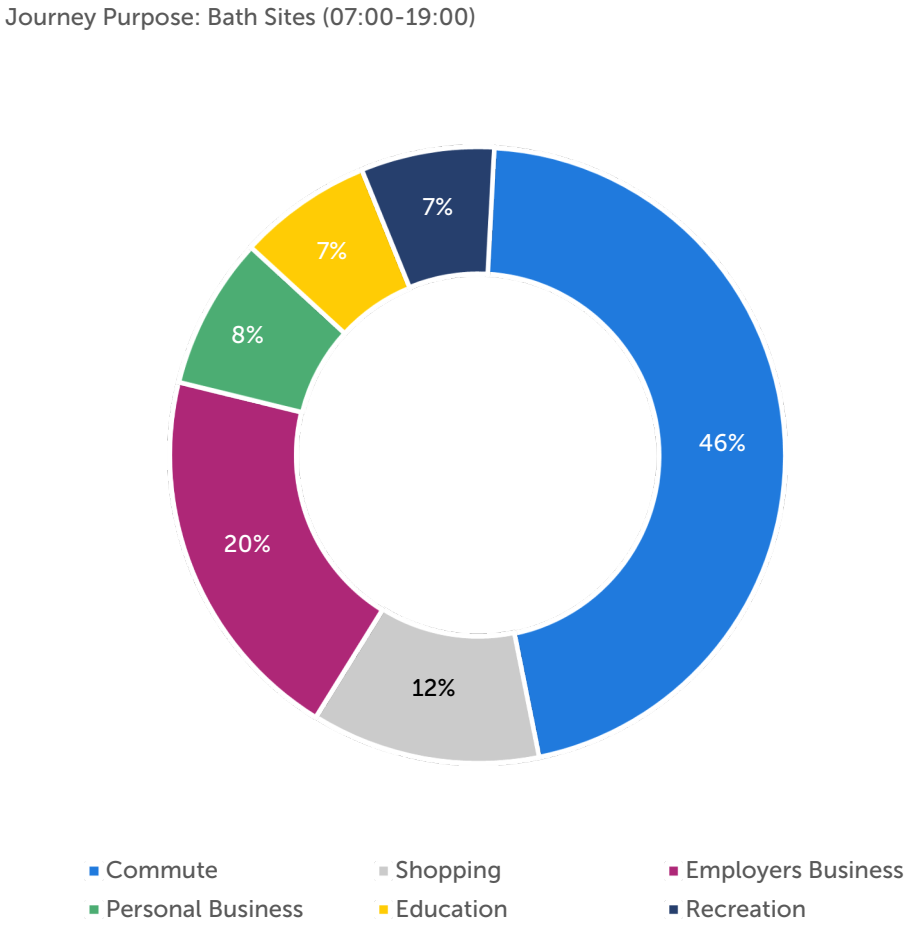


Figure 2.13: Journey Purpose: Bath RSI Sites 2014 (07:00-19:00)

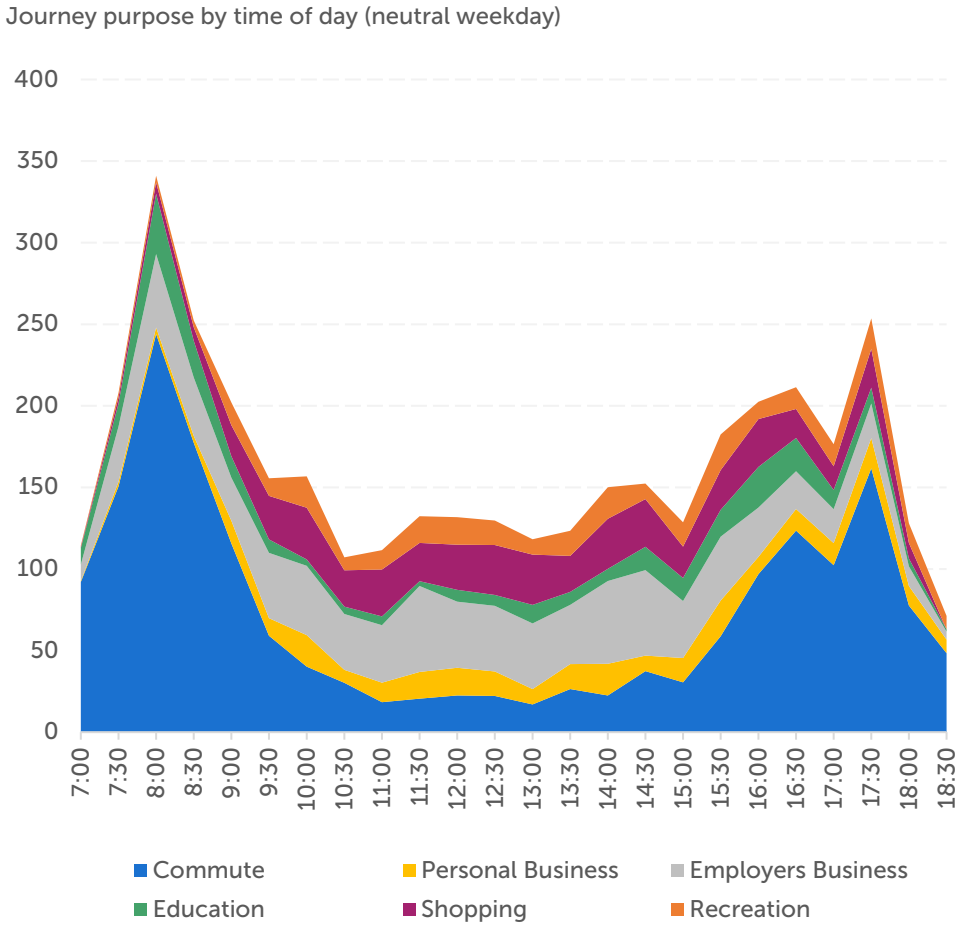


Figure 2.14: Journey purpose by time of day in Bath (Neutral weekday 2014)

Who is travelling?

Why we travel is strongly correlated to who is travelling, in terms of income, gender, and age. People in the highest household income group travel more than twice as far as people in the lowest, which is mostly down to higher car use in the higher income groups.

Table 2.2: Method of travel to work (2011) by Income Deprivation (BANES)

Income Quintile	1 Most Deprived	2	3	4	5 Least Deprived
Work mainly at or from home	5%	10%	10%	13%	15%
Train	2%	3%	3%	3%	4%
Bus, minibus or coach	14%	8%	7%	6%	5%
Driving a car or van	46%	49%	54%	57%	50%
Passenger in a car or van	8%	5%	5%	5%	4%
Bicycle	4%	3%	3%	3%	3%
On foot	19%	20%	17%	13%	16%

Table 2.3: Method of travel to work (2011) by Gender (BANES)

Mode	Men	Women
Work mainly at or from home	14%	11%
Train	4%	3%
Bus, minibus or coach	4%	9%
Driving a car or van	54%	51%
Passenger in a car or van	4%	5%
Bicycle	4%	1%
On foot	13%	19%
Other	3%	1%

Key issues & opportunities identified:

- Overall trend of increasing trip distance over the last 30 years;
- Commuting, visiting friends, and shopping account for most distance travelled, whereas business and personal business account for the least distance travelled;
- The majority of peak hour congestion in Bath is caused by commuting trips;
- People in the highest household income groups travel furthest and are more likely to travel by car;
- Men and middle-aged people are more likely to travel by car than women or other age groups.

In England, women make more trips than men, but men travel 25% further. This partly reflects differences in the type of trips made. Women make more trips for shopping and escort education, which tend to be relatively short, whereas men make more commuting trips which tend to be longer.[13]

Finally, middle aged people are more likely to travel further than younger and older people. As shown in Figure 2.15, driving a car to work in B&ANES currently peaks between the ages of 35 to 59. Younger people are more likely to travel by bus, be a passenger in a car, or walk. Older people are more likely to work from home and travel by bus.

[13] To view more National Travel Survey results visit: www.gov.uk/government/collections/ national-travel-survey-statistics

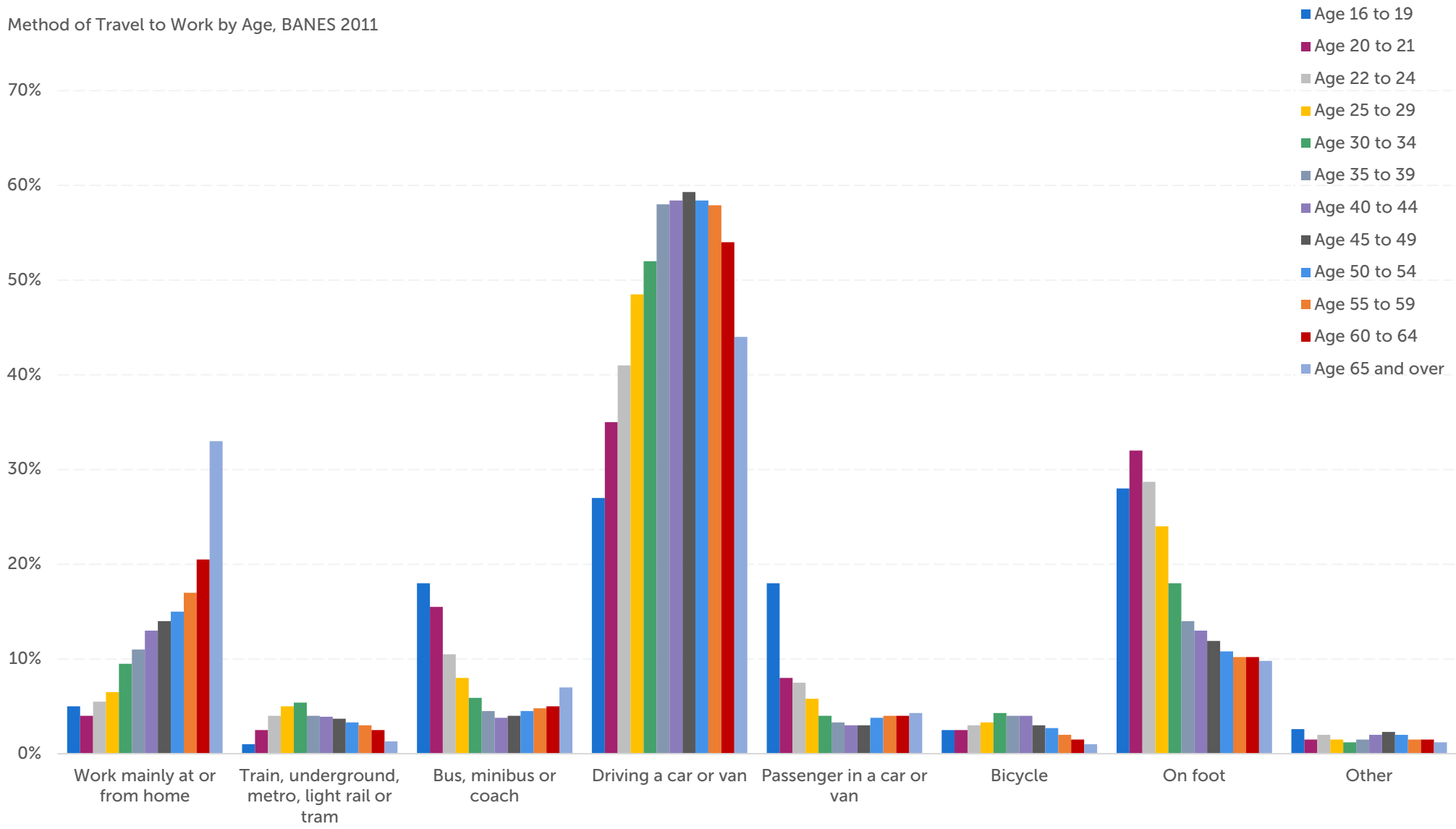


Figure 2.15: Method of Travel to Work by Age, BANES 2011

Where we travel?

Figure 2.16 below shows the total travel to work flows for the City of Bath from the 2011 Census. Over 20,000 residents live and work within Bath. There is a net inflow of a further 16,000 workers per day, with large numbers of people coming from the rest of BANES, Wiltshire and South Gloucestershire, and Bristol.

Conversely, significant numbers of people leave Bath to work in Bristol, the rest of BANES, and Wiltshire. Given these figures, the Transport Delivery Action Plan for Bath is as much about transport improvements across B&NES and Wiltshire as it is about the city of Bath itself.

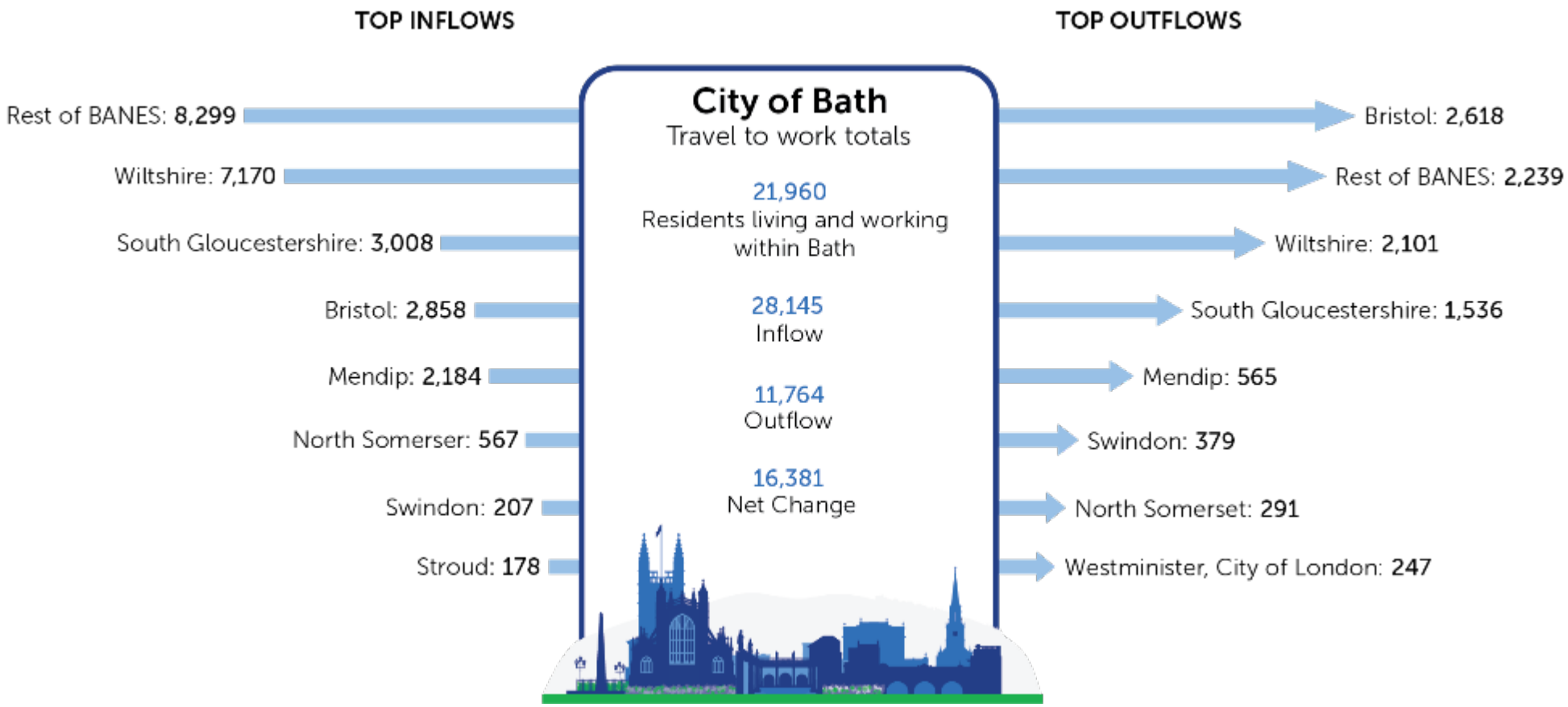


Figure 2.16: City of Bath Travel to Work totals

Figure 2.17 shows the origins of residents that drive to work in Bath.
The figure shows that

75%

of people driving to work in Bath do so from outside the city boundary.

Large numbers of residents drive to work from the rural areas immediately surrounding BANES, particularly to the south using the A367 corridor. Over 5,000 people also drive in to Bath from Wiltshire, highlighting the importance of cross boundary working beyond the West of England.

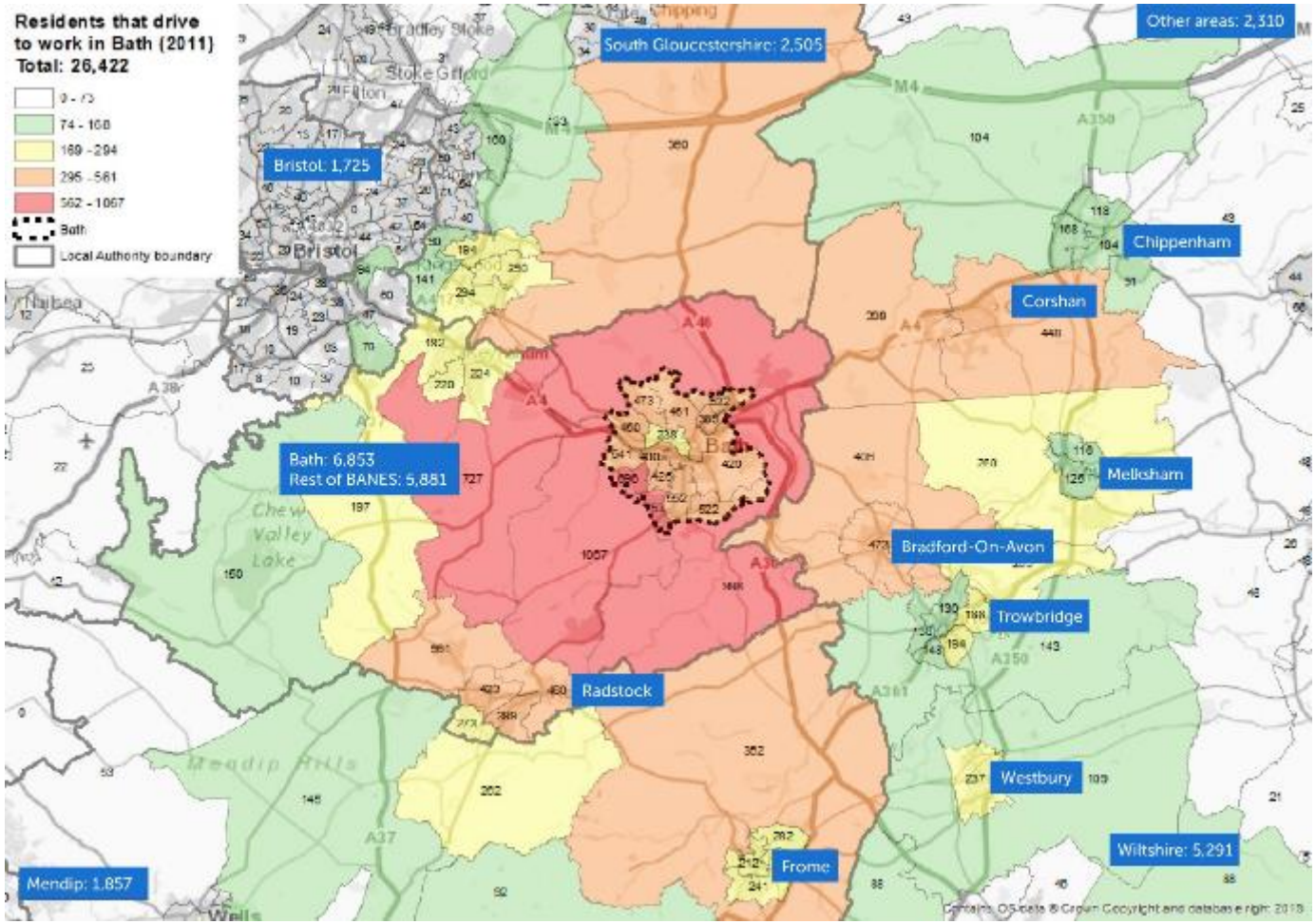


Figure 2.17: Residents that drive to work in Bath (2011)

The distance challenge

In order to respond to the Climate Emergency it will be crucial to reduce the overall distance travelled by motor vehicles, in addition to conversion to electric vehicles. It is therefore important to understand longer distance trips and how to influence them. As noted above, while the number of trips and time travelled per person has remained constant, distance travelled has increased by 50% since the 1970's, partly due to increased mobility and speeds offered by the private car.

Method of transport to work BANES

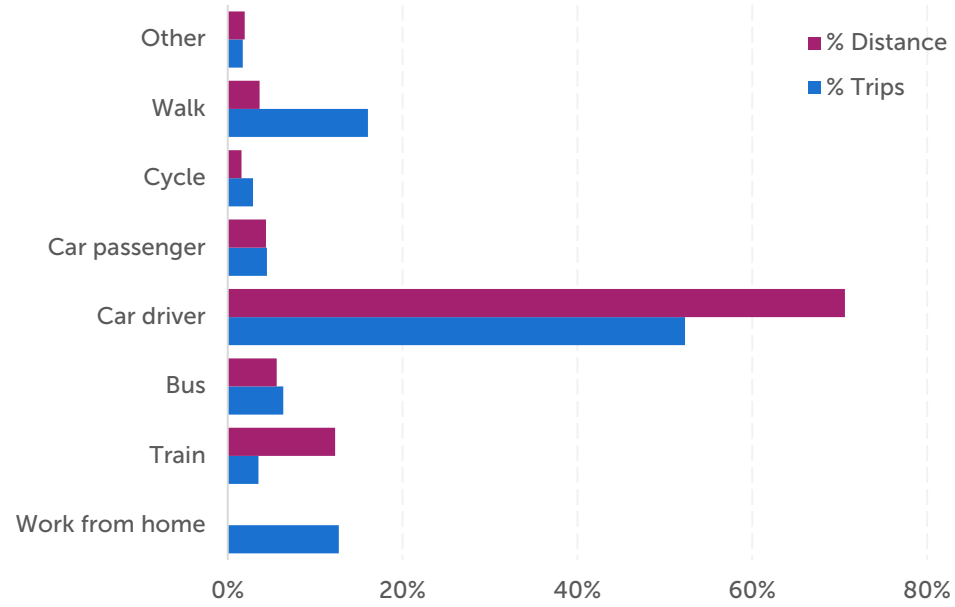


Figure 2.18: Method of transport to work in BANES 2011, by trips and distance

As could be expected, Figure 2.18 shows that car and train trips by Bath residents are typically longer than walking, cycling, and bus trips. In total, car driver trips account for 52% of total commute trips, but 71% of total commute distance.

Figure 2.19 shows that of these car commute trips, the majority (83%) of distance comes from trips over 10 km. 22% of total distance is due to 4% of long-distance commuters driving over 60 km to work. While 35% of car trips within BANES are less than 5 km whilst these contribute to congestion and poor air quality, they account for just 7% of total distance travelled. In order to tackle the Climate Emergency, additional focus needs to be placed on shifting or reducing the distance travelled by these longer trips, particularly trips over 10 km long. Figure 2.19 highlights that the climate emergency won't be tackled through increased walking and cycling along, and there is a need to focus on longer distance trips through improved bus services, car sharing, electrification of the fleet, working from home, and other measures.

Car commute trips and distance BANES

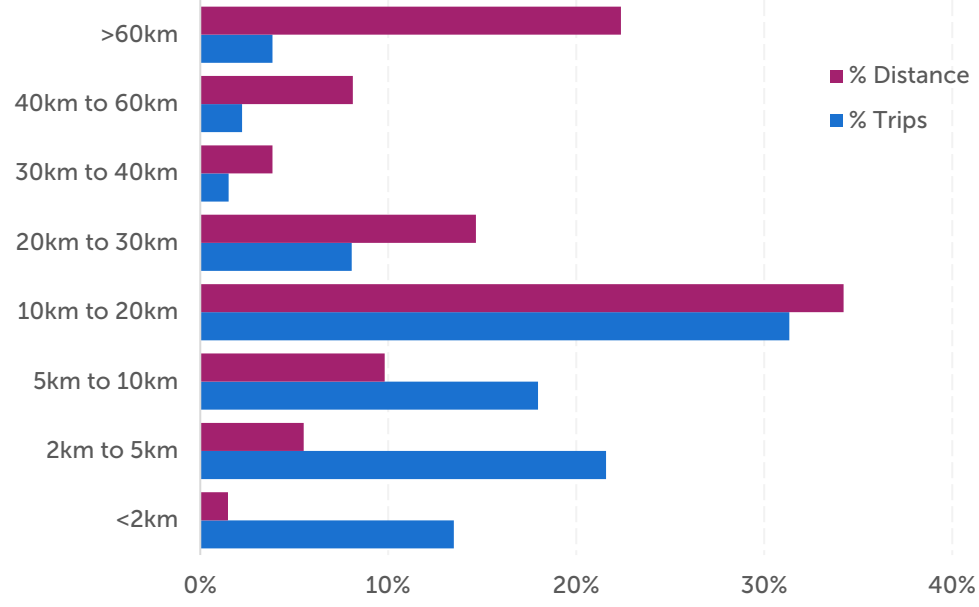


Figure 2.19: Car commute trips and distance BANES (2011)

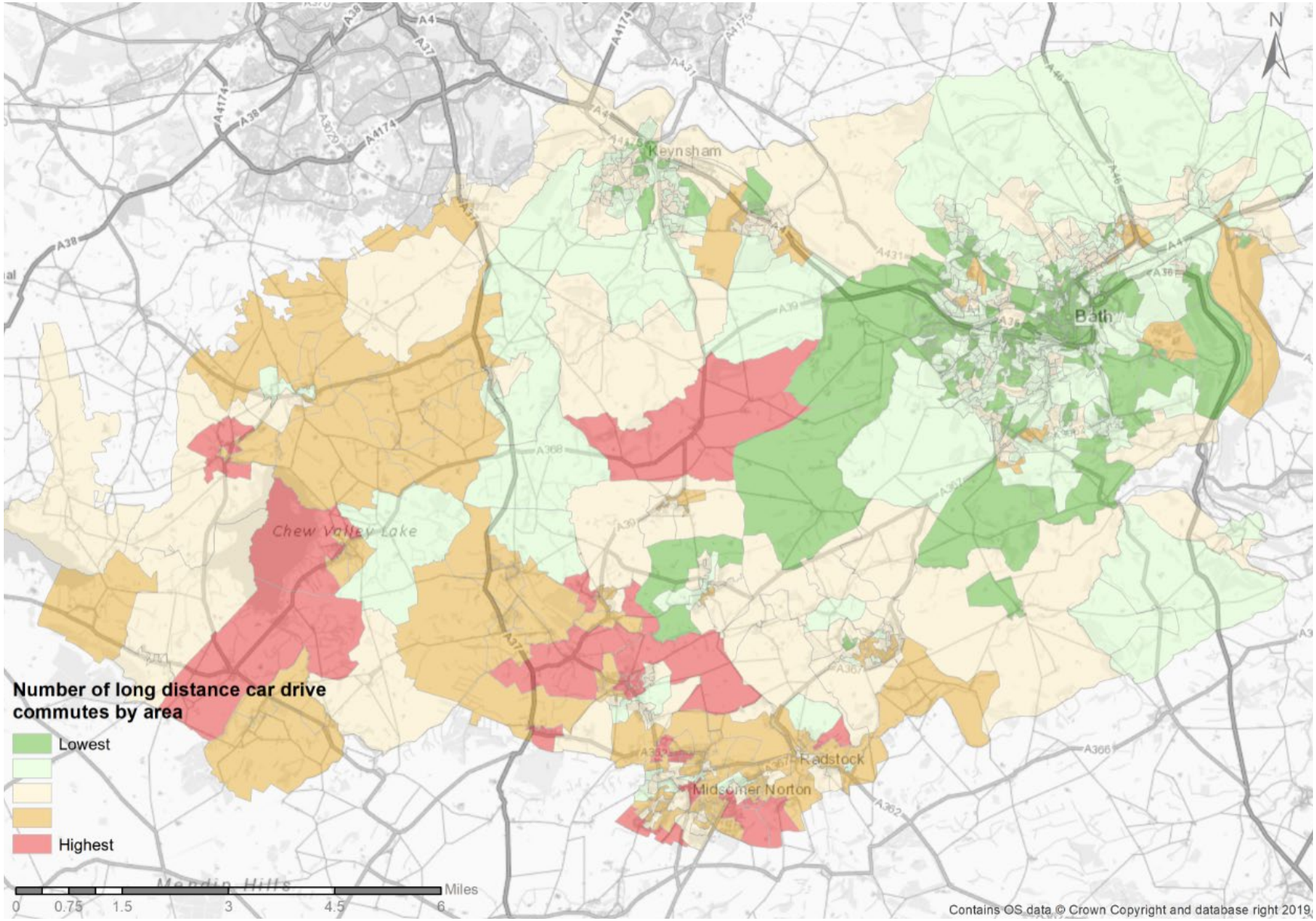


Figure 2.20: Number of long-distance car drive commutes by area (2011)

Figure 2.20 shows that the majority of people making these long-distance car trips do not live in Bath, but in more rural areas including Chew Valley and around Midsomer Norton. Bath is the main destination for longer distance commute trips from these locations, with Bristol also acting as a significant destination.

Key issues & opportunities identified:

- A high proportion of the Bath workforce live in Bath, with significant levels of in-commuting from the Rest of BANES, Wiltshire, South Gloucestershire, and Bristol. Therefore, to tackle transport issues within Bath there is a need to improve transport options to the surrounding areas;
- 75% of people driving to work in Bath do so from outside of the urban area, with high numbers of people driving to work in Bath from the rural areas surrounding the city within BANES and Wiltshire;
- Longer distance car and train trips account for the vast majority of distance travelled. While 35% of car trips within BANES are less than 5km, these account for just 7% of total distance travelled. 4% of residents travelling over 60 km to work account for over 20% of total distance travelled.

How we travel?

Figure 2.21 shows the method of travel to work for Bath residents, **with the majority (61%) of people travelling by sustainable modes of transport in 2011.**

Compared to leading livable cities of similar size in the UK, such as Oxford and Cambridge, Bath has high levels of car use and significantly lower levels of cycling, but higher levels of walking and working from home (Table 2.4).

Table 2.4: Method of Travel to Work 2011, Bath, Cambridge & Oxford

Method of travel	Bath	Cambridge	Oxford
Work mainly at or from home	12%	11%	10%
Train	5%	5%	2%
Bus, minibus or coach	8%	6%	16%
Driving a car or van	39%	30%	32%
Passenger in a car or van	4%	3%	3%
Bicycle	4%	29%	17%
On foot	25%	15%	17%
Other	2%	2%	2%
Sustainable Mode Total (i.e. not driving a car/van)	61%	70%	68%

Figure 2.22: People working in Bath, Method of Travel to Work 2011 shows the method of travel to work for people that work in Bath. As could be expected there is a higher proportion of people driving to work, reflecting the relatively high levels of in-commuting by car from the surrounding rural areas, towns and villages.

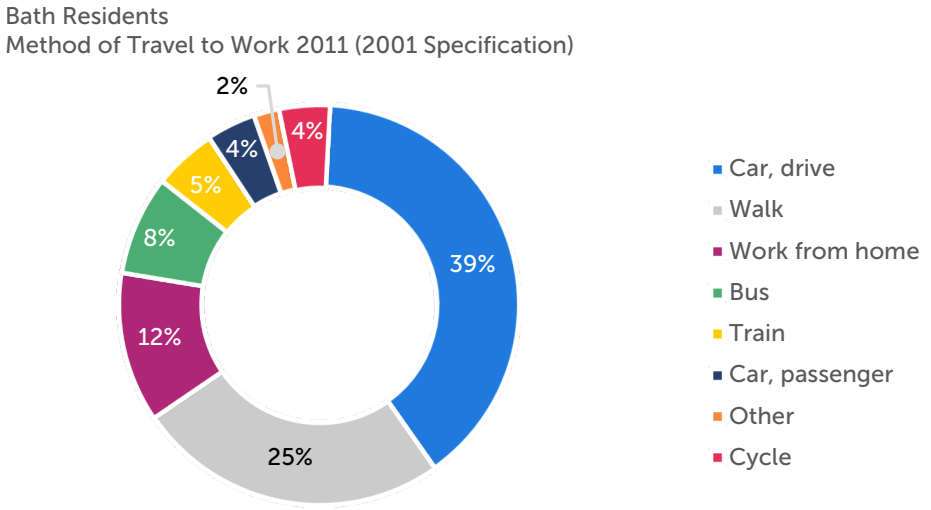


Figure 2.21: Bath Residents Method of Travel to Work 2011

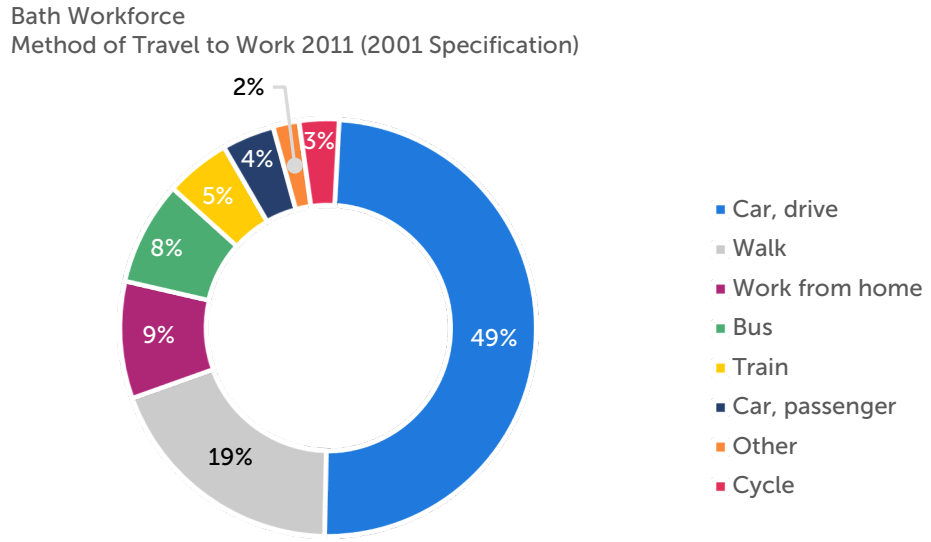


Figure 2.22: People working in Bath, Method of Travel to Work 2011

Since 2011, use of sustainable modes of transport has continued to rapidly grow (Figure 2.23), and the proportion of car commute trips made by Bath residents is now likely to be around 30%.

Across B&NES, this growth has meant the overall percentage of people driving to work has now likely dropped to below 50%, in part due to a growing population and increases in cycling, bus, and rail use (Figure 2.24).

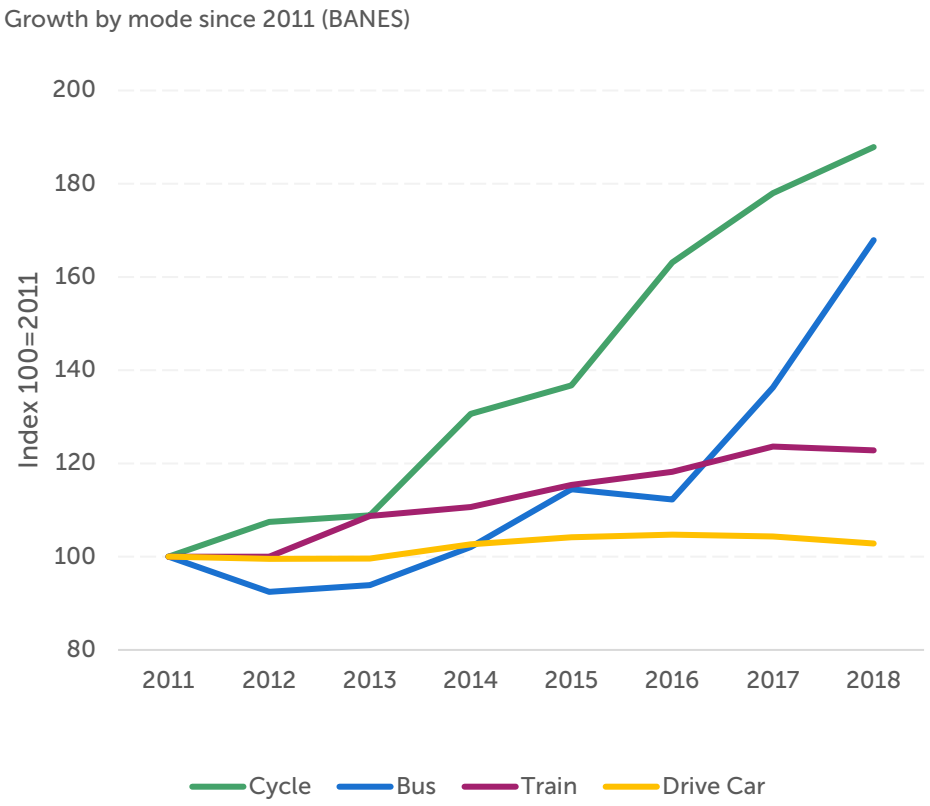


Figure 2.23: Growth by mode since 2011 (BANES)

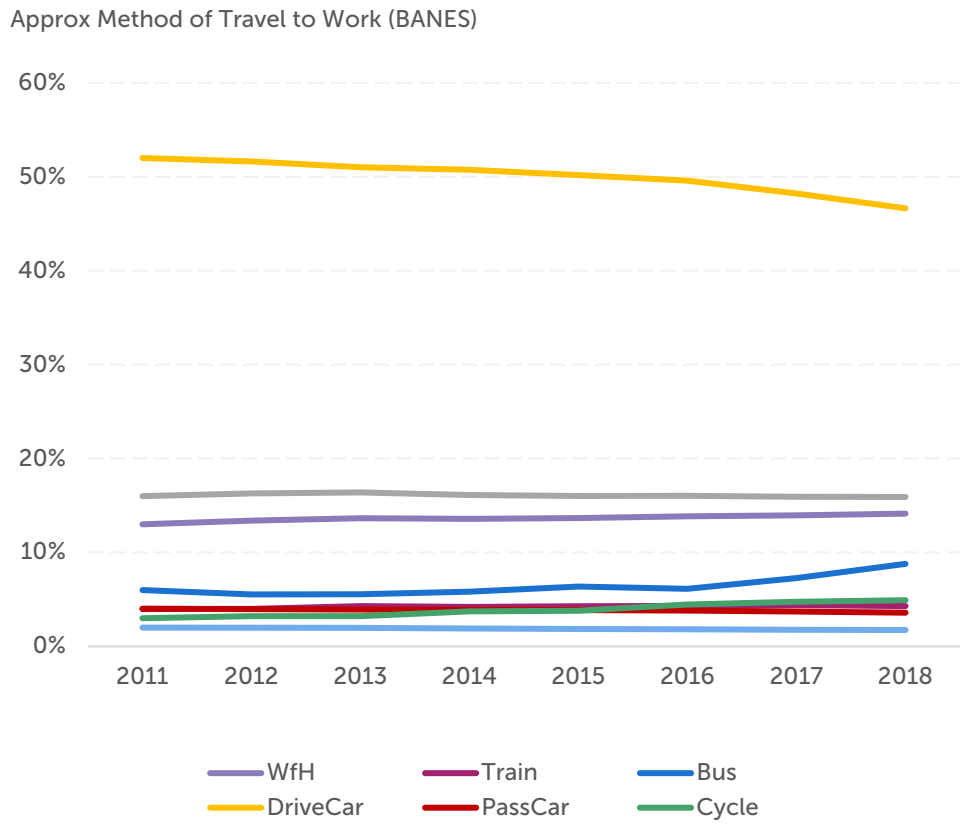


Figure 2.24: Approx. Method of Travel to Work (BANES) 2011-2018

For school travel in Bath, walking is the most popular mode, although a third of trips were made by car (Figure 2.25). Pupils were asked how they would prefer to travel to school, and the results show a strong preference for increased cycling and scooting, and less walking and driving to school (Figure 2.26).

Key issues & opportunities identified:

- Compared to leading liveable cities of similar size in the UK, such as Oxford and Cambridge, Bath has high levels of car use and low levels of cycling, but higher levels of walking and working from home;
- Since 2011, use of sustainable modes of transport has continued to rapidly grow;
- Many school pupils would prefer to cycle or scoot to school, rather that walk or be taken in a car.

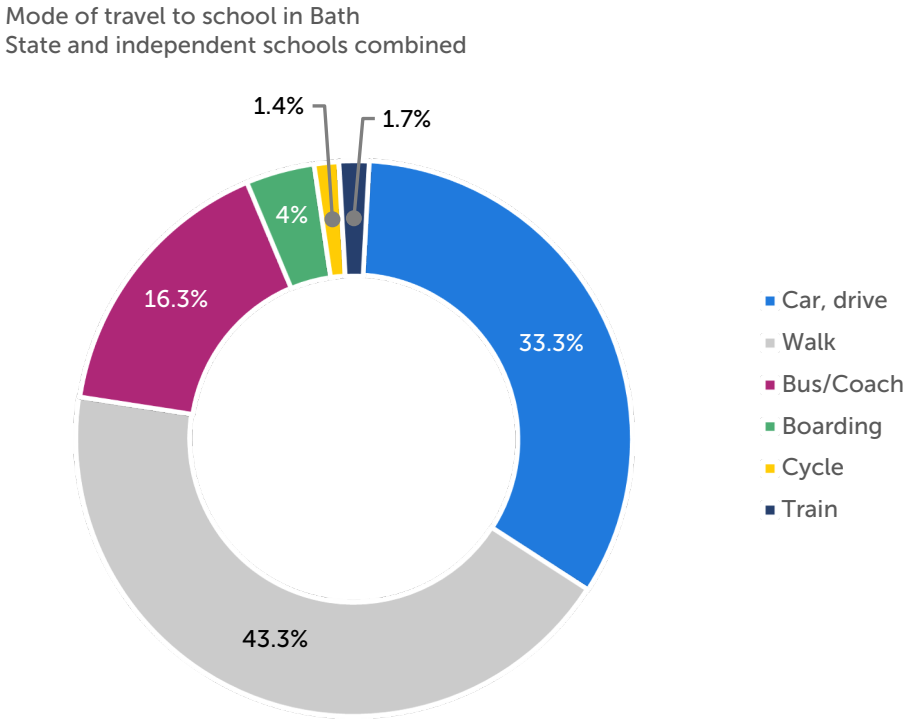


Figure 2.25: Method of travel to school in Bath

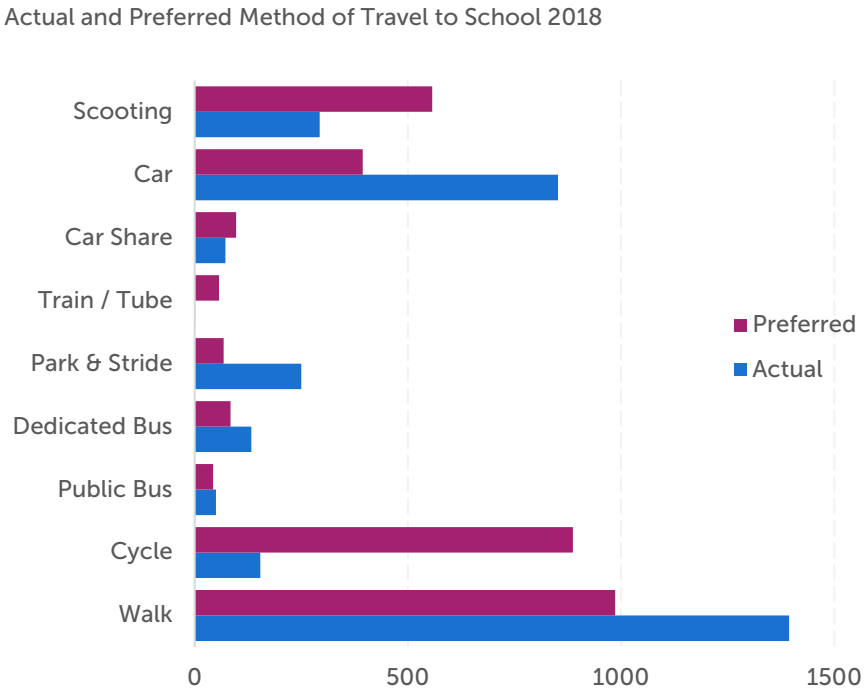


Figure 2.26: Actual and preferred Method of travel to school in Bath

Walking

The proportion of journeys made on foot is high compared with other cities. The layout and size of Bath are conducive to walking and the streetscene is in many places of unsurpassed value. Walking is key to the activities that take place and could be even more widely adopted for short journeys within the built-up area. Walking is therefore of major importance.

In the retail heart of the city, there are pedestrianised areas catering for very large numbers of people on foot but these are intertwined with or crossed by trafficked routes, giving a lack of consistency for those walking. Other routes carry large volumes of both pedestrians and traffic, such as James Street West, but this is not in itself a problem if suitable pedestrian facilities and crossings are provided.

In some areas the perception is that the car dominates, either due to traffic volumes and congestion, or because of the width of the road or adjacent parking areas. The Public Realm and Movement Strategy identifies a lack of investment in public realm over a number of years has led to its decline, however, recent improvements to Saw Close, Seven Dials and elsewhere (outlined previously) are changing this and further improvements are also planned.

As set out in section 3, there is an opportunity to build on the vision set out in the Public Realm and Movement Strategy for Bath to become the most walkable city in the UK, and to continue to improve the pedestrian environment particularly in the city centre.

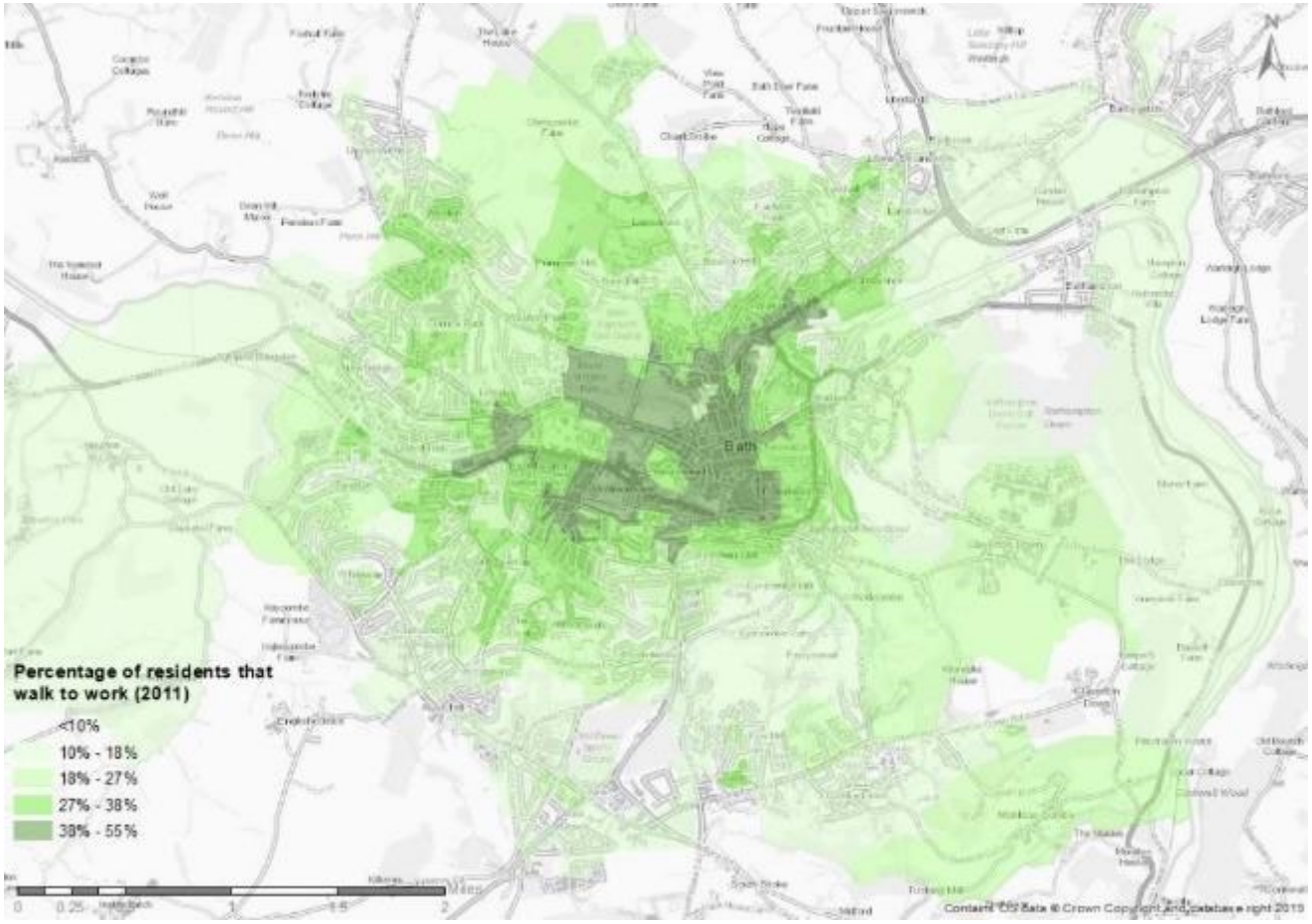


Figure 2.27: Percentage of Residents that walk to work (2011)

Key issues & opportunities identified:

- High proportion of journeys made on foot compared with other cities;
- The layout and size of Bath are conductive to walking and the street scene is in many places of unsurpassed value;
- Perception that the car dominates in some areas;
- Opportunity to continue to improve the pedestrian environment, particularly in the city centre.

Cycling

As with elsewhere in the country, more and more people are regularly cycling in Bath and the need to provide high quality cycling infrastructure to encourage cycling for all ages and abilities is widely recognised. The 2017 Bike Life survey found 78% of residents in participating cities supported building more protected cycle lanes on roads, even when this could mean less space for other vehicles[14].

The city is cross-sectioned by route 4 of the National Cycle Network, with the surrounding countryside containing scenic cycle routes including the Two Tunnels, Bristol and Bath Cycle Path, Colliers Way, and the Kennet and Avon Canal path.

Figure 2.28: Percentage of Residents that cycle to work (2011)

[14] Source: https://www.sustrans.org.uk/bike-life/

For many, Bath's hills are a deterrent to increased cycling, however, there is still substantial headroom for growth and a new fleet of electric hire bikes will help to overcome this initial challenge. Outputs from the Propensity to Cycle Tool (Figure 2.29) based on 2011 census cycle commute data suggest the most popular routes in Bath are east-west routes, rather than north-south routes that encounter hills.

The census mapping shows there is potential for growth in cycling across the city, particularly on the fringes of the city that are within an easy cycle commute of the centre. There is currently a lack of cycle routes to the north, and fragmented cross city centre routes are likely to be a barrier to increased growth. The draft West of England Local Cycle and Walking Infrastructure Plan (LCWIP) which is currently being consulted upon identifies a series of cycle route improvements in Bath (See section 3). However even with these improvements in place we recognise that more work and investment is required to develop a fully integrated cycle network for the city.

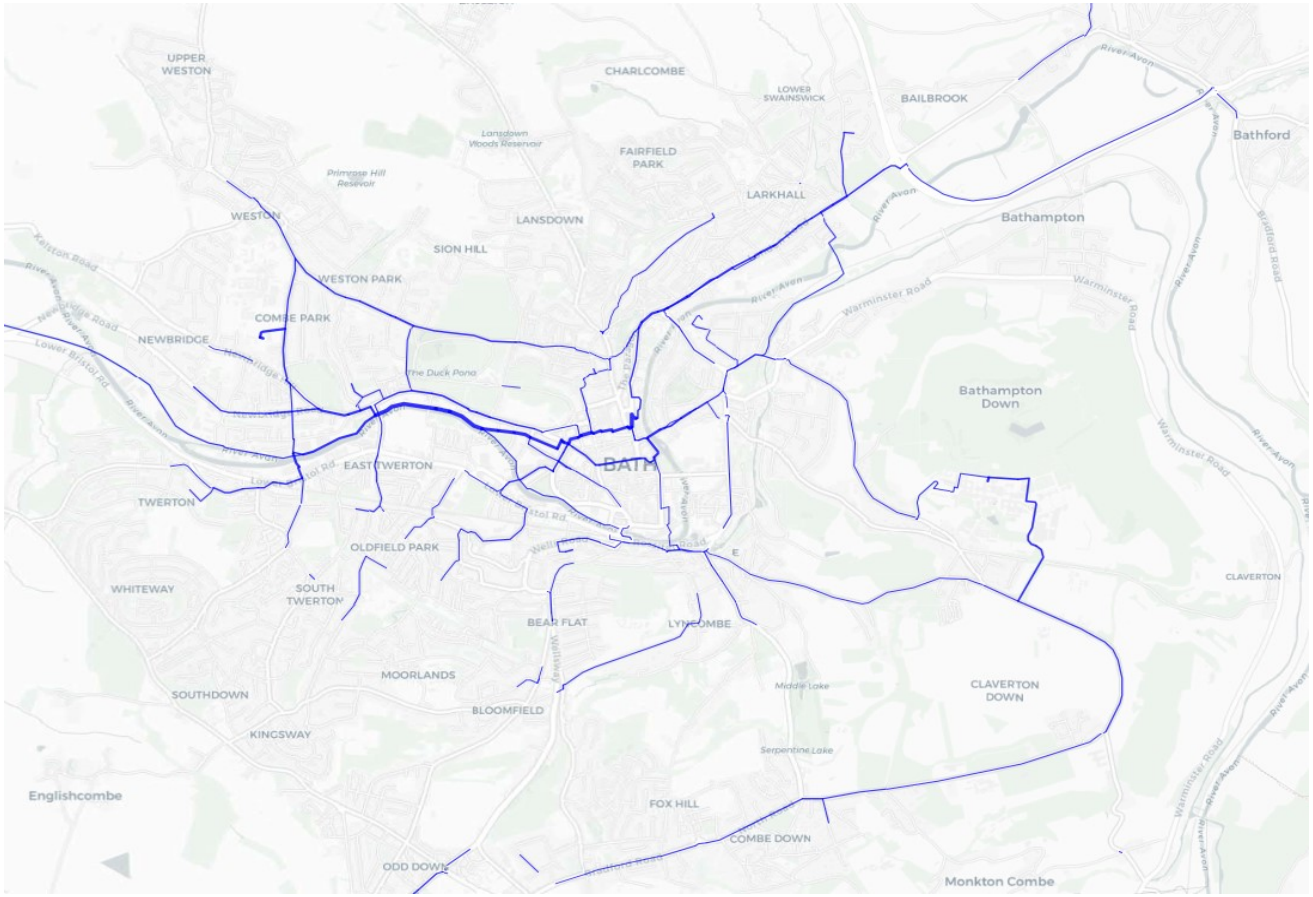
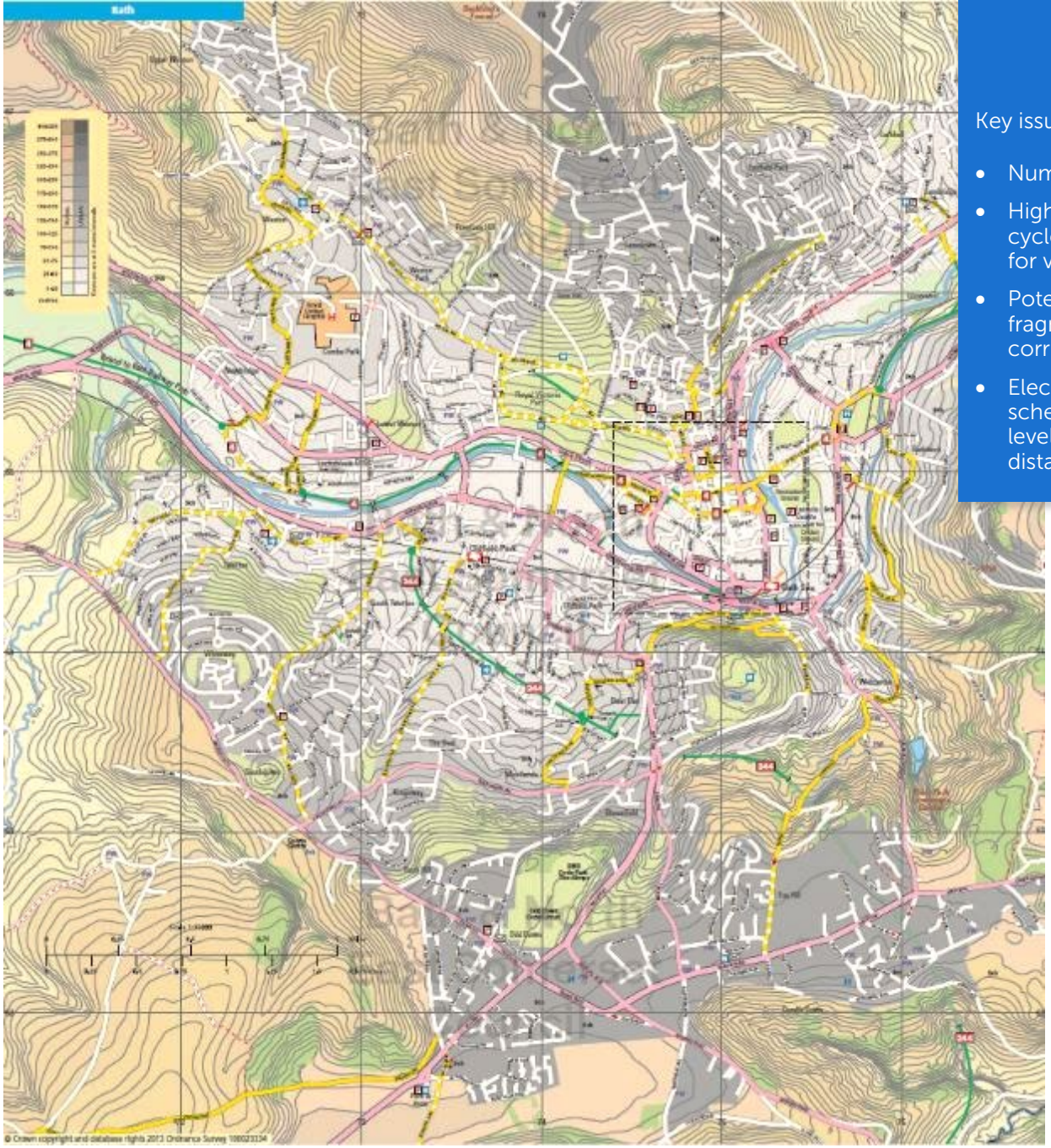


Figure 2.29: Propensity to Cycle Tool, 2011 Cycle Flows Commute (Source: Propensity to Cycle Tool)



Key issues & opportunities identified:

- Number of people cycling in Bath is increasing rapidly;
- High levels of public support for building more protected cycle lanes on roads, even when this could mean less space for vehicles;
- Potential for further growth in cycling across the city, with fragmented routes across the city centre and on key arterial corridors likely to be a key barrier to increased growth;
- Electric bikes, including the forthcoming electric hire bike schemes, represent an opportunity for a step change in cycling levels, overcoming the barrier of hills and enabling longer distance cycling trips.

Figure 2.30: Bath cycle network

Bus

In line with most of Great Britain outside London, most bus services in the West of England are provided by operators on a commercial basis. B&NES fund and provide infrastructure such as bus stops and shelters, timetable displays, bus priority measures and real-time information screens. Services that are not commercially viable but socially necessary can be funded by the council, and around 10% of bus service mileage in B&NES is provided in this way.

The West of England has a strong track record of delivering bus improvements, with past successes including the Greater Bristol Bus Network project, Bath Transport Package, and Better Bus Area Fund projects. These projects have helped deliver a 28% increase in bus patronage in B&NES between 2009/10 and 2017/18, in contrast to decreases elsewhere in the country.

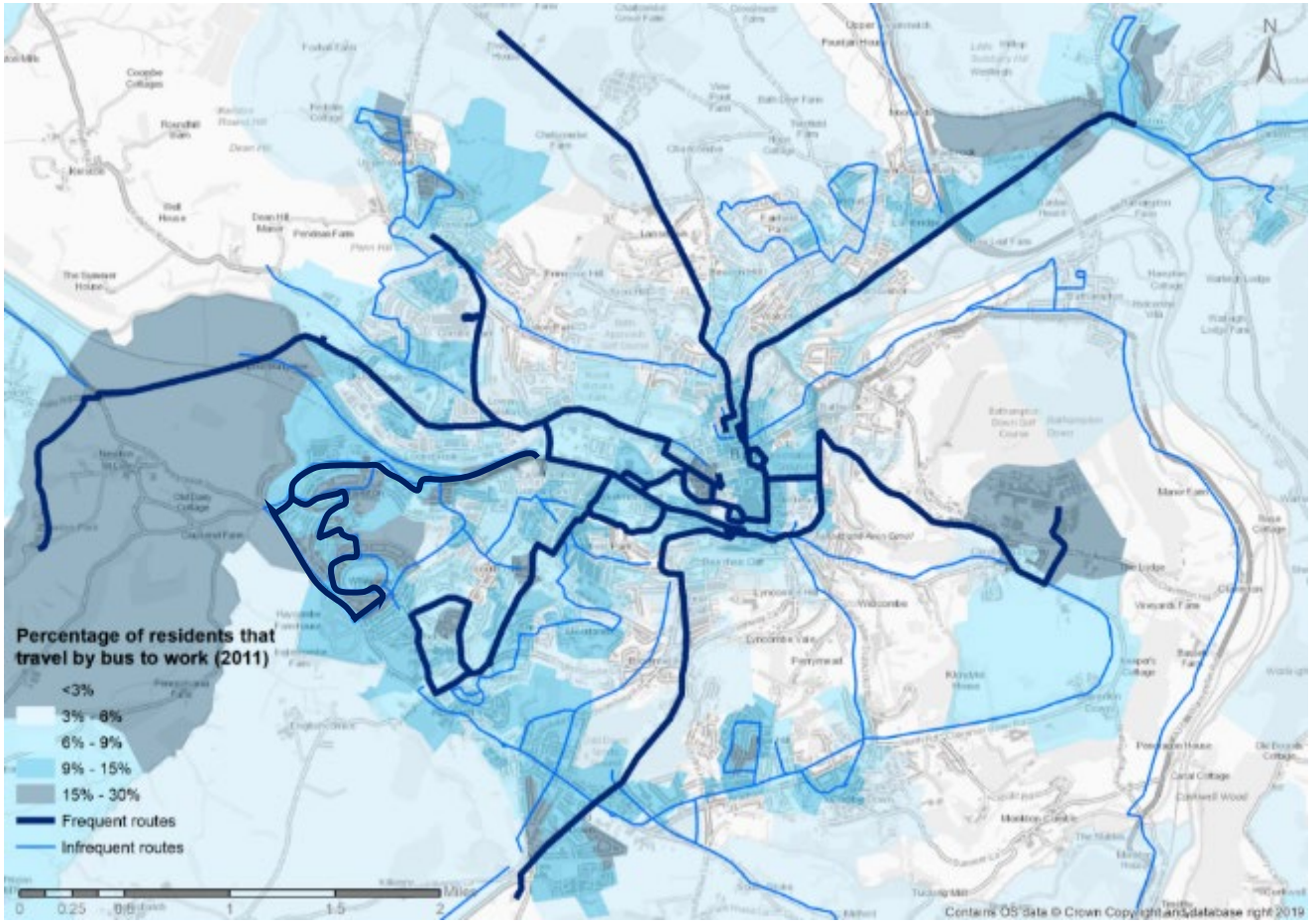


Figure 2.31: Percentage of residents that travel by bus to work, and key bus routes

Figure 2.32 below shows morning peak bus accessibility to bus station. It shows Bath has generally good bus accessibility, with a range of destinations accessible within 60 minutes.

Nonetheless, many of the more rural areas around Bath are poorly served by public transport, and most services focus on core radial routes rather than orbital routes.

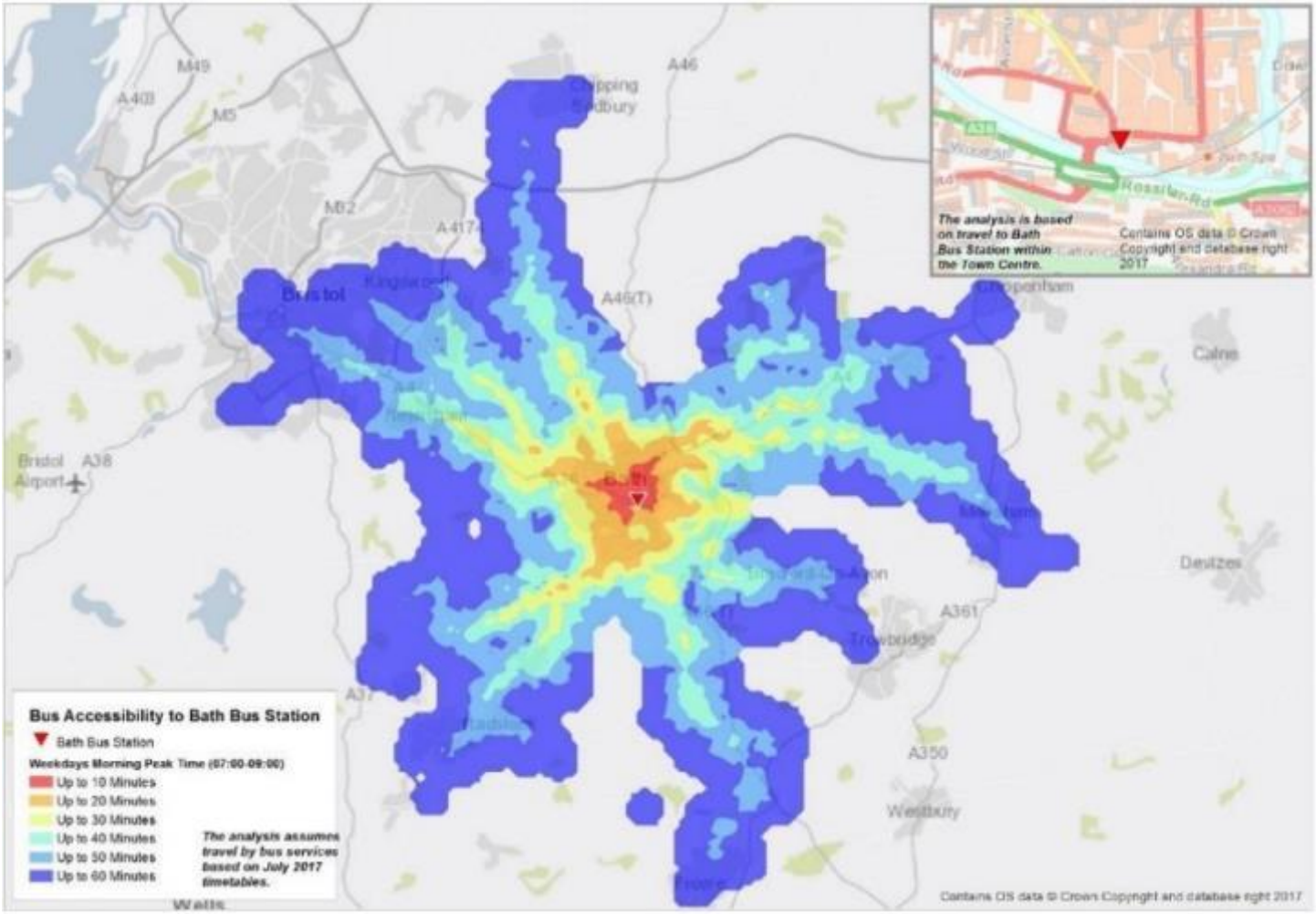


Figure 2.32: Bus Accessibility to Bath Bus Station (Source: Atkins 2017 The potential introduction of trams in Bath)

Figure 2.33 shows there is a large number of bus routes which serve Bath. There is also a large number of bus services and stops across the city centre (Figure 2.34). Additional bus priority within the city centre, for example, could help reliability of bus services across Bath. While the high number of routes through the city centre helps provide good bus accessibility, there may be opportunities to rationalise and reduce the number of roads with bus services within the small central area (which is less than 500m across), while maintaining and increasing the number of bus services. This would need to be, linked to bus priority improvements on the bus corridors that remain both within the city centre core and on radial routes across Bath, to help unlock further public realm improvements.

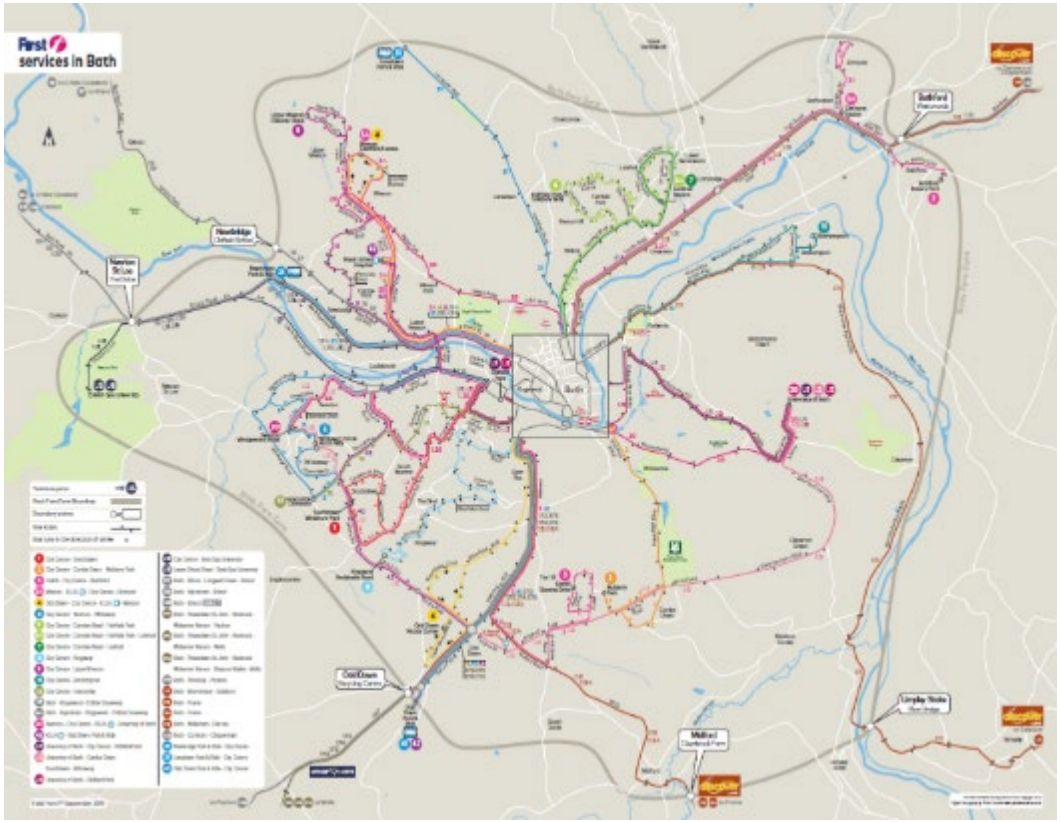


Figure 2.33: First Bus Services in Bath (Source: First Group)

Figure 2.34: Bus Services in Central Bath (Source: Visit Bath)

Figure 2.35 shows the timetabled bus speeds across Bath in the morning peak. Overall, the bus speeds are relatively competitive, with the slowest speeds on the least direct routes serving the university and south-west Bath. Service 5 has the slowest speeds, partially due to its indirect route through residential areas, and as such should not be directly compared to other services on more direct arterial routes. The highest speeds on the Park & Ride services serving Landsdown, which has a limited number of stops helping to increase journey speeds.

Overall punctuality on key corridors across Bath have been rapidly increasing, up from 54% in 2016/17 to 78% in 2018/19.

Table 2.5 shows there is still variation in the reliability of services, largely due to high levels of congestion and limited bus priority measures on some corridors.

Based on summary data received from First Group, the highest patronage levels are on the A367 corridor in Bath, with both A36 Warminster Road and A36 Lower Bristol Road also having high levels of patronage. There is potential to introduce additional bus priority measures including bus lanes in some areas, including Lower Bristol Road, London Road, Manvers St/Dorchester St, A367 Wellsway and Rossiter Road.

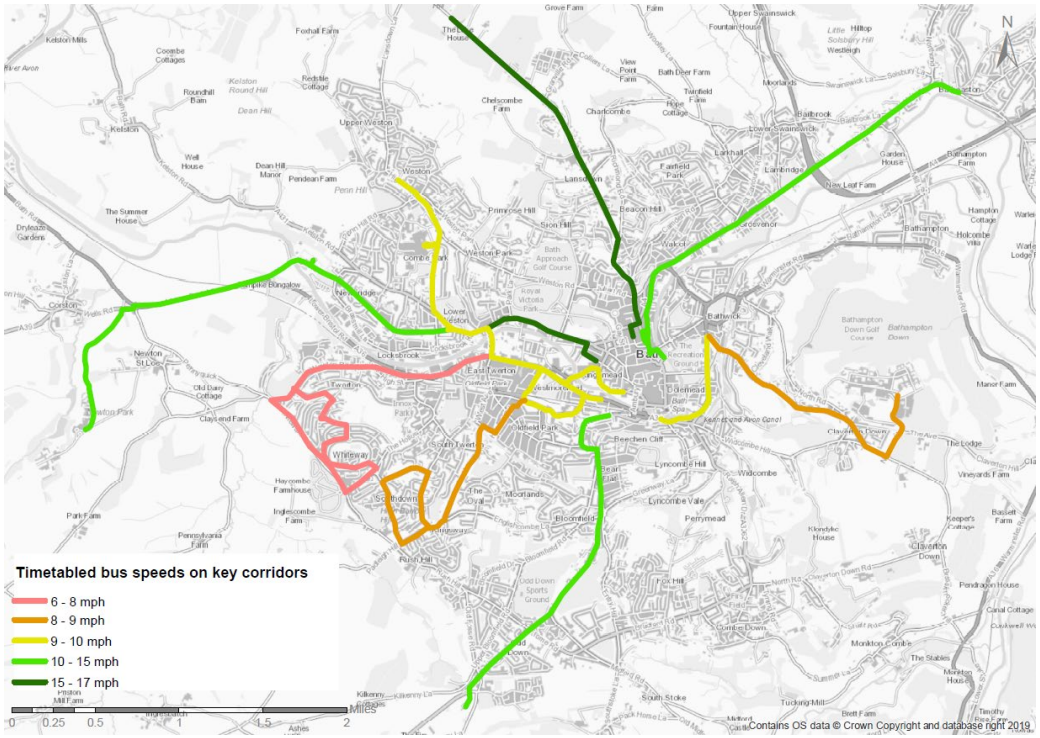


Figure 2.35: Timetabled Bus Speeds on key corridors in Bath, AM Peak

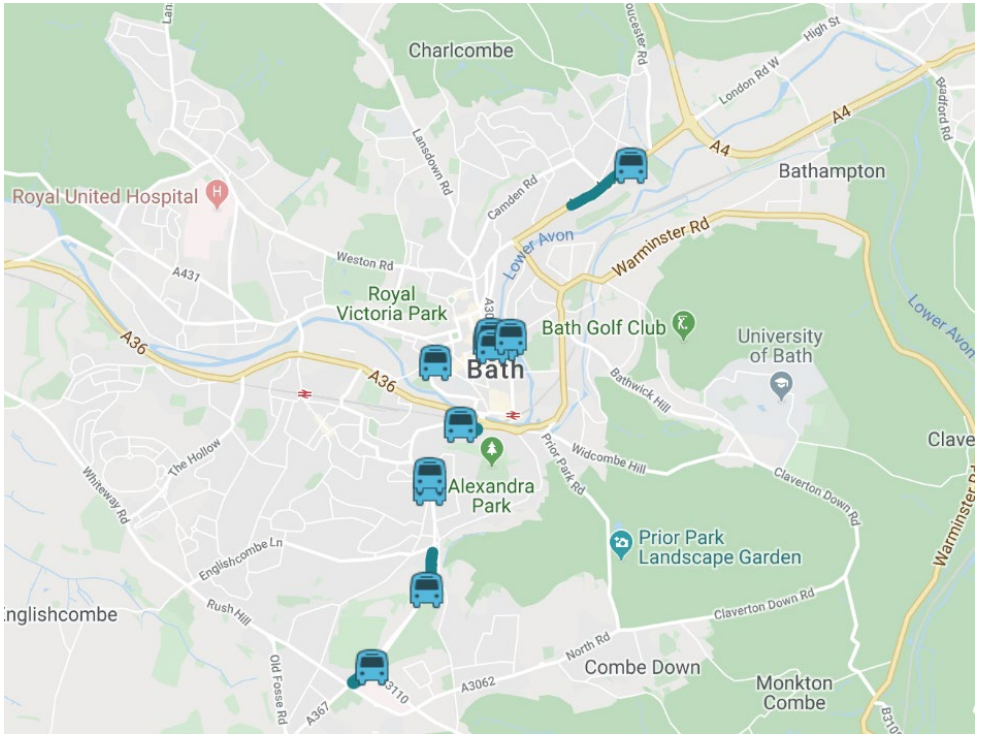


Figure 2.36: Existing bus lanes and bus priority measures

On-street parking is blocking and delaying buses in some areas including Bathwick Hill and Landsdown Hill and limiting the size of bus that can be operated, negatively impacting the commercial viability of some routes.

Table 2.5: Bus patronage, speeds, and reliability on key corridors in Bath

Issues by Corridor	Approx. Daily Bus Passenger Boardings/Alightings (07:00-19:00)	Timetable Bus Speed mph (AM Peak)	% buses "on time"
A4 London Road	1,400	10-15	82%
A36 Warminster Road	2,600	N/A	N/A
Bathwick Hill/Claverton Down Road	N/A	8-9	N/A
A367 Wellsway	3,900	10-15	82%
A36 Lower Bristol Road	2,600	N/A	73%
A431 Upper Bristol Road / Newbridge Road	N/A	N/A	82% (average P&R)
Lansdown Road	1,800	15-17	

Bus passenger surveys in the West of England are carried out annually by Transport Focus. The latest results show that 85% of bus passengers in the West of England, and 84% of bus passengers in B&NES are satisfied with their overall bus journey. By comparison, just 56% of B&NES residents as a whole were satisfied with local bus services (see Section 2.3). Bus passengers have higher levels of satisfaction with local bus services than non-bus passengers. There are relatively high levels of satisfaction in terms of bus space and availability of seating, journey time, and the condition of the buses, but lower satisfaction in terms of punctuality and value for money, both of which could be improved by increased priority for buses.

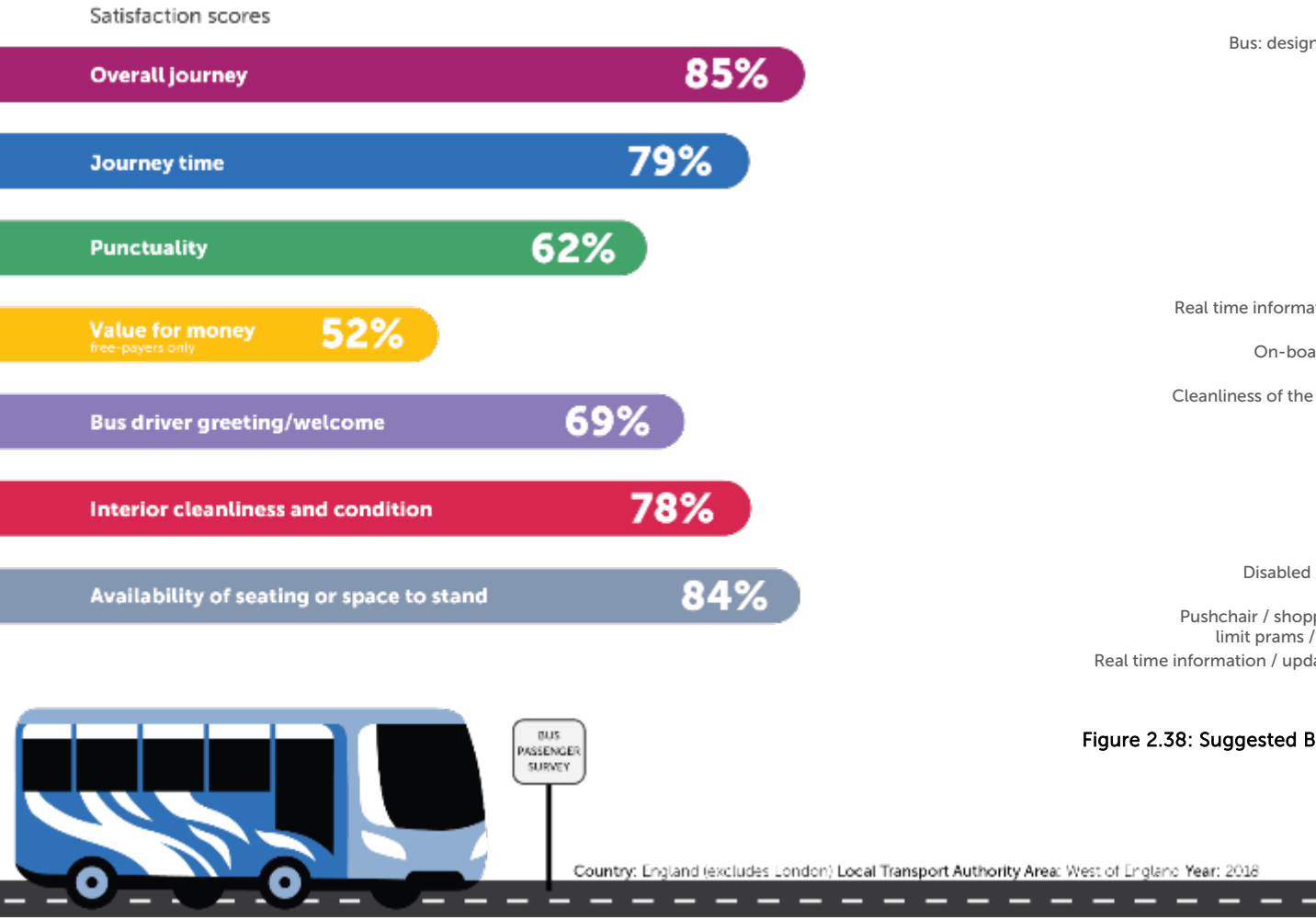


Figure 2.37: Bus Passenger Satisfaction, West of England (Source: Transport Focus)

Figure 2.38 shows that the most popular improvements to bus services would be to punctuality and bus frequency, with Figure 2.39 showing that congestion and passenger boarding time are perceived as the biggest factors affecting bus journey times.

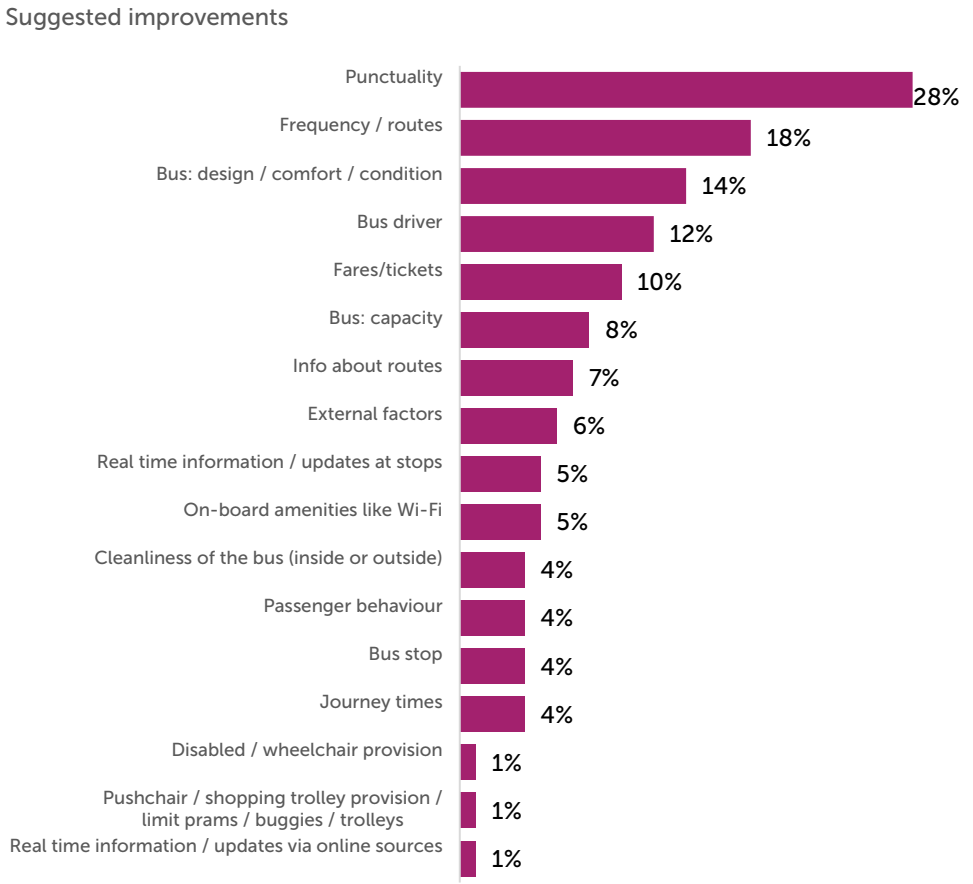


Figure 2.38: Suggested Bus Improvements (Source: Transport Focus)

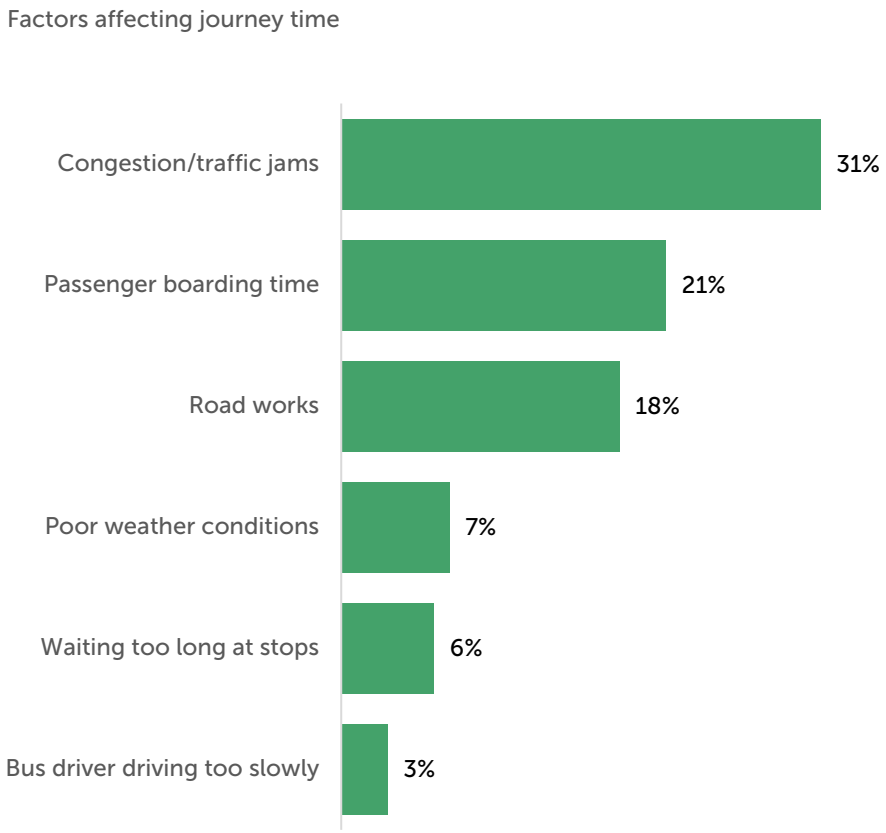


Figure 2.39: Perceived factors affecting bus journey time (Source: Transport Focus)

Key issues & opportunities identified:

- Number of people using buses in Bath is increasingly rapidly, in contrast to most other areas of the UK;
- Typically good levels of bus accessibility and relatively competitive journey times;
- Bus punctuality has improved in recent years, but there is still room for improvement;
- Opportunity to consolidate bus route in the city centre to help unlock public realm improvements;
- Potential to introduce additional bus priority measures including bus lanes in some areas, including Lower Bristol Road, London Road, Manvers St/Dorcester St, A367 Wellsway, and Rossiter Road;
- On-street parking is blocking and delaying buses in some areas including Bathwick Hill and Lansdown Hill, and limiting the size of bus that can be operated negatively impacting commercial viability of some routes;
- Bus passengers in the region would most like to see improvements in punctuality, frequency and number of routes, and bus comfort and condition.

Park & Ride

Bath's existing Park & Ride sites are an integral part of Bath's transport system, serving over 2 million passengers per year, with a significant increase in patronage during the Christmas market season. Park & Ride facilities provide the opportunity for people living outside Bath whose only realistic option is to drive and who do not have easy access to public transport to transfer from private car to public transport for onward journeys into urban areas. By intercepting traffic, Park & Ride releases highway capacity in central areas to enable transfer of road space to walking, cycling and public transport.

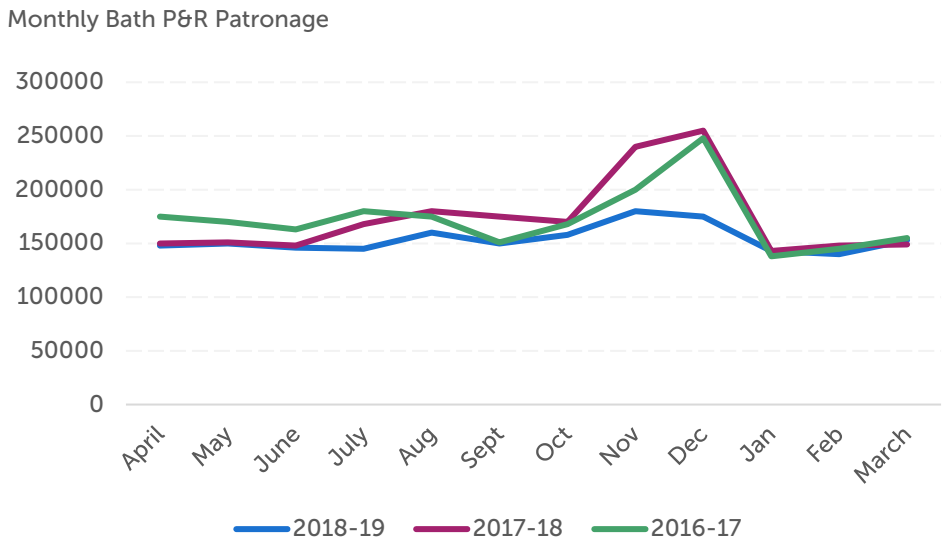


Figure 2.40: Bath Park & Ride patronage

All three existing Bath Park & Ride sites were expanded as part of the Bath Transportation Package, with parking provision increased as follows:

- Newbridge: 450 to 698 spaces,
- Lansdown: 437 to 837 spaces,
- Odd Down: 1,022 to 1,252 spaces.

Following the expansion, the Park & Ride sites are no longer reaching capacity as frequently and as a result currently have surplus capacity, barring the Christmas period, to accommodate growth in the short term, and offset the city centre off-street public car parking lost as part of the Enterprise Area redevelopment.

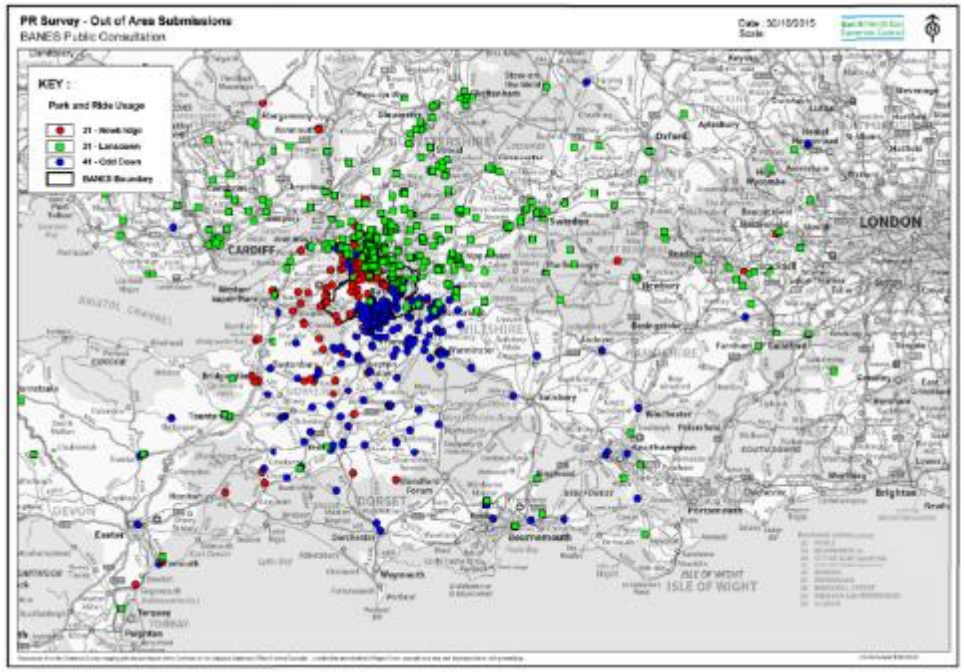


Figure 2.41: Origins of Bath Park & Ride passengers

The Council undertook detailed surveys of P&R users in both 2009 and 2015. From Figure 2.41, it is clear that users of the P&R sites tend to travel to their nearest P&R site. There are significant proportions of drivers arriving from the east of Bath who are using Lansdown and Odd Down P&R. This results in those wishing to use P&R from the east having to circumnavigate Bath to get to a P&R site. In addition, P&R demand from the east is likely to be suppressed due to the lack of a convenient facility, with many drivers choosing to park in the city centre instead. The fundamental drivers for an affordable, direct public transport service from the east of Bath remain, However, the Council has previously examined the potential for provision of a P&R site to the east of Bath and concluded that there are no deliverable sites meaning that alternative solutions to tackling these issues are now being explored.

Figure 2.42 - Figure 2.43 indicates that Park & Ride attracts a different profile of users when compared with city centre car parks. Park & Ride is considerably more popular among commuters on weekdays, whereas the percentage of shoppers using both type of parking facilities is similar and the proportion of social/leisure and business-related parking is higher for the city centre locations.

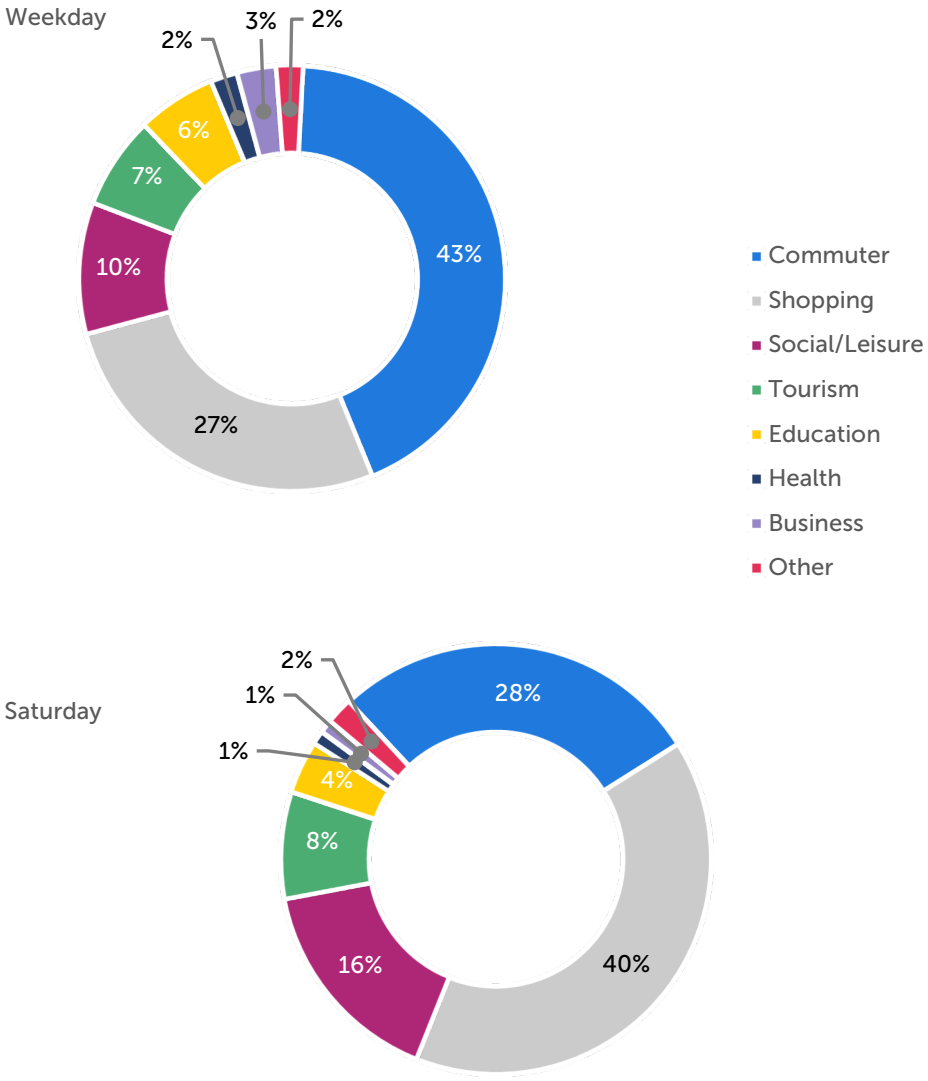


Figure 2.42: Trip Purposes at P&R Sites, 2009

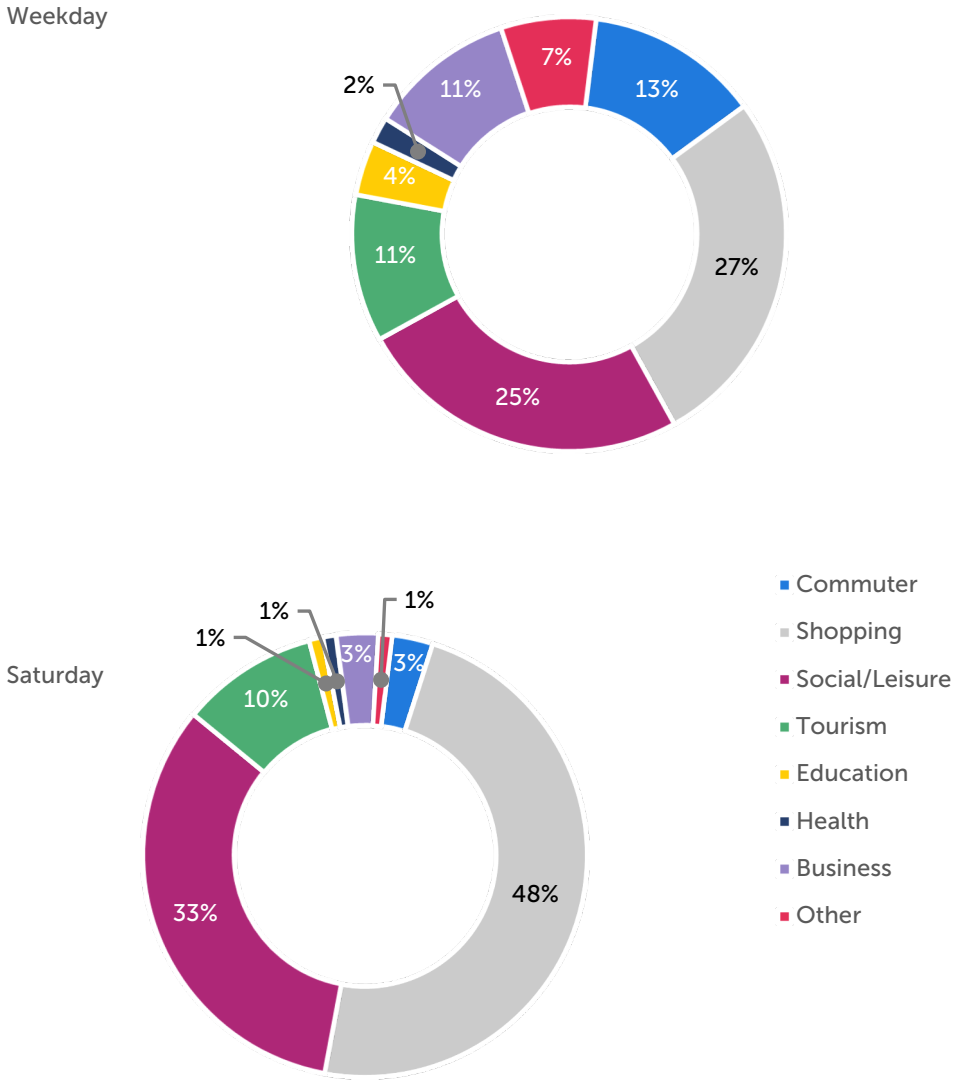
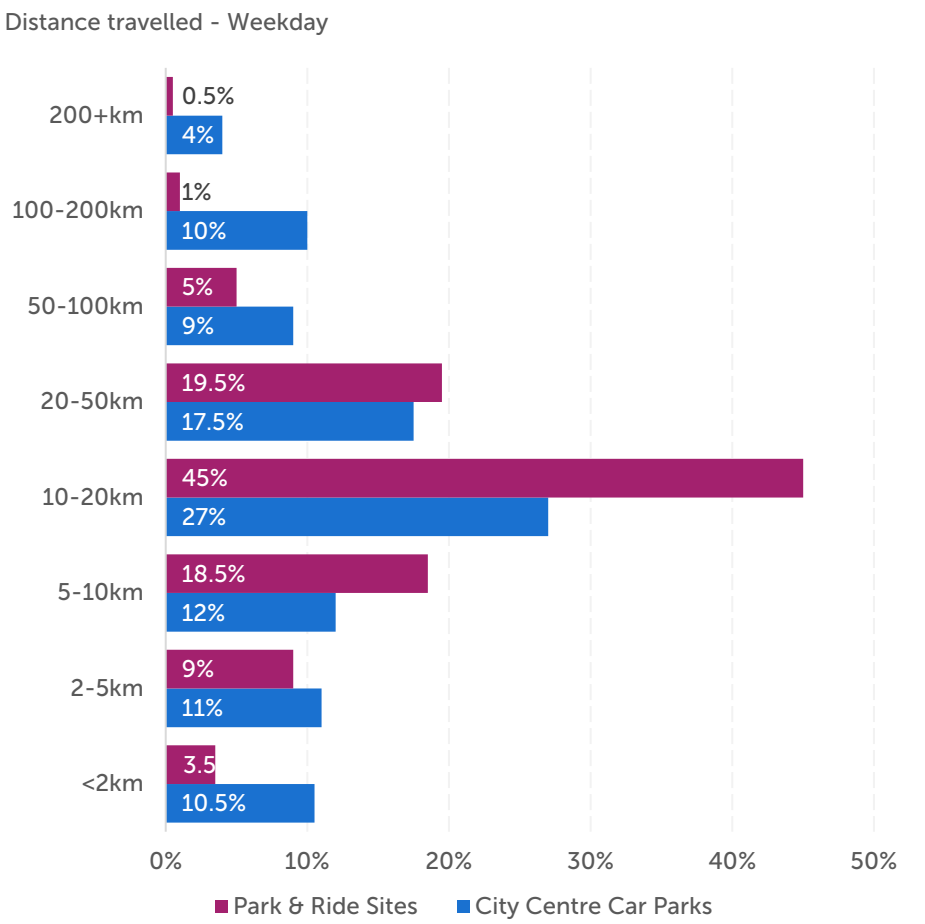


Figure 2.43: Trip Purposes at City Centre Car Parks, 2009

Figure Figure 2.44 shows nearly half of all Park & Ride users travel 10-20 km to the sites, with around 15% travelling 5-10 km and around 20% travelling 20-50 km. Just over 1 in 10 people parking in city centre car parks drive less than 2 km to do so, within typical walking and cycling distances. Comparison with city centre sites shows larger numbers travelling shorter distances to use these car parks, as expected, but those travelling over 50 km comprise a higher proportion of city centre car park users in comparison to Park & Ride. This could be partly explained by tourists and visitors who stay overnight in Bath and park in the centre, as they are unlikely to leave their vehicles at the Park & Ride site.



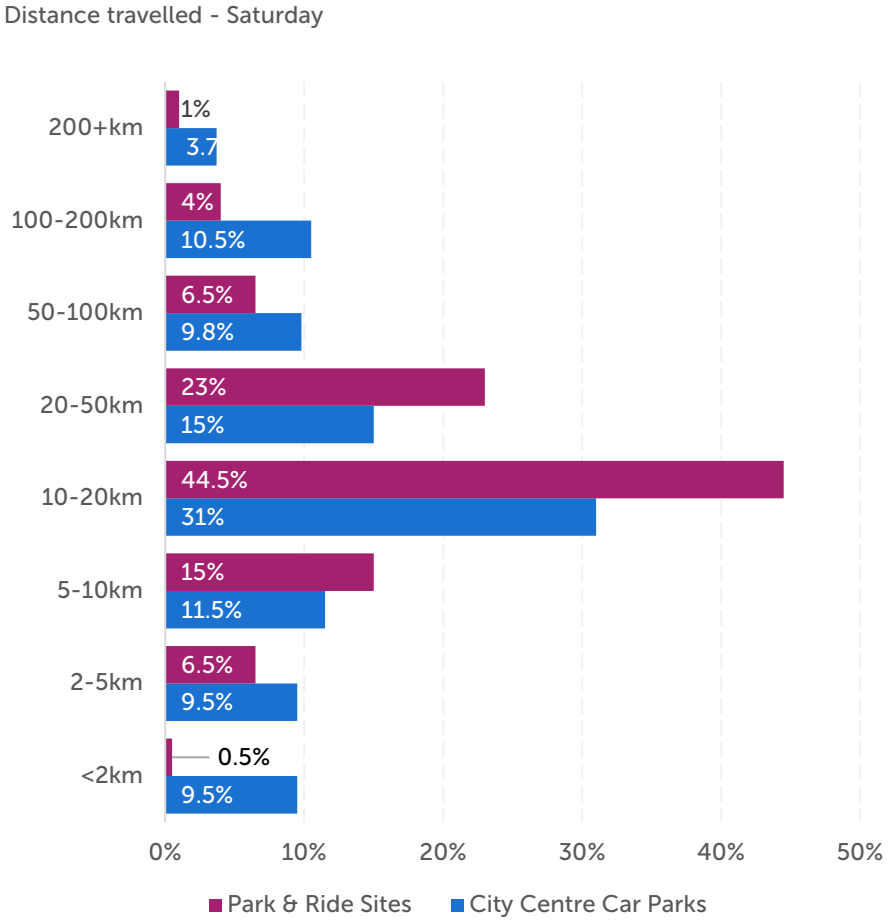


Figure 2.44: Distance travelled to Park & Ride sites and City Centre Car Parks, 2009 (Source: 2009 interview surveys)

Key issues & opportunities identified:

- Park & Ride sites are an integral part of Bath's transport system, enabling reduction in parking and public realm improvements in the central area;
- The fundamental drivers for an affordable, direct public transport service from the east of Bath remain. However the Council has previously examined the potential for provision of a P&R site to the east of Bath and concluded that there are no deliverable sites meaning that alternative solutions to tackling these issues are now being explored.

Coach

Visitor coaches are a strong contributor to the economy, with coach passengers spending over £180,000 a day in Bath. The Roman Baths is a key destination with over 350,000 visitors arriving by coach each year, with Bath Abbey, Royal Crescent, and Parade Gardens also attracting significant amounts of coach visits.

The redevelopment of Bath Quays has resulted in a loss of coach parking spaces, and there are ongoing issues with a lack of coach drop off facilities. There is also a perception that some coaches drive through and layover in the city adding to congestion and pollution without contributing to the economy.

In 2017 a draft Bath Coach Parking Strategy[15] was prepared to support the Council's Economic Strategy and Place Making Plan and facilitate the regeneration of Bath Quays. While some elements of the strategy have been implemented, such as the relocation of the coach park Odd Down Park and Ride, the full strategy was never formally adopted by the Council, leaving the issue of how to accommodate pick up and drop off for the high numbers of tourists arriving by coach left unresolved.

Key findings of a coach survey undertaken to inform the 2017 strategy include:

- Around half of coaches drop-off/pick-up at Terrace Walk and around a quarter use Riverside Coach Park with Royal Avenue and North Parade serving the remainder. Over 85% of passengers are dropped-off and picked-up from the same place, thus simplifying wayfinding;
- Around 70% of coaches stay in Bath for 1 to 4 hours, with 2-3 hours being the most common visit duration. Between 10 and 20% of coaches stay overnight, mostly for one night;
- Driver interviews found that 35% of coaches were visiting Bath daily and over 60% coming at least once a week;
- About 50% of coach trips originated in London, and Stonehenge was by far the most commonly visited other destination, followed by Windsor;
- The average spend in Bath was £51 per coach passenger. The average spend did not increase consistently with visit duration unless visitors stayed overnight;

Key issues & opportunities identified:

- Visitor coaches are a strong contributor to the economy, with coach passengers spending over £180,000 a day in Bath;
- Loss of coach parking spaces, a lack of drop off facilities, and a perception that some coaches do not contribute to the local economy;
- A need to revisit the unadopted 2017 coach parking strategy and agree a way forward.

- Although there was a range of ages amongst coach passengers, a high proportion of visitors were older, with 60-69 being the most common age group;
- Overall coach passengers were "very satisfied" with using the coach in Bath and were likely to recommend Bath to others and come again, with 61% intending to stay overnight next time.

The following key principles were suggested to underpin the coach parking strategy:

- Coach drop off/pick up to be in the city centre close to attractions;
- Short-stay parking to be limited to the periphery of the city centre;
- Encourage longer stay and pre-booked visits by the provision of high-quality coach parking facilities outside the city centre and supported by an appropriate pricing structure;
- Improve pedestrian and vehicle wayfinding;
- Use new technology to improve coach management.

The draft strategy proposed a range of measures to achieve these principles. The issue of coach parking is still pressing and there is a need to re-visit this work and agree a way forward.

[15] See: https://www.bathnes.gov.uk/sites/default/files/coach_parking_strategy_exec_summary.pdf

Train

Bath Spa station is the principal rail gateway to the city, with over 6 million station entries and exits recorded in 2017-18 (approx. 20,000 boardings and alightings per day), compared to just over 300,000 at Oldfield Park (approx. 1,000 per day). Usage of the stations in Bath has grown significantly over the last decade, with an average of 3% growth per annum since 2008-09 at Bath Spa (3.5% per annum at Oldfield Park). The latest figures from the Train Operating Company suggest that this growth is continuing into 2019/20 especially at Oldfield Park. Growth in patronage at Bath stations is in-line with national trends for rail patronage growth and slightly lower than the level of growth seen at Bristol Temple Meads station (approx. 4.5% per annum growth) over the same period.

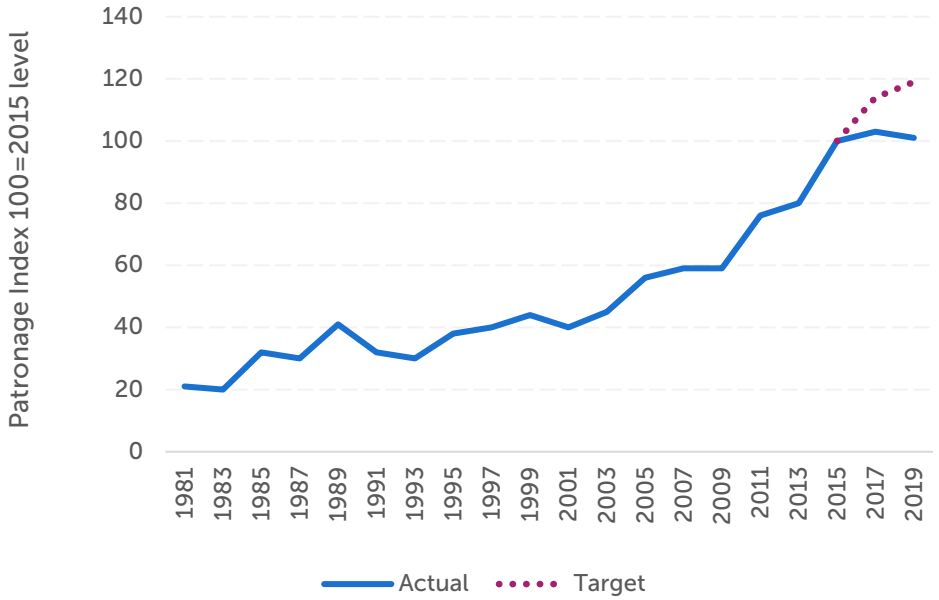


Figure 2.45: Patronage at Bath Spa and Oldfield Park Stations

Services at Bath Spa fall into three main categories, based on origins/destinations and rolling stock used.

- London Paddington-Bristol Temple Meads (and beyond);
- Regional services through Bristol Temple Meads such as Portsmouth Harbour-Cardiff Central and Gloucester-Weymouth;
- Other services including London Waterloo-Bristol Temple Meads.

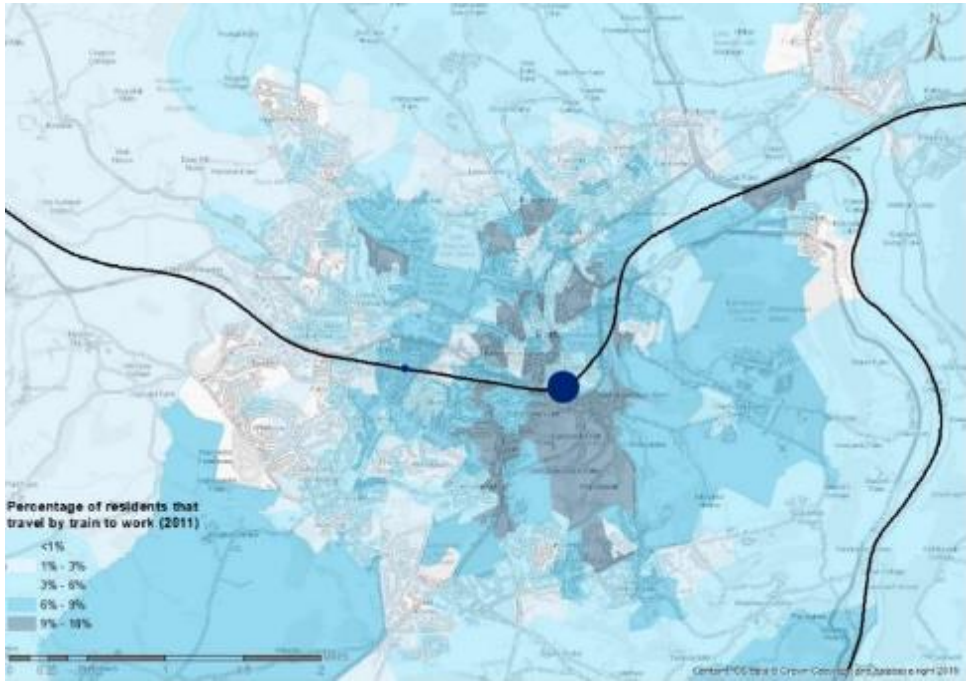


Figure 2.46: Percentage of residents that travel by train to work, 2011

Services at Oldfield Park are a subset of the non-London Paddington services that call at Bath Spa station. The stopping pattern varies slightly through the day, but is broadly hourly, provided by regional services between Westbury (and beyond) and Gloucester (and beyond). Few Cardiff Central-Portsmouth Harbour services call at Oldfield Park.

Following the timetable changes that took place in December 165 trains stop at Bath Spa station during the course of a typical weekday[16]. Services to/from London Paddington account for around 45% of arrivals and departures at Bath Spa across the day, though they account for over 60% of the capacity in terms of seats available.

During a sample month in 2019, 67.2% of services at Bath Spa had 'right time' arrivals (less than 2 minutes late) and ran with 96.8% 'reliability' (less than 15 minutes late).

The main constraint to developing services through Bath is line capacity between Bathampton Junction and Bristol. This is a twin-track section that caters for a mixture of stopping and non-stop passenger services, with some freight in addition. There are no specific constraints to running the current service pattern, but the ability to provide for more stopping services between Bristol Temple Meads and Bath Spa is limited. With the MetroWest Phase 1 rail improvement scheme, an additional stopping service is proposed, but further enhancements beyond this are uncertain, which in turn could frustrate aspirations for any further service frequency enhancements at Oldfield Park, or to serve a potential new Saltford station.

The recent Greater Bristol Area Rail Feasibility Study will inform B&NES Council approach to new stations and future rail projects.

Although there are no particular aspirations to do so, it is difficult to turn services around at Bath Spa station. There are no specific turnback facilities, so such manoeuvres require 'wrong-line' occupancy either on the way in or out of the station. As such, very few services do this in normal operations, and it is difficult to do so at times when there is service disruption.

Figure 2.47 shows that from the 2016 rail survey train passengers at Bath Spa and Oldfield Park were typically dissatisfied with the availability of seats, frequency of services, and punctuality of trains, with higher levels of satisfaction for station facilities and travel information.

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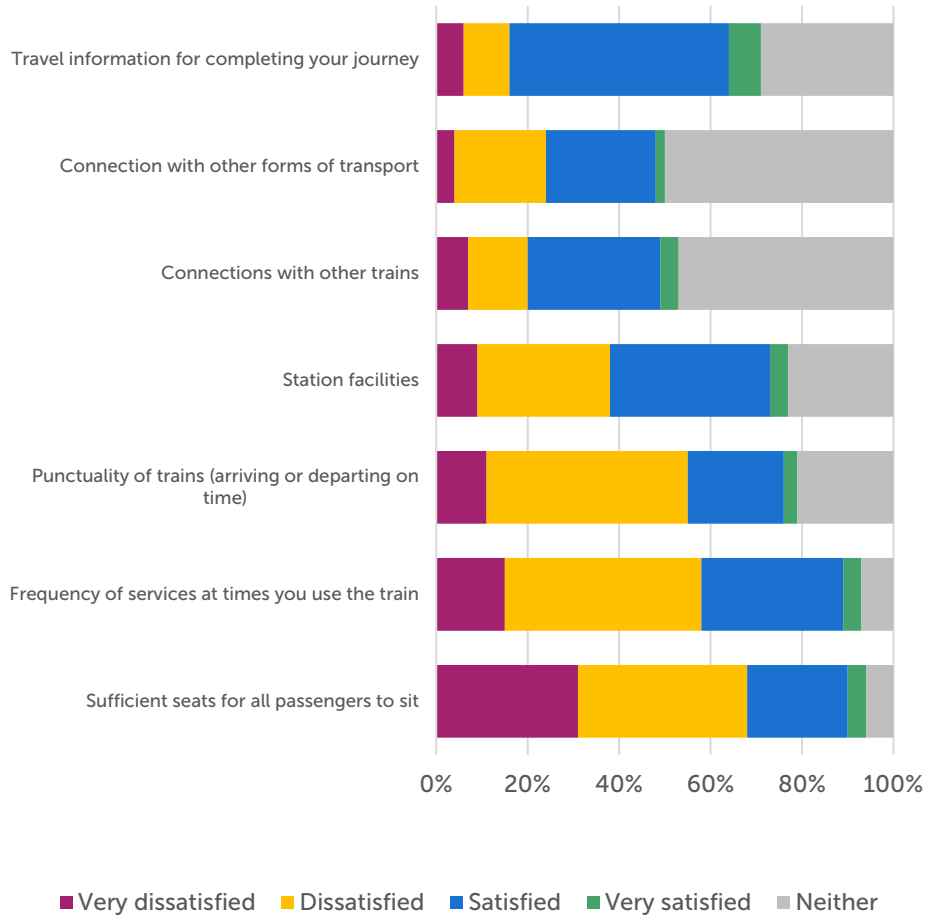

Figure 2.47: Rail Satisfaction Survey 2016 Bath Spa and Oldfield Park (These figures were taken before new trains and a better timetable were introduced. GWR and Transport Focus satisfaction figures are now much improved.)

[16] Note that, as a summary of a month of data, there is some daily variation that is not always reflected in this aggregation, specifically where a service is re-timed on an ad hoc basis to recover from some prior problem (not necessarily local to Bath Spa). As such, the number of trains stopping can vary from day to day.

However, the survey was undertaken prior to the completion of electrification which saw the railway closed for extended periods, the introduction of new trains with greater capacity and the introduction of a new timetable.

The introduction of Intercity Express Trains has resulted in increases of up to 24% in capacity per service when compared to the high-speed trains they have replaced, and the latest performance figures indicate they are much more reliable. Data from GWR's own independent customer survey and from the latest National Rail Passenger Survey undertaken by Passenger Focus for 2019 show that satisfaction levels are much higher following these changes and customers are starting to feel and see the differences especially in capacity. The GWR customer survey for 2019 indicates that 78% of passengers at Bath Spa are now either satisfied or highly satisfied with the punctuality of trains, whilst 83% are satisfied or highly satisfied with the frequency of trains. In terms of the capacity of the trains 78% of respondents indicated they are either satisfied or highly satisfied with the level of room on board the trains.

However, GWR acknowledge that there is still more to do including the MetroWest Project that will result in further improvements for both Bath Spa and Oldfield Park and also Freshford and Keynsham.

Nationally, just 47% of passengers said their ticket was value for money after years of rising fares[17].

Details of proposed rail improvements including the status of rail electrification through Bath can be found in section 3

Key issues & opportunities identified:

- Usage of Bath rail stations has grown significantly over the last decade;
- Main constraint to developing services through Bath is line capacity between Bathampton Junction and Bristol;
- The introduction of brand new trains, a new timetable and improved reliability has seen customer satisfaction rise significantly over the last five years.

[17] Transport Focus national rail passenger survey, spring 2019

Motor traffic

The volume of motor traffic across Bath and North East Somerset grew consistently through the 1990's and early 2000's. However, as shown by DfT Traffic Data (see Figure 2.48), following the 2008 financial crisis there was a sharp reduction in total distance travelled by motor traffic and there has been no real traffic growth in the last decade.

As set out in the B&NES Climate Emergency Outline Plan, the climate emergency requires both electrification of the vehicle fleet and a significant reduction in total vehicle miles by 2030.

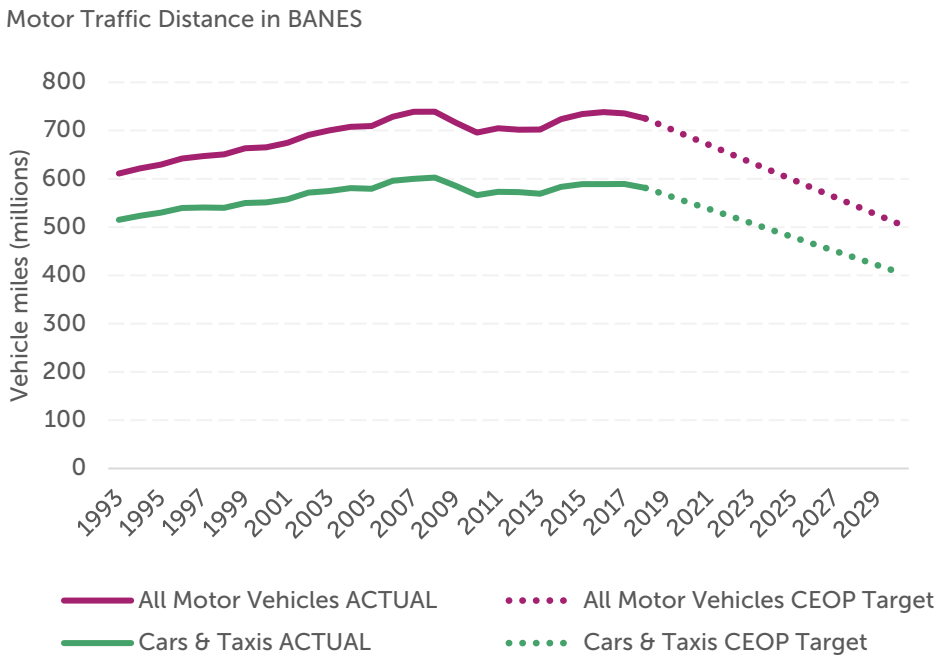

Figure 2.48: Motor Traffic Distance in BANES (Source: DfT Traffic Statistics)

Bath itself mirrors the situation across B&NES, with no growth in motor traffic over the past decade (Figure 2.49). Central Bath has seen a steady reduction in motor vehicle flows over the past 20 years. This is likely to be in part down to successful policies to encourage sustainable transport measures and the ongoing policy of relocating parking from the central area to the outskirts of the city at Park & Ride sites. This helps demonstrate that the existing policies are having the desired effect and suggests they should be continued and enhanced as part of a package of measures to drive down traffic in the long term.

Despite this progress in reducing traffic volumes, there is still heavy congestion in areas of Bath during peak periods, with constraint points on the network including Bathwick Street, London Road, Lower Bristol Road, Wells Road/Wellsway, and Rossiter Road (Figure 2.50).

As referenced throughout this report, motor traffic volumes within Bath are still having a detrimental impact on the health, air quality, the quality of life of Bath residents and the fabric of its urban realm and the World Heritage Site.

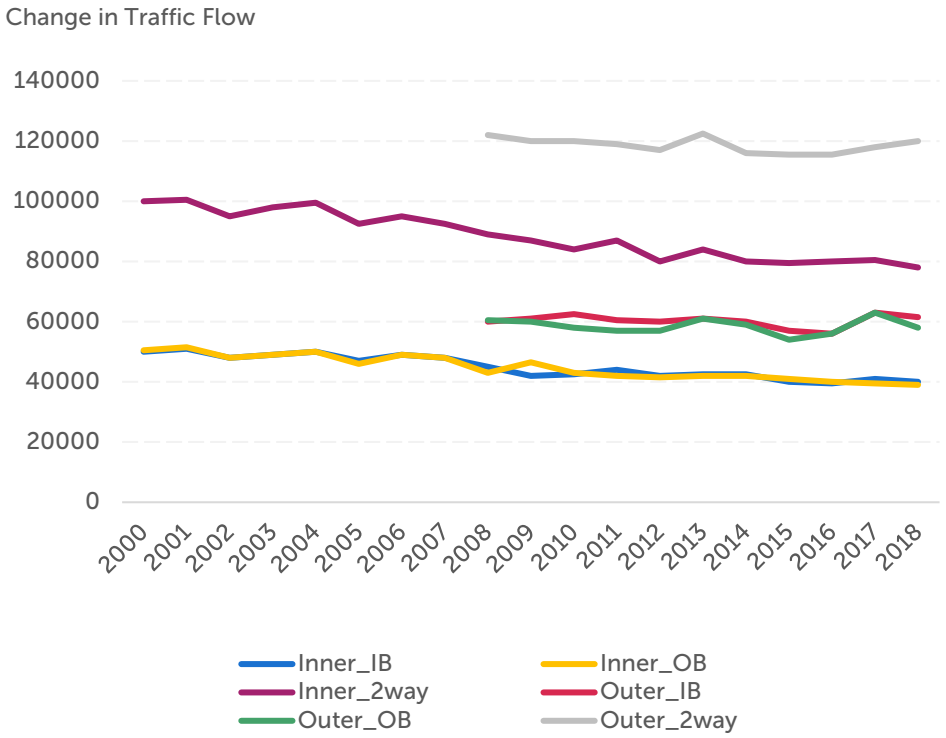

Figure 2.49: Traffic flow in Bath (Source: B&NES Traffic Counts)

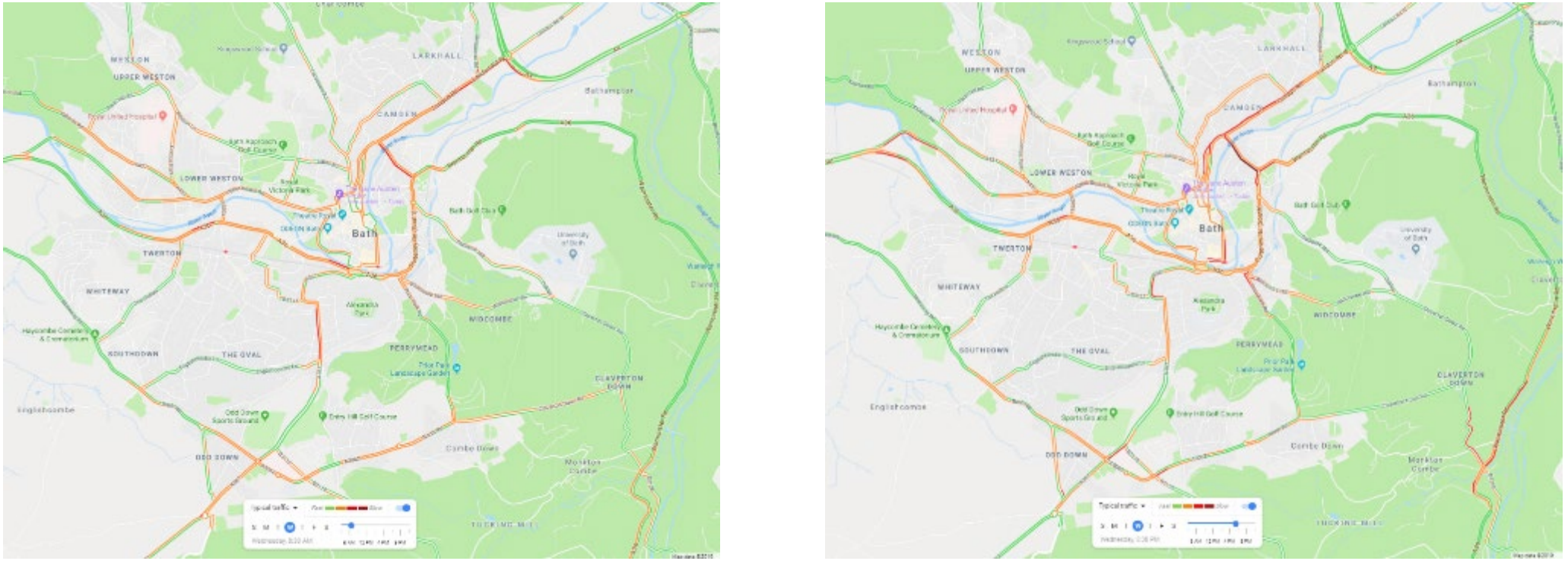

Figure 2.50: Traffic congestion in Bath in the AM (left) and PM (right) peak periods (Source: Google Traffic)

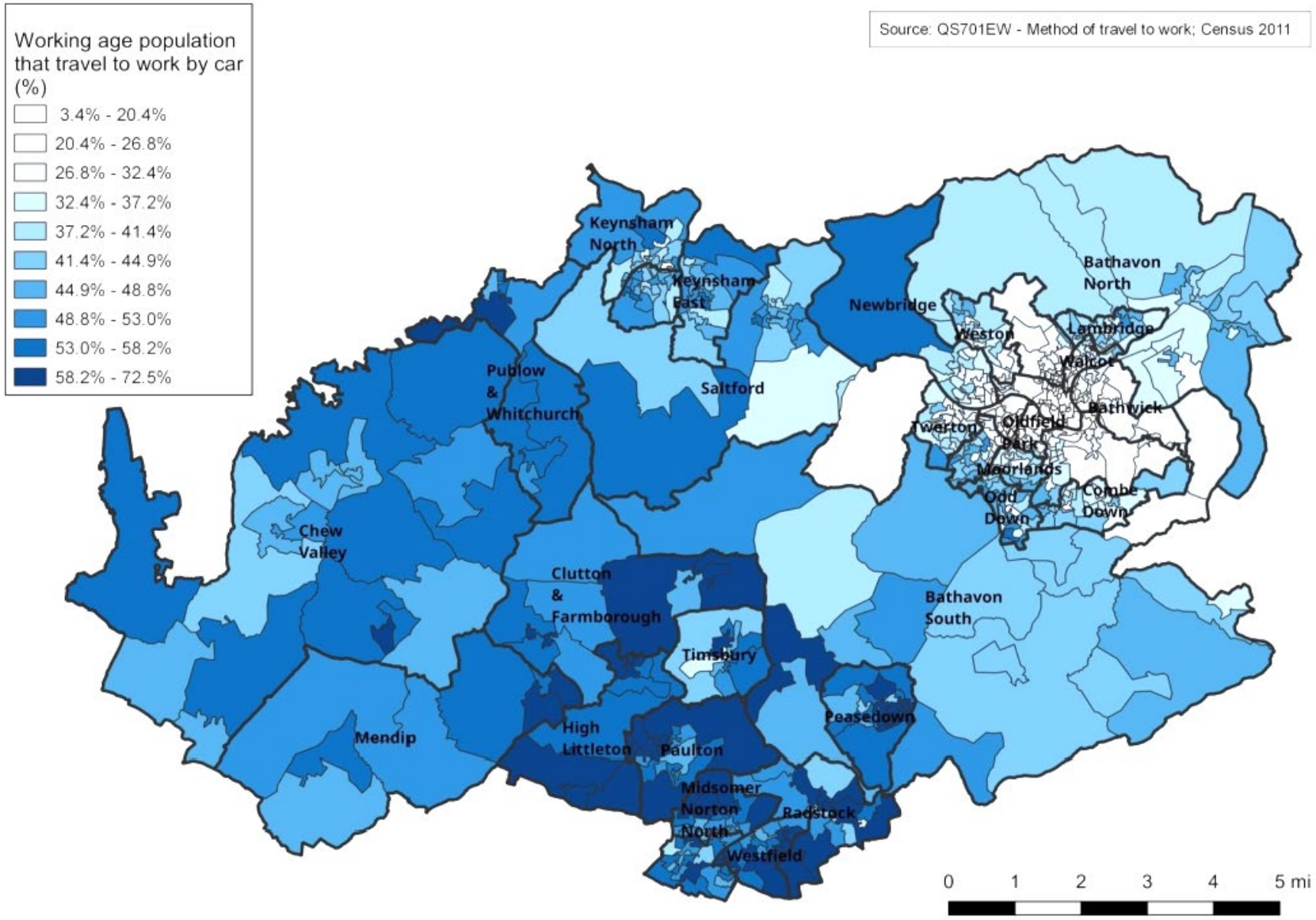

Figure 2.51: Percentage of residents that travel to work by car, 2011 (Source: Climate Emergency Outline Plan)

Figure 2.51 helps show the low percentages of Bath residents that travel to work by car, particularly when compared to more rural parts of B&NES with fewer transport options. As previously identified, 75% of people driving to work in Bath do so from outside the city boundary. However, analysis of a recent Automatic Number Plate Recognition (ANPR) survey in Bath that identifies origins and destinations of vehicle movements across Bath, showed that 30-50% of total car trips were made entirely within Bath. This indicates that while there are low levels of commuting by car within Bath by residents, there are much higher levels of short distance car use for other trip purposes within Bath such as leisure, health, education and personal business trips.

The ANPR survey also showed there are much lower levels of through traffic in Bath than previously thought (Figure 2.52), where through traffic is defined as a trip that goes all the way through Bath from one side to the other. The most significant flow is, as would be expected, between the A46 and A4/A363 (21%/79% respectively).

The ANPR survey also showed low levels of through traffic going between A46 and A36. Approximately 70% of the trips that do so currently use the toll bridge, indicating that benefits on London Road from the proposed A46-A36 Link would likely be very low.

Table 2.6: Traffic Flow Summary, Vehicles (Source: Bath Outer Cordon, 2018)

Typical Weekday traffic flow 2018	Total	Inbound	Outbound
12 hrs 07:00 to 19:00 hrs	120,00	62,000	58,000
AM Peak 07:00 to 09:00 hrs	24,700	15,700	9,000
Inter Peak 10:00 to 12:00 hrs	15,500	8,500	7,000
PM Peak 16:00 to 18:00 hrs	24,500	10,000	14,500

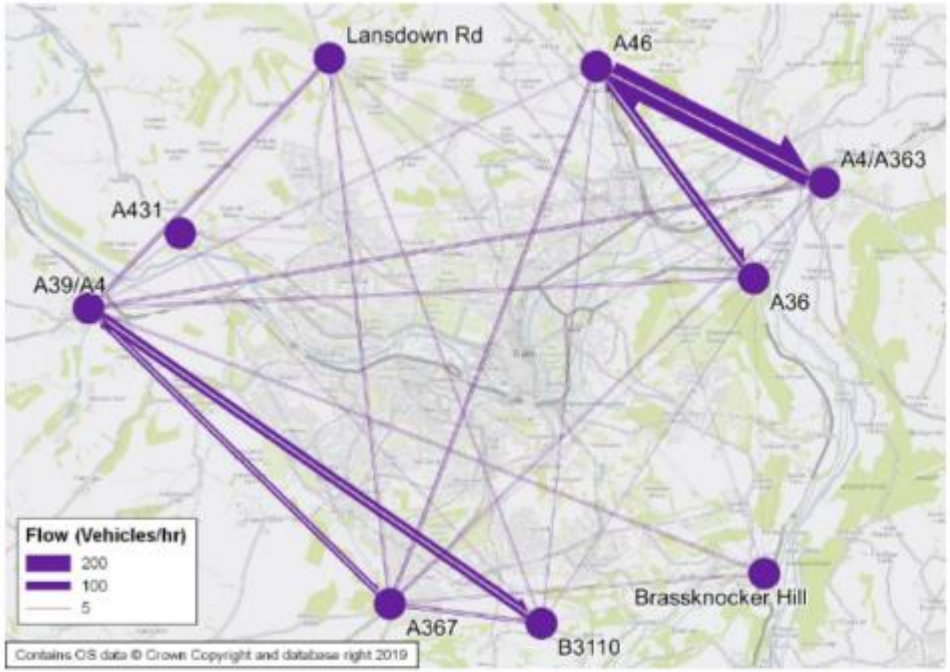

Figure 2.52: Through traffic (Source: ANPR survey)

The ANPR survey analysed the origins of vehicles using the city centre car parks (Figure 2.53). This found that the majority of people use the car park closest to their origin point. However, there are still a significant number of vehicles circulating the city centre to find other car parks, potentially closer to their end destination but within a short walk away of other nearby car parks. The most noticeable of this is trips to Charlotte Street from the east followed by those parking at the Southgate centre travelling from the north and east. The former is partly explained by the length of stay restrictions on the car parks.

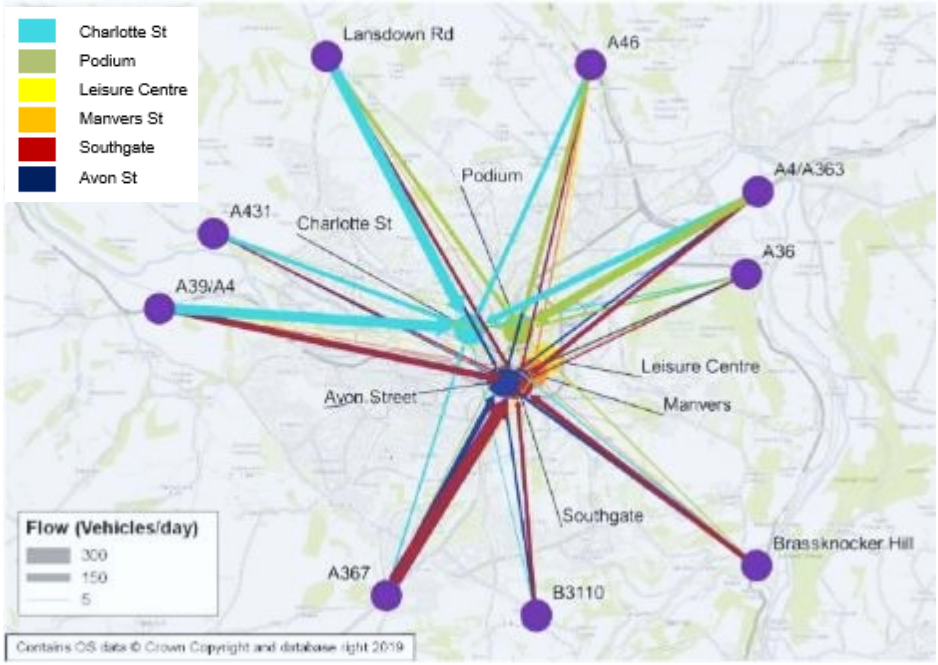

Figure 2.53: Car park origins (Source: ANPR survey)

Key issues & opportunities identified:

- There has been no significant motor traffic growth in Bath in the last decade, and central Bath has seen a steady reduction in motor vehicle flows thanks in part to successful sustainable transport and demand restraint measures including removal of city centre parking;
- There is still heavy congestion in areas of Bath during peak periods, with constraint points on the network including Bathwick Street, London Road, Lower Bristol Road, Wells Road/Wellsway, and Rossiter Road;
- Motor traffic volumes in Bath are still having a detrimental impact on the quality of life of Bath residents and the fabric of its urban realm and the World Heritage Site;
- 75% of people driving to work in Bath do so from outside the city boundary, however, there are much higher levels of short distance car use for other trip purposes within Bath;
- There are lower levels of through traffic than previously thought, and the benefits on London Road from the proposed A46-A36 Link would likely be very low;
- A significant number of vehicles circulate the city centre to find slightly more convenient car parks, within a short walk of other car parks.

Ultra Low Emission Vehicles

The West of England is taking a proactive approach to testing new technologies and developing solutions to face the challenges of a modern city, including in our recent Future Mobility Zone bid (see section 4).

In 2018 there were 418 Ultra Low Emission Vehicles (ULEV), typically fully electric or plug in hybrid vehicles, registered in Bath and North East Somerset representing just 0.37% of total vehicle registrations. While this is a very small percentage, growth in ULEV vehicles in B&NES is growing rapidly from a low base of just 40 registrations five years ago in 2014.

Bath and the West of England as a whole, have favourable conditions for ULEV growth, with above representation of socio-economic groups with characteristics which increase the likelihood of ULEV purchase[18]. Further, there are large numbers of small and medium enterprises with associated above average annual rates of purchase of company cars, who will also benefit from upcoming national changes to taxation for electric company cars. Evidence on ULEV uptake was summarised in the 2015 Rapid Evidence Assessment report for the Department for Transport and suggests that the typical early adopter ULEV purchaser is male, middle aged, affluent and well-educated, living in an urban household with two or more vehicles and potential for off-street charging. However, for ULEVs to become mainstream a much wider cross section of society will need to make the switch to electric vehicles, and in Bath innovative solutions to on-street charging will likely be needed.

The Department for Transport currently forecasts that around 14% of the total car km travelled by 2030 will be by ULEVs (Figure 2.54). However, the B&NES Climate Emergency Outline Plan (CEOP) recommends a much faster rate of adoption will be needed, with an almost immediate phase out of petrol and diesel vehicles required. Significant action would be required at both the national and local level to meet the CEOP recommendations. However, B&NES does have strong conditions to support ULEV growth and experience from Norway shows what is possible. Norwegians are among the wealthiest people worldwide and have been supported by generous and consistent ULEV subsidies and benefits. In March 2019, 60% of new car sales in Norway were electric vehicles, with ULEVs now representing over 11% of the total passenger car fleet.[19]

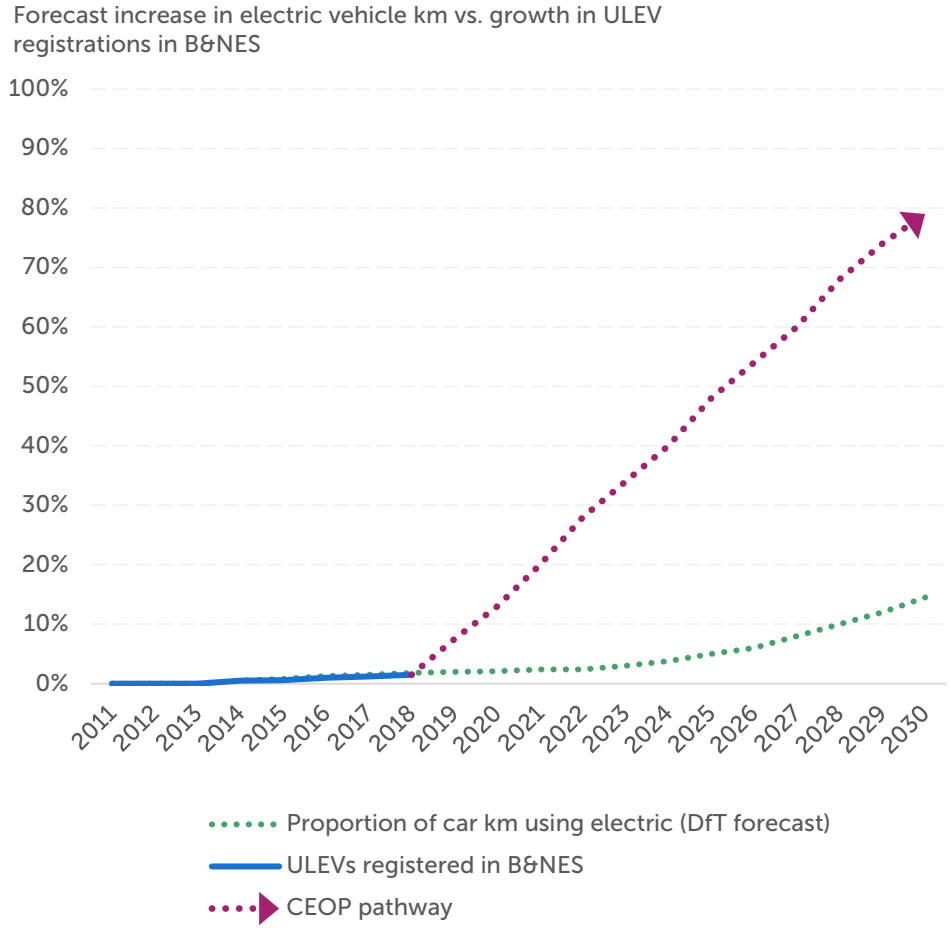

Figure 2.54: Actual, forecast, and target growth in Ultra Low Emission Vehicles in B&NES

[18] Source: West of England Go Ultra Low bid

[19] Norwegian Road Federation (OFV) (April 2019). "Kjøretøybestanden per 31. mars 2019" (in Norwegian). OFV. Retrieved 2019-04-12

A recent review by Deloitte found that key barriers to increased adoption of ULEVs in the UK were:

- Driving range
- Cost/price premium
- Lack of electric vehicle infrastructure

Other more minor concerns included the time required to charge, safety concerns with battery technology, and lack of vehicle or brand choice[20].

These barriers are gradually being overcome, with more brands and vehicles coming to the market with increased driving ranges and a lower cost of vehicle. Further local measures and incentives, including increased electric vehicle charging infrastructure and measures within the Clean Air Plan, could also help encourage ULEV take up in Bath. Figure 2.55 shows there are already ten publicly available charging points within Bath and the West of England's 'Go Ultra Low' project will add 28 charging points in public car park across B&NES in 2020/21

Key constraints to installing additional charging points include:

- a lack of space for on-street charging points, with innovative solutions including consideration of lamp-post based charging and charging points on build-outs in the street likely to be required to avoid trailing wires and blocking of footways;
- electric grid capacity constraints, particularly with increased demand for electricity for home cooking and heating in future. Rapid vehicle chargers in particular, often require local electric grid upgrades which can be costly. There is adequate capacity to deliver the Go Ultra Low proposals. A Network upgrade for Bath will be required to deliver further Rapid Chargers and the B&NES Regeneration Team is developing options with Network Suppliers. Emerging technology such as smart charging, vehicle to grid, grid balancing equipment, and battery storage will likely be needed to reduce these issues as electric vehicle usage increases. These technologies work to reduce the maximum load on the electric grid at peak times, helping to better manage demand and reduce the total amount of additional electricity generation needed.

Key issues & opportunities identified:

- Bath has favourable conditions for Ultra Low Emission Vehicle (ULEV) growth;
- The B&NES Climate Emergency Outline Plan recommends an almost immediate phase out of petrol and diesel vehicles is needed. This would require significant action at both the national and local levels;
- Key barriers to increased adoption of ULEVs are driving range, cost/price premium, and lack of electric vehicle infrastructure;
- Lack of space for on-street charging points, with potential for blocking the footway and trailing wires;
- Electric grid capacity constraints.

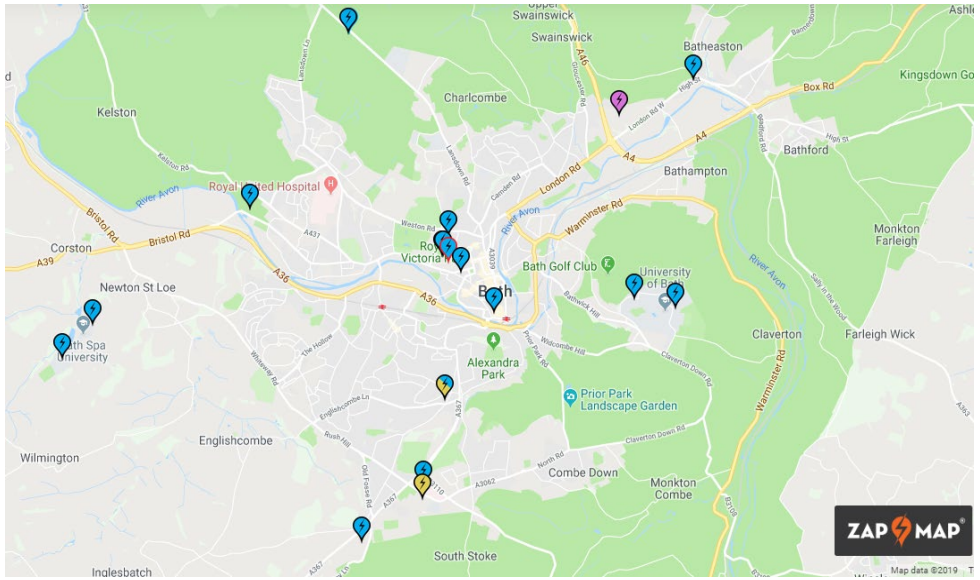

Figure 2.55: Public Electric Vehicle charging points (Source: ZapMap)

[20] Source: https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/manufacturing/deloitte-uk-battery-electric-vehicles.pdf

The road to electrification

Technological improvements and regulatory pressure are rapidly increasing the number of electric vehicles coming to market over the next few years. Battery technology is constantly improving with costs dropping by an estimated 14% per year and ranges continuing to increase[21]. A recent breakthrough in rapid charging has also identified a way to minimise battery degradation, meaning regular 10-minute charge times could become a reality in the next few years[22]. Innovation including smart charging/smart grid, use of battery storage, Vehicle to Grid (V2G), grid balancing technology, solar car ports, and wireless charging, could all further enable the transition to electric vehicles.

In London, the Ultra Low Emission Zone (ULEZ) and taxi licencing arrangements are increasing adoption of various electric vehicle types. For example, the London Fire Brigade are converting its vehicle fleet to electric, including developing prototype fully electric fire engines.

Taxis: Use of electric and hybrid vehicles by taxi and private hire companies has been increasing in recent years. In London, the ULEZ, taxi licencing requirements, and a grant scheme has encouraged take up of electric black cabs, including the LEVC TX and Dynamo Taxi which have a large enough range to operate all day without a charge. The taxis have been well received by cab drivers and the public, with reports of many people waiting for older taxis to pass to catch a new electric taxi.

Electric vans are becoming a focus for many manufacturers. There are already electric vans on the market including from Renault, Nissan, and Peugeot, with Mercedes and VW vans soon to go in to production. While purchase costs are still high, this is offset by lower running costs, with many large vans now having 100+ mile range. Companies such as Gnewt are leading the conversion to electric freight, with a fully electric vehicle fleet of over 100 vehicles now in operation.

[21] Source: https://www.iflscience.com/technology/battery-costs-drop-even-faster-electric-car-sales-continue-rise/

[22] Source: https://www.theguardian.com/environment/2019/oct/30/electric-cars-could-be-charged-in-10-minutes-in-future-finds-research

Buses: Metroline are now operating fully electric double decker buses on several routes in London, with a range of 190 miles. The buses can operate all day without a charge with only 4 hours to fully recharge[23]. While the costs are still significant, these are likely to reduce in future with falling battery prices and other technology improvements. Hybrid buses were trialled for a park and Rides site in Bath in 2016, the steep hills created reliability issues for batteries and the trial was not successful, however, battery technology is constantly improving, and the issues experienced may be overcome in future.

Heavy Goods Vehicles (HGV) – Tesla are planning to release an all-electric HGV in 2020, which the company claim will have a 600-mile range when fully loaded with 36 tonnes of cargo. New high speed "Mega-chargers" will allow the trucks to add about 400 miles in 30 minutes. Some critics have highlighted that the weight of the batteries needed, estimated to be over 11tn, would reduce the maximum load that can be carried negatively affecting commercial viability, particularly in the UK where there is a 44tn weight limit[24].

In Germany, trials are underway to test overhead lines on strategic roads so that HGVs can charge on-route and allow for smaller battery sizes[25], and in future hydrogen fuels may have a role to play in decarbonising freight.

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Whilst the uptake of electric vehicles is critical in helping to deliver reductions in harmful emissions there is also a clear need to increase the use of other alternative fuels to drive our vehicles including biofuel and hydrogen. This is especially true in Bath where the terrain makes it challenging for electric buses to operate. Hydrogen buses have been successfully operating in numerous locations for a number of years with London about to introduce the world's first hydrogen powered double decker bus. Meanwhile the UKs first hydrogen powered ferry was introduced in Bristol in 2011. Ultimately whilst the use of alternative and more sustainable fuels is an important step in reducing harmful emissions it is not a long-term solution as the dependency on cars will still remain. A wholesale shift to electric vehicles may actually increase congestion rather than decrease it. By 2050 Department for Transport studies suggest a 17% increase in traffic levels if car growth continues as it has previously but with users shifting to electric vehicles this could increase to a 51% rise. The long-term solution therefore involves all of us using more sustainable, active and carbon neutral modes of transport in the future by walking and cycling more.

[23] Source: https://www.metroline.co.uk/news/metroline-launches-new-electric-buses-route-134

[24] Source: https://en.wikipedia.org/wiki/Tesla_Semi

[25] Source: https://edition.cnn.com/2019/05/07/tech/e-highway-a5/index.html

Parking

Parking plays a key role in managing car traffic demand, with the availability and pricing of parking playing strongly influencing the travel choices that people make.

On-street parking within the central area of Bath in particular, negatively impacts on the quality of some public spaces, prevents the use of street-space for public realm, walking, cycling, and bus improvements, and as noted previously is causing pinch points for buses in key locations.

Progressive reductions in the supply of public on and off-street parking in the central area, supported by surrounding Residents Parking Zones, have supported a shift to provision of long stay parking at Park & Ride sites in recent years. This has enabled public realm improvements and contributed to a reduction in traffic within the central area of Bath. Elsewhere, a significant amount of private non-residential parking is not owned by the Council and is therefore harder to influence, with key sites including the hospital (approx. 1,300 spaces) and the University of Bath (approx. 2,200 spaces).

The Getting Around Bath Transport Strategy recommended that this policy needs to be strengthened and extended. Further removal of central area parking will occur as part of the development of the Enterprise Area, with a reduction in spaces at Avon St car park, and the removal of Manvers St car park. The consequences are better air quality and improvements to public health, less vehicle intrusion (noise and street impacts), maintaining the built environment, better visitor experiences, accessibility for people with mobility impairments and a healthy economy.

The 2018 "Balancing Your Needs: A parking strategy for Bath & North East Somerset" document, sets out a long-term plan for the management of all aspects of parking including:

- Parking standards for new developments;
- Public off-street parking including Park & Ride;
- Public on-street parking and Residents Parking Zones;
- Private off-street parking;
- Parking charges;
- Multi-modal parking, including disabled parking and coach parking; and,
- Parking management during Major Events.

The parking strategy sets out a hierarchy of kerb space to help inform decisions about the use of street space. The hierarchy is:

1) Bus stop
2) Taxis
3) Blue badge parking
4) Deliveries
5) Motorcycle and cycle parking
6) Car clubs
7) Residents' parking
8) Short stay parking
9) Long stay parking

The Parking Strategy includes a comprehensive assessment of parking data in Bath, including both off-street and residents on-street parking. This section presents a summary of this information, with updated data where available.

Off Street Parking

Figure 2.57 shows publicly available off-street car parks within the centre of Bath, that are a mix of publicly and privately owned, long and short stay. All of these car parks experience high levels of occupancy nearing capacity, particularly during the middle of the day and on Saturdays and during the Christmas period.

The development planned at Bath Quays will affect the supply of off-street parking in Avon Street, Cattlemarket, and Manvers Street, with a reduction to a maximum of 500 spaces. The current level of off-street parking provision in central Bath is shown in Table 2.7 below.

Table 2.7: Off-street parking provision in central Bath

Car park	Spaces	Pricing						
		1hr	2hr	3hr	4hr	6hr	8hr	12hr
Claverton Street	11	£1.60	£3.20					
Bath Sports and Leisure Centre Car Park	128	£1.60	£3.20	£4.80	£6.40			
Broad Street Car Park	48							
Cattle Market Car Park	40							
Kingsmead Square	91							
The Podium*	521	£2.50	£4.00	£5.50	£6.50			
Southgate Bath*	876		£3.50	£4.80	£5.80	£8.50	£11.00	
Avon Street	628		£3.20	£4.80	£6.40	£9.60	£12.80	£15.00
Manvers Street	159							
Charlotte Street	1056				£6.40	£9.60		£15.00
Bath Cricket Club*	140		£3.10	£4.50	£5.80	£8.40	£10.80	
Waterside Travelodge*	80	£15.00 per day						
Bath Spa*	80	£11.70 per day						
Sainsburys*	446	Free for 90mins						

Parking charges can be a very effective method for managing traffic and parking demand. Table 2.7 shows that despite recent price increases public short stay off-street parking in Bath is still cheaper than the equivalent cost of parking at the private car park at the Podium, and these are similar to charges at Southgate.

The Parking Strategy explored parking charges in Bath. A comparison of parking charges in Bath with other similar locations (Figure 2.56) demonstrates that charges for long stay parking in Bath are significantly lower than other authorities whilst short stay parking charges are similar. While there has been a marginal increase in some parking costs in Bath since the Parking Strategy was written, this is still the case, with locations with higher charges for long stay parking including Canterbury, Cambridge, Oxford, and Winchester. All of these are historic cities comparable to Bath.

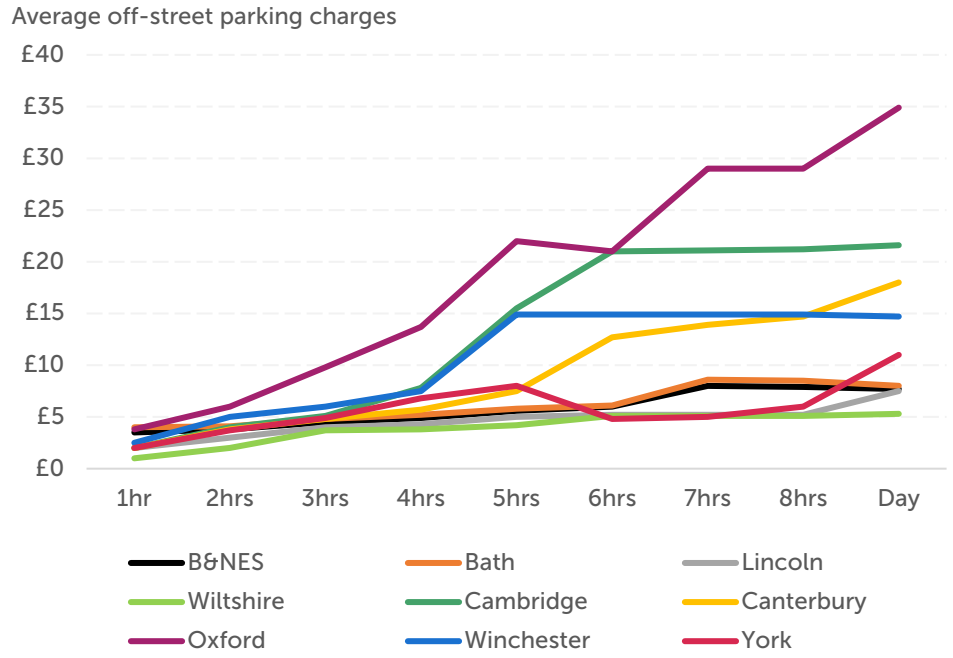


Figure 2.56: Off-Street car park charges in Bath and comparable cities

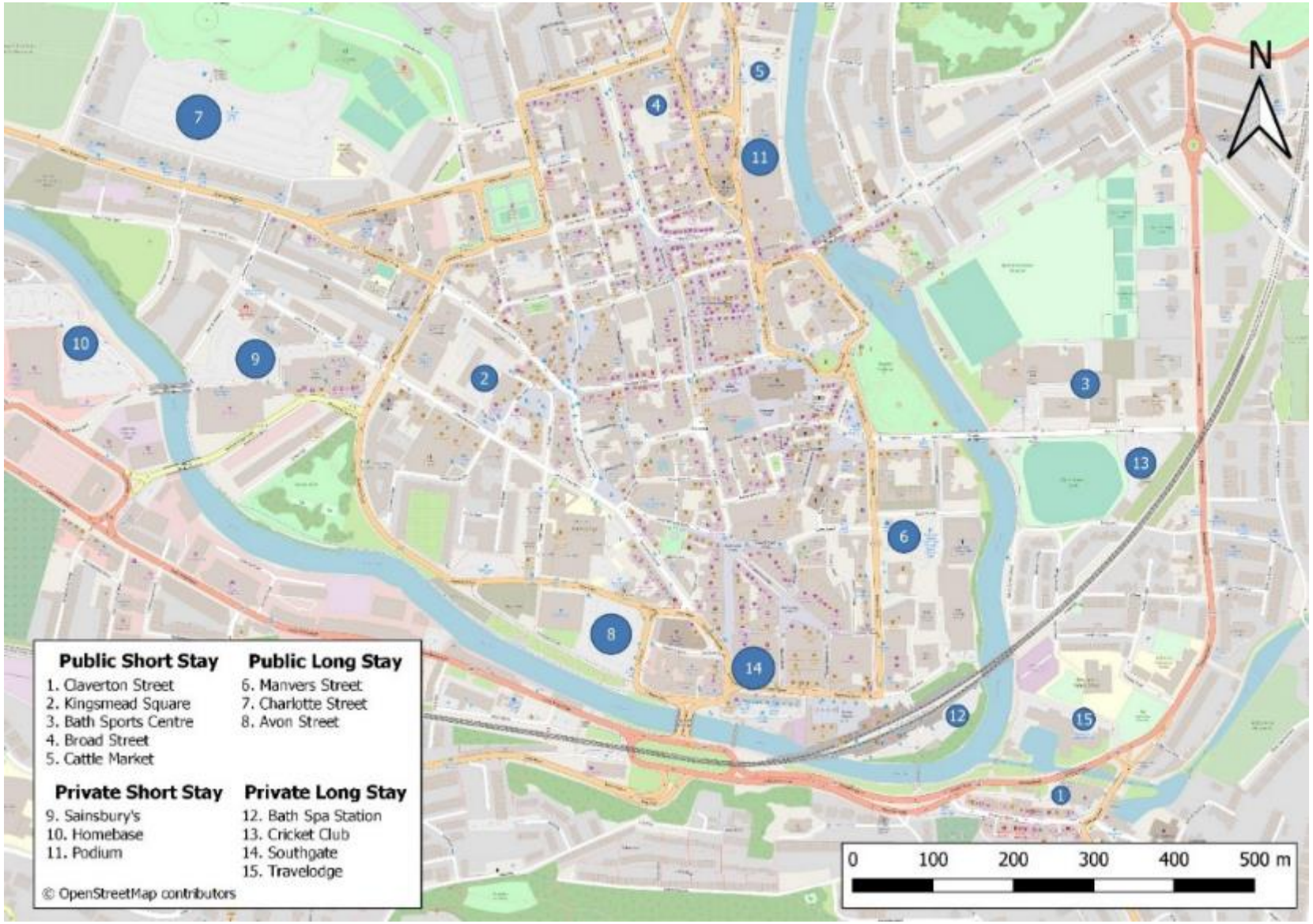


Figure 2.57: Off-Street car parks

The following figures show average occupancy levels at key Bath off-street car parks during September 2019. The results show the majority of central Bath car parks are approaching maximum occupancy during the middle of the day throughout the week and on Saturdays. Manvers Street appears to be over capacity, which may in part be due to a large number of short stay visits and the small size of the car park.

Charlotte Street, with over 1,000 spaces on the edge of the city centre has a large amount of spare capacity, peaking at around 60% occupancy on a Saturday. Following a price rise at this car park in August 2018 peak occupancy has dropped significantly, with peak occupancy on a Saturday in September 2017 recorded at 96%. This illustrates how effective pricing can be in managing parking and travel demand.

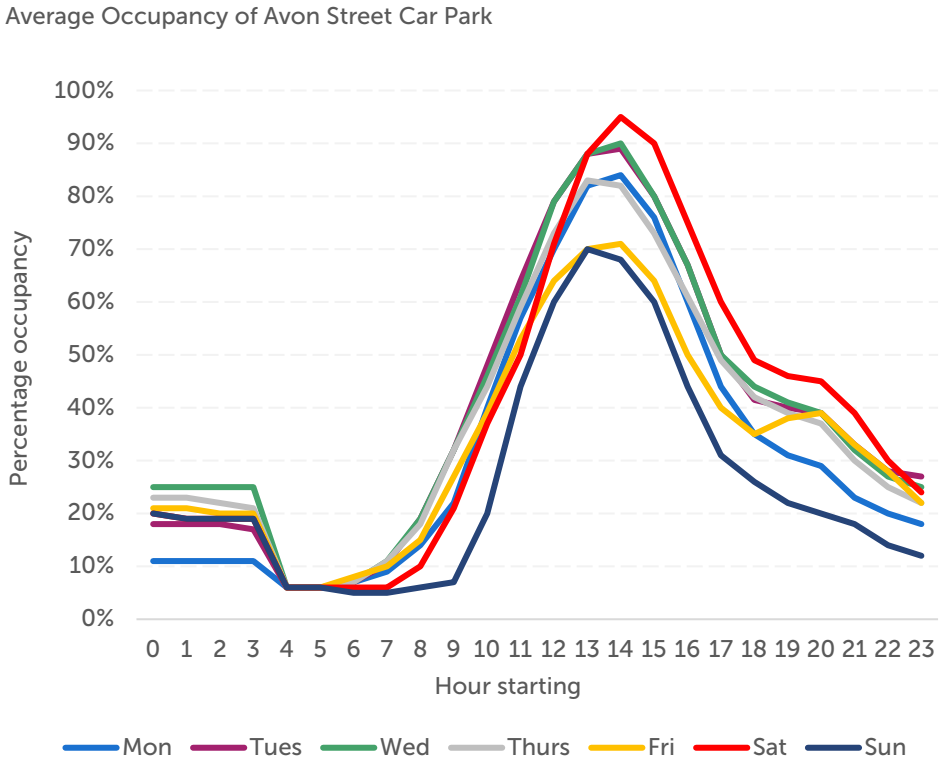


Figure 2.58: Average Occupancy of Avon Street Car Park

Overall, there is spare parking capacity within the city centre throughout the week.

Parking data for the Park & Ride sites over the same period shows that post expansion, the Landsdown and Odd Down Park & Ride sites are around 60% occupied on a typical day with spare capacity, however, the Newbridge site approaches maximum capacity particularly on a typical Wednesday and Thursday. This indicates that overall there is spare capacity in the Park & Ride sites, which could accommodate further displaced parking from the central area if needed.

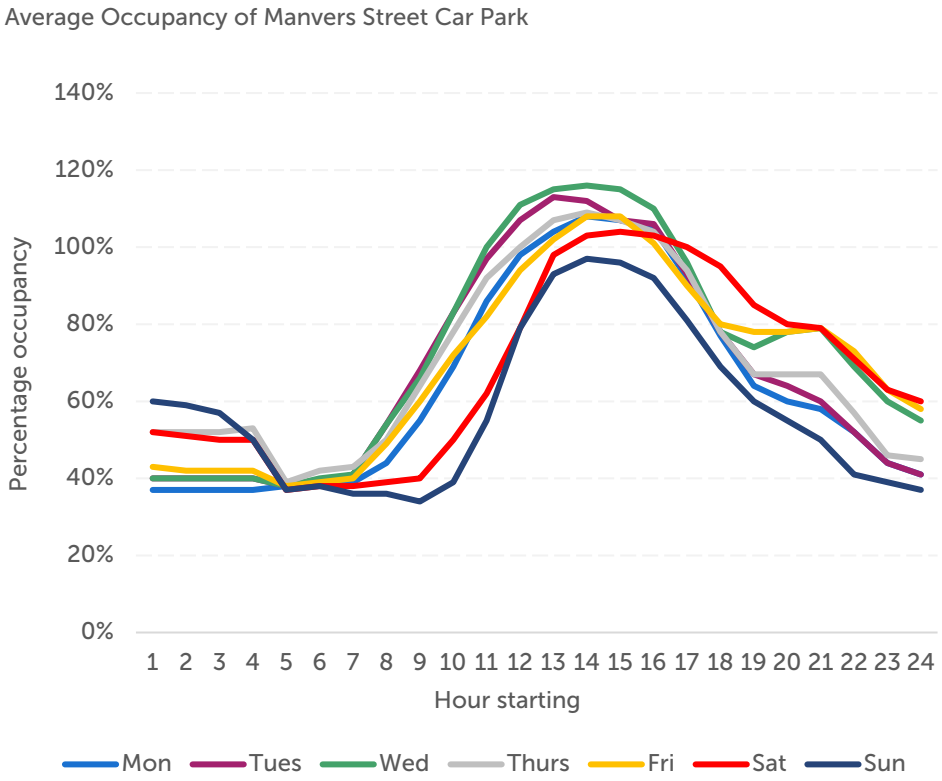


Figure 2.59: Average Occupancy of Manvers Street Car Park

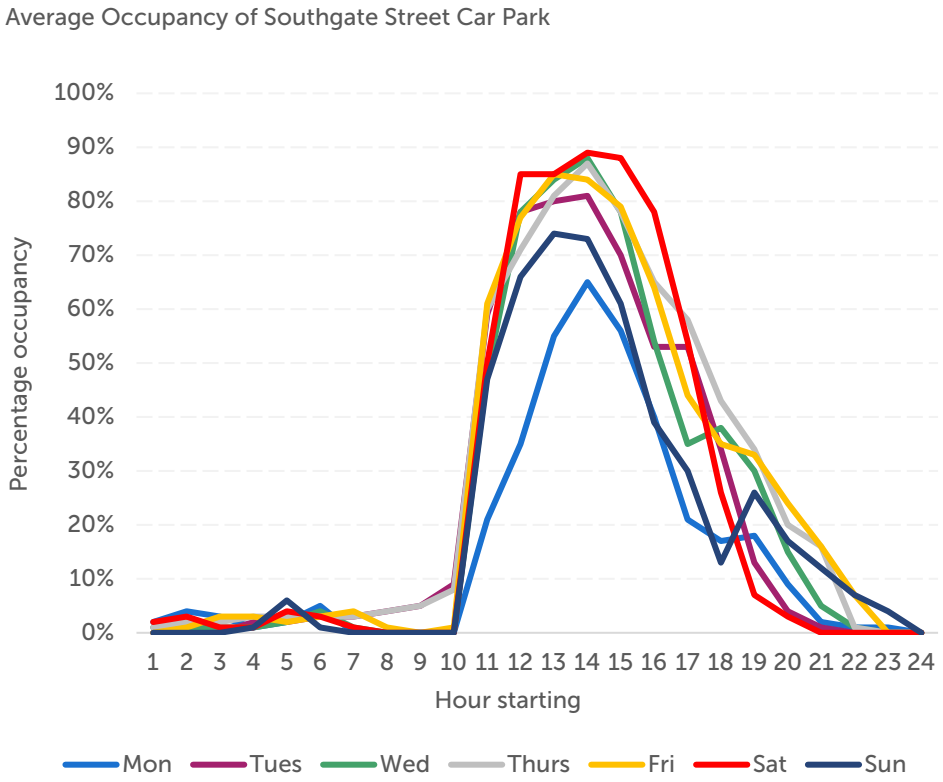


Figure 2.60: Average Occupancy of Southgate Car Park

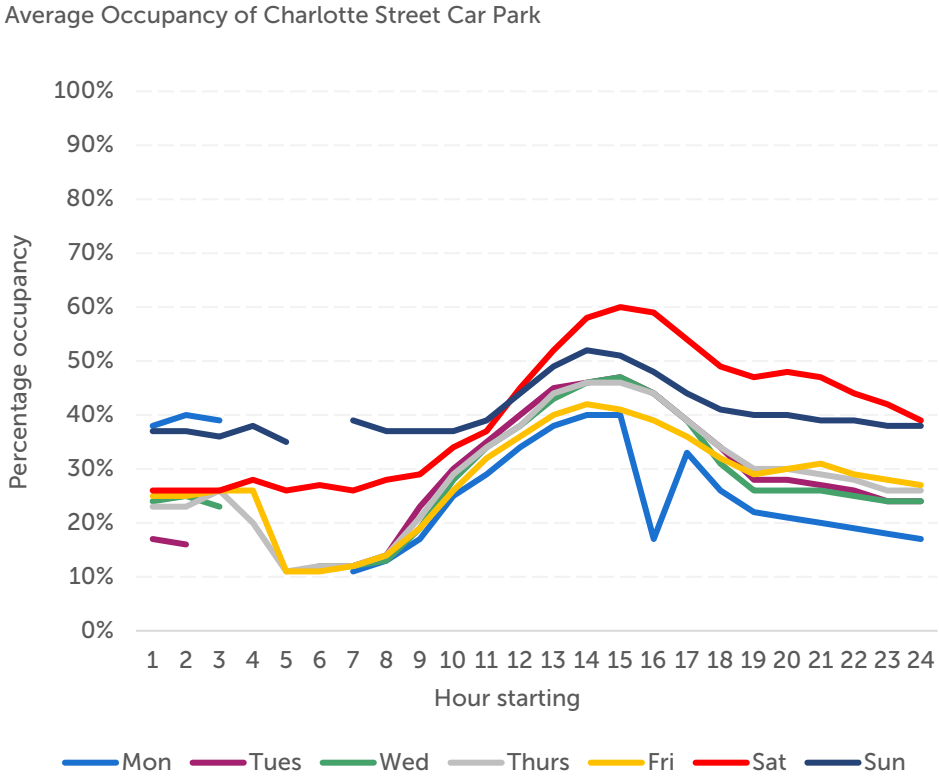


Figure 2.61: Average Occupancy of Charlotte Street Car Park

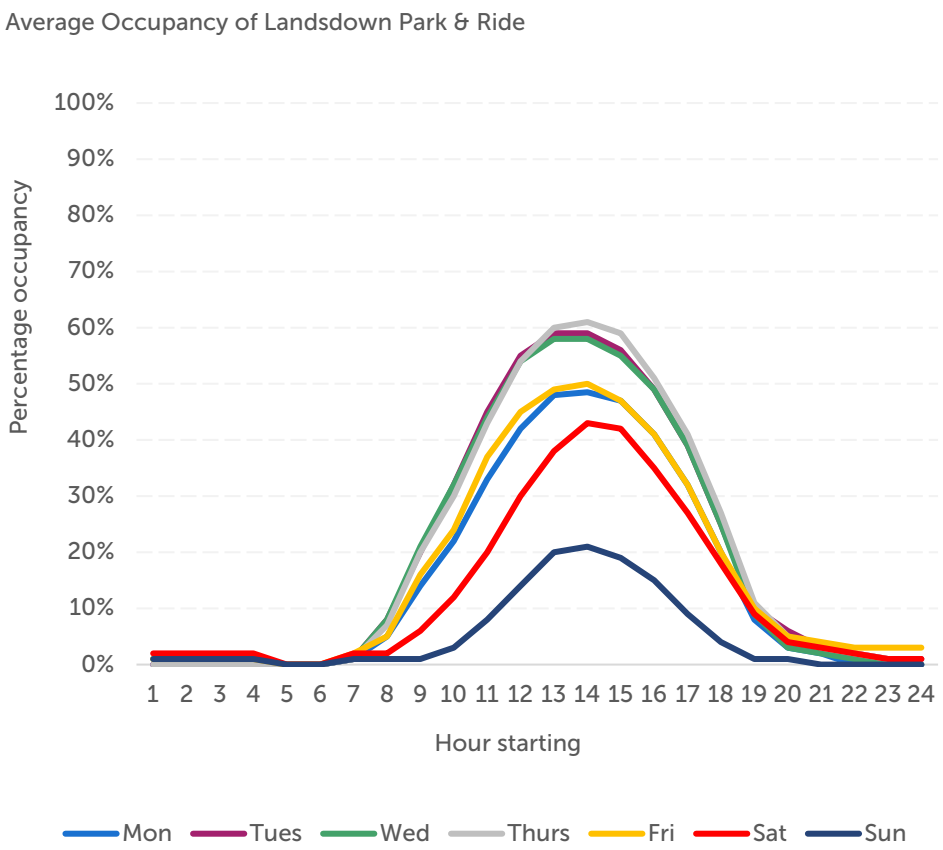


Figure 2.62: Average Occupancy of Landsdown Park & Ride

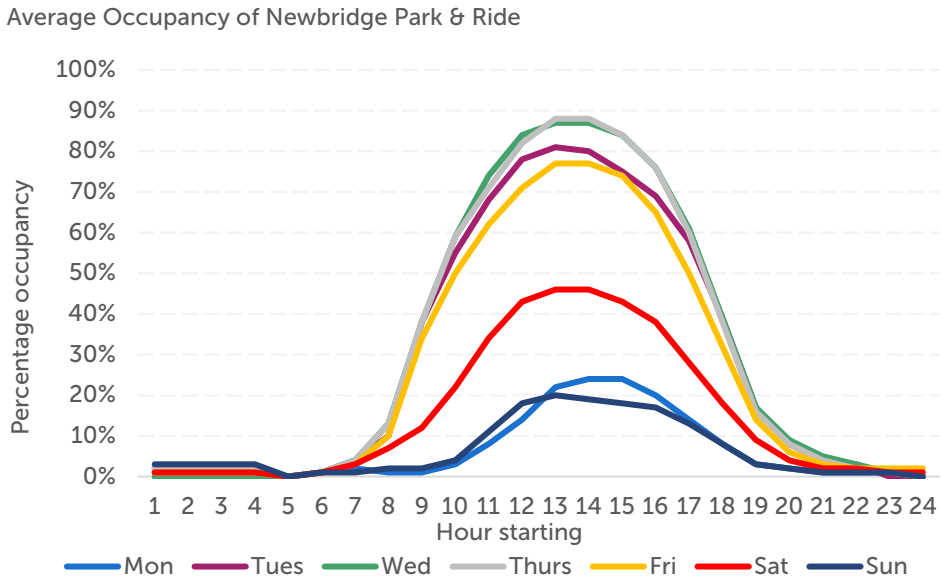


Figure 2.63: Average Occupancy of Newbridge Park & Ride

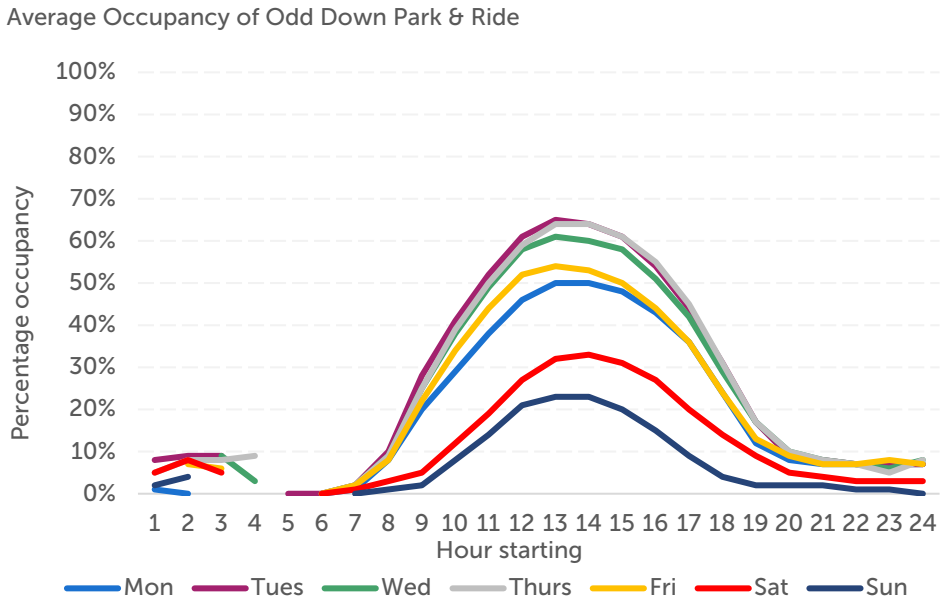


Figure 2.64: Average Occupancy of Odd Down Park & Ride

Disabled Users

The importance of providing dedicated blue badge spaces for those with mobility problems is recognised and dedicated spaces for blue badge holders are provided in almost all public and private car parks, with 279 disabled bays in off-street car parks in Bath at the time the Parking Strategy was written. The Council also provides 45 dedicated on-street spaces in Bath.

In future, proposed access restrictions in the city centre of Bath set out in the Public Realm and Movement Strategy have the potential to adversely impact the provision of on street disabled parking. Adequate consideration of this during the design of these schemes should ensure that opportunities to maintain and enhance levels of disabled access are maximised.

Residents parking

Residential streets are often subjected to extensive parking by non-residential users, such as shoppers and commuters. In order to manage on street parking in Bath, the Council has introduced 20 residential parking zones, presented in Figure 2.65.

In the central zone, there are more issued permits than available spaces, with a shortfall of nearly 300 spaces, when only considering residential permit demand (Figure 2.66). The situation is made worse for residents as many central zone bays are dual use with both residents permits and pay & display uses allowed.

In 2014, Bath and North East Somerset Council published 'Guidance to the Introduction of Residents Parking Schemes' and 'Purpose of Residents Parking Schemes', both containing information and assessment criteria for residents that would like to introduce an RPZ in their neighbourhood.

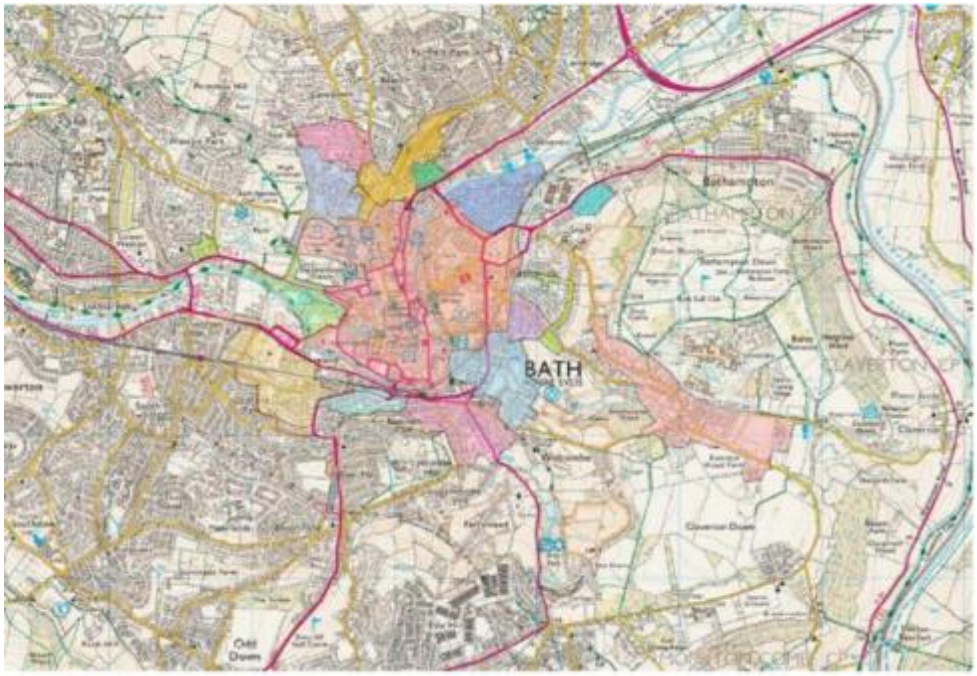


Figure 2.65: Residents Parking Zones in Bath

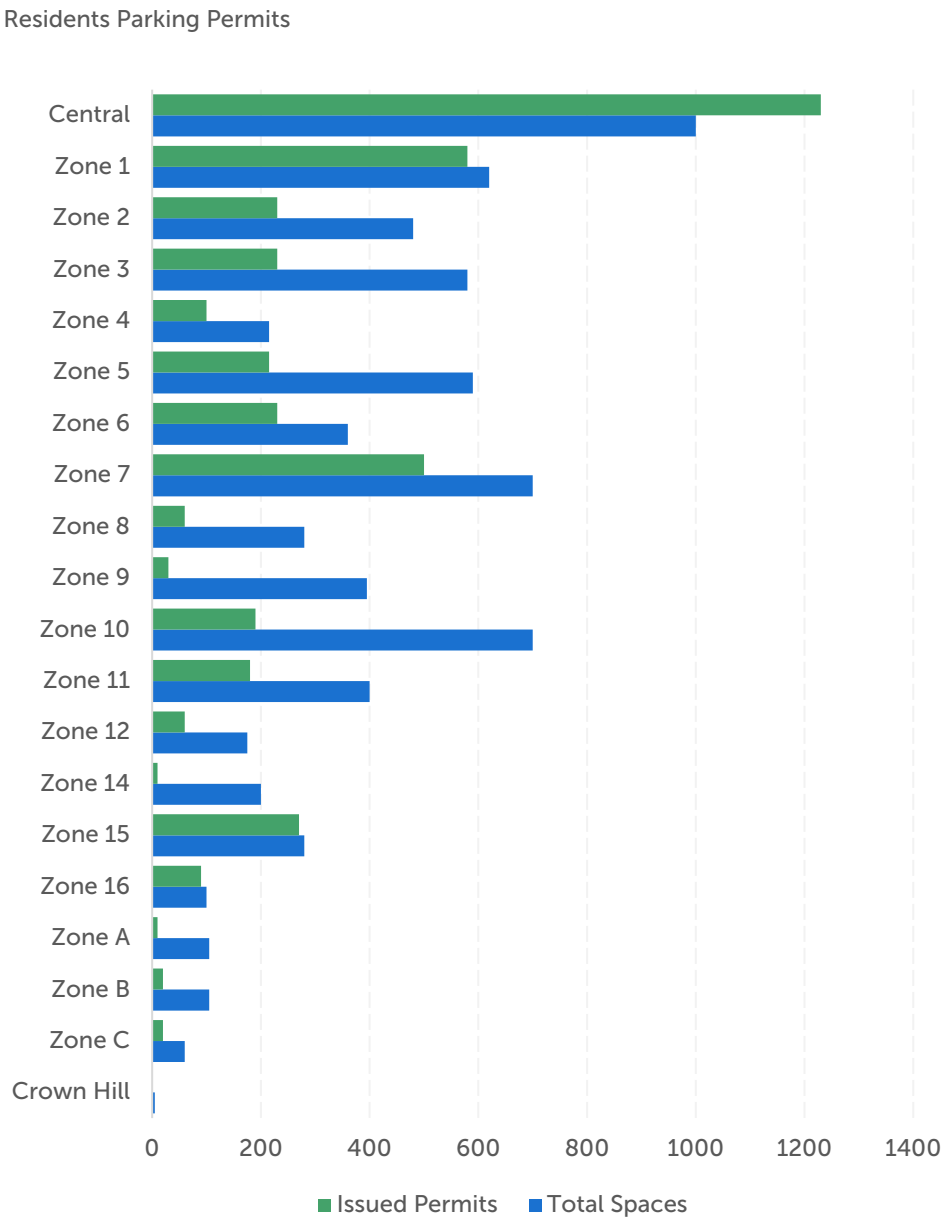


Figure 2.66: Residents parking permits issued and spaces available

Taxis

Taxis are an important part of the public transport network by serving people who cannot access buses, those who need to travel outside of the hours buses operate and supporting tourism activities. The advent of new app-based taxi services such as Uber is also having an impact on travel in and around Bath. As highlighted above, taxis are placed second only to buses in the parking strategy hierarchy of kerb space, and taxis are permitted to use bus lanes in Bath, helping to support this mode of transport. Taxi ranks are located at:

- Abbey (Orange Grove)
- Bath Spa Station
- Cheap Street
- Henry Street
- Queen Square
- Southgate Street
- Walcot Street
- Westgate buildings

In consideration of the desire to reduce noise nuisance and air pollution, the Parking Strategy recommends taxi companies should be encouraged to change their car fleets to electric or hybrid vehicles in line with the clean air zone.

Key issues & opportunities identified:

- Parking plays a key role in managing car traffic demand;
- On-street parking in the central area of Bath in particular is negatively impacting the quality of some public spaces, and preventing the use of street-space for public realm, walking, cycling, and bus improvements.

The parking strategy notes the following parking issues and challenges:

- On-street parking spaces in Bath are under high demand, particularly in the centre;
- Residents Parking Zones in Bath provide an effective way to protect parking space for residents rather than commuters;
- Public off-street car parks have high occupancy levels. Over time, the capacity of long stay off street parking in the city centre will be reduced in favour of short stay users;
- Park & Ride facilities are required to support a reduction in long stay parking in the centre of Bath;
- Privately operated car parks contribute significantly to the total parking stock, with high levels of occupancy. The continued regulation, charging, enforcement and management of the private car parks will have an impact on overall travel volumes and patterns on the road network;
- The pricing strategy is a key mechanism to influence change;
- In addition to car drivers, there are competing needs for kerb space including cyclists, motorcyclists, car clubs, electric vehicles, coaches, taxis, and delivery/servicing. The strategy sets out a hierarchy of kerbside use to help balance these needs;
- Increased use of technology could improve the way parking is managed in Bath;
- The pressure on parking increases during events.

Freight

As a thriving city, Bath is a key freight origin and destination, with relatively high volumes of freight traffic on key corridors, including nearly 5,000 light and heavy goods vehicle movements per day using London Road, constituting up to 20% of total daily traffic volume on this route (Figure 2.67). The A36 is the main freight route around Bath with around 3,000 light and heavy goods vehicle movements per day, representing around 15% of the total traffic volume. However, outside of these key routes the traffic model and ANPR data suggests that total freight volumes are relatively low, with around 9,000 light and heavy goods vehicle movements entering and/or leaving Bath per day. Although freight volumes are low, they can still have a disproportionate impact on the historic streets in Bath.

In recent years there has been an increase in light goods vehicle (van) traffic, largely due to the rise of internet shopping and home deliveries. While there has been a slight decrease in B&NES over the past few years (see Figure below), this trend is forecast to continue in the future resulting in significant increases in freight traffic. The introduction of the Clean Air Zone, which will charge the most polluting vans and lorries to enter the city, will help limit harmful air pollution associated with these deliveries and will further discourage freight through traffic from travelling through Bath.

Analysis of ANPR data shows that only 12% of Light Goods Vehicle and 9% of Heavy Goods Vehicle traffic is through traffic, with the majority of freight traffic on Bath's roads stopping somewhere in Bath.

Within Bath, the hierarchy of road space set out in the Parking Strategy acknowledges the need to accommodate servicing and deliveries for local businesses in order to support the local economy. However, this must be balanced with the desire to provide a safe and attractive environment within the city centre. Hence, restrictions for loading and unloading are in place within the centre of Bath, which close certain roads to deliveries between 10am and 6pm.

The Council will continue to promote access restrictions and take steps towards a traffic free city centre, with the aim of relieving congestion and improving air quality and public health.

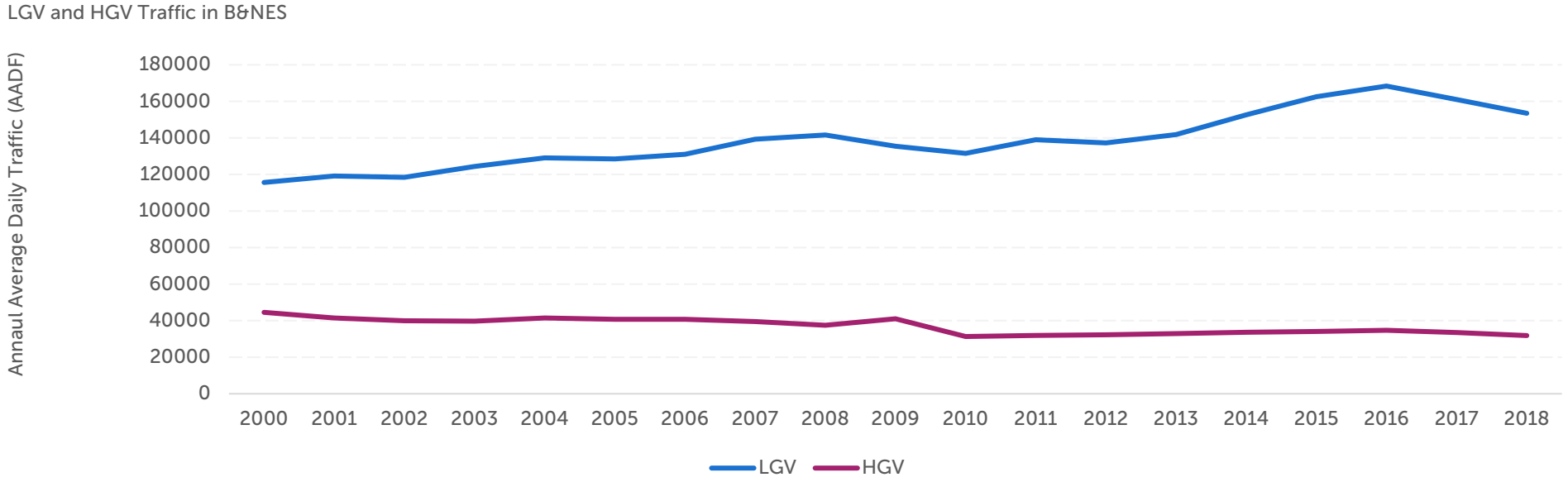


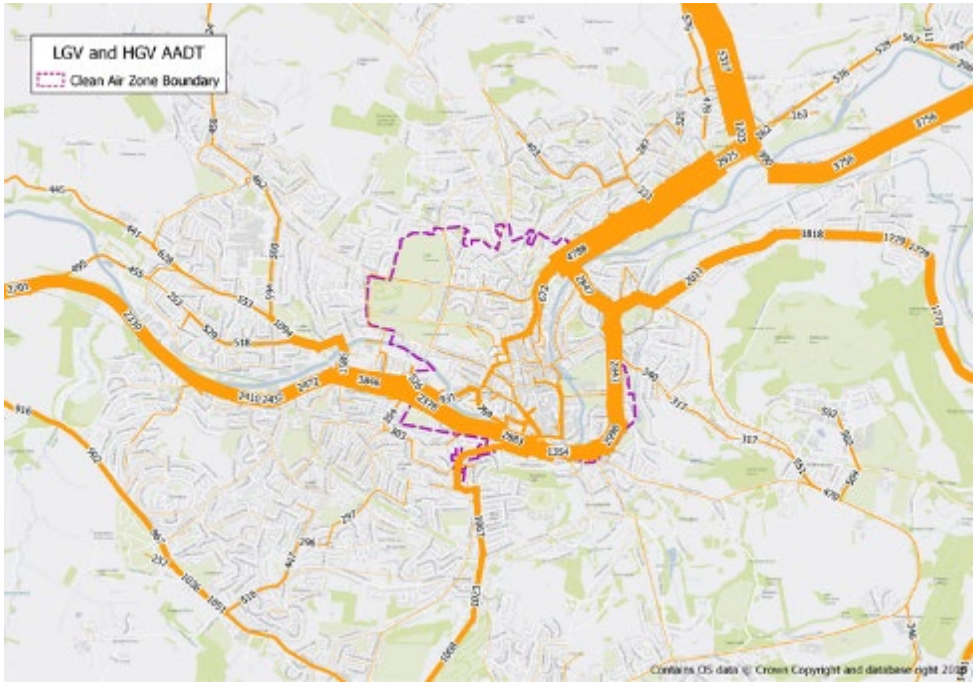
Figure 2.67: LGV and HGV Traffic in B&NES (Source: DfT Traffic Counts)

A freight consolidation scheme was in operation in Bath from 2011 to 2017. It provided electric vehicles to undertake deliveries from a site at Avonmouth, with the aim of reducing goods vehicle trips into the city centre. During the trial there was a very low take up, the Council extended the subsidy by one year to provide additional time for the operator to develop self-funding scheme. At the end of the extended subsidy period the operator did not continue the operation as it could not be made self-funding.

However, the introduction of the Clean Air Zone (CAZ) will provide a further incentive for freight companies to use a consolidation centre. The use of freight consolidation and micro-freight consolidation (e.g. using cargo bikes) is being trialed, and the freight industry may increase the use of consolidation in response to the CAZ without the need for further public sector intervention.

Key issues & opportunities identified:

- Relatively high volumes of freight traffic on London Road and the A36, with lower volumes elsewhere;
- Only 12% of Light Goods Vehicle and 9% of Heavy Goods Vehicle traffic is through traffic, with the majority stopping in Bath;
- Need to balance the need for freight deliveries with the desire to provide a safe and attractive environment within the city centre, including consideration of including more streets within limited loading hour restrictions to help unlock public realm improvements;
- The Clean Air Zone will deter unsuitable freight movements and provides an opportunity to re-explore freight consolidation opportunities.



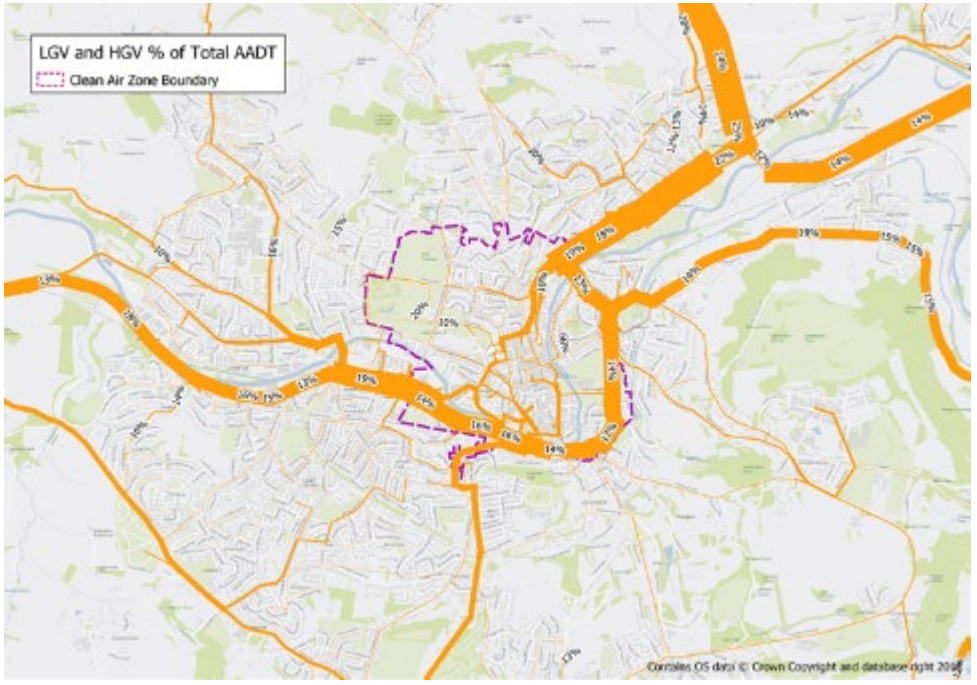


Figure 2.68: Daily volume and percentage of freight traffic in Bath (Source: GBATH model)

Broadband

As noted in the West of England Joint Transport Study, the availability of the internet and faster broadband services have had an impact on the need to travel for journey purposes such as commuting and shopping. The 2011 Census showed 12% of Bath residents worked from home, and the number of home workers in the South West has been growing year on year.

The highest proportions of people working from home tend to be in more rural areas, reflecting more home-based businesses. ONS data indicates that working from home is strongly associated with certain sectors, including technology and professional services. Working from home is less possible in the retail, health, and education sectors where face-to-face contact is an important part of the role.

In future, technological advances will mean that many functions can be performed without the need to be present in a physical workplace.

There are significant differences in broadband coverage across Bath and North East Somerset (Figure 2.69). While Bath is relatively well serviced, there are faster speeds available in the south-west of Bath compared to the north of Bath. Looking further afield, the more rural parts of B&NES still have relatively poor broadband speeds. Increasing the speed of broadband in these areas could play an important role in tackling long distance car commuting from these areas, helping to achieve the Climate Emergency Outline Plan aim of a significant reduction in vehicle miles travelled.

Key issues & opportunities identified:

- High percentage of residents already working from home, with potential for further growth;
- Improving the speed of broadband in more rural areas of B&NES could play an important role in reducing total vehicle distance travelled.

Figure 2.69: Broadband coverage in B&NES (Source: https://checker.ofcom.org.uk/broadband-coverage)

What are the impacts of our travel?

As set out in the JLTP4, our transport choices have a number of wider impacts. This ranges from health and air quality impacts, noise impacts, safety and road collisions, contributing to the climate emergency, and impacting the nature and quality of our public spaces.

Physical inactivity directly contributes to 1 in 6 deaths in the UK and costs £7.4bn a year when the impact on the NHS, social care, absence from work and other factors are taken into account[26]. Incorporating physical activity in to everyday life by increasing the amount people walk and cycle can play a significant role in reducing these deaths and improving quality of life. As detailed previously, Bath has relatively high levels of walking to work, but lower levels of cycling to work than other comparable UK cities.

Within Bath the Clean Air Zone proposals have sparked a wider discussion on air pollution within the city, with air pollution also contributing to a significant number of deaths and poor health outcomes. The Clean Air Zone aims to bring the Bath Air Quality Management Area (Figure 2.70) in to compliance with EU and UK regulations as soon as practically possible.

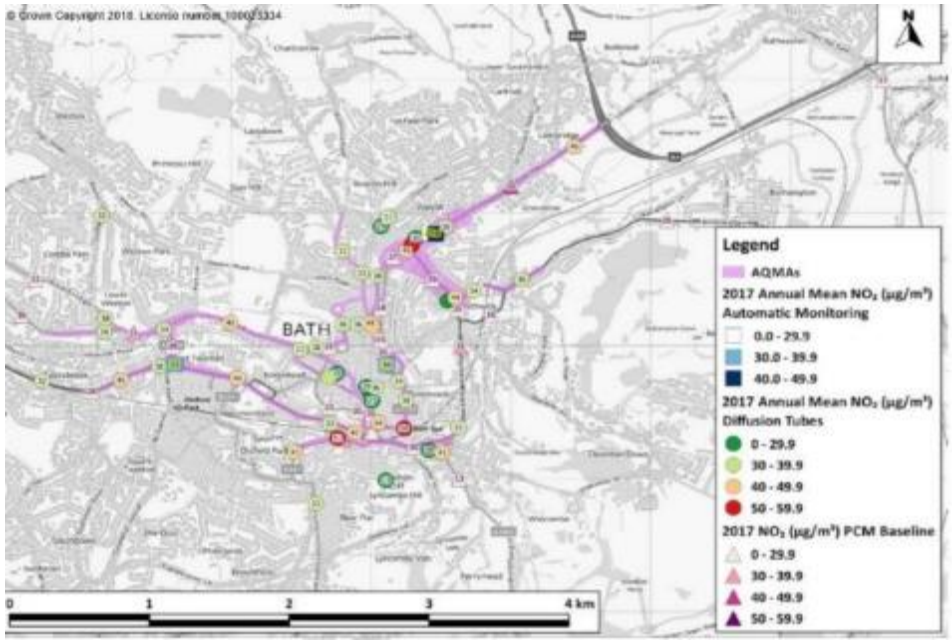


Figure 2.70: Bath Air Quality Management Area (AQMA)

[26] Sources: Lee IM, et al. (2012). Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. Lancet 380: 219–29. 26 Scarborough P, Bhatnagar P, Wickramasinghe KK, Allender S, Foster C, Rayner M (2011) The economic burden of ill health due to diet, physical inactivity, smoking, alcohol and obesity in the UK: an update to 2006–07 NHS costs. Journal of Public Health 33 (4): 527-535 27 Ossa D and Hutton J (2002) The economic burden of physical inactivity in England. London: MEDTAP International

Figure 2.71 shows the relative carbon emissions and space requirements per person of different types of transport, highlighting the need to shift away from the petrol/diesel car both in terms of climate impacts and the impact on streets and spaces.

Road traffic is the biggest cause of community noise in most cities, with noise linked to sleep disturbance, cardiovascular disease, psychological problems, and even premature death. Figure 2.72 shows that road and rail noise is concentrated on the key corridors within Bath, with large areas of the city are negatively impacted.

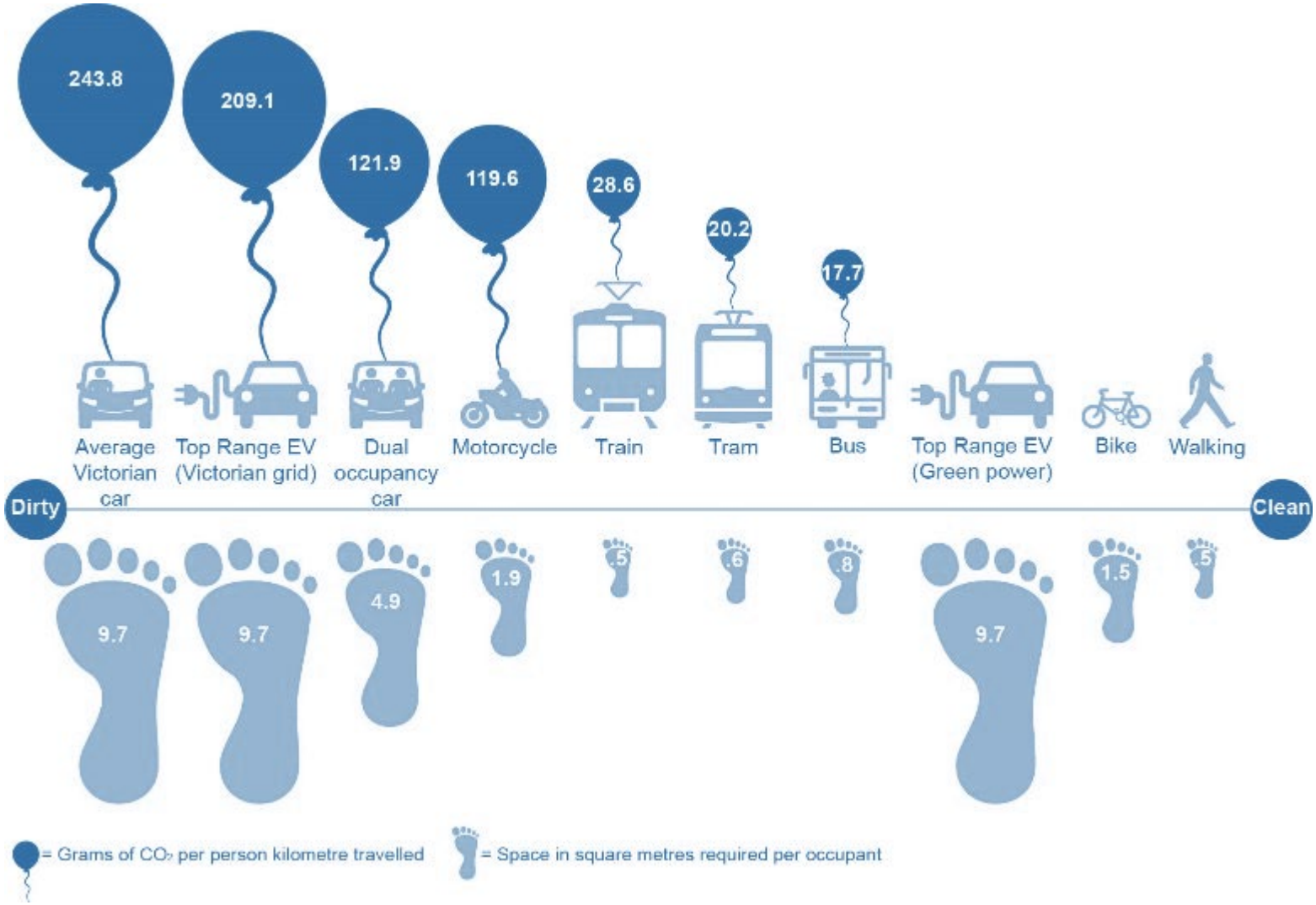
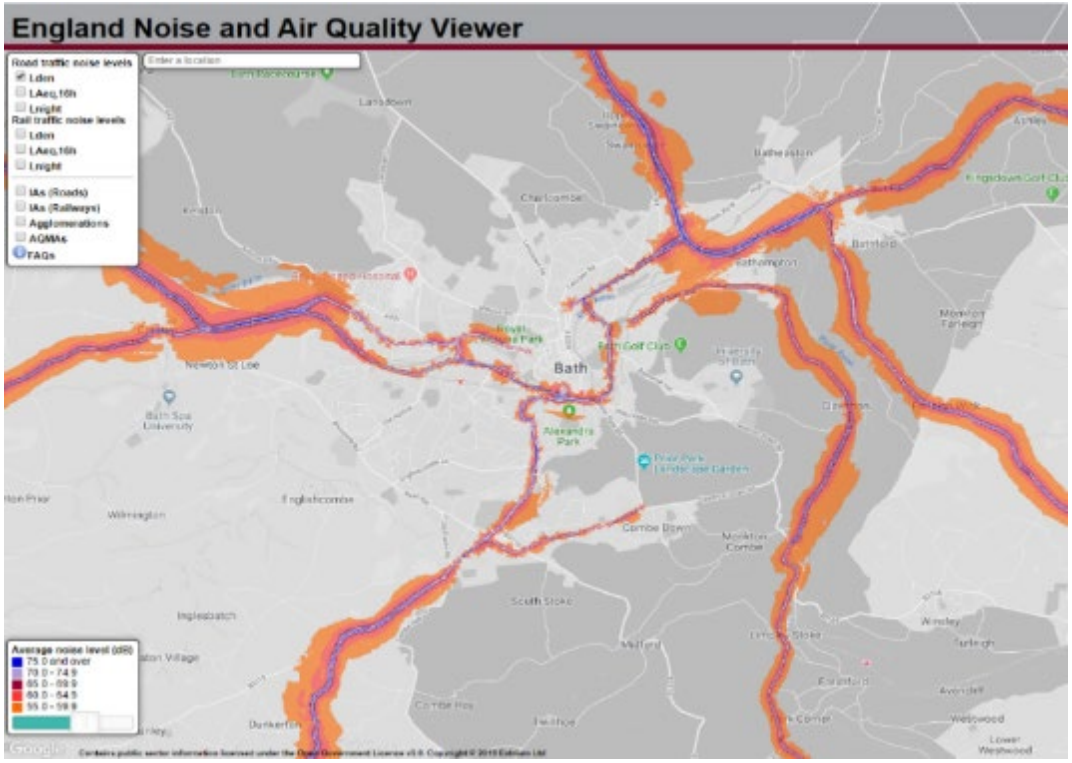


Figure 2.71: Carbon footprint and space required (Source: Institute for Sensible Transport)



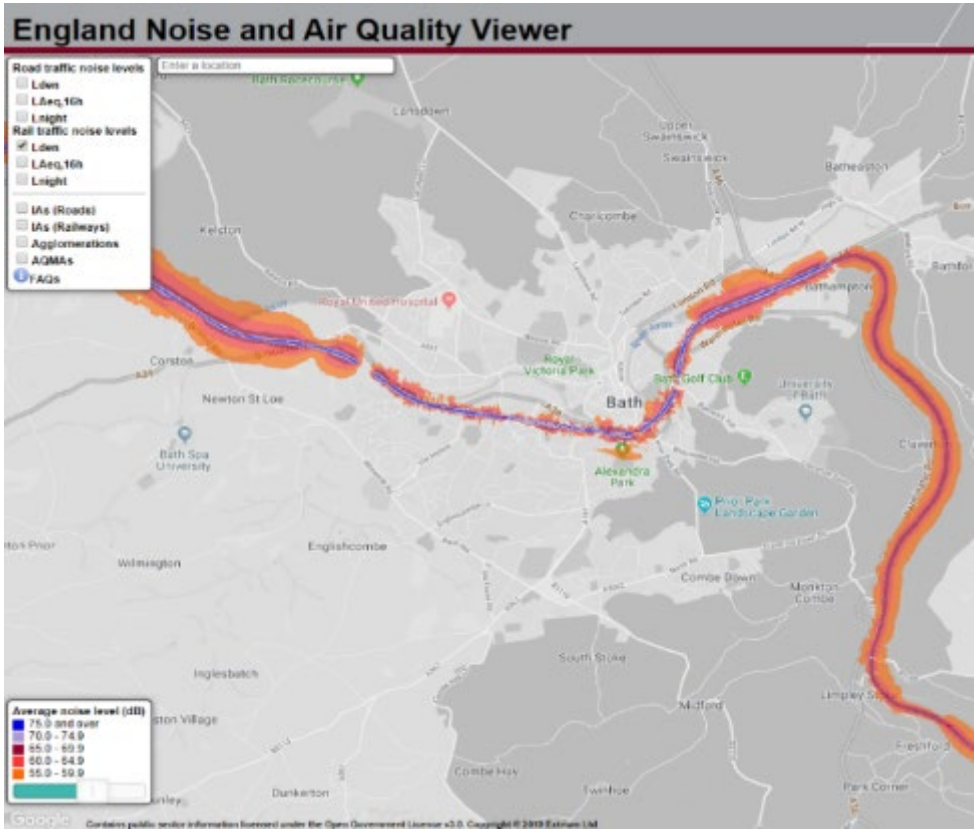


Figure 2.72: Road and Rail Noise Pollution (Source: England Noise and Air Quality Viewer)

In terms of road safety, the number of recorded road collisions in Bath has been falling in recent years (Figure 2.73), with 143 reported injuries in 2018 of which 11 were serious and 1 was fatal. While B&NES considers any casualty figure too high, it will continue to work to reduce these casualty numbers and maintain its position of having some of the safest roads in the South West through the continuation of engineering schemes, educational packages, and road safety policy.

Road collision casualites in Bath

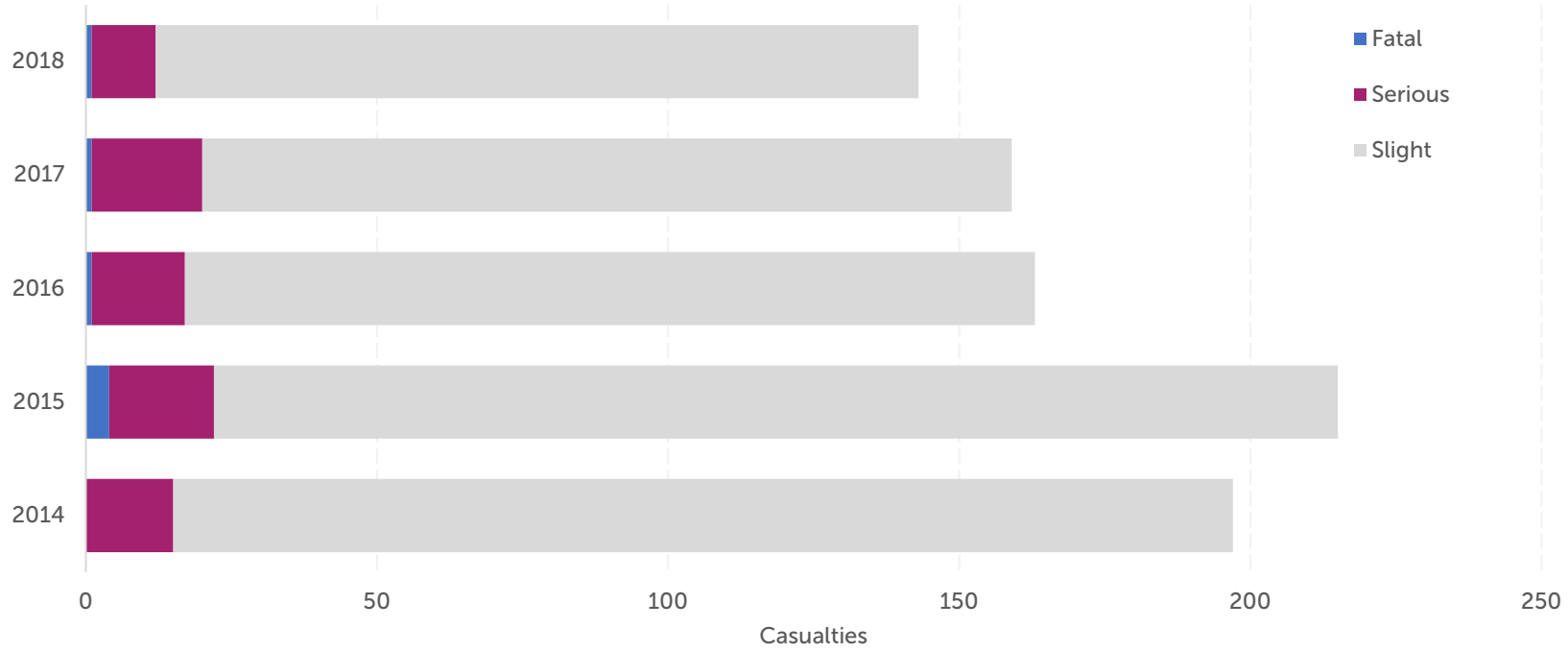


Figure 2.73: Road collision casualties in Bath

Of the Killed or Seriously Injured (KSI) casualties in Bath, around 55% (6) of casualties are pedestrians or cyclists with the remaining typically comprising of motor vehicle occupants (Figure 2.74).

There are three collision "cluster sites" in Bath, which are defined as sites with a total of 5 collisions within 3 years within a radius of 40 meters. These are:

- Upper Bristol Road j/w Park Lane;
- Lower Bristol Road j/w Windsor Bridge;
- The Globe Rounabout.

Road collision KSI casualties in Bath, by mode

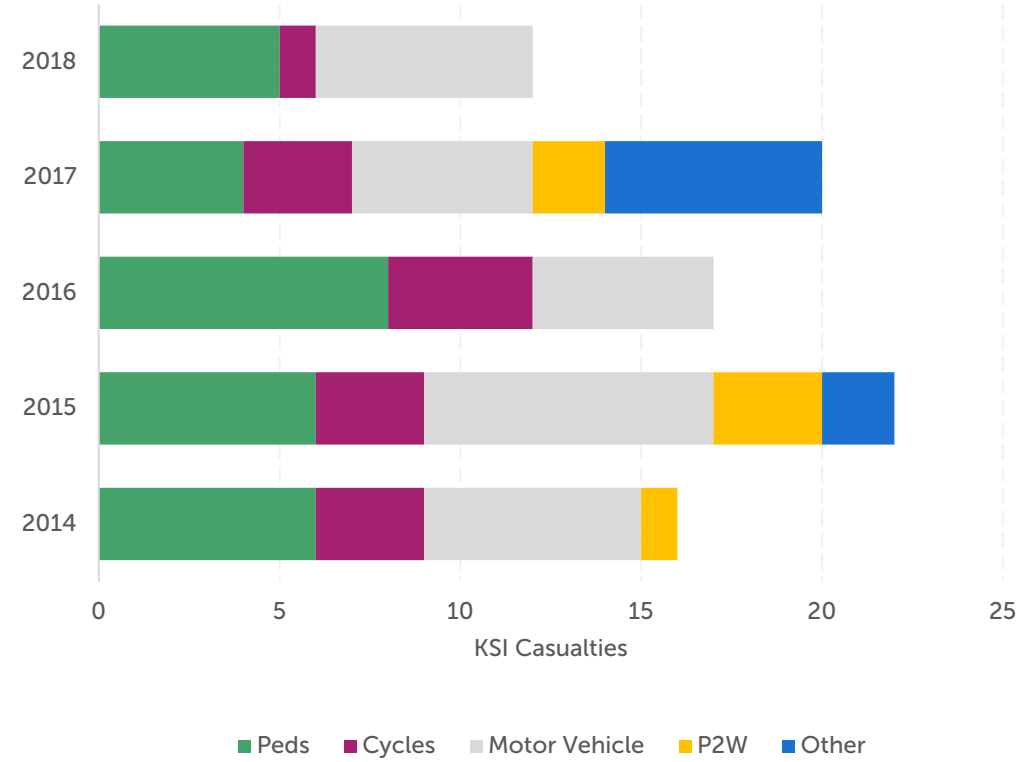


Figure 2.74: Road collision KSI casualties in Bath, by mode

Key issues & opportunities identified:

- Physical inactivity directly contributes to 1 in 6 deaths in the UK. Walking and cycling can play a key role in incorporating physical activity in every day life;
- Air pollution within Bath is contributing to a significant number of deaths and poor health of residents;
- Road traffic is the biggest cause of community noise and is liked to a range of health issues;
- The private car has the highest impacts in terms of climate impacts and space requirements on our streets and spaces;
- There are two road collision cluster sites in Bath and a high number of collisions on key corridors including London Road, the A36 Lower Bristol Road, and within the city centre itself.

These sites are at junctions on major roads serving the city where vehicle flows are at the highest and turning movements are common place. The sites are mapped in Figure 2.75, which also shows the number, severity, and type of causalities from road collisions in Bath over the past three years. The figure highlights the high number of collisions on key corridors including London Road, the A36 Lower Bristol Road, and within the city centre itself.

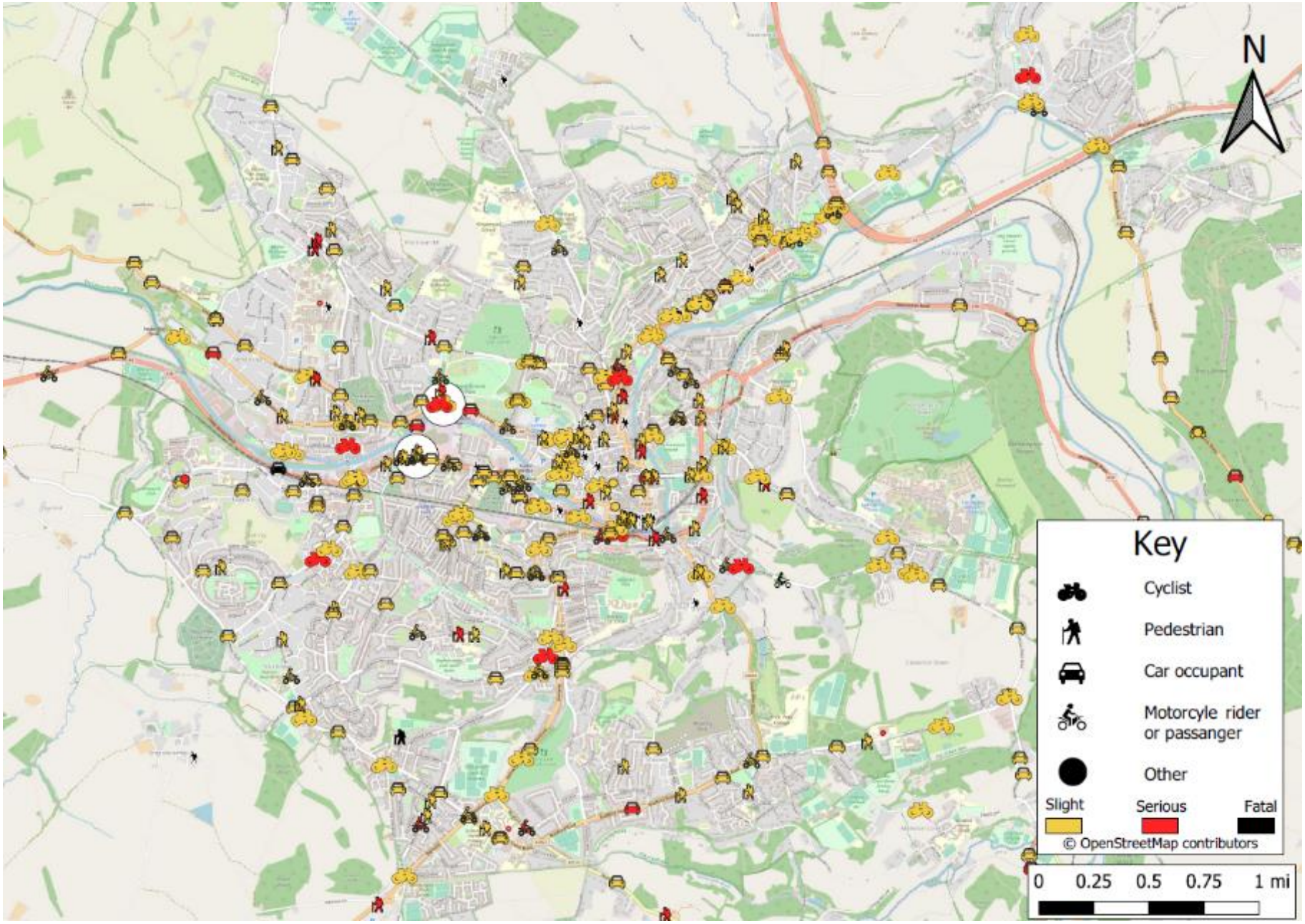


Figure 2.75: Road collision casualties 2015-2018

2.3 Previous consultations

There has been a large number of transport consultations in Bath in recent years, including the original Getting Around Bath Transport Strategy consultation, Joint Local Transport Plan, and JLTP4 consultations. These consultations have engaged a large number of people in Bath on transport issues. Within B&NES there have been a range of further consultations including the Parking Strategy consultation and a B&NES New Local Plan consultation.

In Autumn 2018 the public consultation on the Clean Air Zone proposals sparked a widespread debate about transport in Bath, with over 8,000 consultation responses.

These responses have been taken into account in drafting this report and the wide range of scheme suggestions for Bath raised as part of the Clean Air Zone consultation and others is included in Appendix B.

The National Highways and Transport Network (NHT) conduct annual transport satisfaction surveys with B&NES residents. Highlights from the 2018 report are shown in Table 2.8 which shows comparatively high levels of satisfaction with Park & Ride schemes, bus stops, and advanced warning of roadworks. However, there were lower than average levels of satisfaction with the road safety environment, bus fares, traffic levels and congestion, and speed limits.

Table 2.8: 2018 NHT Consultation Findings (BANES)

Satisfaction with...	BANES	NHT Avg
Good park & ride schemes	70%	49%
Cold weather gritting	64%	58%
The state of bus stops	69%	63%
Cycle parking	54%	49%
Pavements and footpaths	59%	54%
Condition of pavements	59%	54%
Cleanliness of pavements	57%	52%
Advanced warning of roadworks	64%	60%
Tackling illegal on-street parking	46%	42%
Pavements kept clear of obstruction	47%	43%
Cleanliness of roads	58%	54%
Local bus services	56%	60%
Cost of taxis or minicabs	48%	52%
Road safety environment	52%	56%
Routes taken by HGVs	40%	45%
Bus Fares	43%	49%
Traffic levels and congestion	36%	43%
Speed Limits	54%	64%

Public consultation was undertaken in November 2016 as part of the development of the Joint Transport Study, which tested in broad terms, levels of support for various types of transport intervention.

The analysis of responses indicated that almost 50% of respondents considered that the level of ambition was too low, however, there were high levels of support for the components of the transport vision, with the highest levels of support for public transport, walking, and cycling improvements.

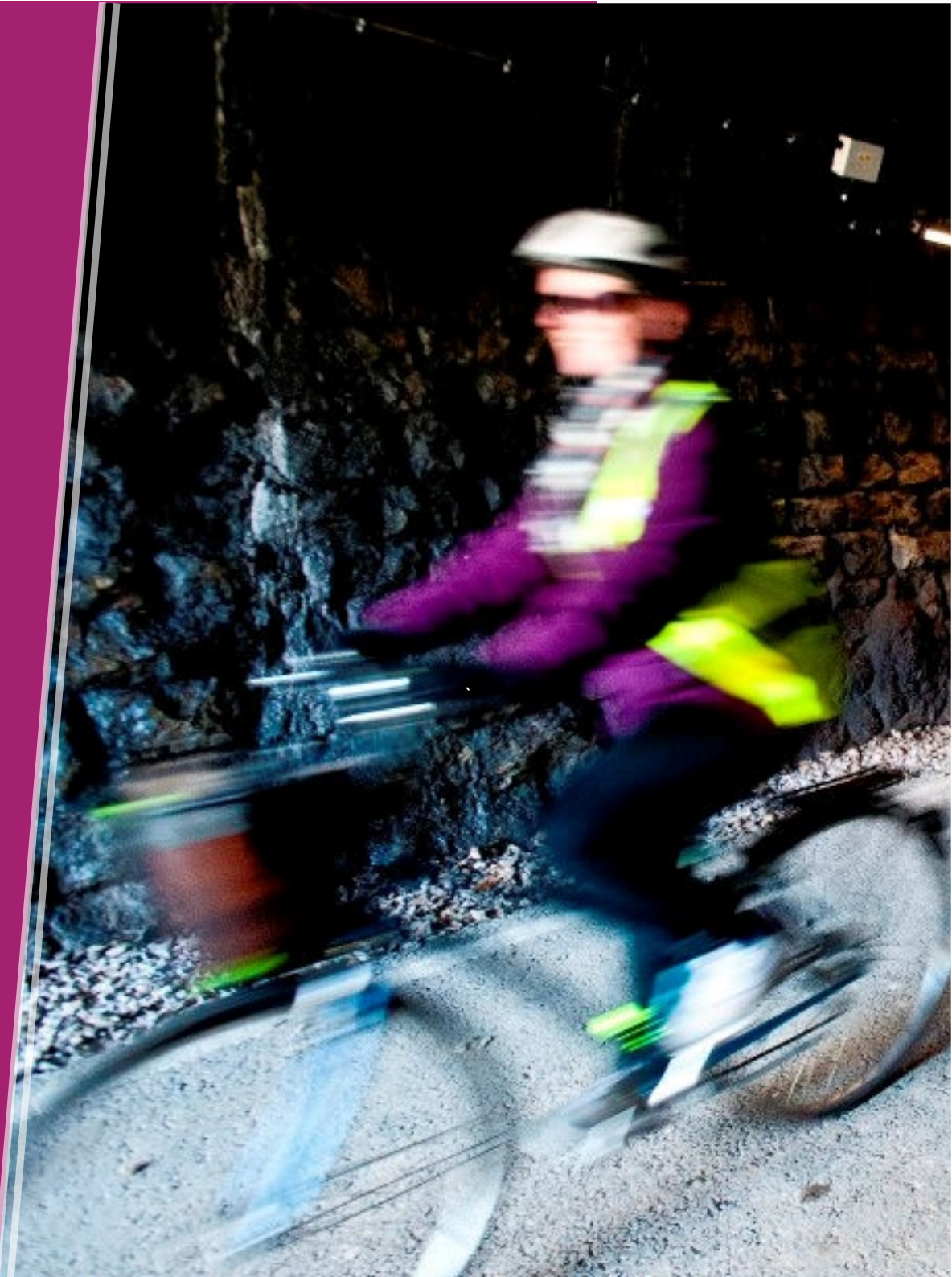
- Technology and Smarter Choices: Over 70% of respondents supported marketing and education to change travel behaviour. Respondents highlighted a wish for increased focus on public transport pricing, integrated ticketing, support for electric vehicles and consideration of the needs of motorcyclists.
- Walking and Cycling: Over 80% of respondents supported cycle schemes and improvements to public realm to encourage more active travel and to help reduce carbon emissions. There was strong support for the proposed cycling networks in Bath.
- Buses: Over 80% supported improvements to the bus network and area packages of improvements to walking, cycling, and bus facilities.
- Metrobus: Over 60% supported the principle of expansion of the Metrobus network.
- Mass Transit: Around 70% supported the concept of light rail on key corridors connecting to Bristol city centre. (Light rail in Bath was not included in the Joint Transport Study Transport Vision).
- Interchange and Park & Ride: Around 60% of respondents supported the concept of Park & Ride. However, there were high levels of opposition to the proposals for a new site to the east of Bath and some opposition to further expansion of existing sites.
- Rail: Around 90% of respondents agreed with the principle of improving rail services and facilities, and over 80% agreed with the principal of opening new railway stations.
- Road Network: Around 70% of respondents supported the principle of improving roads and tackling bottlenecks and just over 50% supported new road connections. There were concerns raised about the East of Bath Link. Following opposition in the consultation, the Saltford Bypass was removed from the Joint Transport Study transport vision.
- Freight: Over 50% of respondents supported the principle of freight management. There appeared to be less direct understanding and engagement of the role of freight compared to movement of people. Significant issues were raised about a potential freight consolidation centre to serve Bath.
- Financial measures: Respondents were asked to consider if they agree with the principle of using financial incentives and demand management to raise funds to help pay for the transport vision. 4)% of respondents agreed, 30% were neutral, and 30% disagreed.

The Transport Vision identified in the Joint Transport Study informed the development of the West of England Joint Local Transport Plan 4, which was consulted upon in February and March 2019. While the full consultation report is not yet available, key themes emerging from the consultation included:

- Extremely high levels of agreement with the challenges and objectives raised
- Concern over budget gap and affordability
- Objections and concerns raised relating to road building schemes.

As part of the ongoing development of the Bath Transport Delivery Action Plan, the intention is to consult on the Issues and Options identified, including the contents of this Phase 1 report, between July 2020 and October 2020.

3. Understanding the future situation



3.1 Policy review

This section outlines the key policies and strategies which inform planning and transport within B&NES. The key polices informing this study are set out in Figure 3.1

Common themes can be identified which should be used to inform this study. The identification of themes across all policies is summarised in Table 3.1 whilst overarching descriptions of the themes, separated into objectives and modes, are provided below. Overall, the key themes emerging from policy are to promote sustainable transport and reduce single occupancy car dependency.

The policy objectives mirror the objectives as set out in the Getting Around Bath Transport Strategy. The objectives and some example of wider policies which support them, are provided below.

A detailed review of relevant policies can be found in Appendix A.

Figure 3.1: Key policies reviewed

Existing Policy Objectives

Support and enable economic growth, competitiveness and jobs

The focus of this policy is around facilitating sustainable economic growth through supporting development in well-connected areas and encouraging consideration of the social and environmental dimensions. Examples of this include:

- NPPF Paragraph 8: highlights the importance of sustainable economic development;
- Existing Core Strategy Objective 3: encourages economic development, diversification and prosperity.

Promote sustainable mobility

The focus of policy in this area is around promoting sustainable forms of transport and reducing reliance on the private car, as displayed:

- NPPF Paragraph 104(b) highlights the importance aligning sustainable transport strategies and investments with development patterns.
- JLTP4 Objective 2: contains the aim to improve low carbon transport and opportunities for reducing the need to travel; and
- Emerging Local Plan WCH11: seeks to provide transport interventions which enable a greater modal shift to sustainable modes.

Widen travel choice

The focus of policy in this area is around promoting sustainable forms of transport through improving accessibility to public transport and active modes, as displayed:

- NPPF Paragraph 104(c) highlights the importance protecting sites for developing infrastructure to widen travel choice;
- JLTP4 Objective 2: seeks to enable equality and improve accessibility;
- Place Making Plan Policies ST1, ST3 and ST6: aim to provide sustainable transport infrastructure which enables travel through public transport, including park and ride, walking and cycling; and
- Emerging Local Plan WCH11: seeks to provide transport interventions which enable a greater modal shift to sustainable modes.

Widen access to opportunities: jobs/learning/training

This policy focuses on the improving accessibility to facilities and opportunities for all, particularly economic opportunities. Policies supporting this include:

- JLTP4 Objective 2: seeks to enable equality and improve accessibility; and
- Emerging Local Plan: the Sustainable Connected Communities priority aims to provide a transport network which enables people to get around to support the economic growth in B&NES.

Improve air quality & health, reducing vehicle carbon emissions

The focus of this policy is improving health and wellbeing as well as the environment and social conditions through improving air quality through reducing vehicle emissions. This is supported in policy:

- Road to Zero: aims to reduce emissions for vehicles already on the roads and encourage the uptake of the cleanest vehicles;
- JLTP4 Objective 3: seeks to address poor air quality and take action against climate change; and
- Public Realm and Movement Strategy: highlights the aim to reduce congestion and resultant air pollution.

Safeguard and enhancing the unique historic environment and World Heritage Site (WHS) status

This policy focuses on preserving the identity and historic status the World Heritage City through tackling congestion and the predominance of the private car. Examples of this include:

- World Heritage Site Management Plan: identifies congestions as a major issue for the WHS and aims to control traffic growth; and
- Parking Strategy: supports a reduction in vehicles in the WHS to improve congestion and air quality.

Improve the quality of life in the city

This policy aims to enhance the quality of life within the city through improving multiple aspects of life including health, safety and wellbeing:

- JLTP4 Objective 4: aims to contribute to better health, wellbeing, safety and security; and
- Public Realm and Movement Strategy: aims to restructure the movement structure to prioritise walking, cycling and public transport above cars.

Existing policy for specific transport modes

The existing policies reviewed identified improvements and changes to various modes, highlighting the aim to restructure the movement hierarchy to prioritise walking, cycling and public transport above cars. A summary of the modes promoted, and changes suggested is provided below.

Walking & Cycling

Support high quality walking and cycling provision which will assist in the aim to reduce the number of vehicles and in turn, vehicle emissions. Improvements to walking and cycling are suggested throughout policies and across locations in B&NES, including the city centre. Policy supporting this include:

- NPPF Paragraph 104 (d) draws on the importance of high-quality walking and cycling networks;
- Emerging Local Plan KSM5: states that to create healthy neighbourhoods and support modal shift to active travel modes, walking and cycling links could be considered; and
- Public Realm and Movement Strategy restructures the priority of movement aiming to give priority to pedestrians and cyclists.

Bus & Rail

Encourage the uptake of public transport through increasing the provision. Increased provision of public transport may help the aims of reducing congestion, improving air quality and facilitate and unlock more sustainable development growth. Policy supporting this included:

- JLTP4 supports improving public transport noting the success of previous bus packages;
- Public Realm and Movement Strategy restructures the priority of movement aiming to give priority to pedestrians and cyclists then public transport; and
- West of England LEP SEP supports sustainable growth in the West of England identifying MetroWest and rail schemes as opportunities to support this.

Park and Ride

Supports expansion of park and rides across B&NES. Improved park and rides will encourage a modal shift and a reduction in congestion and air pollution.

- Existing Local Plan ST6/Emerging Local Plan BTH9: supports the development of new or expansion of existing park and ride sites, namely expansion of Lansdown and Odd Down;
- Economic Strategy Review: highlights a need to further expand Park & Ride facilities, including provision east of Bath, to address coach parking provision and improve the connectivity between Park & Ride sites and the city centre;
- Bath Parking Strategy: states that over time, long stay off street parking will be reduced in favour of short stay parking and Park and Ride;
- Joint Local Transport Plan 4 commits to increase travel options on the arterial routes that enter our main urban areas to reduce single occupancy car use. Further expansion of existing sites will also be investigated contributing to carbon reduction in the congested city centre.

Reduction of the private car

Support for a reduction in the use of the private car, particularly combustion engine. Policy identifies that the private car poses issues in terms of congestion, safety and health in the Bath and aims to reduce the number of trips through prioritising alternative modes and altering parking provision.

- West of England Local Industrial Strategy: identifies high car usage as a challenged for the West of England and that infrastructure, particularly public transport provision, must improve to support the economy;
- Bath Parking Strategy: supports the need to reduce the intrusion of vehicles in centres to protect the WHS in Bath; and
- World Heritage Management Plan Action 6/10: reduce the impact of major road traffic on the WHS.

Electric vehicles

Support for high quality electric vehicles which are low in carbon emissions, therefore supporting the aim to improve the local environment and tackle the climate emergency. Policy supporting this include:

- The Road to Zero: Encourages the use, design and manufacture of low emission vehicles in the UK with the aim for every car and van to be zero emission by 2050; and
- Emerging Local Plan DM16: Requires all development proposals to support electric vehicle infrastructure and enable the charging of electric or other low emission vehicles;
- Joint Local Transport Plan 4: Commits to "Introduce policy measures to encourage [electric vehicle] uptake" and, "Provide advice, support and training to other private and public-sector organisations, including businesses, to encourage the introduction of [ultra low emission vehicles]".

Common themes can be identified which should be used to inform this study. The identification of themes across all policies is summarised in Table 3.1.

Table 3.1: Key policy themes identified

Objectives	NPPF	Road to Zero	JLTP 4	SEP	LIS	Core Strategy	PMP	Emerging Local Plan	Getting Around Bath Transport Strategy	Economic Strategy	Medium term financial strategy	Health and Well-Being Plan	Parking Strategy	Public Realm	Coach Parking	Waterspace	World Heritage	Riverside Enterprise Area	GIS	Retail Study
Support and enable economic growth, competitiveness and jobs	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓		✓
Promote sustainable mobility	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Widen travel choice	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Widen access to opportunities: jobs / learning / training	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓		
Improve air quality & health, reducing vehicle carbon emissions	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	
Safeguard and enhancing the unique historic environment and World Heritage Site status			✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	
Improve the quality of life in the city	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mode																				
Walking & Cycling	✓		✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	
Bus, Rail, P&R	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓					
Reduction of the private car	✓		✓	✓	✓	✓	✓	✓	✓				✓	✓			✓			
Electric vehicles		✓	✓			✓	✓	✓	✓				✓							

3.2 Future Land Uses

Existing Local Plan (2011-2029)

The existing B&NES local plan up to 2029 comprises of the Core Strategy (CS) and the Placemaking Plan (PMP). For Bath, a key focus is to sustain and enhance the significance of the city's heritage assets.

The plan establishes that 13,000 dwellings across B&NES are required over the plan period which will be distributed in Bath (7,020), Keynsham (2,150), Somer Valley (2,470), rural areas (1,120) and Whitchurch (200). The 7,000 new homes in Bath will increase the overall stock of housing from about 40,000 to 47,000.

An overall net increase in jobs of 7,000, rising from 60,200 in 2011 to 67,200 in 2029, with significant gains in business services tempered by losses in defence and manufacturing is envisaged.

The PMP formally adopted by on the 13th July 2017, forms part of the Development Plan for B&NES.

Figure 3.2 shows the strategic development allocations included within the existing local plan within Bath, with key development sites concentrated around the Enterprise Area and University. These sites were considered in developing the Getting Around Bath Transport Strategy, which aimed to enable this growth and mitigate any transport impacts associated with it.

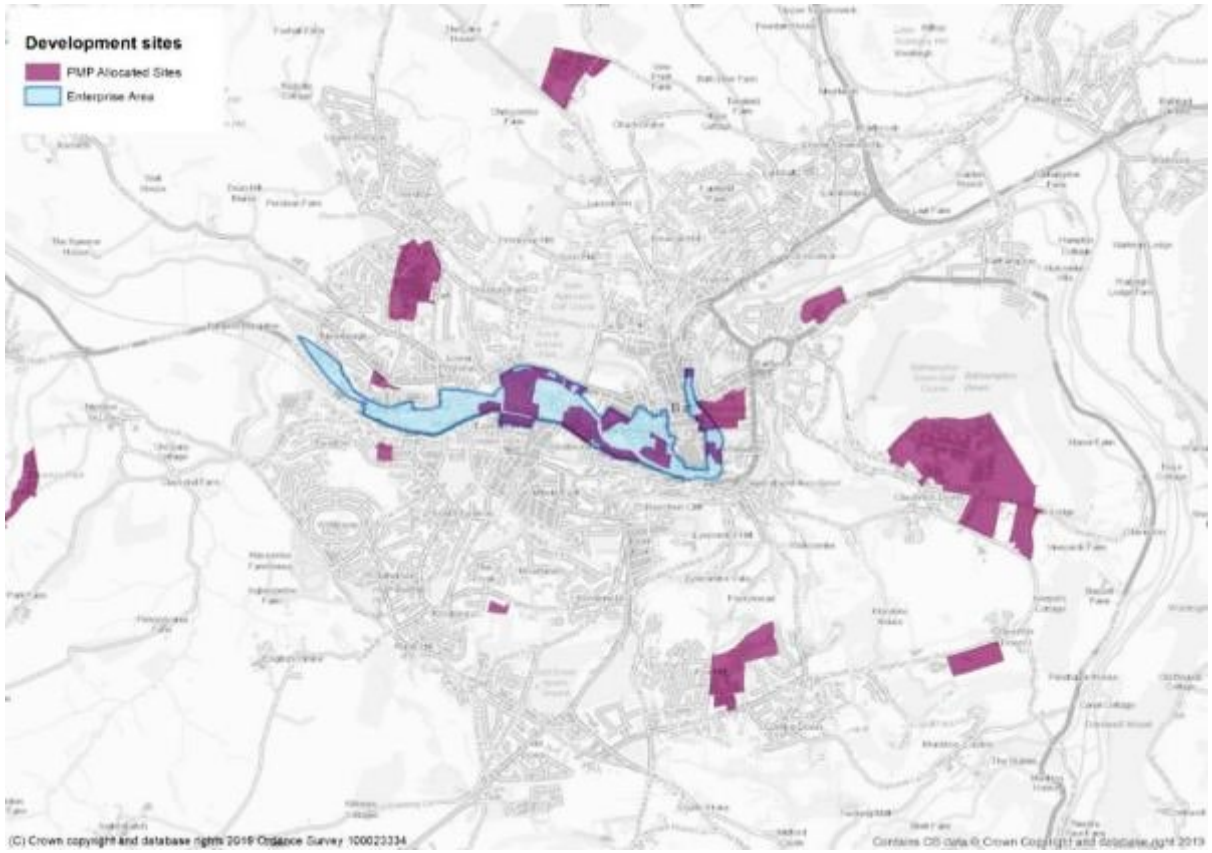


Figure 3.2: PMP Development Sites

Regional Growth Plan and Emerging B&NES Local Plan (2018-2036)

WECA and the local authorities of B&NES, Bristol City Council, North Somerset Council and South Gloucestershire Council worked collaboratively to prepare a Joint Spatial Plan (JSP). The JSP aimed to provide the strategic overarching development framework for the West of England to 2036 and focuses on addressing three critical issues:

- Identifying the number of new market and affordable homes and the amount of employment land that is needed across the region between 2016-2036;
- Identifying the most appropriate spatial strategy and strategic locations for this growth;
- Outlining the strategic transport and other infrastructure that needs to be provided in the right place and at the right time to support sustainable growth and to provide certainty for communities and business investment in the region.

In light of the Examination in Public in July 2019 and the subsequent Inspector's letter the JSP has now been withdrawn and work continues on developing a new regional growth plan.

The Local Plan will be developed alongside any new regional growth plan and will include a strategy to guide development and site allocations to meet development requirements and district wide Development Management policies for determining planning applications.

Key issues & opportunities identified:

- The existing Local Plan includes over 7,000 new homes and 7,000 new jobs in Bath, with key development sites including the Enterprise Area and University. The transport impacts of this growth were considered in the measures contained within the Getting Around Bath Transport Strategy;
- Although now withdrawn the Joint Spatial Plan included only a minor housing allocation for Bath and this number is unlikely to substantially change. However, there is significant growth planned across the West of England which is likely to increase demand for transport in the longer term.

For B&NES, the JSP proposed a requirement to plan for 14,500 new dwellings by 2036, which is an additional 4,700 houses to that set out in existing plans. Of these only an additional 300 homes were identified for Bath and around 800 homes in a number of non-strategic sites across B&NES.

While the growth proposals contained in the JSP and Emerging Local Plan are currently under review following the 2019 JSP Examination in Public, the limited availability of sites within Bath combined with the heritage and environmental constraints mean that this number is unlikely to substantially change in future plans.

3.3 Future changes to transport system

Substantial progress has been made delivering sustainable transport improvements over recent years. As set out above, the Getting Around Bath Transport Strategy, Public Realm and Movement Strategy, and JLTP4, set out a number of schemes that will continue this trend and help tackle the transport issues identified in this report. The following section describes these schemes and others currently in development in more detail, as summarised in Figure 3.3.

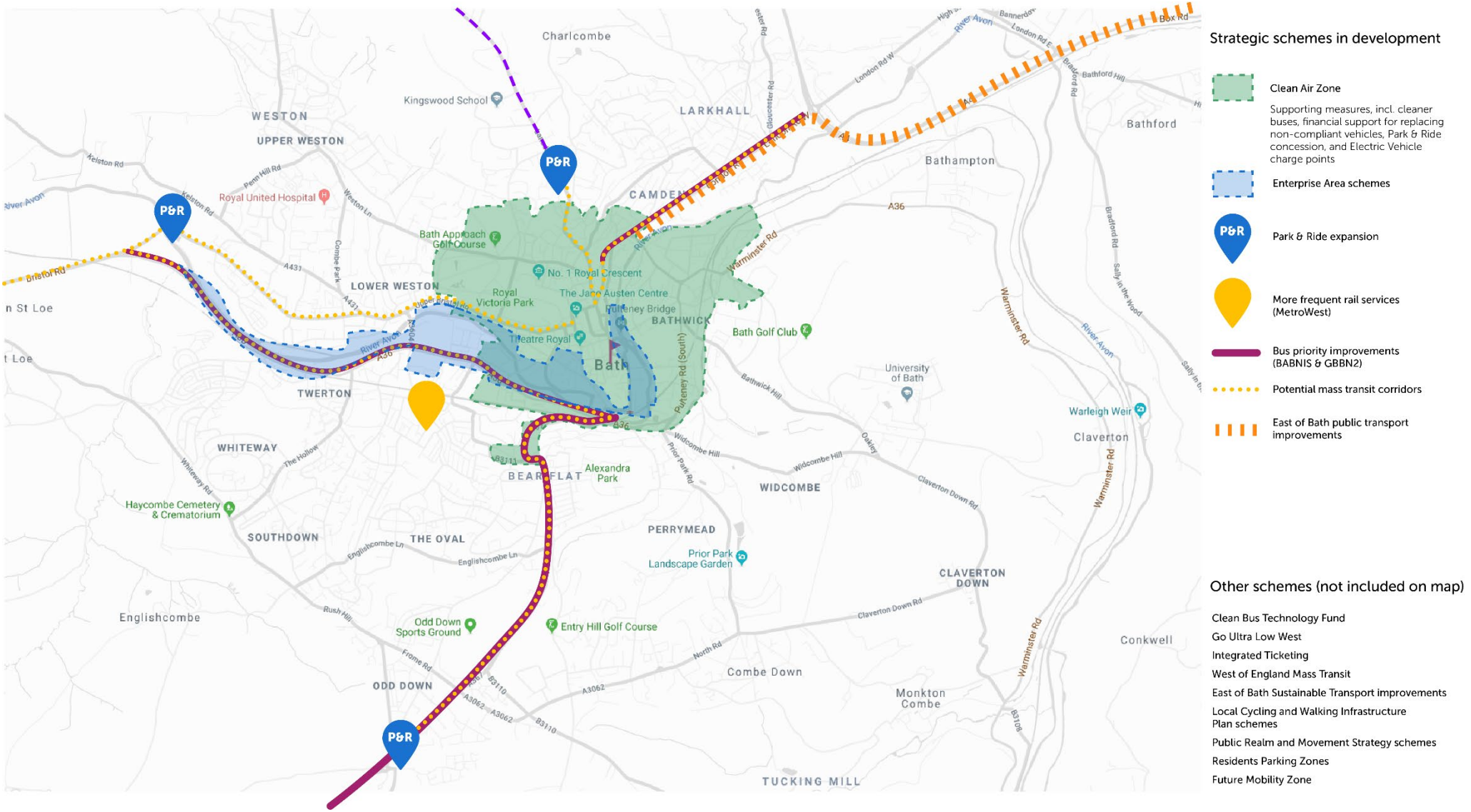


Figure 3.3: Strategic transport schemes in development

Clean Air & Ultra Low Emission Vehicles

The climate emergency requires a 25% reduction in car kilometres travelled, and near total conversion to electric vehicles by 2030. A number of transport schemes are already in development that will encourage use of cleaner and electric vehicles. However, a step-change in electric vehicle promotion, policy, and funding both locally and nationally will be required over and above existing schemes to meet the requirements of the climate emergency.

Bath's Clean Air Plan

Status: In development

Delivery Date: 2020

Cost: £30m

The UK has legislation in place to ensure that standards for air quality emissions, which are harmful to health, are met. The EU and national legal limit for nitrogen dioxide (NO_2) pollution – caused mainly by diesel and older petrol vehicles – is 40 µg/m^3 (as an annual average). Transport is widely acknowledged as a key contributor to poor air quality. It is estimated in B&NES that around 92% of all Nitrogen Oxide (NO_x) emissions are attributable to road traffic

A number of roadside locations in Bath exceed this limit, a situation that is unacceptable given the health impacts linked to NO_2 pollution. A range of public health issues are linked to poor air quality, as detailed below. These issues are believed to disproportionately affect 'at-risk' groups such as older people, children and people with pre-existing respiratory and cardiovascular conditions[27]:

- Long-term exposure to air pollution is linked to increases in premature death, associated with lung, heart and circulatory conditions;
- Short term exposure can contribute to adverse health effects including exacerbation of asthma, effects on lung function and increases in hospital admissions;
- Other adverse health effects including diabetes, cognitive decline and dementia, and effects on the unborn child[28] are also linked to air pollution exposure;
- Exposure can exacerbate lung and heart disease in older people[29];
- Between 28,000 and 36,000 deaths can be attributed to NO_2 and fine particulate matter (PM) pollution in England every year.

The primary driver for NO_2 regulations is public health concerns associated with NO_2. Specific health impacts for NO_2 include[30]:

- High concentrations of NO_2, that can lead to inflammation of the airways in lungs;
- Long-term exposure can increase symptoms of bronchitis in asthmatic children and reduced lung development and function.

[27] World Health Organization (2013) *Review of evidence on health aspects of air pollution – REVIHAAP Project: final technical report.* http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2013/review-of-evidence-on-health-aspects-of-air-pollution-revihaap-project-final-technical-report

[28] Royal College of Physicians (2016) *Every breath we take: the lifelong impact of air pollution.* www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution

[29] Simoni et al., January 2015, *Adverse effects of outdoor pollution in the elderly,* Journal of Thoracic Disease, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4311079/

[30] World Health Organisation (2016) *Ambient (Outdoor) Air Quality and Health Fact Sheet* http://www.who.int/en/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health

In March 2019, the council approved the introduction of a class C charging clean air zone (CAZ) for Bath that seeks to charge most higher emission vehicles – except private cars and motorbikes – to drive in the city centre. A final plan is yet to be agreed by Government, but the introduction of a clean air zone will reduce harmful levels of NO_2 pollution to within legal limits, as directed by the Government.

Following final agreement by Government the CAZ proposes a £9 charge for non-compliant taxis/LGVs and £100 charge for non-compliant buses/coaches/HGV entering the Clean Air Zone. Along with the charging zone, the scheme includes a proposal that seeks to temporarily reduce traffic flows through Queen Square (which is required for private cars to be exempt from charges), and a range of financial and practical support to reduce the impact of the zone on the local economy and encourage a shift to cleaner transport. These currently include:

- Expanding the existing Clean Bus Technology Fund programme by providing additional funding for retrofitting registered, local Euro 3/4/5 buses;
- Financial support for replacing pre-Euro 6 diesel and pre-Euro 4 petrol non-compliant vehicles, combining grants, interest free loans, and financial support for retrofitting and electric charging points on private land;
- Support and facilities for alternative delivery and servicing options for businesses, combining delivery & servicing plans, increased utilisation of the car/van club in Bath, and expanding Go Ultra Low proposals for 'last mile' electric cargo bikes;
- Provision a sustainable travel and transport team to facilitate the use of the mitigation schemes by the impacted groups and ensure uptake.

The zone includes the centre of Bath, but air quality will meet legal limits across the whole city.

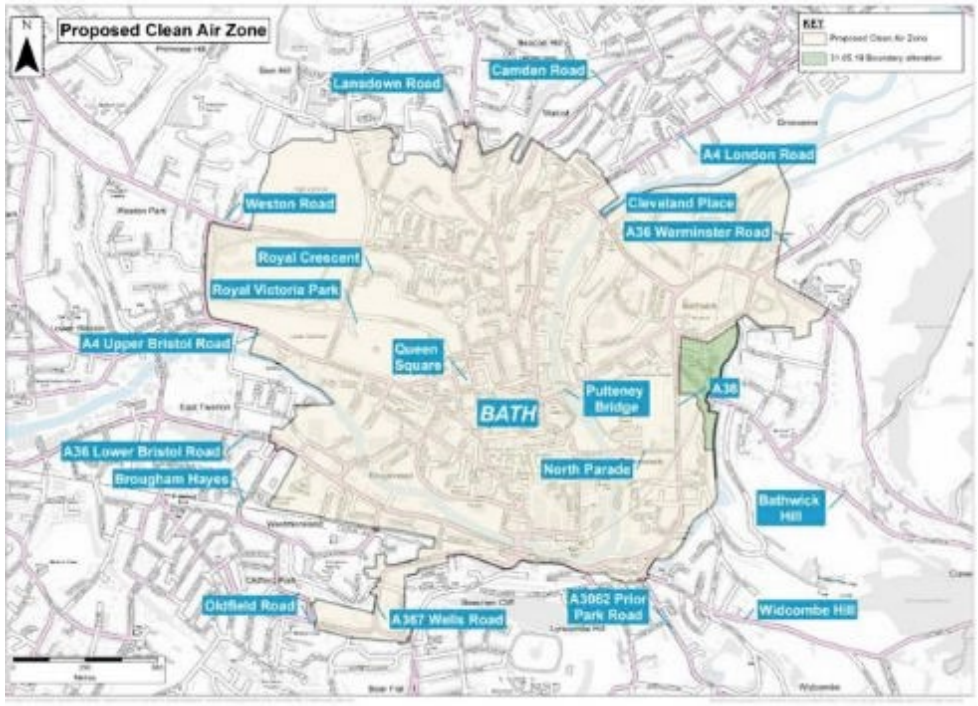


Figure 3.4: Proposed Clean Air Zone

The finer details of the scheme are in the process of being agreed, before submitting a final plan to the Government. The charging clean air zone will potentially be in place by the end of 2020 and as part of this the Council will be looking to monitor and evaluate its effectiveness to ensure compliance is achieved.

By changing travel behaviours (including number of trips, trip mode and vehicle type), the Plan may marginally reduce Greenhouse Gas (GHG) emissions generated by road transport. Based on air quality modelling outputs, the Bath Clean Air Plan, if agreed, is forecast to initially reduce and then slow the growth of GHG emissions across the appraisal period. The total forecast CO_2 savings between 2021-2030 is 2,165 tonnes.

Clean Bus Technology Fund

Status: Delivery stage
Delivery Date: 2020
Cost: £2.5m

In April 2019 Bristol and Bath secured £2.48 million from Department for Transport's Clean Bus Technology Fund. Using the latest technology, the money will help retrofit 166 buses in Bristol and Bath to reduce the amount of Nitrogen Dioxide and other harmful pollutants being released into the air by up to 94%. The buses will be fitted with Selective Catalytic Reduction Technology, upgrading them from Euro IV/V standard to Euro VI, which is the best environmental standard available.

This is the fourth time that money has been secured from the Department for Transport to upgrade the bus fleet, which includes helping to improve air quality in the region, meaning the region has been able to benefit from £10 million in grants for bus upgrades.

Go Ultra Low West

Status: Delivery stage
Delivery Date: 2021
Cost: £7m (West of England)

Go Ultra Low West is a £7m project to accelerate the purchase of electric vehicle across Bristol, South Gloucestershire, North Somerset and Bath and North East Somerset.

The initiatives included in this project are:

- Public charging network: Over 120 new charge points to double the size of the current charging network;
- New Charging Hubs: By 2021 there will be four Rapid Electric Vehicle Charging Hubs in the West of England region. These will work similar to petrol stations, but for electric cars. Drivers will be able to refuel their cars in minutes rather than hours;
- New Electric Car Clubs;
- Business grants: Providing 50% match funding for charge points to be installed in businesses;
- Council fleets: Each Local Authority in the West of England is converting parts of their diesel and petrol powered fleet to electric vehicles. To date, over 70 electric vehicles have been added to Local Authorities' fleets;
- Demonstration vehicles: An opportunity to try out an electric vehicle for two weeks, for only the cost of the electricity used;
- E-bike hire in Bath, to help encourage more people to cycle and overcome real and perceived barriers about hills in Bath;
- Last mile delivery, using electric bikes to pilot a last mile delivery solution for Bath city centre.

Plug-in vehicle grants (national scheme)

Status: Delivery stage

Delivery Date: Ongoing

Vehicle buyers can get a discount on the price of brand new low-emission vehicles through a grant that central government gives to vehicle dealerships and manufacturers. A range of vehicles are eligible including cars, vans, motorcycles, mopeds, taxis, large vans and trucks. In 2019, the grant towards the cost of a new electric car was cut from £4,500 to £3,500 and grants for plug-in hybrids were axed completely. However, new treatment of taxation for electric company cars will help to further stimulate the ULEV market. Grants for electric vans and motorbikes remain unchanged at up to £8,000 and £1,500 respectively. There are also government incentives towards the cost of home charging points for both new and used electric and plug-in hybrid car buyers.

Rail electrification through Bath

Status: Delivered indefinitely

Delivery Date: TBC

With regard to the national rail network, in November 2016, Central Government announced that the planned electrification work, that would have included electrification through Bath Spa to Bristol Temple Meads, had been indefinitely deferred.

The initial plan announced in 2009 to electrify the Great Western Main Line included the route between London Paddington and Bristol Temple Meads, via Swindon, Chippenham and Bath Spa, with a completion date for the whole programme of 2016/17. However, as a result of increasing costs, elements of the original programme were delayed or cancelled in 2016, and completion of the remainder slipped to 2019/20. Because delay timings were non-specific, with completion being deferred indefinitely, rolling stock procurement was amended such that all trains are bi-mode (diesel and electric powered), where originally a mixture of bi-mode and electric-only trains were being provided. This allows sections of line to remain non-electrified and still operate the new fleet. Electrification of the section through Bath Spa to Bristol Temple Meads was deferred, though many infrastructure changes required to accommodate electrification equipment and the new trains have already been completed. This includes most overbridge changes, clearance work through Box Tunnel, track lowering in Sydney Gardens, Oldfield Park and Keynsham, and changes to track and platform alignments at Bath Spa station itself.

For the sections that have been officially deferred, timing for their eventual recommencement or completion is not yet determined. This includes Bristol Temple Meads to Bath Spa and on to Thingley Junction. There is some logical dependence in electrifying the Bristol Temple Meads area on the Bristol East Junction being remodelled, which is likely to proceed in future but is not yet confirmed.

Cancellation and deferment of the elements of Great Western Main Line (and other) electrification were essentially made to save money, or more pertinently not spend the additional money needed to complete the projects. However, it was claimed that most of the benefits of electrification would still be delivered because new trains are being introduced anyway. Passenger benefits may be achieved, but more widely this is questionable, because the bi-mode trains involved will cost more to run as a result of being more complex to maintain than their purely electric equivalents, and damage track more by being heavier.

Also, as they still run on diesel, they will do nothing to help alleviate air quality issues or transition to low- or no-carbon emission trains in future, not least to meet recent targets to eliminate diesel-only trains by 2040. Other propulsion methodologies are proposed, such as batteries and hydrogen, but it is debatable that this will ever be more effective than diesel as the technology does not yet exist to enable coverage of anything other than comparatively minor non-electrified extensions or gaps, and/or their actual efficiency has been questioned.

As such, it is likely that completion of the electrification of significant 'missing' sections such as Bristol Temple Meads to Bath Spa and Chippenham will move up the agenda as a response to imperatives to reduce carbon emissions. Full electrification of mainlines is the most straightforward methodology to take advantage of increasingly sustainably generated electricity and is therefore the method being followed in most circumstances, with battery and hydrogen applications restricted to appropriate infill locations. Timing is unclear, though it looks unlikely that anything will happen before 2024. A Rail Network Enhancement Pipeline (RNEP) is due to be published by the DfT, that will set out enhancements in the next round of rail spending.

Rail electrification within the West of England remains locally important, with the JLTP4 stating, "*The full electrification of the Great Western Main Line to Bristol Temple Meads, via Bath Spa and Bristol Parkway, remains an aspiration*".

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Walking & Cycling

There is a number of overlapping proposals for improving walking and cycling in Bath included in JLTP4 and elsewhere, including the Local Cycling and Walking Infrastructure Plan, Bath Cycle Network and City Centre Package, Public Realm & Movement Strategy schemes, and more concept level discussion of a walking & cycling masterplan for Bath. There is a need to understand and consolidate these schemes, to provide a clear path to delivering walking & cycling improvements in Bath.

Local Cycling and Walking Infrastructure Plan (LCWIP)

Status: In development

Delivery Date: Ongoing

LCWIPs are a new, strategic approach to identifying cycling and walking improvements required at the local level. The measures have been prepared and appraised in line with current Government guidance including the department for Transport's web based multimodal guidance on appraising transport projects (WebTAG) and uses a number of tools developed by the Department for Transport. They enable a long-term approach to developing local cycling and walking networks, ideally over a 10-year period, and form a vital part of central government's strategy to increase the number of trips made on foot or by cycle.

The West of England is currently developing a LCWIP that will include consideration of priorities and potential improvements in Bath. It is anticipated that further aspirational schemes will be identified in the Transport Delivery Plan work, for example, to focus on creating additional safe walking routes to local schools.

For walking, a set of "core walking zones" and priority walking routes will be identified in the LCWIP. The routes have been audited to identify issues and infrastructure improvements proposed.

Similarly, for cycling, a number of priority routes for improvement in Bath will also be identified, with issues and improvements proposed. The West of England authorities are intending to consult on the draft LCWIP in 2020, at which stage further details of the proposed routes, issues, and improvements will made available.

In a separate study, B&NES are also exploring the feasibility of refurbishing the disused railway Locksbrook Bridge to provide a walking and cycling link, connecting the Bristol and Bath Railway Path to the Two Tunnels Greenway, and to the Bath Western Riverside Development. The next steps are to undertake a dive survey, to determine the extents of the remedial works required to the bridge piers. This will enable the Council to make an informed decision as to whether they will continue to progress this element of the Bath walking & cycling network.

Bath Cycle Network and City Centre Package

Status: Concept

Delivery Date: TBC

JLTP4 commits to completion of a continuous and integrated network of strategic cycle routes, comprising key corridors and cross city routes, complemented by improved permeability and investment in public realm in the city centre. This network will connect key destinations across the Bath urban area. Local routes will be improved and integrated into the strategic network as part of ongoing programmes.

Public Realm & Movement Strategy schemes

Status: Delivered / In development

Delivery Date: Ongoing

In March 2010 the Council approved and adopted the Public Realm & Movement Strategy (PRMS) for Bath City Centre. The strategy put forward a long-term plan, to be delivered over 10-20 years as funding and investment are secured, to give pedestrians, cyclists, and public transport vehicles priority over cars, and deliver a network of beautiful, refashioned streets and public spaces. The aim was to further stimulate economic investment and business growth and enhance Bath's status as a UNESCO World Heritage Site and international visitor destination. In 2015 the Council established a Bath Pattern Book to provide a technical manual to assist with delivery of the PRMS.

A series of on-going improvements to streets and public spaces are envisaged (see Figure 3.5 and Figure 3.6). A number of these schemes have been delivered including:

- High Street and Northumberland Place: Completed in 2013, the scheme has created a more pedestrian friendly environment, enhanced the streetscape and afforded better access to public transport;

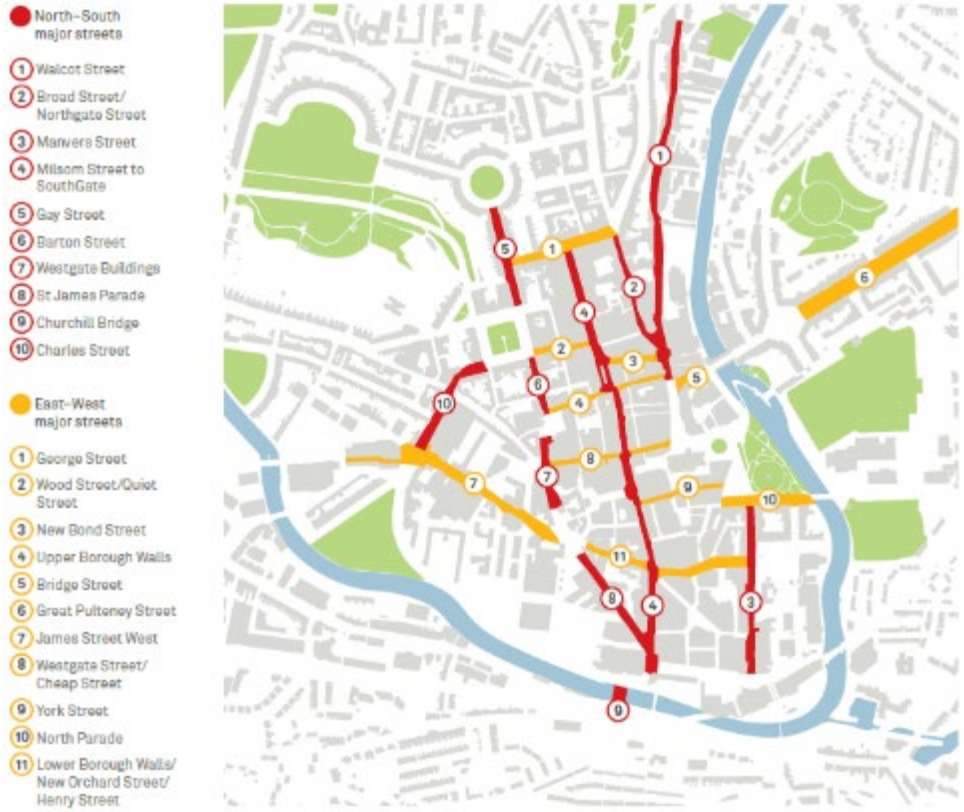

Figure 3.5: PRMS Corridor Schemes

- Stall Street and Lower Borough Walls: Completed in late 2015, including paving with natural stone materials and new street furniture added;
- Seven Dials: Completed in summer 2015 and funding by the Cycle City Ambition programme, the scheme improved the area as a public space with a greater focus on cyclist and pedestrian needs through the use of shared space.

Figure 3.6: PRMS Spaces Schemes

Further schemes to have been delivered to date include Lower Borough Walls, Dorchester Street, Railway Station forecourt, St James Rampire, and Southgate Place. Further schemes are also due to be delivered as part of the build out of the Enterprise Area. However, it is now nearly 10 years since the PRMS was adopted and only around one quarter of the schemes included within it have been delivered to date. There is a significant amount of work still to be done to realise its ambitions.

Schemes for Kingsmead Square and Milsom Street are currently in development and are outlined in more detail below.

Kingsmead Square

Kingsmead Square is an important gathering space and arrival route to the west of the City Centre, its potential as a vibrant city space is yet to be realised. With a view to rebalancing the city centre in favour of pedestrians, cyclists and public transport users, B&NES Council is considering a vehicle access restriction in Kingsmead Square. A vehicle restriction is proposed to be introduced every day, between the hours of 11am and midnight. The road would be closed through use of locked bollards (emergency services would have access). Outside of these hours vehicles would be allowed as usual, enabling access to the flats, shops and cafes for essential loading, servicing and refuge collection.

This proposal would increase opportunities for café culture and outdoor tables and chairs, by removing all vehicles during the core hours of the day and evening. It would reclaim 1,500 square metres of road space and improve the atmosphere and environment, giving priority back to pedestrians.

Subject to community support, funding is available to implement a vehicle access restriction trial during 2020-21. The trial would last 6 to 12 months and would allow this proposal to be tested and adjusted before a final decision is made on whether to make it permanent. If it is made permanent, further improvements to the Square would then be possible.

Milsom Street

Love Milsom Street took place throughout two days on Saturday 21 and Sunday 22 September 2019 and saw the street closed to all vehicles. The closure gave businesses increased footfall, as well as the opportunity to offer pop-up trading stalls and extra seating on the street. Further, more permanent closures are proposed as part of the Public Realm & Movement Strategy.

City Centre Security Improvement

Access restriction are also being proposed for Cheap Street/Upper Borough Walls, York Street and improvement to the existing restrictions at Lower Borough Walls. This will improve pedestrian access, air quality and provide the condition for improvements to the Public Realm.

Bus & Rail

B&NES has a track record of delivering public transport improvements and is one of the few places outside London where bus patronage is growing. Projects including the Greater Bristol Bus Network, Bath Transport Package, and Better Bus Area Fund projects have helped deliver a 28% increase in bus patronage in B&NES between 2009/10 and 2017/18, in contrast to decreases elsewhere in the country. A number of future schemes are in development to build on this success.

Bath Area Bus Improvement Scheme (BABNIS) and Greater Bristol Bus Network 2 (GBBN2)

Status: Concept / In development

Delivery Date: TBC

The BABNIS package will be key to identifying and delivering the infrastructure and service improvements needed to achieve the long term JLTP4 target of "A 100% increase in the number of trips on the local bus network by 2036". A long list of potential infrastructure improvements will be developed and are likely to include new bus priority measures, including on A367 Wellsway, A36 Lower Bristol Road, A4 London Road, and a new bus-only access to Bath Bus Station from Churchill Bridge. The BABNIS project would form the basis of an enhanced partnership scheme (EPS) between WECA, B&NES and local bus operators. An EPS would incorporate protection for operators against predatory competition.

The GBBN2 package of measures is wide ranging in both scope and geography. An options development report has been prepared to consider physical engineering and transport-based improvements to the bus network across the West of England urban areas. The emerging options to be taken forward that will benefit Bath include:

- The feasibility of a "Metro Bus" standard route from Chippenham to Bath with associated linked local bus services and local parking is being assessed. The initial study will be completed by the summer of 2020.
- Newbridge Rd/Upper Bristol Road Bus priorities: Congestion and delays to general traffic and buses have been identified along Newbridge Road/Upper Bristol Road, with the majority of general traffic turning right. This blocks the through movements (primarily bus services) from passing through the junction without delay. The scheme proposes to slightly widen Upper Bristol Road to facilitate extended straight on and right turn lanes for Windsor Bridge junction to facilitate better straight on movements and reduce delays due to the number of right turning vehicles.
- A367 Upgrade of bus stop infrastructure between Bath and Midsomer Norton to Metrobus quality, including Real Time Information (RTI): Information provision and existing bus stop infrastructure requires a refresh. Measures to encourage mode shift to bus travel from private car include improved bus stop infrastructure with RTI and better information provision. Upgrade of 50 bus stops between Midsomer Norton and outskirts of Bath urban area. Includes shelters or flags, dependent on category, all with RTI and upgrade of pedestrian access and kerbing.

A feasibility study is now underway to consider the potential for public transport improvements linked to a "long line" of Park & Ride sites serving more strategic trips as far as Chippenham, as an alternative to a more conventional Park & Ride site.

MetroWest

Status: In development

Delivery Date: 2021

MetroWest is a project to improve the rail services in the West of England. The main impact of MetroWest on Bath is enhancement of local services between Bristol Temple Meads and Bath Spa as part of MetroWest Phase 1. This will provide an additional stopping service at Keynsham and Oldfield Park, stations that mostly have an hourly service at present. The detail of how this service will operate is not yet confirmed, though the aspiration is to provide a half-hourly service throughout the day at Keynsham and Oldfield Park.

While MetroWest Phase 2 will not provide for any changes for Bath, further enhancements are being considered for the longer term under the broad MetroWest banner. This could include a station at Saltford, possibly in conjunction with changes to Keynsham station.

The Greater Bristol Rail Study will inform future project across the WECA region.

Rail Timetable changes

Status: In development

Delivery Date: 2019 - 2024

In addition to MetroWest (see above), there are two changes to services through Bath Spa:

- From December 2019, the 2 train per hour (tph) service between Bristol Temple Meads and London Paddington is running to a quicker timetable than previously, and an additional pair of services is now running between Bristol Temple Meads and London Paddington, stopping only at Bristol Parkway. The aim of these additional services is to provide both quicker journeys for passengers between the two Bristol stations and London Paddington, and hence also releasing capacity for passengers at intermediate stations on the existing service, including at Bath Spa;
- The other potential change surrounds the potential future timetable of services through Bristol Temple Meads station, that is currently being discussed as part of the future of the Great Western franchise, covering the period April 2020 to March 2022 (or 2024 if extended). This is not likely to alter services at Bath Spa but could incorporate the potential additional MetroWest Phase 1 service to Westbury, should that proceed, implementing this in advance of the rest of MetroWest Phase 1.

West of England Bus Strategy and Integrated ticketing

Status: In development

Delivery Date: Ongoing

The West of England Bus Strategy is an integral element to the JLTP4. A working group chaired by WECA and made up of officers from the all the local authorities, including B&NES Council, and supporting consultants, is progressing the work-stream leading to consultation on key principles by early 2020.

The strategy is one of three interlinked projects which support the delivery of bus services within the region:

- Bus Strategy policy document;
- Bus Infrastructure delivery; and
- Integrated Ticketing.

All three projects are progressing in parallel, and although complementary, are not critical path dependent upon each other at the current time.

Stage 1 of the bus strategy was commenced in Summer 2018, with the following work areas:

- Confirmation of strategy objectives (linked to the JLTP objectives);
- Commissioning of consultant support (Arup);
- A first round of operator engagement, to clarify operator opinion at an early stage on the issues they face;
- An assessment of the performance of the current network;
- The production of an operating cost model (to provide an independent understanding of network operating cost and revenue levels);
- A high-level assessment of delivery mechanisms; and
- Production of an overview document alongside the JLTP.

The second phase of the bus strategy is currently underway and includes the following work areas:

- Completion of the network review;
- An assessment of options for changes to the network, including rural and inter-urban networks and analysis of the current local market and further operator engagement;
- Bus information and ticketing strategies;
- Patronage forecasting;
- Production of a strategy document to support consultation on key principles; and
- Consultation and subsequent adoption

Plans to improve integrated, smart ticketing on public transport across the West of England are underway. WECA is looking at how ticketing can be simplified, giving people the flexibility to move across different transport systems more easily; for example, offering tickets that work on buses, trains and for cycle schemes:

The West of England vision for Smart and Integrated Ticketing/Payments, developed in 2016, set out:

- A unified smart payment and ticketing platform across all modes of public transport in the West of England area in order to provide a simple and consistent experience for all public transport users;
- A customer focussed system under a single brand with best value fare and pay as you go (PAYG) travel using the latest contactless and mobile technologies.

The phases of the programme are structured in such a way to enable establishment and development of the most appropriate solutions based on the most suitable and up to date technology – the phase 1 projects that are to be progressed with are:

- Small bus operator contactless bank payment upgrade support: supporting smaller bus operators to be able to replace ageing equipment and introduce contactless bank card payment technology through upgrading on bus ticket machines – completion October 2020;
- Operator engagement/future phase development: engagement with all stakeholders (bus/rail/ferry/public sector) to define and develop the future payments and ticketing offer and the approach to deliver this (to enable deliverable projects to be defined and developed for the subsequent phases) – completion March 2020.

West of England Mass Transit

Status: In development

Delivery Date: TBC

The Joint Transport Study and JLTP4 include proposals for a West of England mass transit system, including exploring underground options. This transformative scheme could shape the pattern of development and economic activity across the West of England. Bath itself would likely benefit from increased economic activity, along with improved connectivity across the region. The routes under consideration are:

- Bristol to Airport – connecting Bristol city centre, South Bristol, and the Airport
- Bristol to North Fringe – connecting Bristol city centre, North Bristol, Southmead Hospital, Cribbs Causeway
- Bristol to East Fringe - connecting Bristol city centre, East Fringe and East Bristol
- Bristol to Bath – initial priority for a metrobus corridor to Bath, with longer term ambition for a high frequency mass transit solution between Bristol and Bath.

The project proposals are currently in development and the WECA has approved spending £1.5m to prepare a Strategic Outline Business Case for the scheme. The study will explore several options including the Automatic Light Vehicle System currently in operation in Rennes, Turin, Toulouse, Lille and other cities outside the UK. While an underground system is technically deliverable, the costs are significant at around £3-4bn for three lines, with a long planning horizon taking around 20 years to deliver.

For the Bristol to Bath element of the scheme, careful consideration of routing options and future management of road space will be required. In the short term it is envisaged that MetroBus would provide enhanced services, with a longer-term ambition for a higher frequency mass transit solution.

Bath Mass Transit

Status: Concept

Delivery Date: TBC

The JLTP4 commits to further detailed technical work to explore the possibility of reintroducing trams in Bath to help meet the future growth and transport needs of the city. The JLTP4 notes that, given the environmental and physical constraints, trams should be one of the options considered, further noting that all key routes will be considered including:

- A367 Odd Down
- Newbridge: either along the A4 or A36 integrating with the West of England Mass Transit Corridor between Bath and Bristol
- Landsdown from the north of Bath
- A4 from the east of Bath.

The case for Bath Mass Transit, including trams in Bath, will be considered further in Phase 2 of this Bath Transport Delivery Plan, drawing on the evidence base presented in this Phase 1 report.

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Road

The Joint Local Transport Plan 4 includes two main road schemes that are relevant to Bath as set out below.

North South Strategic Study

Status: Concept

Delivery Date: TBC

The A36-A46 provides the only strategic SRN north–south link between the south coast and the M4, most of which is single carriageway. The A36 and A46 have large proportions of freight traffic and there are safety concerns on the A36 through Claverton village and on the A46 at Hartley Bends. The A36–A46 also routes some traffic through the congested edge of central Bath, contributing to the poor air quality along London Road. Links from the region to Poole/Bournemouth and Weymouth are via less direct and lower standard A roads, particularly the A37 and A350. The Port of Poole saw the completion in 2018 of a £10m expansion of the harbour to accommodate large cruise and cargo ships, which is expected to see notable increase in the volume of goods and passengers. This will increase demand for north-south journeys along the A350 corridor.

The JLTP4 commits to join Dorset and Wiltshire Councils in encouraging Highways England to undertake a strategic study to develop the case for improvements to north-south strategic road links.

B&NES are also working towards better signage to access the Bath Park & Ride sites from the Strategic Road Network and better signage to other sustainable transport modes.

Freezing Hill Junction upgrade and whole route improvements

Status: In development

Delivery Date: TBC

This scheme includes improvements at three junctions along the route between the A420 and Lansdown P&R, known as Freezing Hill Lane. Currently there are excessive delays and the route is not suitable for the number of vehicles using it to access Lansdown Park & Ride.

Other

In addition to the schemes outlined above, a number of cross cutting schemes are also in development as set out below.

Enterprise Area schemes

Status: In development

Delivery Date: Ongoing

Bath City Riverside Enterprise Area has the potential to accommodate up to 9,000 new jobs and 3,400 homes. It includes 98 hectares of land along the river corridor in central and western Bath, some 36 hectares of which is developable brownfield land. New employment will focus on Bath's strength in growth sectors: creative industries, professional financial and business services, information technology and software development. Overall, the Enterprise Area has the potential to increase the value of the Bath economy by £620 million (an increase of 16%) per annum.

On the majority of sites, the private sector will lead, and on others the public sector will invest in enabling infrastructure to facilitate private sector investment, unlocking the delivery of over £1 billion of development. The Enterprise Area masterplan identifies a range of transport and public realm schemes to help unlock this growth:

- New bridge at Cattlemarket
- Public realm scheme around Pulteney Weir
- Manvers St public realm improvements
- Redevelopment of Manvers St car park
- New street from Duke St to station
- New bridge attached to St James Railway Bridge
- Public realm south of Bath Spa (completed)
- North & South Quays Riverside boulevard (completed)
- Redevelopment of Avon St car park
- New bridge north of Oak St
- Replace Pinesway Gyratory with public realm, radically improve traffic circulation and provide underground car parking
- Locksbrook Railway Bridge cycle link
- Boating station on the riverside
- Enhanced riverside walk.

A number of these schemes are currently in development and progressing through the business case process. Other schemes will be delivered as and when private sector development comes forward. Nonetheless, there is the potential to accelerate the delivery of these enable schemes to help unlock and accelerate the regeneration of the Enterprise Area.

Figure 3.7: Enterprise Area Schemes (Source: Bath City Riverside Enterprise Area Masterplan 2014-2029: Masterplan Vision Report (BANES))[31]

[31] Source: Bath City Riverside Enterprise Area Masterplan 2014-2029: Masterplan Vision Report (BANES)

Future Mobility Zone

Status: In development

Delivery Date: 2019 - 2023

The WECA have recently been awarded funding from the Department for Transport for funding to create a West of England Future Mobility Zone (FMZ). The aim of the FMZ is to co-design, trial and demonstrate transport innovations that can improve connectivity, enhance regional productivity, widen access to employment and create globally significant trial cases to drive trade and inward investment.

Within central Bath, the key schemes are the Mobility as a Service (MaaS) platform, mobility stations and trailing micro-mobility solutions

- MaaS aims to improve planning of multi modal transport, providing alternatives to private car travel by offering improved access that meets mobility needs and solves inconvenient parts of journeys such as long waits;
- Micro mobility involves the use of small mobility devices for one or two people to reduce the dependence on single occupancy cars, such as electric bikes, scooters, skateboards and rickshaws. This is designed to improve access in dense areas of employment and offer users another option for their journeys while shifting people towards sustainable methods of transport.

Key issues & opportunities identified:

- There is a large number of ongoing transport schemes that will encourage further use of sustainable transport within Bath. Any schemes identified in the next phases of the Transport Delivery Action Plan should take these schemes in to account;
- The Getting Around Bath Transport Strategy, Public Realm and Movement Strategy, Enterprise Area Masterplan, and Joint Local Transport Plan 4, set out a number of schemes that could be progressed immediately.

3.4 Future travel demand

As set out in section 2, the overall trend across B&NES and within Bath itself over the past decade has been a rapid increase in sustainable modes of transport including cycling and bus use in particular (Figure 3.8). With continuing investment in sustainable transport and additional housing and jobs growth over the next 20 years, this trend is likely to continue. As such it will be important to support and accommodate this growth, for example, by increasing investment in local cycle routes and bus provision.

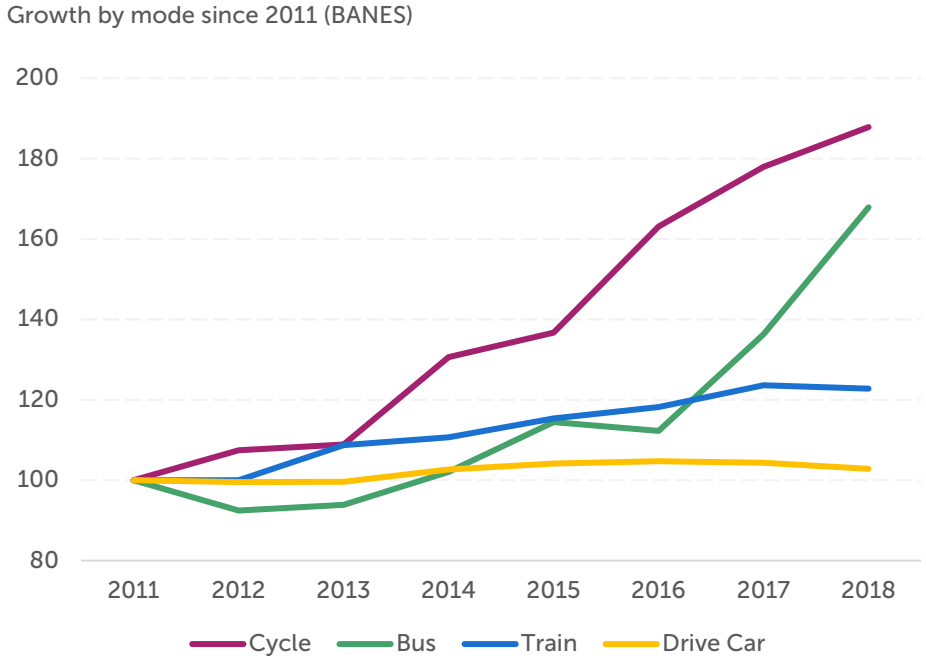


Figure 3.8: Growth by mode since 2011 (BANES)

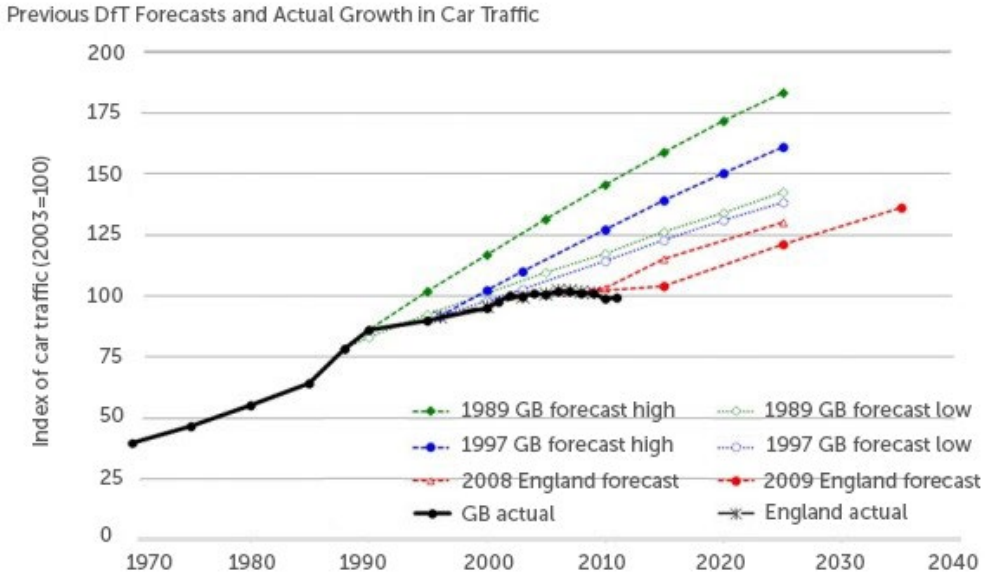


Figure 3.9: DfT forecasts and actual car traffic growth (Source: Goodwin 2012)[32]

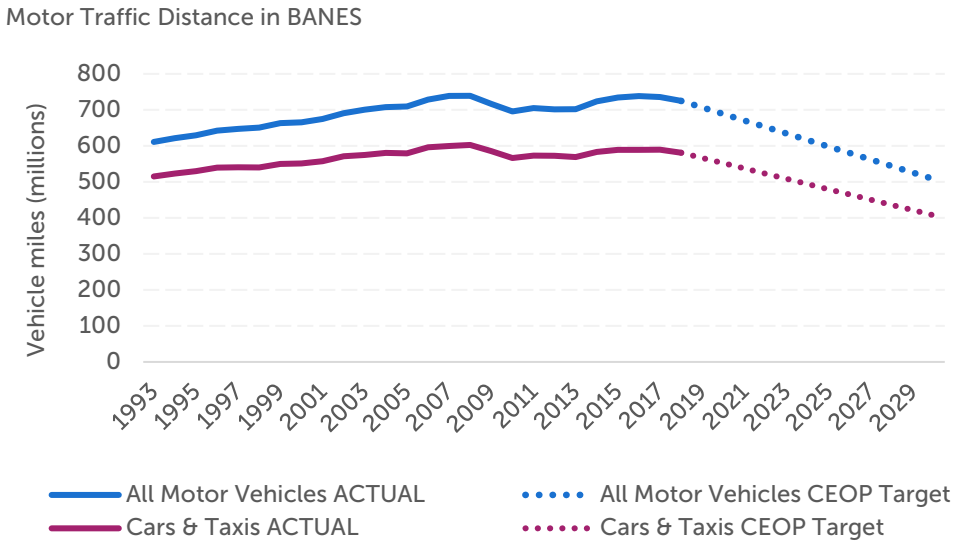


Figure 3.10: Motor Traffic Distance in B&NES and Climate Emergency Targets

[32] Goodwin, P. (2012) Due diligence, traffic forecasts and pensions. Local Transport Today. 594

As highlighted by several commentators, there is a tendency for central government forecasts to overestimate car traffic growth (Figure 3.9), and this is reflected in the historic traffic growth within B&NES (Figure 3.10), where traffic has been largely static for the last decade, and steadily decreasing within the centre of Bath.

The climate emergency provides extra justification to move away from the historic "Predict and Provide" approach to transport planning, towards a "Decide and Provide" approach required to meet the challenging carbon reduction requirements.

Key issues & opportunities identified:

- Continuing investment in sustainable transport and housing and jobs growth within Bath is likely to continue the growth in use of sustainable forms of transport within Bath;
- The historic reduction in traffic volumes within Bath needs to be continued and accelerated to meet the requirements of the climate emergency;
- The climate emergency provides extra justification to move away from the historic "Predict and Provide" approach to transport planning, towards a "Decide and Provide" approach required to meet the challenging carbon reduction requirements.

4. The need for intervention

4.1 Summary of existing and future issues

In addition to the West of England wide issues and challenges identified in the JLTP4, this Phase 1 Current and Future report has identified the following issues and challenges:

Overall

- Take into account recent developments including the climate emergency, Local Transport Plan 4, Bath Clean Air Zone and supporting measures, manifesto commitments, and other emerging schemes and policies
- Build on and continue with successful delivery of the actions contained in the Getting Around Bath Transport Strategy
- Growth in walking, cycling, and bus use has been faster than expected and further ambitious measures are needed to support this trend
- Rail growth has been slower than expected, although still growing and additional measures will be needed to support continuing growth in rail use
- The climate emergency requires rapid electrification of vehicles and a significant reduction in vehicle distance travelled. Significant additional transport measures in B&NES and beyond are required, over and above the already ambitious Joint Transport Study Vision for the West of England

Land use, socio economic, and demographic context

- Bath is one of the UK's most liveable cities, well known visitor destination, and World Heritage Site
- Around 30% of all employment in Bath is concentrated in the city centre
- Strong and diverse local economy. Relatively affluent compared to other areas of the UK
- High student population (around 20% of residents)
- Need to manage and enhance the tourism offer, including ongoing improvements to the high-quality public realm which is a key tourist attraction in itself

Physical and environmental constraints

- Limited highway widths and gradients on some key corridors will constrain some transport options
- Need to consider environmental constraints including green belt, AONB, Air Quality Management Area, and Flood Zones particularly in the city centre
- Congestion poses a major issue for the World Heritage Site having detrimental impacts on air quality, residents and businesses. There is a need to promote less car use and reduce the impact of traffic to protect and enhance the World Heritage Site

Current levels of travel demand and transport issues - Why we travel?

- Overall trend of increasing trip distance over the last 30 years
- Commuting, visiting friends, and shopping account for most distance travelled, whereas business and personal business account for the least distance travelled
- The majority of peak hour congestion in Bath is caused by commute trips
- People in the highest household income groups travel furthest and are more likely to travel by car
- Men and middle-aged people are more likely to travel by car than women or other age groups

Current levels of travel demand and transport issues - Where we travel?

- A high proportion of the Bath workforce live in Bath, with significant levels of in-commuting from the Rest of B&NES, Wiltshire, South Gloucestershire, and Bristol. Therefore, to tackle transport issues within Bath there is a need to improve transport options to the surrounding areas
- 75% of people driving to work in Bath do so from outside of the urban area, with high numbers of people driving to work in Bath from the rural areas surrounding the city within B&NES and Wiltshire
- Longer distance car and train trips account for the vast majority of distance travelled. While 35% of car trips within B&NES are less than 5 km, these account for just 7% of total distance travelled. 4% of residents travelling over 60 km to work account for over 20% of total distance travelled

Current levels of travel demand and transport issues - How we travel?

- Compared to leading liveable cities of similar size in the UK, such as Oxford and Cambridge, Bath has high levels of car use and low levels of cycling, but higher levels of walking and working from home
- Since 2011, use of sustainable modes of transport has continued to rapidly grow
- Many school pupils would prefer to cycle or scoot to school, rather that walk or be taken in a car

Walking

- High proportion of journeys made on foot compared with other cities
- The layout and size of Bath are conductive to walking and the streetscene is in many places of unsurpassed value
- Perception that the car dominates in some areas
- Opportunity to continue to improve the pedestrian environment and walking routes, particularly in the city centre

Cycling

- Number of people cycling in Bath is increasing rapidly
- High levels of public support for building more protected cycle lanes on roads, even when this could mean less space for vehicles
- Potential for further growth in cycling across the city, with fragmented routes across the city centre and on key arterial corridors likely to be a key barrier to increased growth
- Electric bikes, including the forthcoming electric hire bike schemes, represent an opportunity for a step change in cycling levels, overcoming the barrier of hills and enabling longer distance cycling trips

Bus

- Number of people using buses in Bath is increasingly rapidly, in contrast to most other areas of the UK
- Typically, good levels of bus accessibility and relatively competitive journey times
- Bus punctuality has improved in recent years, but there is still room for improvement
- Opportunity to consolidate bus route in the city centre to help unlock public realm improvements
- Potential to introduce additional bus priority measures including bus lanes in some areas, including Lower Bristol Road, London Road, Manvers St/Dorcester St, A367 Wellsway, and Rossiter Road
- On-street parking is blocking and delaying buses in some areas including Bathwick Hill and Lansdown Hill, and limiting the size of bus that can be operated negatively impacting commercial viability of some routes
- Bus passengers in the region would most like to see improvements in punctuality, frequency and number of routes, and bus comfort and condition

Park & Ride

- Park & Ride sites are an integral part of Bath's transport system, enabling reduction in parking and public realm improvements in the central area
- The fundamental drivers for an affordable, direct public transport service from the east of Bath remain. However, the Council has previously examined the potential for provision of a P&R site to the east of Bath and concluded that there are no deliverable sites meaning that alternative solutions to tackling these issues are now being explored

Coach

- Visitor coaches are a strong contributor to the economy, with coach passengers spending over £180,000 a day in Bath
- Loss of coach parking spaces, a lack of drop off facilities, and a perception that some coaches do not contribute to the local economy
- A need to revisit the unadopted 2017 coach parking strategy and agree a way forward

Train

- Usage of Bath rail stations has grown significantly over the last decade
- Main constraint to developing services through Bath is the line capacity between Bathampton Junction and Bristol
- Low levels of satisfaction with availability of seats, frequency of services, and punctuality of trains. 96.8% of services at Bath Spa were less than 15 minutes late

Motor Traffic

- There has been no significant motor traffic growth in Bath in the last decade, and central Bath has seen a steady reduction in motor vehicle flows thanks in part to successful sustainable transport and demand restraint measures including removal of city centre parking
- There is still heavy congestion in areas of Bath during peak periods, with constraint points on the network including Bathwick Street, London Road, Lower Bristol Road, Wells Road/Wellsway, and Rossiter Road
- Motor traffic volumes in Bath are still having a detrimental impact on the quality of life of Bath residents and the fabric of its urban realm and the World Heritage Site
- 75% of people driving to work in Bath do so from outside the city boundary, however, there are much higher levels of short distance car use for other trip purposes within Bath
- There are lower levels of through traffic than previously thought, and the benefits on London Road from the proposed A46-A36 Link would likely be very low
- A significant number of vehicles circulate the city centre to find slightly more convenient car parks, within a short walk of other car parks

Ultra Low Emission Vehicles

- Bath has favourable conditions for Ultra Low Emission Vehicle (ULEV) growth
- The B&NES Climate Emergency Outline Plan recommends an almost immediate phase out of petrol and diesel vehicles is needed. This would require significant action at both the national and local levels
- Key barriers to increased adoption of ULEVs are driving range, cost/price premium, and lack of electric vehicle infrastructure
- Lack of space for on-street charging points, with potential for blocking the footway and trailing wires
- Electric grid capacity constraints

Parking

- Parking provision and pricing plays a key role in managing car traffic demand
- On-street parking in the central area of Bath in particular is negatively impacting the quality of some public spaces, and preventing the use of street-space for public realm, walking, cycling, and bus improvements
- On-street parking spaces in Bath are under high demand, particularly in the centre
- Residents Parking Zones in Bath provide an effective way to protect parking space for residents rather than commuters
- Public off-street car parks have high occupancy levels. Over time, the capacity of long stay off street parking in the city centre will be reduced in favour of short stay users
- Park & Ride facilities are required to support a reduction in long stay parking in the centre of Bath
- Privately operated car parks contribute significantly to the total parking stock, with high levels of occupancy. The continued regulation, charging, enforcement and management of the private car parks will have an impact on overall travel volumes and patterns on the road network
- The pricing strategy is a key mechanism to influence change
- In addition to car drivers, there are competing needs for kerb space including cyclists, motorcyclists, car clubs, electric vehicles, coaches, taxis, and delivery/servicing. The strategy sets out a hierarchy of kerbside use to help balance these needs
- Increased use of technology could improve the way parking is managed in Bath
- The pressure on parking increases during events

Freight

- Relatively high volumes of freight traffic on London Road and the A36, with lower volumes elsewhere
- Only 12% of Light Goods Vehicle and 9% of Heavy Goods Vehicle traffic is through traffic, with the majority stopping in Bath
- Need to balance the need for freight deliveries with the desire to provide a safe and attractive environment within the city centre, including consideration of including more streets within limited loading hour restrictions to help unlock public realm improvements
- The Clean Air Zone will deter unsuitable freight movements and provides an opportunity to re-explore freight consolidation opportunities
- Broadband
- High percentage of residents already working from home, with potential for further growth
- Improving the speed of broadband in more rural areas of B&NES could play an important role in reducing total vehicle distance travelled

What are the impacts of our travel?

- Physical inactivity directly contributes to 1 in 6 deaths in the UK. Walking and cycling can play a key role in incorporating physical activity in everyday life
- Air pollution within Bath is contributing to a significant number of deaths and poor health of residents
- Road traffic is the biggest cause of community noise and is liked to a range of health issues
- The private car has the highest impacts in terms of climate impacts and space requirements on our streets and spaces
- There are two road collision cluster sites in Bath and a high number of collisions on key corridors including London Road, the A36 Lower Bristol Road, and within the city centre itself

Future Land Uses

- The existing Local Plan includes over 7,000 new homes and 7,000 new jobs in Bath, with key development sites including the Enterprise Area and University. The transport impacts of this growth were considered in the measures contained within the Getting Around Bath Transport Strategy
- Although now withdrawn the Joint Spatial Plan included only a minor housing allocation for Bath and this number is unlikely to substantially change. However, there is significant growth planned across the West of England is likely to increase demand for transport in the longer term

Future Changes to the Transport System

- There is a large number of ongoing transport schemes that will encourage further use of sustainable transport within Bath. Any schemes identified in the next phases of the Transport Delivery Action Plan should take these schemes in to account
- The Getting Around Bath Transport Strategy, Public Realm and Movement Strategy, Enterprise Area Masterplan, and Joint Local Transport Plan 4, set out a number of schemes could be progressed immediately

Future Travel Demand

- Continuing investment in sustainable transport and housing and jobs growth within Bath is likely to continue the growth in use of sustainable forms of transport within Bath
- The historic reduction in traffic volumes within Bath needs to be continued and accelerated to meet the requirements of the climate emergency
- The climate emergency provides extra justification to move away from the historic "Predict and Provide" approach to transport planning, towards a "Decide and Provide" approach required to meet the challenging carbon reduction requirements

Table 4.1: Summary of key transport issues by corridor

Issues by Corridor	Daily Traffic Flow (2 - way all vehicles) (07:00-19:00)	Approx. Daily Bus Passenger Boardings/Alightings (07:00-19:00)	Car Speed mph (AM Peak)	Timetable Bus Speed mph (AM Peak)	% buses "on time"	Summary of key corridor specific issues
A4 London Road	9,900	1,400	4-12	10-15	82%	• High potential for outbound bus priority improvements • High freight volumes • AQMA
A36 Warminster Road	9,500	2,600	15-30	N/A	N/A	• Limited width • AQMA • Future housing growth
Bathwick Hill / Claverton Down Road	n/a	N/A	15	8-9	N/A	• Limited width • Steep gradient • On-street parking delaying buses • Growth at university site
A367 Wellsway	16,300	3,900	8-20	10-15	82%	• High potential for bus priority improvements • AQMA
A36 Lower Bristol Road	9,100	2,600	5-14	N/A	73%	• Limited width • Highest potential for bus priority improvements • High freight volumes • AQMA • Collision cluster site • Growth at Enterprise Area
A431 Upper Bristol Road / Newbridge Road	14,400	N/A	9-22	N/A	82% (average P&R)	• AQMA • Collision cluster site • Growth at Enterprise Area
Lansdown Road	12,600	1,800	13-24	15-17	82% (average P&R reliability)	• Limited width • Steep gradient • On-street parking delaying buses • AQMA • Future housing growth

5. Objectives and Targets

5.1 Vision and Objectives

The vision and objectives contained within the Getting Around Bath Transport Strategy were adopted after a period of consultation and received widespread support. They are carried forward to inform the Transport Delivery Action Plan, with an update to the carbon emissions objective to reflect the severity of the climate emergency.

Vision

"Bath will enhance its unique status by adopting measures that promote sustainable transport and reduce the intrusion of vehicles, particularly in the historic core. This will enable more economic activity and growth, while enhancing its special character and environment and improving the quality of life for local people."

Objectives

- Supporting and enabling economic growth, competitiveness and jobs
- Improving air quality & health, reducing vehicle carbon emissions to achieve carbon neutrality by 2030
- Promoting sustainable mobility
- Widening travel choice
- Widening access to opportunities: jobs/learning/training
- Safeguarding and enhancing the unique historic environment and World Heritage Site status
- Improving the quality of life in the city.

Targets

Overall 2030 transport targets for B&NES are defined by the Climate Emergency Outline Plan, which sets the scale of change needed to tackle the Climate Emergency. These are shown in Table 5.1.

Overall, the SCATTER Stretch scenario recommends that a 72% reduction in carbon emissions by 2030 (baseline 2016) is needed.

Table 5.1: Climate Emergency Outline Plan Transport Targets

Area	Headline Measures
On-road transport	• 25% reduction in vehicle km per person • Modal shift creates 7% reduction in car travel • Electric cars: 76% pure battery EV, 14% Petrol Hybrid EV • 76% electric buses, 24% hybrid buses
Freight	• 37% of freight rail is electric • Road freight remains diesel
Passenger Rail	• 100% passenger rail electrification

These targets are extremely challenging and will need the support of national government and others to achieve them. However, they do set out the direction of travel and the scale of change needed. It is recommended these targets are kept under review and updated as further work is undertaken to develop the response to the Climate Emergency, both locally and nationally.

There are many potential pathways to meeting the overall transport targets. The figure below illustrates the scale of change needed to meet the 25% reduction in vehicle km per person per year target.

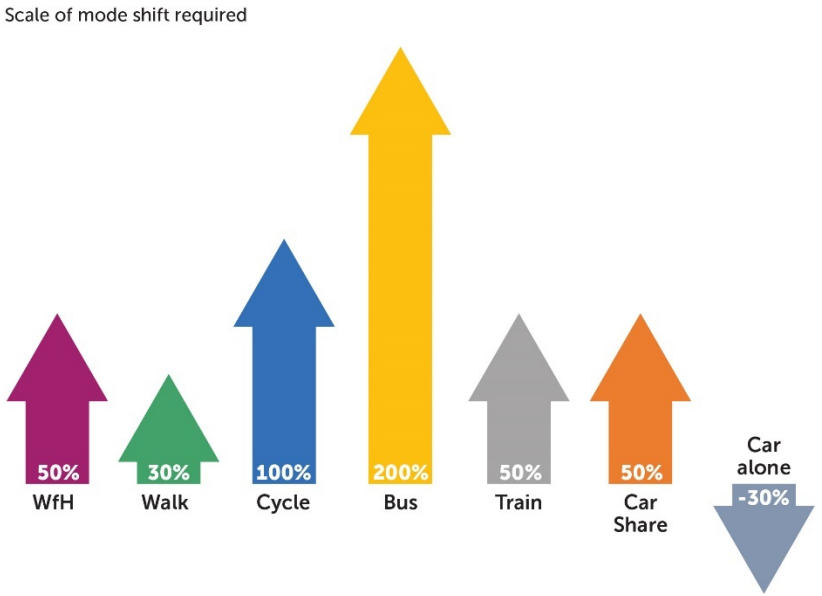
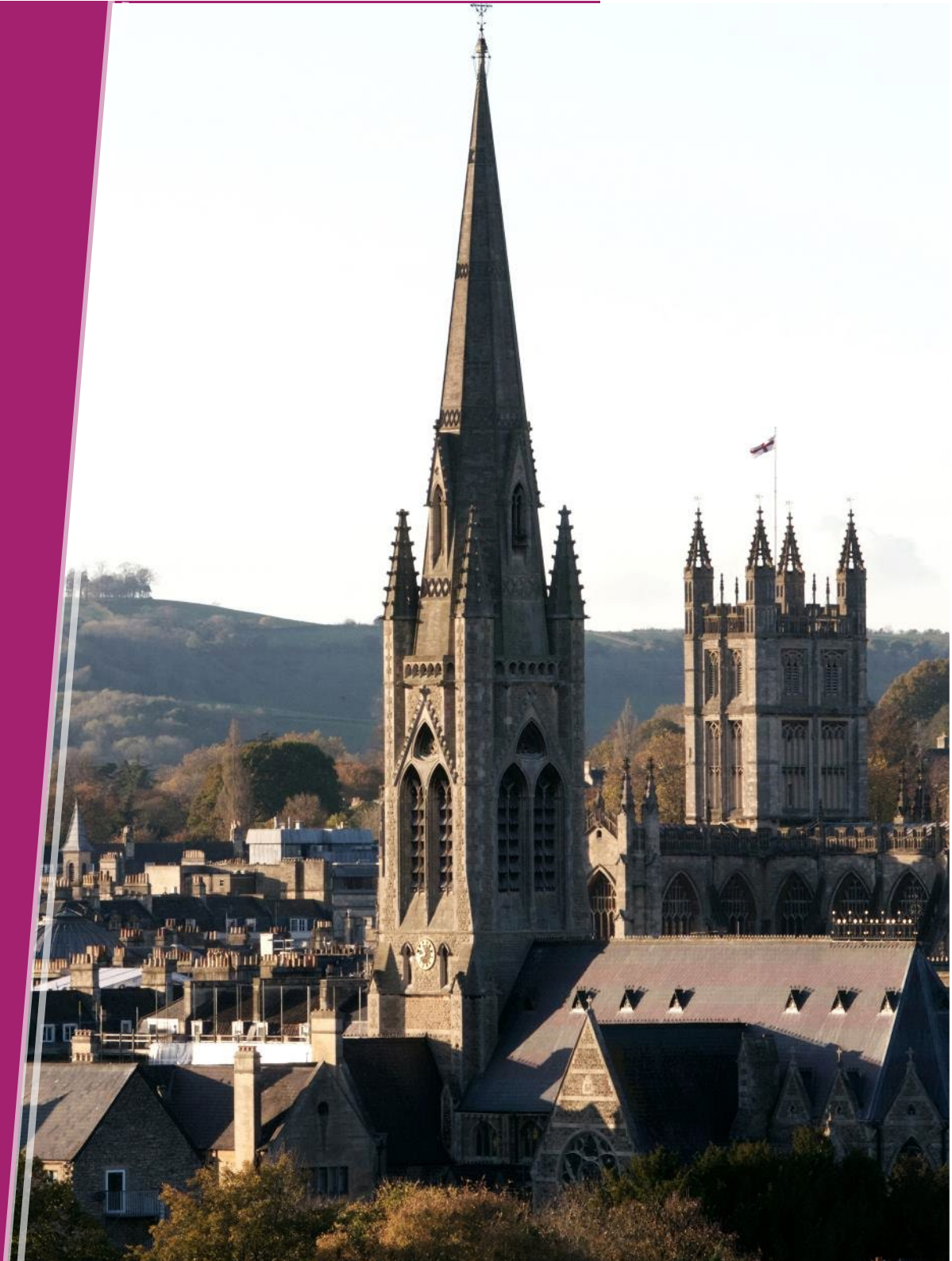


Figure 5.1. Scale of mode shift

6. Next steps



This report forms Phase 1 of the Transport Delivery Action Plan, setting out the current and future situation, identifying issues and challenges.

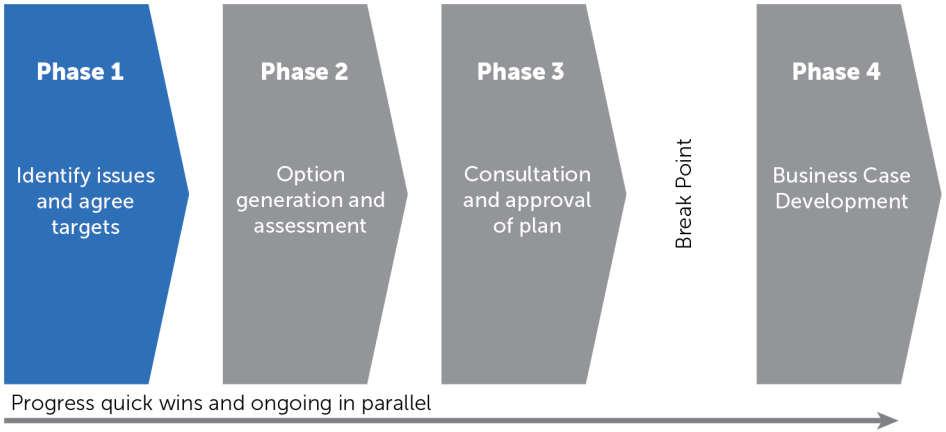


Figure 6.1: Developing the Transport Delivery Action Plan

It is envisaged that the next phase of this work will involve development and assessment of transport options to address the issues and challenges identified in this report.

Through the course of the literature review and review of previous consultations, a large number of transport scheme suggestions have been identified and are contained in Appendix B. A sensible first step in the next phase of work would be to add to, review and sift this long list of transport options.

The evidence presented in this report suggests schemes encourage electrification of the vehicle fleet and tackle longer distance car trips are likely to be a higher priority. Within Bath it may be sensible to create a single or series of transport scheme packages to group similar schemes and assist delivery. For example, this could include a Bath Transport Package 2, or a series of smaller packages such as a city centre package, corridors package, and neighbourhoods package.

The next phase should consider the delivery and funding mechanisms already in place to help deliver schemes, developing a phased delivery programme over the next ten years.

Following on from Phase 2, the scheme options will need to be consulted upon (Phase 3), and business cases developed which mean there are several years until schemes secure funding and start to be delivered.

In the meantime, quick wins and existing commitments should continue to be delivered, including delivery of low traffic neighbourhoods and a review of parking restrictions in the immediate future. This Phase 1 report has highlighted there is a number of existing schemes within the Getting Around Bath Transport Strategy, Enterprise Area Masterplan, and Public Realm and Movement Strategy that could rapidly move towards delivery. These schemes could make a significant contribution to tackling the issues and challenges highlighted in this report. The climate emergency requires immediate action and schemes already identified can make a significant contribution to reducing emissions.

Appendix A: Detailed Policy Review

A.1 National Policies

A.1.1 National Planning Policy Framework

In summary...

The NPPF supports sustainable development and a reduction in the number and length of journeys through encouraging sustainable and active modes of transport.

The National Planning Policy Framework (NPPF)[33] sets out the Government's planning policies and how these are expected to be applied to local planning policies and decisions. The NPPF must be taken into account in local plans and is a material consideration in planning decisions.

The NPPF integrates planning and transport, identifying that transport infrastructure relates to the scale, location or density of development that can be accommodated. The NPPF is therefore, of relevance to this study and must be reflected in its development of the transport proposals. The key points which are most relevant to this study are:

- **Paragraph 8** which highlights the importance of the economic, social and environmental dimensions of sustainable development and that significant adverse impacts on any of these dimensions should be avoided;
- **Paragraph 22** which states that strategic policies should consider a minimum 15-year period from adoption, to anticipate and respond to long-term requirements and opportunities, such as those arising from major improvements in infrastructure;
- **Paragraph 58** which states that it is important that a sufficient amount and variety of land can come forward where it is needed, and that the needs of groups with specific housing requirements are addressed;
- **Paragraph 104(a)** that states policies should support an appropriate mix of uses across an area, and within larger scale sites, to minimise the number and length of journeys needed for employment, shopping, leisure, education and other activities;
- **Paragraph 104(b)** which states that strategies and investments for supporting sustainable transport and development patterns should be aligned, and that local highway authorities, transport infrastructure providers, operators and neighbouring councils should be involved;
- **Paragraph 104(c)** that states planning policies should identify and protect sites and routes which could be critical in developing infrastructure to widen transport choice and realise opportunities for large scale development;
- **Paragraph 104(d)** that draws on the importance of high-quality walking and cycling networks; and
- **Paragraph 104(e)** which states that planning policies should provide for large scale transport facilities that need to be located in the area, and the infrastructure and wider development required to support their operation, expansion and contribution to the wider economy.

[33] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/740441/National_Planning_Policy_Framework_web_accessible_version.pdf

A.1.2 The Road to Zero

In summary...

The Road to Zero supports a reduction in greenhouse gases, specifically vehicle emissions, through incentivising high quality, zero emission vehicles.

The Road to Zero, published by Department for Transport (DfT), outlines the UK's strategy and measures to promote cleaner road transport and lead in the design and manufacturing of zero emission vehicles. The strategy highlights that transport is the largest sector for UK greenhouse gas emissions (27%), of which road transport accounts for over 90% resulting in road transport is one of the biggest contributors to poor air quality in some of the UK's towns and cities.

Overarching aims of the strategy are to:

- Reduce the emissions from vehicles already on our roads;
- Encourage the uptake of the cleanest new vehicles;
- Reduce emissions from heavy goods vehicles (HGVs) and road freight;
- Place the UK at the forefront of the design and manufacturing of zero emission vehicles; and
- Support the development of one of the best electric vehicle infrastructure networks in the world.

Long term ambitions detailed in the Road to Zero include:

- Put the UK at the forefront of the design and manufacturing of zero emission vehicles;
- All new cars and vans should be effectively zero emission by 2040;
- End the sale of new conventional petrol and diesel cars and vans by 2040 and expect the majority of new cars and vans sold to be 100% zero emission and all new cars and vans to have significant zero emission capability;
- Almost every car and van should be zero emission by 2050; and
- At least 50%, and as many as 70%, of new car sales and up to 40% of new van sales being ultra-low emission by 2030.

The aim to encourage the uptake of the cleaner vehicles resulted support for local action which included the launch of a Go Ultra Low campaign which designated 8 Go Ultra Low Cities. The West of England local authorities have committed to a £7 million Go Ultra Low Project[34] to accelerate the purchase of electric vehicles. Further information on the Go Ultra Low Project is provided in section 3 of the main report.

[34] https://travelwest.info/drive/electric-vehicles/go-ultra-low-west

A.2 Regional Policies

Joint Local Transport Plan 4 (as outlined in Section 1) is the key document in terms of transport in the West of England. The following section outlines wider policies in the region which have an impact on transport

A.2.1 West of England LEP Strategic Economic Plan 2015 to 2030 (March 2014)

In summary...

The SEP supports sustainable growth in the West of England. It is supportive of transport schemes to unlock economic growth in the region specifically identifying MetroWest and rail schemes as opportunities.

The Strategic Economic Plan (SEP) prepared by West of England Local Enterprise Partnership (LEP) outlines how the region will achieve sustainable economic growth over the plan period. The SEP supports the West of England's attempts to secure government funding to assist economic development in the region between 2015 and 2021, via the Local Growth Deals initiative. Within this context, the SEP aims to facilitate the creation of more than 25,000 jobs and develop an economy worth around £25bn per year (which also contributes some £10bn to the Treasury annually). Of these the jobs, it identifies between 9,000 new jobs being created in the Bath City Riverside Enterprise Area alongside 3,600 new homes.

The LEP objectives are to:

- Create the right conditions for business to thrive;
- Ensure a resilient economy, which operates within environmental limits;
- Create places where people want to live and work, through delivery of cultural infrastructure and essential infrastructure, including broadband, transport and housing to unlock suitable locations for economic growth;
- Shape the local workforce to provide people with skills that businesses need to succeed and that will provide them with job opportunities; and
- Ensure all our communities share in the prosperity, health and well-being and reduce the inequality gap.

The SEP was superseded by the West of England Local Industrial Strategy in July 2019.

A.2.2 West of England Local Industrial Strategy

In summary...

The LIS identifies challenges and priorities in the West of England such as the high car usage and resultant emissions and congestion issues. It highlights that improvements in public transport are required to support the growing economy.

The Local Industrial Strategy (LIS), written in conjunctions with the JSP and JLTP, identifies the current strengths and challenges in the West of England. The LIS sets out 4 key priorities that should shape the approach to these challenges:

- **Cross-sectoral innovation** from research through to commercialisation;
- **Inclusive growth**: with opportunities for employment and progression for all;
- **The productivity challenge:** adopting new technologies and innovations;
- **Innovation in infrastructure delivery**: in line with the JLTP deliver plans in a sustainable way, taking action without increasing carbon emissions.

One of the challenges identified in the LIS is the increasing congestion in the West of England. It states: "*two-thirds of commutes are by car and two out of five of those journeys are of less than two kilometres contributing to significant greenhouse gas emissions and a cost of congestion of £300m a year*". The LIS outlines that trips are predicted to increase 25% by 2036 and therefore the regional infrastructure and public transport provision must improve to support the economy.

Within the context of the LIS, this study will propose the innovative options to reduce congestion and support the growing economy within B&NES and the South West.

A.3 Local Policies

A.3.1 Existing Local Plan (2011 – 2029)

The existing B&NES local plan comprises of the Core Strategy (CS) and the Placemaking Plan (PMP) which have been reviewed in conjunction.

In summary...

The Existing Local Plan sets out the aim to continue reducing car dependency and promoting walking, cycling and public transport to combat transport challenges in Bath and the surrounding areas.

A.3.1.1 Core Strategy

The CS is a key policy document which sets out a strategic planning framework to inform development up to 2029. It also outlines the spatial vision for B&NES to be *"internationally renowned as a beautifully inventive and entrepreneurial 21st century place with a strong social purpose and a spirit of wellbeing, where everyone is invited to think big".*

The strategy was informed by the aspirations and challenges faced across B&NES as set out in the *Sustainable Community Strategy and Futures for Bath, Keynsham and Somer Valley.* In summary the key strategic issues are:

- **Climate change** - reduce carbon, natural resources and fossil fuel usage and ensure climate change resilience through adopting environmentally friendly practices;
- **Demographic change** – understand and plan for the increasing population and the change in social trends;
- **Inequalities** – tackle the socio-economic gaps which are identified in gaps in life expectancy, educational attainment and employment opportunities;
- **Locality** – move towards localism enabling communities to have a greater say and increase provision of local services;
- **Growth** – enable growth of housing and employment whilst ensuring that there is no loss to natural and cultural assets; and
- **The Economy** - create conditions for an environmentally sustainable economy with increased local employment, less commuting and a low carbon business sector.

The strategic objectives, mapped against the strategic issues, are summarised in Table A1.

Table A.1: Strategic Objectives

Objective	Description	Driver
Objective 1	Pursue a low carbon and sustainable future in a changing climate	Climate Change
Objective 2	Protect and enhance the District's natural, built and cultural assets and provide green infrastructure	Growth
Objective 3	Encourage economic development, diversification and prosperity	Growth Inequalities Locality
Objective 4	Invest in our city, town and local centres	Growth Inequalities Demographic change
Objective 5	Meet housing needs	Economy Inequalities Locality
Objective 6	Plan for development that promotes health and well being	Inequalities
Objective 7	Deliver well connected places accessible by sustainable means of transport	Economy Growth

The plan establishes that 13,000 dwellings are required over the plan period which will be distributed across Bath (7,020), Keynsham (2,150), Somer Valley (2,470), Rural Areas (1,120) and Whitchurch (200). It identifies the differences between places within B&NES, notably Bath, Keynsham, Somer Valley and rural areas, and therefore the difference challenges faced by each, Table A2 provides a summary of the strategic issues and strategies for each area.

Table A.2: Summary of Local Plan policies

	Strategic Issues	Infrastructure and Delivery Measures – Transport specific	Other Spatial Strategies (of relevance to this study)
Bath	• Retaining the historic Georgian and Roman qualities and sense of place; • Conserving and enhancing the WHS and ensuring contemporary changes is managed sensibly; • Sustain the contribution of tourism to the economic; • The public realm of the city centre is suffering from decades of underinvestment and a much better relationship is needed between the city and its river; • Congestion on the main routes, air quality management areas and climate change require the spatial strategy to make the most of existing public transport infrastructure and planned investment enabling people to travel to and around the city with less environmental impact and greater efficiency.	• Bath Transport Package –including three extended Park & Ride sites, upgrade nine bus routes and variable message signs on key routes displaying information about car parking availability; • Improvements to the bus network through the Greater Bristol Bus Network; • Rail improvements – including electrification, the new GWR franchise, increasing the capacity of rail services travelling through Bath Spa station and improving access to and attractiveness of rail travel; • Creating a more pedestrian and cyclist-friendly city centre; • Other improvements to walking and cycling infrastructure through the Councils Integrated Transport annual settlement and the implementation of 'Smarter Choices' for transport; • Seeking to reduce nitrogen dioxide levels in Bath; • Creation of one or more Park & Ride sites on the eastern side of the city to reduce commuter traffic; • The disused rail line between Brassmill Lane and Windsor Bridge, Bath is safeguarded as a Sustainable Transport route for non-motorised forms of transport; and • To complement these public transport and cycling/walking improvements the Council will update its Parking Strategy for Bath.	• Sustain and enhance the significance of the city's heritage assets; • Plan for an overall net increase in jobs of 7,000, rising from 60,200 in 2011 to 67,200 in 2029, with significant gains in business services tempered by losses in defence and manufacturing; • Enable the development of about 7,000 new homes, increasing the overall stock of housing from about 40,000 to 47,000; • Reduce the proportion of the resident workforce who out commute and enable a shift in the level of self-containment from 70% to nearer 80%; • Implementing flood mitigation measures to ensure development is safe whilst not increasing risk elsewhere; • Addressing land remediation within the Central Area and Enterprise Area in relation to industrial and utilities uses. The decommissioning and removal of the Windsor Gas Holder Station must be addressed as part of the redevelopment of Bath Western Riverside and its environs.
Keynsham	• Traffic congestion • Limited public transport	• Green infrastructure - river/canal corridor, formal and informal green spaces and allotments; • Improvements to Keynsham train station and enhanced service frequency to Bath and Bristol; • Pedestrian/cycling bridge over A4 Keynsham by-pass linking the railway station to the Memorial Park; • Cycle links to Bristol, Bath, National Routes 3 and 4, and Regional Route 10; • Safer routes for pedestrians and other cycle links; • Smarter choices measures, including measures such as travel plans, new development to be required to contribute to improvements, community transport, encouraging car sharing, and working from home; • Town centre public realm improvements; • Transport improvements for the town centre aimed at minimising the effect of existing and future traffic; and • Implement a reviewed parking strategy.	• Maintain the Green Belt surrounding Keynsham, allowing releases of Green Belt land to the east and south west of Keynsham to accommodate employment and housing growth; • Make provision for around 2,150 new homes (net) between 2011 and 2029. This will include affordable housing, and an appropriate housing mix giving more choice of housing to meet the needs of the local community; • Plan for about 1,600 net additional jobs between 2011 and 2029.

Somer Valley	• Transport congestion and limited opportunities for large scale transport intervention; • Poor public transport in rural areas leading to isolation for those without private transport; • Access to community facilities – maintaining and enhancing local village centres.	• Smarter Choices Measures, which could include travel plans, new development to be required to contribute to improvements, community transport, encouraging car sharing, working from home; • Highway network improvements to Midsomer Norton and Radstock; • Town centre public realm improvements in Midsomer Norton and Radstock; • Improved Cycle links and Green Infrastructure; • Proposed Town Park in Midsomer Norton.	• Enable the delivery of 900 net additional jobs between 2011 and 2029 and facilitate further jobs if economic circumstances allow; • Enable around 2,470 new homes to be built at Midsomer Norton, Radstock, Westfield, Paulton and Peasedown St John; • Strengthen the shopping offer in by facilitating redevelopment and improving the public realm; • Increase and enhance access to local heritage, woodlands and green spaces including implementation of the proposed Town Park in Midsomer Norton.
Rural Areas	• For much of the rural area poor access to public transport affects the functionality of the rural economy and leads to isolation for those without access to private transport.	• Land identified in the Local Plan at Whitchurch and Temple Cloud/Clutton for the purposes of potential village bypasses will remain safeguarded. These schemes will be reviewed through the Placemaking Plan.	• There are a number of villages where access to facilities and public transport is best and there is capacity for development, these villages are to be the focus for new small-scale development; • Where local need is identified, small scale employment developments will be appropriate at the identified villages.

Other key policies of relevance to this study are:

- **POLICY DW1: District-wide Spatial Strategy** – with the aim of promoting sustainable development and ensuring infrastructure is aligned with new development;
- **POLICY D4: Streets and Spaces** - Development proposals must be well connected, and the transport user hierarchy should be applied within all aspects of street design, considering the needs of pedestrians first, then cyclists, then public transport users, and finally vehicles;
- **POLICY D10: Public Realm** - Development proposals must be designed to enhance the public realm and should contribute towards achieving public realm infrastructure improvements;
- **POLICY CP13: Infrastructure Provision** - New developments must be supported by the timely delivery of the required infrastructure to provide balanced and more self-contained communities. The Council will work in partnership with adjoining authorities, local communities and relevant agencies and providers to ensure that social, physical and green infrastructure is retained and improved for communities. Developer contributions will be based on the Planning Obligations SPD and its successors. Infrastructure proposals should not cause harm to the integrity of European wildlife sites which cannot be mitigated.

A.3.1.2 Placemaking Plan

The PMP[35], formally adopted by on the 13th July 2017, forms part of the Development Plan for B&NES. The plan compliments the Core Strategy, "*allocates sites for development, facilitates the delivery of key sites, sets out development management policies and safeguards places*" across B&NES. It is focussed on creating the conditions for better places, and on providing greater clarity to enable the right developments to be delivered.

With regards to transport, the PMP approach is to continue reducing car dependency and promoting walking, cycling and public transport. Due to the current high levels of traffic on the roads it states that there is a need to undertake transport and access improvements as well as major capital infrastructure projects to facilitate sustainable growth.

In summary, the concerns and proposals with regards to transport infrastructure presented in the PMP are:

- The impact of through traffic, particularly HGVs and vehicles on the A36-A46 route, on the WHS; and
- The A4 corridor, particularly the environment within Saltford improve journey time reliability between Bristol and Bath. The PMP states that solutions will consider a bypass.

Sustainable transport policies of relevance to this study are displayed in **Table A3** below.

[35] https://www.bathnes.gov.uk/services/planning-and-building-control/planning-policy/placemaking-plan

Table A.3: Summary of Local Plan policies for transport

POLICY ST1: Promoting Sustainable Travel Planning permission will be permitted provided the following principles are addressed:	POLICY ST3: Transport Infrastructure Development of transport infrastructure will only be permitted provided:
• Reduce the growth and the overall level of traffic and congestion by measures which encourage movement by public transport, bicycle and on foot, including traffic management and assisting the integration of all forms of transport; • Reduce dependency on the private car; • Give priority to pedestrian and cycle movements, and have access to high quality public transport facilities; • Provide and enhance facilities for pedestrians, cyclists and the mobility impaired including segregated provision that is fit for purpose; • Safeguard, enhance and extend the network of public rights of way and cycle routes; • Reduce the adverse impact of all forms of travel on the natural and built environment; • Ensure development does not prejudice the efficient functioning and acceptable development of the railway network; • Promote the use of car clubs and electric cars; • Ensure access to high quality public transport facilities is achieved by improving existing and providing new public transport facilities which would increase the proportion of journeys made by public transport; • Support and promote measures which reduce the levels of traffic pollution in the interests of improving health and quality of life and reducing harmful impacts on the built and natural environment; and • Schemes should safeguard affected heritage assets and the historic environment.	• There is no unacceptable impact on heritage and environmental assets and amenity including the World Heritage Site and its setting, Areas of Outstanding Natural Beauty and Natura 2000 sites (SACs/SPA); • The visual and functional impact of the scheme and any associated surface treatment, street furniture, signing, road markings, roadside verges and lighting upon the character of the area is minimised; • The impact of noise and other forms of pollution on surrounding land uses from traffic likely to be generated by the proposal is minimised; • The needs of pedestrians including those with impaired mobility, cyclists and horseriders are met; • The need for provision in appropriate cases of street furniture which aids security of premises without adversely affecting pedestrian circulation; • The environmental benefits to be secured through implementation of the scheme and any additional traffic management or calming measures needed to maximise those benefits should be clearly articulated; • The quality, patronage and efficiency of public transport operations must not be compromised; • The response time of emergency services must not be compromised; and • The acceptable provision for the transportation of materials to and from the site or disposal of spoil during construction.
POLICY ST5: Traffic Management Proposals Traffic management proposals will be expected to:	**POLICY ST6: Park and Ride** Development of new or expansion of existing Park and Ride sites will be permitted provided:
• Discourage through traffic and other unnecessary motorised vehicles from the main shopping streets; • Enhance vitality and viability; • Secure improvements for pedestrians, cyclists and the mobility impaired; • Facilitate the improvement of public transport integration; • Ensure the needs of all road users are taken into account and the servicing needs of commercial, cultural, recreational and residential activities are met; • Improve air quality; and • Be designed to respect local distinctiveness and not detract from the quality of the historic, environmental and cultural assets.	• Clear and convincing justification is provided for any harm to the World Heritage Site or significance of other designated heritage asset, with the degree of public benefit weighed against the level of harm; • That proposals within the Cotswolds AONB accord with national policy for determining planning applications for major development within an AONB; • That proposals affecting European sites meet the provisions of Policy NE3; • That there is no unacceptable impact on the surrounding road network and its capacity to safely accommodate potential traffic generation; • Provision is made for the needs of those with impaired mobility and for the safety and security of all users; • In the case of Park and Ride development in the Green Belt, it can be demonstrated that there is a requirement for a Green Belt location, and it preserves the openness of the Green Belt and does not conflict with the purposes of including land in it.

POLICY ST7: Transport Requirements for Managing Development

Development will be permitted providing the following provisions are met:

- Highway safety is not prejudiced;
- Safe and convenient access to and within the site for pedestrians, cyclists and those with a mobility impairment is provided or enhanced;
- Suitable vehicular access;
- No introduction of traffic of excessive volume, size or weight onto an unsuitable road system or into an environmentally sensitive area;
- No traffic mitigation measures are required that would harm the historic or natural environment;
- Provision made for any improvements to the transport system required to render the development proposal acceptable;
- Secure and accessible cycle storage facilities;
- In the case of new development proposals, facilities for charging plug-in and other ultra-low emission vehicles will be sought where practicable;
- Planning applications for developments that generate significant levels of movement should be accompanied by a transport assessment or transport statement in accordance with National Planning Policy Framework and Planning Practice Guidance. Schemes will be expected to be tested through the Council's transport modelling, as necessary;
- An appropriate level of on-site servicing and vehicle parking and cycle parking should be provided in accordance with the parking standards as set out in Schedule 2 – Parking Standards and in Schedule 1 – Parking for Disabled people;
- There should be no increase in on-street parking in the vicinity of the site which would affect highway safety and/or residential amenity;
- To ensure that parking standards are applied using a flexible approach departure from the prescribed minimum and maximum parking standards are able to be sought where specific circumstances can be demonstrated. Any reduction in minimum residential parking standards will require the completion of an accessibility assessment which will form the basis for any discount from the prescribed standard.

A.3.2 Emerging Local Plan (2016 – 2036)

In summary...

The Emerging Local Plan is supportive of improving and providing walking, cycling and public transport infrastructure including Park and Ride sites.

The Emerging Local Plan is being prepared alongside a new regional growth plan following the withdrawal of the West of England Joint Spatial Plan and provides a new strategic planning context for all four West of England Districts. The Emerging Local Plan will include a strategy to guide development, site allocations (including strategic development locations and smaller sites) to meet development requirements and district-wide Development Management policies for determining planning applications.

The emerging core strategy sets out the councils' values and priorities:

- Protect and care for our most vulnerable;
- Nurture residents' health, safety and wellbeing; and
- Provide ways for everyone in the community to reach their full potential.

The Local Plan Options document details that the values should be considered when reading the Spatial Priorities:

- Pursue a low carbon and sustainable future in a changing climate;
- Protect and enhance the District's natural, built and cultural environment and provide green infrastructure;
- Facilitate a strong, productive, diverse and inclusive;
- Meet housing needs arising from a changing and growing population;
- Plan for development that promotes health and well-being;
- Deliver well connected places accessible by sustainable means of transport; and
- Ensure the timely and efficient provision of infrastructure to support growing communities.

For B&NES, the JSP proposed a requirement to plan for 14,500 new dwellings by 2036 which is an additional 4,700 houses than set out in the existing committed sites. The local plan will have the role of establishing how the "non-strategic" growth can be accommodated within B&NES and as such, the report sets out two options for this.

In terms of transport, the options study set out the changes since 2011 (when the Existing Local Plan was adopted) and key challenges which are summarised, by area, in **Table A4**. Policies to tackle these challenges included:

- **BTH9 Policy Options for Bath Park & Ride provision:** *Identify specific land for Park and Ride development (expansion of existing sites at Lansdown & Odd Down and new provision East of Bath) and allocate in the Local Plan*;
- **KSM4 Proposed Policy Options for the Link Road Alignment:** *The four shortlisted options for the Link Road alignment contained within the Options Assessment Report are all being consulted upon as proposed options*;
- **KSM5 Proposed Policy Options for Pedestrian and Cycle connections:** *The identified off-site and on-site walking and cycling links above are put forward as options to be considered in order to create a healthy neighbourhood and support modal shift to active travel modes*;
- **WCH7 Proposed Policy Approach for transport:** *The transport proposals proposed in the Local Plan will be a combination of strategic interventions that are required to enable development to proceed, and a number of sustainable transport interventions that seek to enable a greater shift to more sustainable modes of travel*;
- **WCH11 Policy Approach for the Relocation of Brislington Park & Ride:** *Identify the most appropriate location to relocate the Brislington Park and Ride and allocate in the Local Plan, including the revised Green Belt boundary*; and
- **DM16 Emerging policy approach for electric vehicles infrastructure:** *Require all development proposals to integrate the provision of infrastructure into the design and layout of the development to enable the charging of electric or other Ultra-Low Emission vehicles*.

Table A.4: Summary of transport changes and challenges highlighted in the emerging local plan

	Transport changes since 2011	Key transport challenges
Bath	• 'Balancing Your Needs: A Parking Strategy for Bath and North East Somerset' was adopted by B&NES on 14th September 2017; • Congestion on parts of the road network within Bath has worsened, especially in the weekday 7:00 - 10:00 am and 3:00 - 7:00 pm periods; • The Council has concluded there are no deliverable sites to the east of Bath for the provision of a new park & ride facility and will continue to explore alternative options; and • The Air Quality Management Area that was originally designated in 2002 has been most recently expanded in 2013 and now covers most of the principal road network in central Bath. The Council has been directed by the Joint Air Quality Unit (JAQU) to produce a plan by 31 December 2018 on how it will reduce nitrogen dioxide levels in the shortest time possible and by 2021 at the latest. It is consulting on the introduction of a Clean Air Zone.	• Any future regional growth plan will identify and allocate strategic development sites in Bath and North Eat Somerset. The transport implications for the city will need to be carefully considered in assessing potential development sites; • **Managing parking provision** within the city. The PMP set parking standards for various uses but the standards for Residential, Purpose Built Student Accommodation and Houses in Multiple Occupation need to be reviewed; • The B&NES highway network remains **heavily trafficked;** • The need for **new development is balanced with minimising traffic congestion** and **making places more accessible by sustainable modes of transport;** • Need to deliver phased **expansion of the existing Park and Ride sites and new Park and Ride provision to the east of the city;** and • Improve air quality.
Keynsham	• Keynsham Transport Strategy published, with priorities identified to mitigate negative impacts of congestion; • High-Street one-way trial implemented; • Junction improvements completed, including at Bath Road/Chandag Road, Keynsham Road/Somerdale entrance, Charlton Road/Tesco entrance, Charlton Road/Bilbie Green entrance; • Keynsham Railway Station improvements completed; track lowered in advance of electrification works / MetroWest service upgrade; • Pedestrian/cycle infrastructure improvements completed, including on the High Street and at Somerdale; and • Joint Transport Study completed at West of England level; Options Assessment Reports published to define objectives and identify and assess potential interventions.	• Transport is fundamental to the successful economy and wellbeing of Keynsham, its residents and employees. Traffic **congestion is causing delays, both within the town and on the A4, affecting the quality of life for residents and making the town centre a less attractive place to visit. Traffic travelling through the town to wider destinations exacerbates these problems**, which without mitigation measures will worsen with further development in the town; • Delivering **key transport infrastructure to enable and support growth is a priority** in order to avoid/ mitigate severe impacts on the road network – this includes individual schemes as set out in the Keynsham Transport Strategy, Joint Transport Study and Options Assessment Reports; • Opportunities **to promote walking, cycling and public transport will also be a priority**, including provision of high-quality walking and cycling networks and supporting facilities; and • Emphasis on design - **ensuring that patterns of movement, streets, parking and other transport considerations are integral to the design of schemes** and contribute to making high quality places.
Somer Valley		• **High traffic volumes** through built-up areas; • **High levels of out-commuting;** • Local peak period traffic **congestion**; • **Narrow footways and limited pedestrian crossing facilities** in some areas; • **Limited and unattractive public transport** due to relatively long bus travel times, bus fares perceived to be high and no direct access to the rail network; and • **Limited spare parking capacity** in town centres.

A.3.3 Economic Strategy Review (2014 – 2030)

In summary...

The Economic Strategy Review supports the provision of an affordable, low carbon, accessible, integrated and reliable transport network to support economic growth.

Following from the first Economic Strategy published in 2010, the Economic Strategy Review provides reviewed and refreshed aims and actions placing sustainability and health and wellbeing at its centre. The Economic Strategy, alongside the Getting Around Bath Transport Strategy and Health and Well Being Strategy are cited in the PMP as the Council's 3 key strategies.

The Review categorises its priorities into three themes: Business, Place and People as shown in Table below.

Table A.5: Economic Strategy themes and priorities

Theme	Priorities
Business	• Promoting appropriate business growth & investment; • Delivering a supply of business space that meets local business growth needs; and • Providing a comprehensive business support service for small and medium sized businesses.
Place	• Successful city; • Vibrant market towns; • Sustainable connected communities; and • Housing.
People	• Employment and skills; and • Leisure and culture.

The "Sustainable connected communities" priority is of most relevance to this study aiming for "*the provision of an affordable, low carbon, accessible, integrated and reliable transport network which allows people to get around is essential to support economic growth in B&NES*". As well as bringing social and economic benefits, the Review states that this will also assist in meeting the aim of reducing carbon emissions by 45% by 2026.

It highlights the current challenges to creating sustainable connected communities which include:

- A need to further expand Park & Ride (P&R) facilities, including provision east of Bath, to address coach parking provision and improve the connectivity between P&R sites and the city centre;
- The frequency of and accessibility to rail services is limited leading to congestion at peak times; and
- The A36 and A4 routes in the city and along the corridor to Bristol suffer from congestion at major intersections.

One of the opportunities cited in the Review includes that accessibility to major employment locations is improved. This is through MetroWest Phase 1, a potential new station package in Wiltshire, smart ticketing through the Sustainable Transport Fund and City Deal through which potential funding for P&R in the east of Bath, bus lanes along the A4 and A36 and improvements to Windsor Bridge, Pinesway gyratory and Hicks Gate.

A.3.3.1 Medium Term Financial Strategy

In summary...

The Medium-Term Financial Strategy supports reducing congestion and improving public transport, walking and cycling whilst identifying ambitions of a pedestrian friendly city centre.

In the Medium-Term Financial Strategy[36], approved in September 2019, the new administration sets out its plans and priorities for the next four years to be incorporated into the Corporate Strategy. The key themes identified within this document include:

- Addressing the Climate Emergency;
- Delivering for Residents – this includes a focus on reducing congestion and delivering significant improvements to public transport, walking and cycling facilities. Alongside the introduction of the Clean Air Zone, there are wider ambitions for a more pedestrian-friendly city centre and for reducing the impact of cars in residential streets through better traffic management and reductions in 'rat-running';
- Focusing on Prevention; and
- Giving People a Bigger Say.

A.3.4 Health & Well Being Strategy (2015 – 2019)

The Health and Well Being Strategy outlines the vision for 2020 which was developed by a partnership of public, business and voluntary sector organisations: "*B&NES will be internationally renowned as a beautifully inventive and entrepreneurial 21st century place with a strong social purpose and a spirit of wellbeing.*"

Table A.6: Health and well-being strategy themes and priorities

Theme	Priorities
Preventing ill health by helping people to stay healthy	• Helping children to be a healthy weight; • Improved support for families with complex needs; • Reduced rates of alcohol misuse; and • Create healthy and sustainable places.
Improving the quality of people's lives	• Improved support for people with long term conditions; • Promoting mental wellbeing and supporting recovery; • Enhanced quality of life for people with dementia; and • Improved services for older people.
Tackling health inequality by creating fairer life chances	• Improved skills and employment; • Reduce the health and wellbeing consequences of domestic abuse; and • Take action on loneliness.

The main priority relating to this study is "Create healthy and sustainable places". The measures for this include the rates of cycling and walking and access to high quality open and green spaces.

A.3.5 Balancing Your Needs: A parking strategy for Bath & North East Somerset[37]

In summary...

The Parking Strategy supports a reduction in vehicles in the WHS aiming to reduce congestion and improve air quality whilst supporting the prosperity of the city.

The strategy, informed by consultation, aims to improve the quality of life in B&NES by balancing social, economic, cultural and environmental needs. It supports the need to reduce the intrusion of vehicles in centres to protect the World Heritage Site in Bath. The strategy was developed in line with the parking standards set out in the Place Making Plan.

[36] https://democracy.bathnes.gov.uk/documents/s58251/E3154z%20CorporatePlanMTFS.pdf

[37] https://beta.bathnes.gov.uk/sites/default/files/2019-09/parking_strategy_05.01.2018_technical_report.pdf

The principles outlined in the Parking Strategy are:

- To sustain and enhance the vitality and viability of settlements within Bath and North East Somerset, including the City of Bath, through parking policies which support the prosperity of the city and towns whilst reducing traffic in the most congested areas and improving the air quality;
- To effectively manage the total parking supply, which includes all types of parking, and consider priorities, regulation, charges and enforcement; and
- To manage travel demand in new developments by introducing restraint-based car parking standards, to avoid the over provision of car parking spaces, whilst meeting the needs of essential users.

The strategy outlines that on street parking is in high demand, particularly in the centres of Bath and Keynsham. To ensure best use of the kerb space the parking strategy includes a hierarchy of kerb space which prioritises alternatives to private car trips, maintains accessibility for disabled users and supports the operation of businesses. Within Bath controlled parking zones are used to manage street parking demand.

Off street public parking have high occupancy levels, particularly in Bath and the strategy states that over time, long stay off street parking will be reduced in favour of short stay parking and Park and Ride facilities which are growing in popularity. Private car parks in Bath also have high occupancy levels and the strategy notes that changes to these will have significant impacts to travel patterns.

The strategy states that a reduction of prescribed parking standards may be justified in areas with high connectivity and good public transport provision and that the 'Bath and North East Somerset Council's Development Accessibility Assessment' assesses a site's level of connectivity before proposing a reduction from the standards.

The strategy also notes the significance of tourists and visitors all year round and especially for major events. Major events, it states, increase the pressure on parking provision which cannot be provided. The Parking Strategy supports the ambition to reduce the number of visitors arriving by car and promote sustainable modes.

To achieve the points and priorities listed above, the Parking Strategy includes 31 objectives and 21 action points. The objectives are displayed in Table below.

Table A.7: Parking Strategy objectives and action points

Theme	Objective
Parking Standards	PSO1 Encourage and facilitate the provision of car club bays within new developments to reduce car ownership and pressures on residential parking within Bath
	PSO2 Developments within Bath and North East Somerset should provide provision for electric vehicle charging points in accordance with the following standards: • Residential developments with shared car parks –active provision for 20% spaces and passive provision for 20% spaces • Residential developments with individual parking – passive provision within each property • Commercial developments – active provision in 5% car parking spaces
	PSO3 Developments within Bath and North East Somerset with shared parking facilities should provide motorcycle parking spaces in accordance with the following standards; • Bath City Centre Zone – 5% of car parking spaces • All other areas of Bath and North East Somerset – 2% of car parking spaces The motorcycle spaces should be provided in addition to the number of car parking spaces required to meet the standard.
	PSO4 New developments within Bath and North East Somerset should provide adequate vehicle parking provision to meet the standards set out in the Place Making Plan. • Where 'Maximum Standards' are quoted the on-site parking provision should not exceed this level without prior agreement and justification. Proposed parking provision below the maximum allowed shall still be supported by an adequate assessment to demonstrate adequacy; • Where site parking is to be 'Assessed on Merit', the developer shall provide a predicted parking accumulation assessment based on expected traffic generation (TRICS or similar). The Accessibility Assessment (Objective PSO5) may be used to consider a reduction; and • Where 'Minimum Standards' are quoted the on-site parking provision must meet this level subject to the developer completing an Accessibility Assessment (Objective PSO5) and a level of reduction agreed based on this.
	PSO5 The accessibility of new developments should be assessed using the 'Bath and North East Somerset Development Accessibility Assessment'. The resulting score will inform the maximum reduction in parking provision that will be considered suitable by Bath and North East Somerset Planning Officers. The final level of parking to be provided remains subject to the judgement of the Council.
Managing on Street Parking	PSO6 Where it is deemed safe, on-street parking will be allocated using a balance approach to meet the demands in accordance with the Hierarchy of Kerb Space. Parking restrictions will be introduced, or parking prevented altogether, in order to reduce traffic and to maintain free flow of the highway network.
	PSO7 Within the centre of Bath priority for on-street parking will be given to disabled users, then residents parking zones and then short stay parking (maximum 2 hours) at the expense of long stay parking.
	PSO8 Additional Residents Parking Zones in all areas of Bath and North East Somerset will only be introduced in accordance with the 'Purpose of Residents Parking Schemes' where it can be demonstrated that the criteria outlined in 'Guidance to the Introduction of Residents Parking Schemes' has been met and the scheme has the support of local members.
	PSA 1 The Council should consider undertaking a strategic review of the existing residents parking scheme zoning system to determine whether an alternative zoning structure would result in more efficient use of on-street spaces.
	PSA 2 The Council will consider altering the hours of operation of residents parking zones, where sufficient evidence can be provided to demonstrate support for a change amongst residents and local members in line with criteria outlined in 'Guidance to the Introduction of Residents Parking Schemes'.
	PSA 3 The Council should undertake a review of the available permit types and remove those that do not comply with the objectives and policies of this strategy.
	PSO9 Allocation of permits to new developments, and existing properties with a new use, will be in accordance with the policy set out in E2911. In particular, permits will not be allocated in zones where the potential demand of existing properties exceeds the available capacity.

Table A.7: Parking Strategy objectives and action points

Theme	Objective
	PSA 4 Surveys undertaken in March 2015 and November 2016 suggest there is currently residual capacity on-street in Keynsham. The Council will undertake periodic reviews of on-street parking demand in Keynsham to monitor whether intervention is required.
	PSA 5 Recent evidence suggests that there is available capacity on-street in the Somer Valley. The Council will undertake periodic reviews of on-street parking demand in the Somer Valley to monitor whether intervention is required.
	PSA 6 Issues related to a lack of passing places caused by on-street parking will be considered by the Council on a case by case basis, with the aim of minimising safety problems.
	PSO10 The number of off-street parking spaces in Bath will be maintained at the current level or reduced.
	PSO11 Any reduction in public off-street parking spaces in Bath city centre should be supported by increased provision of alternatives.
	PSO12 Any increase in short stay off-street parking in Bath will be at the expense of long stay parking.
Managing Off Street Parking	PSO13 Development plans for the Enterprise Area sites within Bath city centre should include re-provision of at least 500 public car parking spaces within the overall development area.
	PSA 7 The introduction of a short-stay parking tariff at Charlotte Street will be assessed with the aim of encouraging usage by users displaced from the car parks affected by the Enterprise Area proposals within Bath city centre.
	PSA 8 The Council will undertake periodic reviews of usage of off-street car parks in Keynsham to monitor changes and any need for future actions. In addressing 'shortfall', the focus will be to improve access to facilities by sustainable modes rather than increasing parking provision.
	PSA 9 Improve parking facilities in The Nursery and Station Road car park to support commuting by train to Bath/Bristol and beyond.
	PSA 10 Review Parking Permit eligibility criteria with the Corporate Travel Group to reduce the number of permits issued whilst ensuring staff who require their vehicle to support their work are able to park.
	PSO14 Any redevelopment of South Road car park in Midsomer Norton should not result in a net loss of off-street car parking spaces.
	PSO15 The current levels of parking within Somer Valley towns will be maintained to ensure access to facilities. The provision should be reviewed periodically to determine if additional controls or capacity are required to maintain the availability of spaces.
	PSA 11 In order to continue to encourage greater use of the Park and Ride facilities, the Council will periodically review operation of the service.
	PSO16 The Council will continue to provide appropriate out of town parking and will review the need to provide additional capacity in response to future growth.
	PSA 12 The Council will investigate the possibility of recognising informal Park & Ride activities where identified, by providing more spaces at strategic locations around Bath and North East Somerset authority.
Private Non-residential Parking	PSO17 The availability of spaces at RadCo is important in maintaining and improving the viability of Radstock town centre. Any development on this site should not result in a net reduction in car parking spaces.
	PSA 13 The Council will seek to maintain and develop relationships with operators of private car parks, in order to ensure that operation is compatible with the needs of the business where applicable but seeking to discourage long stay public parking or an increase in supply where this is incompatible with the aims of the strategy.
	PSO18 Any proposed development which includes provision of publically available car parking spaces should, as part of the planning process, submit and agree a car parking management plan with the Council. This should include proposed capacity, time restrictions and charging tariffs as a minimum.

Table A.7: Parking Strategy objectives and action points

Theme	Objective
Parking charges	PSO19 Parking in the rural areas of Bath and North East Somerset will remain free of charge where charges do not currently apply in order to support and improve the economic viability of these settlements.
	PSO20 Prices for long stay parking in Bath will be managed to discourage commuter trips, provide more space for short stay visitors and encourage greater use of public transport and Park and Ride facilities where available.
	PSO21 Parking charges in Bath and North East Somerset should be periodically reviewed and adjusted as required to ensure that they achieve the aims of the Council's strategies and are comparative with privately operated car parks in the same location.
	PSO22 On-street parking charges in Bath will be managed, and tariffs for greater than 2 hours stays reviewed, to prioritise the space for short stay visitors and residents.
Multi Modal Parking	**PSA 14** Establish an expert panel on disability issues to guide policy decisions.
	PSO23 Ensure adequate parking is provided in suitable locations for disabled users and enforce the proper use of it. Undertake a review of access routes between off-street disabled parking and the city centre, particularly where changes to provision and/or location are implemented, to ensure that the existing level of provision is maintained or improved.
	PSO24 Continue to encourage the provision of car clubs in central Bath.
	PSO25 Support an increase in the number of electric vehicle charging points on street and within car parks.
	PSO26 Improve the provision of high-quality dedicated motorcycle parking spaces on street and in Council operated off-street car parks.
	PSA 15 Work with operators and stakeholders to increase the provision, maintenance and desirability of on-street cycle parking spaces at retail and leisure facilities.
	PSA 16 Work with operators and stakeholders to increase the provision, maintenance and desirability of high-quality covered cycle parking spaces at Bath train station.
	PSO27 Provide adequate parking and drop off/pick up facilities for coaches in Bath in accordance with the Coach Strategy.
	PSO28 Continue to support the operation of taxis in Bath and North East Somerset through provision of adequate and suitable located taxi ranks and consider appropriate locations for electric charging points. This should be periodically reviewed to respond to changes in travel patterns resulting from alternative taxi services.
	PSO29 Ensure suitable provision of unloading/loading space to support local businesses and operations
	PSO30 Hours of access for servicing and delivery vehicles in the centres of Bath and Keynsham will be restricted if required to support the delivery of public realm improvements, including aspirations within the Public Realm Movement Strategy.
Information and Enforcement	**PSA 17** There is a need for a review of on-street signage to ensure it efficiently directs motorists to the closest available parking space with the aim of minimising circulating traffic and congestion in the city centre. This should include identifying opportunities to increase the use of VMS.
	PSA 18 Payment options in Council operated car parks will be reviewed periodically and modernised in line with best practice in order to improve user experience and enable efficient enforcement.
	PSA 19 Technology in Council operated car parks will be updated and improved in order to provide better access to information, improve user experience and facilitate data management.

Table A.7: Parking Strategy objectives and action points

Theme	Objective
	PSO31 Parking enforcement should facilitate protection of road space in order to maintain free flow of traffic in the network, ensure off-street parking is used as intended and encourage education of motorists to avoid penalties and ensure the protection of pedestrian safety.
Major Events	**PSA 20** The Council will facilitate enhanced collaboration among organisers of Major Events through the establishment of a Joint Events Management Transport Stakeholder Group.
	PSA 21 The Council will develop a framework and good practice guidance on parking management for use by those responsible for managing events. Within this Travel Demand Management Strategies should be developed for large major events.

A.3.6 Public Realm and Movement Strategy

In summary...

The Public Realm and Movement Strategy encourages a restructuring of the vehicle hierarchy to place importance on people and pedestrians over cars.

The strategy outlines the importance of public space for enjoyment, entertainment and social interaction and how, over the last 100 years, the increasing dominance of the motorcar has damaged the character of this space. Following leads from Copenhagen, Freiburg and Bordeaux who have reversed the hierarchy of the car and placed the importance on people and pedestrians, the strategy recommends radical measures to "*provide a long-term plan to enable Bath to achieve an international status for its public realm*".

The key issues identified in the Strategy include:

- Congestion within the city which restricts pedestrian movement and contributes to air pollution;
- A lack of quality pedestrian infrastructure including pavement widths and consistent information/navigation systems;
- Overcrowding in successfully pedestrianised areas due to the lack of other pedestrian-friendly space;
- Insufficient infrastructure and access for cyclists;
- A complex bus system to understand and access; and
- The inaccessible river which is therefore under-utilised and unattractive.

The Strategy aims to:

- Rebalance the movement and spatial structure – aiming to expand the pedestrian friendly city centre and reorder the hierarchy giving priority to pedestrians, cyclists and public transport;
- Refashion the streetscape and riverscape – aiming to create a lattice of connected streets and spaces with varying atmospheres through using high quality materials, design and lighting;
- Reveal Bath through a new wayfinding system – aiming to improve day-to-day journeys for all modes of movement; and
- Reanimate the city centre – aiming to reanimate through imaginative public art, events and activities.

A.3.7 Bath Coach Parking and Pick-Up/Drop-Off Strategy

In summary...

The Coach Parking Strategy aims to develop sustainable coach parking which encourages tourism and long stay visits whilst enabling the redevelopment of Bath Quays.

Published in August 2017, the Bath Coach Strategy[38] was produced to support the Council's Economic Strategy and PMP and facilitate the regeneration of Bath Quays, however, the strategy has not been formally adopted by the Council. The Coach Strategy aims to develop a sustainable coach parking, pick-up and drop-off strategy for the Bath whilst identifying sites for the relocations of the Riverside Coach Park.

The proposal identified the existing pick-up/drop-off points: Terrace Walk, North Parade and the Riverside Coach Park as well as Royal Avenue which is often used an unofficial point. The pick-up/drop-off points do not enable coaches to stay for a long period of time, as such coaches must park elsewhere: Weston Island (up to 85 spaces) and previously the Riverside Coach Park. However, the redevelopment of Bath Quays has reduced coach parking from 43 to 13 spaces.

[38] https://www.bathnes.gov.uk/sites/default/files/coach_strategy_final_report_170824_optimsed.pdf

The objectives for coach management in Bath up to 2026 are:

- Coaches should be able to pick-up/drop-off passengers in the central area of the city;
- Through parking availability and quality of on-site facilities, longer stay visits should be encouraged;
- Short stay coach parking spaces should be provided on the periphery of the city;
- Pre-booking of parking spaces should be encouraged and priced to incentivise long stay coach visits. Pre-booking will enable the priority provision to coaches/coach users to meet passenger needs;
- Provide high quality, efficient pedestrian and vehicle wayfinding between the parking, pick-up/drop-off locations and city's key attractions;
- Efficiently manage coaches though using new technologies which enable improved monitoring, improved enforcement and optimised movement and parking of coaches in the city;
- Large events in the city should have a clear action plan associated with the management of coaches, which will be agreed with B&NES Council. This will include:
  - Confirmation of how event organisers intend to promote access to the event by all modes of travel, particularly sustainable travel;
  - Confirmation of the ways in which event goers wishing to travel by coach will be assured of a high-quality experience through the provision of information on getting to and from the drop-off/pick-up points in the city and so forth. An indication of how the drop-off/pick-up arrangements for those attending the event will be accommodated in the city, and what measures will be introduced to enable coaches to park at agreed locations away from the central area;
  - Details of what measures will be taken to understand the likely number of coaches/coach users expected to arrive for the event, and how that will be communicated to the Authority;
  - Overall, that the event organiser will take responsibility for liaising with coach operators and take responsibility for the whole experience.

Detailed short term, medium term and long-term actions on how to achieve the objectives are set out in the Strategy as summarised in Table below:

Table A.8: Coach strategy actions

Action	Completion year
33 coach parking spaces be provided at the following locations: • Odd down park and ride site – 29 spaces; and • A4 lay-by – 4 spaces (short stay).	2019
Improvements are made to coach pick up / drop-off at Terrace Walk / Pierrepont St – 5/6 spaces.	2019
17 pick-up/drop-off spaces with waiting time restrictions of 20 minutes be provided across the following locations: • Terrace Walk / Pierrepont street – 5/6 spaces; • North Parade – 2 spaces; • Royal Avenue – 3 spaces; • Green Park – 4 spaces; and • Pulteney Road – 3 spaces.	2021
3 of the pick-up/drop-off spaces at Green Park Road also accommodate short stay coach parking (for stays of up to 1.5 hrs).	2021
Necessary parking charging regime to support the move to separate short stay and long stay parking is introduced, as well as incentives to encourage the pre-booking of spaces.	2021
A full standard coach parking management system is specified, market tested and procured, which incorporates ANPR, VMS and active data management and monitoring.	2021
A full vehicle and pedestrian signage review is undertaken and measures are implemented to make signage consistent with the new parking regime and locations – to include appropriate use of VMS and fixed signage.	2021
The multi-modal (including coach) visitor and event travel management strategy is developed, and its implementation is commenced.	2021
A monitoring and review plan is developed and implemented.	2021
17 pick-up/drop-off spaces with waiting time restrictions of 20 minutes be provided across the following locations: • Terrace Walk / Pierrepont St – up to 6 spaces or Manvers Street (on-street) – up to 7 spaces; • North Parade – up to 2 spaces; • Royal Avenue – up to 3 spaces; • Green Park – up to 4 spaces; and • Pulteney Road – up to 3 spaces.	2021
41 parking spaces be provided at Odd Down Park and Ride.	2021

Table A.8: Coach strategy actions

Action	Completion year
The parking charging regime is updated to reflect the emerging short stay and long stay coach parking situation in Bath.	2021
A monitoring and review strategy is in place and being adhered to.	2021

In a cabinet meeting on the 7th February 2018[39] the use of Odd Down Park & Ride for long stay coach parking was approved.

A.3.8 WaterSpace Project[40]

In summary...

The WaterSpace Project aims to enhance the water corridors around Bath to improve the environmental value and encourage active modes and improve connectivity.

In partnership with the Environment Agency, the Canal & River Trust and Wessex Water B&NES has identified opportunities to enhance the surrounding waterways (River Avon and Kennet and Avon Canal (Dundas Aqueduct to Bath to Hanham Lock)) and adjoining land. The WaterSpace study was prompted due to major redevelopment of Brownfield sites along the River Avon corridor and the identification of opportunities to revitalise the River Avon and Kennet and Avon Canal.

The Study provides an evidence base for decision making with five main aims:

- Make best use of the partners' assets and landownership to enhance the waterways, taking a partnership approach and seeking for multi-benefits from projects;
- Improve the district's mooring offer whilst safeguarding navigation;
- Realise opportunities from development and regeneration to benefit both the waterways and the quality of new development;
- Protect and improve opportunities for both land and water-based leisure and recreation; and
- Enhance the environmental (including ecology, amenity and water quality) value of the waterways, including retaining dark corridors for wildlife.

The study area includes Dundas, Calverton, Bathampton, Bath, Saltford, Keynsham and Hanham which have been categorised into 15 different character areas. The study proposed 35 project ideas which are shown in the Figure below and include:

- River Movement Network: which aims to increase the usability of the river for travel purposes for both daily commutes and tourism, reducing road congestion and promoting a healthier lifestyle and engagement with the river;
- Batheaston/Bathampton Riverside Environmental Projects: which aims to increase connectivity to and along the river and increase riverside activity in Batheaston;
- Kensington Meadows: aims to improve access/visibility of the riverside, creating better links with residential area/city suburbs with new entrances and extended path network;
- Riverside Path Access North of Pulteney Bridge: aims to create a riverside walk that links the centre of Bath to Bathampton and Batheaston;
- Canal Towpath & Connectivity: aims to enhance the route between the eastern suburbs of bath and the city centre for pedestrians and cyclists;
- Bath Quays: North, South & Bridge: provides a link between the north and south of the river whilst developing residential and leisure facilities to the north of the river. Bath Quays Bridge will provide an alternative crossing point to Midland Bridge and Churchill Bridge for pedestrians and cyclists;
- Bath Marina: aims to improve connections through the site between the river path and Newbridge; and
- Saltford Brass Mill: Improve connectivity with the cycle trail Better wayfinding and information to take people from the cycle way to the Brass Mill.

[39] https://democracy.bathnes.gov.uk/documents/g4721/Public%20minutes%2007th-Feb-2018%2016.00%20Cabinet.pdf?T=11

[40] https://www.bathnes.gov.uk/sites/default/files/sitedocuments/Environment/ba327_waterspace_update_spring_18_01._p1_-_68_web.pdf

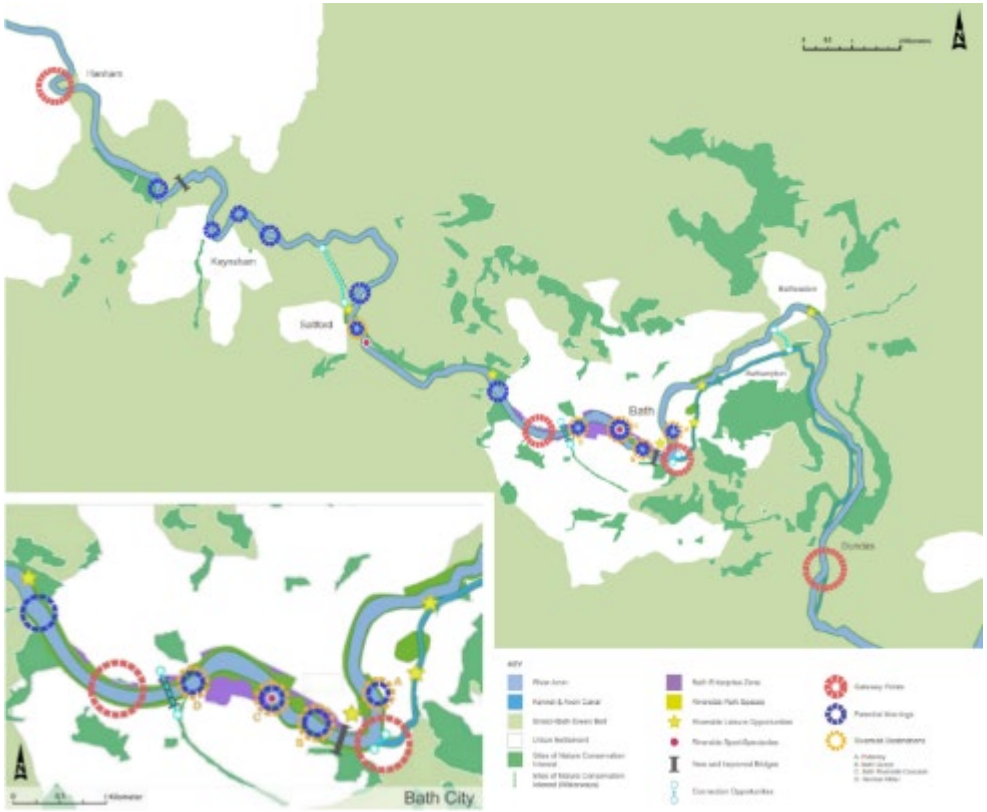


Figure 6.2: Waterspace project summary map

A.3.9 World Heritage Site Management Plan (2016 – 2022)

In summary...

The World Heritage Site Management Plan identifies congestion as a major issue and aims to promote less car use and close key streets whilst encouraging walking to improve air quality and quality of life for residents and businesses.

The City of Bath World Heritage Site Management Plan (2016-2022) was presented to Bath and North East Somerset Council's Full Council meeting on 15 September 2016. The Council endorsed the plan for submission to the Department for Culture, Media and Sport (DCMS) and in turn to UNESCO.

The City of Bath has been a World Heritage Site (WHS) since 1987, recognised as a place of Outstanding Universal Value (OUV) for its architecture, town-planning, landscape, archaeological remains and its role as a setting for social history.

The plan priorities are:

- Managing Development;
- Transport;
- Public Realm;
- Interpretation and Education; and
- Environmental Resilience.

In terms of transport, the plan states that the congestion poses a major issue for the World Heritage Site (WHS) having detrimental impacts on air quality, residents and businesses. The plan sets out the following objectives and actions relating to transport:

- **Objective 3**: Work to control traffic growth and harm, and encourage and promote less car use, especially in the city centre.
- **Action 5**: Engage with and monitor the delivery of the Transport Strategy (2014) objectives & seek to ensure that they deliver maximum benefit & no unacceptable impact to the OUV of the WHS & its setting.
- **Objective 4**: Ensure that other national and regional bodies take full account of the WHS in their strategic planning.

- **Action 6:** Engage with central government & neighbouring authorities as necessary to reduce the impact of major road traffic routes passing through the WHS.
- **Action 7**: Engage with & support the current programme of cycling improvements & ensure that they deliver sustainable travel option whilst protecting the OUV.
- **Objective 5:** Ensure that new street works, and other developments are completed to high and consistent design standards allowing good accessibility to all.
- **Action 8:** Continue to implement public realm improvements, especially with regard to poor pavement surfaces.
- **Action 9:** Ensure that the Bath Pattern Book is adhered to & updated as necessary to guide street works in the WHS.
- **Action 10:** Continue to reduce the impact of vehicular traffic & continue the closure of key streets within the site to vehicles where there is a valid case for doing so.
- **Action 17:** Install welcome signs on road, rail, river, canal & walking entrance points & seek to improve way marking for heritage walking routes.
- **Action 26:** Support actions to reduce air pollution, primarily caused by petrol/diesel powered vehicles, which is a direct risk to people & historic fabric within the WHS.

A.3.10 Bath City Riverside Enterprise Area

In summary…

The Bath City Riverside Enterprise Area could accommodate 9,000 new jobs and 3,400 new house and includes several recommends such as improvements to walking and cycling routes.

Bath's Enterprise Area consists of 98Ha of land across multiple sites along the river, as shown in the Figure 6.3 below. The enterprise area has been identified as a zone for key growth by the West of England Local Enterprise Partnership which could accommodate up to 9,000 new jobs and 3,400 homes. The Bath City Riverside Enterprise Area Masterplan[41] identified that the Enterprise Area could increase the value of the Bath economy by £620 million.

Figure 6.3: Enterprise Area summary map (Source: Bath City Riverside Enterprise Area Masterplan 2014-2029)

[41] https://www.bathnes.gov.uk/sites/default/files/siteimages/Planning-and-Building-Control/Major-Projects/masterplan_vision_report_141030_low_res.pdf

The Masterplan identifies 10 recommendations which include:

- Understand the river corridor as a linear landscape and "plant buildings into this landscape" to connect to the UNESCO statement of Outstanding Universal Value and reinforce Bath's status as a World Heritage City;
- Reveal and express the industrial heritage of the river corridor to provide a backdrop for contemporary workspaces, connecting the legacy of labour to a new era of enterprise, economy and employment for the communities around Bath;
- Create an effective mix of workspaces along the river corridor to provide employment space for both locally grown and imported businesses of varying sizes. This mix should provide space for creative groups interested in reinforcing Bath's fantastic reputation as a 'beautifully inventive' city;
- Repair and reconnect the city centre with its riverside spaces, making the most of the riverside landscape for visitors and residents;
- Create improved cycling infrastructure to release the riverside as an attractive "River Walk", connecting Bath's surrounding communities with the city centre. This will provide a fun alternative to Bath's popular "Skyline Walk";
- Link North & South Quay to create a new quarter of the city focussed upon innovation and enterprise. Utilising the flood mitigation works and improved public realm along the river to create fun and vibrant river spaces;
- Create an improved entrance into the city centre along 'Green Park Highstreet', following the line of the historic Midland Railway Line;
- Improve and reinforce the natural habitat along the riverside to create an ecological corridor running through the heart of the city;
- Make all existing and proposed bridges useful, increasing effective connections across the river;
- Create focussed spaces for leisure at important nodes along the river bookended by notable moments at Pulteney Bridge and Weston Island.

A.3.11 Green Infrastructure Strategy

In summary...

The Green Infrastructure Strategy promotes improved access to the outdoors, especially for users with reduced mobility. It also identifies limited access routes from north – south across the city and promotes improves walking and cycling routes.

The Green Infrastructure Strategy[42], published in 2013, provides a framework for B&NES and partners to work across social, economic and environmental planning and land use management.

In defining "green infrastructure", the strategy states: *The term "green infrastructure" describes the networks of natural spaces and corridors across a given area. Green infrastructure is made up of a wide range of green assets such as open spaces, parks and gardens, allotments, woodlands, street trees, green roofs, fields, hedges, lakes, ponds, meadows and grassland playing fields, as well as footpaths, cycleways and waterways.*

The benefits of green infrastructure, and therefore focus of this strategy, are highlighted as:

- Encourage and support **healthy lifestyles** and **thriving communities**;
- Provide **active access to the outdoors** including, walking and cycling routes, accessible river and canal corridors and green streets;
- Protect and enhance **landscape character** and **built heritage** features including the world heritage site and its setting;
- Protect and enhance **biodiversity** and create new habitats and wildlife linkages between them, reducing their isolation;

[42] https://www.bathnes.gov.uk/sites/default/files/gi_strategy_final_web_interactive_version.pdf

- Support **healthy ecosystems** that provide many essential natural services including clean water and air;
- Mitigate and adapt to existing and future effects of **climate change** through providing urban shade, sustainable drainage, flood alleviation, green energy and space for local food production;
- Invigorate **the local economy** and increase **natural tourism**; and
- Enhance local **sense of place.**

The strategy places emphasis on green infrastructure and the importance of the natural environment in regard to physical and mental health. Whilst noting that there are generally good opportunities to access to the outdoors and green spaces across the district, it also highlights that there is limited uptake of engagement with this space. Additionally, it is noted within the strategy that due to the significant proportion of wheelchair users, those with short term health issues and families with children in buggies within the district, green travel routes should be accessible to all users and a focus should be on improvements for users with reduced mobility.

Another issue identified in the strategy is the lack of access routes that cross in a north – south direction. Therefore, it suggests that connections for walking and cycling routes to key green infrastructure assets and places of interest could also be improved including through:

- North-south link along route of dismantled railway;
- Extension of existing link west to Chew Valley Lake and beyond;
- Proposed circular route around Chew Valley Lake (subject to ecological compatibility);
- Two Tunnels Greenway (existing project underway); and
- Enhance access on existing footpaths to improve north – south links.

The plan highlight specific areas in which investment in green infrastructure should focus on which include Keynsham town centre and Midsomer Norton.

Throughout the strategy, priorities are highlighted. Those relevant to this study are summarised in the Table below.

Table A.9: Green infrastructure strategy priorities

Priority area	Priority
Policy	• Put the value of nature at the heart of decision making. • Deliver through the planning process by integrating green infrastructure principles into the Placemaking Plan and other Local Plan documents. • Influence related Council strategies and work streams. • Deliver the biodiversity requirements set out in the National Planning Policy Framework.
People	• Provide improved access to green infrastructure for all users. • Prioritise improvements to address barriers to users with reduced mobility. • Enhance and promote access to local and wider landscapes for recreation.
Place	• Ensure new development respects and enhances existing green infrastructure and creates new components. • Increase benefits from existing green infrastructure assets. • Promote opportunities for sustainable natural tourism and green industries. • Protect and enhance local landscapes and foster sense of place. • Support coordinated management of the green setting of Bath WHS. • Establish a green Infrastructure delivery framework for the river and canal corridor.
Active access to the outdoors	• Increase overall usage of existing green travel networks. • Provide and promote circular routes around towns and villages. • Develop "OutdoorsWest" as the portal for all access to the outdoors information. • Target physical improvements to routes that can also be promoted for local and visitor use. • Provide cycle routes linking rural communities with nearby centres. • Promote the rural networks for tourism. • Maximise management of existing and new cycleways for wildlife. • Manage the Bristol Bath Railway Path to provide a quality multifunctional green corridor for community and wildlife.

Priority projects have been identified in the strategy and are shown in the Figure 6.4 below. All, apart from 'Restoring Priority Habitats', are linked with benefits to 'Active access to the outdoors' and are therefore of relevance to this study.

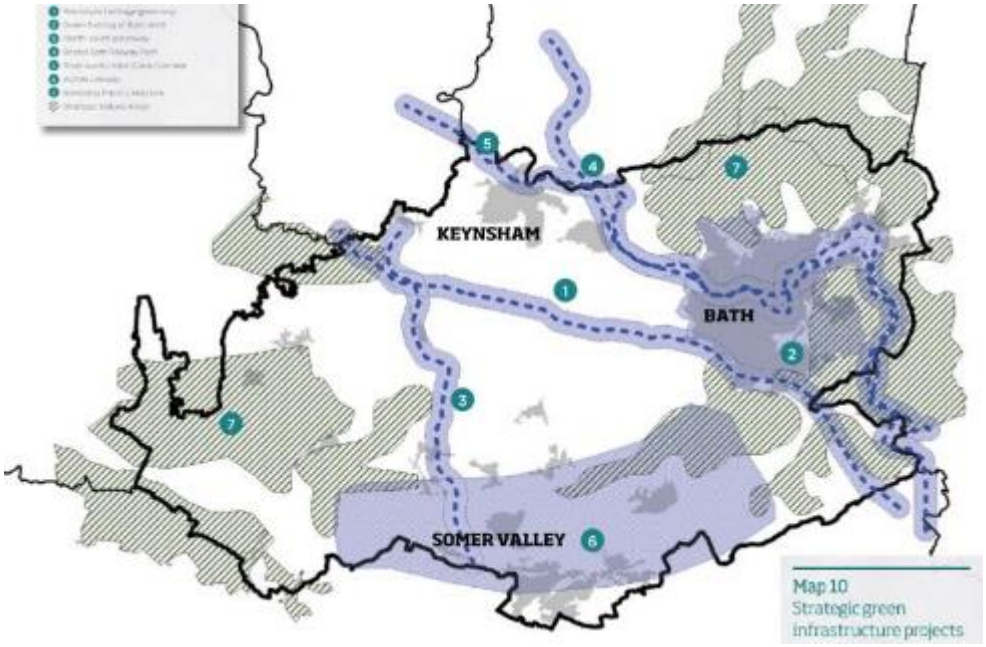


Figure 6.4: Strategic green infrastructure projects

A.3.12 Bath & North East Somerset Retail Study 2018

To inform the Emerging Local Plan, a refreshed Retail Study has been undertaken to review the findings and recommendations of the previous 2014 study, comment on the changes to the economic forecasts since 2014 and update all retail assessments.

The health check of the city centre, undertaken in 2017, identified falling vacancies below national average and that the city centre commands a good market share for comparison goods shopping across the West of England and north and west Wiltshire. It is notes that there has been a reduction the convenience goods market share in the city centre due to new out of centre locations opening. In Keynsham there has been a reduction in the market share of shopping trips from local residents. Both Midsomer Norton and Radstock have seen a reduction in the number of vacancies although the report notes that the vacancy level in Radstock remains above the national average.

In terms of development going forward, the study suggests:

- **Convenience goods floor space** – there is a need for additional convenience goods floor space in Bath however the need is not sufficient enough to warrant allocation for a new store;
- **Local independent traders** – the study establishes that there is a lack of available information on pressures faces by local independent businesses. If future studies show a pressure for independent businesses, recommendations include:
  - Redevelopment proposals in the city centre and new retail space should include small affordable shop units or contributions to support affordable shops; and
  - Introducing a policy which controls the size of retail and other commercial units in the city centre.
- **New strategic development locations** – identifies that the scale of new centres should be modest as there is no particular demand for large supermarket provision.

Appendix B
Scheme suggestions raised in previous consultations

Table B1: Scheme suggestions raised through previous consultation (including Clean Air Zone, Joint Local Transport Plan, and Local Plan consultations)

Restrict access	• Congestion Charge • Road User Charging (charge everyone based on distance travelled) • Allow non-compliant cars to enter the city on alternate days, depending on their registration (as per other European cities). • Various suggestions on restricting access for through traffic, coaches, single occupancy vehicles etc. • Have specific car free days/weekends. • Ban all traffic from the central area. • Make the city centre accessible only by electric or low emission vehicles. • Make the city centre local access only. Have a permit system that allows only those with valid reasons to drive in the city centre. • Allow access to the city centre based on emissions and purpose (not just on emissions). • Restrict access for higher emission vehicles at peak times. • Restrict all vehicles between certain times. • Restrict more areas to bus, taxi, emergency services and delivery access only. • Make more streets bus only for example Dorchester Street.
Pedestrianisation	• More of the city centre should be fully pedestrianised/vehicle free or pedestrian only during the day, but accessible for deliveries in early morning and evening/overnight. • Create car free areas in the city centre. This would support the World Heritage Status of the City. • Specific suggestions to pedestrianise/remove traffic from areas including Pulteney Bridge, Milsom Street (it was noted that this worked well during the Christmas markets), High Street, Queens Square, Broad Street, Green Street, Orange Grove, Saw Close, High Street, Grand Parade, Westgate, Kingsmead Square, Saw Close, Stall Street, Upper Borough Walls, Manvers Street, Pierrepoint Street, Dorchester Street, Green Street, Walcot Street. • Pedestrianise areas with exclusions for residents and delivery drivers only. • Redesign city centre streets to encourage walking and cycling. • Promote Bath as a car free city.
Improve buses	*a) Bus fares/ticketing* • Significantly cheaper/free bus fares, including for Park and Ride services. Buses should be cheaper than parking. • In particular cheaper bus fares for families and more subsidised services. • Improved cross company ticketing. • Giving residents a discount on or free bus passes. • Subsidised bus travel for local residents and workers. • Free travel for under 18s/school aged children. • Introduce a system like the Oyster cards in London. • Shorter journeys should be much cheaper than at present. • Simplified system for bus fares such has £1 per single journey. • Provide free bus passes from 60 and give women facing rising pension age a discounted bus pass. • Have weeks where public transport is free, to encourage people to try. • Allow residents to pay an optional extra Council Tax charge in return for free bus travel. • Negotiate reduced fuel tax for bus companies so they can afford to offer reduced fares. • Improve ticketing to speed up entry to buses, reintroduce bus conductors or promoting cashless ticketing. *b) Timetabling/frequency* • More frequent bus services, including for students and schools and in the evenings and at weekends. • Larger buses on key routes at peak times.

- Improved timetabling to avoid empty buses, including tourist buses.
- Ensure buses are punctual.
- Buses and trains need to be better co-ordinated.
- Timetabling of services needs to better meet the needs of commuters and students.
- Buses should operate more as shuttle/hop on-hop off type services.

c) Bus infrastructure

- Improve bus stops and bus stop locations.
- Enforce bus stops to prevent dropping off in inappropriate areas.
- Provide additional bus lanes to help improve journey time reliability. Including between the Newbridge Park and Ride and the city, utilising the old railway line.
- Provide more bus laybys so that buses do not hold up traffic when they stop.
- Move the bus station from its current location.
- Make bus lanes peak hour only.
- Reinstate the bus gate at Dorchester Street. The Council's backtracking on the Southgate bus gates was not successful.
- Introduce more bus gates.
- Make existing bus gates 24/7.

d) Anti-idling

- Enforce anti idling for buses, with heavy fines for buses that idle.
- Consideration of the extent to which existing bus lanes are causing other traffic to queue, resulting in pollution from idling engines.

e) Bus routes

- Improve bus routes to and from the rural areas.
- Improve bus links between Bath and neighbouring authorities/rural outlying towns and villages, particularly at times suitable for commuters.
- Overall the bus needs to be comparable to/better than a car for journeys into Bath from the surrounding areas.
- Reroute buses through the city centre to reduce their impact.
- Introduce a low cost/free frequent shuttle bus or circular bus service to get around the city centre.
- Introduce a shuttle bus from the station to pick up points outside the town.
- Improve routes to key destinations such as the hospital, University and Aztec West.
- Stop cutting bus routes.
- Address overcrowding and buses that run empty.
- Provide shuttle buses up and down Bath's hills.
- Invest in flexible/on demand bus routes.
- Provide extra capacity at peak times.
- Provide better bus services to the rail station, if this is going to be in the zone.

f) Vehicle types

- Ensure buses operate newer, cleaner, low emission vehicles on all routes (electric or hydrogen). Respondents saw this as capable of delivering significant improvements in air quality.
- Ban high emission/diesel buses in the city centre.

g) Competition/operation

- Make the buses Council/publicly run.
- Introduce a not for profit bus service.
- Introduce more competition between the bus companies.

	h) Other • Invest in a long-term strategy for public transport – including trams or light rail (although it was also noted that trams would affect the street scene of the WHS). • Increase promotion and publicity of bus services. • Provide more electronic real time displays. • Provide more accessible buses suitable for bikes and buggies. • Ban coaches from the city centre (see Section below). • Offer incentives for people travelling by bus, e.g. discounts in local shops. • Help to attract more bus drivers to the career.
Rail	• Trains were seen as contributing to the pollution problem and respondents called for diesel trains to be charged. • Deliver the electrification of the railway through Bath. • Encourage reopening of/new/improved rail stations and local rail services including from Saltford, Radstock/Midsomer Norton, Keynsham, Twerton, Oldfield Park, Bathampton, Hampton Row, Corsham, Box, Bradford on Avon and Westbury. • Provide additional train services/extra capacity on rail routes. • Run additional late-night services. • Encourage freight to be sent by rail. • Address overcrowding, reliability and cost. • Reopen stations and have rail and rides from these locations. • Encourage Park and Rail. • Address rail fares.
Improve Park and Ride	In addition to the general comments on public transport, respondents gave the following specific suggestions relating to Park and Ride: *a) Sites* • Build the East of Bath Park and Ride. Respondents expressed strong concerns that this had not been delivered. • Generally, create additional Park and Ride spaces/facilities. • Provide additional Park and Ride sites. Other suggestions included on the A36/Warminster Road, the A36/Lower Bristol Road and at Peasedown St John and at the M4 junction. *b) Cost* • Make Park and Ride cheaper/subsidised or free, particular need to address the cost of 2 or more people travelling together on the Park and Ride. • Instead of charging by person, charge by the car. *c) Opening hours* • Make the Park and Ride 24/7. • Ensure services run earlier in the morning and later in the evening. • Extend opening hours at the Park and Ride – the service needs to run later into the evenings. • Allow overnight parking. *d) Routes* • Improve Park and Ride routes for access to the University. • Make the Park and Ride express services. • Extend Park and Ride services at peak times, e.g. during the Christmas market. • Park and Ride routes should go right across the city, i.e. from Odd Down to the Race Course so that people do not have to get off. • Provide shuttle buses from the Park and Rides to key destinations such as the hospital. *e) Coaches at Park and Rides*

	• Tourist buses should drop off at the Park and Rides. • Provide Coach parking at Newbridge (like at Odd Down). *f) Other* • Better advertise/encourage use of Park and Ride using electronic roadside displays.
Alternative public transport solutions	• Invest in a long-term mass rapid transit system. • Modernise the public transport service to include trams, a metro or mono rail (although it is noted that some respondents were against a tram system). • Make use of the river.
Link road/bypass	• Build a proper bypass or a ring road to take all the through traffic away from the town centre and make Bath a more pleasant place to live, shop and work in. • The most frequently mentioned specific route was for the A36-A46/A4 link road to take traffic, in particular HGVs, off the A4 London Road and the A36 to the Warminster Road. Respondents felt that this Scheme should have been delivered previously, and that the Batheaston bypass remained an incomplete improvement. Some felt a tunnel or underground link should be considered. • Other bypass/ring road routes were also mentioned including: – A northern bypass/link to the M4. – A route from Newbridge to London Road for through Bath traffic. – A western link connecting the Bristol road to the M4 avoiding Weston and Lansdown. – Better links between the A3062 and the A36. – Better links between the A363 to the A37. • Respondents commented in general terms about the need to build a tunnel or another bridge/river crossing or additional routes that would take through traffic out of the city. • Others talked in general terms about the urgent need for alternative routes, in particular north south routes, and routes from the motorway to the south of Bath. • A bypass was seen as tackling additional issues faced by residents of east Bath, including noise, dust and vibration. A bypass would also offer relief to Bathampton village where there are currently concerns about narrow footpaths and safe access for emergency service vehicles. • It was suggested that once an alternative route is in place there should be a weight restriction on Cleveland Bridge. • It was noted that Bath is one of few cities without a bypass. • It was felt that a bypass would be less disruptive and would penalise residents less. It was considered unfair that the CAZ places the emphasis on individuals to comply. • Noting that a bypass would not be delivered quickly it was suggested that as a temporary measure a one-way system should be put in place around the city centre.
Improved facilities for cycling	A range of suggestions were made in relation to cycling. These included the following: • Additional/improved cycle routes (particularly off-road paths and routes along safe roads) and better cycle route planning, more continuous routes and lanes that take priority over side roads. • Provide safe cycle routes into the city from each ward. • Improved maintenance of cycle paths – these should be more than a white line on the road. • Generally, invest in making Bath a safer place to travel by bike and particularly encourage the everyday cyclists. • More cycle lanes, on flat routes where possible and segregated from traffic. • More electric bikes. • Allow residents to hire bikes for free or provide interest free loans for residents to purchase electric bikes. • Provide electric bikes for hire at the Park and Ride sites. • Encourage bike riding from the Park and Rides by providing safe direct cycle routes to the city and more secure cycle parking. • Provide ways of helping cyclists get up hills (i.e. bike lifts/cable car). • Provide safe traffic free cycle routes to all schools in Bath.

	• Additional cycle parking. • Subsidise people to buy bikes. • Cycle training/workshops to encourage cycling, particularly for children. • Reduce levels of traffic to improve conditions for cycling. • Cycling taxis. • Better policing of traffic, to make it safer for cyclists i.e. to tackle parking in cycle lanes etc. • Reduce speeds on routes used by cyclists. • Encourage multi modal transport through bikes spaces on buses and trains.
Improved facilities for walking	• Walking should be at the centre of these proposals and should be promoted as part of a healthy lifestyle. Bath should develop a walkable city plan. • More alternative/better linked up walking routes. • Wider pavements. • Provide cable cars (as previously proposed). • More pedestrian priority/better crossings (although some respondents felt that pedestrian crossings interrupt the free flow of traffic). • Improve pedestrian underpasses. • Generally, make the city more walkable. • Improve walking routes along the riverside. • Encourage walking by slowing traffic. • Provide street lights for those walking at night. • Also see comments on pedestrianisation.
Parking	*a) Residents parking* • Expand the residents parking Scheme to prevent commuter car parking, particular mention of Oldfield Park, Junction Road, Chelsea Road, Twerton, Lansdown, Moorland Road, Larkhall, Wellsway, Rosemont Lane, Greenway Lane, Lyncombe Vale and Perrymead area and London Road. It was suggested that all areas within 30 minutes' walk of the city centre should be covered, or that all areas should be covered to the Park and Ride sites. • If the CAZ goes ahead, consider the impact of parking on areas at the boundary of the zone. • Offer free parking permits to residents. • Make the central zone residents only (rather than shared with pay and display). • Stop giving residents permits to hotels. • Employ more parking enforcement staff. • Restrict parking in residential areas to one hour per day to prevent commuter parking. • Allow residents to park in the city centre for free for one hour. • There was some concern about residents parking areas being split, part in, part out of the CAZ. *b) Other parking* • Provide more/cheaper parking on the edge of the city centre to encourage park and walk. • Various comments were made on the quantity of city centre parking with some suggesting the volume of city centre parking should be reduced (or some car parks closed) to encourage use of Park and Ride and to discourage people from driving into the centre. However, some suggested there should be more parking to help reduce the need for looping around/extra miles looking for a space. • Various comments on parking charges with some suggesting parking charges should be lower to offset the CAZ charges and others feeling parking charges should be higher to discourage traffic. • Make parking more expensive for higher emission vehicles and free for electric vehicles. • Give parking priority to the least polluting vehicles. • Harsher penalties for people who block main roads with inappropriate parking. • Limit number of cars for houses in multiple occupation.

	• More motorcycle parking. • Remove/reduce the amount of on street parking. It was suggested that this would aid the free flow of traffic. Parking outside Westgate Buildings highlighted as a particular problem. • Include a tourist tax on parking/make it harder for day visitors to park. Continue to charge residents less/don't disadvantage residents. • Withdraw Councillors parking permits. • Charge for parking on Sundays. • Tax workplace parking.
Bus lanes/gates	• Remove bus lanes, for example on London Road and bus gates as these slows down vehicles/reallocate this space to cars. • Turn bus lanes into lanes for low emission vehicles. • Restrict buses and coaches in the centre/on through routes at certain times. • Allow buses only on an increased number of streets using bus gates. • On key routes have 3 lanes, with bus lane working with flow of majority of traffic (e.g. into Bath in the morning and out in the evening). • Review hours of operation of existing bus gate.
Traffic signals and traffic flow	• Remove unnecessary sequences and better sequence traffic lights to avoid stop/start traffic. Synchronise traffic lights with pedestrian crossings and generally improve the flow of traffic. Particular mention of London Road and the area around the bus station/Southgate car park. Make London Road an urban freeway. • Rearrange London Road/Cleveland Place junction to create a shared space. • Use more intelligent traffic light systems. • Replace traffic lights with roundabouts to keep traffic moving. • Ensure traffic lights respond to peaks e.g. to allow everyone to get out of the city at the end of the day. • Space out pedestrian crossings, too many close together hold up the traffic. Reduce pedestrian crossings on main roads. *Traffic flow* • General comments about upgrading/re-planning roads and keeping traffic moving/ensuring a smoother flow of traffic, particularly on the A4 and the A36. • Suggestions to remove bus gates and bus lanes and bus stops to improve traffic flow. • Suggestions to change the entrance/exit to the bus station or bus the location of the bus station. • Address narrow points/pinch points, for example on Junction Road. • Improve London Road/Cleveland Place junction to improve flow. • Make London Road a dual carriageway. • Reroute all traffic around the city centre/create a ring road. Some suggested this should be a large one-way system. • Improve the roads that take traffic around and away from the city. • Open the road from the Upper to Lower Bristol roads (by the Western Riverside development).
One way	• Introduce a one-way system in parts of the City. For example, through Queens Square and around Widcombe. • Change the one-way system at the bus station (swap it around). • A one-way system was seen as a potential alternative to a bypass or ring road – taking traffic around the city centre.
Traffic calming	• Mixed views on traffic calming. Some felt it should be removed to aid traffic flow, particularly where this requires sharp braking and acceleration, others thought more areas of the city should be traffic calmed. • Mixed views on 20 mph areas, some felt these should be removed/should only be in the highest risk areas and saw 20 mph areas as inefficient for fuel. Others thought they should be expanded to cover additional areas of the city and be better enforced. • Reduce traffic speeds. • Support for 20 mph around schools etc. • Make specific roads access only. Specific mention of Dorchester Street.

Other traffic management measures	*a) Anti-idling* • Enforce a ban on idling engines/anti-idling zones, especially buses and coaches. *b) HGV routeing* • Take HGVS out of the city centre. • Add weight limits to key routes including London Road and Camden. • Restrict HGVs at certain times/encourage off peak deliveries. • Consider lanes just for HGVs. *c) Roadworks* • Better plan/co-ordinate roadworks. • Do roadworks at night. • Fines when roadworks over run/carefully monitor contractors. *d) Alternative routes* • Generally, respondents commented that Bath needs another bridge. • Various views on the toll bridge. Some suggested removing the toll, whereas others suggested increasing the toll to prevent it being used as an alternative route. • Provide additional east/west and north/south links. *e) Other* • Introduce 2+ lanes. • Develop a comprehensive Bath transport plan. • Improve the roads/road maintenance. • Improved signage and road markings. • Better signposting of diversion routes. • Improve infrastructure on other roads – e.g. the toll bridge and the B3110. • Reclassify the A roads to discourage traffic from passing through Bath/to encourage traffic to keep to the motorway. • Reclassify the B3111 to an unclassified road. • Better planning and coordination of roadworks to prevent congestion and of occasional events that impact traffic flow, including University change over weekends and the Christmas Markets. • Ban through traffic. • Reconsider the location of the bus station.
Tourism/tour buses	Respondents acknowledged that Bath's success as a tourist destination brings with it a number of challenges and suggested that the following should be considered to manage the impact of tourism on air quality and traffic: • Reduce/restrict number of tour buses and coaches. • Restrict unofficial tour buses. • Prohibit tour buses from the city centre. Particular concern about tourist buses on Terrace Walk. • Limit number of tourist buses (as many run empty). • Provide more coach parking/allow coach parking at other Park and Ride sites. Coaches should drop off at the Park and Ride and transfer passengers to smaller electric buses. Or drop tourists at railway stations outside of Bath so that they come in by train. • Charge coaches more. • Introduce a tourist tax (although also concerns that a tourist tax and CAZ charge would impact the tourist trade). • Enforce coach parking to ensure they are parked only at designated sites (not on the side of the road). • Ban high emission/non-compliant coaches.

	• Do more to advise tourists to travel by rail or Park and Ride. • Ban coaches from idling in the centre.
Taxis	• Make all taxis zero emission/electric. • Ban non-compliant taxis.
Schools and student travel	School traffic was identified as a particular issue and the following were suggested to help manage the impact of the school run: *a) Schools* • Introduce more school buses, particularly for primary school children. • Provide free travel for students on buses and trains. • Discourage/limit parents driving children to school. Encourage them to drop at school bus pick up points. • Run campaigns/work with schools and PTAs to encourage walking and cycling to school. • Provide free buses at school pick up/drop off times. • Reward pupils who walk/cycle to school. • Improve walking and cycling routes to schools. • Particular note of school traffic related problems in Larkhall. • Create drop off points for private schools, and bus students in from these. • Set up walking buses with staff to supervise children. • Stagger school start times. • Encourage car share on the school run. • Use school mini buses for the school run. • Change admissions system to encourage choice of schools within walking distance and encourage parents to choose their local school. • All school children to use Park and Ride buses free of charge. • Charge large (new) cars that do the school run. • Create zones around schools where no parking/drop off is allowed. • Invest in cycle training for school children. • Charge school run traffic. • Ban all school traffic. *b) University* • Cut down on the amount of student accommodation in the city centre/grant less permissions or multi occupancy developments. • Cut down on the number of University buses. • Restrict/prevent students from having cars in the city and move student housing closer to the University. Incentivise students not to bring cars. • Manage traffic better on University accommodation change over weekends. • Student buses were perceived as adding to the air quality problem. • Encourage more students to live on campus/provide more accommodation on campus so that they do not need a car.
Low emission and electric vehicles	Encouraging electric vehicles was seen as an important aspect of Scheme proposals: *a) Charging infrastructure* • Expand infrastructure, charging points etc for electric vehicles. • Install public charging points on every road and in all Council car parks. • Encourage hydrogen as an alternative fuel. Provide infrastructure to support change of fuel – i.e. hydrogen fuelling stations. • Consider LPG and SCR technology to treat exhausts. *b) Access and parking* • Make one city centre car park for electric vehicles only.

	• Make the central zone/certain streets accessible to low emission/electric vehicles only. • Give priority to electric vehicles for example in car parks and through use of priority lanes. • Reduce parking charges for electric vehicles. *c) Public vehicles* • Ensure all commercial vehicles, buses etc are electric. • Make all buses and taxis electric. • Ensure all Council vehicles are emission free. • All recycling lorries should have start/stop engines. • Use electric vehicles to run a shuttle service from Park and Rides and also to do deliveries. *d) Support and advice* • Regardless of whether a CAZ goes ahead, respondents felt that there should be financial support, advice and encouragement to people to switch to lower emission vehicles. • Introduce incentives and financial support for people to buy new cleaner cars and electric bikes.
Anti-idling	• Encourage anti idling (switch of engines when stationary) but also some concern that switching on/off whilst moving in a slow a queue of traffic is counterproductive. • In particular ensure buses, coaches and taxis do not idle. • Make sure the system is enforced (use parking enforcement staff/pass a by-law). • Increase the fine for anti-idling. • There was some concern over the benefits of idling for different engine types.
Motorcycles	• Encourage motorcycling with safe routes and more parking. • It is noted that other respondents would like motorbikes to be included within the charge or to ban motorbikes.
HGVs/deliveries	Respondents identified HGVs as contributing to the air quality issues. Many commented that HGV volumes should be reduced by any means possible. The following specific suggestions were noted: *a) Charging strategies* • Charge HGVs first before charging cars or charge only HGVs. • Charge HGVs at specific points. • Increase the proposed CAZ charge for HGVs to discourage them more. • Charge HGV through traffic more. *b) Restricted access/routeing* • Ban all/reduce volume of HGVs in the city centre and on the A4/A36 as the priority first step. Respondents saw heavy vehicles as the biggest problem. • Ban higher emission/diesel lorries/refuse collection vehicles. • Add weight restrictions to some roads for example Cleveland Bridge, Lansdown Road, Bathwick Hill, Pennyquick, Whiteway Road, Rush Hill, Monkton Combe viaduct, London Road or parts of the A4/A36. • Ban all HGVs that are not delivering to the central area/check that all have a legitimate destination in the city (ban HGVs from using Bath as a through route). • Encourage HGVs to use alternative routes, such as the A350 and M4. • Encourage supermarkets to manage timing of deliveries. *c) Access control* • Encourage deliveries outside working hours/overnight. • Limit times of access for HGVs/ban HGVs from the city during specific times, such as during rush hours. *d) Freight transfer*

	• Set up a depot/transfer station on the edge of the city centre allowing HGVs to consolidate their loads and have these taken into the city centre by a short haul electric fleet. • Encourage local delivery vehicles to be electric i.e. electric vans. • Better/clearer routes are needed for HGVs • Work with Wiltshire to develop HGV routes. • Encourage HGVs to use the motorway. • Retrofit/clean up HGVs as the priority. • Provide a route to allow HGVs to avoid Bath. • Encourage use of rail freight. • Allow only small delivery vans in the city centre. • Various other delivery strategies were suggested by individual respondents.
Car sharing	• Tackle single occupancy car use. • Expand car clubs. • Provide more support for car sharing, for example by providing support similar to that given for school travel plans. Specific mention of the RUH. • Have specific car sharing car parks, where profit is reinvested in sustainable transport.
Car free days	• Create car free zones at key times – e.g. during the Christmas markets. • Have occasional car free days/weekends.
Incentives to buy new cars	• Provide financial support and incentives to encourage people to change their car. It was suggested that this should be offered instead of a CAZ, to actively encourage positive change. • Support people rather than charge them. • The funds that would otherwise pay for the CAZ should fund grants.
Publicity/incentives	• Increased efforts to encourage people who work in the city centre to use public transport and walk/cycle options. • Work with employers to encourage cycling/walking to work. • Encourage employers to do more to encourage alternative modes etc. • Given incentives/discounts to people travelling by bus etc. • Publish emissions levels daily. • Encourage people to monitor air quality in their own areas. • Encourage people to buy locally produced goods to cut down road miles. • Promote/encourage home working. • More education on air quality and publicity of health benefits of alternative modes. • Raise awareness of issues caused by short trips/single occupancy trips. • Provide facilities for luggage in town i.e. lockers. • Car scrappage schemes.
Planning	• More joined up transport and land use planning, and more cross boundary planning. • Stop developments in the city until infrastructure is in place. • Do not allow proposed parking at Rugby ground. • Relocate the Rugby ground. • Prevent new housing development along major routes. • Develop a combined air quality/congestion plan. • Encourage businesses to locate outside of Bath to reduce traffic in the city centre. • Overall strategy to reduce amount of goods transported by road.

	• Provide more central housing so people can live close to their place of work, particularly for key workers. • Move car showrooms out of the city centre. • Provide better facilities in rural areas, to reduce the need to use the city centre. • Reduce the number of students and tourists in the city. • Ensure new developments have their own shops and facilities so that people do not need to travel. • Provide petrol stations outside of the city centre. • Provide more housing and jobs in the city centre to prevent the need to travel.
Other suggestions	A range of other suggestions were put forward: • Plant more trees along roads. • Encourage working from home/flexible working. • Scheme needed to retrofit all older vehicles. • Consider traffic management via Artificial Intelligence based solutions. • Consider other sources of emissions e.g. agriculture • Have roadside checks to stop vehicles emitting exhaust fumes in areas with poor air quality. • Support better community transport. • Look at methods used in other countries for example large fans to blow pollution away from houses or large pumps/filters. • Tackle pollution from aircraft and large ships. • Target polluting boats. • Supplement the CAZ with other zones elsewhere across B&NES.

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