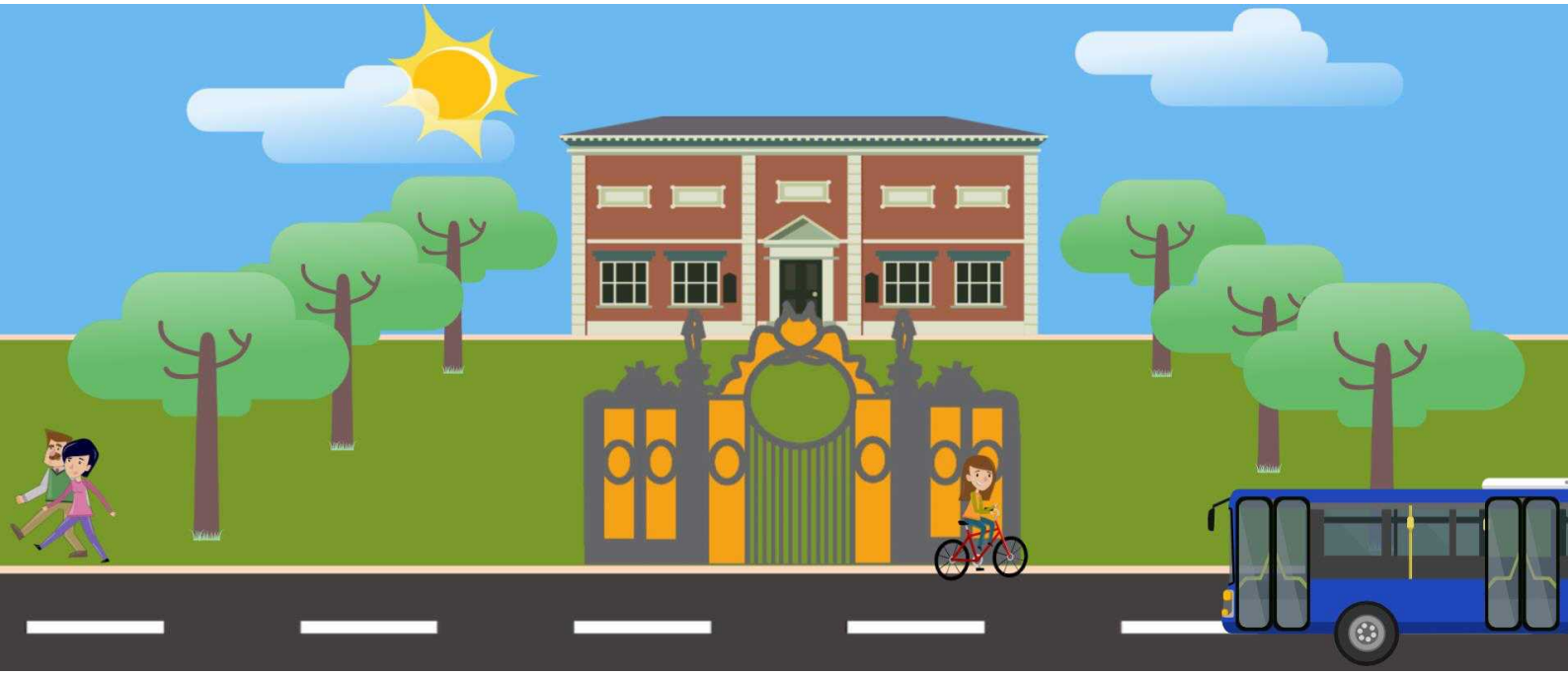
WARRINGTON
Borough Council

December 2019

WARRINGTON FOURTH LOCAL TRANSPORT PLAN

EXECUTIVE SUMMARY



Foreword

I am delighted to present Warrington's fourth Local Transport Plan.

This is a Local Transport Plan that will support the continued economic success of Warrington, the people who live here, and the companies that choose to do business here.

One of the challenges that we have faced in the development of the Plan has been tackling the impact of local air pollution that is caused by emissions from road vehicles. This has a detrimental impact on people's health in Warrington, particularly in locations close to the major roads in and around the town centre. Congestion in these locations contributes to high levels of nitrous oxides that exceed national standards.

Another challenge that we are aiming to tackle is reducing emissions from our transport network of the Greenhouse Gases that contribute to global climate change.

We have therefore set out a vision in this Plan that will transform the way that we all travel around Warrington. This will reduce the problems that high car dependency and congestion can cause by making walking, cycling, and public transport more attractive options for all of the journeys that we make. It will encourage us to lead healthier lifestyles and support the creation of a more pleasant place for us all to live and work in.

The proposals for significantly increasing the use of sustainable travel modes are supported by a programme of major transport infrastructure improvements. This includes the Western Link, a new high level bridge across the Manchester Ship Canal that has been granted Programme Entry status by the Department for Transport. This will substantially reduce Greenhouse Gas emissions in the town centre and provide the opportunity to transform provision for sustainable transport modes on existing routes into the centre.

Councillor Hans Mundry
Executive Board Member
Highways, Transportation and Public Realm

1 What is a Local Transport Plan?

Transport is an essential part of our lives as it connects us with jobs, education, healthcare, shopping and leisure. It is a key component of the economy as it links businesses with their workers, customers and clients, whilst providing for delivery of goods.

Transport shapes our neighbourhoods and influences our lifestyles. Our choice of transport impacts on us as individuals and on our wider environment.

The Local Transport Plan helps us to address current and future local transport issues by providing a framework for decisions on future investment, it:

- sets objectives for transport to support our wider goals and ambitions;
- establishes policies to help us achieve these objectives; and
- contains plans for implementing these policies.

The main LTP4 document is split into two parts:

Part A: Defining Our Vision	**What is a Local Transport Plan?**	What does the Local Transport Plan do?
	Policy Context	Wider Policies that shape LTP4
	Warrington's Transport Challenges	Challenges to be addressed through LTP4
	Public and Stakeholder Consultation	Capturing the views of public and stakeholders in Warrington
	Our Transport Vision	Our Vision Statement and Strategic Priorities
	Delivering the Vision	Our approach to delivering change
	Policies to Deliver Our Vision	The strategy to deliver our vision
Part B: Setting Out Our Policies	**Active Travel**	How we will increase Walking and Cycling in Warrington
	Smarter Travel Choices	Helping people choose how they travel
	Passenger Transport	How we will Improve bus, rail, and taxi journeys
	Safer Travel	Making travelling through Warrington safer
	Cleaner Fuels	How we can support the increased use of greener fuels
	Asset Management	Maintaining the condition of our highway
	Network Management	How we will keep traffic moving on our network
	Freight Management	How we will support and manage freight

2 Policy Context

It is important that the development of the Local Transport Plan is done so with reference to the policies and strategies of internal and external partners and other bodies who have an interest in improving or managing the transport network.

3 Warrington's Transport Challenges

Warrington's continued success as a place to both live and work is dependent on a transport network that is safe, convenient, and reliable for users of all transport modes. The role of LTP4 is therefore to address the current problems with our network and create a transport network that supports housing and economic growth in Warrington.

The key challenges that need addressing through LTP4 are:

- Addressing car dependency and congestion
- Growing bus patronage
- Continuing the upward trend in rail usage
- Improving the walking and cycling offer
- Improving air quality and reducing transport noise
- Addressing transport inequalities
- Making Warrington a more disabled friendly place
- Supporting growth
- Reflecting public and stakeholder views

Without a transformational change to the way that we travel we risk Warrington becoming a less desirable place for people to live and invest in. The potential consequences of taking a 'business as usual' approach to transport planning are summarised below.

Consequences for People

Warrington becomes further dominated by private car travel

Our transport system increases social exclusion by cutting people off from services

Public transport services become less viable and the network shrinks

Warrington increasingly acts as a commuter town for Manchester and Liverpool

Obesity rates increase through lack of active travel choices

Health impacts of poor air quality

Consequences for Business

The town becomes an unattractive investment prospect

Warrington becomes a less attractive place to work and visit when compared to neighbouring areas and local authorities.

The retail offer in the town centre reduces

Warrington becomes an undesirable place to visit

Workplaces become increasingly inaccessible due to growing transport problems

Consequences for the Environment

Air quality worsens

Worsening of the natural and built-up environment

Increases in noise from the highways network

Increasing CO_2 emissions from transport

Increasing vulnerability to extreme weather events

4 Our Transport Vision

Priorities	
Vision	***Warrington will be a thriving, attractive, accessible, and well-connected place with popular, high-quality walking, cycling, and public transport networks supporting our carbon-neutral future***
Objectives **Through LTP4 we will:**	• Provide people with a choice about how they travel for each journey • Encourage a culture change that reduces the need for people to travel by car • Improve access to the town centre for all sustainable modes • Develop a resilient and efficient transport network that supports the town's growth • Reduce traffic congestion • Reduce both exhaust and non-exhaust emissions from transport • Maintain and improve all transport infrastructure • Encourage healthier lifestyles by increasing day-to-day activity • Improve safety for all highway users • Make Warrington a more disabled friendly place

Policies and Actions
(Part B)

Appendices
(Part C)

4.1 A Thriving and Attractive Place

The Vision that we have set out in LTP4 is intended to not only transform how we travel around Warrington, but how the borough operates as a place.

A less car dependent culture will lead to a town centre that is less car-dominated. There will be new opportunities to travel in different, healthier ways around the borough.

Services, leisure and employment opportunities will be more accessible to everyone and Warrington will be a place that we can all enjoy spending time in.

The effect of this transformation will be felt differently in different parts of the borough.

Inner Warrington will be an attractive place to live and work that is easily accessed by all transport modes. There will be a mass transit interchange and High Speed Rail services will be accessed from a hub at Bank Quay.

Public realm improvements, improved air quality and less traffic will contribute to a more pleasant town centre environment.

Neighbourhoods in Suburban Warrington will become even more attractive places to live than they are currently. Residents will benefit from improved air quality, less traffic and improved access to the town centre.

They will be able to move around more easily using a frequent, convenient, reliable public transport network and attractive walking and cycling routes.

New housing developments in Warrington will be attractive places to live. They will have convenient access to the town centre and other key destinations using high quality public transport and there will be good, attractive walking and cycling facilities.

Settlements in rural Warrington will continue to be very attractive places to live, with improved connections to urban Warrington and access to the motorway network.

The thriving large employment areas outside of the town centre are a key component of Warrington's success story and this will continue into the future. These will be well-connected, attractive places to work and do business.

They will be accessible from the rail network and served by a high quality public transport offer, and will be easily and safely reached by people walking and cycling to work.

Across the borough, the improvements to both our passenger transport services and walking and cycling networks will be supported by measures that support a reduction in car dependency.

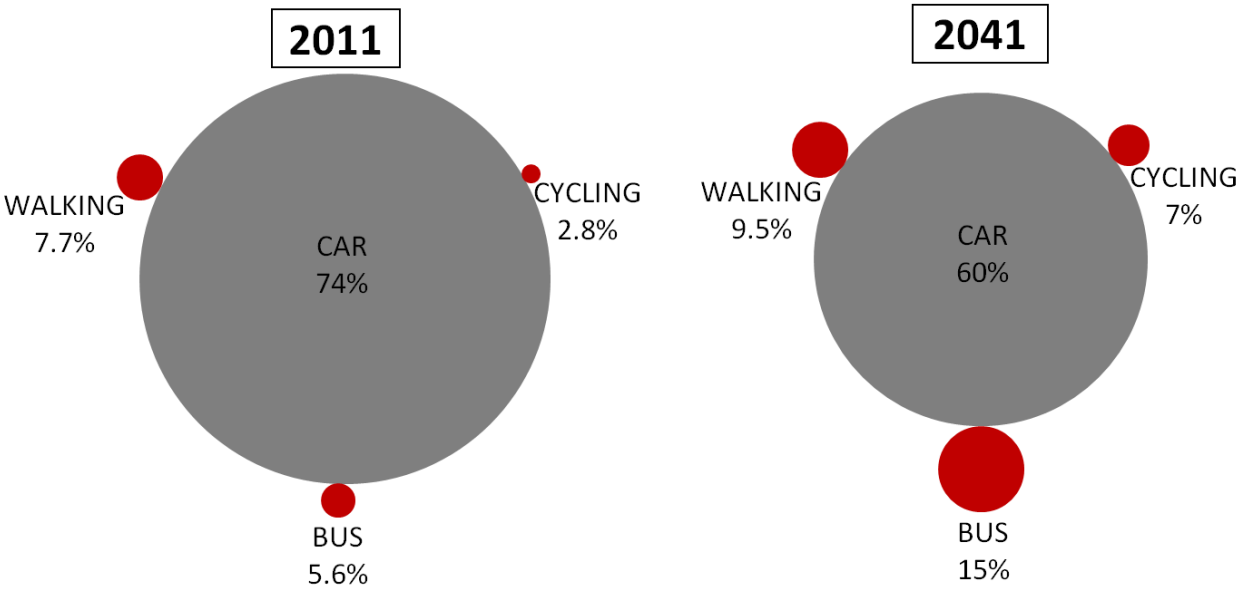
4.2 Changing How We Travel

The way we travel around Warrington has a huge impact on the character of our town and the way that we feel about the place that we live. Through LTP4 we want to create a Warrington that is not dominated by car movements, and where streets provide a space for people that is pleasant to be in.

Warrington should be a place where significantly more people choose to walk, cycle, and use public transport, allowing them to live healthier lifestyles. This requires a transformational change in the transport offer that is currently available to residents.

Our aspiration is to reduce Journey to Work mode share for drivers of cars/vans from 74% in 2011 to 60% by the first Census (2041) that will take place after the end of LTP/Local Plan period in 2037.

To have a transformative effect on the town we need to facilitate significant increases in cycling (approximate 2.5 times increase in the proportion of cycling), bus or local public transport (nearly 3 times the proportion for bus use), and increases in walking.



5 Delivering the Vision

Our aim to increase the usage of sustainable modes of travel is ambitious and needs to be supported by an equally ambitious vision for transforming our transport network.

Our approach to delivering this change falls within four themes:

- Creating an attractive, high standard, user-friendly environment for walking and cycling trips
- Transforming public transport by ensuring that there are attractive, frequent services that connect the places that people live to large attractors
- Managing demand for private car use
- Creating sufficient transport capacity on our network through major and priority infrastructure projects

5.1 Increasing Walking and Cycling

Warrington's compact size and fairly flat terrain offers a great opportunity for local journeys to be made by walking and cycling. A comprehensive, high quality and well used walking and cycling network will create a more pleasant local environment, facilitate healthier lifestyles for our residents and support the ambitious regeneration aspirations of the borough.

To create a walking and cycling environment that is attractive to as many users as possible we should be creating streets that are:

- Welcoming to everyone in Warrington, from all parts of our community
- Kept clean, tidy and well-maintained
- Safer, so people do not feel threatened or worried about road danger
- Easy to cross, particularly on direct routes to large trip attractors
- Accessible for people who need resting places along their journey
- Interesting and stimulating to travel along, with attractive views, planting, and public art
- Safe for visually impaired and blind users with minimal trip hazards

We are developing a Local Cycling and Walking Infrastructure Plan (LCWIP) in line with government guidance. The LCWIP sets out how we will develop a walking and cycling environment that is attractive to as many users as possible. It will help us to:

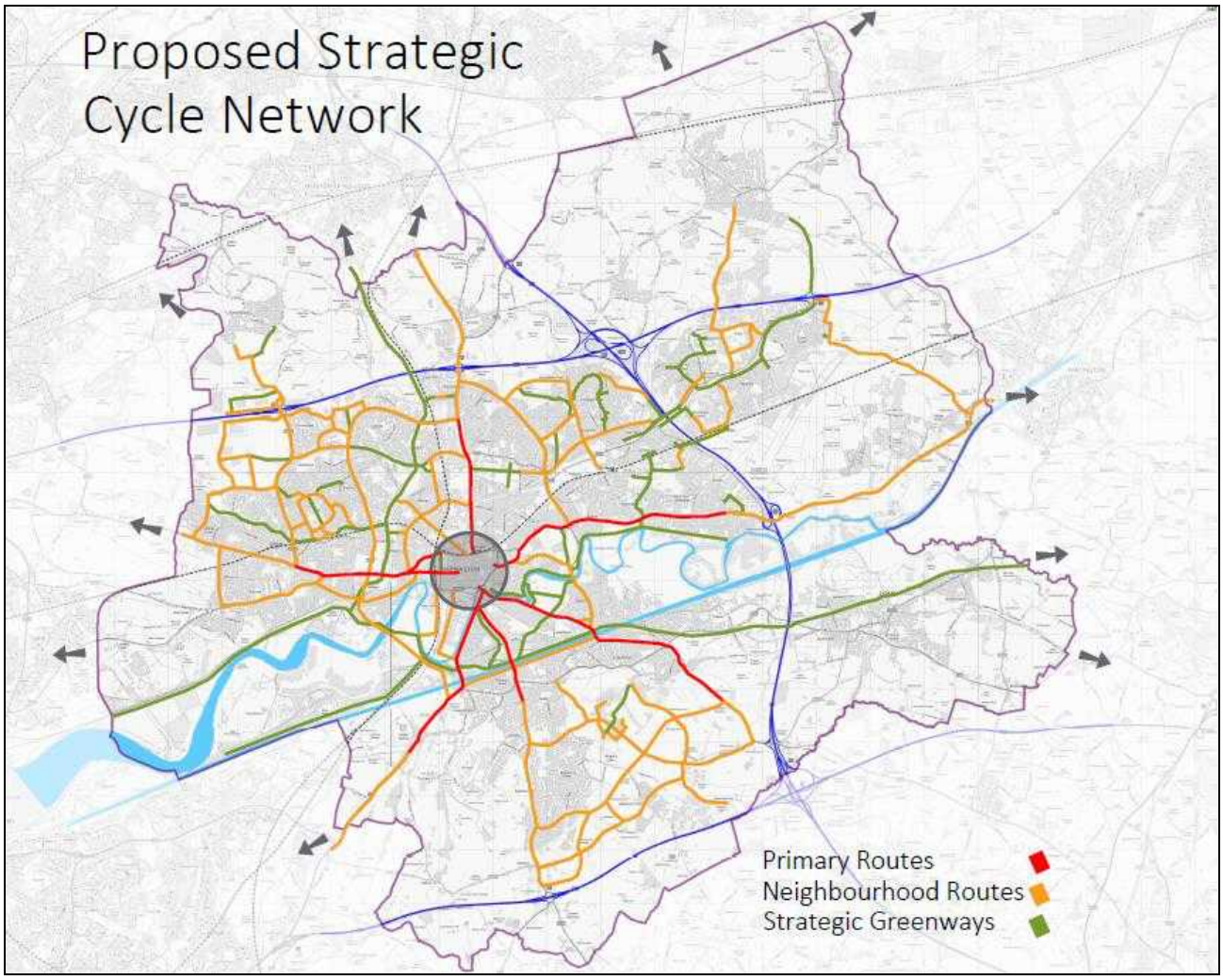
- Serve the highest level of current active travel users
- Increase the number of walkable and cyclable trips
- Provide for growth

The LCWIP sets out an aspirational core network of walking and cycling routes that is shown below.

The LCWIP will continue to be a live document and the network plan will change as the plan develops.

The proposed network is made up of:

- **Primary routes** - high quality integrated corridors that radiate out from the town centre hub that use, or follow, the main arterial transport routes
- **Neighbourhood routes** - continuous routes segregated from traffic
- **Greenways** - well maintained traffic free routes through open spaces and parks



5.2 A Mass Transit Network

We have set an ambitious target to increase the mode share for bus and mass transit use for the journey to work to 15%. To achieve this we need to transform the public transport offer in Warrington, so we commissioned a study to look at options for doing this. The study considers two possible modes for a mass transit solution for Warrington: Light Rail/Tram and Bus Rapid Transit (BRT). We are very early in the process of identifying a mass transit network and, whilst these seem the most likely modes at this point, other modes are not being ruled out.

An indicative mass transit network for Warrington is shown on the following page. The proposed network includes:

- Three cross-town centre routes
  - Lingley Mere/Omega to the proposed Garden Suburb South East Urban Extension
  - Daresbury to Winwick
  - Birchwood to Fiddler's Ferry

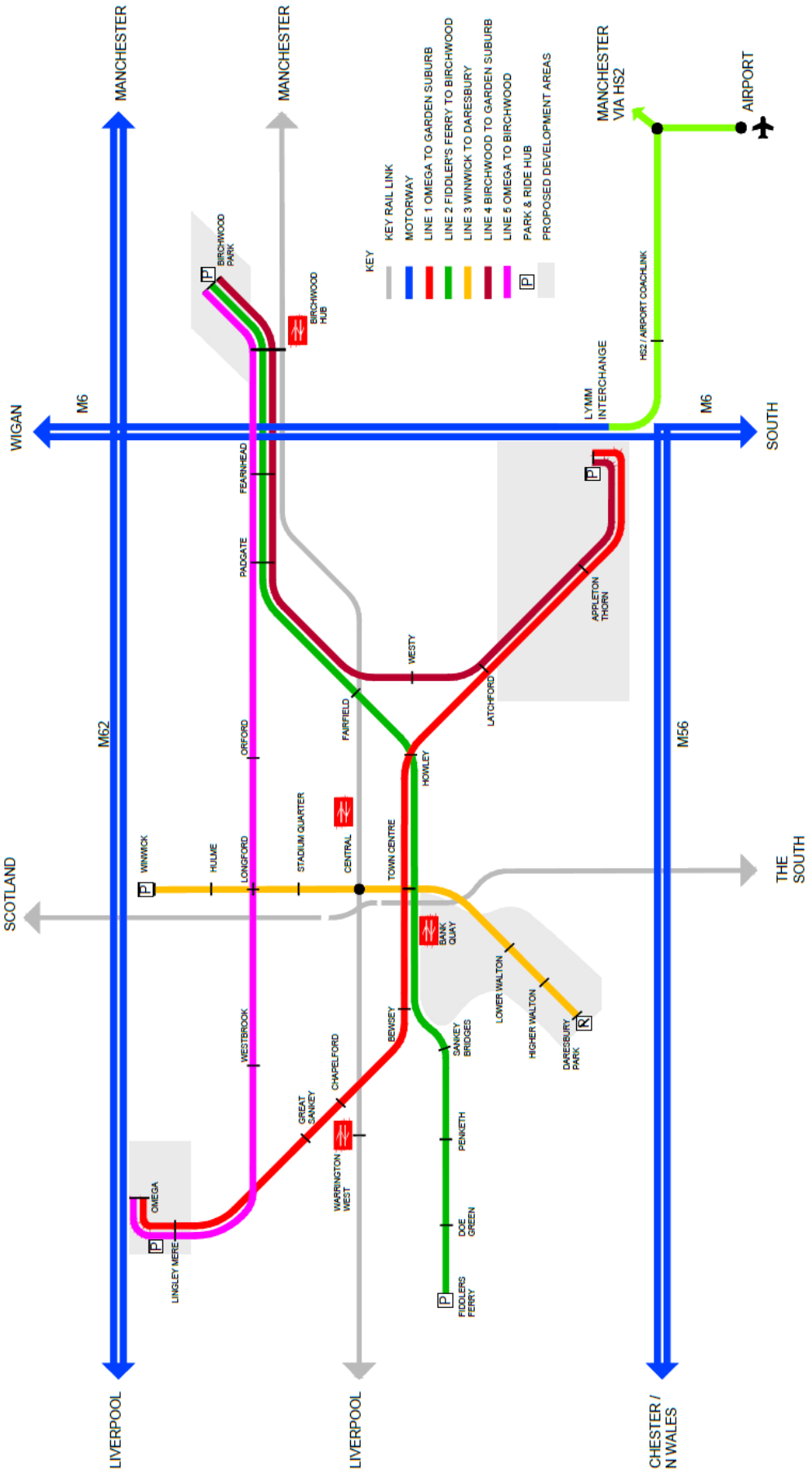
- Two orbital routes
  - Birchwood to the proposed Garden Suburb South East Urban Extension
  - Lingley Mere/Omega to Birchwood

The core of the proposed network would be a town centre routing system that provides linkage to the key hubs of Warrington Central, Bank Quay and Bus Interchange. The network would integrate with the potential future HS2 and NPR networks at Bank Quay and with the enhanced CLC system at Warrington Central.

The routes are intended to:

- Deal with existing corridors with high demands for travel
- Support the growth of the town centre
- Connect key employment areas to new and existing residential areas

A large amount of optioneering, feasibility, and design work is required before we are able to confirm routes or identify corridors that the services may run on. The council proposes to carry out this work in the first 5 years of LTP4.



Indicative Mass Transit Network for Warrington

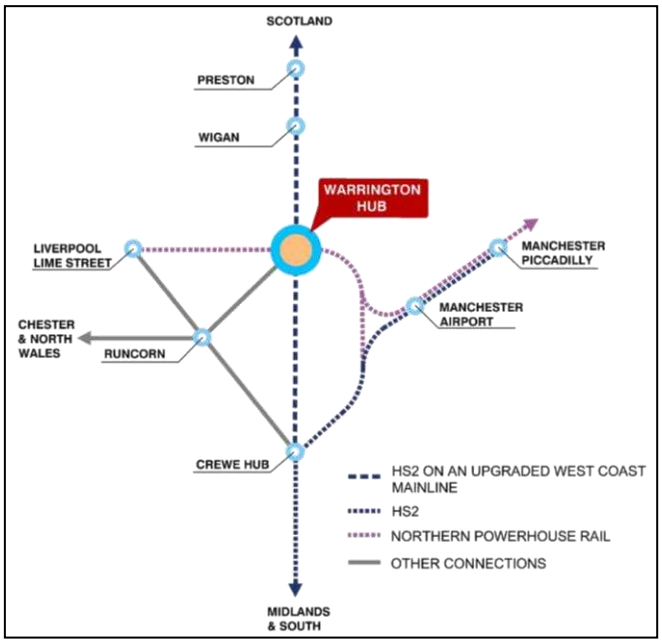
5.3 High Speed Rail and Northern Powerhouse Rail

HS2 and Northern Powerhouse Rail provide a unique opportunity to enhance the area surrounding Bank Quay. With an enhanced high speed hub at the heart of the town, Warrington can provide a crucial point where 'North South meets East West' and high speed rail services will meet an expanded offer in Central Warrington

HS2 services will stop at Warrington from 2026. These will operate on dedicated infrastructure between London and Birmingham (Crewe from 2027) before using the existing West Coast Main Line.

Northern Powerhouse Rail represents a significant aspiration to enhance intra-regional connectivity across the North of England.

Our view is that the Northern Powerhouse Rail infrastructure should serve Central Warrington. This would provide a unique opportunity as the only location where the



West Coast Main Line and potentially HS2 to Scotland can meet Northern Powerhouse Rail at a thriving economic centre with considerable potential to grow further.

We are proposing to Government that Warrington forms a fundamental part of both HS2 and Northern Powerhouse Rail networks

5.4 Better Services on CLC Rail Line

The CLC Line links Liverpool and Manchester through the centre of Warrington, serving Sankey for Penketh, Warrington West, Warrington Central, Padgate, Birchwood, and Glazebrook.

With the newly electrified Chat Moss route, which skirts the borough to the north now providing the quickest end to end journey time between Liverpool and Manchester, there is an opportunity to review services in the CLC.

We have been working in partnership with Transport for Greater Manchester and Merseytravel to identify options for enhanced service patterns on the line.

Some minor rail infrastructure at Birchwood station and to the west of Sankey for Penketh station could deliver the following benefits:

- Retention of 2 semi-fast services per hour along the corridor – providing quick journey times to Manchester, Liverpool, both airports and the East Midlands/South Yorkshire.
- Potential future option to connect the Liverpool-Birchwood service to the MerseyRail network at Liverpool South Parkway
- Establishment of a 'Warrington Metro' with frequent services on the core section of route between Warrington West and Birchwood
- Potential Tram-train services to Manchester

5.5 Managing Demand for Private Car Travel

Improving walking and cycling infrastructure and creating a new passenger transport offer will provide high quality, attractive alternatives to the use of private cars for journeys in Warrington. However, a transformation in the way that we travel around Warrington is likely to need to be supported by measures to manage and reduce private car use. This is known as Demand Management.

There are two important outcomes that such measures could deliver in supporting our transformational transport vision:

- Reducing car usage by providing a disincentive to people to use their car
- Providing an income source that will support the delivery of sustainable transport improvements.

A Workplace Parking Levy is a charge on employers who provide workplace parking for their employees. All businesses that provide more than a given number of free employee-only parking spaces are charged an annual 'per-space' fee. Employers are encouraged to manage and potentially reduce the level of free workplace parking spaces that they provide. The levy charged per space creates a revenue stream which must be reinvested in sustainable transport improvement projects.

The underlying aim of Workplace Parking Levy is to facilitate enhanced economic growth and increased public wellbeing by managing congestion, improving accessibility to urban centres and encouraging a shift towards healthier and cleaner modes of travel to work.

After the adoption of LTP4 we will investigate the potential of a Workplace Parking Levy in Warrington as a way of managing demand for private car use, and as a way of funding sustainable transport improvements.

A significant amount of work is required before a Workplace Parking Levy could be introduced. This includes working with the business community and consideration of issues such as:

- the geographical extent of any scheme
- categorisation of parking spaces
- eligible sites and companies
- the level of charge per space.

5.6 Priority Transport Infrastructure

In order to maintain and improve Warrington's networks for all modes and to incentivise the increased use of sustainable travel, a range of physical improvements will be required over the course of the plan.

Minor Improvements are typically schemes under the value of around £2m. As a package they can help to transform the transport network in Warrington.

Major Improvements will have a transformational effect in themselves, such as giving a step change in sustainable transport provision, addressing a major congestion problem on existing networks or unlocking a development site.

Using the Warrington Multi-modal Transport Model we have been looking at the future programme of major schemes. Two major highway schemes represent the minimum new infrastructure required to commence the delivery of the housing and economic growth that is proposed in the Local Plan:

Scheme Name	Description	Status
Warrington Western Link	Major infrastructure improvements including new high-level bridge across the Manchester Ship Canal and link road.	Granted 'Programme Entry Status' by DfT
Warrington South Strategic Infrastructure Phase 1 (Garden Suburb Strategic Link)	Major highway and public transport infrastructure to support development in south Warrington.	Development Concept

In addition, a further set of major transformational schemes have been identified that will ensure that the growth of the borough proceeds in a sustainable way and will also help us to achieve our vision for transport in Warrington. These projects will be subject to further study work during the first 5 years of the Local Transport Plan.

Scheme Name	Description	Status
Local Cycling & Walking Infrastructure Plan	Major strategic corridors and completion of neighbourhood and greenway networks	Concept stage. Design work required
Mass Transit Network for Warrington	Network of mass transit corridors.	Indicative concept
The 'Last Mile' project / Town Centre Vision Access Package	Package of improvements to transform access to and around the town centre, enhancing sustainable travel options and supporting future growth.	Design work required. Study work being supported by LEP

Within the first 5 years of LTP4, we will also undertake study work to understand what further schemes may be required in the future to support the delivery of our transport vision:

- Warrington Bank Quay Gateway
- Stadium Quarter Highway Improvements
- High Level Cantilever Bridge Crossing
- Additional transport connectivity across the Manchester Ship Canal.
- Warrington North Pinchpoints and A49
- Bridgefoot and Brian Bevan Island
- Southern Gateway Development Access Framework

6 The Policies to Deliver Our Vision

Agreeing a new vision is the first step in a long process of improving our transport systems in Warrington. Alongside this vision we need an implementation strategy to develop this vision further and deliver the outcomes we are hoping to achieve, both in terms of the physical environment and the culture of travelling in Warrington.

To this end we have developed a series of policies and actions grouped into themed areas of work that supports a transformation of Warrington's transport system.

Each chapter will:

- Identify the key issues and challenges for the relevant theme
- Set out our aspirations for the relevant theme in LTP4
- Define the policies that will address the challenges and support delivery of the aspirations
- Identify a series of interventions and broad timescales for delivery

7 Active Travel

Active Travel focuses on providing for walking and cycling as everyday modes of travel. There are two key complementary elements to increasing walking and cycling rates:

- Ensuring that high quality infrastructure is in place to enable walking and cycling
- Promotion of the benefits of active travel modes and encouraging their take up.

To ensure that we are taking the right approach to identifying and delivering the improvements that are necessary on our Active Travel network we are developing a Local Cycling and Walking Infrastructure Plan (LCWIP). The key outputs of the LCWIP will be:

- A network plan for walking and cycling which identifies preferred routes and core zones
- A prioritised programme of infrastructure improvements for future investment.

The guiding principles for identifying the LCWIP network are convenience and safety. The LCWIP will help us achieve three key objectives for the proposed network:

Serves the highest levels of current walking and cycling trips

Enables the highest levels of 'walkable' and 'cyclable' trips to be realised

Provides for areas expecting the highest growth in population and employment

It is vital that the active travel network that we are developing in Warrington is accessible to as many Warrington residents as possible who wish to use it. This includes those residents with mobility impairments and disabilities. An accessible active travel network prevents social isolation, promotes active lifestyles, and reduces the need for car use.

8 Smarter Travel Choices

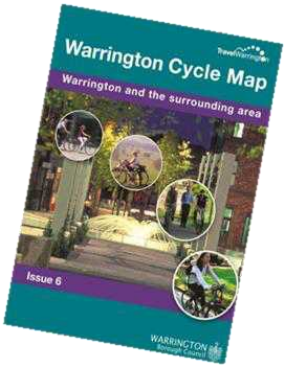
Smarter Travel Choices describes a range of approaches designed to help people to become less car dependent. The ambition is to reduce the number of car trips by providing greater awareness of sustainable travel choices. It has a wide-ranging scope, including:

Travel plans	Business ◆ Residential ◆ School ◆ Area-wide
Information & marketing	Timetables, maps and advice ◆ Journey planners Travel awareness campaigns and events
Alternatives to travel	Advice on home working ◆ Flexible working ◆ Tele- and video- conferencing
Sustainable choices	Advice on car sharing schemes ◆ Car clubs ◆ Low carbon travel
Training & enabling	Bikeability cycle training ◆ Cycle route advice
Active travel: cycling & walking	Bike hire schemes ◆ Walking and cycling groups
Smart & integrated ticketing	Promotion of smart cards for passenger transport Rail/bus and rail/bike tickets

The emergence of town centre living together with lack of space for associated car parking cultivates the ambition to create a car-lite environment. To support this we will develop and deliver a bespoke Travel Plan for the town centre, enhancing the bus and rail offer and introducing new schemes such as a car club and bike sharing to enable car free and car-lite living.

Our Sustainable Modes of Travel to School Strategy encourages the use of sustainable travel and transport modes on the journey to, from, and between schools and other institutions.

The provision of Bikeability child cycle training has been a major success. Between 2007 and 2018 almost 22,000 pupils have been trained in Warrington. Training in advance of the transition to high school is crucial to embedding a cycling culture.



A programme of adult cycle training and rides, to raise competence and confidence, will be required to support the increase in cycling set out in our vision for transport.

9 Passenger Transport

Passenger Transport covers all forms of motorised passenger transport services available for use by the general public. Public transport currently available in Warrington includes express coach, local bus rail, and taxi/private hire vehicles. Future modes could include light rapid transit services such as tram/light rail or express/guided bus.

9.1 Bus

Bus services in Warrington need to meet people's needs, including

- **Route** - taking passengers from where they are to where they want to go
- **Frequency -** regular, frequent services
- **Journey Time -** shorter journey times with limited interchange
- **Passenger Experience -** easier and more comfortable for passengers
- **Cost** - affordable fares that allow buses to compete with car travel

9.2 Integrating Modes

Many journeys require more than one mode of transport. If we are to encourage people to use sustainable modes for their journeys it is important that the interchange between modes at key locations is as seamless as possible.

9.3 Rail Patronage

The upward trend in rail patronage in Warrington is encouraging and we will work with partners in the rail industry, including Train Operating Companies, Rail North, and Network Rail, to further increase patronage through improvements to the rail services in the borough. This includes seeking additional calls at stations in Warrington.

9.4 Other Passenger Transport

We will work with all transport providers, including taxi, private hire, Community Transport and coach operators to encourage the use of low emission, accessible vehicles on services that complement the wider offer.

10 Safer Travel

Warrington has seen significant improvements in road safety over the last 10 years with a 36% reduction in collision occurrence resulting in a 43% reduction in casualties. Our aim is to prevent all deaths on Warrington's roads and to significantly reduce the frequency and severity of collision and casualties.

Improving safety through road engineering forms a significant part of the success we have achieved so far in reducing casualties. These measures are generally promoted though the annual Local Safety Schemes Programme which consists of a four pronged approach to identification of priority locations to be targeted.

- **Single Site Programme** – a priority list of sites (cluster sites) for intervention based on collision data and trends for different casualty groups.
- **Area-Wide Schemes** – Warrington is divided into areas and requests for road safety improvements prioritised against a number of criteria (including collisions per head of population and length of road in area). Priority given to collisions involving vulnerable road users
- **Route Assessments** – carried out for roads adjacent to traffic calming areas to mitigate any transference of collisions onto surrounding network.
- **Mass Action** – Applies specific treatment to common collision types. To-date, this has focused on high friction surface dressing on approach to pedestrian crossing facilities

Encouraging safer behaviour is another important measure in reducing casualties. We will continue to develop and implement strategies for continuing the reduction in frequency and severity of road traffic collisions and casualties through behavioural change.

Better discipline through the deterrent of enforcement will also reduce the risk of conflict. We are a member of the Cheshire Road Safety Group which has a role in enforcement, education, training and publicity across Cheshire, Warrington, and Halton.

The risk of collision is not the only potential threat to users of our highways and transport services. The fear of crime, anti-social behaviour, and poor personal safety is a barrier that can discourage people from walking, cycling, and using public transport. We aim to provide a highway network that is free from harm and the threat of crime and anti-social behaviour; with efficient transport links that promote public confidence in sustainable travel choices.

11 Cleaner Fuels

Motorised transport will continue to play a significant role in Warrington's transport system. In order to reduce the resulting environmental effects of continued motorised transport usage we will consider how cleaner fuels can reduce the impact of individual vehicles, both on climate change and local air quality, and what role the Council can play in enabling the use of them.

Alternative fuel sources that are available for use by vehicles on the market today, or close to being market-ready include:

- Electric vehicles
- Natural Gas
    - Compressed Natural Gas
    - Liquefied Natural Gas
    - Biomethane
- Hydrogen

In order to lead by example, we will look at reducing emissions from the fleet of vehicles owned and operated by the Council.

We will commission a study to understand how we can best encourage residents and fleet operators in Warrington to change vehicles powered by cleaner fuels.

A key area of interest will be public chargepoints for Electric Vehicles (EVs). Here we will consider the range of recharging infrastructure required in terms of electrical output required for different charging needs and the geographical extent of charging locations

We will ensure that new housing developments are suitable for residents who choose to own low emission vehicles.

12 Asset Management

Asset Management focuses on our proposals for maintaining the physical transport assets which make up the transport networks for which we have direct responsibility. The local highway network includes roads, footways, cycleways, bridges, street lighting, traffic signals, bus stops, street furniture and signs.

Management of our Highway Asset will focus on achieving the following outcomes:

- A safe network
- A serviceable network
- A sustainable network
- Informed and Satisfied Customers

It is vital that we seek to maximise any funding for maintenance schemes, and that any investment that we make delivers the best possible value for money.

The Highway Asset Management provides the basis for us to adopt sound asset management principles that enable us to achieve economic prosperity and growth to the wider community by forming critical links with greater efficiency, collaborative working and value for money.

The key to our long term goals and success will be our continued commitment to maintain our ageing highway network.

Timely intervention will prove effective at halting the overall deterioration of the network. With the network condition stabilised the ongoing aim will be to deliver sustainable improvements in asset condition and value.

The future approach is to undertake more preventative maintenance treatments
This will reduce the whole life cost of the carriageways as we will be eliminating lengths requiring more expensive treatments to remain in service.

13 Network Management

Network Management focuses on the management of the highway network and looks at introducing measures to help us make best use of the existing highway resources. This is relevant to all users of the road network, including pedestrians, cyclists, buses, cars, taxis, and road freight. Our approach to Network Management is therefore broad, as we seek to manage the network proactively to improve conditions for all road users. Managing congestion is a combination of managing traffic demand and traffic flows, and making the highway network operate as efficiently as possible.

13.1 Traffic Management

Network management systems such as Urban Traffic Management & Control (UTMC) provide one of the key tools by which we can achieve better network operations. We will continue to develop and implement state of the art technology solutions that will allow us to further improve the management of the transport network.

13.2 Parking

We own and operate a proportion of off-street car parks which are operated for the benefit of the wider community. We will

consider the role of charges and controls in seeking to manage the demand for parking and discourage unnecessary single-occupancy car use and balance the provision of short-stay and long-stay parking in the borough to supports the vitality of retail centres whilst encouraging use of more sustainable travel modes.

13.3 Manchester Ship Canal

Bridge swings disrupt local transport movements (including public transport and active travel) and cause traffic congestion which has both economic and environmental costs. Since the signing of a Memorandum of Understanding with Peel Ports (who own and operate the canal) in May 2014, peak period sailings have fallen year on year. We continue to work with Peel Ports regarding improvements to help traffic movement in Warrington by warning our road users as early as possible about a bridge swing in order to enable all road users to better plan their journeys and to ease traffic pressures when bridges are swung.

14 Freight Management

It is essential that Warrington continues to be an attractive place for business investment, including from the freight and logistics sector to support the local economy. The ease at which freight transport can move to, from, through and around the borough is important and it is essential to find a balance between the quality of life for the local communities and economic prosperity.

We aim to ensure that freight is using the most appropriate mode, route and vehicle to travel to, from, and around but not through Warrington Town Centre. Movements that do not add value to the Town Centre in Warrington will be actively discouraged. We will continue to address congestion at key hot spots for freight in Warrington.

We aim to encourage road freight to use other sustainable modes of transport or vehicles that minimise the impact on the local environment. We will work with partners to identify ways of increasing the use of rail freight and we will support the development of intermodal freight facilities in Warrington, including Port Warrington.

Reducing the impact of freight on air quality can be achieved through a number of key areas such as fleet renewal, re-routing, consolidation, modal switch to rail or water,

driver behaviour and the adoption of alternative powered vehicles.

Ensuring that loading areas and rest facilities are appropriate and properly used is important for reducing the impact that road freight has on the local environment. We will ensure that freight operators are well informed about the availability and location of loading bays and we will review local lorry parking facilities and, if required, identify potential locations for additional facilities.

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WARRINGTON
Borough Council

Warrington Draft Local Transport Plan 4 (LTP4)

Sustainability Appraisal

Post Adoption Statement

December, 2019

Table of contents

1 Introduction

1.1.1 Sustainability appraisal (SA) is a mechanism for considering and communicating the likely effects of a draft plan, and reasonable alternatives; with a view to avoiding and mitigating negative effects and maximising the positives before the Plan is finalised.

1.1.2 This document is Post – Adoption Statement for the Strategic Environmental Assessment (SEA) of the fourth Warrington Local Transport Plan (LTP4). The SEA statement describes the process, how the findings of the SEA were taken into account and informed the development of the LTP4, and the monitoring indicators that will be applied to check the accuracy of predicted effects and to monitor progress against sustainability objectives.

1.1.3 A parallel process of SEA was undertaken alongside plan-making. AECOM was commissioned to support Warrington Borough Council in undertaking the SEA process.

1.1.4 It is a requirement that SEA involves a series of procedural steps. The final step in the process involves preparing a 'statement' at the time of plan adoption.

1.1.5 The aim of the SEA Statement (i.e. this document) is to present –

1. The 'story' of plan-making / SEA up to the point of adoption

   Specifically, the Regulations[1] explain that there is a need to: "summarise how environmental considerations have been integrated into the plan or programme and how the environmental report... the opinions expressed... and the results of consultations... have been taken into account... and the reasons for choosing the plan... as adopted, in the light of the other reasonable alternatives dealt with."

2. Measures decided concerning the monitoring of plan implementation.

1.1.6 This Statement considers (1) and (2) in turn.

[1] Environmental Assessment of Plans and Programmes Regulations (2004)

2 The Plan making 'story'

2.1 Introduction

2.1.1 This section gives consideration to each of the main transport plan-making / SEA steps in turn. It is typical for the transport plan-making / SEA process to involve numerous iterations of a draft Plan, and this was the case with the Warrington LTP4.

2.2 SA Preparation alongside the Local Plan

2.2.1 This section outlines the key outputs from the SA process and how they related to the preparation of the LTP4

SEA Scoping Report (July – August 2018)

2.2.2 The first stage of the SEA process for the LTP4 was to prepare and consult on the scoping report. The report identified key issues to be a focus of the SEA and established an appraisal framework.

2.2.3 The Statutory Consultation Bodies English Heritage, Natural England and the Environment Agency were each consulted with, and comments received were taken into consideration when finalising the scoping report.

SEA Report (March 2018)

2.2.4 The SEA Report accompanied the LTP4 in the consultation draft phase.

2.2.5 The SEA Report at this stage set out an appraisal of the sustainability implications of the draft LTP4, and captured how the SEA process had influenced the development of the Plan.

SEA Report Update (September 2019)

2.2.6 Updates to the SEA report were made in September 2019 to reflect any changes that were made to the LTP4 following consultation on the draft Plan.

3 How has the SEA influenced decision making?

3.1 Introduction

3.1.1 Essentially, SEA must feed-into and inform plan-making in two ways:

1. Appraisal of sustainable transport options and draft policies should inform preparation of the draft plan.
2. The SEA Report, and consultation responses received during the Draft Plan / SA Report consultation, should inform plan finalisation.

3.1.2 This section briefly discusses the key elements of the SEA process, and how the findings were fed-into the Plan making process. There is a focus on explaining how sustainability have been taken into account and influenced plan-making, including as a result of alternatives appraisal, site assessments, policy appraisal, and consultation on Plan / SEA documents.

3.2 Influencing strategic options

3.2.1 The SEA identified and appraised three strategic transport options, which have informed the development of the Strategic Transport Plan. These are as follows:

- Option 1: Traffic management and Sustainable travel
- Option 2: Traffic management, Sustainable travel + Mass Transit
- Option 3: Great focus on Sustainable modes of transport only

3.2.2 The SEA found that Option 2 generates the most significant positive effects overall. In particular, this option best supports economic growth and housing development, which are crucial elements of the emerging Local Plan for Warrington. This option is also most positive in terms of improving accessibility for a wider range of communities and achieving improvements in air quality and contributing to climate change mitigation.

3.3 Influencing policy content

3.3.1 The SEA assessed the implications of each of the draft Policies in the LTP4, and a series of recommendations were made for mitigation and enhancement. These were taken into account when the LTP4 was being finalised.

3.4 Inputs from consultation

3.4.1 Consultation on the SEA Report took place alongside the draft fourth Local Transport Plan for nine weeks, starting on the 15th of April 2019 and closing on the 17th June 2019. A summary of key responses relevant to the SEA is provided below.

- **English Heritage** had no detailed comments to make on the SEA Report.
- **Highways England** considers that an appropriate level of assessment has been carried out to support the current stage in the development process of the LTP4.
- **Natural England** had no detailed comments to make on the SEA Report itself.
- **The Environment Agency** had no detailed comments to make on the SEA Report itself.

4 Monitoring

4.1.1 There is a need to set out the monitoring measures that will be used to monitor the effects of the Local Plan, and whether these correlate to those identified in the SEA Report. Monitoring also allows for unforeseen effects to be identified early, and to help understand why predicted positive or negative effects might not be occurring in reality.

4.1.2 The following table sets out the monitoring indicators against each of the SEA themes presented in the SEA Report. These indicators are unchanged from those identified in the final (updated) SEA Report.

Table 4.1. Sustainability Theme and Monitoring Measures

Sustainability Theme	Monitoring Measures
Natural Environment	• Net loss of any extent of a nationally or locally designated biodiversity or geodiversity asset arising from development that is permitted. • Loss of best and most versatile agricultural land (ha) as a % of total resources
Built and natural heritage	• Number of Listed Buildings and Conservation Areas on 'At Risk' registers. • Net additional convenience and comparison retail floor space provided at Market Harborough, Lutterworth and Broughton Astley.

Sustainability Theme	Monitoring Measures
	• Design standard achieved (of 10 randomly selected major developments) against Building for Life criteria.
Health and wellbeing	• Proportion of major housing developments with efficient, easy and affordable access to key services (employment, education, health care and food shopping) by public transport.
Resilience to climate change	• Proportion of major development proposals supported by Design and Access Statements that fully cover climate change requirements.
Housing and economy	• Amount of housing delivered. • Progress against housing trajectory. • A five year deliverable supply of housing land. • Net additional floor space provided.
Resource use	• Provision of housing and commercial development and associated infrastructure in Market Harborough, Lutterworth and Fleckney. • Installed capacity of wind energy schemes.

5 Conclusions

5.1.1 This SEA Adoption Statement demonstrates that a robust SEA process has been progressed alongside plan-making, with appraisal findings feeding-in to decision-making at numerous junctures and consultation being undertaken as necessary.

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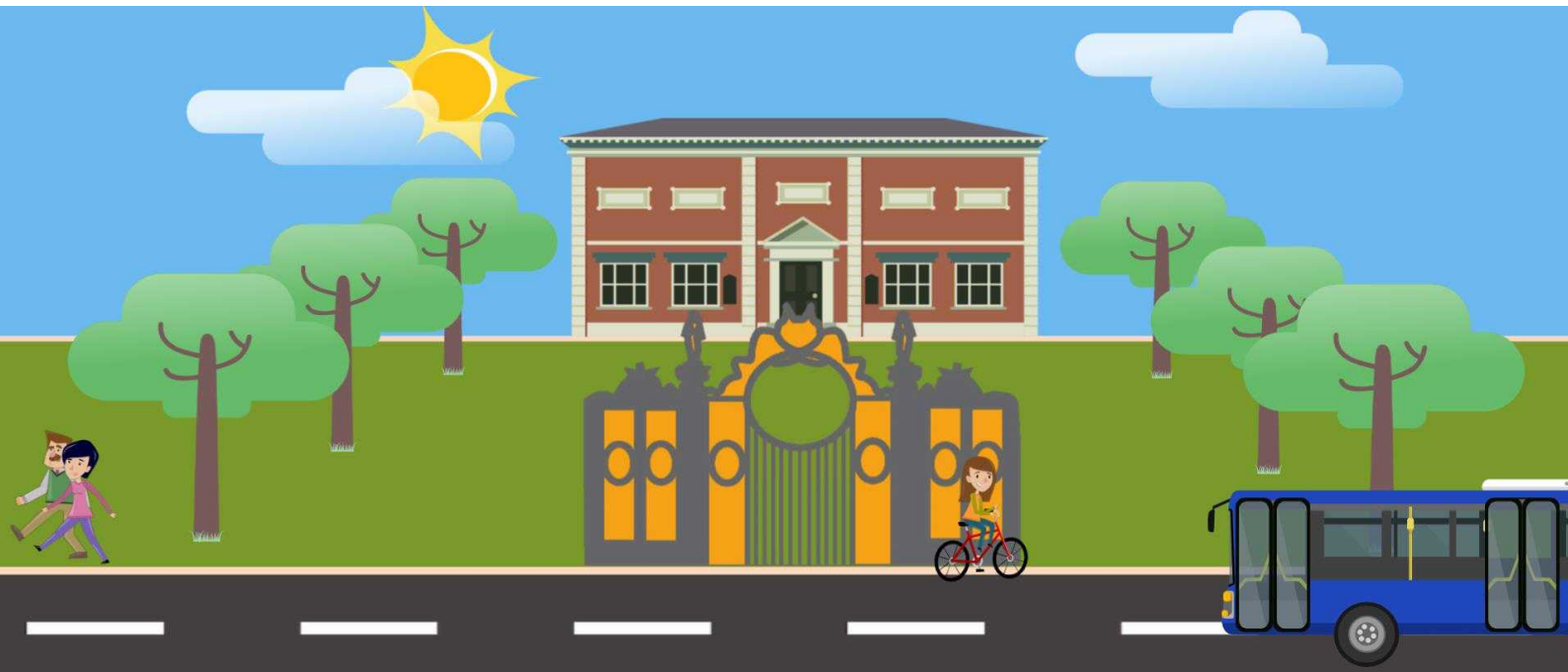
December 2019

WARRINGTON
Borough Council

WARRINGTON FOURTH LOCAL TRANSPORT PLAN



Part A

Defining Our Vision

Foreword

I am delighted to present Warrington's fourth Local Transport Plan.

This is a Local Transport Plan that will support the continued economic success of Warrington, the people who live here, and the companies that choose to do business here.

One of the challenges that we have faced in the development of the Plan has been tackling the impact of local air pollution that is caused by emissions from road vehicles. This has a detrimental impact on people's health in Warrington, particularly in locations close to the major roads in and around the town centre. Congestion in these locations contributes to high levels of nitrous oxides that exceed national standards.

Another challenge that we are aiming to tackle is reducing emissions from our transport network of the Greenhouse Gases that contribute to global climate change.

We have therefore set out a vision in this Plan that will transform the way that we all travel around Warrington. This will reduce the problems that high car dependency and congestion can cause by making walking, cycling, and public transport more attractive options for all of the journeys that we make. It will encourage us to lead healthier lifestyles and support the creation of a more pleasant place for us all to live and work in.

The proposals for significantly increasing the use of sustainable travel modes are supported by a programme of major transport infrastructure improvements. This includes the Western Link, a new high level bridge across the Manchester Ship Canal that has been granted Programme Entry status by the Department for Transport. This will substantially reduce Greenhouse Gas emissions in the town centre and provide the opportunity to transform provision for sustainable transport modes on existing routes into the centre.

Councillor Hans Mundry
Executive Board Member
Highways, Transportation and Public Realm

Table of contents

1 Introduction

Transport is an essential part of our lives as it connects us with jobs, education, healthcare, shopping and leisure. It is a key component of the economy as it links businesses with their workers, customers and clients, whilst providing for the delivery of goods.

Transport shapes our neighbourhoods and influences our lifestyles. Our choice of transport impacts on us as individuals and on our wider environment.

As a transport authority, Warrington Borough Council has a statutory duty under the Transport Act 2000, as amended by the Local Transport Act 2008, to produce a Local Transport Plan (LTP) and to keep the plan under review.

The Local Transport Plan helps us to address current and future local transport issues by providing a framework for decisions on future investment, it:

- sets objectives for transport to support our wider goals and ambitions
- establishes policies to help us achieve these objectives
- contains plans for implementing these policies

The Local Transport Plan is not assessed by or reported on to Central Government. We are accountable to our local community for its quality and delivery. It is therefore vital that this plan reflects the aspirations and priorities of the residents and businesses of Warrington.

1.1 Fourth Local Transport Plan

This is our fourth Local Transport Plan (LTP4). It is presented in three parts, as shown in Figure 2.1:

- Part A defines our vision for transport in Warrington
- Part B sets our policies regarding transport
- Part C is made up of the appendices to Parts A and B

The vision, policies, and actions identified in the Plan cover the period until 2040.

Part A: Defining Our Vision	**What is a Local Transport Plan?** What does the Local Transport Plan do? **Policy Context:** Wider Policies that shape LTP4 **Warrington's Transport Challenges:** Challenges to be addressed through LTP4 **Public and Stakeholder Consultation:** Capturing the views of public and stakeholders in Warrington **Our Transport Vision:** Our Vision Statement and Strategic Priorities **Delivering the Vision:** Our approach to delivering change **Policies to Deliver Our Vision:** The strategy to deliver our vision
Part B: Setting Out Our Policies	**Active Travel:** How we will increase walking and cycling in Warrington **Smarter Travel Choices:** Helping people choose how they travel **Passenger Transport:** How we will Improve bus, rail, and taxi journeys in Warrington **Safer Travel:** Making travelling within Warrington safer **Cleaner Fuels:** How we can support the increased use of greener fuels **Asset Management:** Maintaining the condition of our highway infrastructure **Network Management:** How we will keep traffic moving on our network **Freight Management:** How we will support and manage freight movements
Part C: Appendices	**A: Local Cycling and Walking Infrastructure Plan** **B: Transformational Projects Study** **C: Monitoring and Evaluation Plan** **D: Implementation Plan** **E: Sustainable Modes of Travel to School** **F: Consultation Report**

Figure 2.1 - LTP4 Document Structure

2 Policy Context

It is important that the development of the Local Transport Plan is done so with reference to the policies and strategies of internal and external partners and other bodies who have an interest in improving or managing the transport network. This is not only related to transport policies and strategies but also those which have links to transport from a wider economic, health, environmental or social perspective.

Figure 2.1 sets out the range of policies and strategies that have influenced Warrington's fourth Local Transport Plan, with the key points from each set out in the following sections.

Figure 2.1 - Policies and Strategies that have influenced LTP4 development

2.1 Transport for the North

Transport for the North (TfN) is England's first Sub-national Transport Body. It was formed to transform the transport system across the North of England, providing the infrastructure needed to drive economic growth. It brings together the North's twenty local transport authorities (including Warrington) and business leaders, together with Network Rail, Highways England, and HS2 Ltd and is working with Central Government. TfN enables the North to speak with one voice on the transport infrastructure investment needed to drive transformational growth and rebalance the UK economy.

Transport for the North's Vision is of "a thriving North of England, where modern transport connections drive economic growth and support an excellent quality of life."

In February 2019 Transport for the North published its Strategic Transport Plan [1]which sets out the case for strategic transport infrastructure investment through to 2050. The Strategic Transport Plan focuses on transformational inter-city and pan-Northern connectivity improvements, ensuring that these are each in their own right drivers of economic growth in the North and the UK as a whole. A step change in strategic transport infrastructure investment is vital to achieve the North's economic aspirations by 2050.

There are four pan-Northern transport objectives which have informed the development of the Strategic Transport Plan, as follows:

- Transforming economic performance
- Increase efficiency, reliability and resilience in the transport system
- Improving inclusivity, health and access to opportunities for all
- Promoting and enhancing the built, historic and natural environment

2.1.1 Northern Powerhouse Rail

One of the key proposals in the TfN Strategic Transport Plan that has a potential transformative effect for Warrington is Northern Powerhouse Rail (NPR). An extract of the emerging vision for Northern Powerhouse Rail is shown in Figure 2.2. Northern Powerhouse Rail is aimed at significantly improving capacity, frequency, speed and services between the North's six main cities and Other Significant Economic Centres (OSECs), of which Warrington has been acknowledged as one.

NPR would support economic transformation in the North by delivering faster and more frequent rail journeys linking the North's six main cities with each other and Manchester Airport. It also has potential to provide much improved connectivity for other significant economic centres, and the potential to release capacity on the existing rail network for freight and other local services.

"By 2050 in a transformed North, nearly 10 million people in the North will be within 90 minutes reach of multiple economic centres in the North"

[1] https://transportforthenorth.com/onenorth/

In summary, NPR will bring:

- Improved connectivity to labour markets
- Improved business to business connectivity
- Improved access to universities, research and education
- International connectivity benefits
- Improved freight connectivity
- Improved connectivity for tourism and leisure
- Local growth and place making

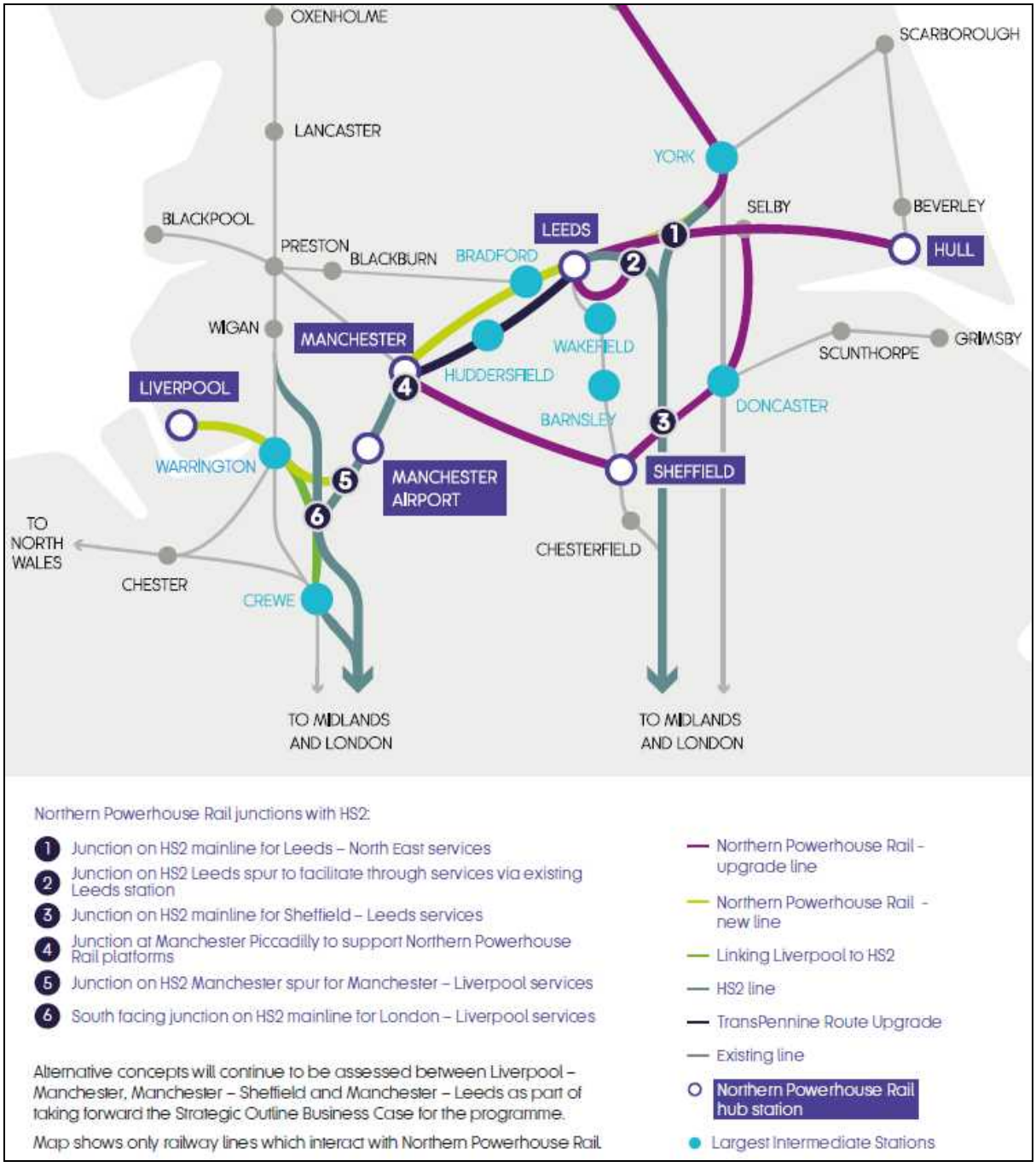


Figure 2.2: Extract of the Emerging Vision for Northern Powerhouse Rail

Transport for the North, in partnership with DfT, HS2 Ltd and Network Rail has developed a Strategic Outline Business Case for Northern Powerhouse Rail as a supporting document to the Strategic Transport Plan, which sets out the core rationale for the intervention and establishes the principle of a stop on the line being located in Warrington.

At this stage however, the exact route of the new line and the location of any station in Warrington is not confirmed. Further study work carried out in the coming months and years is required to analyse a range of strategic options for the route through Warrington and an outcome to this work is expected in the next 18-24 months.

2.1.2 Transport for the North Major Road Network[2]

The Highways England Strategic Road Network covers just 2% of the road network in the North, but it accounts for a significant amount of traffic flow and economic value. For much of the North it is the rest of the road network, or the 'last mile' of a journey, or the vital connections with key railway stations, that can make all the difference as to whether people or goods arrive on time. A focus on the Strategic Road Network alone will not allow the North to achieve aspirations for improved connectivity and economic growth.

A Major Road Network (MRN) for the North has therefore been identified that connects both current economic centres and futures economic growth locations, as well as major transport hubs to enable multi-modal journeys. With local connections alongside strategic roads, it accounts for about 7% of the roads in the North. Roads in Warrington within TfN's MRN include sections of the A49, A57, A56, A50 and A574.

The Department for Transport have also identified a Major Road Network. This is considered further in Section 2.2, with the local extent of both networks shown in Figure 2.4.

2.1.3 Strategic Development Corridors

Transport for the North has identified seven Strategic Development Corridors within its Strategic Transport Plan. These are economic areas where the evidence suggests most progress towards the transformational growth scenario would be made by bringing forward major, strategic rail and road investment over the lifetime of the Strategic Transport Plan especially on some of the crucial east-west corridors. Warrington lies within two corridors; the Wales and West Corridor and the Southern Pennines Corridor.

The West and Wales Strategic Development Corridor[3] is perhaps the most relevant to Warrington, the geographical extent of which is shown in Figure 2.3.

[2] https://transportforthenorth.com/major-roads-network/
[3] https://transportforthenorth.com/strategic-development-corridors/west-and-wales/

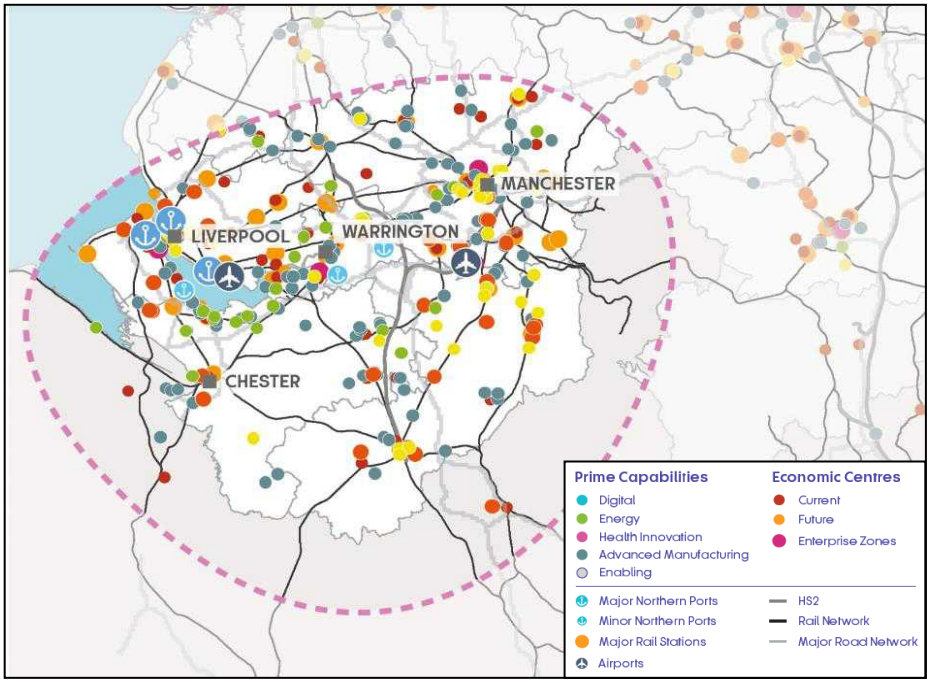


Figure 2.3 - West and Wales Strategic Development Corridor

TfN states that the West and Wales corridor can strengthen the connectivity between important and densely populated economic centres and assets, including some of the North's largest cities, such as Liverpool and Manchester. This corridor will also strengthen strategic cross-border connectivity in to North Wales and the Midlands.

Major strategic interventions can allow the important economic centres within the corridor to capitalise on inward investment and ensure that centres and assets continue to stimulate investment. A number of strategic interventions are relevant to Warrington and are set out in TfN's Investment programme (see section 2.1.4).

2.1.4 Transport for the North Investment Programme

Alongside the Strategic Transport Plan, TfN has published an Investment Programme[4] which comprises TfN's advice to government on the long-term, multi-modal priorities for enhanced pan-Northern connectivity. The programme is split into 4 tables or stages, as follows:

- Table 1 – previously confirmed and funded schemes
- Table 2 – Highways England and Network Rail schemes already in industry processes supported by TfN for a start by 2027
- Table 3 – Additional interventions which TfN recommends are prioritised, developed further and a start on site made before 2027'
- Table 4 – Further potential priorities supported by TfN

[4] https://transportforthenorth.com/wp-content/uploads/TfN-final-investment-programme-19-20.pdf

The following schemes and packages of interventions are relevant to Warrington:

Table 1	HS2	Phase 2a - High speed rail line extending Phase 1 to Crewe
	HS2	Phase 2b - High speed rail line to Manchester and Leeds, connecting to the West and East Coast Main Lines
	Rail	Capacity improvements including longer/additional platforms at Manchester Oxford Road and Manchester Piccadilly stations
	Rail	Warrington West New rail station
	Road	Road Investment Strategy 1, including M6 J22-25 & M62 J10-13 Smart Motorways
	Road	Warrington Western Link[5]

Table 2	HS2	High speed rail hub at Crewe, including Crewe North Junction

Table 3	Road	M56 Junctions 11 to 15 Capacity Improvements

Table 4	NPR	Liverpool to Manchester Airport Corridor (new line)
	HS2/NPR	Warrington Bank Quay station (or integrated station at Warrington)
	Road	M6 improvements including Junctions 19 to 21A
	Road	M62 Junctions 5 to 10
	Rail	CLC line (capacity and service improvements) & Birchwood P&R
	Road	Warrington 'New City' transport improvements package

In addition to the scheme listed above, TfN has a number of other workstreams, the most significant of these is Integrated and Smart Ticketing which is described in section 6.6.

2.2 Department for Transport Major Road Network

Following a public consultation which took place in early 2018, the Department for Transport recently confirmed which roads are to be included in their version of the Major Road Network. Strict criteria were applied by the DfT in determining which roads should be included relating to the level of traffic flow and proportion of heavy goods vehicles. This has resulted in this network containing substantially fewer roads than the TfN version. It is important to note that a proportion of the National Roads Fund (the ring-fencing of Vehicle Excise Duty due to commence in 2020) will be allocated to improvement schemes on this network.

Roads in Warrington within DfT's MRN include A49 from M6 Junction 22 to Brian Bevan Island and A5060/A56 Chester Road from Brian Bevan Island to Halton borough boundary.

[5] Western Link included in Table 3 in Strategic Transport Plan prior to Programme Entry Status announcement

The TfN Major Road Network, the DfT Major Road Network and how they interact with the Strategic Road Network in and around Warrington is shown in Figure 2.4.

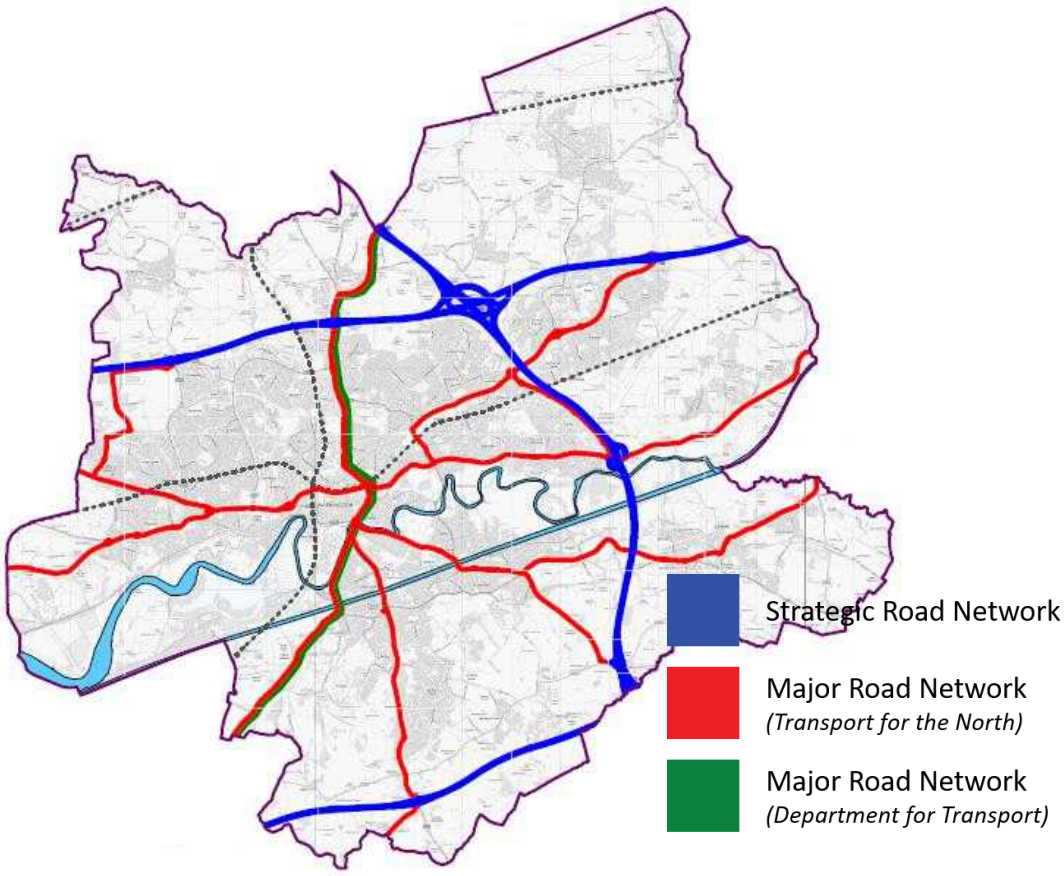


Figure 2.4 – Major Road Networks and Strategic Road Network

2.3 Cheshire and Warrington Local Enterprise Partnership

The Strategic Economic Plan (SEP[6]), produced by the Cheshire and Warrington Local Enterprise Partnership (CWLEP), covers the period up to 2040. It sets out an ambitious growth strategy for the sub-region focussing on delivering a £50 billion a year economy in terms of Gross Value Added. The SEP identifies the need for growth to be targeted in key growth opportunity areas including through the identification of four areas of focus:

- Cheshire Science Corridor
- Mersey Dee Economic Axis
- Constellation Partnership
- Warrington New City

Transport and connectivity will be central to achieving Cheshire and Warrington's aspirations for growth and supporting economic development, in particular to these spatial priorities. Effective transport networks will be crucial for the continued success of the sub region as an attractive place in which to live and do business. Improved connectivity is a central and recurring theme of the SEP. Improving accessibility will be essential for the unlocking of

[6] http://www.871candwep.co.uk/resources/revised-strategic-economic-plan/

strategic and wider development sites for housing and employment as well as relieving the many congested areas of the local and strategic transport networks.

The SEP Transport Strategy that complements the SEP was consulted on in 2018. This identifies the key challenges for the transport network in Cheshire and Warrington:

- Accommodating development growth
- Congestion on strategic routes
- Sub regional movement
- Cross boundary movement
- Rural connectivity
- Dominance of car for mode share
- Low bus use
- Modernising local rail services
- Increasing levels of cycling and walking
- Digital connectivity

The CWLEP Transport Strategy[7] includes a number of proposed schemes that are seen as essential to achieving Cheshire and Warrington's growth plan.

2.4 Warrington Borough Council Corporate Strategy[8]

The Warrington Borough Council Corporate Strategy for 2012-20 sets out our vision for Warrington:

We will work together with our residents, businesses and partners to create a place that works for all.

The priorities set out in the Corporate Strategy are shown in Table 2.1.

Our Pledges	Priorities
Opportunities for the Most Vulnerable	Ensure the safety and wellbeing of our vulnerable adults and children
	Support people to live as independently as possible
	Provide access to quality care, support education and learning provision
Grow a strong economy for all	Invest in, maintain and build the town's economic, cultural and environmental infrastructure
	Ensure the borough is well connected and accessible
Build strong, active, and resilient communities	Ensure there are sufficient numbers of new homes and good quality and affordable housing to meet local need and support growth
	Promote and support healthy, prosperous and vibrant communities
	Ensure our residents are well educated, skilled and have opportunities

[7] http://www.871candwep.co.uk/resources/draft-transport-strategy/
[8] https://www.warrington.gov.uk/info/201114/publications-and-strategies/45/corporate-strategy-2018-20

Our Pledges	Priorities
	to learn and work
Create a place to be proud of	Work with the community to ensure our streets are clean, safe and tidy
	Create a cultural vision and plan, celebrating the town's history and heritage

Table 2.1 - Corporate Strategy Priorities

The Local Transport Plan will directly contribute to a number of these priorities, such as investing in infrastructure, ensuring that the borough is accessible and making streets safer. Transport supports the delivery of others by connecting communities to services and employment.

2.5 Warrington Emerging Local Plan[9]

LTP4 includes policies and actions intended to address current transport challenges in the borough, and sets out a vision to support economic and housing growth.

The Proposed Submission Version of our Local Plan was subject to public and stakeholder consultation at the same time as the draft LTP4. Following consultation the Local Plan will be submitted to the Planning Inspectorate and be subject to Public Inquiry.

The Proposed Submission Version outlined significant housing and employment growth across the Borough. It is vital that our transport networks are able to support this growth. The LTP4 was developed alongside the Local Plan to allow us to identify a strategy that supports the growth in the number of trips.

The vision of the Proposed Submission version of the Local Plan was:

Vision – Warrington 2037
By 2037, Warrington will be a place that works for all:

- Providing opportunities for the most vulnerable
- With a strong economy that benefits everyone
- With strong, active and resilient communities
- Will be a place to be proud of

Warrington's growth will be positively planned to ensure that new homes, jobs and businesses are supported by major improvements to the Borough's infrastructure, to the benefit of existing and new communities alike.

Warrington will consolidate its position as one of the most important economic hubs in the UK and will see the development of major new employment locations. Its highly skilled workforce will support a wide range of economic activities, including engineering, hi-tech manufacturing, business services, logistics and research and development.

[9] https://www.warrington.gov.uk/info/200564/planning-policy/1903/local-plan

Warrington's central position within the Northern Powerhouse provides businesses with unrivalled access to the Manchester and Liverpool conurbations, the Manchester Ship Canal and the national road and public transport networks. The future intersection of the two new major national rail routes, HS2 and Northern Powerhouse Rail, in Warrington will further enhance the Town's strategic connectivity.

New housing development will support Warrington's economic growth and will be focused on creating attractive, well designed, sustainable and healthy communities. New homes will meet a wide range of needs including those of families, those struggling to afford their own home, elderly people and disabled people.

The character of Warrington's places will be maintained and enhanced with a vibrant town centre and main urban area, surrounded by attractive countryside and distinct settlements. The unique elements of the historic, built and natural environment that Warrington possesses will be looked after, well managed, well used and enjoyed.

Warrington's rich green space network (comprising radial green routes and the circuit of parks and open space encircling the Town Centre and Waterfront) together with its extensive network of waterways will provide a framework for Warrington's growth and key development areas. Major new parks, new green links and increased access to river and waterside frontages will improve leisure opportunities and increase the borough's biodiversity.

New development will be successfully integrated into Warrington's transformed public transport system. The enhanced Green Space and Waterways network will provide popular, high quality walking and cycling routes that promote active lifestyles, reduce carbon emissions and contribute to improving air quality.

The Mersey valley running though the centre of the town together with the river itself and the Ship Canal will provide an attractive setting for new development at Warrington Waterfront and the regeneration and development of the Town Centre. The Town Centre and Warrington Waterfront will become a focus for urban living with higher density residential developments. The town centre will strengthen its role as the hub of the Warrington's commercial and recreational life with a greatly enhanced cultural offer.

New development will be energy efficient and Warrington will generate a greater proportion of its energy needs from renewable sources. The Town will be at the cutting edge in the use of new technologies – particularly in terms of communications and information and low / zero emission vehicles. Warrington will be a 'smart' place.

Warrington's levels of recycling will continue to increase, whilst municipal and commercial waste will be reduced. New waste facilities will ensure that residual waste is sustainably managed. Warrington's mineral resources will be protected and contribute to the region's future resource needs.

2.6 Warrington Means Business[10]

Warrington Means Business is Warrington Borough Council's and Warrington and Co's programme to drive economic growth in the borough and release the true potential of the place and its people. It does not set policy, but provides an overarching programme to deliver transformational projects and support the Council's policy framework.

The aspiration that underpins Warrington Means Business is to: *Unleash the potential of Warrington's people, its businesses, its connectivity and its place, to accelerate economic growth and reinforce Warrington as a strong national driver of prosperity.*

Warrington Means Business will reinforce Warrington as a place that is:

- Smart and connected - digitally, nationally and locally
- Best for business with the best places for business
- Talented with talented people
- Clean and green - moving towards being carbon neutral
- Liveable and attractive - to live, work, visit and do business
- Vibrant and dynamic - with an urban lifestyle focused on the town centre
- Inclusive - where everyone can enjoy the benefits of the town's success
- Outward-looking and confident - working on a larger footprint and in partnership.

Warrington Means Business sets out a number of key strategic connectivity projects that will enhance our national and regional connectivity. These are:

- Rail and the Warrington National Rail Hub focused on Warrington Bank Quay station.
- Freight and Port Warrington
- Motorways and Warrington's Strategic Orbital
- Aviation - Manchester and Liverpool John Lennon Airports
- Digital Connectivity and the Smart Town.

2.7 Warrington Health and Wellbeing Strategy

The vision of the Health and Wellbeing Strategy is "Warrington is a place where we work together to create a borough with stronger neighbourhoods, healthier people and greater equality across all our communities." Transport plays an important part in delivering that vision. The priorities of the strategy that transport can directly support are:

[10] https://www.warrington.gov.uk/sites/default/files/2019-11/111119_cabinet_-_agendapack.pdf

- Communities are strong, well connected, and influence the decisions that affect them
- All local people have access to, and benefit from, a strong economy with quality local jobs
- Housing and the environment enable people to make healthy choices
- Children and young people get the best start in life in a child friendly environment
- There is a strong system-wide focus on promoting wellbeing, preventing ill-health and addressing inequalities.
- There is a sustained focus on addressing lifestyle risk factors and protecting health

2.8 Central Area Action Plan

At the same time that draft LTP4 was being consulted on, stakeholder engagement to inform a Regeneration Masterplan and associated Action Plan for the Central Area of Warrington was also being undertaken. This stakeholder feedback has been used to inform transport policy in LTP4.

Delivery of the projects within the final Central Area Masterplan will be fundamental to the overall success of other key strategies, including LTP4, in particular in terms of inclusive growth and well-connected, economically vibrant and healthy communities.

2.9 Warrington Air Quality Action Plan[11]

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas. Warrington Borough Council is committed to reducing the exposure of people in Warrington to poor air quality in order to improve the health and wellbeing of our residents.

The Council's Air Quality Action Plan (AQAP) sets out a number of actions to try to improve air quality specifically within Air Quality Management Areas (AQMAs) but also across the wider borough. The AQAP initially focuses on a framework of policies and plans that will support wider actions to improve air quality. The AQAP will be amended and updated as necessary to take into account measures that have been completed and new evidence of air quality impacts.

The actions in the current 2018 AQAP relevant to the Local Transport Plan are shown in Table 2.2.

[11] https://www.warrington.gov.uk/info/201090/environmental-issues/2024/air-quality-and-pollution

Type of Action	Action	Summary Description
LTP4 Development	Walking and Cycling Strategies and Programme	A Local Cycling and Walking Infrastructure Plan will be developed and adopted as a daughter document of LTP4.
	Public Transport Strategy and Programme	A new Public Transport Strategy will be developed within LTP4 aimed at making public transport a more attractive choice for people in Warrington.
	Cleaner Fuels Strategy and Programme	As part of the programme to develop LTP4 we will develop a strategy focussing on encouraging the uptake and use of Electric Vehicles.
	Smarter Choices Strategy and Programme	We will develop a new Smarter Choices Strategy, complementary to other strategies such as Cycling, Walking, Cleaner Fuels, and Public Transport.
	Taxi Strategy and Programme	As part of the review for LTP4 we will be developing an updated Taxi Strategy that will seek to reduce emissions from taxis
Wider Policies	Council Procurement Policies	Warrington Borough Council's procurement policies will be reviewed to encourage and prioritise the use of Low Emission Vehicles
	Clean Air Zone Feasibility Study	Clean Air Zones are being considered at locations across the UK where there is an identified need to reduce the number of the most-polluting vehicles entering an area. We will commission a study to inform a decision about implementing such a zone in Warrington
Transport Interventions	Highways England / TfN Working Group	Actions to improve air quality by the Council within the Motorway AQMA are limited. A formal working group is to be set up between transport officers from the Council, Highways England and TfN to assess potential actions. The working group is likely to deliver this work as an agenda item within existing transport meetings
	Warrington Intelligent Transport System	Warrington was awarded c. £300k from Department for Transport to produce a pilot system which monitors journey time on key corridors. We will seek further funding to increase the use of new technologies.
	Chester Road Cycle Way	Create a promenade route alongside the River Mersey and A5060 Chester Road Super Route, linking the Trans-Pennine Trail to Town Centre via Centre Park
	Burtonwood to Omega Cycling/ Walking Link	A shared use path alongside Burtonwood Road/Clay Lane, and upgrade Barn Lane to provide link between Burtonwood and Omega/Gemini.
	Warrington West Rail Station	A new station that will support more sustainable commuting.
	Highway Infrastructure Programme	Programme of highway improvements that includes: • Centre Park Link • Warrington Western Link

Table 2.2 - Relevant Actions from the Air Quality Action Plan

3 Warrington's Transport Challenges

Warrington's continued success as a place to both live and work is dependent on a transport network that is safe, convenient, and reliable for users of all transport modes. The role of this LTP4 is therefore to support the development of that network by addressing current problems; and identify improvements that support growth.

3.1 Addressing Car Dependency and Congestion

One of the most significant challenges facing Warrington is the dependency on car travel. The New Town development pattern has favoured the car. Warrington has very high car ownership levels (81%) and this is above the 74% national average. As a result, the car is the travel mode of choice in Warrington and dominates the highways network. The travel to work modal split from 2001 and 2011 Census data, shown in Table 3.1, shows that nearly three quarters of Warrington residents drive to work.

Travel to Work Mode	2001		2011		Mode Share Change	Change in Absolute Number of trips
	Number	%	Number	%	%	%
Underground, metro, light rail, tram	157	0.2	142	0.2	0	-9.6
Train	1,128	1.3	2,068	2.3	1.0	83.3
Bus, minibus, coach	4,775	5.7	4,946	5.4	-0.3	3.6
Taxi	414	0.5	368	0.4	-0.1	-11.1
Motorcycle, scooter, or moped	1,028	1.2	677	0.7	-0.5	-34.1
Driving a car or van	60,413	72.1	67,670	73.9	1.8	12.0
Passenger in a car or van	5,972	7.1	5,650	6.2	-0.9	-5.4
Bicycle	2,936	3.5	2,577	2.8	-0.7	-12.2
On foot	6,599	7.9	7,038	7.7	-0.2	6.7
Other	323	0.4	384	0.4	0	18.9

Table 3.1 Travel to Work Modal Share in Warrington 2001-2011[12]

The dominance of the car has led to the priority for other travel modes being reduced and serious congestion problems within the town. Cars, particularly when single occupancy, make poor use of available road space and offer a less energy efficient means of travel compared to sustainable transport modes.

Car dependency in Warrington compares unfavourably nationally, with other parts of the North West, and with other new town areas across the U.K. that we can use for benchmarking, as shown in Figure 3.1.

[12] https://www.nomisweb.co.uk/census/2011/qs701ew

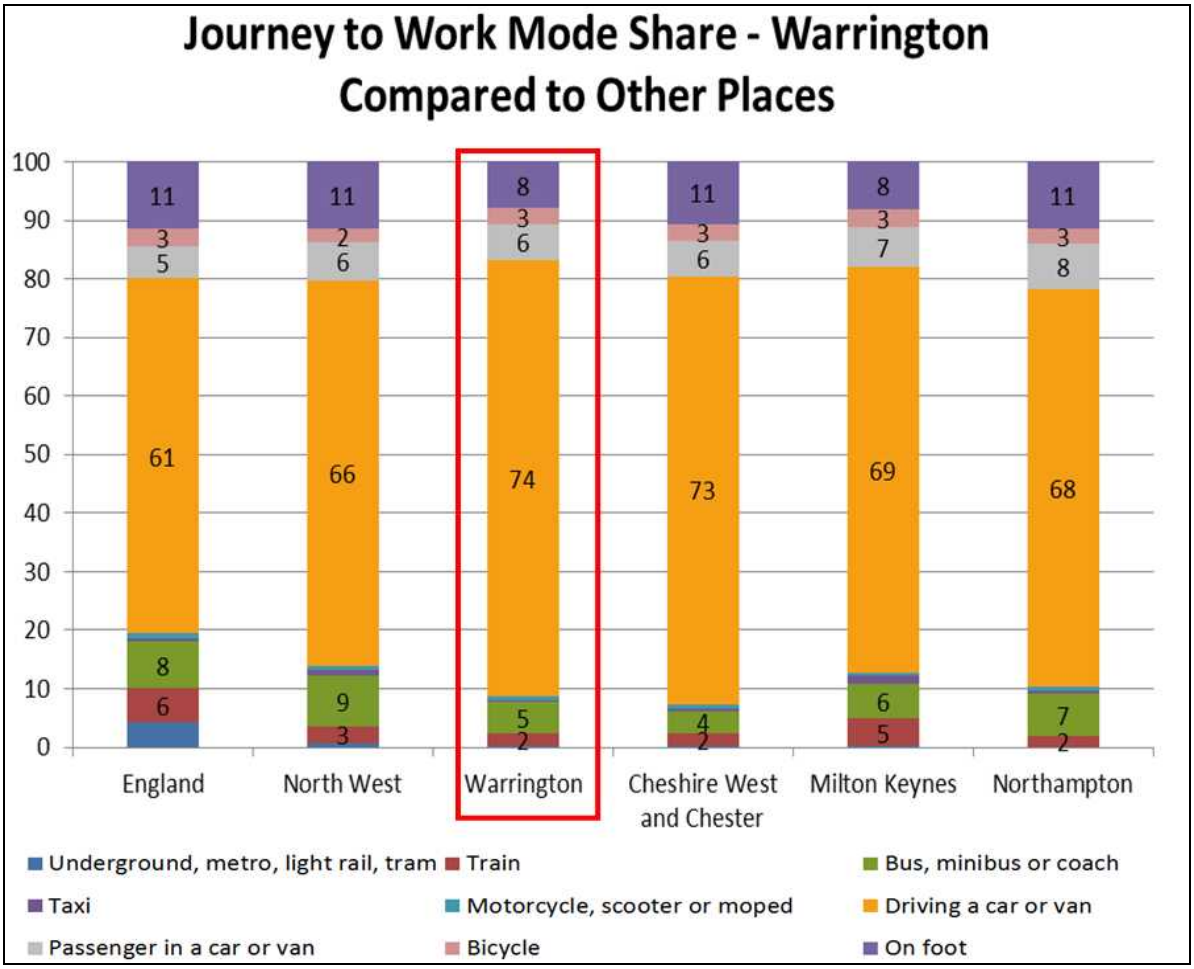


Figure 3.1 - Journey to Work Mode Share Compared to other places (Census 2011[13])

Department for Transport data shows that between 2008 and 2018, car traffic has fluctuated over time but it has increased overall. For this data 'Major Roads' are considered to be motorways and all class 'A' roads. Total traffic on major roads in Warrington is shown in Figure 3.2.

Higher than average levels of car use is causing congestion in Warrington, leading to longer and less reliable journey times:

- Average journey times in the morning peak are approximately three minutes to travel one mile across 'A' roads. This is lower than the main metropolitan centres of Merseyside and Greater Manchester but higher than adjacent authorities. Full details are provided in Table 3.2
- In the town centre, Wilson Patten Street, as an example, has an average speed less than 10mph in peak periods, which is comparable with the average commuter cycling speed.
- Away from the town centre, the A574 (Birchwood Way) from the M6 during the morning peak has an average speed of 15-20mph, compared to 40mph during the inter-peak

[13] https://www.nomisweb.co.uk/census/2011/qs701ew

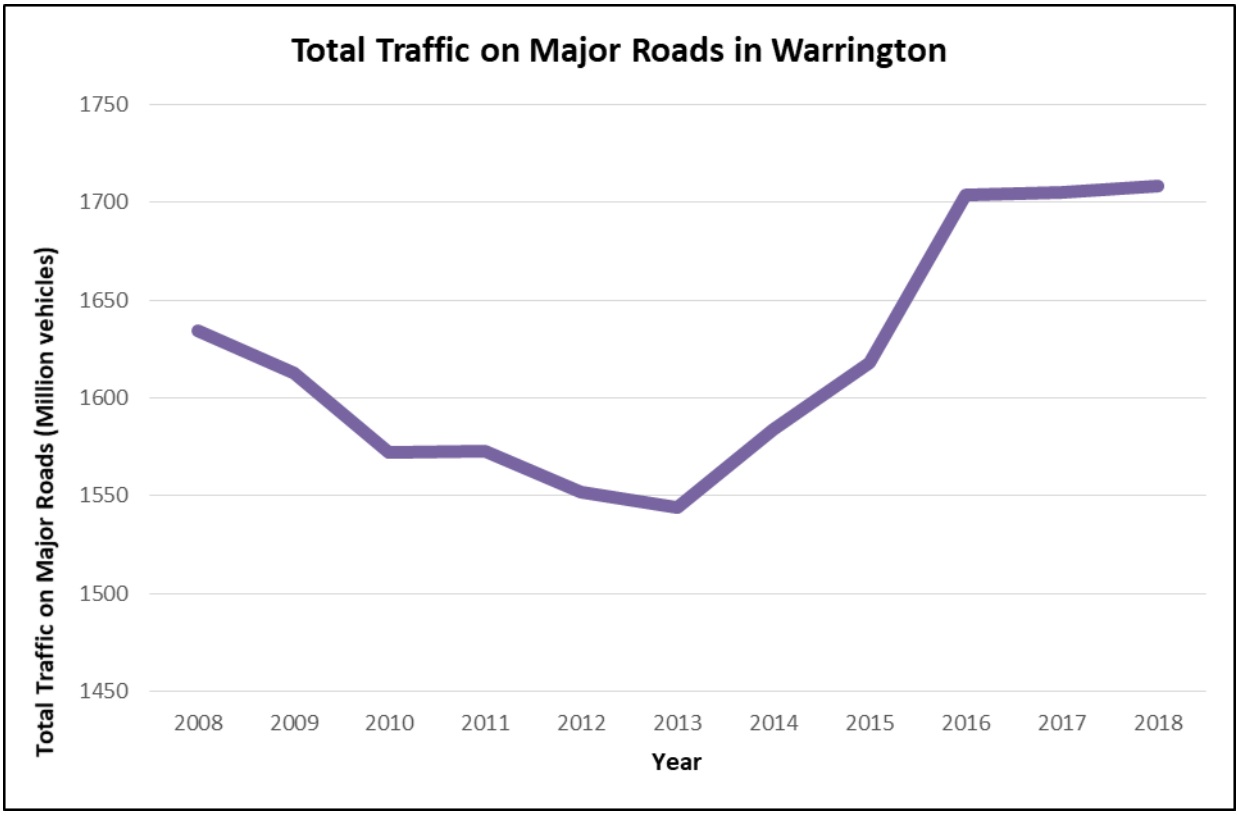


Figure 3.2 - Total Traffic on Major Roads in Warrington[14]

Through LTP4, we should be seeking a modal shift away from the high levels of car use towards greater use of more sustainable travel modes. Subsequently, the challenge is to develop a strategy which reduces the reliance on car travel, and in tandem, enhances the competitiveness and attractiveness of public transport and active travel. This is to ensure residents can continue to access employment and the services they need. This will help increase mobility and offer a healthier and less harmful way of travelling for residents.

Area	Average Delay compared to inter peak (Seconds per vehicle per mile)				
	2015	**2016**	**2017**	**2018**	**Change 2017-18**
North West	49.5	50.9	53.9	53.8	-0.1%
Cheshire East	31.3	33.3	36.4	35.6	-2.1%
Cheshire West	31.2	32.4	34.5	32.6	-5.5%
Halton	26.7	33.2	34.2	25.8	-24.7%
Warrington	**54.0**	**53.6**	**56.5**	**50.7**	**-10.2%**
Greater Manchester	66.9	71.8	76.0	77.6	2.1%
Merseyside	54.7	56.0	61.7	62.1	0.7%

Table 3.2 - Average delay on local A roads during weekday morning peak (7-10am)[15]

[14] https://roadtraffic.dft.gov.uk/local-authorities/74
[15] https://www.gov.uk/government/statistical-data-sets/average-speed-delay-and-reliability-of-travel-times-cgn

3.2 Grow Bus Patronage

The number of people choosing to travel by bus in Warrington has reduced significantly in recent years prior to levelling off in 2016/17, as shown in Figure 3.3. This reduction has been greater than the change seen in neighbouring areas.

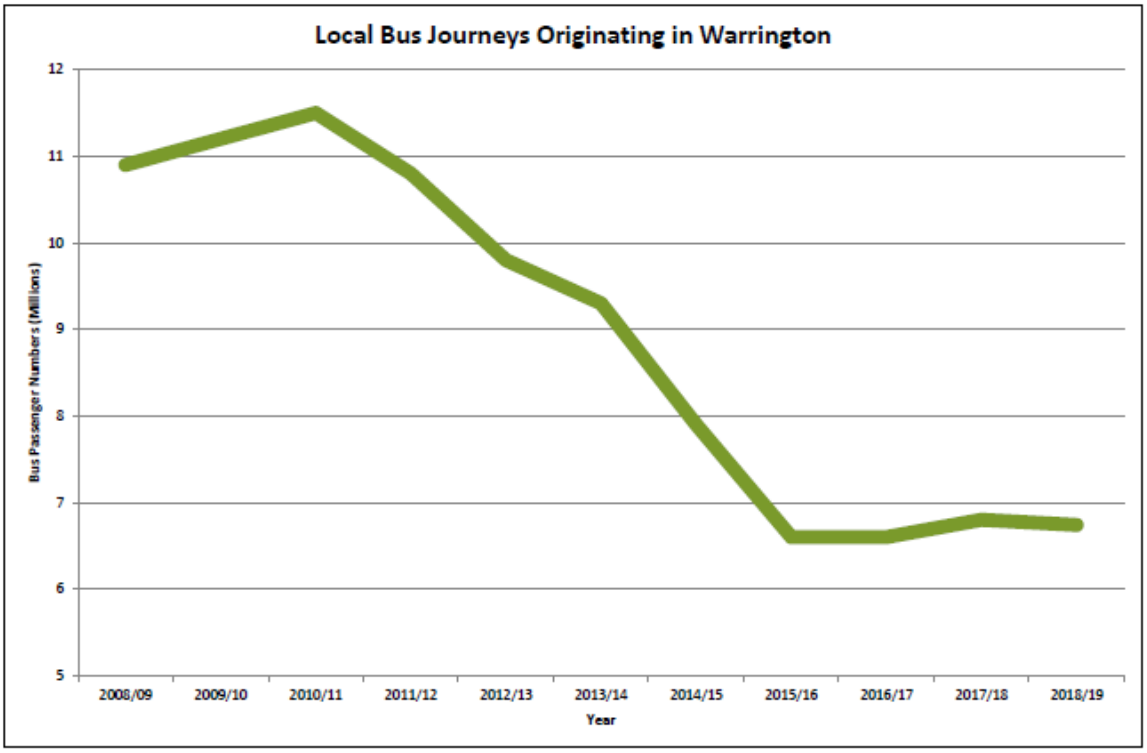


Figure 3.3 - Local Bus Journeys Originating in Warrington[16]

The network of services has witnessed regular change in recent years, in terms of routes, frequencies and – until 2016 – regular fare increases. Public funding for socially necessary bus services has dramatically reduced during the LTP3 period as a consequence of austerity. Through LTP4, bus services need to be made more attractive to be able to compete with private car travel. The routing of services, price of bus fares and unreliability caused by congestion have all been identified as factors that reduce the appeal of using the bus.

3.3 Continuing the Trend in Rail Usage

Whilst the number of people using bus services in Warrington has declined, the number of people choosing to travel by rail has increased significantly, as can be seen in Figure 3.4. Usage of stations in Warrington has more than doubled since 2002/03. Whilst all of the stations in Warrington are seeing increased passenger numbers, the stations that are located close to large employment sites act as both the origin of people's rail journeys to Manchester and Liverpool, but also as a destination for people travelling in to the borough to work. This is particularly true for Warrington Central, Warrington Bank Quay and Birchwood, and is expected to be the case at Warrington West once the new station is open.

[16] https://www.gov.uk/government/statistical-data-sets/bus01-local-bus-passenger-journeys

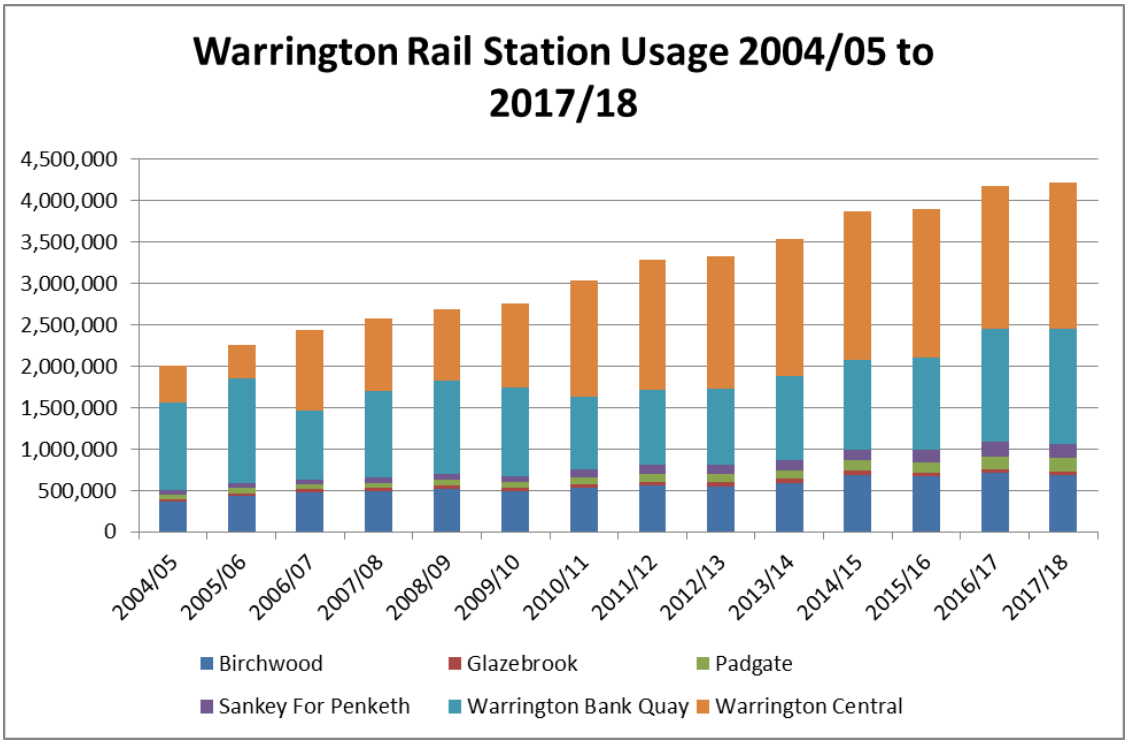


Figure 3.4 - Warrington Rail Station Usage 2004/5 to 2017/18[17]

In LTP4 the challenge relating to rail travel is to continue the upward trend in rail usage. This will entail ensuring the best possible services available to and from Warrington stations, and making those stations easily accessible by sustainable modes.

3.4 Improving the Walking and Cycling Offer

Cycling levels for commuting in Warrington are slightly below the national average, as is demonstrated by the 2011 Census Travel to Work data in Table 3.3. Stakeholder feedback has suggested that the dominance of the car and lack of priority in key areas of Warrington make active travel uncomfortable in areas of the borough. With this, it brings concerns over safety and reduces the appeal of cycling and walking.

Area	% by bike
England	3.0%
England & Wales	2.9%
North West	2.2%
Cheshire East	2.6%
Cheshire West & Chester	2.7%
Halton	2.1%
Warrington	**2.8%**

Table 3.3 - Travel to Work by Cycling [18]

[17] http://orr.gov.uk/statistics/published-stats/station-usage-estimates
[18] https://www.nomisweb.co.uk/census/2011/qs701ew

However, local cycle count data suggests that the amount of cycling in Warrington is increasing, as shown by Figure 3.5. Cycle count data shows a 52% increase between 2006 and 2019.

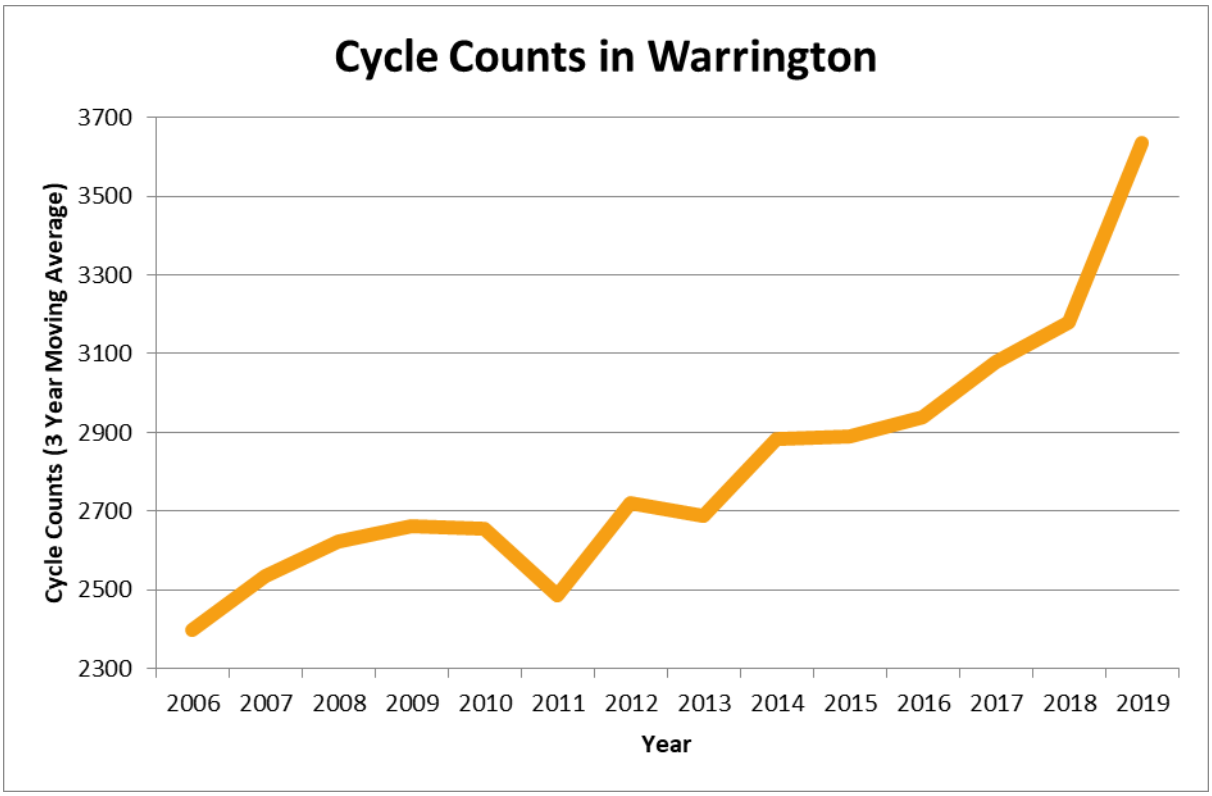


Figure 3.5 - Cycle Counts in Warrington[19]

Through LTP4 we are seeking to improve cycling and walking in Warrington with the development of a comprehensive active travel strategy. To make the 'Place' more cycle and pedestrian friendly we will need to:

- Improve cycling penetration into Warrington town centre
- Create a more consistent and enhanced cycle infrastructure across the borough
- Enhance cycle interchange and end user facilities
- Reduce the level of conflict between active travel users and highways traffic
- Address perceived levels of danger of cycling and walking
- Deliver high quality active travel infrastructure within new developments
- Enhance the quality of the pedestrian environment within the town centre and district centres

3.5 Improving Air Quality and Reducing Transport Noise

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of a wide number of health conditions including heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with existing poor health.

[19] Warrington Borough Council Cycle Count Data

There is often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas.

Warrington Borough Council is committed to reducing the exposure of people in Warrington to poor air quality in order to improve the health and wellbeing of our residents.

There are areas in Warrington close to major roads where levels of nitrogen dioxide (NO2) are high and exceed national standards. Two Air Quality Management Areas have been declared, and these are shown in Figure 3.6.

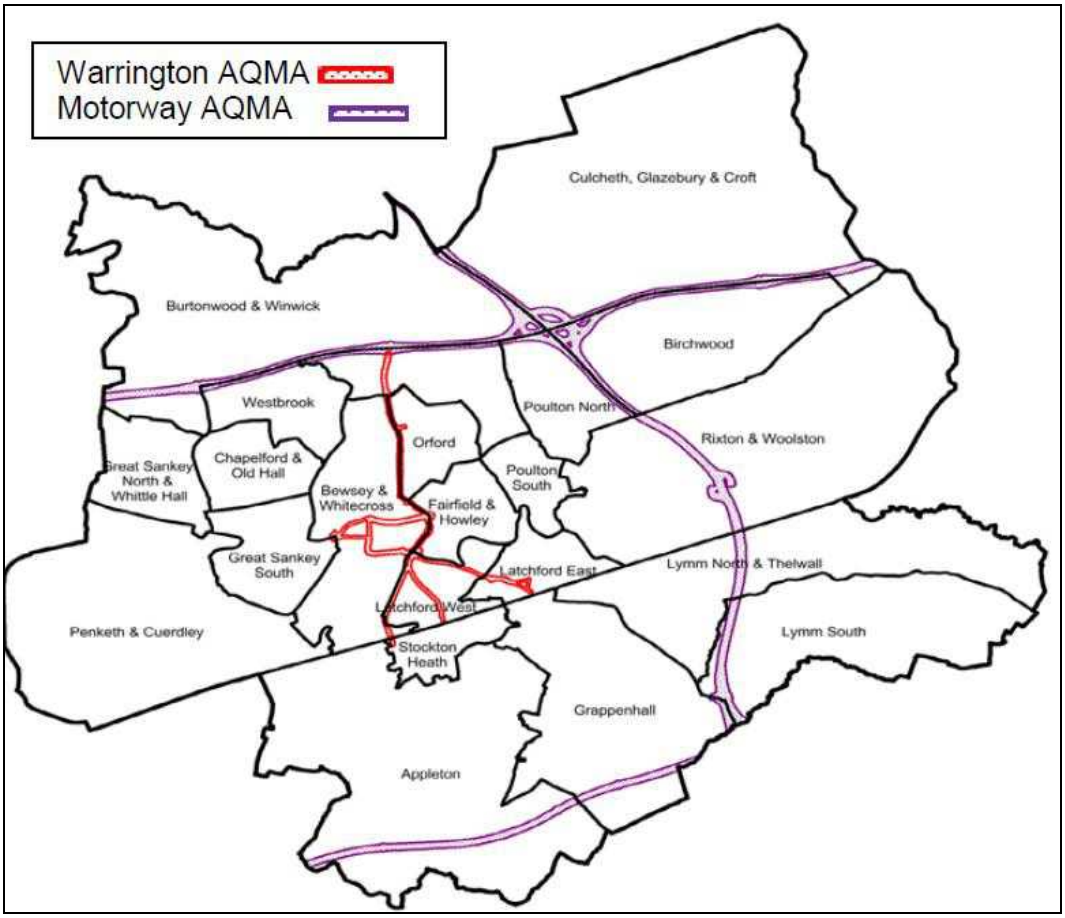


Figure 3.6 - Air Quality Management Areas in Warrington

In addition to NO2, there are health concerns over exposure to fine particulate matter known as PM2.5. There are no set national standards to be applied at a local level for this pollutant, but at some locations close to major roads there are concentrations close to, and above, the guideline value recommended by the World Health Organization.

The growth aspirations as set out in the Council's Local Plan have been assessed for air quality changes across the borough. Air quality is predicted to improve over the next 20 years if the improvements in engine technology and uptake of low emission vehicles through national and local policies are realised. Whilst NO2 is expected to significantly improve, concentrations of PM2.5 will see less of a reduction and will remain of concern.

Vehicle emissions are the main local source of air pollution. 50% of NOx transport related emissions in Warrington are from diesel cars with 38.7% from diesel goods vehicles and buses. Petrol engines are less harmful in terms of NOx (11.3% of emissions).

Non-exhaust emissions (NEE) are particles released into the air from brake wear, tyre wear, road surface wear and resuspension of road dust during on-road vehicle usage. These emissions arise regardless of the type of vehicle and its mode of power. No legislation is currently in place specifically to limit or reduce non-exhaust emission particles.

A report on Non Exhaust Emissions from Road Traffic[20] that was prepared by the Air Quality Expert Group for Defra states that the available data indicate that brake, tyre and road-surface wear contribute approximately equally to UK sources of these emissions. They are predominantly derived from cars because of the much greater vehicle-km travelled for this class of vehicle. NEE particles are also an important source of metals to the atmosphere including copper and zinc. Higher emissions occur on urban roads, owing to the greater braking per km than on non-urban roads.

The most effective mitigation strategies for NEE are to reduce the overall volume of traffic, lower the speed where traffic is free-flowing, and promote driving behaviour that reduces braking and higher-speed cornering.

It is vital that we aim to improve health by reducing air quality related transport emissions through LTP4. This can be done by increasing the use of cleaner transport modes and by reducing the number of vehicles on our roads.

There are locations within Warrington which are identified as Noise Important Areas. At these locations road noise is at a level where 1% of the national population are affected by the highest noise levels from major roads according to the results of national strategic noise mapping. The population at these locations are likely to be at the greatest risk of experiencing a significant adverse impact to health and quality of life as a result of their exposure to road traffic noise. It is important that we aim to reduce traffic noise impacts through LTP4.

3.6 Transport Inequalities in Warrington

The existing transport situation is not the same across the whole borough and for all sections of our community. For example, whilst Warrington as a whole is a car dominated place, with the number of households with no car lower across the borough (19%) than the England national average (26%), the converse is true for Inner Warrington, where car ownership is much lower than it is in the more suburban and rural areas of the borough, as shown in Figure 3.7.

[20] https://uk-air.defra.gov.uk/assets/documents/reports/cat09/1907101151_20190709_Non_Exhaust_Emissions_typeset_Final.pdf

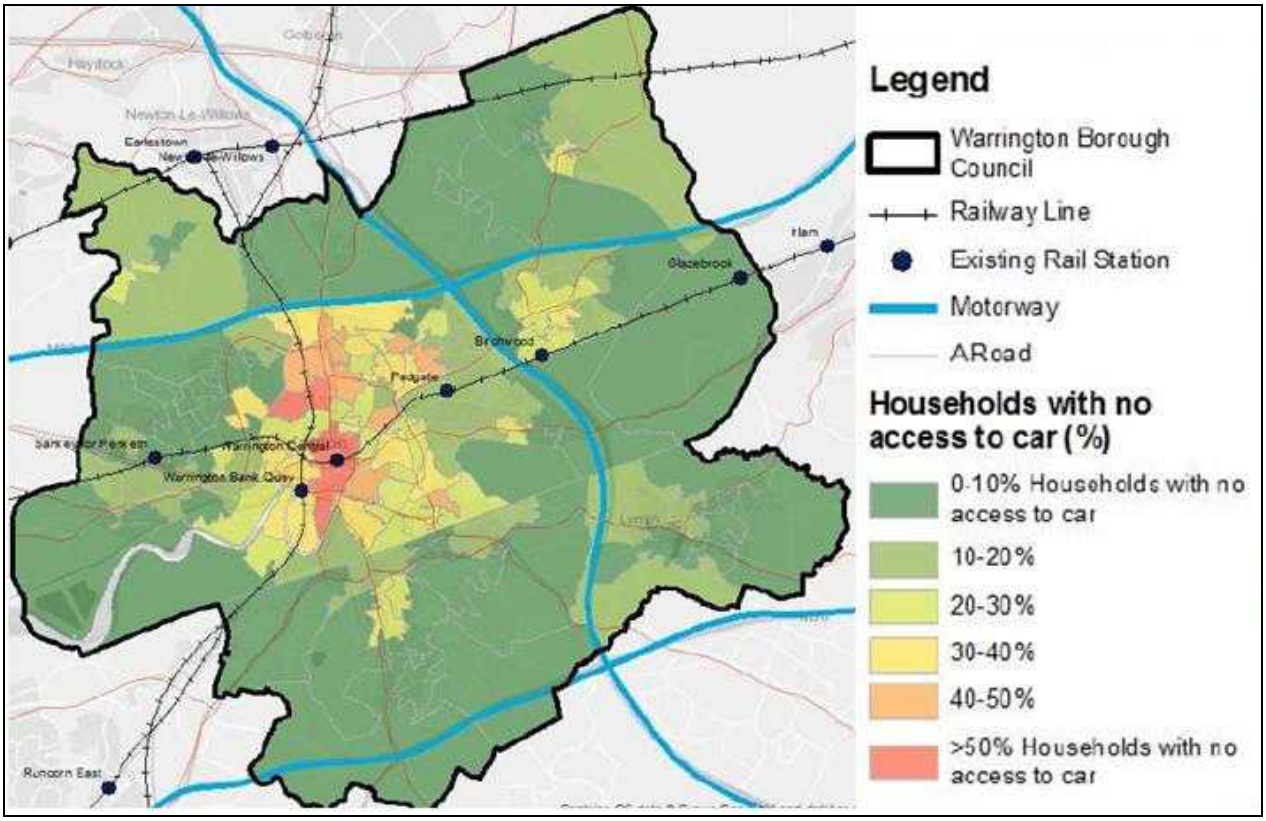


Figure 3.7 - Access to a Car in Warrington[21]

This means that the car dependent culture seen across much of the borough is not reflected in the central neighbourhood. People living closer to the centre of Warrington are more likely to walk, cycle and use the bus for day to day journeys, than people who live further from the centre. Council strategy documents, particularly the Central Area Masterplan, aim to improve the economic prosperity of this area. It is important that that prosperity is supported by transport improvements that provide residents with a choice of travel modes so that increased private car usage is not a by-product of prosperity.

A comparison between Figures 3.6 and 3.7 also suggests that whilst residents of the central neighbourhood are more likely to be affected by poor air quality, they are less likely to be the source of the pollution.

For public transport, an inequality also exists between the urban and rural areas of the borough, with access to the town centre taking significantly longer from the rural areas of the borough. Figure 3.8 shows the journey times to Golden Square by public transport in minutes. The journey time for residents living in the north east and south east of the borough can take up to an hour, making travel by public transport unappealing.

[21] 2011 Census Data Analysed by Aecom

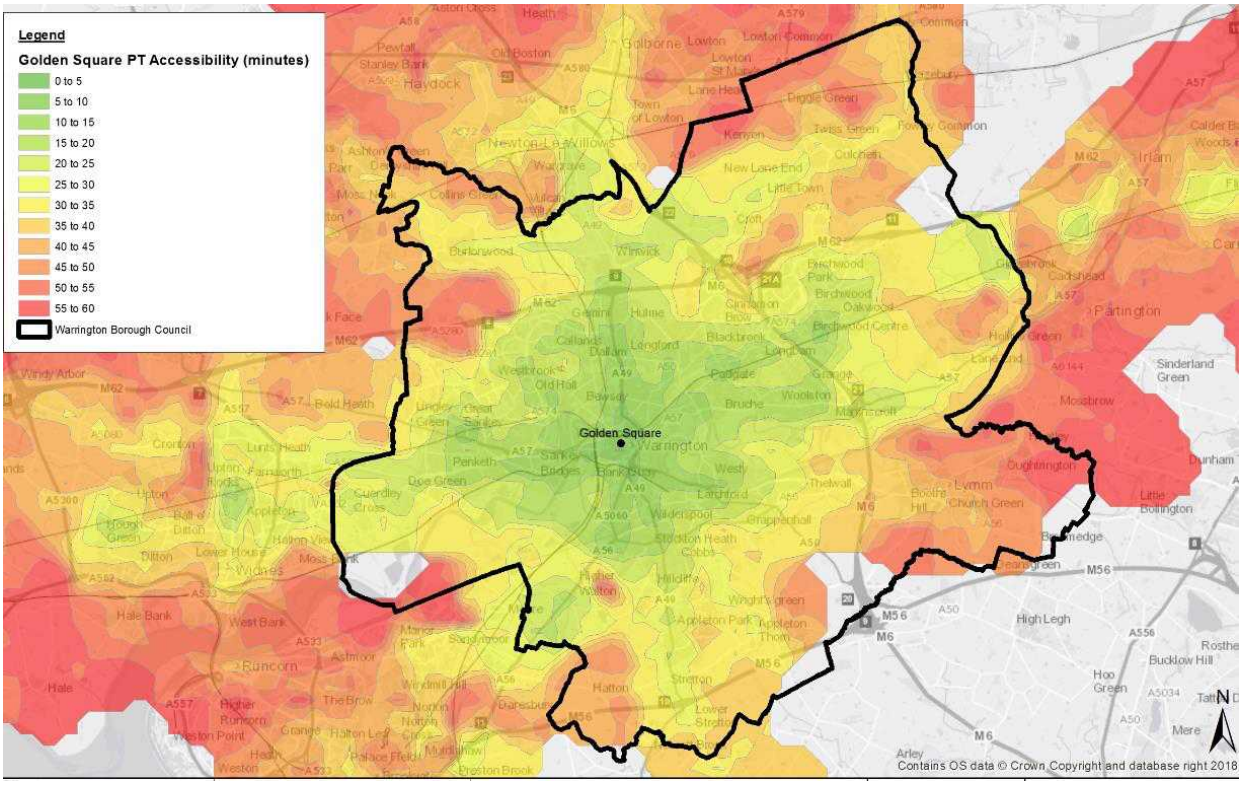


Figure 3.8 - Journey time in minutes to Golden Square by public transport (February 2019)[22]

3.7 Making Warrington Accessible for All

At the 2011 Census, 8.4% of Warrington residents described their day to day activities being limited a lot by a health condition or disability. An additional 8.9% described their day to day activities being limited a little.

It is vital that people with disabilities and mobility impairments feel confident and empowered to use our transport network to access facilities, services, and employment sites.

Barriers that can prevent this include:

- walking routes not being suitable for use by wheelchairs
- street furniture causing a danger to blind and visually impaired users
- uneven footways creating a trip hazard
- air quality impacting on the health of people with breathing or lung conditions

Alongside ensuring that services in the borough are accessible people with disabilities and restricted mobility, we also need to consider the requirements of an ageing population in Warrington. This brings challenges for transport in reducing social isolation for older residents, and ensuring that, where possible, new facilities are designed in a dementia-friendly manner.

[22] TRACC Accessibility Data Analysed by Aecom

3.8 Supporting Growth

There is an overreliance on the private car as a mode of transport in Warrington. The level of housing and employment growth across the Borough in the Proposed Submission Version Local Plan will result in significantly more trips being made to, from, and within Warrington. To be able to accommodate the increased number of trips there is a critical need to address dependency on the private car and increase the use of public transport, cycling and walking, as an alternative mode of transport. There is also the need for significant investment in infrastructure.

Good transport links are crucial for a successful economy, a thriving town and villages, and for giving a good quality of life to local residents. The transport challenge created by growth is therefore to address any identified shortfalls in infrastructure provision, improve connectivity and network efficiency to support economic growth, whilst reducing the need for travel by private car, improving safety, tackling air quality, encouraging active life styles; and supporting the transformational change in Warrington's transport networks and services.

LTP was developed alongside the Proposed Submission Version Local Plan, allowing us to ensure that we have identified appropriate transport strategies to accommodate the increasing demand for travel that will occur as the population and economic strength of the borough grow. A full list of the new infrastructure that is critical to the delivery of the growth that is proposed in the emerging Local Plan is set out in its supporting Infrastructure Delivery Plan (IDP).

3.9 Addressing Public and Stakeholder Priorities

It is vital that our transport policies address the needs and concerns of local residents and businesses. This is considered further in Section 4.

3.10 A Need for Change

Without a transformational change to the way that we travel we risk Warrington becoming a less desirable place for people to live and invest in. The potential consequences of taking a 'business as usual' approach to transport planning are summarised in Figure 3.10.

Consequences for People 	**Warrington becomes further dominated by private car travel** **Our transport system increases social exclusion by cutting people off from services** **Public transport services become less viable and the network shrinks** **Warrington increasingly acts as a commuter town for Manchester and Liverpool** **Obesity rates increase through lack of active travel choices** **Health impacts of poor air quality**
Consequences for Business 	**The town becomes an unattractive investment prospect** **Warrington becomes a less attractive place to work and visit when compared to neighbouring areas and local authorities.** **The retail offer in the town centre reduces** **Warrington becomes an undesirable place to visit** **Workplaces become increasingly inaccessible due to growing transport problems**
Consequences for the Environment 	**Air quality worsens** **Worsening of the natural and built-up environment** **Increases in noise from the highways network** **Increasing CO_2 emissions from transport** **Increasing vulnerability to extreme weather events**

Figure 3.10 - Potential consequences of not changing how we travel

4 Public and Stakeholder Consultation

4.1 Early Consultation

Feedback from the public and stakeholders has played an important part in shaping LTP4. The development of the consultation draft of LTP4 was informed by a number of early consultation fora. These included a series of stakeholder Transport Summits, the Central Area Masterplan engagement process; and responses to the Local Plan Preferred Development Option consultation. Feedback from the early consultation is summarised in Appendix F, the Consultation Report. Some of the comments received during these consultations are shown in Figure 4.1.

Figure 4.1 - Comments received during early consultation

4.2 Consultation on Draft LTP4

Public and stakeholder consultation on the draft fourth Local Transport Plan took place for nine weeks, starting on 15th April 2019, and closing on 17th June 2019.

Consultation on Draft LTP4 was run concurrently with the consultation on the Draft Local Plan. This provided stakeholders and the public with the opportunity to view and comment on these two key documents at the same time.

The key outcomes of the consultation process are set out below, with more detail on the consultation and analysis of the results available in the Consultation Report that is included as Appendix F.

4.2.1 LTP4 Vision

The consultation feedback questionnaire asked respondents about their support for the LTP4 vision.

> *to help make Warrington '**a thriving, attractive and well-connected place with popular, high quality walking, cycling and public transport networks**'*

The responses to this question did not indicate majority support for the vision although surprisingly as shown below the follow on question on the objectives did receive strong support.

It is not fully clear why the vision did not receive similar levels of support given it informs the objectives, but concerns around the Local Plan may have been a factor. It appears that in some cases, public feeling regarding the proposed Green Belt release may have influenced feedback on LTP4. The consultation report provides analysis of the responses in more detail including sensitivity tests which break the responses down by location and age of respondent.

However, in response to the consultation feedback, the Vision Statement has been amended to reinforce our aspiration that Warrington becomes a town that is accessible for everyone and that environmental sustainability of our future transport systems is paramount. The new vision statement is:

> *Warrington will be a thriving, attractive, accessible, and well-connected place with popular, high-quality walking, cycling, and public transport networks supporting our carbon-neutral future.*

4.2.2 Objectives

In contrast to the responses to the question on the Vision, there is strong support for all of the objectives in LTP4.

Full details can be found in the Consultation Report, but in summary all of the objectives gained majority support with between 70% and 59 % of respondents stating they either agreed or strongly agreed with the objectives as shown in Table 4.1.

To what extent do you **agree** or **disagree** with the following objectives?	**Agree or Strongly Agree**
1. Reduce emissions from transport	71%
2. Improve safety for all highway users	71%
3. Provide people with a choice about how they travel for each journey	70%
4. Reduce traffic congestion	69%
5. Maintain and improve all transport infrastructure	67%
6. Encourage healthier lifestyles by increasing day-to-day activity	65%
7. Make Warrington a more disabled friendly place	65%
8. Improve access to the town centre for all sustainable modes	64%
9. Encourage a culture change that reduces the need for people to travel by car	62%
10. Develop a resilient and efficient transport network that supports the town's growth	59%

Table 4.1 - Support for LTP4 Objectives

4.2.3 Walking and Cycling Vision

There is also a strong level of support for walking and cycling improvements, with over 72 % of respondents supportive of our proposal to 'Go Dutch' and develop a high quality walking and cycling network to help benefit people's health, improve our local environment, and reduce congestion.

4.2.4 Local Public Transport Vision

Over 50% of respondents were supportive of highway improvements to support existing bus services, helping them to run more reliably and of improving the quality of bus stops and information.

The support for mass transit was less clear but still the largest number of responses (46%) was from people who agreed with the proposal to explore this further. Drilling down into the

results further, there was strong support for the mass transit proposals amongst respondents under the age of 35.

4.2.5 Demand Management Measures

LTP4 proposes future work to investigate a Workplace Parking Levy in Warrington as a means of both discouraging car use and providing a source of funding for sustainable transport improvements. The feedback for this question shows that whilst only 28% of respondents support the proposal, a significant number were also undecided and less than half of respondents told us that they do not support the proposals.

A lot of comments were submitted in response to this question. These have been recorded and will be used to inform any future investigation into Workplace Parking Levy.

4.2.6 Accessing Key Centres

The final question on the 'Vision' part of the consultation questionnaire asked people to think about access to key centres in the borough. 70% of respondents agreed that there is a need to improve access to the town centre for people to walk, cycle, and use public transport, particularly for the last mile of their journey. 81% of respondents agreed that there is a need to improve access for people to walk, cycle and use public transport to other destinations such as business parks, district centres and villages. LTP4 has been amended to reinforce the importance of such key centres as well as the town centre itself.

4.2.7 Themed Chapters

A range of comments were received on each of the themed chapters in LTP4. These have all been recorded and, where appropriate, used to amend chapters 8 to 15 of LTP4.

4.2.8 Additional Comments

Respondees to the consultation submitted a large number of comments that did not directly address the questions asked in the consultation questionnaire. The vast majority of these focussed on three topics:

- Expectation that LTP4 should be a delivery plan for Local Plan
- Oppose Local Plan growth proposals
- Air quality and carbon emissions, mainly linked to additional traffic from growth proposals

The Consultation Report provides a summary of all comments received and, where appropriate, a response to those comments and how they have been considered in the final LTP4 documents.

5 Our Transport Vision

5.1 Strategic Priorities

The Strategic Priorities and the Vision for LTP4 have been identified by considering the role that transport can play in supporting the delivery of the council's Corporate Strategy. The relationship between the Corporate Strategy and LTP4 can be seen in Figure 5.1.

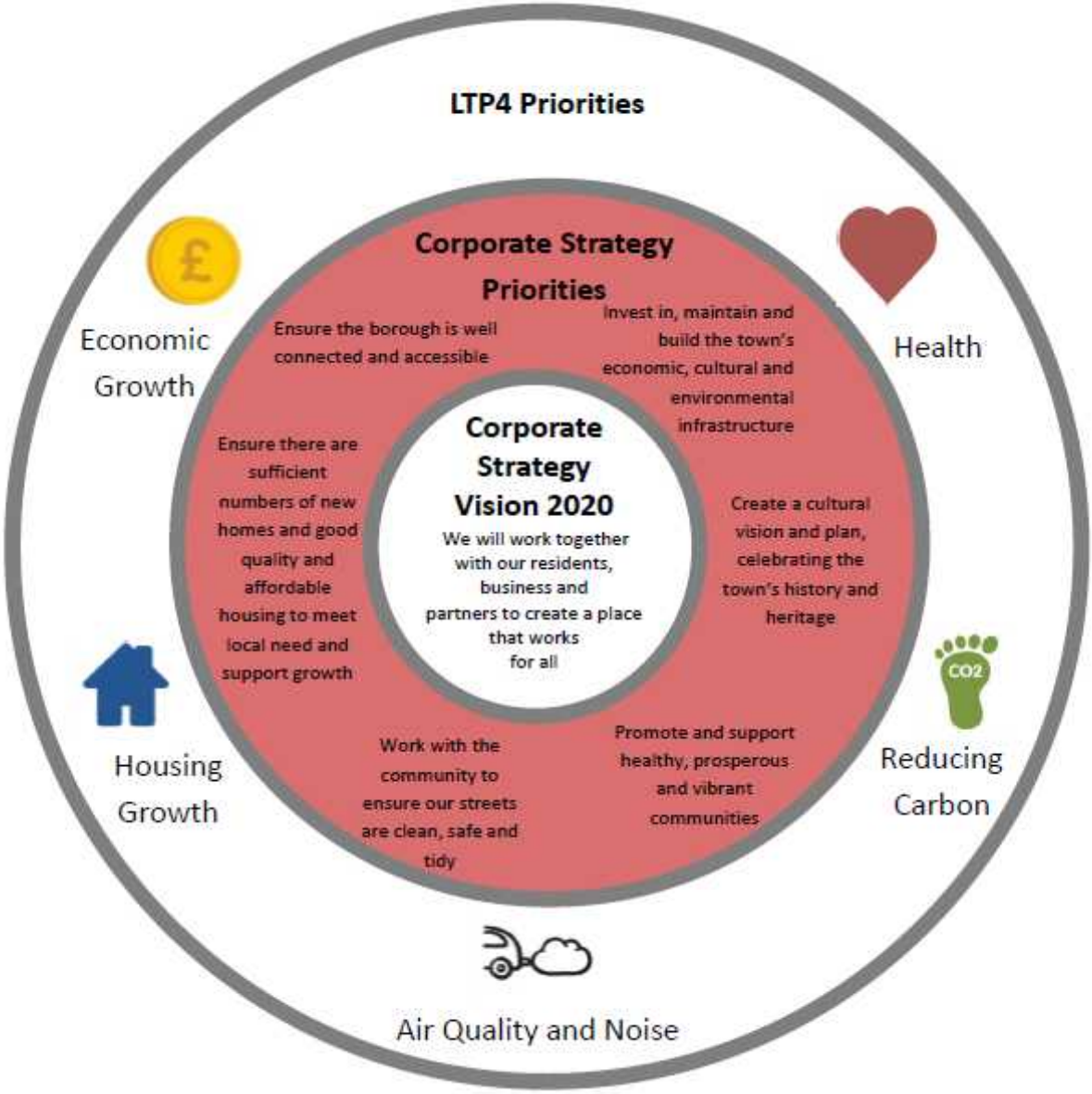


Figure 5.1 - Corporate Strategy and LTP4 Strategic Priorities

We have identified five strategic priorities that have shaped LTP4. These are shown in Table 5.1.

Strategic Priority		Description
Health		Transport improvements in Warrington will contribute to improved safety, health and wellbeing of residents
Air Quality and Noise		Transport improvements in Warrington should improve air quality and reduce noise in the borough.
Reducing Carbon		Transport choices in Warrington will be further developed to reduce the emission of carbon dioxide and other greenhouse gases
Housing Growth		Transport improvements in Warrington will be developed and delivered to support housing growth and development
Economic Growth		Warrington's transport and highway networks will continue to support the creation and retention of jobs in the borough

Table 5.1 - LTP4 Strategic Priorities

5.2 Vision Statement and Objectives

The Strategic Priorities have been used to identify our Vision for LTP4, which is:

Warrington will be a thriving, attractive, accessible, and well-connected place with popular, high-quality walking, cycling, and public transport networks supporting our carbon-neutral future.

We have set out a series of objectives in Figure 5.2 that more clearly explain what that vision means for everyone in Warrington. All of the policies and interventions that have been set out in Part B of LTP4 are intended to support us in delivering our Vision and Objectives.

Priorities	
Vision	***Warrington will be a thriving, attractive, accessible, and well-connected place with popular, high-quality walking, cycling, and public transport networks supporting our carbon-neutral future***
Objectives **Through LTP4 we will:**	• Provide people with a choice about how they travel for each journey • Encourage a culture change that reduces the need for people to travel by car • Improve access to the town centre for all sustainable modes • Develop a resilient and efficient transport network that supports the town's growth • Reduce traffic congestion • Reduce both exhaust and non-exhaust emissions from transport • Maintain and improve all transport infrastructure • Encourage healthier lifestyles by increasing day-to-day activity • Improve safety for all highway users • Make Warrington a more disabled friendly place
Policies and Actions **(Part B)**	
Appendices **(Part C)**	

Figure 5.2 - LTP4 Vision and Objectives

5.3 A Thriving and Attractive Place

The Vision that we have set out in LTP4 is intended to not only transform how we travel around Warrington, but how the borough operates as a place.

A less car dependent culture will lead to a town centre that is less car-dominated. There will be new opportunities to travel in different, healthier ways around the borough.

Services, leisure and employment opportunities will be more accessible to everyone and Warrington will be a place that we can all enjoy spending time in.

The effect of this transformation will be felt differently in different parts of the borough.

Inner Warrington will be an attractive place to live and work that is easily accessed by all transport modes. There will be a mass transit interchange and High Speed Rail services will be accessed from a hub at Bank Quay.

Public realm improvements, improved air quality and less traffic will contribute to a more pleasant town centre environment.

Neighbourhoods in Suburban Warrington will become even more attractive places to live than they are currently. Residents will benefit from improved air quality, less traffic and improved access to the town centre.

Residents will be able to move around more easily using a frequent, convenient, reliable public transport network and attractive walking and cycling routes.

New housing developments in Warrington will be attractive places to live. They will have convenient access to the town centre and other key destinations using high quality public transport and there will be good, attractive walking and cycling facilities.

Settlements in rural Warrington will continue to be very attractive places to live, with improved connections to urban Warrington and access to the motorway network.

The thriving large employment areas outside of the town centre are a key component of Warrington's success story and this will continue into the future. These will be well-connected, attractive places to work and do business.

They will be accessible from the rail network and served by a high quality public transport offer, and will be easily and safely reached by people walking and cycling to work.

Across the borough, the improvements to both our passenger transport services and walking and cycling networks will be supported by measures that support a reduction in car dependency.

5.4 Changing How We Travel

The way we travel around Warrington has a huge impact on the character of our town and the way that we feel about the place that we live. Through LTP4 we want to create a Warrington that is not dominated by car movements, and where streets provide a space for people that is pleasant to be in.

Warrington should be a place where significantly more people choose to walk, cycle, and use public transport, allowing them to live healthier lifestyles. This requires a transformational change in the transport offer that is currently available to residents.

Fundamental to delivering our transport vision is reducing the number of trips made by private car. From Table 4.1 it can be seen that 73.9% of commuters drive to work according to Census data. Our aspiration is to reduce Journey to Work mode share for drivers of cars/vans to 60% by the first Census (2041) that will take place after the end of LTP/Local Plan period in 2037.

To be successful in delivering this change in modal share for private car use we need to significantly increase the number of people that travel by other modes. To have a transformative effect on the town we need to facilitate significant increases in cycling (approximate 2.5 times increase in the proportion of cycling), bus and local public transport (nearly 3 times the proportion for bus use), and increases in walking. This is shown in Figure 5.3.

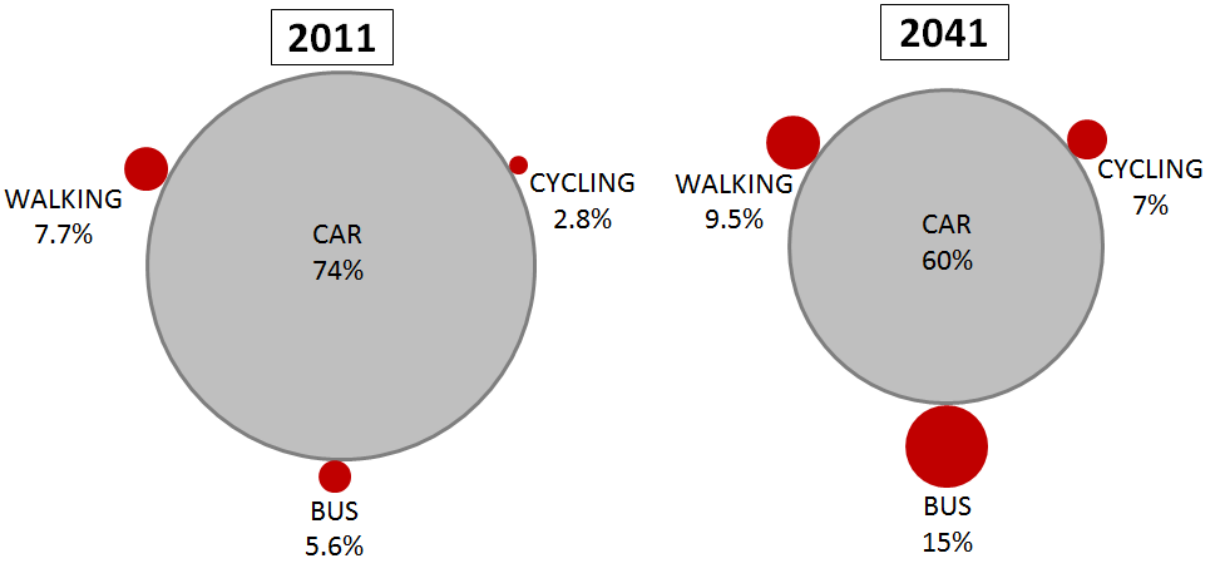


Figure 5.3 - Aspirational Mode Share Change

How we expect the share for each mode to change between now and 2041 is set out in the Monitoring and Evaluation Strategy (Appendix C). To successfully deliver our vision and objectives we have developed a set of policies that will encourage a modal shift for all trips, but have set our modal shift aspiration based on commuting trips alone because:

- Census data is reliable and consistent in its collection techniques, allowing us to make the best like-for-like comparison
- Our network is most congested during the peak periods for commuting

6 Delivering the Vision

Our aim to increase the usage of sustainable modes of travel is ambitious and needs to be supported by an equally ambitious vision for transforming our transport network.

Our approach to delivering this change falls within four themes:

- Creating an attractive, high standard, user-friendly environment for walking and cycling trips
- Transforming public transport by ensuring that there are attractive, frequent services that connect the places that people live to large attractors
- Managing demand for private car use
- Creating sufficient transport capacity on our network through major and priority infrastructure projects

6.1 Increasing Walking and Cycling

Warrington's compact size and fairly flat terrain offers a great opportunity for local journeys to be made by walking and cycling. A comprehensive, high quality and well used walking and cycling network will create a more pleasant local environment, facilitate healthier lifestyles for our residents and support the ambitious regeneration aspirations of the borough.

To create a walking and cycling environment that is attractive to as many users as possible we should be creating streets that are:

- Welcoming to everyone in Warrington, from all parts of our community
- Kept clean, tidy and well-maintained
- Safer, so people do not feel threatened or worried about road danger
- Easy to cross, particularly on direct routes to large trip attractors
- Accessible for people who need resting places along their journey
- Interesting and stimulating to travel along, with attractive views, planting, and public art
- Safe for visually impaired and blind users with minimal trip hazards

6.1.1 Local Cycling and Walking Infrastructure Plan

To ensure that we are taking the right approach to identifying and delivering the improvements that are necessary to enable more cycling we are developing a Local Cycling and Walking Infrastructure Plan (LCWIP) in line with government guidance.

The LCWIP sets out how we will develop a walking and cycling environment that is attractive to as many users as possible. It will help us to:

- Benefit the highest level of current active travel users
- Increase the number of walkable and cyclable trips
- Provide for growth

The LCWIP sets out an aspirational core network of walking and cycling routes, as shown in Figure 6.1. The LCWIP will continue to be a live document and the network plan will change as the plan develops.

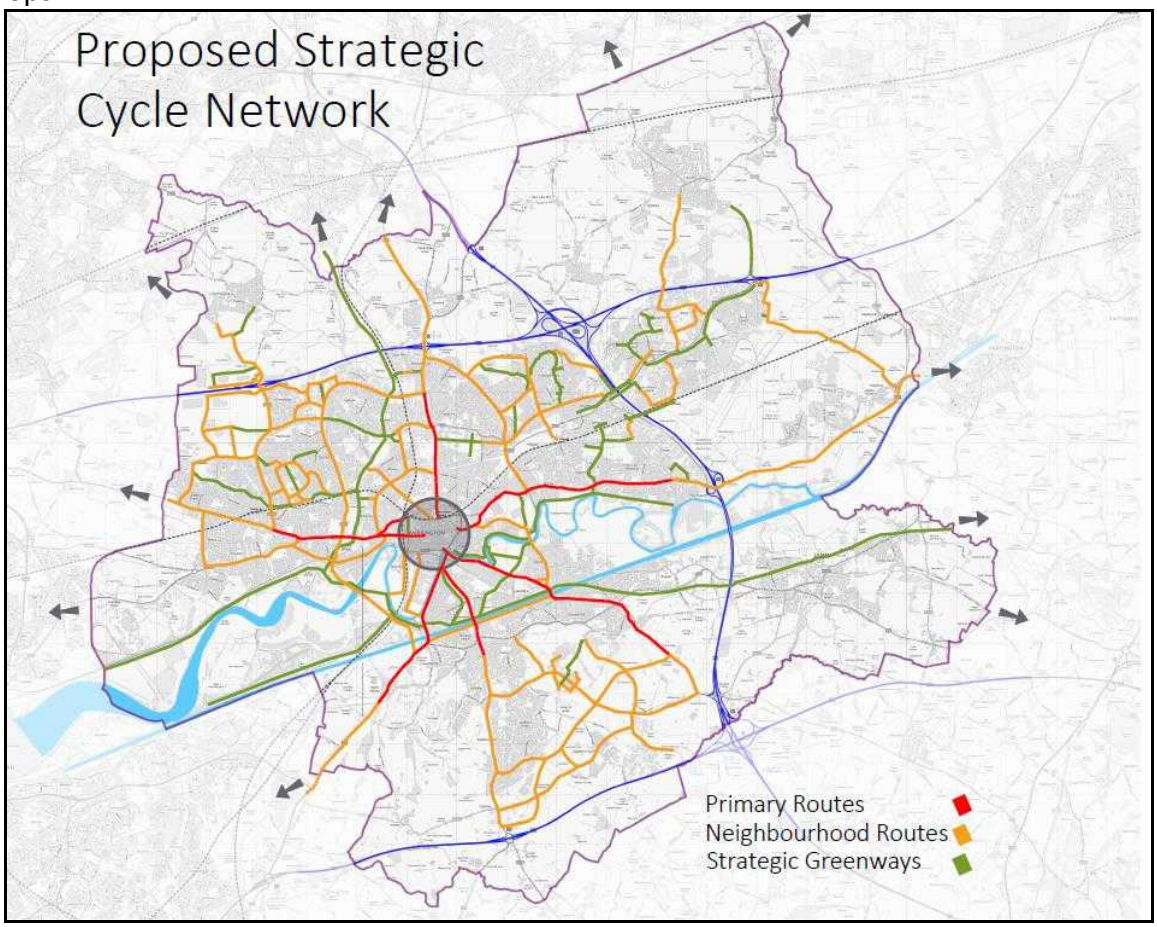


Figure 6.1 - LCWIP Proposed Core Network of Walking and Cycling Infrastructure

The proposed network is made up of:

- **Primary routes** - high quality integrated corridors that radiate out from the town centre hub that use, or follow, the main arterial transport routes
- **Neighbourhood routes** - continuous routes segregated from traffic
- **Greenways** - well maintained traffic free routes through open spaces and parks

6.2 Transforming Public Transport

6.2.1 A Mass Transit Network

As can be seen in Figure 3.3, bus use in Warrington has seen sharp declines in recent years. In 2011 just 5.6% of Warrington residents used a bus or other form of mass transit for their journey to work. We have set an ambitious target to increase the mode share for bus and mass transit use for the journey to work to 15%.

To achieve a 15% mode share we need to transform the public transport offer in Warrington. To inform our LTP4 Vision we commissioned a study to look at options for doing this. The study considers two possible modes for a mass transit solution for Warrington. These are Light Rail/Tram and Bus Rapid Transit (BRT). We are very early in the process of identifying a mass transit network and, whilst these seem the most likely modes at this point, other modes are not being ruled out.

The use of BRT is growing within the UK. In Greater Manchester, the Leigh-Salford-Manchester BRT scheme opened in October 2016. It has delivered a high quality public transport service that links Leigh, Atherton, Tyldesley, Ellenbrook, Salford and Manchester via a guided bus way and on-street bus priority measures.

A typical BRT scheme would include:

- Dedicated stretches of road for the sole use of specialist buses
- Normal stretches of highway such as at junctions or for part of their route
- High level of priority at intersections with public highway

An indicative mass transit network for Warrington is shown in Figure 6.2. The proposed network includes:

- Three cross-town centre routes
  - Lingley Mere/Omega to the proposed Garden Suburb South East Urban Extension
  - Daresbury to Winwick
  - Birchwood to Fiddler's Ferry
- Two orbital routes
  - Birchwood to the proposed Garden Suburb South East Urban Extension
  - Lingley Mere/Omega to Birchwood

To create logical journey opportunities, direct straight-line journeys are favoured since these provide the greatest potential journey time advantage over the alternative car journey around the outside of the borough via the motorway and strategic road network.

At the core of the proposed network would be a town centre routing system that provides linkage to the key hubs of Warrington Central, Bank Quay and Bus Interchange. The network would integrate with the potential future HS2 and NPR networks at Bank Quay and with enhanced services on the CLC railway at Warrington Central.

The routes are intended to:

- Deal with existing corridors with high demands for travel
- Support the growth of the town centre
- Connect key employment areas to new and existing residential areas

The study that has informed the proposal for a mass transit network is included as Appendix B. This early work confirms that a mass transit system could be commercially viable for Warrington through comparing projected fare box income with the likely cost of implementing, running, and maintaining the system.

The concept of developing a mass transit system for Warrington is at a very early stage, but we think it should be a key part of our future vision. A large amount of optioneering, feasibility, and design work is required before we are able to confirm routes or identify corridors that the services may run on. The council proposes to carry out this work in the first 5 years of LTP4.

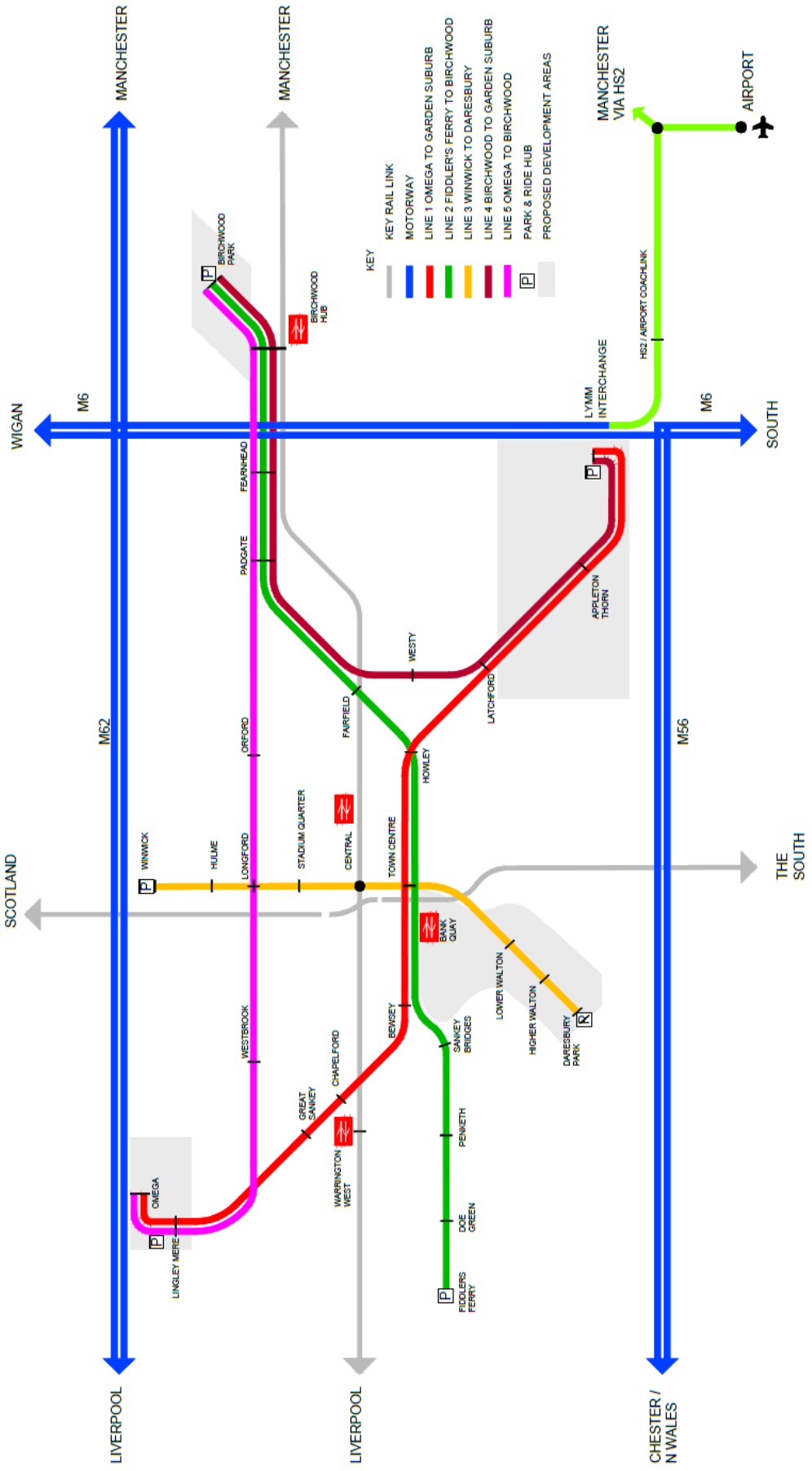


Figure 6.2 - Indicative Mass Transit Network for Warrington

6.2.2 High Speed Rail and Northern Powerhouse Rail

Government's proposed new High Speed Railway line (HS2) between London and Manchester will serve Warrington by HS2 from 2026. At present, the core consulted scheme suggests an hourly service in both directions between London Euston and Preston serving Warrington Bank Quay. HS2 services calling at Warrington will operate on dedicated infrastructure between London and Birmingham (Crewe from 2027) before using the existing West Coast Main Line.

This will provide an approximate 80-minute journey time to London in 2026, reducing by up to 12 minutes upon the completion of Phase 2A in 2027. This compares with typical fastest journeys of 106 minutes currently

HS2 services are not yet set, but Warrington will be lobbying for a residual West Coast Mainline service between Scotland and London Euston via Warrington Bank Quay to be retained providing multiple journey opportunities from Warrington each hour.

HS2 Phase 2B

The Phase 2B part of the HS2 proposal identifies a new high speed alignment through eastern edge of the borough from which services would reconnect to the West Coast Main Line in Wigan. This council has very significant concerns around this section of the route (known as Golborne Link) and has made exhaustive efforts to lobby against its implementation.
The key reasons for this being the environmental harm being imposed on the communities of Culcheth, Croft, Hollins Green and Lymm and the economic opportunity lost by not routing all northbound HS2 services through Warrington Town centre along an improved West Coast Main Line.

The primary opportunity around HS2 is in the increased number of passengers passing through Warrington Bank Quay as a result of the increased accessibility and reduced journey time to London. This will make Warrington a more desirable place to live and/or locate a business in, and will see significantly increased passing trade as a result of increased passengers using the town as a transport interchange hub. Such an opportunity would be further enhanced if the planned Golborne Link was to be removed from Phase 2b with HS2 services being routed via the West Coast Main Line with some of these services through to Scotland calling at Warrington Bank Quay.

Transport for the North's proposals for Northern Powerhouse Rail are shown in Figure 3.1. Northern Powerhouse Rail represents a significant aspiration for northern city regions and other significant economic centres including Warrington to enhance intra-regional connectivity and to create a so-called 'Crossrail of the North'. The ultimate prize of this endeavour is for the North of England to operate as a single economic region with a population and economy to compete with the South East and London.

One of the key priorities of Transport for the North's ongoing work is to develop the specification for the Liverpool to Manchester component of Northern Powerhouse Rail. One option being considered would create a new high speed line between Liverpool and Manchester passing through Warrington before joining the proposed HS2 infrastructure to the west of Manchester Airport, and continuing into Manchester and onwards to Leeds and Sheffield. It is likely that such a line would be served by between 4 and 6 Northern Powerhouse Rail trains per hour in each direction. A key advantage of this choice is that it could also allow the two HS2 trains per hour proposed between Liverpool and London to use this route and call at Warrington, reducing the journey time and freeing up the West Coast Mainline for freight and other additional conventional passenger services.

Work is still at an early stage on Northern Powerhouse Rail with a range of alignment options under consideration with work ongoing to assess these options. This will result in a final Strategic Outline Business Case being submitted to Government in 2020. Warrington Borough Council fully supports this work and is taking a keen interest in it, and as part of this is making the case for Northern Powerhouse Rail to serve an enhanced Warrington Bank Quay. As shown in Figure 6.3, this would further aid in the creation of a super-hub at Bank Quay served by conventional rail and by high speed trains on both the north-south and east-west axes.

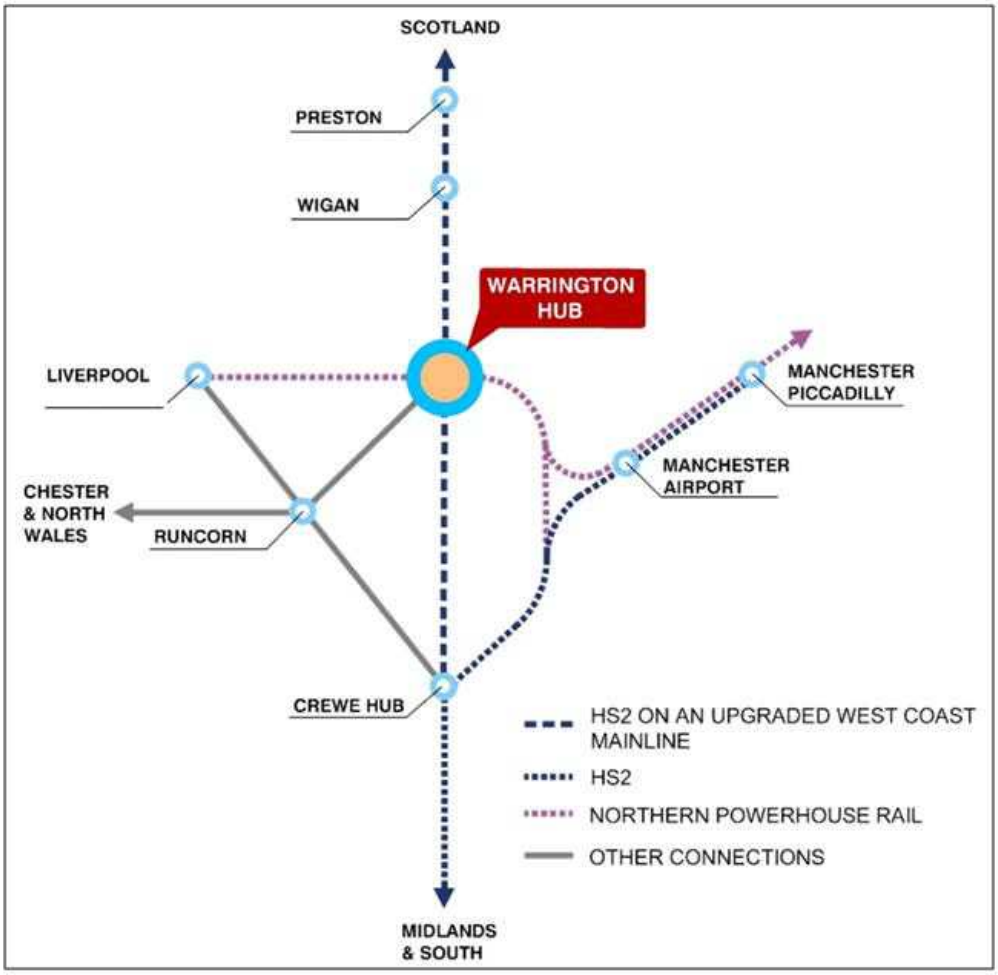


Figure 6.3 - Potential for HS2 and Northern Powerhouse Rail to transform Warrington Bank Quay

HS2 and Northern Powerhouse Rail provide a unique opportunity to enhance the area surrounding Bank Quay. With an enhanced high speed hub at the heart of the town, Warrington will provide a crucial point where 'North South meets East West' and high speed rail services will meet an expanded offer in Central Warrington.

The viability of a nationally significant station gateway at Bank Quay will also be boosted by the Warrington providing a connected hub for the populations of West Cheshire and North Wales, linking them to both NPR and Scotland/Lancashire bound HS2 services. In total, over a million people from the Mersey-Dee area would have better, more logical access to the NPR network if Warrington comes forward as an NPR hub, with the additional interchanging passengers. High speed rail will significantly boost Warrington town centre as a major attractor for trips, further justifying the creation of a Mass Transit network focussed on the town centre.

6.2.3 Better Services on CLC Rail Line

The CLC Line is one of the railway routes that link Liverpool and Manchester. The line passes through the centre of Warrington, serving the stations at Sankey for Penketh, Warrington West, Warrington Central, Padgate, Birchwood, and Glazebrook.

The newly electrified Chat Moss route, which skirts the borough to the north, now provides the quickest end to end journey time between Liverpool and Manchester. This creates an opportunity for the CLC line to be refocused as a mixed-use railway that provides better commuter services in and out of Warrington whilst retaining good links to the east of Manchester to places such as Manchester Airport and Sheffield.

We have been working in partnership with Transport for Greater Manchester and the Liverpool City Region Combined Authority to identify options that retain the mixed use railway with enhanced service patterns on the line. These options include:

- Retention of 2 semi-fast services per hour along the corridor – providing quick journey times to Manchester, Liverpool, both airports and the East Midlands/South Yorkshire.
- Potential Tram-train services to Manchester
- Potential future option to connect the Liverpool-Birchwood service to the MerseyRail network at Liverpool South Parkway
- Establishment of a 'Warrington Metro' with frequent services on the core section of route between Warrington West and Birchwood

6.3 Managing Demand for Private Car Travel

Improving walking and cycling infrastructure and providing a new mass transit network will provide high quality, attractive alternatives to the use of private cars for journeys in Warrington. However, a transformation in the way that we travel around Warrington is likely to need to be supported by measures to manage and reduce private car use. This is known as Demand Management.

There are two important outcomes that such measures could deliver in supporting our transformational transport vision:

- Reducing car usage by providing a disincentive to people to use their car
- Providing an income source that will support the delivery of sustainable transport improvements.

6.3.1 Workplace Parking Levy

A Workplace Parking Levy (WPL) is a charge on employers who provide workplace parking for their employees. All businesses that provide more than a given number of free employee-only parking spaces are charged an annual 'per-space' fee. Employers are encouraged to manage and potentially reduce the level of free workplace parking spaces that they provide. The levy charged per space creates a revenue stream which must be reinvested in sustainable transport improvement projects. The underlying aim of Workplace Parking Levy is to facilitate enhanced economic growth and increased public wellbeing by managing congestion, improving accessibility to urban centres and encouraging a shift towards healthier and cleaner modes of travel to work.

The Transformational Projects Study that is included as Appendix B was commissioned as an early piece of work looking at mass transit and demand management options. Based on a set of assumptions this considers operating costs and estimated income from fares on a mass transit system in Warrington. A 15% mode share for a mass transit system will require an additional complementary funding source to meet the operational costs of the network, particularly in the case of a tram system.

After the adoption of LTP4 we will investigate the implementation of a WPL as a way of managing demand for private car use, and as a way of funding sustainable transport improvements. A significant amount of work is required before a WPL can be introduced. This includes working with the business community and consideration of issues such as:

- the geographical extent of any scheme
- categorisation of parking spaces
- eligible sites and companies
- the level of charge per space.

6.3.2 Alternative Demand Management and Revenue Raising Measures

The Transformational Projects Study also considered other options for discouraging travel by private car and raising revenue for a new mass transit offer. It is anticipated that any future revenue raised through Workplace Parking Levy could be combined with Section 106 contributions from new developments or a future Community Infrastructure Levy to provide a 'cocktail' of revenue funding which could be used as a means to borrow capital for investment in passenger transport.

A Clean Air Zone could potentially be considered as a complementary scheme to improve air quality, but at this stage this measure is not being pursued as either a demand management or revenue raising tool.

6.4 Priority Transport Infrastructure

In order to maintain and improve Warrington's networks for all modes and to incentivise the increased use of sustainable travel, a range of physical improvements will be required over the course of the plan. The scale and cost of these measures will be broadly divided into the following categories:

6.4.1 Minor Improvements

These will be measures which will support a range of transport objectives, informed to a large degree by the delivery themes set out in part B of the LTP. Projects would include:

- Pedestrian and cycling accessibility improvements
- Road safety and traffic management schemes
- Junction upgrades
- Bus stop improvements and small scale bus priority measures
- Highway maintenance programmes

Typically these will be schemes under the value of around £2m and be funded from a combination of the annual DfT Integrated Transport and Maintenance Blocks and in some cases 3rd party contributions. Whilst lower in value than major schemes (set out below) they are large in number and have a significant contribution to make in delivering the vision and policies set out in the LTP. As a package they can help to transform the transport network in Warrington.

6.4.2 Major Improvements

These will typically be large scheme infrastructure projects over £2m and be funded from specific bids to eternal agencies such as Department for Transport, Homes England, Highways England, Network Rail and Cheshire and Warrington Local Enterprise Partnership. Significant match funding is also likely to be required from the council's own capital programme and developer contributions. These schemes will have a transformational effect in themselves, such as giving a step change in sustainable transport provision, addressing a major congestion problem on existing networks or unlocking a development site. Over the last 5 years the council has been successful in securing funding for a number of priority transport schemes which are recently completed, on site or confirmed as funded in the programme up to 2021. These are shown in Table 6.1.

Scheme Name	Description	Status	Estimated Cost
Warrington East Phase 1	Two junction improvements and Bus gate	Complete	£5.0m
M62 Junction 8	Improvements to motorway junction to improve access to north west Warrington	Complete	£10.9m
Warrington East Phase 2	Three junction Improvements on A574 Birchwood Way	Complet	£10.5m

Scheme Name	Description	Status	Estimated Cost
Warrington East Phases 3	Dualling of A574 between M62 J11 and Moss Gate	On site	£9.4m
Sustainable Travel Major Package	Three major walking and cycling route improvements: Omega to Burtonwood; Chester Road; Trans Pennine Trail Ph1	Complete March 2021	£5.0m
Omega Local Highways Phase 1	Omega Boulevard/Lingley Green Ave and Gt. Sankey Neighbourhood Hub/Lingley Green Avenue junction improvement scheme.	Complete by March 2021	£6.5m
Omega Local Highways Phase 2a/3a	Burtonwood Road/Kingswood Junction Improvement and Local widening	Complete	£4.65m
Omega Local Highways Phase 2b	Liverpool Road/ Lingley Green Avenue Junction Improvement	Complete by March 2021	£2.3m
Omega Local Highways Phase 3	Developer funded junction improvements at Whittle Avenue/Lingley Green Avenue	Complete by mid-2020	£2.0m
Warrington West Station	New station on the CLC line to serve housing and employment sites in West Warrington.	Open December 2019	£20.5m
Centre Park Link	New bridge over the River Mersey and junction improvement at Slutchers Lane/Wilson Patten Street.	On site	£19.9m

Table 6.1 - Confirmed and Completed Major Schemes

In order to maintain and improve Warrington's networks for all modes and to incentivise the increased use of sustainable travel, a range of physical improvements will be required over the course of this LTP. A forward programme has been identified, informed by transport modelling undertaken using the Warrington Multi-Modal Transport Model. This work has confirmed two major highway schemes that represent the minimum new major infrastructure required to commence the delivery of the housing and economic growth that is proposed in the Local Plan. These are shown in Table 6.2.

Scheme Name	Scheme Type	Description	Status
Warrington Western Link	Highway	Major infrastructure improvements including new high-level bridge across the Manchester Ship Canal and link road.	Granted 'Programme Entry Status' by DfT
Warrington South Strategic Infrastructure Phase 1 (Garden Suburb Strategic Link)	Multi - modal	Major highway and public transport infrastructure to support development in south Warrington.	Development Concept

Table 6.2 - Transport Infrastructure Required to Support Housing and Economic Growth

However, a further set of major transformational schemes have been identified that will ensure that the growth of the borough proceeds in a sustainable way and will also help us to achieve our vision for transport in Warrington. These are shown in Table 6.3.

Scheme Name	Scheme Type	Description	Status
Local Cycling and Walking Infrastructure Plan	Cycling	Major strategic corridors schemes and completion of neighbourhood and greenway networks	Concept stage. Design work required
Mass Transit Network for Warrington	Public Transport	Network of mass transit corridors.	Indicative concept
The 'Last Mile' project / Town Centre Vision Access Package	Multi-modal	Major package of junction improvements, rail station enhancements and access measures to support town centre growth.	Concept stage. Design work required. Study work being supported by LEP

Table 6.3 - Major Transport Schemes that support delivery of our transport vision

A further set of schemes may be required in the future to support delivery of our transport vision. These are:

- Warrington Bank Quay Gateway Station Transport Components
- Stadium Quarter Highway Improvement Package*
- High Level Cantilever Bridge Crossing*
- Warrington North Pinchpoints and A49 Corridor Improvements*
- Bridgefoot Link and Brian Bevan Island*
- Southern Gateway Development Access Framework*
- Infrastructure measures to support existing passenger transport services

* Potential Components of the Warrington New City transport Improvements package referred to in the Transport for the North Investment programme.

These schemes are all currently at concept stage and further feasibility and design work will be undertaken in the first five years of LTP4.

Further details of schemes required to support delivery of the growth proposed in the emerging Local Plan are contained in the Council's Infrastructure Delivery Plan.

6.4.3 Connectivity Across the Manchester Ship Canal

Analysis completed to support LTP4 suggests that connectivity between South Warrington and the town centre needs to be improved in the long term. The impact of congestion in centres like Stockton Heath and Latchford, the impact of swing bridge closures on all routes and severance caused to public transport, walking and cycling indicate that these issues will require physical infrastructure improvements.

The Western Link scheme, which has recently been given Programme Entry by Department for Transport does include a new high level crossing of the Manchester Ship Canal, but we believe this will not be sufficient in itself to solve these long term connectivity issues.

Within the first 5 years of LTP4, we will undertake further study work on connectivity across the Ship Canal that will consider:

- what form of additional crossing is required,
- where it should be located, and
- which modes of travel it should be intended for.

This work will be carried out in parallel with any further study on the Mass Transit network also proposed as part of LTP4.

6.5 Accessing Key Centres

6.5.1 The Last Mile

In Warrington we have a relatively strong walking and cycling network linking our neighbourhoods and running along arterial routes into the centre. However, in the town centre, the road layout has been developed to cope with the growing traffic, and has resulted in a very car dominated urban environment featuring large multi-armed roundabouts and dual carriageways. This results in a limited number of crossing points for pedestrians, and a very unpleasant cycling environment. These barriers are often mentioned by local people as reasons for why they prefer not to cycle into the town centre.

The reliability of bus services is often severely affected by the busy traffic conditions close to the town centre. There are currently few places in the town centre where bus services have priority. The main barriers are junctions on the A49 and A57 close to the town centre which the bus operators cite as being particularly problematic for their scheduling.

Our aspiration is to provide high quality and fit for purpose transport infrastructure that will make walking, cycling and public transport the obvious way to get to, from, and through Warrington town centre. We have therefore identified the last mile into the town centre as a priority for improvements, as shown in Figure 6.4.

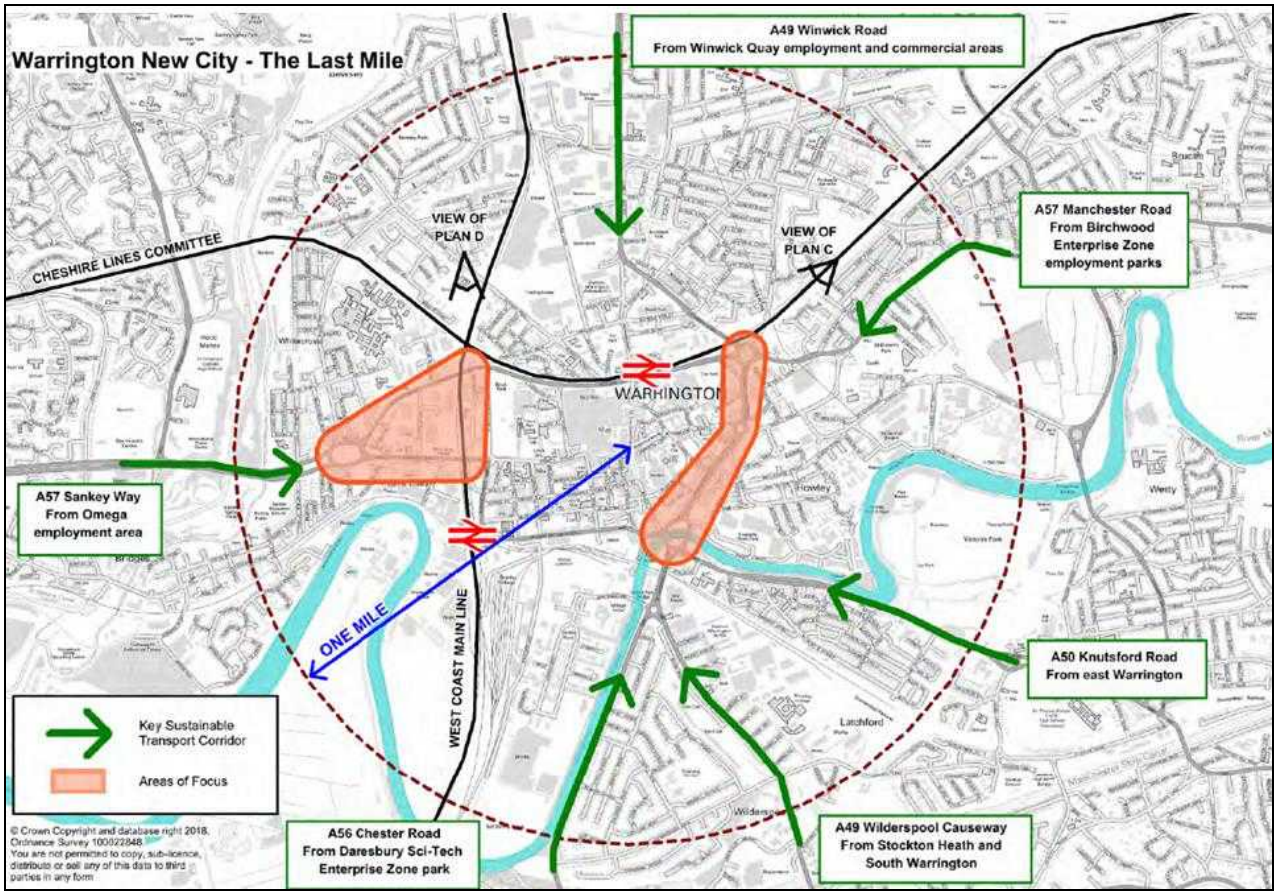


Figure 6.4 - The Last Mile

This will support our ambition to grow the town centre and make it more accessible to residents, visitors and workers. A more pleasant environment around the town centre will help with inward investment and business confidence as well as attracting new visitors. As the town centre is the focal point for many cross-Warrington journeys, removing the transport barriers around the town centre will help with the ambitions of the Council to support bus and cycle journeys.

6.5.2 Access To Other Key Centres

Often, private car travel is considered to be the only attractive option for many of the day to day trips that people in Warrington make. If we are to reduce the amount of trips made by private car it is important that attractive alternatives to private car travel are available to access key attractors in the borough.

Along with improved access to the town centre, we are aspiring to provide high quality walking, cycling and public transport links to:

- out of town employment sites
- district and village centres
- education establishments
- healthcare providers
- leisure facilities

This will allow residents of the borough to have a choice about how they travel to work or school, how they get to shops, or how they access healthcare and other services.

6.6 Future Transport

There are several new transport technologies which are causing uncertainty within the sector over how people will travel in the future. This uncertainty stems from the rapid rate that technology is advancing, making it very difficult to cover these areas in detail in a Local Transport Plan. It is, however, vital that Warrington is a place that is adaptable to these new technologies and their effects, to ensure that our residents and businesses can benefit fully from them. Some of these advancements that we are anticipating are considered in Table 6.4.

There will be other future advancements that are unknown at present, but it is important that we are able to consider them appropriately when they come forward. The fast moving pace of change make it all the more important that the Local Transport Plan is reviewed regularly to ensure the policies and programmes make the town ready for the future.

Future Transport Theme	Description
Transport for the North Smart Ticketing	Transport for the North's Integrated and Smart Travel programme will transform the passenger experience now and in the future by working in mutually beneficial partnerships with the public transport sector. Using emerging technologies, the programme aims to deliver modern payment methods and mobile travel information that passengers want and expect. Paying for journeys will be quicker, easier and more convenient. For customers, travelling by public transport will be: • Easier to use • Easier to pay for • Easier to access through personalised travel information Operators and local transport authorities will benefit from: • Smarter use of data and customer information • Confidence in revenue reimbursement • Being at the forefront of innovation The ticketing experience will be more efficient and there will be a consistent and familiar travel experience throughout the North.
Ultra-Low Emission Vehicles (ULEV)	The use of ULEVs is rising. Warrington will need to cater for the growing market and ensure there is adequate infrastructure provision to support the use of the vehicles across the borough. It will be important for Warrington to investigate current usage and consider how changing the policy environment could help support their use.  This will be considered further in the LTP4 Cleaner Fuels chapter.

Future Transport Theme	Description
Autonomous and Connected Vehicles (CAV)	Autonomous and connected vehicles are those which can communicate live information with one another and which can drive themselves through an 'autopilot mode'. These vehicles use on board sensors to detect their immediate environment. Networking systems are then used to speak between vehicles and relay information on their position, highways, and traffic and weather conditions. This information sharing is thought to help increase the efficiency of the highways network, deliver more effective routing, increase safety and make better use of available road space. The vehicles have huge potential in generating a number of transport and safety benefits: • Offer those who might be less mobile or unable to use private vehicles greater opportunity to travel • 90% of accidents involve driver error, CAV have the potential to reduce the number of highways accidents and road casualties through automation • Reduce congestion by enabling cars to drive closer together and make more use of available road capacity; • Improve emissions by enabling vehicle platooning which reduces air resistance following vehicles, and sharing information with traffic signals to help optimise speeds • Improved road safety could reduce the need for crash barriers and signage, this could help highways become less cluttered and improve overall road design • Release of space through reduced ownership of private vehicles and parking. Autonomous vehicles could significantly change the way that residents travel in the future, particularly as Warrington's existing transport system is dominated by the car. Therefore, it is important that we monitor developments in the CAV industry and investigate how the technology could be best used in the town. CAVs also pose an opportunity to be developed for other modes; they could help improve a better quality of service for public transport, as well as being used for freight to help improve the efficiency and coordination of logistics operations.

Table 6.4 - Future Transport Considerations

7 The Policies to Deliver Our Vision

Agreeing a new vision is the first step in a long process of improving our transport systems in Warrington.

Alongside this vision we need an implementation strategy to develop this vision further and deliver the outcomes we are hoping to achieve, both in terms of the physical environment and the culture of travelling in Warrington. To this end we have developed a series of policies and actions grouped into themed areas of work that supports a transformation of Warrington's transport system.

Part B of our Local Transport Plan sets out the policy context through which we will deliver the vision outlined in Part A, and how we will undertake our day-to-day and statutory functions to manage our transport network. There are eight chapters in this section of the document. Each chapter will consider a different theme, as shown in Figure 7.1.

Part B: Setting Out Our Policies

Active Travel:
How we will increase walking and cycling in Warrington

Smarter Travel Choices:
Helping people choose how they travel

Passenger Transport:
How we will Improve bus, rail, and taxi journeys in Warrington

Safer Travel:
Making travelling through Warrington safer for all mode users

Cleaner Fuels:
How we can support the increased use of greener fuels

Asset Management:
Maintaining the condition of our highway infrastructure

Network Management:
How we will keep traffic moving on our network

Freight Management:
How we will support and manage freight movements

Figure 7.1 - Themes considered in LTP4 Part B

Each chapter will:

- Identify the key issues and challenges for the relevant theme
- Set out our aspirations for the relevant theme in LTP4
- Define the policies that will address the challenges and support delivery of the aspirations
- Identify a series of interventions and broad timescales for delivery

We have developed a Monitoring and Evaluation Plan for LTP4. We will use this to monitor our progress in delivering the policies and actions set out in Part B. The Monitoring and Evaluation Plan is included as Appendix C.

The Strategies and Policies set out in Part B are supported by an Implementation Plan that sets out an indicative programme of how we will allocate spending from our Integrated Transport Block and Highway Maintenance Block in the period up to 2023/24.

The Integrated Transport Block for LTP4 is split into 8 transport themes covering a diverse programme of transportation works as set out in Part B of the LTP4 document. These themes have been devised based on:

- LTP Stakeholder Consultation
- Local Plan Preferred Development Option Feedback
- Air Quality Strategy
- LTP 4 Vision

The themes reflect the objectives set within the draft LTP4, which subsequently received support during the draft LTP4 consultation. The proposed indicative allocations for each theme for the next 5 years are presented in the Implementation Plan that is included as Appendix D.

Part B

Setting Out Our Policies

8 Active Travel

8.1 Introduction

Active Travel focuses on providing for walking and cycling as everyday modes of travel. People using our active travel network include:

- pedestrians
- cyclists (including e-bikes)
- wheelchair and mobility scooter users
- people with children in prams and pushchairs
- horse riders

The LTP4 consultation exercise in June 2019 showed that many people welcomed the emphasis on active travel and liked the council's plans to improve their cycling or walking journeys. However many short journeys in Warrington are still being made by car with a variety of reasons being given by residents as to why they don't feel walking or cycling is for them. Some of these reasons reflect popular myths and widely held views which are often factually incorrect and therefore require addressing through better information and promotion.

A high proportion of car borne short trips is also an indication that many people in Warrington are being less active which has clear implications for their health and wellbeing. It would be of benefit to the individual and relieve traffic congestion in the borough as a whole if many of these car trips were converted to active travel trips.

Benefits to Residents	**Benefits to Warrington**	**Environmental Benefits**
Improved health	Reduced congestion	Improved air quality
Financial savings	More attractive town centre	Reduced carbon emissions

To successfully deliver our vision we need to increase walking and cycling levels through the provision of high quality, attractive infrastructure. We also need to promote the benefits and de-bunk the myths so that local people can be tempted to walk or cycle.

However, a key factor is the availability and suitability of places where people can cycle and walk. The feedback from the public regarding cycling is that many busy junctions and routes in Warrington feel hostile and unsafe for people travelling by cycle or foot. There is clearly a need to improve existing cycle infrastructure and reduce this general perception so that public confidence and awareness is improved.

8.2 Encouraging Active Travel in Warrington

8.2.1 Physical attributes

Warrington's compact size and fairly flat terrain provides an excellent opportunity for more local journeys to be made by walking and cycling.

Currently, there are over 40 miles of surfaced segregated cycle paths, 18 miles of unsurfaced paths and over 23 miles of shared use paths alongside roads. Within Warrington Town Centre there are over 350 publicly available cycle parking stands.

National Cycle Route 62 runs through the south of the borough and also includes the Trans Pennine Trail which is a long distance path running from coast to coast across northern England. From Warrington, the route provides a connection to Widnes in the west and through Lymm and onwards towards Altrincham in the east. We are also looking to add the Sankey Valley path to the National Cycle Network as this is also an important cross boundary route.

There are over 136 miles of public rights of way in Warrington, 128 miles of footpath and seven miles of bridleways and restricted byways. There are routes in towns, villages and the countryside. Footpaths are not to be confused with footways. A footway is the pavement on the side of the road, whereas public footpaths are part of the Public Rights of Way network along with bridleways, restricted byways and byways open to all traffic. The council makes sure that these are signposted and the paths are waymarked.

Many streets in Warrington have historically been designed for cars, and not for people. Main roads and busy junctions disrupt journeys, and make walking and cycling less enjoyable, less convenient and less safe. In outer semi-rural areas and in some New Town developments such as in Great Sankey and Birchwood, the potential for walking has been limited by a lack of footways alongside roads and pedestrian un-friendly highway design from the 1980s and 1990s.

In addition, the Warrington cycling and walking network is strongly influenced by several constraints and barriers both natural and man-made. These include:

- The three road crossings of the River Mersey and only one footbridge
- The five crossings of the Manchester Ship canal, four of which are subject to daily openings
- Two main railway lines
- A busy road network that is difficult to cross
- The motorway network in the borough

8.2.2 Active Travel in Warrington

Cycle count data carried out annually by the council shows that there was a 21% increase in the use of the local cycling network in Warrington between 2006 and 2015. Whilst this increase is encouraging, the 2011 Census revealed that fewer than 11% of Warrington residents regularly travelled to work by active travel modes. Just under half of all journeys to work are less than 3 miles (5km) in length. Distances that Warrington residents travel to work is shown in Figure 8.1. This shows that short car journeys make up a high proportion of peak hour traffic which contribute to traffic congestion and are a major contributor to poor air quality.

Figure 8.1 – How Warrington Residents travel to work[23]

Figure 8.2 shows that the way people travel to work changes depending on the distance travelled. Over 50% of Warrington residents drive only 2km or less to work (a very reasonable walking distance) and over 75% drive between 2 and 5km to work (an easy cycling distance).

[23] https://www.nomisweb.co.uk/census/2011/DC7701EWLA/view/1132462087?rows=aggdtwpew11_powpew11&cols=transport_powpew11

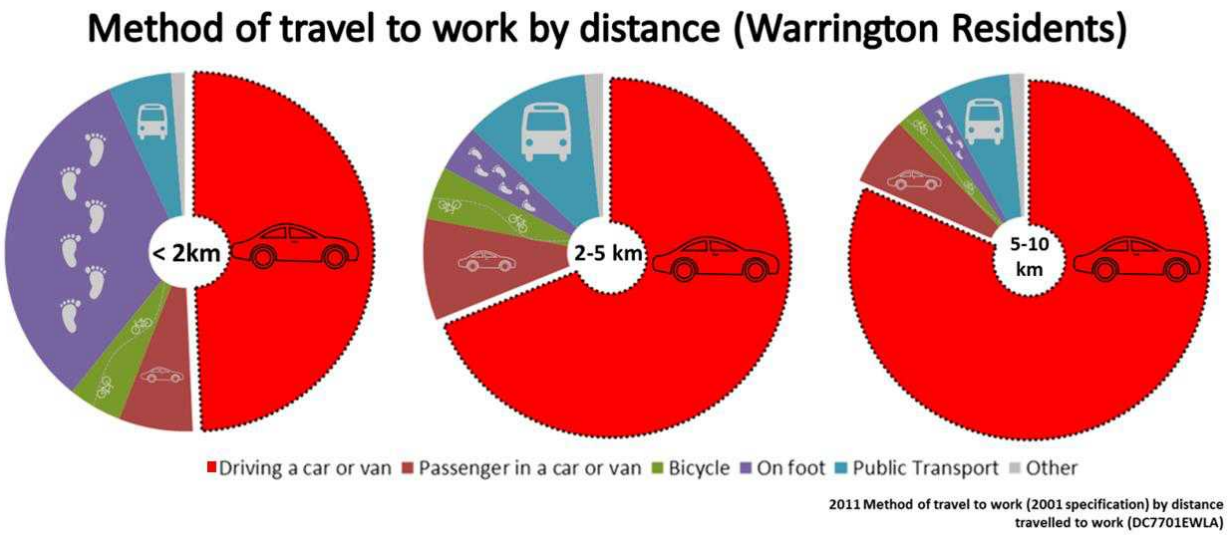


Figure 8.2 - Method of Travel to Work by Distance for Warrington Residents[24]

The previous figures are based on the national Census Travel to work data as this is the data source that we have the most data available at this local level. However, if we are striving for mass change to active travel modes, we need to consider the everyday transportation needs of people, rather than just the daily commute. Figure 8.3 looks at the purposes of cycling and walking trips in England.

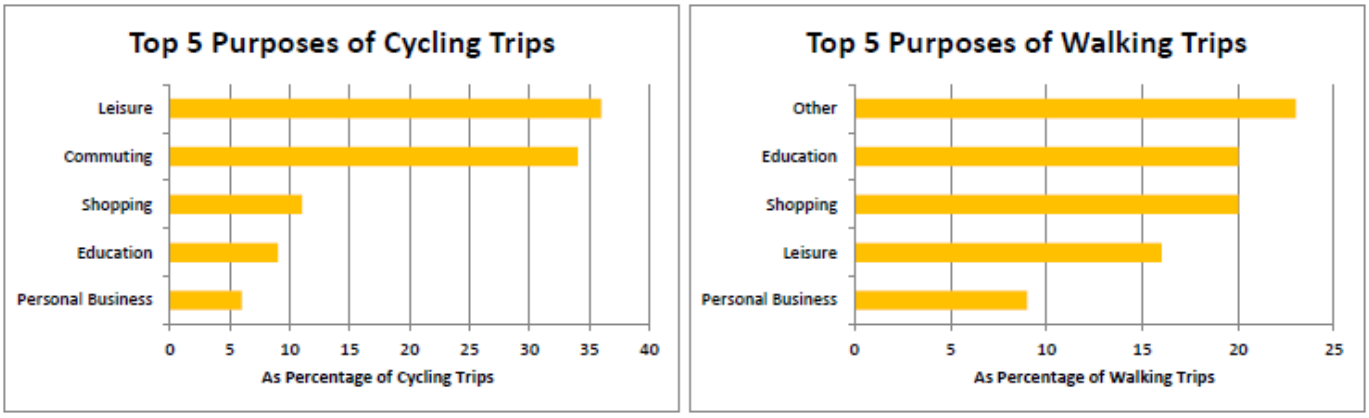


Figure 8.3 - Purposes of Cycling and Walking Trips in England[25]

8.3 Increasing Active Travel in Warrington

There are three main complementary work areas which we believe will increase the numbers of people walking and cycling in Warrington:

- The most important element is to ensure that we have good quality infrastructure in place to enable walking and cycling in Warrington. This can be both new or improved active travel specific infrastructure. We will also need to ensure that the design of new highway projects, such as new junctions, must benefit walking and cycling.

[24] https://www.nomisweb.co.uk/census/2011/lc7701ew
[25] https://www.gov.uk/government/statistical-data-sets/nts04-purpose-of-trips

- We must also look after what we have already. Warrington has a good network already with many good links through our parks and open spaces and many miles of shared paths. However, we need to be better at maintaining them and keeping them clear of overgrown trees and bushes. This is addressed by routine and reactive maintenance strategies in the Asset Management chapter.

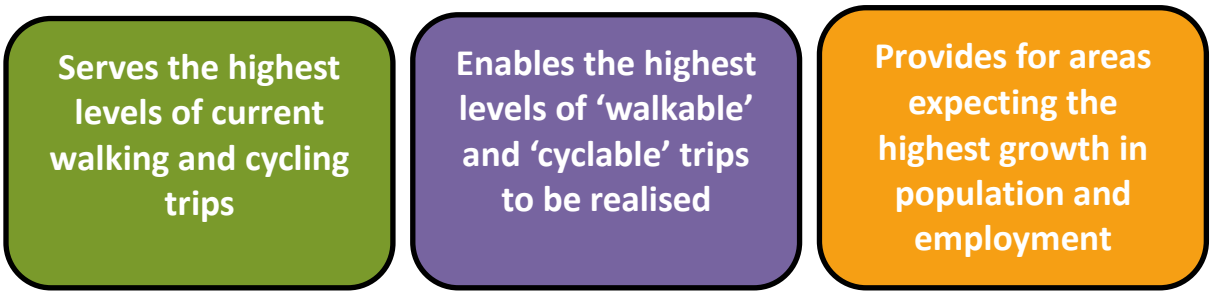
- The third work area is the promotion of the benefits of active travel modes, encouraging their take up, and refuting many of the myths associated with cycling in the UK and expressed during the LTP4 consultation.

8.3.1 Local Cycling and Walking Infrastructure Plan

To ensure that we are taking the right approach to identifying and delivering the improvements that are necessary on our Active Travel network we have developed a Local Cycling and Walking Infrastructure Plan (LCWIP) in line with government guidance. [26] The key outputs of the LCWIP will be:

- A network plan for walking and cycling which identifies preferred routes and core zones
- A prioritised programme of infrastructure improvements for future investment. This would also include the provision of high quality and secure cycle parking
- A report which sets out the underlying analysis carried out which supports the identified improvements and network

The LCWIP will help us achieve three key objectives for the proposed network:



The LCWIP will adopt two guiding principles as part of the process of defining walking and cycling infrastructure. These are:

Convenience - the network should be developed in a way that allows pedestrians and cyclists to get to where they want to go in the shortest time. Routes should connect the places people live to employment sites, educational establishments, key services, amenities and leisure facilities.

Safety - cyclists and pedestrians should be provided with the infrastructure that allows them to feel safe whilst making their journey. Travel safety is considered in more detail in the Safer Travel chapter.

The proposed network has been defined in the LCWIP as a hierarchy of routes that are shown in Figure 8.4.

[26] The Warrington LCWIP can be found at www.warrington.gov.uk/LCWIP

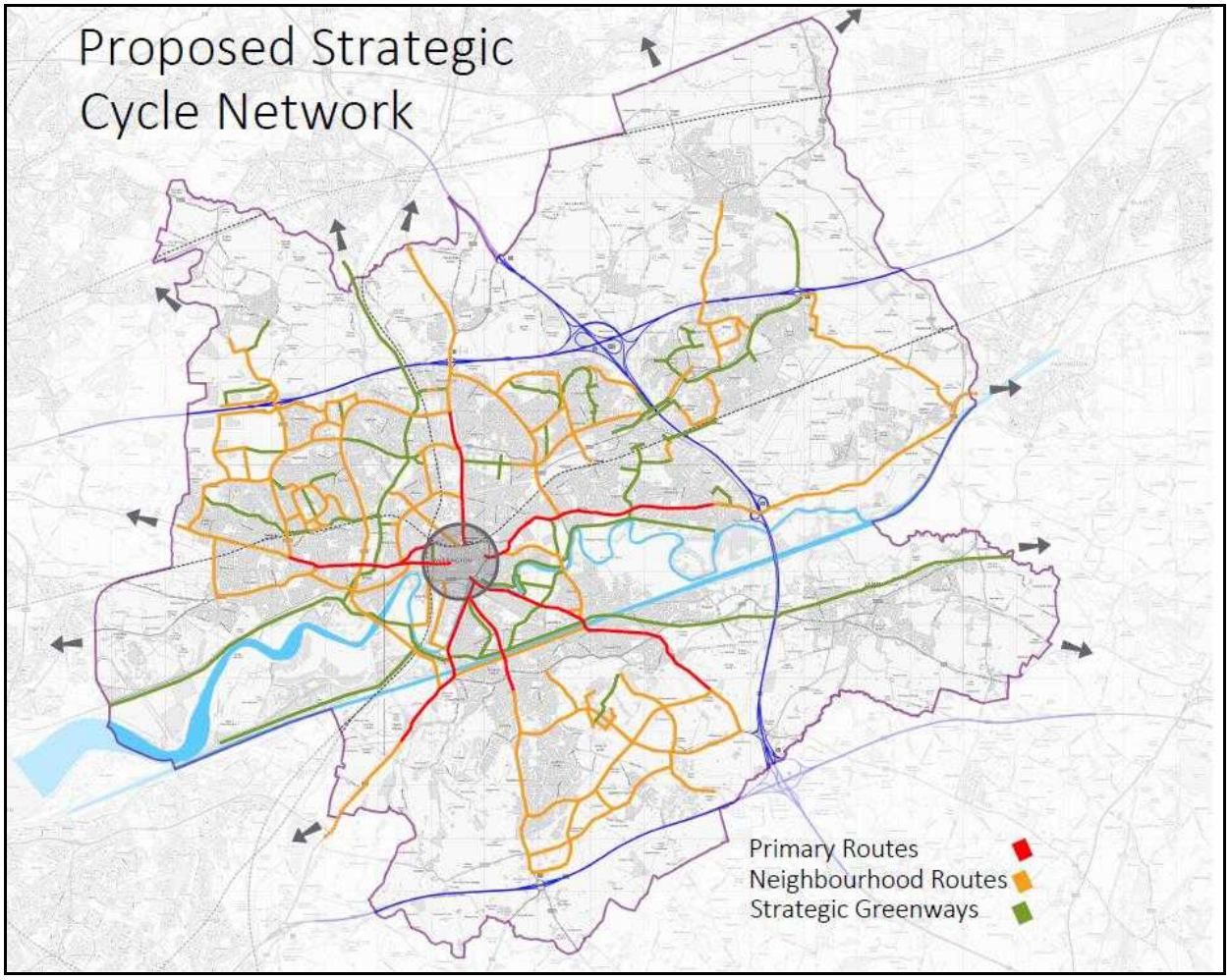


Figure 8.4 - Proposed Walking and Cycling Network

Primary routes will be high quality integrated corridors that radiate out from the town centre hub that use, or follow, the main arterial transport routes. The speed and intensity of traffic is typically too high to enable all but the most confident cyclists to safely integrate with traffic, and as such, the aim will be to provide priority for cycling with segregated, dedicated and safe paths and spaces for people to cycle separated from traffic.

Examples of the key elements of these corridor routes would include:

- Remodelled junctions with improved cycle facilities
- Measures to increase the separation of cycles from other traffic
- Cycle tracks between 1.5m and 2.0m separated by a continuous or near-continuous physical upstand
- Bi-directional cycle tracks between 3.0m and 4.0m wide on one side of a carriageway
- At bus stops, we will look to introduce ‘bus stop bypasses’, routeing cycles through the footway, around the back of bus stops.

Neighbourhood routes are defined as continuous routes segregated from traffic that may be shared with other non-vehicular users. In general, these would be shared use paths which are at least 3m wide which follow the line of a highway and often benefit from street lighting.

Greenways – will be well maintained traffic free routes through open spaces and parks which are suitable for all active travel modes. Whilst important as transport routes, these would also be used for leisure purposes with clear health benefits for all users.

Much of the neighbourhood routes and greenways already exist. Warrington is fortunate to have several greenway routes including the Trans Pennine Trail and Sankey Valley park paths as well as several off road paths through Warrington's formal parks such as Black Bear path and the Whittle Brook path. The Westbrook to Dallam greenway is an example of a new path constructed through an area of open space which sets an exemplar for future paths of this type in Warrington.

There are also many existing cycle routes which form an extensive neighbourhood route network. Some of these are on purpose built footway/cycleways such as Lingley Green Avenue in Great Sankey, and on Admirals Road in Birchwood.

Many new town roads were not provided with any footways and over the years the highway verges on these routes have been retrofitted with a shared use path adjacent to the road. For example, the new path constructed on Cromwell Avenue near the Gemini retail park. This work will continue with the retrofitting of existing roads and/or the construction of new routes within new developments, such as those within the Omega mixed use development.

Currently, there are no routes in Warrington which match the definition of a primary route as set out in the LCWIP. This is one of the primary ambitions of the LCWIP and LTP4 and allows the council to raise the bar on the standard of cycle provision across the borough. Routes have been defined based on their propensity to increase cycle trips with a focus on the journeys between the town centre and suburban destinations.

In addition to the three part cycle network hierarchy, there are also many roads and streets in Warrington which are very lightly trafficked and have low speeds. This "mesh" of quiet cycleable and walkable streets provides the glue between the three part route hierarchy and allows people to make direct, safer and comfortable routes to their destinations. Separate from the strategic cycle network, these quiet roads should be protected to allow them to perform their role as permeable routes within low traffic areas.

In conclusion, the proposed LCWIP network would allow a transformational increase in cycling and walking provision and will go some way to improving Warrington as an attractive place to live. Improvements to the walking and cycling network will be accompanied by improved supporting infrastructure including signage, cycle parking, and facilities for electric bikes.

POLICY AT1	**We will continue to develop our Active Travel infrastructure, through development and implementation of the Warrington Local Cycling and Walking Infrastructure Plan (LCWIP), to create a network that users can use conveniently and in safety.**

As we seek to improve the network we are identifying the locations in the borough where the existing infrastructure can act as a deterrent or barrier to active mode use. Barriers to walking and cycling can include the need to cross busy roads including motorways, rivers and canals, and railways; busy town centre junctions; and steep gradients. Warrington has a limited number of crossings of these barriers which strongly shapes the existing cycle and walking network. All parts of the cycling hierarchy would therefore benefit from new crossings of these barriers, whether bridges, subways or at-grade, to increase opportunities for direct, accessible routes and enhance the attractiveness of active travel modes.

We are also identifying the locations where there is most demand for high quality walking and cycling infrastructure. For example, in locations where car ownership is low, walking is an important mode of transport, particularly as part of a longer journey by public transport. It follows that there is a need to ensure pathways are of a good standard and are routed along the desire lines where people want to go.

POLICY AT2	**We will target walking and cycling investment in areas where there is:** **- greatest potential to increase walking and cycling (including links to rail stations);** **- most demand for high quality infrastructure such as new bridges; and** **- greatest potential to support health improvement through active lifestyles.**

There may be occasions when meeting the needs of one group could have a detrimental impact on another group, such as off road cycleways impacting on routes used for equestrianism. Cyclists and pedestrians should not be forced together where there is space to keep them apart, creating unnecessary conflict which can only increase as the number of cyclists rises. Improvements to the network should therefore be designed and implemented in such a way that this conflict is minimised and the needs of all groups can be met.

POLICY AT3	**We will design and build schemes in a way that ensures that facilities introduced to benefit one category of active travel user are not detrimental to the convenience, accessibility or safety of other users.**

Development of the walking and cycling infrastructure plan for Warrington relies on having good information and evidence to support the proposals. Annual pedestrian and cycle surveys at key locations on the cycle and walking network will continue to be carried out

POLICY AT4	**We will undertake regular monitoring and surveys to understand where, how and why people travel by bike and on foot.**

8.3.2 Using the Planning Process

There are ambitious plans for growth in Warrington as set out in Warrington Means Business strategy and in the Local Plan. Whatever spatial strategy is adopted, it is clear that the next 20 years will see new houses constructed and new jobs created in the borough and a further increase in the overall population in the town. Active Travel can play a central role in providing a fit for purpose transport network that can accomodate this growth.

To ensure that the right infrastructure is included in proposals for new developments it is vital that Active Travel is considered as part of any new development proposals.

New housing development should be sited in locations that allow residents to easily and conveniently travel by sustainable modes, and new employment sites should be easily and safely accessed by pedestrians and cyclists. New development should enhance the existing active travel network.

We can also influence the Active Travel arrangements through the Development Control Process. Transport for Warrington officers are consulted routinely on planning applications. All relevant planning applications should be accompanied by a Travel Plan (TP) which outlines the developer's proposals for walking and cycling infrastructure that will be built as part of the scheme.

POLICY AT5	**We will continue to ensure that Active Travel is considered, and opportunities for walking and cycling increased, as part of the planning process for new development.**

For many developments, including new highway schemes and development projects, Warrington Borough Council acts as the scheme promoter. For these schemes we will ensure that the proposals are designed in a way that encourages walking and cycling.

An important part of ensuring that the walking and cycling improvements are fit for purpose is ensuing that that they are designed to the correct standard. The guidelines for the design of schemes are currently set out by Department for Transport in Manual for Streets 2 and its associated notes, along with the Design Manual for Roads and Bridges.

POLICY AT6	**We will ensure that Active Travel is considered, and opportunities for walking and cycling increased, as part of WBC scheme development by using best practice and government guidelines.**

8.3.3 Mobility Impaired Users of the Active Travel Network

Infrastructure can often act as a barrier for disabled people who wish to cycle. We will promote infrastructure that is inclusive, for example, is sufficiently wide, free of sharp bends and minimise pinch-points. It is vital that the active travel network that we are developing in Warrington is accessible to as many Warrington residents as possible who wish to use it. This includes those residents with mobility impairments and disabilities. An accessible active travel network prevents social isolation, promotes active lifestyles, and reduces the need for car use. Improvements to walking and cycling infrastructure should include:

- dropped kerbs
- tactile paving
- shallow gradients
- step free access
- firm, level surfaces

POLICY AT7	**We will design all walking and cycle route improvements to be accessible for disabled users and those with mobility impairments in keeping with the Equality Act 2010.**

8.3.4 Equestrianism

As with pedestrians and cyclists, equestrians have statutory access to use all roads except motorways, and are able to use bridleways, restricted byways and byways part of the Rights Of Way network. Improvements to the public rights of way network will enable equestrian users to access a more comprehensive network of routes, but will also benefit walkers and cyclists. Where improvements are made to a route they need to take into consideration all potential users and provide the best improvement for all users to maintain using the route as they wish.

POLICY AT8	**The needs of equestrians should be considered during the design of walking and cycling schemes where applicable.**

8.4 Rights of Way Improvement Plan

Our Rights of Way Improvement Plan (RoWIP) sets out our priorities for improving the Public Rights of Way Network in the borough. This network is made up of footpaths, bridleways, restricted byways, and byways open to all traffic.

Our RoWIP, which was adopted in 2006, outlines a number of themes to consider when undertaking improvements to the network. These are:

- Managing user conflict
- Developing a strategic and local network for all users
- Enhancing and maintaining network condition for all users
- Greater use of the network
- Better internal and external communication.

These themes are still valid, as are many of the issues and aspirations that the plan sought to address. For that reason, the RoWIP continued to be a supporting document to LTP3.

To ensure that our aspirations for the Public Rights of Way network are brought up to date, we will undertake a review of the RoWIP in the first five years after the adoption of LTP4. The current RoWIP will continue to be valid until a new Plan has been adopted.

POLICY AT9	**We will undertake a review of the Rights of Way Improvement Plan.**

8.5 Active Travel Policy Summary

Policy	
AT1	We will continue to develop our Active Travel infrastructure, through development and implementation of the Warrington Local Cycling and Walking Infrastructure Plan (LCWIP), to create a network that users can use conveniently and in safety.
AT2	We will target walking and cycling investment in areas where there is: - greatest potential to increase walking and cycling (including links to rail stations); - most demand for high quality infrastructure such as new bridges; and - greatest potential to support health improvement through active lifestyles
AT3	We will design and build schemes in a way that ensures that facilities introduced to benefit one category of active travel user are not detrimental to the convenience, accessibility or safety of other users.
AT4	We will undertake regular monitoring and surveys to understand where, how and why people travel by bike and on foot
AT5	We will continue to ensure that Active Travel is considered, and opportunities for walking and cycling increased, as part of the planning process for new development.
AT6	We will ensure that Active Travel is considered, and opportunities for walking and cycling increased, as part of WBC scheme development by using best practice and government guidelines.
AT7	We will design all walking and cycle route improvements to be accessible for disabled users and those with mobility impairments In keeping with the Equality Act.
AT8	The needs of equestrians should be considered during the design of walking and cycling schemes where applicable.
AT9	We will undertake a review of the Rights of Way Improvement Plan.

8.6 Active Travel Actions

Relevant Policy	Intervention	Timescale
AT1	Finalise Local Cycling and Walking Infrastructure Plan (LCWIP)	0-5 years
AT1	Use LCWIP to identify improvements to the Active Travel Network	0-5 years
AT1	Identify a programme of improvements to complement an improved active travel network, including signage, cycle parking and electric cycle facilities	0-5 years

Relevant Policy	Intervention	Timescale
AT2	Identify areas where walking and cycling investment should be targeted	0-5 years
AT3	Ensure that needs of all active travel users are considered in scheme design	Ongoing
AT4	Continue to undertake surveys	0-5 years
AT5	Continue to assess planning applications for new developments to ensure that active travel is considered	0-5 years
AT6	Undertake walking and cycling audits of all new highway schemes	0-5 years
AT7	Consider the needs of mobility impaired users in scheme design	0-5 years

9 Smarter Travel Choices

9.1 Introduction

Smarter Travel Choices describes a range of approaches designed to help people to become less car dependent; to vary the way they travel and make greater use of sustainable options such as walking, cycling, public transport and lift sharing. It has a wide-ranging scope which aims to help tackle congestion, reduce harmful vehicle emissions and improve health. It also supports a strong economy by enabling car-lite development and aids those without access to a car to gain employment.

Over the past decade smarter travel choices has become a key element of Local Transport Plans. Typically it includes measures aimed at influencing people's travel behaviour towards more sustainable options.

The ambition is to reduce the number of car trips by providing greater awareness of sustainable travel choices, and while there is a growing understanding that infrastructure is fundamental to a modern transport system, it is just as important to support behavioural and cultural change. Over the past 6 years we have delivered:

Travel plans	Business ◆ Residential ◆ School ◆ Area-wide
Information & marketing	Timetables, maps and advice ◆ Journey planners ◆ Apps Travel awareness campaigns and events
Alternatives to travel	Advice on home working ◆ Flexible working ◆ Tele- and video- conferencing
Sustainable choices	Advice on car sharing schemes ◆ Car clubs ◆ Low carbon travel
Training & enabling	Bikeability cycle training ◆ Cycle route advice
Active travel: cycling & walking	Bike hire schemes ◆ Walking and cycling groups
Smart & integrated ticketing	Promotion of smart cards and apps for public transport Rail/bus and rail/bike tickets

These are discussed in more detail below, and evidence shows that if managed effectively, these types of awareness raising measures provide people with the knowledge to make informed choices on a range of travel options and reduce the need to drive for short journeys.

Awareness of Smarter Travel Choices supports Warrington's planned residential and economic growth by ensuring people can get around; to work, school and leisure. It helps to reduce transport's negative effect on air quality, contributes to the public health agenda by increasing activity levels in the local population, and by encouraging those who can use alternatives to the car also supports those who cannot by reducing congestion and queues.

The following subsections discuss how this theme cross-cuts and supports the others, especially Active Travel and Passenger Transport, helping people get around by raising awareness of infrastructure and services, and providing the incentives, support and information they need to make informed choices regarding travel in Warrington.

9.2 Travelling in Warrington

Warrington traditionally has a high dependency on driving for commuting, and this has increased between the 2001 (72.1%) and the 2011 Census (73.9%). This is higher than the North West (65%) and the national average (60%), and it is this high proportion of commuters in cars that drives congestion during peak periods. Figure 9.1 highlights how Warrington compares to neighbouring areas and other new towns.

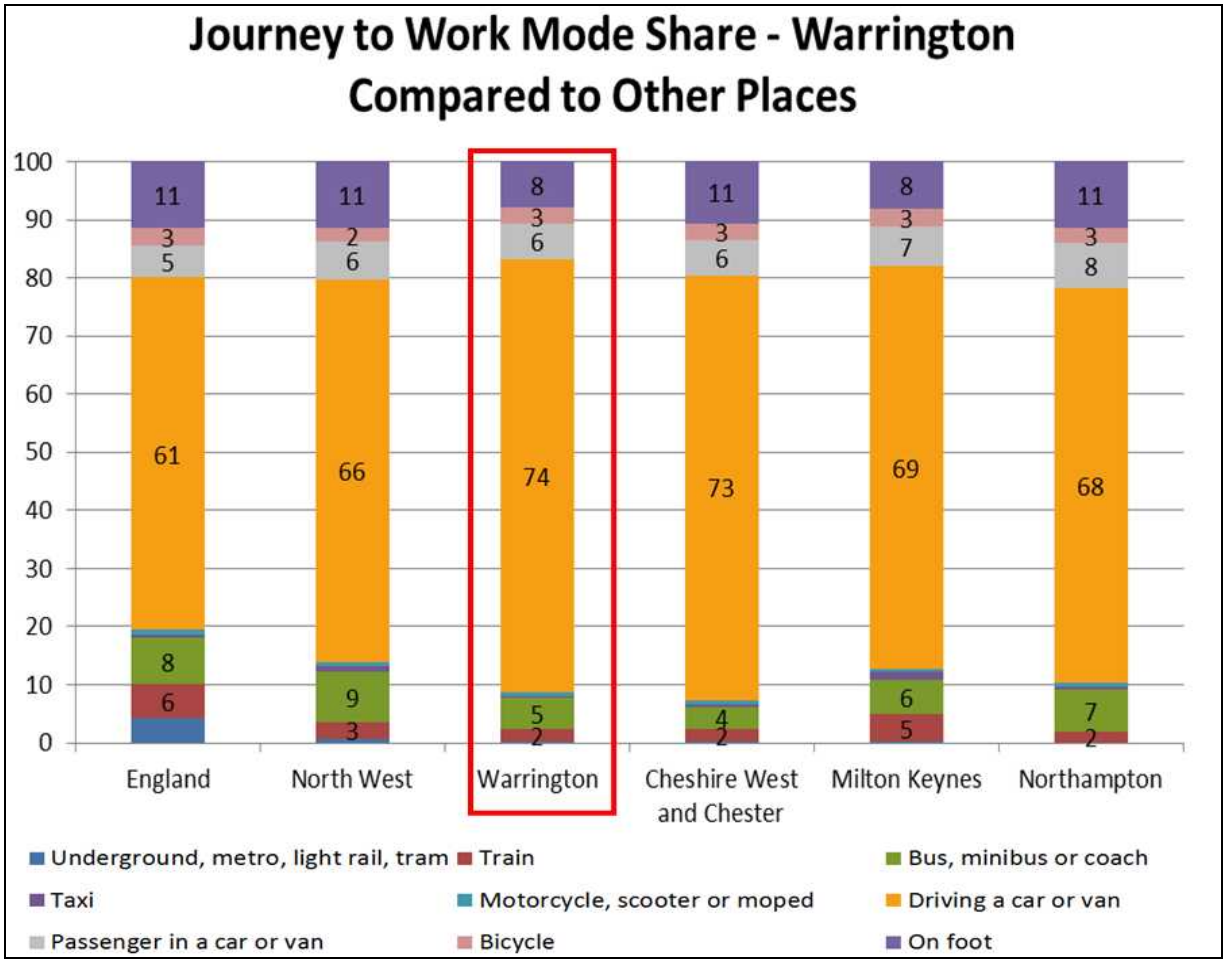


Figure 9.1 - Mode Share for Journey to Work[27]

To combat this car dependency the benefits of using active travel and public transport such as walking and cycling, bus and train, need to be extensively promoted and encouraged.

[27] https://www.nomisweb.co.uk/census/2011/qs701ew

Warrington has several features that support active travel:

- it's relatively flat which makes walking and cycling trips much easier;
- it's fairly compact with most of the major employment, leisure, and residential areas within reasonable cycling and public transport distance, and many local neighbourhood journeys are also within walking distance; and
- strengthened by the Local Plan, we have a once in a generation opportunity to plan significant new areas of the town with active travel as a first principle.

Our plans for enhanced sustainable transport corridors are set out in the Active Travel and Passenger Transport chapters. The Westbrook to Dallam Greenway for example, connects west to east through Sankey Valley Park and provides a high quality and more attractive alternative to Cromwell Avenue for cross town journeys.

As walking, cycling and public transport networks are improved to provide attractive routes these new corridors will offer genuine alternatives to car travel. We will support the rollout of new infrastructure with comprehensive information campaigns to highlight the benefits of the new routes to individuals.

A new approach offering more choice will move away from the new town design principles which have led to high car ownership and high levels of car use through a lack of alternatives. By harnessing the opportunities afforded by new development we will provide attractive alternatives to car journeys within Warrington and offer greater opportunity to reduce levels of car use.

This move to more active travel and public transport use will deliver environmental, health and economic benefits through reduced vehicle emissions and traffic congestion and increased physical activity levels.

9.3 Supporting Economic Growth

The provision of attractive public transport and active travel alternatives, supported by appropriate promotional measures, will reduce the need to travel by car for every journey. This principle is crucial if we are to fulfil Warrington's growth potential in a way that makes the borough a highly desirable place to live and work. In the case of employment development, it will also be vital to ensure non-car access for workers, in order to spread the benefits of economic growth throughout the town.

Future mobility will be all about space. If we are to build the number of homes required by the Local Plan it will become increasingly important how we use the space available for moving around. Cyclists, pedestrians and buses take considerably less space than cars carrying only one person and well-designed streets which balance the needs of all users, are better for a town's liveability, safety and economy.

Car travel dominates the highway network in Warrington. Serious congestion problems are observed during peak time periods, and shaped by the local plan Warrington will be home to considerable numbers of new residents and workers over the next 20 years.

Enabling and encouraging smarter travel choices supports economic growth by shifting journeys from single occupancy car, allowing homes to be built and jobs to be created without correspondingly increasing congestion. Choice of travel can also help strengthen the economy by enabling people without access to a car to get to work.

Improvements to infrastructure and services alone will not be sufficient to achieve a significant modal shift. Smarter Travel Choices interventions will be needed to promote behaviour change. Our programmes will include:

- working with partners to understand their needs and the most appropriate infrastructure and services to enable people to make a choice;
- working with employers and employees to encourage them to use the sustainable modes available to them;
- advising jobseekers on how they could travel to employment opportunities, and providing the most appropriate support;
- working with schools and families to enable and encourage more active travel to school;
- promoting the use of new transport infrastructure and services;
- working with key healthcare and education venues to promote sustainable travel;
- ensuring sustainable travel to major new developments via the planning process.

New development provides an excellent opportunity to create new active travel infrastructure and encourage sustainable travel lifestyles to new residents or businesses before car-based journey patterns become established. A key stage of behavioural change is targeting people at different life stages as new habits are formed. These include changing schools or jobs and moving house. Opportunities to encourage as many people to make effective choices involving walking and cycling, and moving by bus and train, can be built in to new developments by the use of Travel Plans.

The National Planning Policy Framework (NPPF) advises that Local Plans should protect and exploit opportunities for the use of sustainable transport modes. It recommends that developments should be located and designed where practical to give priority to pedestrian and cycle movements and have access to high quality public transport facilities. A key tool to facilitate this is a Travel Plan, and developments which generate significant amounts of movement are required to provide one. Four types of Travel Plan for different audiences are outlined in the following sections however all have the same purpose; to provide people with alternative choices to making all journeys by car.

9.3.1 Workplace Travel Plans

The Council offers a Workplace Travel Advisory Service to businesses to inform and promote sustainable travel choices, working with employers and employees to understand the barriers to making more sustainable journeys and where possible instigate change. In addition, jobseekers also receive advice on their travel options to different job destinations which can increase their employment opportunities.

Working with employers, changes can be made to the physical environment, such as secure cycle parking, additional bus shelters and safe walking routes, to ensure those employees that can get to work without a car can do so safely. Underwritten bike purchase schemes such as Cycle2Work, subsidised public transport tickets and personalised route planning are all measures that are encouraged to support reduced driving to work.

An example of this can be seen in the B52 shuttle bus service to and from Omega. Working with businesses allowed timetables to be tailored to the shift patterns, and postcode analysis ensured optimum routing to benefit the greatest number of workers.

Working patterns have become far more flexible with fewer people working standard 9 to 5 hours. Many employees can now work from home or a remote location, using internet based technology, reducing the need to travel to work. It is expected that this practice will increase in the future and aid a reduction in peak time congestion.

9.3.2 Residential travel plans

With the current level of demand for housing in Warrington, a substantial level of growth is expected in the next decade. Integrating new housing development and minimising the impact of this on the existing transport networks is a key challenge. House builders are required to submit Residential Travel Plans plan via planning conditions, with some opting for the Council to deliver them on their behalf.

POLICY STC1	**We will ensure new employment and residential developments are designed to positively encourage people to walk, cycle, and use public transport in accordance with bespoke Travel Plans.**

9.4 Supporting Town Centre Regeneration

9.4.1 Town Centre Area Travel Plan

The emergence of town centre living together with lack of space for associated car parking cultivates the ambition to create a car-lite environment. To support this we will develop and deliver a bespoke Travel Plan for the town centre. This will bring together and enhance the bus and rail offer and introduce new schemes such as a car club and bike sharing to enable car free and car-lite living as well as identifying accessibility improvement schemes.

To deliver this a new Town Centre Travel Advisory Service will be created to deliver and promote schemes to residents and other users of the town centre, including shoppers, workers and visitors. It will be funded via the Travel Plan process, Uni-lateral undertakings, Section 106 Agreements, and other funding opportunities that arise.

POLICY STC2	**We will expand our delivery of travel choice and advice to support economic and residential growth within the town centre to minimise the need for additional road and parking infrastructure and reduce the need for car travel.**

9.4.2 Car Club

A car club will be considered as part of the Town Centre Travel Plan. This is an efficient way for people to have access to a shared car when they need it, without owning it.

Vehicles are parked in dedicated and clearly marked parking spaces close to homes and workplaces and are available on an hourly or daily basis, 24 hours a day, 7 days a week. Members usually have a choice of how to book cars in various locations using the internet, mobile apps, or over the phone. This flexibility allows more efficient travel, by making best use of cars alongside trains, buses, and cycling and walking.

Among the many advantages of such a scheme is the cost saving of not owning a car. Privately owned cars are, on average, parked 95% of the time. Car clubs provide their members with convenient access to cleaner vehicles without the hassles and expense of ownership (such as tax, MOT, fuel, servicing, repairs, depreciation and parking). For members who drive less than 6-8,000 miles per year, a car club could save up to £3,500 a year. After a membership fee, a car can be booked for as little as £4 an hour.

Car clubs are typically delivered by a commercial, or sometimes community organisations that handle the insuring, booking systems, maintaining and usually buying the vehicles. Given the high car ownership in Warrington, it has never been seen as necessary or cost effective to run a car club, however with the emergence of hi-rise apartment living in the town centre with fewer car parking spaces, this is changing. Funding will be sought through S106 agreements, the Travel Plan process, Uni-lateral undertakings, and other funding opportunities that arise.

9.4.3 Bike Sharing

A variety of creative ways to provide public shared access to bikes is emerging across the country for communities of all sizes. These include 'docked' schemes, which are fixed to docking station frameworks (e.g. Santander Cycles in London and the Citybike scheme in Liverpool), and 'dockless' schemes, which are freestanding smart bikes which are located, released and paid for via an app. (e.g. Nextbike in Bristol). We will research the best model for Warrington, taking into consideration the benefits of current schemes, and deliver a bike share scheme to support the town centre travel plan.

POLICY STC3	**We will seek to establish and promote a town centre car club and a bike sharing scheme, and look for funding opportunities to expand them when appropriate.**

9.5 Supporting Sustainable Modes of Travel to School

9.5.1 Sustainable Modes of Travel to School (SMOTS)

The publication and delivery of a Sustainable Modes of Travel to School Strategy (Appendix E) is a statutory duty of every local authority. There are five main elements to the duty that all local authorities must satisfy:

- an assessment of the travel and transport needs of children and young people within the authority's area;
- an audit of the sustainable travel and transport infrastructure within the authority's area that may be used when travelling to, from or between schools/institutions;
- a strategy to develop the sustainable travel and transport infrastructure within the authority so that the travel and transport needs of children and young people are best catered for;
- the promotion of sustainable travel and transport modes on the journey to, from, and between schools and other institutions; and
- the publication of the SMOTS to allow public access.

The SMOTS outlines how we will comply with and fulfil these five elements in the face of an ever changing educational environment with reduced local authority influence.

9.5.2 School Travel Plans

The School Travel Advisory Service supports the existing and growing needs of schools within Warrington, and delivers some of the elements of the current Sustainable Modes of Travel Strategy.

Nationally it is estimated that the 'school run' accounts for approximately 20% of peak hour traffic, and its impact on children's and the wider public's health and its contribution to congestion is universally recognised.

The high employment rate in Warrington, together with the wide range of activities both in school and after school all contribute to the need to drive to school, but the wide variance with national behaviour as shown in Figure 9.2 highlights the particularly high car dependency in Warrington. We are however beginning to see the benefits of scooter and cycle training, with 7% of children using these modes.

In 2017/18 the prevalence of children overweight and obese in Reception was almost 26% and in Year 6 had grown to over 33%. Encouraging walking and cycling for all or part of the school run can help to make exercise a part of the daily routine and the norm through growing up into adulthood.

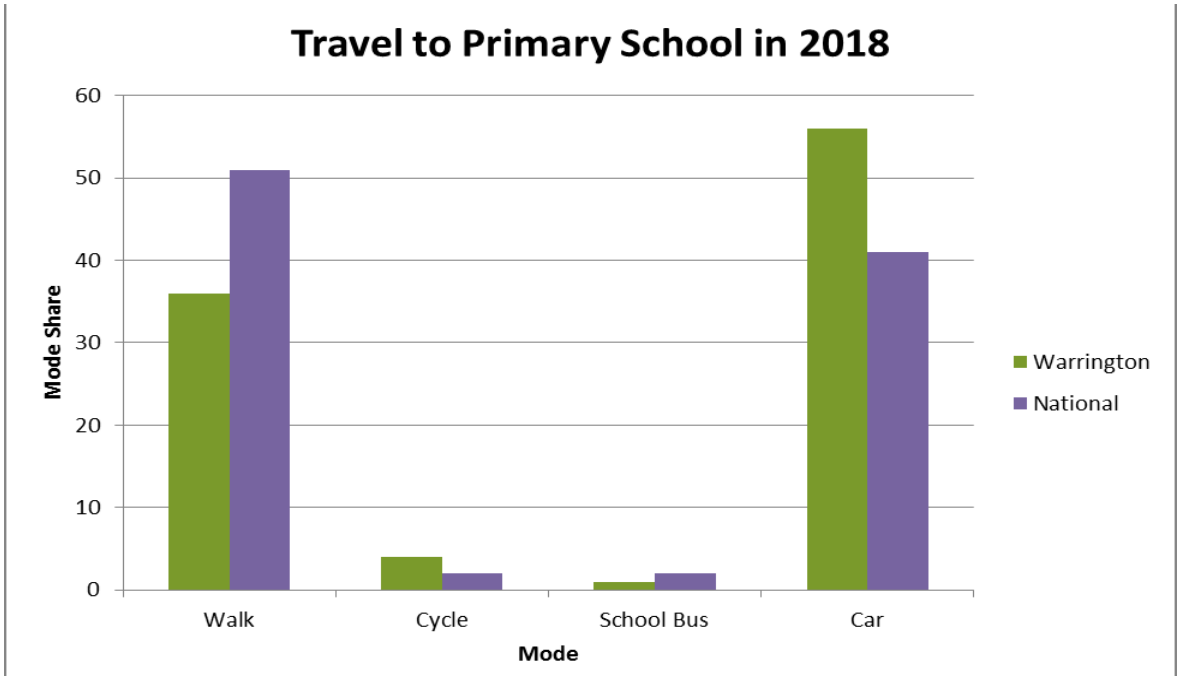


Figure 9.2 - Travel to primary school in 2018[28]

Schools are supported to develop and update their travel plans, and also with implementing the various measures and actions by our School Travel Adviser. These can include training children to use their scooters safely, launching walking or cycling days, or establishing junior PCSO schemes to help reduce inconsiderate parking. Creating a School Travel Plans is often made compulsory when a school needs additional local authority support with congestion or parking issues, or through the planning process.

[28] Warrington Borough Council School Surveys

9.5.3 Bikeability cycle training

The provision of Bikeability child cycle training has been a major success in Warrington. Funded by a government grant which the council has to bid for, professionally-delivered training is offered free-of-charge to every 9 – 13 year old child in their school. Between 2007 and 2018 the council, through its approved providers, has successfully trained almost 22,000 pupils with grants totalling £872,600.

The impact of this is shown in Figure 9.2, with 4% of primary school children regularly cycling to school compared with 1% in 2011 and 2% nationally.

The grant scheme has recently been extended to cover learn-to-ride training for younger children and more advanced training for teenagers and parents, and a programme of rides and safety lessons is being developed for 2019/20 onwards. We believe that training in advance of the transition to high school is crucial to embed a cycling culture and an important factor in allowing more people to enjoy cycling more often. Safer routes to school are considered as part of the wider active travel network within the Active Travel chapter.

POLICY STC4	**We will continue to deliver the SMOTS, including support for school travel plan implementation, and continue to bid for funding to continue and expand the programme of child cycle training courses.**

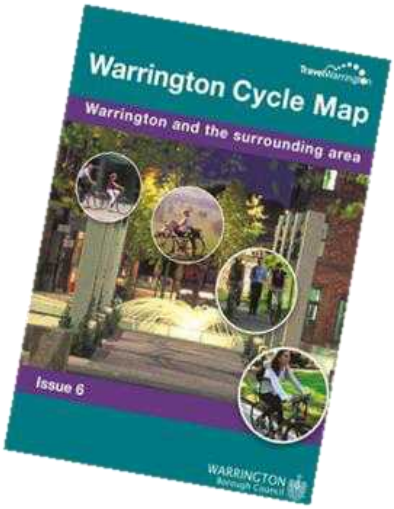
9.6 Supporting Active Travel

Active Travel is at the heart of our local transport strategy. The guiding principle is that walking and cycling should be everyday ways of getting around, helping increase physical activity, tackling congestion, reducing harmful emissions and improving the public realm.

In 2017 the council hosted a series of stakeholder summits to gain feedback on a range of transport topics. The first of these focussed on active travel, stakeholders were asked what the barriers were for replacing short car journeys with a walk or cycle trip. Concerns about safety, lack of knowledge of routes and the dominance of the car making cycling and walking unwelcome in some areas were identified as key barriers.

9.6.1 Cycle map

The main promotional tool to support cycling is Warrington's Cycle Map. This has been developed with the help of many partners, and is regularly reviewed and updated when new routes are built. Cycle users have diverse needs and cycle for a number of different reasons and purposes, for example to commute, for leisure, or as a sport, and look for different types of route and infrastructure.



Consequently, both on-road and off-road routes have been included in the map, with the road network graded by levels of experience needed, to allow people to plan a journey using only roads they are comfortable cycling. This supports those less confident to find an alternative to their normal driving route, which in many cases could be quicker.

POLICY STC5	**We will support the rollout of new infrastructure with comprehensive information campaigns to highlight the benefits of new cycle routes to individuals.**

9.6.2 Adult Cycle Training

It is also recognised that many adults require confidence training to allow them to cycle more regularly, and especially the short journeys that are so often driven.

A programme of adult cycle training and rides, to raise competence and confidence, will be required to support the increase in cycling set out in our vision for transport. The majority of adult cyclists are also motorists so the skills developed through these cycling courses will also be valuable in helping motorists understand how to interact with cyclists.

POLICY STC6	**We will actively pursue funding opportunities to enable a programme of adult cycle training courses and rides to be delivered on an ongoing basis.**

9.6.3 Promotion of bus and rail services

A key factor in increasing the use of public transport is to make it frequent and easily accessible. Awareness of which services go where, and how to use the services is also essential and is included in the various workplace, residential and school travel plans. There are many positive examples from around the UK of how a combined investment in high quality buses, routes, and marketing results in significant increases in patronage.

The bus industry as a whole has experienced a decline in patronage in recent years, but rebrands and improved ticketing has enhanced the offer from them. We will work with all the bus operators in Warrington to help to positively market their services to different audiences to encourage more use.

Rail is experiencing a long term increase in passenger numbers across the UK, and Warrington is no exception with sustained and impressive growth, as shown in Figure 9.3.

We will support the continuing success of rail by working with train operators to promote their services, particularly highlighting the potential for short journeys within Warrington to be made by rail due to the key advantage of being unusually well served by rail stations. There are currently six within Warrington with a seventh, Warrington West, opening in 2019.

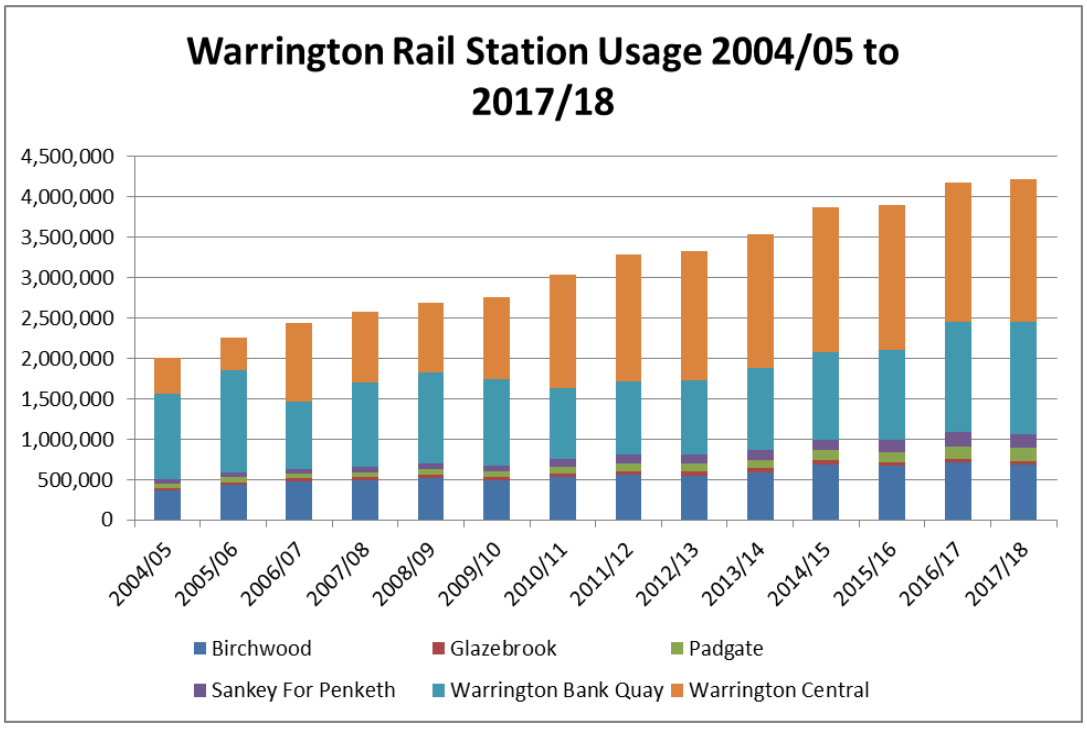


Figure 9.3 - Rail Passenger Growth in Warrington[29]

[29] http://orr.gov.uk/statistics/published-stats/station-usage-estimates

We will also provide the evidence base to persuade bus and rail operators to coordinate timetables where services meet to provide attractive transfer times.

POLICY STC7	**We will continue to use a range of media to promote bus and rail services and work with operators to help inform routes, timetables and service levels to provide an attractive alternative to the car.**

9.7 Supporting Health and Wellbeing

Supporting more people to get about using active travel has health benefits both for the individual and the wider population.

9.7.1 Active lifestyles

Walking and cycling have acknowledged positive physical and mental health benefits. As a result physical exercise has been described as a 'wonder drug' and active travel allows people to build physical activity in to their everyday routines.

Obesity is climbing steadily and mental health is now widely recognised as a growing health priority. Evidence from the New Economics Foundation demonstrates that regular physical activity is associated with lower rates of depression and anxiety across all age groups. Exercise is essential for slowing age-related cognitive decline and for promoting well-being.

Neighbourhoods lined with parked cars or filled with a constant stream of traffic passing by, inhibit contact between neighbours. Areas with the greatest health deprivation are located in central and northern Warrington within convenient walking or cycle distance from town centre amenities and several employment areas making active travel options a viable alternative.

Simply encouraging more people to use a particular walking or cycling route can increase their feeling of safety, by creating a busier route which makes people feel less vulnerable. More people walking and cycling in their neighbourhood also increases social interactions between neighbours, encouraging communication and discouraging anti-social behaviour.

Those that support more walking and cycling for shorter journeys are more likely to create a feeling of safety and encourage more social interaction. The ability to look out onto a street busy with people rather than cars, or to have a passer-by stop and say hello, contributes to people feeling less isolated and a more positive mental health.

9.7.2 Air Quality

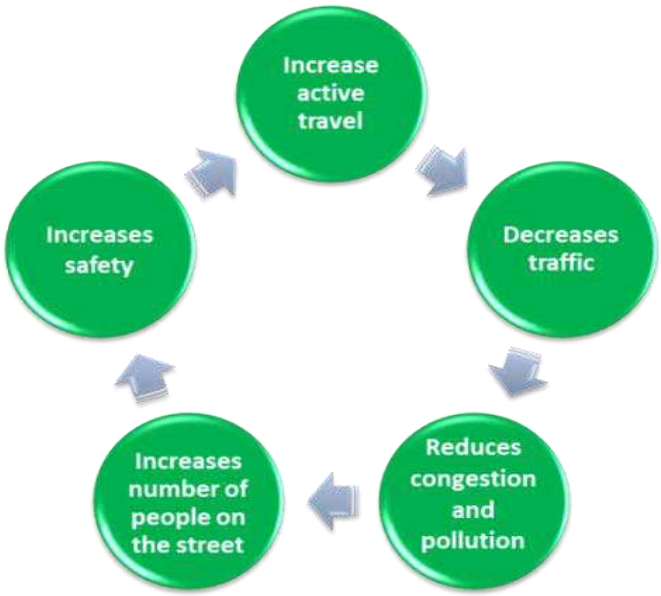
Warrington has two Air Quality Management Areas (AQMAs) where NOx emissions exceed legally prescribed limits as a result of emissions from traffic. The council's Air Quality Action Plan describes how we are tackling emissions within the AQMAs, however we want to reduce emissions from road traffic across Warrington.

The Cleaner Fuels Strategy explains how we will tackle exhaust emissions, but other vehicle-related emissions from brake, tyre, clutch and road surface wear, and also the effects of vehicle-related noise, can only be tackled effectively by reducing numbers of vehicles entirely. The combined efforts of the Air Quality Action Plan, Cleaner Fuels Strategy, and Smarter Travel Choices programme will reduce noise and emissions and improve air and noise pollution related health issues.

POLICY STC8	**We will continue to promote active travel to support healthier lifestyles.**

9.8 Supporting Safer Travel

Busier active travel routes result in a reduction in vehicle traffic which provides a virtuous circle of increasing active travel, decreasing traffic and increasing feeling of security. We will support this by both promoting new corridors, and informing potential users of the type and location of new infrastructure by talking to a wide cross section of people travelling in Warrington to understand how we can support them to feel confident to travel actively.



Car occupants comprise the greatest number of reported road casualties; however, the second highest group of casualties are pedal cyclists at 11.8% closely followed by pedestrians at 11.2%. In the cyclists group 85% of casualties are males, in no small part due to greater numbers of men cycling than women. It has been difficult to encourage take up of cycle skills training by male commuters, who perhaps view it as unnecessary. We will continue to offer this important life skill and expand when funding allows to ensure a high level of proficient and competent cycle users.

In the pedestrians casualty group all ages are concerns although a higher proportion can be seen in 10 to 11 year olds. Education through training can influence change so we will particularly target this age group with offers of cycle training and road safety education within the Transition to High School programme.

POLICY STC9	**We will support a safer traveling environment around Warrington with education and training programmes.**

9.9 Supporting Equality of Opportunity

We also want to ensure that all sections of the community have the same access to transport, leisure, health, and job opportunities.

9.9.1 Ability and gender equality

Disabled children and adults often face barriers to taking part in any physical activity, although growing numbers of disabled people cycle, using standard bikes as well as adapted cycles. For some, riding a bike can be easier than walking, easing joint strain, aiding balance and relieving breathing difficulties. Pedal-assist e-bikes give all the freedom and benefits of cycling, with a little extra assistance. The result is less force required, more miles and all the health benefits of life on two wheels.

Women and men's journey patterns are different; women are more likely than men to feel at risk walking through parks or cycling on roads, and almost three quarters of them never cycle. Although becoming more shared, it's still the case that women need to balance journeys for family needs; they make more use of public transport, and are more likely to make multi-stop trips.

POLICY STC10	**We will develop programmes to support all sections of the community to become more independent and physically active by using active travel and public transport.**

9.9.2 Access to work

Smarter Travel Choices also has a key role to play in 'closing the gap' between affluent and less-affluent areas of the town by ensuring that residents are aware of the transport options available to access employment and services. Increasing the number of travel options can help improve accessibility to services and increase the job opportunities available to people, especially those without access to a car. Cycling and walking are affordable transport options for most and many low income households are reliant on buses for access to work, education, health services and shopping.

We have been successful in both supporting and delivering shuttle bus services to major employment sites. Lingley Mere Business Park, Birchwood Business Park, Omega and Daresbury all benefit from shuttle buses operating within Warrington providing direct and timely services for employees. These services help to open up job opportunities for people who don't have access to a car in addition to those who find the services more convenient than driving.

'Wheels to Work' schemes in other areas assist jobseekers to access work by offering tailored plans that particularly assist them to attend interviews and during the initial period of employment by providing free access to a bicycle or discounted bus and rail tickets. A scheme such as this in Warrington has the potential to ensure that every jobseeker has the opportunity to benefit from the success and prosperity of an economically successful town.

POLICY STC11	**We will develop a more tailored offer for jobseekers, providing incentives and assistance to attend interviews or in the initial period of employment, when required**.

9.10 Smarter Travel Choices Policy Summary

	Policy
STC1	We will ensure new residential and employment developments are designed to positively encourage people to walk, cycle, and use public transport in accordance with a travel plan.
STC2	We will expand our delivery of travel choice and advice to support economic and residential growth within the town centre to minimise the need for additional road and parking infrastructure and reduce the need for car travel.
STC3	We will seek to establish and promote a town centre car club and bike sharing scheme and look for funding opportunities to expand them when appropriate.
STC4	We will continue to deliver the SMOTS, including support for school travel plan implementation, and continue to bid for funding to continue and expand the programme of child cycle training courses.
STC5	We will support the rollout of new infrastructure with comprehensive information campaigns to highlight the benefits of new cycle routes to individuals.
STC6	We will actively pursue funding opportunities to enable a programme of adult cycle training courses and rides to be delivered on an ongoing basis.
STC7	We will continue to use a range of media to promote bus and rail services and work with operators to help inform routes, timetables and service levels to provide an attractive alternative to the car.
STC8	We will continue to promote active travel to support healthier lifestyles.
STC9	We will support a safer traveling environment around Warrington with education and training programmes.
STC10	We will develop programmes to support all sections of the community to become more independent and physically active by using active travel and public transport.
STC11	We will develop a more tailored offer for jobseekers, providing incentives and assistance to attend interviews or in the initial period of employment, when required.

9.11 Smarter Travel Choices Actions

Relevant Policy	Intervention	Timescale
STC1	Continue to assess planning applications for new developments to ensure sustainable transport is considered and travel plans are implemented.	0-5 years
STC2	Develop a bespoke Town Centre Travel Plan and increase travel choices support within town centre	0-5 years
STC3	Investigate town centre car club in Warrington	0-5 years
STC3	Investigate bike sharing scheme for Warrington	0-5 years
STC4	Continue to deliver the Sustainable Modes of Travel to School strategy.	0-5 years
STC4	Identify funding sources and bid to them for continued child cycle training provision	0-5 years
STC5	Continue to promote and raise awareness of new sustainable travel infrastructure	0-5 years
STC6	Identify funding sources and bid to them for provision of adult cycle training	0-5 years
STC7	Work with bus and rail operators to help identify service improvements	0-5 years
STC7	Promote bus and rail service improvements	0-5 years
STC8	Continue to promote active travel as part of a healthier lifestyle	0-5 years
STC9	Develop education and training programmes that support safer travel	0-5 years
STC10	Identify requirements for a programme of promotional campaigns that promote sustainable travel for all	0-5 years
STC11	Work with partners to identify and remove barriers that travel creates for jobseekers.	0-5 years

10 Passenger Transport

Passenger Transport covers all forms of motorised passenger transport services available for use by the general public. Public transport currently available in Warrington includes express coach, local bus, rail, and taxi/private hire vehicles. Future modes could include light rapid transit services such as tram/light rail or express/guided bus.

The population and economic growth forecasts for Warrington Borough are amongst the highest in the UK. If we are to deliver this growth in a sustainable way, whilst reducing the economic and health impact of congestion, then we need to significantly increase the use of passenger transport services. A modal shift from private car use to passenger transport can:

- dramatically reduce congestion and improve air quality;
- increase physical activity; and
- Reduce road space/parking required to accommodate private vehicles and make the road space available for cycle and walking routes.

10.1 Bus

10.1.1 Buses in Warrington

The bus is the most inclusive form of mass travel in Warrington, with supporting infrastructure in the heart of our town centre and across Warrington. The network of bus services in the borough facilitated 6.8 million passenger trips (starting in the borough) in 2017/18; this was a slight increase on previous years. The bus network is supported by a real time passenger information system that provides live timetable information to passengers at bus stops, via the internet and smart phone applications.

The network of services has witnessed regular change in recent years, in terms of routes, frequencies and - until 2016 - regular fare increases. Public funding for bus services has dramatically reduced during the LTP3 period as a consequence of austerity.

Local government has a role in supporting efficiency and effectiveness in bus service and taxi operations, by:

- maximising priority measures such as bus lanes and bus gates that can put buses ahead of queuing traffic
- maintaining complementary infrastructure such as Warrington Bus Interchange and bus stops as well as taxi ranks
- to continually offer publicity of all available services

Complementary policies and projects, in the form of our Local Bus Strategy and Real Time Passenger Information are critical in enabling and facilitating growth in bus use. The Bus Services Act (2017) provides opportunities to further encourage operators to develop enhancements which should stimulate growth in passenger numbers.

The proposed housing and economic growth in Warrington offers a unique opportunity for us to plan large scale bus infrastructure requirements and maximise enhancements to public transport by securing Section 106 and Section 278 developer funding. This will ensure that new developments are adequately served by passenger transport services.

10.1.2 Bus Services and Patronage in Warrington

The majority of bus services in Warrington are operated commercially, with over 80% of the overall mileage provided by Warrington's Own Buses (WOB). Other bus operators operate several bus services within Warrington, which are important in providing cross boundary trips in and out of the Borough. Arriva services extend the available bus network, particularly to the south-west and west of Warrington, with services to Runcorn, Chester, and Liverpool. The Go Ahead group also run services into Greater Manchester to the east. In addition, there are several bus services operated by smaller companies, operating commercial commuter / school services within the borough.

The bus network in Warrington runs largely on a 'hub and spoke' pattern with Warrington Bus Interchange acting as the 'hub' and routes radiating out like 'spokes' from the town centre. Although this is very effective for most journeys into the town centre, the pattern does require users to travel into the centre and back out again for cross-town journeys. This is a particularly significant issue and a barrier for residents living in areas to the north of the town centre seeking to travel east/west to the Birchwood, Gemini and Omega developments.

For example, a resident of Great Sankey who works at Gemini would use the 14/15 from Great Sankey in to central Warrington, and then the 17/17A/17C to Gemini. An Orford resident travelling to an appointment at the General Hospital is required to use the 20/21 and 16/16A services for their journey.

The hub and spoke pattern also results in most bus trips from within Warrington requiring an interchange in the town centre to access Warrington General Hospital, a key destination for employment, patients and visitors.

There are two datasets used for measuring bus patronage in areas such as Warrington. One of these is the number of bus journeys originating in the borough (the number of people getting on a bus in Warrington). By this measure, between 2008/09 and 2011/12 bus patronage was relatively stable, fluctuating between 10.8 and 11.5 million passengers per year.

However, since 2011/12, bus boardings have fallen from 10.8 to under 7million passengers per year. More recently there have been positive signs of recovery over the last two years, first stabilising the decline and then in 2017/18, rising by 220,000 passengers to 6.8 million, as shown previously in Figure 4.3.

The other measure is the number of passenger journeys on local bus services, which counts the number of passengers on all buses in Warrington. This dataset shows a decline in patronage since 2010/11. The trend for Warrington compared with neighbouring authorities is shown in Figure 10.1.

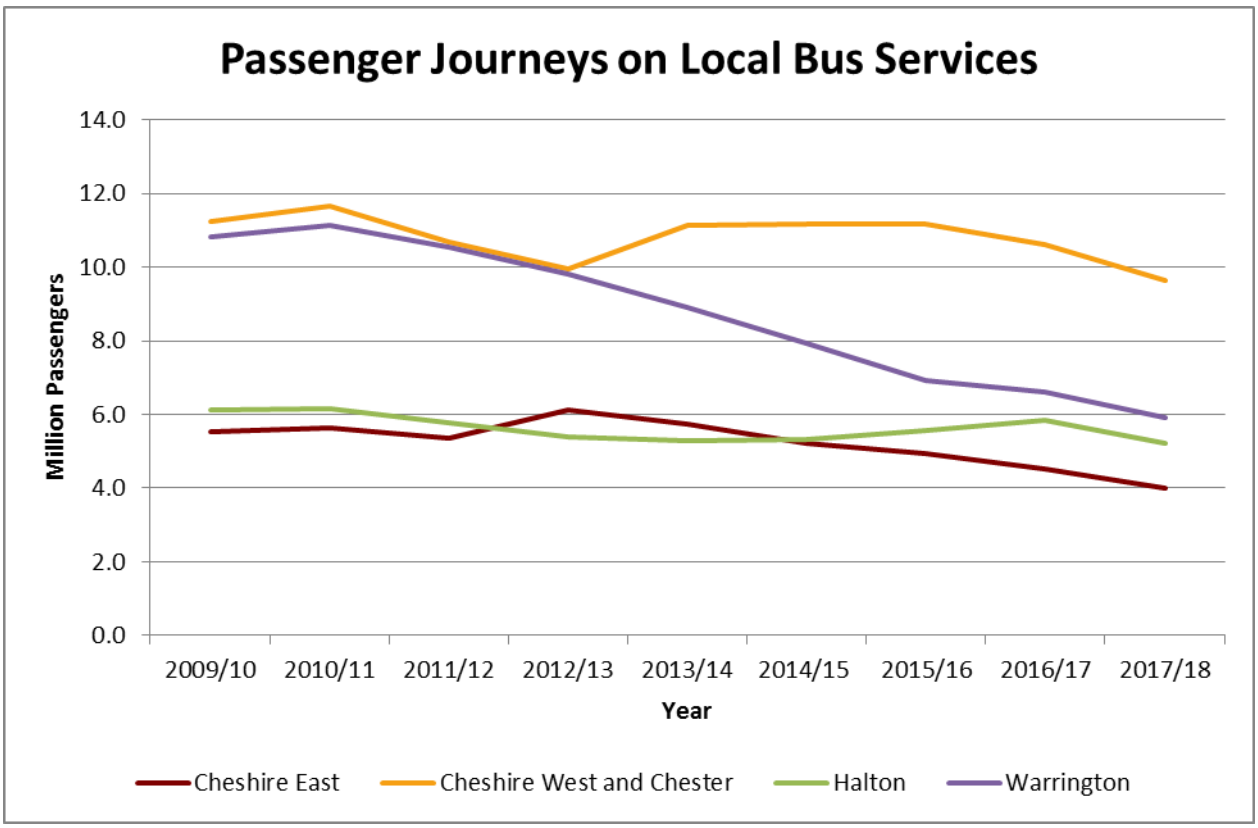


Figure 10.1- Bus Patronage in Warrington (Journeys per year) Compared with Neighbouring Authorities[30]

[30] https://www.gov.uk/government/statistical-data-sets/bus01-local-bus-passenger-journeys

Bus patronage fell by 39% in Warrington between 2008/09 and 2015/16. Nationally there has been a decline in bus patronage but not at the same rate as in Warrington, with the 2015 National Travel Survey demonstrating a 19% decrease in bus patronage nationally since 1996/97.

Interestingly, there has been a 231,000 (9%) reduction in the usage of English National Concessionary Travel Scheme (free) passes in the 2014/15 to 2017/18 period in the Warrington area.

10.1.3 Increasing Bus Patronage

Increasing the number of people who choose to travel by bus is a key component of our vision for transport in Warrington. The benefits of people travelling by bus rather than private car include:

Benefits to Residents	Benefits to Warrington	Environmental Benefits
Improved health through linked active travel	Reduced congestion	Improved air quality
Reduced social isolation	Less requirement for car parking	Reduced carbon emissions

If Warrington residents are to be encouraged to make bus travel their regular choice for work and leisure, bus services need to meet their needs and provide services that people want. The most important factors that people look for when considering bus usage for a journey are:

- **Route** - having a bus service that will take the passenger from where they are to where they want to go, and back again (e.g. home to work)
- **Frequency -** having regular, frequent services operating a route for convenience and reliability
- **Journey Time -** having shorter journey times with limited interchange to reduce the amount of time spent waiting for connecting services

- **Passenger Experience -** making bus use easier and more comfortable for passengers, with assurance that services will turn up as advertised (Real Time Passenger Information), and with a consistent quality of service
- **Cost** - having affordable fares that allow buses to compete with car travel

POLICY PT1	**We will work with partners to review the core strategic bus network to link existing and new residential areas with employment sites and key local services. This will consider cross-boundary routes.**

The frequency of bus services on a route is important to increasing patronage, because frequent buses:

- reduce the time that people spend waiting at bus stops, improving overall journey time;

- give passengers confidence that buses are available if they travel at a different time to their regular journeys, reducing the reliance on having access to latest timetables; and
- give passengers confidence that connections to onward journeys can be made.

It is also important that passenger transport services operate at the times that people want to travel. This includes services that operate at shift change times and services that complement the leisure activities available in the borough.

POLICY PT2	**We will work with partners to improve frequency and operational hours of services on key bus routes in Warrington where possible.**

When people are considering making a change away from private car journeys to more sustainable modes journey time comparison will be an important factor in their decision. Infrastructure improvements such as bus gates (bus only routes) and bus priority measures on congested routes can be implemented and enforced by the Council to give buses a time advantage over other vehicles and improve journey time reliability.

POLICY PT3	**We will work with bus operators to identify the highway improvements and bus priority measures that will improve journey time and reliability for buses, and identify funding sources for their delivery.**

Economically disadvantaged areas of Warrington, where car ownership is lower and provision of access to employment is a priority, are those that would benefit most from improved bus services.

POLICY PT4	**We will give priority to supporting public transport services which enable disadvantaged groups and communities to access employment and services.**

The quality of information that is available to passengers is vital in supporting and encouraging them to travel by bus. This includes information about bus routes, timetables, bus stop locations and ticketing options. The information can be in the form of printed timetables and literature, bus stop timetables, websites and mobile applications. Real Time Passenger Information is available at bus stops, via the internet and smart phone applications.

POLICY PT5	**We will maintain and seek to improve local bus information, and make use of technology to provide convenient, up to date and reliable information to passengers.**

The comfort, safety and convenience of passengers at bus stops and interchanges are important factors in encouraging people to use public transport.

POLICY PT6	**We will seek to ensure that that the environment at public transport stops is designed to minimise opportunities for anti-social behaviour and increase passengers' sense of security.**

It is vital that transport in Warrington is accessible to as many of Warrington's residents and visitors as possible who wish to use it. This includes those passengers with mobility impairments and disabilities.

POLICY PT7	**We will ensure that all new public transport infrastructure complies with Equalities legislation, and seek to upgrade existing infrastructure where necessary.**

The cost of public transport is often identified as a barrier that discourages bus use, particularly amongst residents from more economically deprived areas of the borough. Whilst we have limited influence over the cost of travel on public transport, and no available revenue to subsidise a fare reduction on services, we will work with operators to seek ways of keeping the cost of transport as low as possible for passengers.

POLICY PT8	**We will work with operators to identify how cost of travel on public transport services can be minimised.**

10.1.4 Using the Planning Process

The proposed growth in Warrington will bring significant volumes of new houses and new jobs to the borough. As this development progresses it is vital that the bus network is at the forefront of considerations during the Planning process.

To ensure that the right infrastructure is included in proposals for new developments it is vital that public transport is considered as part of any new development. This includes:

- Locating new development where it can be served by buses
- Ensuring that development roads are of a suitable standard for bus use
- Using developer funding to establish new bus services or enhance existing services to make public transport the mode of choice and convenience

POLICY PT9	**We will ensure that new developments in Warrington encourage making journeys by public transport, and ensure that development contributes financially to improved public transport services and facilities.**

This includes designing bus networks that are attractive to new / enlarged development, whilst also providing new residents with incentives to travel sustainably, wherever possible.

10.2 Integrating Transport Modes

Many journeys require more than one mode of transport. If we are to encourage people to use sustainable modes for their journeys it is important that the interchange between modes at key locations is as seamless as possible.

This means ensuring that there are walking and cycling routes to key transport interchanges, and cycle storage facilities at the interchanges themselves. It also means ensuring that rail stations are served by the bus network.

Warrington Central rail station is situated adjacent to the Bus Interchange, affording an excellent opportunity to exploit bus / rail connectivity. Additionally, taxi ranks are present at both Central and Bank Quay stations. Warrington West station is being constructed with a large car park, bus stops and a taxi waiting area to ensure that rail is accessible by a number of other modes.

April 2018 saw the re-introduction of regular bus services via Parker Street between Warrington Bank Quay station, and the bus interchange with the commencement of the Cheshire Cat services.

POLICY PT10	**To make people's journeys as convenient as possible we will improve the connections between transport modes. This will include a review of:** • **Park and ride facilities** • **Bus connections to rail stations** • **Active travel links to rail stations and key bus stops**

Integration of transport modes will be further enhanced by the work that Transport for the North are doing to deliver an integrated ticketing scheme that will make it easier for passengers to travel seamlessly using their preferred payment method.

10.3 Warrington Mass Transit System

Bus usage in Warrington is less than it was in previous years. This is, at least in part, due to the difficulty that buses face in competing with the private car for journeys into and around Warrington. In order to achieve our stated aim of reducing car use to 60% mode share by 2040 we need to transform the public transport offer in order to allow it to become an attractive option for drivers.

In Chapter 6 (Figure 6.2) we identified a 'tube-style' map of a potential mass transit network for Warrington. This would significantly transform the passenger transport offer, creating an attractive, high quality network that could provide a realistic alternative to people who are currently car-dependent.

We are in the early stages of this process to identify a mass transit network, and a large amount of work is required before we can identify:

- The preferred transport mode for the network
- The destinations that should be connected
- The corridors that the network will operate on
- How the project could be funded

POLICY PT11	**We will identify options and delivery mechanisms for a mass transit system for Warrington.**

10.4 Rail

10.4.1 Rail and Rail Patronage in Warrington

Warrington is located on the Cheshire Lines Committee (CLC) Line that runs east to west, connecting Warrington to Manchester and Liverpool, and the West Coast Main Line (WCML) that runs north to south through the borough, calling at Warrington Bank Quay. There are seven stations in the borough:

- Warrington Central
- Warrington Bank Quay
- Sankey for Penketh
- Padgate
- Birchwood
- Glazebrook
- Warrington West

Six of the seven stations in Warrington are along the CLC Line. These stations have varying levels of rail provision, from Glazebrook with a Northern service every two hours to Warrington Central which is served by three Northern services and an East Midlands Train service every hour during the day.

Warrington Bank Quay is on the West Coast Main Line, which provides connectivity to stations between London Euston and Glasgow Central, including Crewe, Chester, North Wales, and Preston. Bank Quay is also on the Ellesmere Port to Warrington Line. Four services per day operate on this line.

Nationally, rail use is growing and this trend is evident in Warrington with a 28% increase in patronage across Warrington's six rail stations between 2010/11 and 2016/17. This trend is shown in Figure 10.2.

The number of entries and exits at each of the stations in the borough, recorded by the Office of Rail and Road is shown in Table 10.1. Warrington Central is the busiest station in the borough with 1,764,022 entries and exits in 2017/18.Warrington Bank Quay and Birchwood are the next busiest stations in the borough.

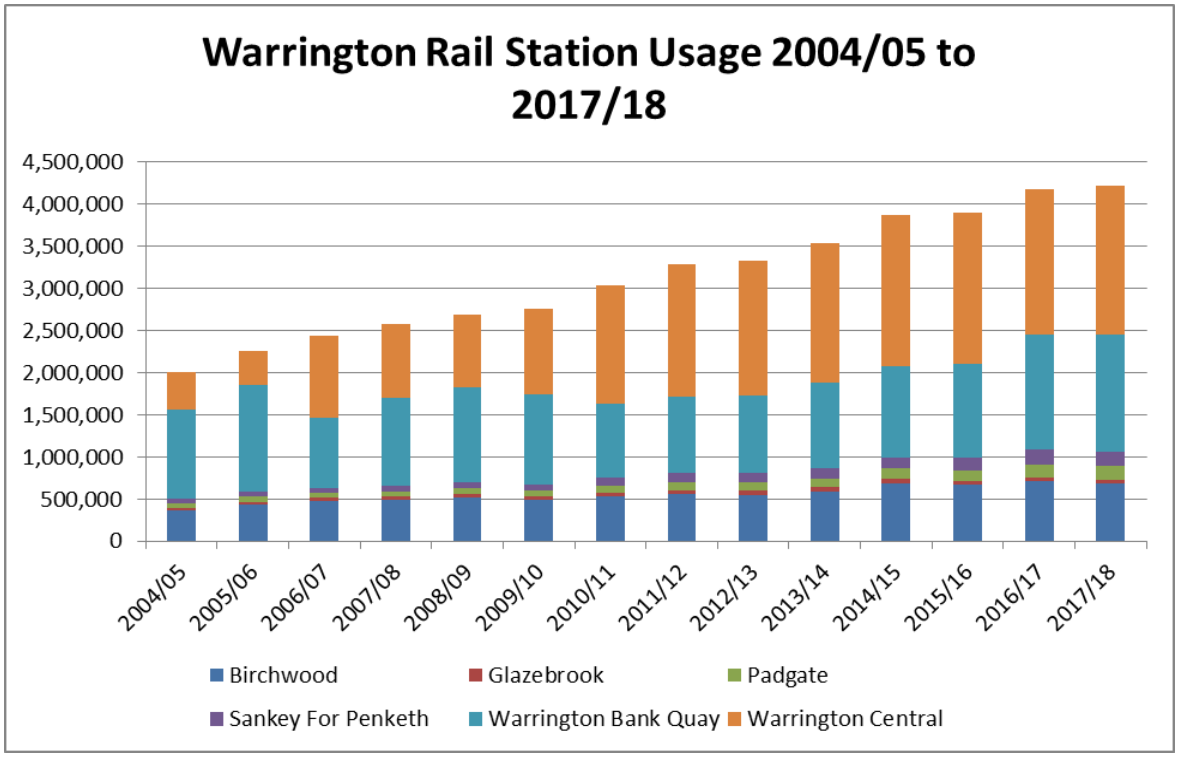


Figure 10.2 - Rail Patronage at Warrington stations[31]

Station	Entries and Exits at Warrington Stations (x1,000)							
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Birchwood	527	555	550	583	687	670	713	688
Glazebrook	47	48	50	55	49	48	47	45
Padgate	80	92	94	107	128	124	151	156
Sankey for Penketh	100	120	112	118	134	145	172	172
Warrington Bank Quay	879	895	923	1,012	1,081	1,110	1,364	1,390
Warrington Central	1,406	1,568	1.593	1,662	1,785	1,802	1,730	1,764

Table 10.1 Entries and Exits at Warrington Stations 2010/11 - 2017/18[32]

[31] http://orr.gov.uk/statistics/published-stats/station-usage-estimates
[32] http://orr.gov.uk/statistics/published-stats/station-usage-estimates

10.4.2 Continuing Rail Patronage Growth

The upward trend in rail patronage in Warrington is encouraging and we will work with partners in the rail industry, including Train Operating Companies, Rail North, and Network Rail, to further increase patronage through improvements to rail services in the borough. This includes, seeking additional calls at stations in Warrington. The three ways that the council has of influencing decisions regarding rail services are:

- Partnership working with Train Operating Companies; Network Rail; neighbouring authorities and local government bodies; and Transport for the North to influence services
- Responding to consultations and timetable changes and franchise agreements
- Lobbying the key decision makers

POLICY PT12	**We will continue to lobby for improvements to the national rail network that are positive for Warrington and maximise opportunities to improve rail passenger and freight services.**

An important factor in increasing the number of people that choose to travel by rail is improving the options that passengers have for travelling to and from stations. This includes better integration of bus and rail services to reduce waiting times when passengers change transport modes, good quality active travel links to stations, and improvements to facilities at interchange points.

In the heart of Warrington, this includes improvements to station to station interchange by improving the bus and active travel links between Warrington Central and Warrington Bank Quay.

Electrification of rail lines through Warrington may facilitate improvements to services. Where this is the case we will support the rail industry to progress any proposals for electrification.

POLICY PT13	**We will work with partners to further improve the facilities at, and access to, railway stations in the borough.**

10.4.3 CLC Line

The CLC Line is one of the railway routes that link Liverpool and Manchester. The line passes through Warrington Borough, serving Sankey for Penketh, Warrington West (new station opening 2019), Warrington Central, Padgate, Birchwood, and Glazebrook stations.

Market Analysis of the CLC Line has been undertaken, which shows a fifth of all trips on this line start within Warrington which reinforces rail as a key mode of travel for residents. Of the journeys originating at Warrington, almost half (48%) were alighting at Manchester stations, just over a quarter (26%) at Liverpool Lime Street/ Edge Hill, whilst 10% were alighting at a station between Padgate and Trafford Park and 9% were travelling to a station east of Manchester. The most common destinations to the east of Manchester, from Warrington, are Leeds, Sheffield, Stockport and York.

11% of the journeys on the CLC alight at Warrington; indicating the importance of Warrington as an employment destination, but also highlighting the need for strong transport links from the stations to employment sites.

Station ambience was also rated as part of the Market Analysis. Warrington Central was rated 'Very Good', Birchwood was rated 'Good', whilst Sankey for Penketh, Padgate and Glazebrook were considered 'Poor'.

Journey time analysis for the journeys between Warrington and Manchester and Liverpool comparing rail with private car and bus/coach services is shown in Table 10.2.

	Bus/ Coach (AM peak)	Bus/Coach (inter-peak	Car (AM Peak)	Car (inter-peak)	Rail (fastest)
Warrington to Manchester	131	100	47	40	20
Manchester to Warrington	113	113	45	43	16
Warrington to Liverpool	93	45	47	41	29
Liverpool to Warrington	92	89	41	40	22

Table 10.2 - Journey Time Comparison (CLC Line and Other Modes)[33]

[33] Aecom analysis undertaken for CLC Line study

We have been working in partnership with Transport for Greater Manchester and the Liverpool City Region Combined Authority to identify options for enhanced service patterns on the line:

- Retention of 2 semi-fast services per hour along the corridor – providing quick journey times to Manchester, Liverpool, both airports and the East Midlands/South Yorkshire.
- Potential Tram-train services to Manchester
- Potential future option to connect the Liverpool-Birchwood service to the MerseyRail network at Liverpool South Parkway
- Establishment of a 'Warrington Metro' with frequent services on the core section of route between Warrington West and Birchwood

POLICY PT14	**We will work with partners to improve service levels on the CLC, seeking improved cross-Warrington connectivity.**

10.4.4 Community Involvement in Rail

Community activity can help to make rail travel easier and more attractive. Warrington Bank Quay station is at the north-eastern end of the area covered by the North Cheshire Community Rail Partnership, which aims to assist and influence railway organisations in operating a reliable and sustainable rail network between Hooton and Warrington. A key part of the Partnership's mission is to assist with the provision of a reliable, cost effective, and sustainable journey which is easier the user and which provides connectivity to bus, cycle, and walking networks. This will improve sustainable transport connections between Warrington and North West Cheshire, including Thornton Science Park.

Many Rail Stations across the country have benefitted from the involvement of "Friends of" station groups. In our borough, the Friends of Padgate Station have worked with partners in the rail industry to make significant improvements to the station that include painting, new bins, vegetation removal from the car park, and new artwork.

POLICY PT15	**We will be supportive of community groups who aim to enhance the rail travel experience for existing and new passengers**

10.4.5 Warrington West

Warrington West is a new railway station in Chapelford Urban Village, scheduled to open in late 2019. Construction work at the station is shown in Figure 10.3. It is an entirely new facility with two platforms within the railway cutting located on the existing Manchester to Liverpool (CLC) line between Warrington Central and Sankey stations. The key elements of the new station are:

- High quality station building
- A staffed station to improve customer service and promote safety and security
- High quality, easy access for cyclists and pedestrian station users
- Safe, secure and convenient cycle parking
- Good interchange facilities for bus
- Provision of a drop off area and taxis
- A large pay and display car park with approximately 250 spaces including CCTV and lighting

Figure 10.3 -Warrington West Station Construction Work

POLICY PT16	**We will support the use of sustainable transport for people who live and work in West Warrington by promoting use of the new Warrington West Station.**

10.5 National Rail Projects

Government is proposing to build a new High Speed Railway, called High Speed 2 or HS2, to act as a catalyst for economic growth across Britain. The railway is being built in three phases:

- Phase 1 - from London to Birmingham (opening 2026)
- Phase 2a - from Birmingham to Crewe (opening 2027)
- Phase 2b - to East Midlands, Leeds, and Manchester (opening 2033)

The proposed route for HS2, as shown in Figure 10.4, heads north east from Crewe towards Manchester through Warrington Borough. The 'Golborne Link' is proposed to provide a connection between the new line and the West Coast Main Line (WCML) at a point just south of Wigan. Government's proposal is for one HS2 service per hour to call at Warrington after/before using the traditional WCML between Warrington Bank Quay and Crewe. This service would run from London Euston to Preston. This low level of service is a concern for the Council and it is caused in part by the inclusion of the Golborne Link in Phase 2B of HS2.

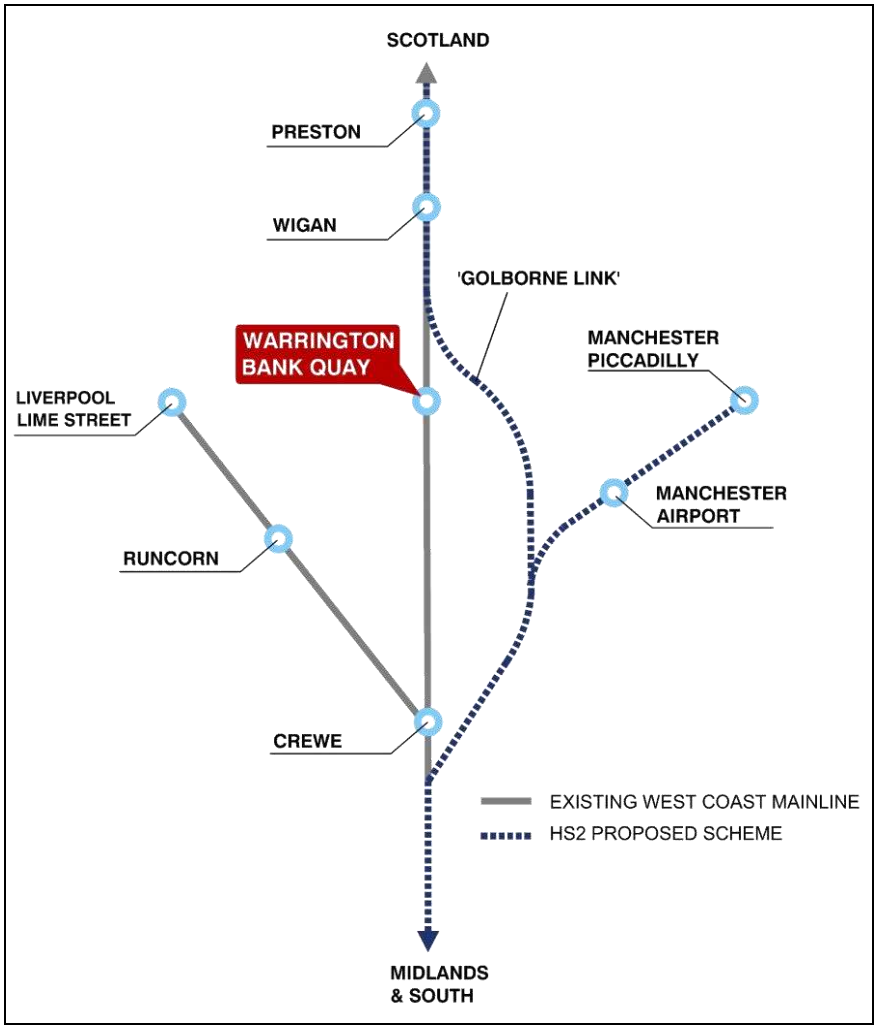


Figure 10.4 - Proposed Route for HS2

Our view is that the Golborne Link is not required and has a poor business case in isolation and that all HS2 services operating between Crewe and Preston should pass through Central Warrington using an upgraded West Coast Main Line.

This would benefit Central Warrington through the provision of more HS2 services, and lessen the environmental impact that would result from construction of the Golborne Link. It would also have a significant beneficial impact on Warrington's economy.

It is highly likely that improvements to the 2-track West Coast Main Line from Crewe to Wigan will be needed to accommodate the new HS2 Phase 1 services from 2026. Having made this investment, we have proposed to Government that further capacity improvements could be identified and delivered on the WCML by 2026. Our proposal to Government for a HS2 route that better serves Warrington is shown in Figure 10.5.

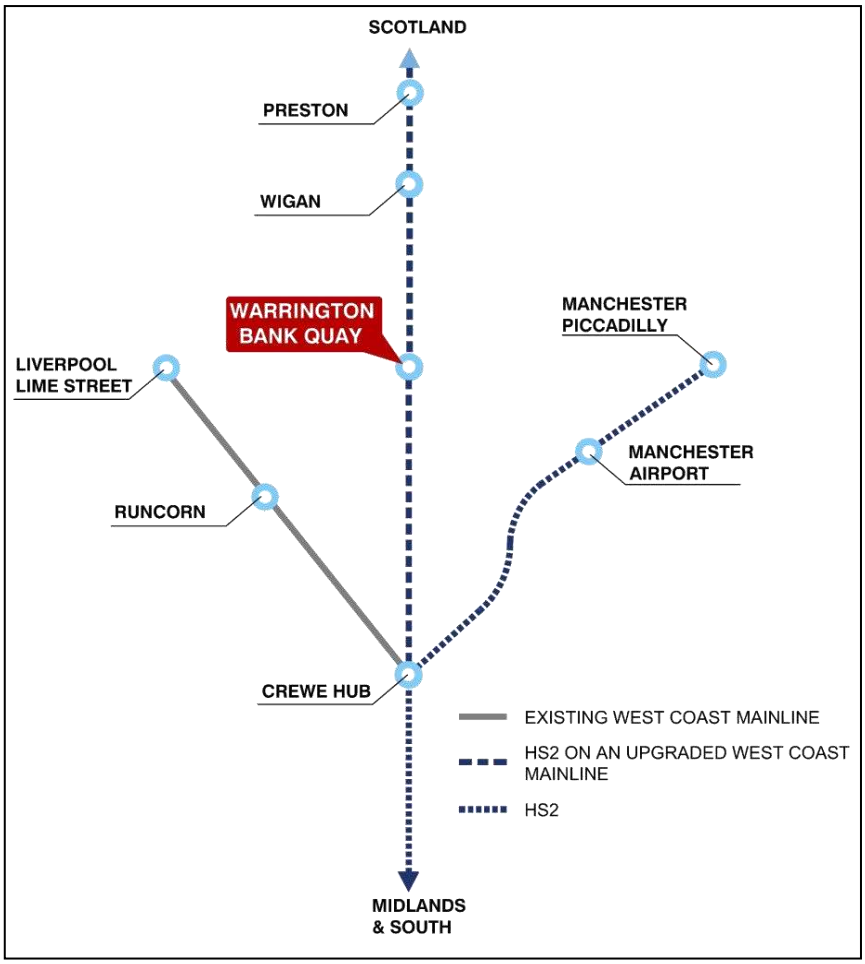


Figure 10.5 - Our HS2 Proposal

POLICY PT17	**We will continue to lobby Government for the removal of the Golborne Link from HS2 proposals. Regardless of the outcome of this, we will continue to lobby for maximum possible service provision for Central Warrington on the HS2 network, including the re-instatement of direct HS2 services to Scotland.**

At the same time as proposals for HS2 are being developed, Transport for the North is developing plans for the Northern Powerhouse Rail network. The emerging vision for this network is shown in Figure 10.6. It includes a new line between Liverpool and the HS2 Manchester Spur via Warrington.

Our view is that the Northern Powerhouse Rail infrastructure should serve Central Warrington. This would provide a unique opportunity as the only location where the West Coast Main Line and potentially HS2 to Scotland can meet Northern Powerhouse Rail at a thriving economic centre with considerable potential to grow further.

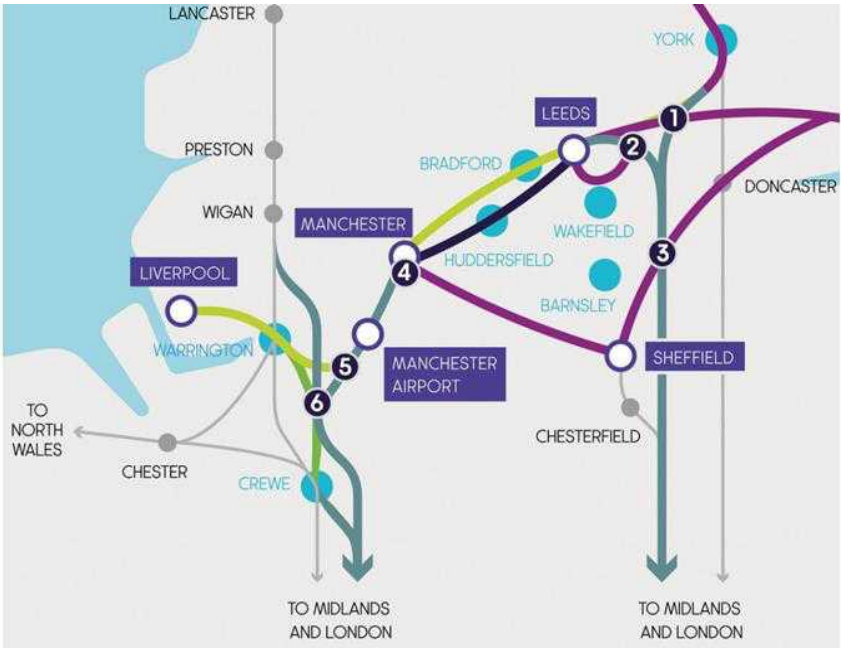


Figure 10.6 - TfN Northern Powerhouse Rail Proposal

We are proposing to Government that Warrington forms a fundamental part of both HS2 and Northern Powerhouse Rail networks. Our proposition for a 'touchpoint' on the two networks at a Warrington Hub is shown in Figure 10.7.

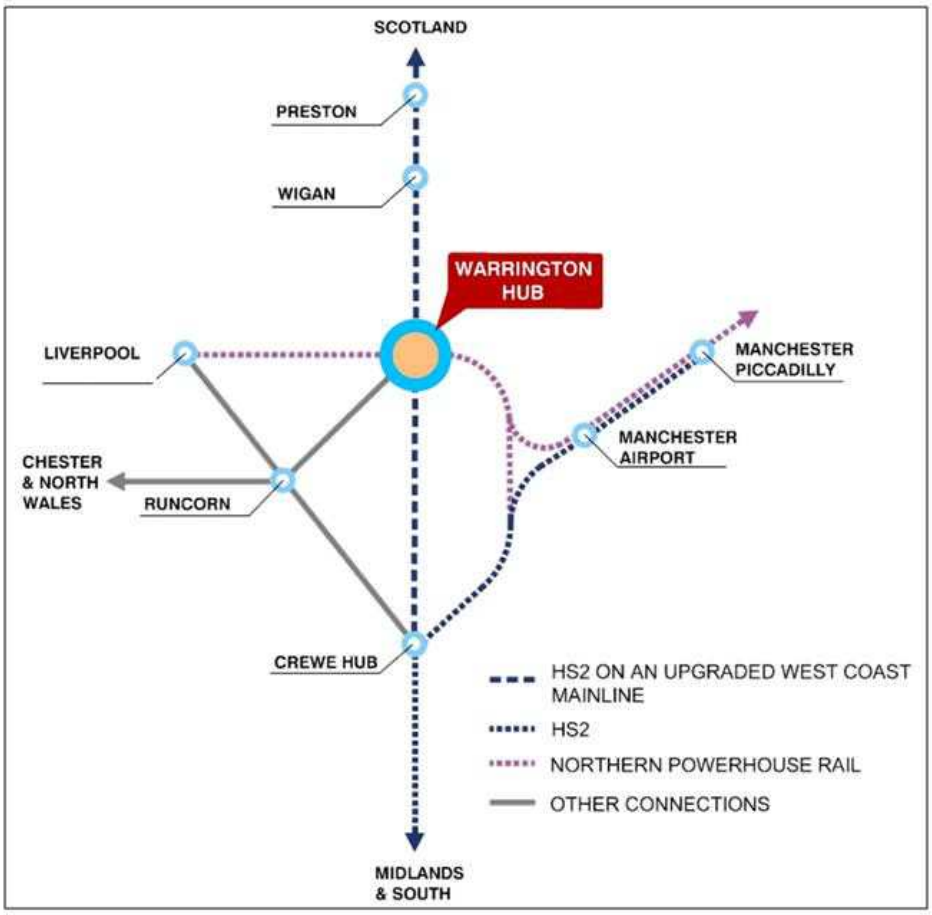


Figure 10.7- Warrington Hub on HS2 and NPR Networks

POLICY PT18	**We will work with Transport for the North to have Warrington Bank Quay included as a station the Northern Powerhouse Rail Network with all NPR and rerouted HS2 services calling at this enhanced hub station.**

Warrington Hub would provide a crucial point where North-South and East-West high speed rail services will meet an expanded offer in Central Warrington. It also helps provide a connected hub for Chester and North Wales services, linking them to both NPR and Scotland / Lancashire bound HS2 services.

Even if proposals for the HS2 Golborne Link remain unchanged, Northern Powerhouse Rail remains a vitally important scheme to Warrington, and a station on the network at Warrington Bank Quay would have a potentially transformative effect on the economic success of Warrington town centre.

10.6 Taxis and Private Hire Vehicles

The number of registered taxis and Private Hire Vehicles in Warrington is show in Figure 10.9. In 2018 there were 149 registered taxis. We currently restrict the number of registered taxis to 150, so the number of taxis has remained relatively constant over time. There is no restriction on the number of registered Private Hire Vehicles.

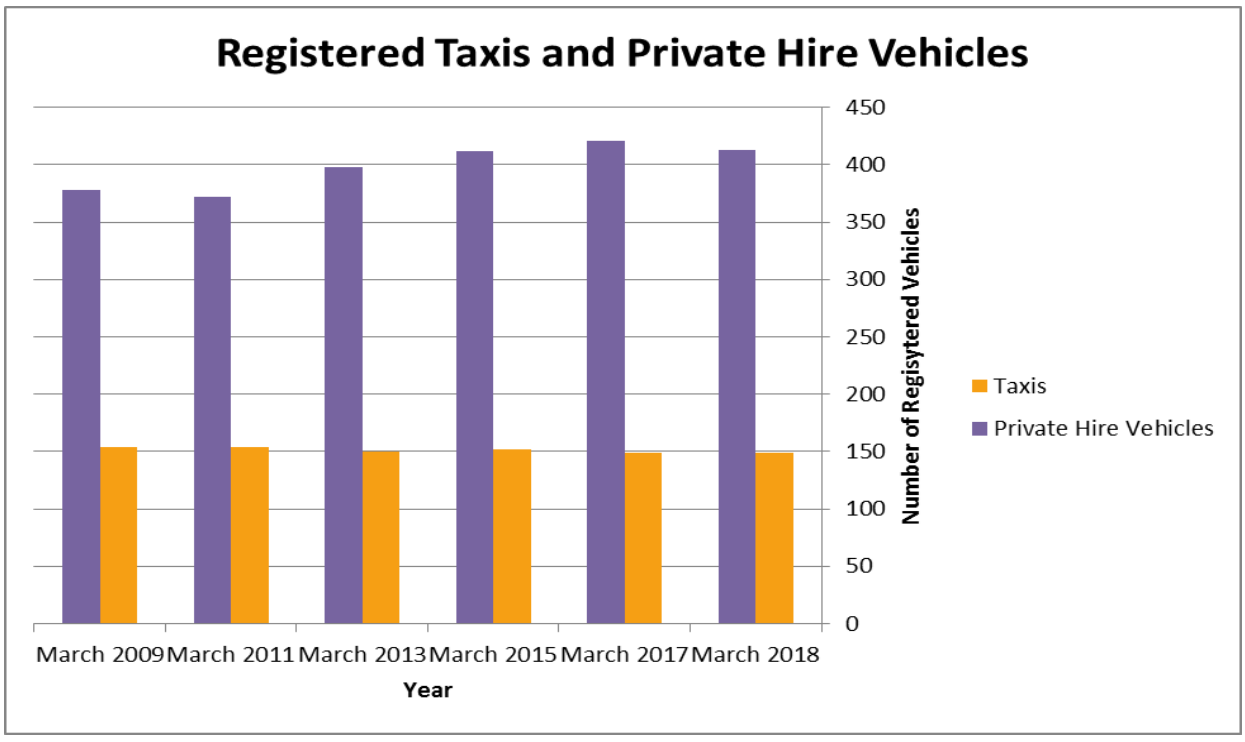


Figure 10.9 - Registered Taxis and Private Hire Vehicles[34]

In 2018 there were 149 registered Taxis in Warrington. 47 of these (32%) are wheelchair accessible. There were 413 Private Hire Vehicles, 13 of which (3%) were wheelchair accessible.

[34] Warrington Borough Council records

10.7 Dial-a-Ride / Warrington Community Transport

Warrington Dial-a-ride service provides a door-to-door accessible minibus transport service in Warrington for people aged 5+ with registered disabilities/mobility difficulties. Journeys catered for include shopping trips, healthcare appointments, social, community and leisure activities, church services and functions, education, employment, and direct access to Shopmobility. This service continues to receive subsidy from Warrington Borough Council.

Passenger journeys completed on the Dial-a-ride service between April 2016 and January 2018 are shown below in Figure 10.10. Patronage is shown to fluctuate around 1,700 journeys per month. Both in 2016 and 2017 a fall in patronage is observed in winter months and subsequent increase into spring. Other Community Transport operators serve residents of towns and villages in the rural parts borough, such as the Burtonwood and Winwick Community Bus.

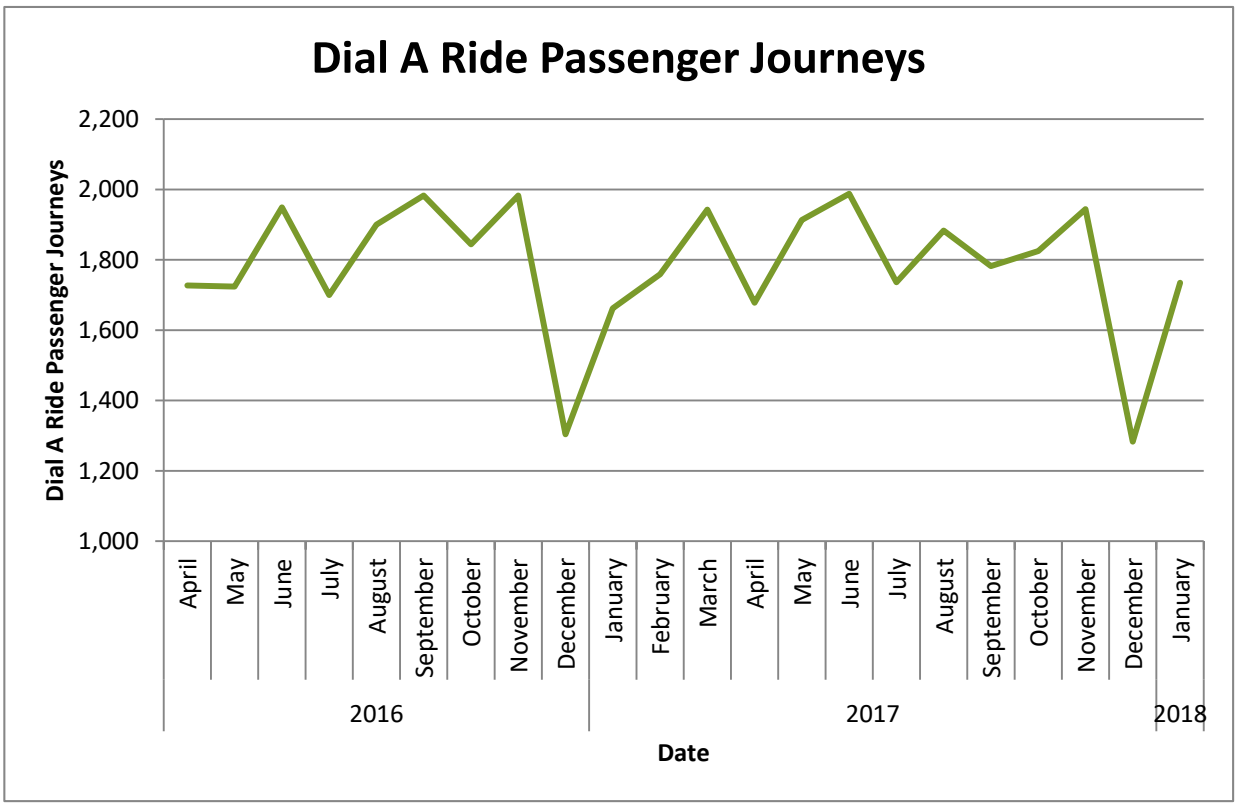


Figure 10.10 - Dial A Ride Passenger Journeys[35]

[35] Warrington Borough Council Records

10.8 Coach

Several coach services are also available from Warrington. National Express operates services from Warrington Bus Interchange to a range of destinations including Liverpool, Birmingham and London. We will work with operators to accelerate the introduction of vehicles with lower emission levels, unlocking funding opportunities and considering incentives.

POLICY PT19	**We will work with all transport providers, including taxi, private hire, Community Transport and coach operators to encourage the use of low emission, accessible vehicles on services that complement the wider passenger transport offer.**

10.9 Passenger Transport Policy Summary

	Policy
PT1	We will work with partners to review the core strategic bus network to link existing and new residential areas with employment sites and key local services. This will consider cross-boundary routes.
PT2	We will work partners to improve frequency of services on key bus routes in Warrington where possible.
PT3	We will work with bus operators to identify the highway improvements and bus priority measures that will improve journey time and reliability for buses, and identify funding sources for their delivery.
PT4	We will give priority to supporting public transport services which enable disadvantaged groups and communities to access employment and services.
PT5	We will maintain and seek to improve local bus information, and make use of technology to provide convenient, up to date and reliable information to passengers.
PT6	We will seek to ensure that that the environment at public transport stops is designed to minimise opportunities for anti-social behaviour and increase passengers' sense of security.
PT7	We will ensure that all new public transport infrastructure complies with Equalities legislation, and seek to upgrade existing infrastructure where necessary.
PT8	We will work with operators to identify how cost of travel on of public transport services can be minimised.
PT9	We will ensure that new developments in Warrington encourage making journeys by public transport, and ensure that development contributes financially to improved public transport services and facilities.
PT10	To make people's journeys as convenient as possible we will improve the connections between transport modes. This will include a review of: Park and ride facilities Bus connections to rail stations Active travel links to rail stations and key bus stops
PT11	We will identify options and delivery mechanisms for a mass transit system for Warrington.
PT12	We will continue to lobby for improvements to the national rail network that are positive for Warrington and maximise opportunities to improve rail passenger and freight services.
PT13	We will work with partners to further improve the facilities at, and access to, railway stations in the borough.
PT14	We will work with partners to improve service levels on the CLC, seeking improved cross-Warrington connectivity.

	Policy
PT15	We will be supportive of community groups who aim to enhance the rail travel experience for existing and new passengers
PT16	We will support the use of sustainable transport for people who live and work in West Warrington by promoting use of the new Warrington West Station.
PT17	We will continue to lobby Government for the removal of the Golborne Link from HS2 proposals. Regardless of the outcome of this, we will continue to lobby for maximum possible service provision for Central Warrington on the HS2 network.
PT18	We will work with Transport for the North to have Warrington Bank Quay included as a station the Northern Powerhouse Rail Network
PT19	We will work with all transport providers, including taxi, private hire, Community Transport and coach operators to encourage the use of low emission, accessible vehicles on services that complement the wider passenger transport offer.

10.10 Passenger Transport Actions

Relevant Policy	Intervention	Timescale
PT1	Continue to work with partners to review current bus services in Warrington and plan for the future	0-5 years
PT2	Continue to work with partners to review the frequency of bus services	0-5 years
PT3	Liaise with bus operators to identify highway improvements that will improve journey time	0-5 years
PT4	Undertake work to identify the common journey requirements of people from disadvantaged groups and communities	0-5 years
PT5	Continue to update bus information and identify new methods of reaching passengers with this information	0-5 years
PT6	Review all new public transport infrastructure schemes to maximise safety and security of passengers	0-5 years
PT7	Review all new public transport infrastructure schemes to ensure compliance with Equalities legislation	0-5 years
PT9	Work with developers to maximise opportunities for passenger transport from new developments	0-5 years
PT10	Review major transport interchange sites to identify opportunities to improve integration and interchange between modes	0-5 years

Relevant Policy	Intervention	Timescale
PT11	Through optioneering and feasibility studies identify a preferred option and delivery mechanism for a Warrington's mass transit network.	0-5 years
PT12	Respond to rail industry timetable consultations to secure the best possible service levels for Warrington	0-5 years
PT12	Engage with the consultation for the East Midlands services franchise to ensure that Warrington's aspirations are considered	0-5 years
PT12	Engage with the operator of the West Coast partnership franchise to ensure that Warrington is well served by HS2 services and traditional rail services on the West Coast Main Line	5-10 years
PT13	Undertake design and feasibility to work for schemes that will improve access to rail stations	5-10 years
PT14	Undertake further work to develop the preferred stopping pattern on the CLC Line	0-5 years
PT14	Work with Network Rail and other partners to progress deliver improvements to CLC line services	5-10 years
PT16	Complete the delivery of Warrington West Station	0-5 years
PT17	Continue to lobby Government and TfN for a Warrington Hub on HS2 and NPR Networks	0-5 years
PT18	Work with partners at TfN to progress proposals for Northern Powerhouse Rail to Warrington Bank Quay	5-10 years
PT19	Work with transport providers to encourage take up of accessible, low-emission vehicles	0-5 years

11 Safer Travel

11.1 Introduction

Safety and Security is an important consideration throughout the LTP but has been included as a separate theme to reflect that Warrington Borough Council (WBC) has specific statutory duties in relation to road safety. Under the Road Traffic Act 1988, WBC is required to prepare and carry out a programme of measures to promote road safety. Including this programme under the LTP helps to embed safety into broader transport schemes and encourages efficient use of resources. Safety and security for all users and all parts of the network needs to be considered including elements such as personal safety whilst waiting at bus stops or whilst cycling or walking along off-road routes.

11.1.1 Significant Recent Improvements

Warrington has seen significant improvements in road safety over the last 10 years with a 35% reduction in collision occurrence resulting in a 43% reduction in casualties. Warrington's continued economic growth will require significant improvements for all modes of travel over the next 20 years. Promoting more sustainable transport options such as cycling and walking through infrastructure improvement, whilst continuing to manage the road network efficiently, will present challenges to improving road safety further.

The significant improvement in road safety means that the ability to identify targeted Local Safety Scheme engineering improvements is diminished. Future road casualty reduction will need a shift in our approach with greater emphasis on:

- the human element, in encouraging safer choices to be made when travelling
- providing travellers with improved clarity of the network
- the importance of maintenance of the highway environment

11.1.2 Wider Implications

Road Safety cuts across many themes. Safer roads and safer road users save lives, but they also help to reduce pressure on the National Health Service and emergency services, keep traffic moving and, as a result, keep our economy growing. The Department for Transport (DfT) estimates that road traffic collisions nationally cost the UK economy in excess of £16.3 billion per year.

Fear of being involved in a collision or of a threat to personal safety can also present psychological barriers to road users choosing the healthier travel options of cycling and walking. Similarly, Warrington's policies outlined in other chapters on Active Travel, Smarter Travel Choices, Public Transport and Asset Management will all have an impact on Safe Travel.

While different travel modes are promoted for different reasons, there is a substantial difference in levels of fatal collision injury risk between different modes of travel. Rail is the safest land travel mode, followed by bus and coach travel. The fatality risks per billion passenger miles of travelling by car, although relatively low compared with more vulnerable modes, are 5 times higher than by bus travel. At the other end of the scale, the fatality risks of travelling by motorcycle are 52 times higher than by car, 3.5 times higher than by bicycle and almost 3 times higher than by foot.

11.1.3 Government Policy

In 2015, the Government launched the DfT's Working Together to Build a Safer Road System (BSRS) which sets out the Government's vision, values and priorities for improving the safety of Britain's roads. This statement describes the context of road safety in Britain today and the overarching scope of road safety activity for the Government.

The overarching theme of the BSRS is the government's adoption of the recommended Safe System approach to preventing death and serious injuries in road collisions. The long-term Safe System goal is for the ultimate prevention of deaths and serious injuries, through incremental targeted improvements within a specified safety performance framework. The Safe System strategy aims for a more forgiving road system that takes human fallibility and vulnerability into account. The road traffic system is planned, designed, operated and used such that people are protected from death and serious injury in road collisions.

In May 2018, the Road Safety Management Capacity Review (RSMCR) was published which aimed to benchmark and understand the current status of institutional delivery of road safety in Britain, and to identify practical and actionable opportunities for strengthening joint working, local innovation, and efficiency on a National and local basis. Many recommendations have been made by the RSMCR which if adopted by DfT, can be expected to result in changes at a national and local level over time.

Warrington's strategic approach to road safety improvement must where possible be compliant with the Safe Systems approach and be prepared for RSMCR proposals that are expected to lead to changes in legislation and guidance issued, and also present potential opportunities for increased investment.

11.2 Safe Systems Approach

The key principles of the Safe systems approach is that our life and health should not be compromised by our need to travel. No level of death or serious injury is acceptable in our road transport network. The Safe Systems is designed with the human being at its centre, taking human fallibility and vulnerability into account, and accepting that even the most conscientious person will make a mistake at some point. The goal of safe systems is to ensure that these mistakes do not lead to a collision; or, if a collision does occur, it is sufficiently controlled to not cause a death or a life-changing injury.

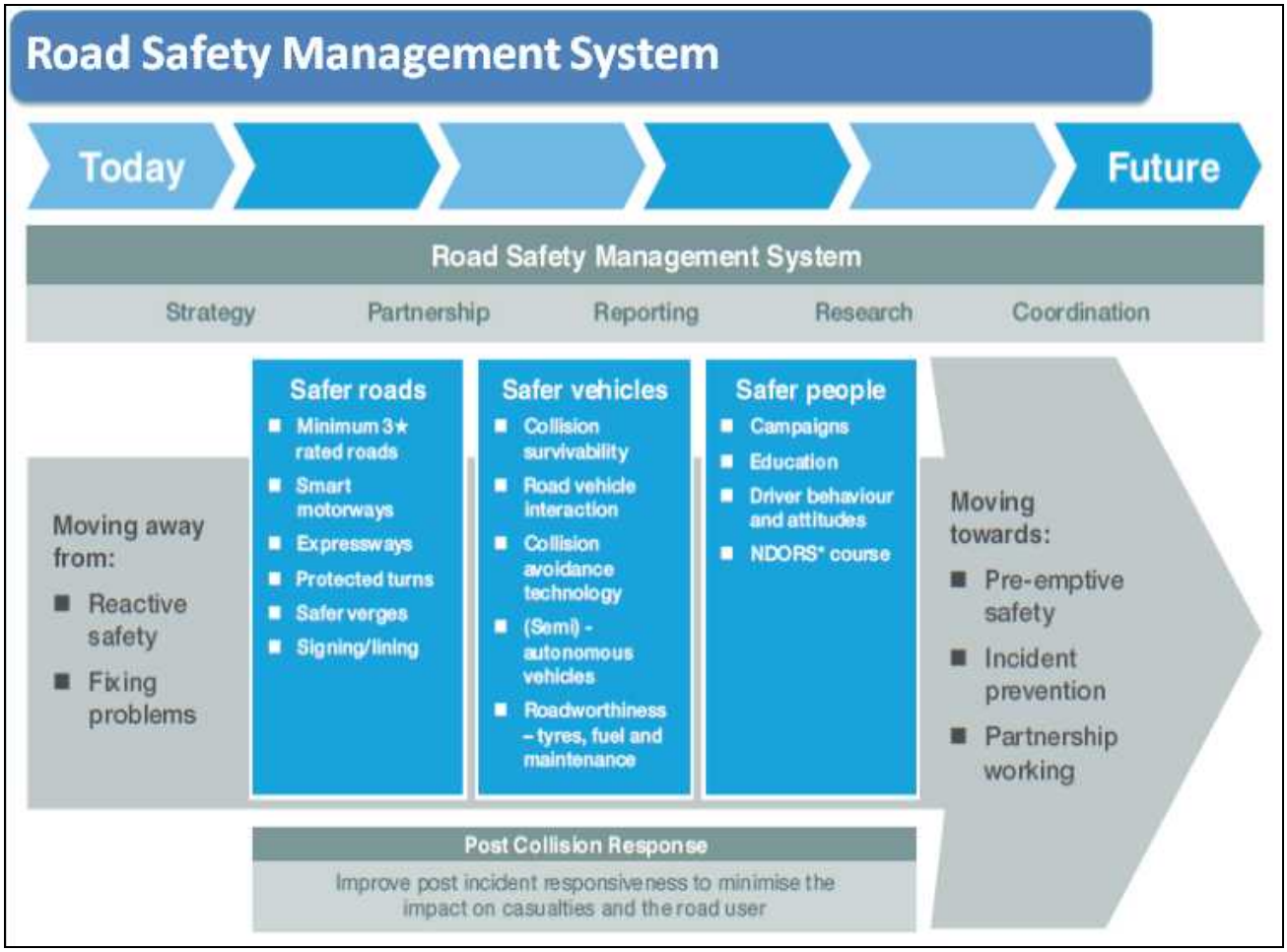


Figure 11.1 - Illustration of the Safe Systems Approach adopted by Highways England.

Responsibility for the system is shared by everyone. Policy makers, planners, engineers, vehicle manufacturers, fleet managers, enforcement officers, road safety educators, health agencies and the media are accountable for the system's safety; while every road user, whether they drive, cycle or walk, is responsible for complying with the system's rules.

A safe systems approach also aligns road safety management with broader ethical, social, economic and environmental goals. By creating partnerships where government or transport agencies work closely with other groups, safe systems tackles other problems associated with road traffic, such as congestion, noise, air pollution and lack of physical exercise. Safe Systems is made up of four main components:

- Safer roads
- Safer speeds
- Safer vehicles
- Safer road use

At a local level the council's ability to fully adopt a Safe Systems approach is currently limited by the national context of austerity in terms of reductions in resources across partnership agencies, and a shift in the agenda of economic growth which has potentially been at the expense of road safety improvement as a priority. As road safety cuts across many of the council's Transport

Policies, the Safe Systems approach supports the need to embed road safety as a priority consideration for highway infrastructure improvements and the promotion of alternative, healthier travel modes as a more attractive option to the car journey.

As the BSRS publication is expected to be followed by consultations on specific issues as options are developed for a national Road Safety policy, it is expected that Warrington's policies may also need to be amended over time. The RSMCR's key recommendations include the establishment of a national road safety performance framework. The RSMCR states that the framework would:

- Set out the long-term Safe System/Towards Zero goal of working towards the ultimate prevention of deaths and serious injuries
- Set interim quantitative targets to 2030 to reduce the numbers of deaths and serious injuries
- Set measurable, intermediate outcome objectives for activities to 2030, for which there is a strong evidence base for a direct relationship to the prevention of death and serious injury These include:
- Increasing compliance with speed limits on different road types
- Reducing the average speeds on different road types
- Increasing the level of seat belt use and child restraint use
- Increasing the level of helmet use for two-wheeled vehicle users
- Reducing driving while impaired by alcohol and drugs
- Increasing compliance with in-car telephone use rules
- Increasing the safety quality of the SRN and main road network to the highest iRAP rating
- Increasing the safety quality of the new car fleet to the highest Euro NCAP * rating
- Increasing compliance with emergency medical response times

Warrington policies will contribute this agenda through promoting road safety as culturally important to the organisation; and working effectively with partners and stakeholders at a local and regional level.

POLICY RS1	**We will establish road safety as a cultural priority and proactively engage with partners and stakeholders to promote the Safe Systems approach.**

11.3 Collisions and Casualties in Warrington

The improvement in the frequency of injury road traffic collisions safety in Warrington over the last 10 years is illustrated in Figure 11.2. This is despite the annual increases in traffic flow. Injuries to Car Occupants continue to be the largest proportion of casualties at around 58% of the annual total reported, although the frequency has also been reduced by around 60% since 2009. Significant improvements in casualty reduction have also been achieved in the last decade in the Pedestrian casualty group (15%), and the Motorcyclist group (27%).

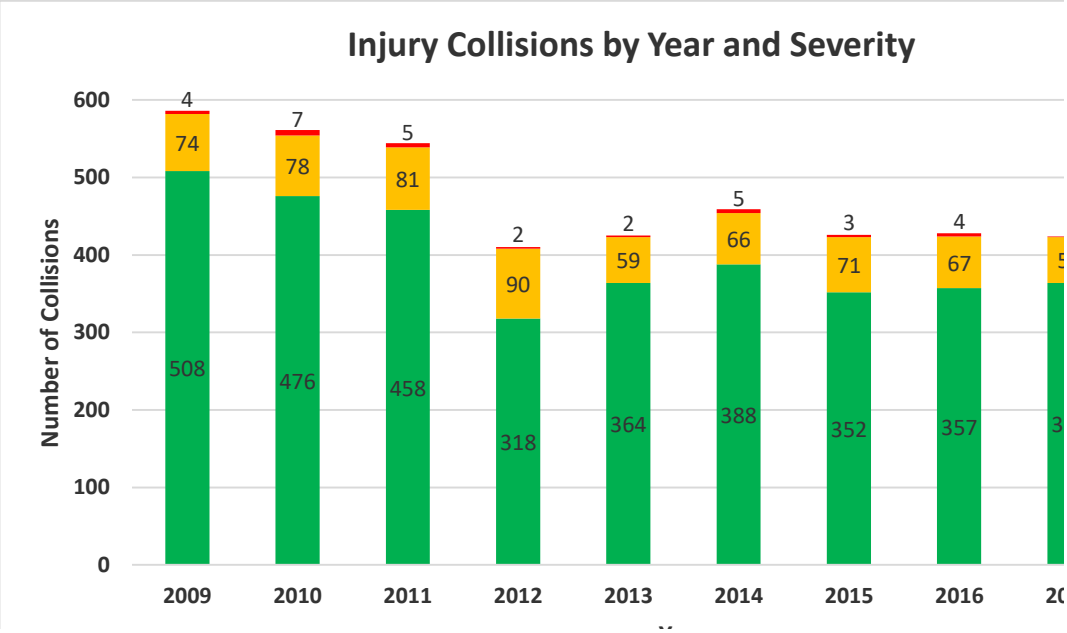


Figure 11.2: Killed and Seriously Injured in Warrington 2008-17[36]

The numbers of collisions in 2018 relate to a 38% reduction in slight collisions, and a 16% reduction in Serious collisions over the past decade. Caution must be taken with fluction in the smaller number of the 'serious' class of collision.

The collisions referenced in Figure 11.2 resulted in the following casualties shown in Table 11.3.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Fatal	**4**	**7**	**6**	**2**	**2**	**5**	**3**	**4**	**1**	**2**	**36**
Serious	**82**	**83**	**88**	**94**	**66**	**71**	**75**	**69**	**62**	**66**	**756**
Slight	**725**	**677**	**626**	**441**	**479**	**500**	**475**	**430**	**448**	**429**	**5,230**
Total	**811**	**767**	**720**	**537**	**547**	**576**	**553**	**503**	**511**	**497**	**6,022**

Table 11.3 - Casualties in Warrington[37]

Table 11.3 shows a 41% reduction in slight injury casualties, and a 20% reduction in serious injuries over the last decade. Again, caution must be taken with fluction in the smaller number of the 'serious' class of collision.

11.3.1 Where do collisions happen?

'A' roads and primary routes can be identified from the patterns of collision locations. These arterial routes through the town tend to have the greatest volume of traffic. Often they are 'mixed-use' environments or where the roads sever routes to amenities. Therefore, they have the potential for the greatest frequency of conflict.

[36] Cheshire Police Collision Data
[37] Cheshire Police Collision Data

A higher proportion of these collisions occur in the afternoon peaks. The most common primary causation factor recorded is “failed to look”.

11.4 Casualty Reduction Targets

The establishment of the national road safety performance framework will provide the focus for all other institutional delivery functions and also set interim quantitative targets to 2030 for road safety improvement. It is not clear at this stage when the national performance framework will be established.

Despite this, the safety and security of people using our highway network is an important issue for users of all transport modes so it is vital that we have a strategy for reducing the number and severity of collisions. In the absence of the national framework, we will set out our vision for road safety to be compliant with the Safe Systems approach. We aim for the prevention of all deaths on Warrington’s roads and to significantly reduce the frequency and severity of collision and casualties.

Demanding casualty reduction targets have been set for 2030 for key casualty groups and provide indicators for progress. The targets have been set on a 5 year average (2016 - 2018) baseline for the groups below.

Casualty Group	2014-18 Average	2030 Target	%age Reduction
Car Occupants	279	223	20%
Two-wheeled Vehicles	44	35	20%
Pedal Cyclists	74	63	15%
Pedestrians	66	51	23%

Table 11.4 - Casualties in Warrington[38]

It is worth recognising that the success of delivering the LTP4 vision to transform travel in Warrington will have significant impacts on casualty reduction. The anticipated increases in walking and cycling will in theory increase the exposure to risk of being a casualty in these groups. Also, developments in vehicle technology would be expected to influence the frequency and severity vehicle collisions in the future making forecasts on casualty trends difficult to predict.

11.5 Reducing Collisions and Casualties in Warrington

Warrington Borough Council as a Local Authority has a statutory duty under Section 39 of the 1988 Road Traffic Act, to “take steps both to reduce and prevent collisions”. The Council must carry out studies into collisions on the Warrington road network and must, in the light of those studies take such measures appropriate to prevent collisions from reoccurring. Also, when constructing new roads the Council must ensure that appropriate steps are taken to reduce the possibilities of

[38] Cheshire Police Collision Data

collisions occurring when the roads come into use. The Council does this through Road Safety Auditing.

The reduction in road traffic collisions and casualties in Warrington presents a challenge to achieving further improvements in road safety. The diminishing returns available from targeted collision remedial schemes mean that greater emphasis must be given to proactive prevention through encouraging safer behaviour and improving the perception of security when travelling.

Promoting collision reduction measures continues to be supported as a priority in the council's Local Transport Capital work programmes. Road Safety is a key consideration in the promotion of all highway works programmes. In addition, the potential negative impact of changes in the highway environment is mitigated through the Road Safety Audit process which is embedded in the S278, S38 and S106 procedures.

POLICY RS2	**We will aim to prevent all deaths on Warrington's roads and to significantly reduce the frequency and severity of collision and casualties.**

11.6 Engineering and Traffic Management Measures

Improving safety through road engineering forms a significant part of the success we have achieved so far in reducing casualties. Introducing physical improvements to the highway environment can reduce the risk of collisions. Improvements can be made to:

- road layout
- geometry
- signing and signal control
- junction improvements
- traffic calming features
- pedestrian facilities
- Regulation of how the highway is used through Traffic Regulations Orders (parking restrictions, movement orders, speed limits, etc.)

These measures are generally promoted though the annual Local Safety Schemes Programme which consists of a four pronged approach to identification of priority locations to be targeted.

- **Single Site Programme** – a priority list of sites (cluster sites) for intervention based on collision data and trends for different casualty groups.
- **Area-Wide Schemes** – Warrington is divided into areas and requests for road safety improvements prioritised against a number of criteria (including collisions per head of population and length of road in area). Priority given to collisions involving vulnerable road users.
- **Route Assessments** – carried out for roads adjacent to traffic calming areas to mitigate any transference of collisions onto surrounding network. Considers no. of collisions per km length of traffic lane.
- **Mass Action** – Applies specific treatment to common collision types. To-date, this has focused on high friction surface dressing on approach to pedestrian crossing facilities.

POLICY RS3	**We will continue to identify and deliver targeted collision remedial measures through the annual Local Safety Schemes Programme.**

The Road Safety Management Capacity Review (RSMCR) identifies that the absence of the national road safety performance framework has resulted in a lack of focus and cohesion in coordination efforts and fragmented activity. At a local level, Warrington Borough Council recognises that to achieve better results, road safety improvement must be recognised as 'core business' and considered in the promotion of all highway projects.

POLICY RS4	**We will continue to ensure that opportunities for road safety improvement is embedded in transport strategies, considered in the prioritisation of all highway works programmes, and encouraged through development led projects.**

11.7 Encouraging Safer Behaviour.

Car occupants are by far the greatest number of casualties reported (58% of all casualties). The second highest group of casualties are pedal cyclists at 13.9% closely followed by pedestrians at 11.6% and powered two wheeled (motorcyclists excluding trikes) at 11.5%. Goods Vehicle occupants equate to 2.5% of casualties and public service vehicle occupants 1.9%. Vehicle type occupancy injuries are insignificant beyond these. However, it is important to understand that measures through traditional approaches of Engineering, Education and Enforcement of the main groups noted above can in the main also influence change in every collision occurrence irrelevant of the vehicle type.

With just over 98% of all casualties identified in Warrington as being associated with these groups the data provides a clear focus for improvement through promoting safer behaviour and awareness. Priority casualty groups are identified for targeting activity:

- **Car Occupants** - all ages are at risk of becoming a casualty as a car occupant although a slightly higher representation can be seen in 18 to 35 year olds.
- **Power Two-wheeled drivers** - Specific focus on 17 to 25 year olds riding 50cc to 125cc bikes.
- **Pedal Cyclists** - casualties occur in all ages although 85% are males.
- **Pedestrians -** all ages are a concern although a higher proportion can be seen in 5 to 19 year olds.

POLICY RS5	**We will continue to develop and implement strategies for continuing the reduction in frequency and severity of road traffic collisions and casualties through behavioural change.**

11.8 Road Safety Partnerships

The RSMCR has supported the views locally that the removal of the ring-fenced Road Safety Grant and the substantial reductions in local highway investments and in traffic policing levels, experienced since 2010, has had visible impact on the level and quality of activity. The ability to carry out and prioritise effective road safety activity in a time of shrinking financial and staff resources across the agencies with a vested interest in road safety has clearly been restricted. The removal of the grant meant that the Cheshire Safer Roads Partnership (CRSP) was disbanded and replaced by the **Cheshire Road Safety Group (CRSG)** in April 2011 which is a model supported primarily by camera enforcement activity.

The CRSG is currently investing in the upgrading of all static enforcement equipment from wet film to digital. This will involve the greater use of red light camera enforcement as abuse is affecting the efficiency of signal controlled junctions. Better discipline through the deterrent of enforcement will also reduce the risk of conflict.

The CRSG has recognised the need to expand the partnership and strengthen its co-ordination of all agency educational activity across Cheshire. An ETP (education, training and publicity) group has been established with the strategic objectives of:

- Reducing road traffic collisions across the County and adjacent areas
- Improving the quality of ETP
- Providing a strategic overview of casualty data
- Identifying opportunities for common casualty profiles
- Delivering evidence based road safety initiatives
- Exchanging information and best practice
- Increasing consistency across agencies on the most appropriate model of engagement
- Seeking efficiencies in resources and marketing through partnership

A CRSG structure is shown in Figure 11.5 has been established under the CRSG Board which encompasses the three local partnership groups based on Cheshire Constabulary's divisional structure.

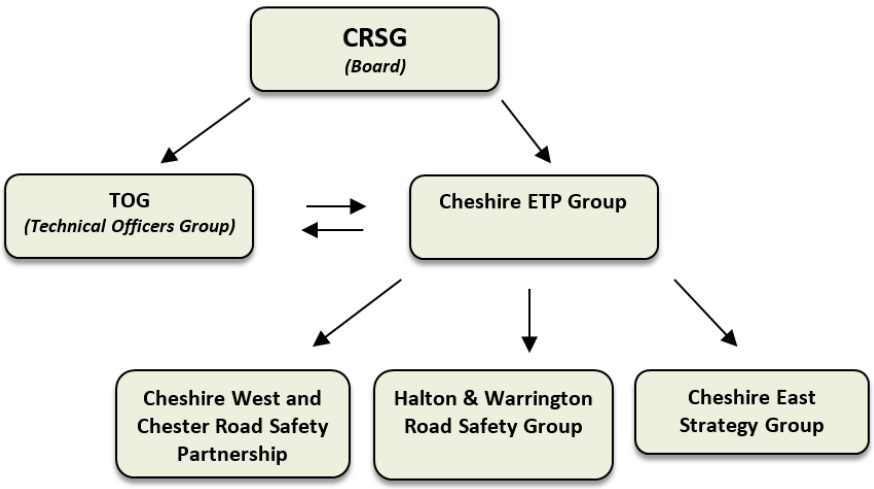


Figure 11.5 - Cheshire Road Safety Group Structure

Analysis of the Cheshire casualty data by mode of transport and age has identified the following risk groups:

- **Car occupants** account for 65% (12,069) of all casualties with the main risk group being car drivers aged 17 to 29 years
- **Two Wheeled Motor Vehicles** accounts for 10% (1849) of all casualties with those aged 15 to 29 being most at risk
- **Pedal Cyclists** account for 10% of all casualties with those aged 10 to 54 being particularly at risk
- **Pedestrians** account for 9% (1688) of all casualties with those aged 11 to 16 and also 40 to 50 appearing to be particularly at risk

Age Group	ALL CASUALTIES BY MODE OF TRANSPORT							
	Car	Pedal Cycle	Motorcycle	Pedestrian	Goods Vehicle	Other	Total Casualties	Cheshire Population
0 to 4	177	5		42	1	13	238	59761
5 to 9	284	42	1	124	4	7	462	60992
10 to 14	277	156	3	253	4	20	713	56903
15 to 19	1100	178	432	212	23	26	1971	59602
20 to 24	1742	172	305	132	72	20	2443	57638
25 to 29	1367	143	205	118	98	30	1961	58233
30 to 34	1088	152	103	108	88	24	1563	59963
35 to 39	965	160	110	76	66	11	1388	59689
40 to 44	1000	210	144	103	96	26	1579	71141
45 to 49	952	191	153	87	86	30	1499	79027
50 to 54	825	161	147	88	69	18	1308	80485
55 to 59	606	105	95	64	45	22	937	68332
60 to 64	511	59	52	64	38	24	748	62205
65 to 69	350	48	22	43	12	17	492	66568
70 to 74	275	36	17	45	3	15	391	49768
75 to 79	250	21	5	55	6	14	351	39409
80 to 84	174	6		47	3	17	247	27502
85 to 89	94	4		21		10	129	16754
90+	31			6		6	43	9560
Not specified	1						1	
Grand Total	12069	1849	1794	1688	714	350	18464	1043532

Table 11.6 - Casualties in Cheshire by Age and Mode of Transport[39]

Detailed Casualty Profile Reports will be produced for each of the 'at risk' groups identified to inform annual activity plans for the CRSG ETP sub group and local delivery groups to consider.

The RSMCR has recognised the importance of road safety partnerships to strengthen the coordination of casualty reduction activities. The RSMCR suggests that the national road safety performance framework when established will provide cohesion for efforts, as well as through funding, incentives and guidance.

POLICY RS6	**We will continue to support the CRSG with financial contributions and officers performing key roles in the Board and its Sub-groups.**

POLICY RS7	**We will continue to explore opportunities for advancements in camera enforcement technology and explore the use of average speed cameras where appropriate.**

11.8.1 Collision Data Quality

Collision and casualty data recorded by Cheshire Constabulary is shared with the Cheshire Local authorities in the interest of casualty reduction. A primary purpose of the data for Warrington Borough Council is the use in the identification of collision remedial highway improvements. Road

[39] Cheshire Police Collision Data

Safety officers have previously assisted Cheshire Constabulary in the validation of data received in the stats 19 form and returned suggested amendments and queries to maintain a high quality data set held by Cheshire Constabulary.

Due to concerns that personal data can be included in plain language fields in the export of the data to the local authorities, Cheshire Constabulary has restricted the plain language fields from being shared. This has limited the council officers' confidence in the quality of the data being used for casualty reduction. Primary concerns that the location of the incidents recorded and the circumstances of collision occurring can no longer be confirmed.

The RSMCR identifies that the adoption of the Safe System focus on the prevention and reduction of deaths and serious injuries, and supporting measurable indicators for targeting related system-wide activity and performance, presents new monitoring and evaluation needs, which includes the review of data. A development of which is the expected adoption by DfT of the responsibility for the CRASH (Collision Reporting and Sharing System) and the work being carried out to facilitate its take-up by all police forces.

CRASH will provide a nationally standardised system of reporting and recording road collision and casualty data and will include Police officers using a handheld device to fill in details, and an accurate location, at the scene of a collision. The system will also allow highways authorities to access accurate and up to date information increasing confidence levels in the analysis of data and enabling local councils to plan safety improvements and in a shorter time. It is also proposed that CRASH will allow incidents to be reported online by motorists, which may reduce the level of underreporting of incidents.

POLICY RS8	**We will support the CRSG in exploring improvements in Collision and Casualty data quality embracing the intended roll out of CRASH.**

11.8.2 Halton & Warrington Road Safety Group.

The **Halton and Warrington Road Safety Group (HWRSG)** facilitates interventions to promote safer road user behaviour and co-ordinates activity across the Halton and Warrington highway authorities, the Cheshire Fire and Rescue Service and Cheshire Constabulary. The group contributes to the objectives of the CRSG although it also undertakes its own strategic assessment identifying casualty reduction priorities, agreeing the delivery plan, securing resources and performance management.

The priority groups defined are:

- **Car Occupants**
    - Numerically the largest casualty group for all ages (67% of all casualties). 18 to 24 years (22% of all car occupants) are the age band of greatest risk although 17 to 30 years is also over represented.

- **Pedestrians**
  - A vulnerable casualty group that is susceptible to high severities. 44% of casualties represented from the 6 to 18 age band. The age band that appears to present the greatest risk of being a pedestrian casualty is 10 to 18.

- **Two Wheeled Motor Vehicles**
  - Numbers are statistically low although this is a transport mode that has failed to show reductions in casualties over a long term trend. The casualty group is also vulnerable to more severe injuries casualties (25% motor cycle casualties were KSIs).
  - Relating casualties to life style changes it would appear that 2 age bands start to jump out:
  - 16 to 18 (Moped and 50 to 125cc)
  - 44 to 51 (above 125cc)

- **Pedal Cyclists**
  - Pedal cyclist casualties increase at age 11 and follow sporadic fluctuations of relatively low numbers per year. Relating casualties to life style changes it would appear that 3 age bands start to jump out:
  - 11 to 13
  - 17 to 19
  - 30 to 32

There must be caution in defining these groups as statistically there is very little difference across the adult age range up to age 47.

POLICY RS9	**We will continue to support the CRSG and HWRSG providing a strategic approach to casualty reduction based on data analysis and intelligence, and work with partner agencies to deliver interventions.**

11.8.3 North West Analysis group

The North West Analysis Group has been established with the purpose of bringing together the regional road traffic casualty analysts from Highways England and the 5 North West Road Safety Partnership areas to identify and compare data trends and emerging road safety issues in order to inform and influence the provision of road safety activities within Highways England and the regional Road Safety Partnerships.

POLICY RS10	**We will support the development of the regional North West Analysis group and co-ordinate its recommendations into CRSG and local activity.**

11.9 Speed Management

An important factor in providing clarity on the safer choices for motorists is the setting of appropriate speed limits. Reported road casualty statistics also show the role of exceeding the speed limit and travelling too fast for the conditions as contributory factors in road traffic collisions. Other reported contributory factors such as loss of control or careless, reckless or in a hurry can often be related to excess or inappropriate speed, and even where the contributory factors are unrelated to the vehicle speed, higher speeds will often aggravate the outcome of the collision and injuries.

Prior to 2006 the UK had a background of speed limits being set for the wrong reasons. This resulted in speed limits falling into disrepute and speed limit signage becoming meaningless to motorists. Most motorists wish to be compliant, although the messages about appropriate speed were being taken from the road environment and not from the posted speed limit were many had been set falsely low.

DfT Circular 01/2006 aimed to address this and introduce a consistency to the way speed limits are set across the country. HD 01/2006 introduced the Speed Management Assessment Framework (SMAF) with the objectives of setting speed limits that better reflect the needs of all road users, not just motor vehicles; improving respect for speed limits and encouraging compliance; and reducing deaths and injuries in which excessive or inappropriate speed is a contributory factor. A key change in the concept of the SMAF approach was to consider mean speeds as the guide and not the previously used 85%ile speed which had been linked to enforcement thresholds.

Similar concepts about speed management developed through SMAF were applied in DfT Circular 01/2013 although this guidance aimed to be more intuitive and drilled down into more detailed analysis of collision types and their monetary values, nature of a road and its purpose, and the types of traffic using it. Following changes in legislation, it also gave highway authorities more flexibility in the approach to 20mph speed limits.

The underlying aim of Circular 01/2013 was to achieve a 'safe' distribution of speeds. It replaced the SMAF with a SLAT (Speed Limit Appraisal Tool) with the key factors taken into account being:

- **The history of collisions**, including frequency, severity, types and causes;
- **road geometry and engineering** (width, sightlines, bends, junctions, accesses and safety barriers etc.);
- **road function** (strategic, through traffic, local access etc.);
- **Composition of road users** (including existing and potential levels of vulnerable road users);
- **existing traffic speeds**; and
- **road environment**, including level of road-side development and possible impacts on residents (e.g. severance, noise, or air quality).

Speed management is a key part of both casualty reduction and environmental traffic management for Warrington Borough Council. The need to prioritise speed management interventions is evidenced through the frequency of concerns expressed by communities relating to inappropriate vehicle speed.

We continue to promote highway improvements to encourage increased compliance and therefore safer behaviour when travelling on Warrington's roads. Measures can include:

- Changes to speed limits
- Area-wide traffic calming
- Route speed assessments
- 20mph speed limits or zones
- Speed activated signs
- Support to Community Speed Watch
- Targeted enforcement through CRSG.
- Referral to speed awareness courses through CRSG for education as an alternative to prosecution.

The RSMCR notes that's there is concern that government guidance on emissions may lead local authorities to remove such speed management devices without reference to the safety impact. This is in particular reference to traffic calming measures although the importance applied recently to the need to improve air quality can be seen in the SLAT process. Warrington however has continued to also reference circular 01/2006 to allow greater priority to casualty reduction although further guidance is expected to be issued following the DfT's BRSS 2015.

The RSMCR has established that compliance with speed limits is still poor, especially in urban areas and on motorways, and 'exceeding the speed limit' features amongst the top five contributory factors for many types of collision. Even small changes in mean speed affect fatal and serious crash risk. A 5% decrease in mean speed could produce a 30% reduction in deaths.

POLICY RS11	**We will continue to promote highway improvements to encourage increased compliance with posted speed limits and therefore safer behaviour when travelling on Warrington's roads.**

POLICY RS12	**We acknowledge the central role of speed and its management to a Safe System approach and will review priority interventions for local roads.**

POLICY RS13	**We will respond to community concerns associated with traffic speed and ensure a consistent approach is adopted by Cheshire agencies.**

11.10 Walking and Cycling Vulnerability

Nationally, 6% of deaths and 14% of serious injuries are amongst cyclists, although over four times as many pedestrians (25%) are killed in road collisions. In Warrington 11% of all killed or seriously injured casualties are pedal cyclists and 14% are pedestrians. The safer System approach promotes the cultural change within organisations and communities where safer behaviour can be encouraged and open more travellers to sustainable and healthier travel options.

44% of Warrington's pedestrian casualties are represented from the 6 to 18 age band. The age band that appears to present the greatest risk of being a pedestrian casualty is 10 to 18. We proactively target Year 6 in schools to equip people with the pedestrian skills as they make their transition to high school and greater travel independence. This is reinforced in Year 7 with distraction sessions.

According to the Active People Survey undertaken by Sport England during 2014/15 1.3% of all adults aged 16+ living in the North West of England cycle at least 5 times per week for utility purposes. As a comparison across the Cheshire authority areas, Warrington is thought to be relatively low:

- Cheshire East – 0.7%
- Cheshire West and Chester – 1.1%
- Halton – 1.8%
- Warrington – 0.7%

Pedal cycle casualty numbers are shown in Table 11.3. When comparing casualty rates for pedal cycling across the Cheshire authorities Cheshire East has seen the highest volume although a comparison of the numbers of casualties against the population, it would appear that those residing within Warrington are most at risk of being injured whilst riding a pedal cycle.

Local Authority	2011	2012	2013	2014	2015	Total	Casualties per Thousand Population
Cheshire East	115	148	141	159	119	682	1.82
Cheshire West and Chester	135	105	105	124	81	550	1.65
Halton	27	31	26	51	24	159	1.26
Warrington	97	102	76	103	80	458	2.21
CRSG	374	386	348	437	304	1849	1.77

Table 11.7 - Pedal Cycle Casualties[40]

It might be assumed that these statistics could suggest that Warrington's highway network is dominated by the car and that the existing infrastructure does not attract cycling and walking activity. Warrington's ambitions for growth will require a highway network where people actively choose more sustainable means of transport over the car. Whilst growth will bring new infrastructure, it might be assumed that increases in vehicle traffic will result in greater interactions between road users and the potential for increases in conflict.

In a UK study of cycling injury risk, Safety in Numbers was identified as a factor in explaining lower cycle injuries. The paper provides evidence that roads with more cyclists have lower injury risk as drivers on routes with high cyclist volumes are more aware of cyclists and take more care.

[40] Cheshire Police Collision Data

However, in this study, the researchers were able to report an effect of 20mph speed limits separate from 'safety in numbers' in reducing collisions. In contrast, the presence of a segregated cycle path, no additional effect on the street's appeal was evident following the imposition of a 20mph limit. Despite this, the report also suggests that building new cycle routes will bring the 'safety in numbers'.

The DfT introduced a new strategy in April 2017 setting out ambitious goals for increases in cycling and walking. The ambition of the Cycling and Walking Investment Strategy is to make cycling and walking the natural choices for shorter journeys, or as part of a longer journey. The LTP4 Active Travel chapter outlines our policies in respect of cycling and walking and the intention to develop and implement the Warrington Local Cycling and Walking Infrastructure Plan.

Our aim is that cyclists and pedestrians will be able to use walking and cycling routes that allows them to feel safe whilst making their journey using. Where possible they will use quiet roads, cycle paths, off-road routes, and cycle-friendly highway links.

In 2014, the council completed implementing 20mph speed limits on the majority of residential roads and the Town Centre, where the greatest interaction between traffic and vulnerable road users would be expected. 20mph speed limits and zones for residential developments have also been adopted as a design standard in the planning process.

POLICY RS14	**We will proactively promote safer behaviour for vulnerable road users and encourage cycling and walking as a form of transport.**

POLICY RS15	**Through the Warrington Local Cycling and Walking Infrastructure Improvement Plan we will deliver the highway environments that remove psychological barriers of cycling and walking due to the perception of poor safety and personal security**

11.11 Network clarity for road users

Managing traffic and the demand for travel is considered in detail in Chapter 15 Network Management. However, having measures in place to ensure that traffic uses appropriate routes is an important factor in improving road safety, and has wider benefits in terms of improving air quality, and improving the local environment.

Advances in vehicle intelligent transport communication and vehicle navigation systems will have reduced the risk of a traveller being lost on the highway network, and prevent them from making last minute lane changes or hesitating because they are not sure of the directions. However, this does not devalue from the need to provide clarity to the network for appropriate routing through the correct classification of routes and the reinforcement of the correct information provided to travellers through strategic directional signage. Particularly in the case of freight traffic, defining the strategic use of the network correctly supports the integrity of the information provided to travellers.

The recent and anticipated future development in Warrington has prompted a review of the primary and 'A' class road network classifications. This review was the prerequisite to a review of the council's Directional Signing Strategy. It is anticipated the review will be completed early in 2019 and inform the development of long term programme for implementation of the recommendations. The primary objectives of the review are to:

- Reduce journey lengths that result from confusion
- Reduce road traffic collisions and casualties and their impact on network capacity
- Improve network resilience and efficiency
- Reduce on street clutter improving the highway environment
- Support the economic development of Warrington

POLICY RS16	**We will seek to ensure that highway traffic uses appropriate routes in making journeys through and within the borough to minimise the impact of traffic on safety and the environment in sensitive areas**

11.12 Driving for Better Business

Intelligence has shown that over 25% of casualties injured on Warrington's roads are driving for work purposes or commuting. Work-related road safety is also identified as an area deserving increased national focus by central and local government, national experts, road safety organisations and by the business sector.

The RSMCR has recognised that road safety is not just a matter for government and the public sector. The safe movement of goods and services is vital for the national economy and industry as a whole. As around a third of road traffic collisions involve a person at work.

There are moral, financial, and legal reasons why employers should be encouraged to adopt policies for the good management of their work related road risk. Employers have a duty of care to employees, can improve sickness rates through injury prevention, reduce insurance maintenance and fuel costs, prevent injuries to other road users, and mitigate the potential risk of corporate manslaughter charges.

Warrington has promoted its own Work Related Road Safety strategy by amending its health and Safety and fleet management policies. This involves the installation of vehicle telematics, adoption of incident reporting systems and intoxication policies, referral to training for higher risk operatives.

However, improving road safety whilst driving for work is a factor not only when an individual is driving employed on work related duties, but also for the commute to and from work. The grey and white collar employee is a harder to reach group where it is less likely that minor incidents when driving to work or for work purposes are recorded in stats 19 as a work journey. Collisions are also less likely to be reported to the employer when travelling for work duties restricting the application of proactive driving for work policies.

Highways England is leading this key programme of work and has a Memorandum of Understanding with RoadSafe to work in partnership to deliver the three year business outreach campaign to engage businesses across England, especially those which have employees driving cars and light vans for work purposes. A key objective for Highways England is to lower the level of disruption on the network caused by the 40,000 incidents attended by its traffic officers each year, which result in widespread congestion and delays on both the strategic and local road network.

The CRSG recognises the mutual benefits of targeting work related road safety as a priority and is developing a programme of corporate engagement events aimed at promoting the broader adoption of the Driving for Better Business principles.

POLICY RS17	**We will support the development of a multi-agency approach to improve road safety when people drive for, or to and from work.**

11.13 Increasing Security for All Road Users

The risk of collision is not the only potential threat to users of our highways and transport services. The fear of crime, anti-social behaviour, and poor personal safety is a barrier that can discourage people from walking, cycling, and using public transport. We aim to provide a highway network that is free from harm and the threat of crime and anti-social behaviour; with efficient transport links that promote public confidence in sustainable travel choices.

This vision can only be achieved in partnership with other agencies and transport operators. In seeking to improve overall safety and security, we need to consider a wide range of issues involving:

- road traffic collisions and casualties; security at sensitive transport locations which may be vulnerable to terrorist attack;
- effective emergency incident response including traffic control;
- the balance between highway network capacity and severance to communities; and
- improved environmental design in the highway environment which can reduce the opportunity for crime and antisocial behaviour.

It is therefore important that we seek to reduce this perceived threat. Methods that can be used to do this include:

- Increased CCTV
- CCTV at key public transport facilities
- Improved walking and cycling routes with the introduction of more modern, safer pedestrian crossings particularly on the strategic route network.
- Use of street lighting
- Measures to reduce the threat of terrorist attacks
- Environmental audit process for new developments
- Improving the quality and availability of information about travel options such as real time travel information

POLICY RS18	**We will seek to reduce opportunities in the transport environment for terrorism, crime, anti-social behaviour, through careful design of highway and transport schemes.**

11.14 Safer Travel Policy Summary

	Policy
RS1	We will establish road safety as a cultural priority and proactively engage with partners and stakeholders to promote the Safe Systems approach.
RS2	We will aim to prevent all deaths on Warrington's roads and to significantly reduce the frequency and severity of collision and casualties.
RS3	We will continue to identify and deliver targeted collision remedial measures through the annual Local Safety Schemes Programme.
RS4	We will continue to ensure that opportunities for road safety improvement is embedded in transport strategies, considered in the prioritisation of all highway works programmes, and encouraged through development led projects.
RS5	We will continue to develop and implement strategies for continuing the reduction in frequency and severity of road traffic collisions and casualties through behavioural change.
RS6	We will continue to support the CRSG with financial contributions and officers performing key roles in the Board and its Sub-groups.
RS7	We will continue to explore opportunities for advancements in camera enforcement technology and explore the use of average speed cameras where appropriate.
RS8	We will support the CRSG in exploring improvements in Collision and Casualty data quality embracing the intended roll out of CRASH.
RS9	We will continue to support the HWRSG providing a strategic approach to casualty reduction based on data analysis and intelligence, and work with partner agencies to deliver interventions.
RS10	We will support the development of the regional North West Analysis group and co-ordinate its recommendations into CRSG and local activity**.**
RS11	We continue to promote highway improvements to encourage increased compliance with posted speed limits and therefore safer behaviour when travelling on Warrington's roads.
RS12	We acknowledge the central role of speed and its management to a Safe System approach and will review priority interventions for local roads.
RS13	We will respond to community concerns associated with traffic speed and ensure a consistent approach is adopted by Cheshire agencies.
RS14	We will proactively promote safer behaviour for vulnerable road users and encourage cycling and walking as a form of transport.
RS15	Through the Warrington Local Cycling and Walking Infrastructure Improvement Plan we will deliver the highway environments that removes psychological barriers of cycling and walking due to the perception of poor safety and personal security
RS16	We will seek to ensure that highway traffic uses appropriate routes in making

	journeys through and within the borough to minimise the impact of traffic on safety and the environment in sensitive areas
RS17	We will support the development of a multi-agency approach to improve road safety when people drive for, or to and from work.
RS18	We will seek to reduce opportunities in the transport environment for terrorism, crime, anti-social behaviour, through careful design of highway and transport schemes.

12 Cleaner Fuels

12.1 Introduction

We are committed to providing attractive alternatives to car travel, and to looking at how we can best route freight within and around Warrington. However, we recognise that motorised transport will continue to play a significant role in Warrington's transport system.

In order to reduce the resulting environmental effects of continued motorised transport usage we will consider how cleaner fuels can reduce the impact of individual vehicles, both on climate change and local air quality, and what role the Council can play in enabling the use of them.

Warrington currently has two Air Quality Management Areas (AQMAs) where emissions of Nitrous Oxides (NOx) are above legal limits, shown in Figure 12.1. These are around the Motorway network and the town centre.

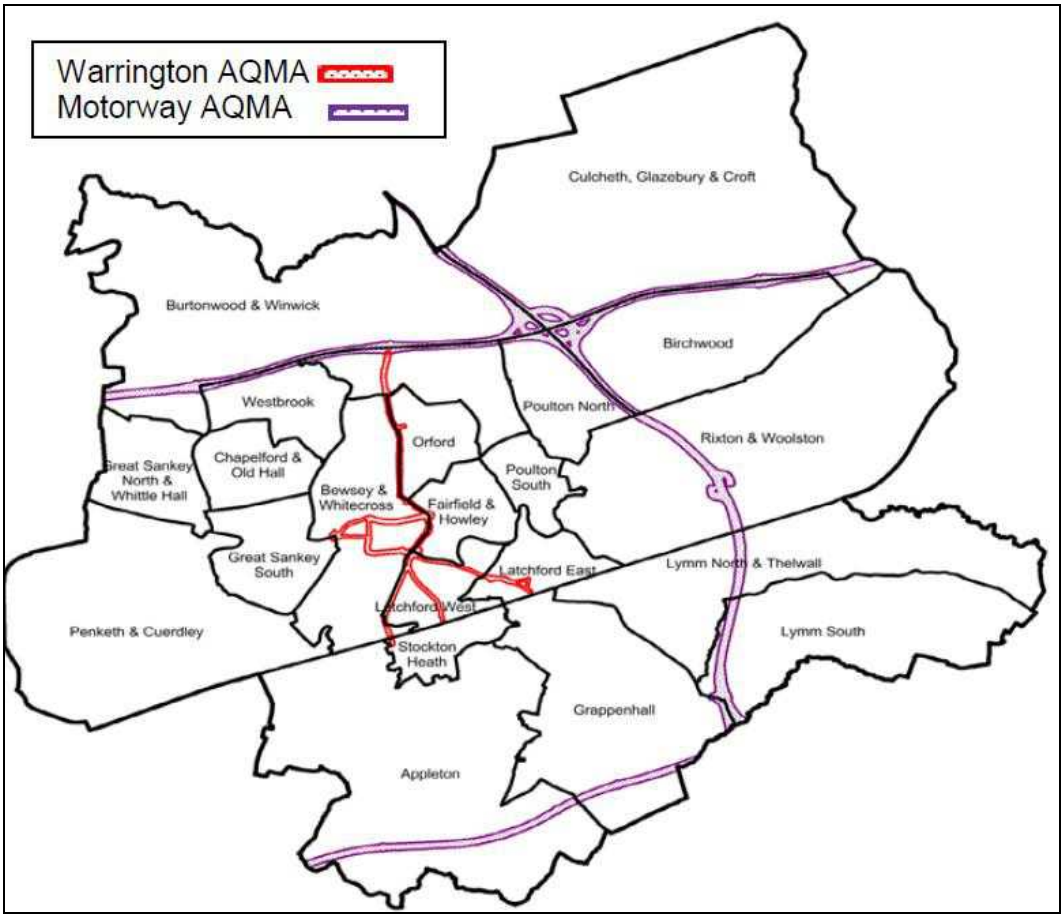


Figure 12.1 - Air Quality Management Areas

The predominant source of pollution that affects local air quality is local traffic. This primarily comes from the use of traditional fossil fuelled engines but is also due to tyre and brake wear.

A Low Emissions Feasibility Study carried out in 2013 showed that diesel cars are the predominant source of NOx pollution, and that HGV and buses contribute a disproportionate amount of NOx compared to the distance driven. Within Warrington, traffic mode sources could be apportioned for contribution above the background as follows:

- Petrol cars contribute approximately 11% and diesel cars 50% of NOx, and account for 90% of distance driven
- HGVs and LGV contribute 20% of NOx, yet account for only 9% of distance travelled.
- Buses contribute approximately 11% of NOx yet account for only 1% of distance travelled

The Council developed an Air Quality Action Plan in 2018 aimed at reducing harmful emissions that impact on air quality. This is available from https://www.warrington.gov.uk/airquality

An increase in the number of vehicles in Warrington powered by cleaner fuels will support a reduction in Nitrogen Oxides (NOx) emissions which are currently above legal limits. There will also be a reduction in fine particulate exhaust emissions.

12.2 What are cleaner fuels?

When making decisions about which fuels we will support we will particularly consider NOx and Particulate Matter (PM 10 and PM 2.5) to improve local air quality and Greenhouse Gas (GHG) emission,s to provide a balanced approach to air quality and climate change mitigation. We will compare cleaner fuels on this basis against the equivalent diesel or petrol alternative as relevant. Alternative fuel sources that are available for use by vehicles on the market today, or close to being market-ready include:

- Electric vehicles
- Natural Gas
- Compressed Natural Gas
- Liquefied Natural Gas
- Biomethane
- Hydrogen

12.3 Non-exhaust emissions

We recognise that, particularly in the case of PM, non-exhaust emissions (brake, tyre, clutch, road surface wear and resuspension) make up a significant and growing proportion of emissions. Cleaner fuels can directly and significantly reduce (in some case to zero) exhaust emissions, but their impact on non-exhaust emissions is more complicated.

Many hybrid and electric vehicles are heavier than conventionally fuelled equivalents because of the presence of batteries, which may increase brake and tyre wear. Most electric vehicles though are equipped with regenerative braking which will decrease brake wear emissions. In addition to higher vehicle weight, there is an increased higher torque from the electric motor that may result in increased tyre wear, increasing particulate emissions. The government is in the process in undertaking research, through the Clean Air Strategy, to better understand the impact of new vehicle technologies on brake and tyre wear emissions.

As a result, this cleaner fuels strategy does not in itself aim to reduce non-exhaust emissions. The most effective way reducing non-exhaust emissions in Warrington is by reducing the number of motorised vehicles on our highway network. Successfully delivering on our vision for transport will, therefore, see a reduction in these emissions.

The Cleaner Fuels Strategy is aimed at reducing tailpipe emissions from vehicles in Warrington by increasing use of vehicles that have less impact on local air quality and on people's health.

12.4 Changing the Council Fleet

In order to lead by example, we will look at reducing emissions from the fleet of vehicles owned and operated by the Council. We will join more than 140 companies by signing up to the Go Ultra Low Companies initiative which requires a minimum of 5% of fleet vehicles to be electric by 2020. As part of this commitment we will phase out diesel pool cars and replace them with a less polluting option. We will also investigate the feasibility of moving to low emission refuse vehicles.

POLICY CF1	**We will look to improve our own fleet of vehicles by increasing the number of Council owned low emission vehicles.**

12.5 Supporting External Fleets to Change

We will commission a study to understand how we can best support fleets operating within Warrington (particularly HGV, LGV, buses and taxis) which operate in Warrington to move to cleaner fuels. This will determine the best fuel options for the fleets concerned and actions needed to support their uptake. This will initially focus on heavy vehicles as these contribute to NOx emissions disproportionally within Warrington's AQMA areas.

As part of this work we will investigate the introduction of a Clean Air Zone. A Clean Air Zone is a designated area that the most polluting vehicles are either charged for entering, or banned from entering at all. If taken forward, the introduction of a Clean Air Zone would requires extensive engagement and consultation with neighbouring authorities, local communities and businesses to: explain the aims, including the potential health and economic benefits; understand any concerns; and assess the need for any mitigating actions.

POLICY CF2	**We will investigate how we can best support local fleet operators to switch to vehicles that use cleaner fuels**

12.6 Supporting Residents to Change

We will commission a study to investigate which cleaner fuels are most popular with members of the public and why. A key area of interest will be public chargepoints for Electric Vehicles (EVs). Here we will consider the range of recharging infrastructure required in terms of electrical output required for different charging needs and the geographical extent of charging locations.

As part of this we will determine the capacity of the existing electricity network to inform the lowest cost locations for grid connection and combine this information with areas of need to enable the rollout of infrastructure to be more cost effective. We will also consider existing facilities and how we can work with commercial providers of chargepoints to coordinate the network across Warrington to ensure areas aren't over or underprovided for.

POLICY CF3	**We will investigate how we can best support local residents to switch to vehicles that powered by cleaner fuels.**

12.7 New developments

We already require new residential developments to ensure that chargepoints can be easily fitted by the occupier as and when demand arises. We will review this policy to ensure that it remains fit for purpose as EV sales increase by investigating if developers should be required to install chargepoints.

We already require new commercial developments to provide chargepoints in 5% of car parking spaces or enable the easy installation of chargepoints as demand arises. We will review this policy to ensure that it remains fit for purpose as EV sales increase including investigating if developers should be required to install chargepoints and at what level, taking into consideration the nature of the development.

POLICY CF4	**We will ensure that new housing developments are suitable for residents who choose to own low emission vehicles**

12.8 Cleaner Fuels Policy Summary

	Policy
CF1	We will look to improve our own fleet of vehicles by increasing the number of Council owned low emission vehicles
CF2	We will investigate how we can best support local fleet operators to switch to vehicles that use cleaner fuels
CF3	We will investigate how we can best support local residents to switch to vehicles that powered by cleaner fuels
CF4	We will ensure that new housing developments are suitable for residents who choose to own low emission vehicles

12.9 Cleaner Fuels Actions

Relevant Policy	Action	Timescale
CF1	Sign up to Go Ultra Low Companies	0-5 years
CF2	Commission a study to determine how the Council can support fleets to switch to cleaner fuels	0-5 years
CF3	Commission a study to determine how the Council can support members of the public to switch to cleaner fuels, including consideration of on and off street EV charging facilities	0-5 years
CF4	Review requirement for EV charging points in Parking Standards for new developments	0-5 years

13 Asset Management

13.1 Introduction

Asset Management focuses on our proposals for maintaining the physical transport assets which make up the transport networks for which we have direct responsibility. The local highway network includes roads, footways, cycleways, bridges, street lighting, traffic signals, bus stops, street furniture and signs.

Asset Management is the process by which we seek to ensure an optimal allocation of resources towards the management, operation, preservation and enhancement of infrastructure in order to meet current and future needs.

Almost every resident, worker and visitor to Warrington will use the highway network on a daily basis, whether as a pedestrian, cyclist, or by motorcycle, bus, taxi or car.

Asset management is accepted by central and local government as a means to deliver a more efficient and effective approach to management of the highway infrastructure assets. Asset Management is defined as:

> *"A strategic approach that identifies the optional allocation of resources for the management, operation, preservation and enhancement of the highway infrastructure to meet the needs of current and future customers."*
>
> (County Surveyor's Society: Framework for Highway Asset Management (2004)).

As a highway authority, Warrington Borough Council has a statutory duty to maintain, operate and improve the highway network on behalf of all its customers. We aim to do this through providing high value services in a legally and environmentally compliant and sustainable manner. The network is vital to the economic wellbeing of our residents and businesses.

For context, the Council maintains the following:

- Approx. 948.17km of carriageway
- Approx. 1067.7km of footway
- 1595 structures
- Approx. 49,220 Gullies
- Approx. 4.7km Slotted Drain Channel
- Approx. 16.6km Linear Drainage Kerb
- 4 Pumping Stations
- 2 Storm Water Attenuation Tanks
- Approx. 34.4km Culverts
- 6 Trash Screens
- 3 Tide Flaps
- Approx., 27,800 Street Lighting Units
- 82 Road Junctions
- 41 Puffin Crossings
- 12 Toucan Crossings
- 21 Pelican Crossings

*above list is not exhaustive and is a guide only.

The highway network forms the largest capital asset which the Council is responsible for and would cost in excess of £1.9billion to replace (Gross Replacement Cost at 2017/18), as shown in Table 13.1.

Asset Group	Gross Replacement Cost '000s	Date Last Valued
Carriageways	£729,979.00	30 June 2017
Footways & Cycleways	£140,054.00	30 June 2017
Structures	£247,274.00	30 June 2017
Street Lighting	£34,601.00	July 2017
Traffic Signals	£5,817.95	30 June 2017
Street Furniture	£11,388.61	30 June 2017
Land	£747,485.43	30 June 2017
TOTAL	**£1,916,599.99**	30 June 2017

Table 13.1 - Replacement Cost for Our Highway Asset

This LTP Asset Management Strategy supports our Highway Asset Management Strategy that is available to view from https://www.warrington.gov.uk/highways-asset-management-strategy

A significant amount of the capital funding that is available for asset management is from Government's Incentive Funding. This rewards councils who demonstrate they're delivering value for money in carrying out cost effective improvements.

Each local highway authority in England (excluding London) completes an annual self-assessment questionnaire to establish the share of the Incentive fund they will be eligible for. The results of this questionnaire place each authority into one of three bands (1, 2, and 3). Only the best performing councils, placed in Band 3, are awarded their full share of the funding.

Warrington is a Band 3 authority, allowing us to receive 100% of the funding available to us. Our Highway Asset Management Strategy sets out how we will ensure that targets are established, measured and achieved, and how improvements are made and reviewed to consolidate our Band 3 status.

13.2 Baseline Data / Evidence

Carriageways represent the largest element of the highway asset and accounts for approximately 70% of the total asset value. Maintaining their condition and preserving their value is vital to the Council.

Figure 13.1 illustrates the percentage of roads which should be considered for maintenance for A roads, B and C roads, and unclassified roads. Road condition across Warrington has improved over recent years and is better than the national average. Classified roads across Warrington which should be considered for maintenance sit at 2% compared with the national average of 3%. For unclassified roads, 9% of our network should be considered for maintenance. Again, this is better than the national average of 17%.

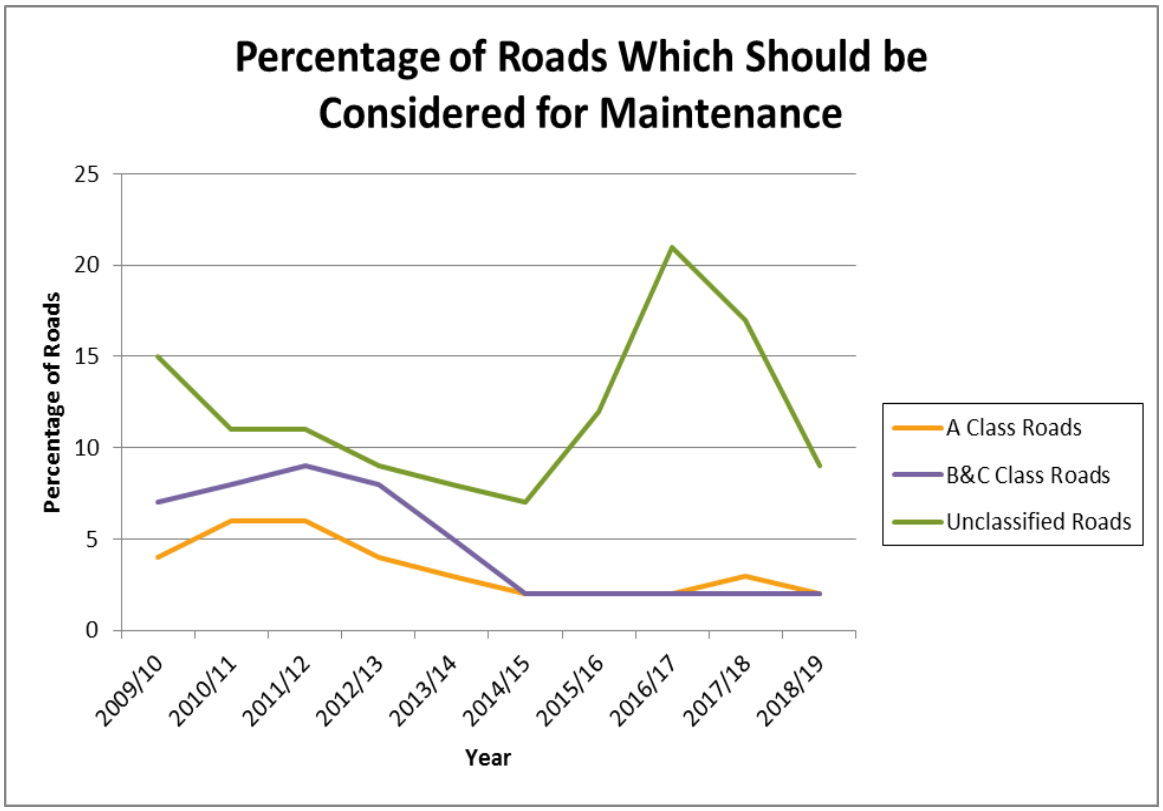


Figure 13.1 - Percentage of roads which should be considered for maintenance[41]

13.3 Issues & Challenges

[41] DfT Road Condition Statistics https://www.gov.uk/government/statistical-data-sets/road-condition-statistics-data-tables-rdc

13.3.1 Carriageway

The length of the carriageway across our network is 948.17km. One of our largest challenges with our carriageway network concerns significant sections of our roads built as part of the New Town development. The rates of deterioration of these roads are largely the same, and as a result, large sections of carriageway are approaching the end of their original design life and require treatment, often structural and extensive. This presents us with a significant legacy challenge.

Increasing traffic volumes associated with both a growing population base and also resulting from frequent traffic disruption problems on the adjacent motorway network impact on the structural integrity of our highway. Increasing numbers of stop/start movements leads to more rapid deterioration of surfaces.

We are also challenged with managing our extensive minor carriageway network. This is made up of the non-principal and unclassified roads. These may have been constructed with minimal pavement layer depth in older sections. This results in more rapid deterioration and may require more structural repairs than planned.

Winter weather has a high impact on the overall condition of the road network. This results in large scale rapid deterioration of roads nationwide.

This challenging environment of deteriorating carriageways is magnified with the reduction in funding for maintenance, and places greater emphasis on our ability to deliver more cost-effective solutions.

13.3.2 Footway

Investment in maintaining and improving our Footway network has reduced over many years, due to a reducing funding. As a result, a significant proportion of our footway network is assessed as structurally unsound or functionally impaired and requires immediate redress.

The total length of our footway network is 1,067.7km. The majority of the network is constructed of bituminous materials. Flags and block pavers make up over 5% (53.4km) of the network and often require more extensive repair and reconstruction, and is often not as cost-effective as alternative solutions.

13.3.3 Structures

With an aging set of bridges and structures, we are challenged to continue to provide a required level of service for our residents and key stakeholders. Our funding requirements are more substantial than our current level of funding, which has remained stable over the recent 3-4 years. The building of new infrastructure will increase the asset, placing greater pressure on our maintenance spend.

Preventing Suicide

Every person lost to suicide is a tragedy that affects families, friends, colleagues and the wider community. The national suicide prevention strategy has an objective to reduce access to the main means of suicide, including transport infrastructure and structures where a risk is identified. Interventions that can help to prevent suicides in public places include:

- Restrict access to the site and the means of suicide
- Installing physical barriers to prevent jumping
- Introducing other deterrents, for example, boundary markings or lighting
- Increase opportunity and capacity for human intervention
- Improving surveillance, such as using CCTV
- Increase opportunities for help seeking by the suicidal individual
- Providing Samaritans signs and/or free emergency telephones

More information regarding the Cheshire and Merseyside 'No More' approach to suicide prevention can be found at www.no-more.co.uk.

13.3.4 Street Lighting

The street lighting inventory increases by approximately 1% per year as a result of new housing and commercial developments.

Energy costs are by far the biggest challenge facing the street lighting service. The cost of energy charged to WBC is made up of a number of different components namely cost of generated energy, cost of transmission and regulatory costs. The cost of energy has almost trebled in the past 10 years.

Ageing Infrastructure and reduced investment over many years means the rate of renewal has not kept pace with the rate of decay. We are now part way through a project to replace ageing lighting columns and LED street lights. High level lighting within the Town Centre has been completed and with the inclusion of the remote monitoring, lighting levels can be varied to take account of the varying night time economy/activity. The objective of the investment project is to provide mitigation against future energy costs.

13.3.5 Traffic Signals

As with most of our other highways infrastructure, our traffic signals inventory is aging, with many of our systems reaching the end of their functional life. Our traffic management systems are also rapidly expanding due to more intelligent transport systems technology, so we also face the challenge of an expanding asset base to support, again, within a reducing funding envelope.

13.3.6 Flood Risk & Drainage

The condition of the visible, regularly visited sections of the network (e.g. gullies) is generally in reasonable order. However, the condition of the remainder of the network, which is largely underground and more difficult to access, is less well known.

Periods of high rainfall place pressures on the drainage network, and this can create a flooding issue that has to be managed. Our management process has taken place reactively in providing continuing road accessibility, safety to road users and prevention of flooding of private properties. Climate change has the potential to increase the number of flood events.

We are working to collect more inventory and condition data on the underground drainage asset. This will allow us to manage the asset to the required level in the future.

13.4 Our Highway Asset

Warrington Borough Council recognises the importance of its highway infrastructure and how an effectively maintained and managed network contributes to the achievement of its corporate goals.

POLICY AM1	**Ensure the Highway Asset Management Strategy fully considers how it can support delivery of the LTP vision, objectives and policies**.

13.4.1 Maintaining Our Highway Asset

Maintenance of our highways infrastructure is classified as follows:

Planned maintenance: larger and longer term investments, designed to improve the way we manage our highway infrastructure. Our Highways Asset Management Strategy identifies the best way to undertake planned maintenance. It consists of a Policy, a Strategy and a number of more detailed plans. A risk-based approach identifies the best way to meet the Council's objectives and use our limited resources effectively providing best value for residents.

The Council uses a rigorous, data driven, approach that considers the risks and benefits of different ways of improving our highway network. This may involve building on successful work to enable communities to get more involved. We also seek ways to work which minimise disruption on the network, maximise opportunities for collaborative working between works programmes and offer the opportunity to integrate larger and smaller scale works.

Routine maintenance: works such as grass cutting and gully emptying are planned on a cyclical basis. These works are undertaken according to a timetable designed to balance their benefits, costs and risks.

Reactive maintenance: when defects are identified through routine safety inspections or reports from members of the public. These defects are categorised according to the risk they pose to highway users and are prioritised accordingly for reactive repairs.

Management of our Highway Asset will focus on achieving the following outcomes:

- A safe network
- A serviceable network
- A sustainable network
- Informed and Satisfied Customers

POLICY AM2	**Identify and apply industry-leading good practice to the management of all transport assets.**

13.4.2 Value for Money

Nationally there is an acknowledged backlog in preventative maintenance and a legacy of underinvestment in the country's highway infrastructure. Whilst asset management is primarily concerned with ensuring good asset condition, long term efficiency and value for money, it is important to recognise the contribution asset condition can make to a number of transport objectives.

Safety is an obvious example, particularly with respect to cyclists, motorcyclists and pedestrians, for whom potholes and other highway defects can create hazards. Poor asset condition can deter people from choosing active modes of travel and, alongside inappropriate choice of materials, be to the detriment of the quality of place.

It is therefore vital that we seek to maximise any funding for maintenance schemes, and that any investment that we delivers the best possible value for money.

POLICY AM3	**Maximise the opportunity for investment to maintain and improve the condition of the transport network.**

POLICY AM4	**Seek value for money for all transport assets and minimise future maintenance liabilities as far as possible.**

13.5 Highway Asset Management Strategy

Our Highway Asset Management Strategy sets out a Highway Asset Management Framework. Shown in Figure 13.2, the Framework sets out how we intend to manage our highway infrastructure network and identifies how key objectives are met.

The key to our long term goals and success will be our continued commitment to maintain our ageing highway network. Assessing and managing a highway asset of this size requires significant skill levels and is an extremely difficult task. The Highway Asset Management Strategy is our statement of intent as to how we will manage our Highway Asset in Warrington. It provides the basis for the authority to adopt sound asset management principles to enable us to achieve economic prosperity and growth to the wider community by forming critical links with greater efficiency, collaborative working and value for money.

Due to limited funding over the years, asset management has generally resulted in a more reactive approach that focused on the maintenance of assets approaching or already at the end of their life rather than routine maintenance. This involved carrying out more costly resurfacing schemes which is unsustainable.

The overall objective in targeting maintenance resources is to identify assets that are approaching condition thresholds. Timely intervention at this stage will prove effective at halting the overall deterioration of the network. With the network condition stabilised the ongoing aim will be to deliver sustainable improvements in asset condition and value.

The future approach is to undertake more preventative maintenance treatments on carriageways in the amber (fair to poor) condition band rather than red (very poor condition). This will reduce the whole life cost of the carriageways as we will be eliminating lengths which would otherwise have deteriorated to a red condition requiring more expensive treatments to remain in service.

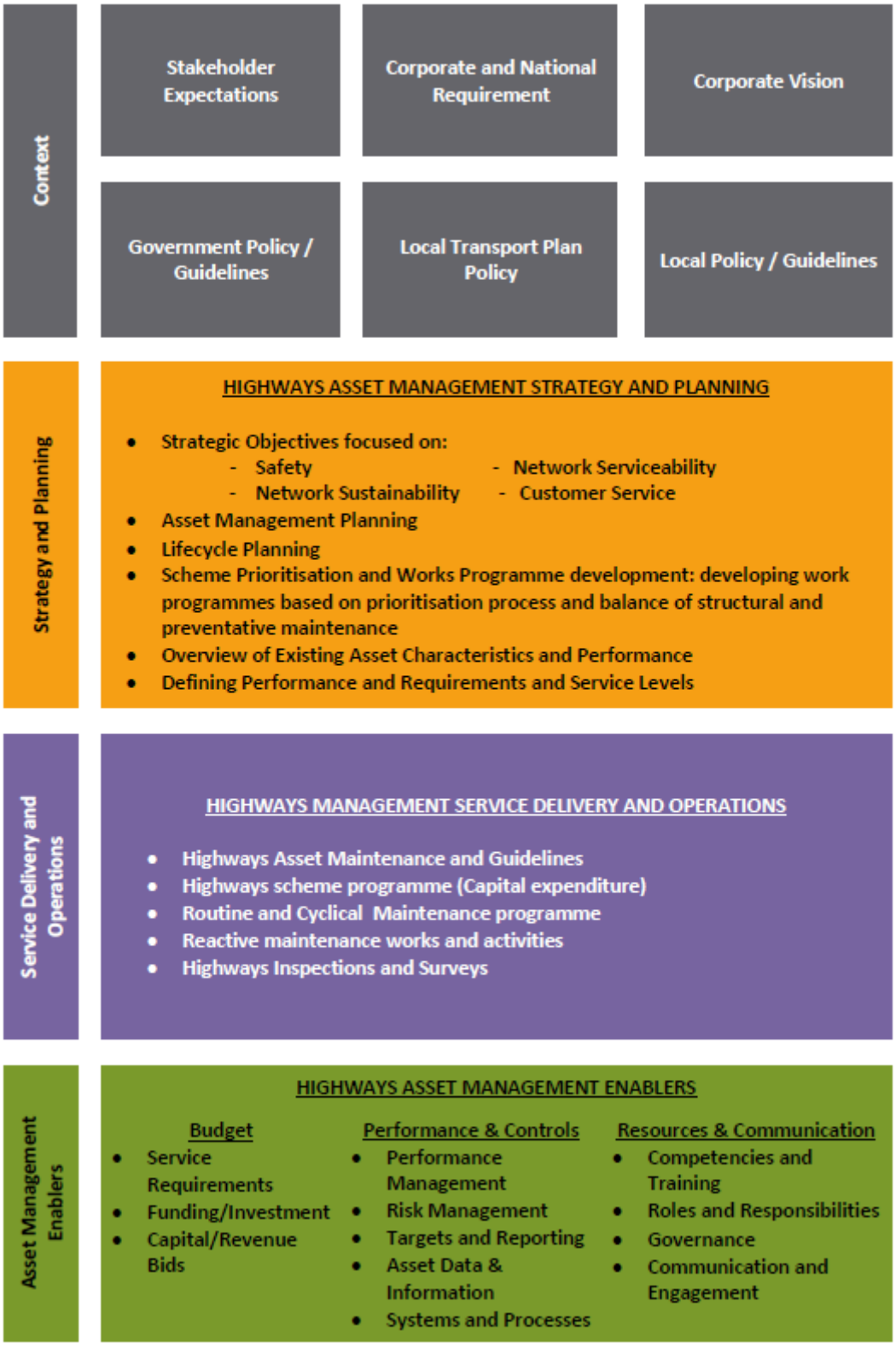


Figure 13.2 - Asset Management Framework

13.5.1 Outcomes

The strategy seeks to ensure highway infrastructure is maintained efficiently with available investment optimised to deliver the desired level of service and condition which contributes positively to a wide range of LTP4 objectives.

13.5.2 Performance Monitoring

The Highway Asset Management Plan includes a Performance Management Framework (PMF) in order to provide objective evidence of achievement of our strategic objectives.

Performance indicators and targets relating to 'Customers', 'Safe and Responsive Service', and 'Serviceable and Sustainable Network' are reported and tracked to measure performance and improvement. Performance is reviewed regularly with senior officers and Portfolio Holder (as part of the Asset Management Steering Group Meeting). Each review adopts a risk management approach and introduces those changes that are necessary to ensure that the Health and Safety, Environmental, Political and Financial risks both to users and the Authority are managed effectively.

Delivery and budget targets are reviewed monthly between senior officers and as necessary at the Asset Management Steering Group.

We use benchmarking comparing adjacent Local Authorities as a tool to measure performance and to identify where we can do things in a different way to achieve better outcomes.

POLICY AM5	**Seek opportunities to reduce the amount of greenhouse gases produced during maintaining and improving transport assets.**

POLICY AM6	**Continue to invest in maintenance of the highway asset**

13.6 Asset Management Policy Summary

	Policy
AM1	Ensure the Highway Asset Management Strategy fully considers how it can support delivery of the LTP vision, objectives and policies.
AM2	Identify and apply industry-leading good practice to the management of all transport assets.
AM3	Maximise the opportunity for investment to maintain and improve the condition of the transport network.
AM4	Seek value for money for all transport assets and minimise future maintenance liabilities as far as possible.
AM5	Seek opportunities to reduce the amount of greenhouse gases produced during maintaining and improving transport assets.
AM6	Continue to invest in maintenance of the highway asset

13.7 LTP Asset Management Actions and Interventions

Relevant Policy	Intervention	Timescale
AM1	Define desired levels of service for highway assets, in consultation with stakeholders.	0-5 years
AM2	Adopt a life-cycle approach to planning asset investment and management decisions.	0-5 years
AM2	Continue to monitor, evaluate and, where required, improve service delivery.	0-5 years
AM2	Continue to effectively manage the risks of asset ownership and operation to ensure continuity of service.	0-5 years
AM2	Empower and motivate the entire workforce involved in the operation and maintenance of the highway network.	0-5 years
AM2	Continue to implement and adopt collaborative and joint working initiatives to deliver effective and efficient services	0-5 years
AM3	Balance competing needs across the highway network and select options that best meet desired outcomes.	0-5 years
AM4	Provide for present needs whilst sustaining natural resources for future generations.	0-5 years
AM6	Adopt a continuous improvement approach to asset management policies and practices.	0-5 years

14 Network Management

14.1 Introduction

The Network Management theme sets out how we, as the Local Highway Authority, propose to make best use of the existing highway network and fulfil our statutory Network Management Duty as set out in the Traffic Management Act 2004.

Network Management focuses on the management of the highway network and looks at introducing measures to help us make best use of the existing highway resources. This is relevant to all users of the road network, including pedestrians, cyclists, buses, cars, taxis, and road freight. Our approach to Network Management is therefore broad, as we seek to manage the network proactively to improve conditions for all road users.

An important aspect of Network Management is managing congestion. This is a combination of managing traffic demand and traffic flow and making the highway network operate as efficiently as possible. This is particularly important to Warrington where traffic patterns can be severely affected by incidents on the surrounding motorway network, or when ship canal swing bridges open.

The operation of the network is closely monitored and controlled, with signal timings at key junctions being automatically adjusted within the councils Urban Traffic Management and Control (UTMC) system in order to react to continually changing conditions. UTMC is recognised as a key tool in managing the existing road infrastructure through the use of technology. UTMC helps the council to fulfil its statutory Network Management Duty of facilitating the expeditious movement of traffic around the network by actively managing the existing road network; keeping congestion and delay to a minimum, improving journey times and reducing carbon emissions.

Our Network management work also includes managing car parking across the borough.

14.2 Traffic Management Act 2004

The Network Management Duty (Traffic Management Act 2004) applies to local traffic authorities such as Warrington Borough Council and requires them to:

> *…….manage their road network with a view to achieving, so far as it may be reasonably practicable having regard to their other obligations, policies and objectives, the following objectives -*
>
> - *secure the expeditious movement of traffic on the authority's road network; and*
> - *facilitate the expeditious movement of traffic on road networks for which another authority is the traffic authority.*

This duty requires us to coordinate our activities with Highways England and adjoining local highway authorities and to work with the Manchester Ship Canal Company, in order to maximise highway network efficiency for all road users.

14.3 The Highway Network

Warrington is well-connected to the motorway network. The M6 provides a connection from Birmingham in the south to Carlisle in the north, whilst the M62 is an east-west link between Manchester and Liverpool. The M56 also runs east-west, through the south of the borough and provides a connection between South Manchester and Chester.

Good connections to the motorway network means jobs and opportunities outside of the borough are accessible for residents who drive. It also means that our businesses are well connected to markets in other parts of the country. However, the 'motorway box' around Warrington can result in congestion on our network when there is an incident or closure on the motorway network.

The motorways that run through the borough are part of the Strategic Road Network and are managed by Highways England.

We are responsible for the management of the remainder of the adopted highway network including A roads, B roads, C roads, and Unclassified roads. This network is shown in Figure 14.1. Key 'A' roads within borough are:

- The A49 which runs north-south from the M62 to M56
- The A57 which provides a connection to the west of Warrington Town Centre through Great Sankey and joins the M62 at Junction 7
- The A5061 connects with the A49 at the River Mersey and joins the A50 after travelling through Latchford
- The A50 which links the A49 in Orford with the M6 at Junction 20
- The A5060 is between Lower Walton and Brian Bevan Roundabout, providing a connection to Warrington Town Centre from the A56
- The A56 which runs east-west through the south of the borough, parallel to the Manchester Ship Canal

The total traffic on major roads, in thousand vehicle miles, is shown in Figure 14.2, with the modal split shown in Table 14.1. For this dataset, 'major roads' includes motorways and all class 'A' roads. The car dominates traffic on major roads. Car traffic has fluctuated over time but overall, between 2000 and 2016, has increased by approximately 15%. The total car traffic on major roads in Warrington reached its greatest levels in 2016 at 1,020,208 thousand vehicle miles.

A 62% increase can be seen in the number of LGVs between 2000 and 2016, whilst the number of HGVs has remained reasonably consistent over the same time period. The proportion of pedal cycles and motorcycles has been consistent over the time period.

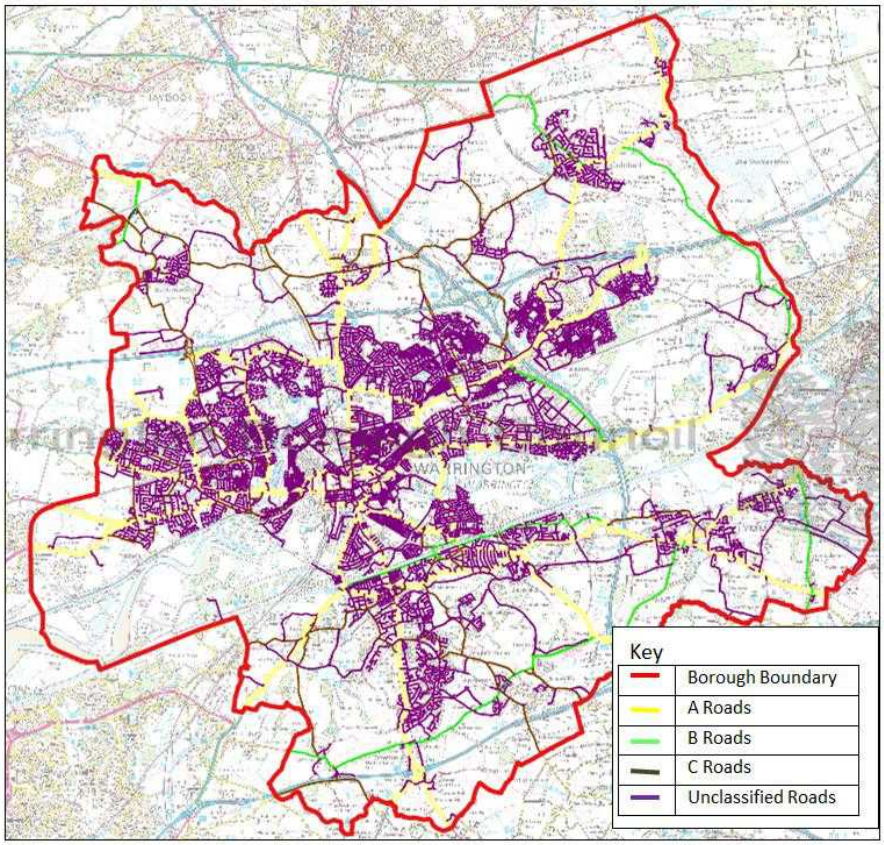


Figure 14.1 - Our Highway Network

Mode	Year						
	2011	2012	2013	2014	2015	2016	2017
Pedal Cycles	0.2	0.2	0.2	0.1	0.1	0.1	0.2
Motorcycles	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Cars	76.6	76.1	76.1	75.8	75.2	75.4	74.9
Buses and Coaches	0.4	0.4	0.4	0.4	0.4	0.3	0.3
LGVs	12.6	13.2	13.5	13.7	14.1	14.1	14.4
HGVs	10.0	9.9	9.7	9.7	9.9	9.8	9.8

Table 14.1 - Mode Share of Road Users[42]

[42] https://roadtraffic.dft.gov.uk/local-authorities/74

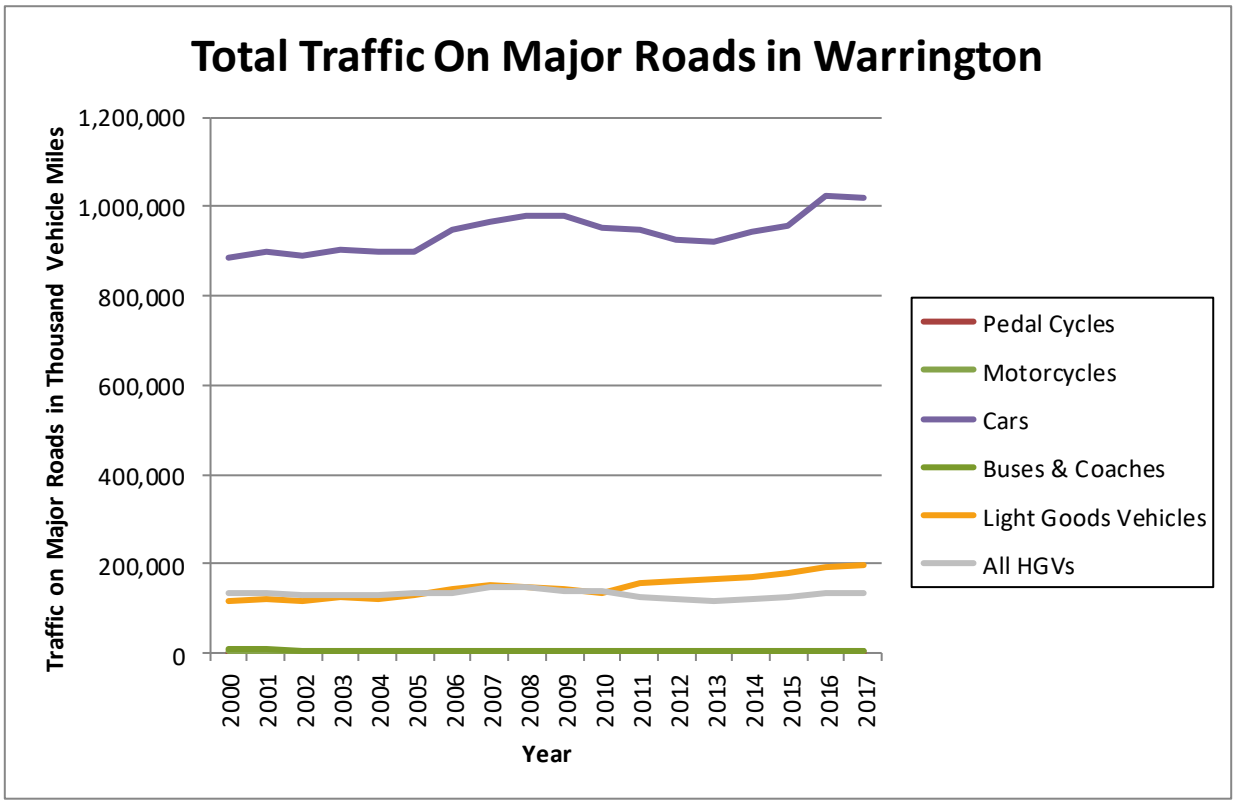


Figure 14.2: Total Traffic on Major Roads in Warrington ('000 vehicle miles) 2000-2017[43]

Trafficmaster data has been used to identify weekday average speeds for all vehicles and all road types in the borough. As expected, the results showed traffic travelled at higher speeds along motorways with higher speeds along the M56 and M62 compared with M6 during the AM peak. There were particular hotspots on the network where the A50 joins the M6 and where the A49 joins the M62. During the PM peak, speeds were slower on the motorway network, particularly between Junctions 9 and 10 on the M56 and along the M6 between Junctions 20 and 21. During the inter-peak, traffic along the majority of the motorway network had an average speed of 60+mph highlighting clear traffic flows.

Average speeds on the rest of the highway network were reasonably similar across the AM peak, inter-peak and PM peak. However, key findings included:

- Slower speeds in Warrington Town Centre and Stockton Heath (all time periods)
- Wilson Patten Street (A5061) had an average speed of less than 10mph during the PM peak
- To the north of the M62 and east of the M6, average traffic speeds highlighted limited evidence of congestion within the borough boundary
- Slow traffic speeds from the M6 towards Birchwood during the AM peak with an average speed of 10-20mph compared with 40mph during the inter-peak and PM peak
- During the inter-peak, traffic speeds on routes into Warrington were generally free-flowing; however, the A49 north of Warrington Town Centre appears to be more prone to slower speeds

[43] https://roadtraffic.dft.gov.uk/local-authorities/74

14.4 Network Management Duty

Local Highway Authorities must nominate a Traffic Manager who will ultimately be responsible for delivering our Network Management Duty. The role of the Warrington Traffic Manager is to:

- champion the Network Management Duty and ensure it is met
- liaise with internal and external stakeholders
- manage the demand for road space
- develop, introduce and maintain integrated systems to manage the network making the best use of available technology
- consider the effects of our actions on other Highway Authorities networks
- Manage and enforce on-street parking to improve network operations

POLICY NM1	**We will fulfil our Network Management Duty to ensure the 'safe and expeditious movement of traffic' (Traffic Management Act, 2004).**

The Traffic Manager seeks to achieve these through a process of establishing current network performance, developing improvement plans, managing the operation of the network, and continually monitoring performance.

Network efficiency can be defined as the ability of a highway corridor to cope with traffic demand. Where traffic demand exceeds network capacity, traffic congestion in the form of slow moving and/or queuing traffic occurs. The majority of major roads suffer from some degree of traffic congestion at certain times during the day or at key hotspots. This is the inevitable result of peak surges in demand or reduced capacity at junctions or pinch-points on the network. Our responsibilities under the Network Management Duty extend to ensuring that consideration is given to pedestrians and cyclists in them implementation of new highway schemes.

POLICY NM2	**Ensure that schemes planned, designed and implemented under LTP4 provide facilities for pedestrians and cyclists and assist in meeting the requirements of the Network Management Duty ('safe and expeditious movement of traffic').**

14.5 Traffic Management

Traffic congestion not only affects motorists, but also public transport and active travel users who may find themselves equally delayed or 'squeezed' out of road space by heavy traffic. Traffic flows and congestion are also the main source of emissions which contribute to poor air quality.

Traffic congestion can never be completely eliminated as peak surges in demand are always likely to exceed available capacity, but the network can be managed in a way which minimises the occurrence of congestion and reduces its impact. Warrington's UTMC system helps to optimise flows and better manage congestion events. It can also be used to give priority to specific vehicles such as local buses.

Traffic management measures seek to improve the movement of traffic by introducing controls to vehicle movements and on-street parking and loading activity. Examples include one-way streets, bus lanes or waiting restrictions. Warrington Borough Council is empowered to make Traffic Regulation Orders (TROs) to implement these controls for the purpose of reducing danger to all highway users, assisting free flow of traffic or preventing unsuitable traffic from using certain roads.

Managing congestion is therefore a combination of managing traffic demand and traffic flows, and making the highway network operate as efficiently as possible. This is particularly important to Warrington where traffic patterns can be severely affected by incidents on the surrounding motorway network, or when Ship Canal swing bridges are operating.

POLICY NM3	**We will use traffic management measures and traffic signal improvements to reduce congestion, improve both journey times and road safety for all highway users, and reduce the impact of vehicle emissions on health.**

Network management systems such as UTMC provide one of the key tools by which we can achieve better network operations. UTMC is an integrated network management system that delivers real-time information on traffic flows and traffic signal operation linked to driver information systems such as variable message and car park occupancy signs. The operation of a network can be monitored, controlled and automatically adjusted within UTMC to dynamically react to changing conditions. Operators can also monitor conditions on the network to ensure that system faults are quickly reported. They are also able to make immediate adjustments to traffic signal timings to temporarily relieve network congestion problems.

Warrington has historically invested in state of the art technology solutions and now has a highly advanced UTMC system in place. We will commit to further developing UTMC within the borough, particularly with regard to bus priority, queue management and co-ordination of streetworks.

In order to support the ambitious economic growth agenda, reduce delays and improve air quality, the council has always strived to manage the highway network through the better use of technology; particularly through the use of UTMC systems. The latest Warrington Intelligent Transport Systems (WITS) project aims to create a 'Smart Travel City' through combining real-time journey information with the latest Wi-Fi and 'smart devices', i.e. mobile phones and modern vehicles with integrated wireless communication systems in order to develop network strategies to better manage traffic flow and reduce journey times using UTMC.

The developed system will provide real-time information to the general public and businesses via on-street information displays, interactive web pages, social media and an innovative local mobile phone app which will be free to access on the internet or via iOS or Android mobile friendly operating systems.

Improving Warrington's technology through this scheme will enable effective management of the network, giving substance to already known journey time problems and indicating where there are unforeseen delays.

Subsequent analysis would allow 'coping' strategy timings to be deployed based on actual congestion, additional to daily timetabled plans and SCOOT control.

The mobile phone app would provide information to drivers on the causes of any delays and also provide likely journey times, thus allowing drivers to make an informed decision on their journey plans.

Wi-Fi installation is becoming standard within new vehicles, which, with data from mobile phones, will provide an exponential data capture rate from now on. Once the foundations are in place and proving beneficial, the intention is to expand the information provided by the app to include messages alerting drivers to emergency road closures, the swing bridge closures and the planned Smart Motorway construction works that are likely to divert traffic onto Warrington's network.

POLICY NM4	**We will continue to develop and implement state of the art technology solutions that will allow us to further improve the management of the transport network.**

14.5.1 Streetworks Permit Scheme

Warrington Borough Council as a permitting authority has been successfully operating its permit scheme since 2015. The Permit scheme (in accordance with the New Roads and Street Works Act 1991), enables all works promotors to apply for a permit to carry out their work in a permit street.

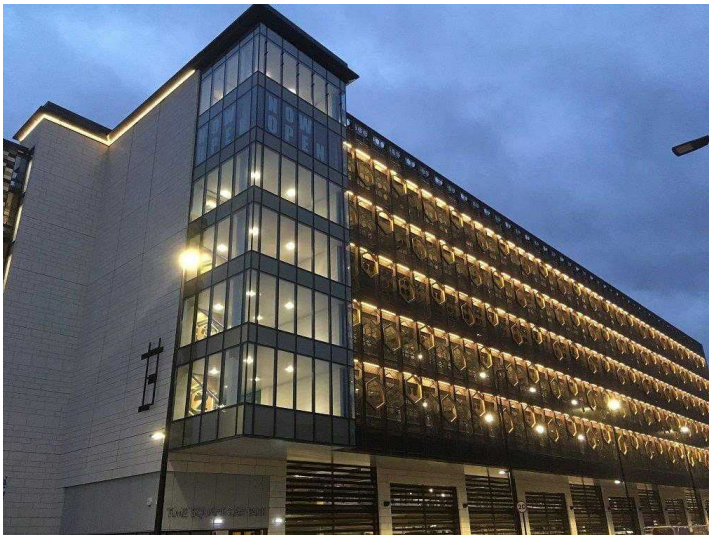
Regular meetings with utility companies and internal stakeholders are enabling the effective coordination of works to minimise disruption on the authority's highway network, with all road works and alerts being available to all stakeholder through our website. Warrington's success in economic growth means that the continued effective coordination of these works is essential both for local users of Warrington's highway network and those adjacent to it that may be affected.

14.6 Parking

As the local highways authority, we are responsible for all aspects of parking on the public highway. Detailed information on our approach to parking services and our policies relating to them are found in our Parking Strategy. This was adopted in 2013, so will be reviewed after the adoption of LTP4.

POLICY NM5	**We will review our Parking Strategy within five years of the adoption of LTP4**

This entails assessing the appropriateness of parking on each section of highway and balancing the needs of different users (e.g. deliveries, residents, taxis, buses etc.). We introduce Traffic Regulation Orders (TROs) to manage parking on the highway and improve safety. Parking measures that can be introduced using a TRO include double yellow lines, single yellow lines, and Resident Permit schemes. It is the role of Civil Enforcement Officers to enforce the TROs.



The council also owns and operates a proportion of off-street car parks which are operated for the benefit of the wider community. Private companies and large employers control the majority of spaces in the borough. It is important that we work with these organisations as the availability, cost and quality of parking can be a key influence on the use of motorised vehicles and on the economic success of specific locations.

POLICY NM6	**We will consider the role of charges and controls in seeking to manage the demand for parking and discourage unnecessary single-occupancy car use.**

The data collection for the Warrington Multi-Modal Traffic Model included parking data. Key findings from the car park occupancy data were:

- Significant early morning demand at Warrington Bank Quay car park with 52% of spaces full at 07:00. The car park remained more than half full (55%) at 18:45. This reflects the use primarily by rail users which includes those making longer trips and greater likelihood of overnight parked vehicles compared with the other sites.

- The car park at Cobden was just over a third (34%) occupied at 07:00 and by 09:15 was fully occupied. It remained full throughout the survey period with some evidence of additional vehicles parking in the car park with 116% occupancy at 18:45. It is likely the popularity of this car park reflects the free parking available.

- The Town Hall and Cockhedge car parks were busiest during the inter-peak; with the Town Hall car park 50% utilised at 09:15 but fully occupied by 10:45 though this fell to 77% by 12:15. Similarly, the Cockhedge car park was at least 80% utilised from 10:15 to 15:00.

- Occupancy at the Old Road car park peaked at 26% and therefore was considerably lower than the other sites. Although the cost of parking is reasonably low, the site is near Riverside Retail Park (which has 3 hours free parking), is not at a convenient location for accessing the town centre and has a similar cost to alternative more central parking.

- Greater occupancy of on-street parking during the inter-peak between 10:00 and 16:30 compared with peak periods.

POLICY NM7	**We will balance the provision of short-stay and long-stay parking in the borough so that it supports the vitality of retail centres whilst encouraging use of more sustainable travel modes.**

To ensure that Warrington becomes a more disabled-friendly place it is important that there is a consistent and user-friendly approach to the provision of blue badge parking across the borough.

POLICY NM8	**We will ensure that easy to find disabled parking bays of sufficient size are conveniently located at key destinations.**

14.6.1 Residents Parking Permits

A personal vehicle is often one of the most valuable assets of a household, and understandably, residents prefer to park their vehicles close to their home. Where houses don't have an easily accessible driveway or garage, residents will generally wish to park on-street within easy reach of the front entrance of their house. In many circumstances, this can be accommodated without any safety issues, but occasionally space on-street is limited due to safety or traffic management concerns. In such circumstances residents need to park elsewhere. The introduction of a residents parking scheme enables a degree of regulation to balance the competing parking needs in an area.

Residents may also need to park further from their homes when the demand for on-street parking is significantly higher than the available on-street space. Residents may have difficulty finding a parking space at all in such areas and the introduction of a residents parking scheme may be justified.

Resident parking Schemes often vary in their operation to accommodate the unique needs of an area. However, it should be noted that schemes only ever operate within a general area, and do not preserve individual spaces for individual residents (i.e. residents won't necessarily be able to park in the space outside their front door).

Many residents will use their car mid-week for the commute to work and more spaces will be available 9am-5pm for use by visitors to the area. The most effective schemes will maximise the use of these spaces to ensure enough vacancies for remaining residents while permitting some visitor use during the day. Each area will be unique in its pattern of parking use.

POLICY NM9	**We will continue to deal with requests for the provision of 'Residents Only' parking schemes in accordance with approved council policy for new and existing schemes.**

14.6.2 Parking Standards for New Developments

Our Parking Standards set out the requirements for the number of car parking spaces that are required at new residential and non-residential developments in the borough.

It is important that the standards that we require are reflective of current and future travel trends, our wider transport policy, and our aspirations for new development, such as car-free residences in the town centre. It is also important that the standards assist in the creation of attractive, safe, and well-designed residential areas and neighbourhoods.

POLICY NM10	**We will review our Parking Standards to ensure that housing and employment land development does not encourage additional private car usage and supports a transfer to walking, cycling and public transport.**

14.7 Manchester Ship Canal

The Manchester Ship Canal runs east-west through Warrington and connects the Port of Liverpool with Salford Quays. The Ship Canal provides a unique 44 mile seaway for "big ships" and the owner, Peel Ports, is keen to develop the commercial potential of the Ship Canal.

Peel Ports is investing in a multi-million pound inland intermodal freight terminal at Port Salford and expects other port developments along the canal to stimulate further growth in waterborne freight. In principal, transferring freight trips from road to water has clear environmental and social benefits.

However, there is a local impact in Warrington associated with the swing bridges which have to be opened to allow ships to pass along the Canal. There are three swing bridges across the Manchester Ship Canal in Warrington:

- the A5060 Chester Road
- the A49 London Road
- the A50 Knutsford Road

Bridge swings disrupt local transport movements (including public transport and active travel) and cause traffic congestion which has both economic and environmental costs.

The council has worked closely with Peel over recent years and has made significant progress to improve the management of shipping movements, particularly during peak traffic periods and since the signing of a Memorandum of Understanding (MoU) in May 2014, peak period sailings have fallen year on year and reached an all-time low of 44 openings during 2018 with the total number of sailings also down to 472 which is good news for people travelling on Warrington's highway network.

We monitor the number of bridge swings that occur each year during peak times, pre/post peak, off peak and during the night. The number of bridge swings for the period 2013-2017 can be seen in Figure 14.3.

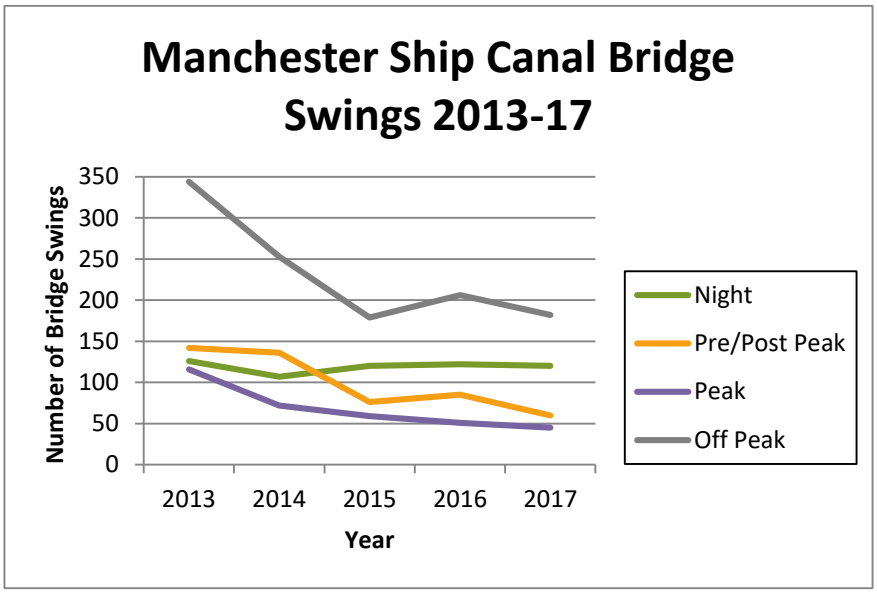


Figure 14.3 - Manchester Ship Canal Bridge Swings 2013-17[44]

[44] Warrington Borough Council Records

Residents and motorists can follow a dedicated Twitter profile that will offer information on advanced warnings of bridge swings. Currently there are over 3,000 followers and people just need a Twitter profile to be able to follow these live feeds. A mobile App is also now available to download which builds upon the already successful deployment of early warning alerts for motorists via Twitter and Facebook. The App can alert drivers of expected bridge swings on all three swing bridges and provides up to 30 minutes advanced notice of a bridge swing and can be downloaded from http://www.swingbridgealerts.com/

The council continues to work with Peel regarding improvements to help traffic movement in Warrington by warning our road users as early as possible about a bridge swing in order to enable all road users to better plan their journeys and to ease traffic pressures when bridges are swung.

POLICY NM11	**We will continue to reduce the impact of bridge swings on the highway network by working with the Ship Canal operator to reduce the number of peak period swings, and providing advance warning of swings to drivers.**

14.8 Demand Management

To achieve a significant modal shift in how people travel in Warrington there is a need for measures which help to manage private car usage. There are two important outcomes that such measures could deliver in supporting out transformational transport vision:

- Reducing car usage by providing a disincentive to people to use their car
- Providing an income source that will support the delivery of sustainable transport improvements.

To seek a solution that could deliver these outcomes we will be investigating the potential of a Workplace Parking Levy. We are in the very early stages of this process, and the work to investigate such a scheme needs to consider:

- Alternative methods of demand management
- Charging regime
- Geographical extent
- Size and types of business affected
- Impact on employment and growth in the town
- Potential income and how this should be used to improve transport
- Potential modal shift benefits

Vital to any work that will ultimately inform a decision on the implementation of a Workplace Parking Levy will be working closely with the business community to ensure that their aspirations of the scheme can be met, and any concerns that they have are considered.

POLICY NM12	**We will investigate Workplace Parking Levy as a Demand Management measure to support the delivery of mass transit and other transformational transport schemes in Warrington.**

14.9 A Network Fit for the Future

We have identified, in both the Local Plan Infrastructure Delivery Plan and this LTP4, a series of highway schemes that support the delivery of housing and economic growth in Warrington. This will see our network grow so that it can continue to operate and support increased demand for travel.

The traffic modelling work that supports these proposals has identified two additional areas on the network where an intervention may be required to ensure that the network continues to operate efficiently in the future. These are:

- An additional crossing of the Manchester Ship Canal
- Capacity on the A49 north of the town centre.

The modelling shows that intervention at these locations to accommodate growth is not required until the later years of the Local Plan. We will therefore continue to work to identify schemes that will ensure that we have a network suitable for Warrington in the future. This work will inform the next review of the Local Plan.

POLICY NM13	**In the first five years of the LTP we will identify the additional major priority infrastructure that will support our aspirations for growth.**

14.10 Network Management Policy Summary

	Policy
NM1	We will fulfil our Network Management Duty to ensure the 'safe and expeditious movement of traffic' (Traffic Management Act, 2004).
NM2	Ensure that schemes planned, designed and implemented under LTP4 provide facilities for pedestrians and cyclists and assist in meeting the requirements of the Network Management Duty ('safe and expeditious movement of traffic').
NM3	We will use traffic management measures and traffic signal improvements to reduce congestion, improve both journey times and road safety for all highway users, and reduce the impact of vehicle emissions on health.
NM4	We will continue to develop and implement state of the art technology solutions that will allow us to further improve the management of the transport network.
NM5	We will review our Parking Strategy within five years of the adoption of LTP4
NM6	We will consider the role of charges and controls in seeking to manage the demand for parking and discourage unnecessary single-occupancy car use.
NM7	We will balance the provision of short-stay and long-stay parking in the borough so that it supports the vitality of retail centres whilst encouraging use of more sustainable travel modes.
NM8	We will ensure that easy to find disabled parking bays of sufficient size are conveniently located at key destinations.
NM9	We will continue to deal with requests for the provision of 'Residents Only' parking schemes in accordance with approved council policy for new and existing schemes.
NM10	We will review our Parking Standards to ensure that housing and employment land development does not encourage additional private car usage.
NM11	We will continue to reduce the impact of bridge swings on the highway network by working with the Ship Canal operator to reduce the number of peak period swings, and providing advance warning of swings to drivers.
NM12	We will investigate Workplace Parking Levy as a Demand Management measure to support the delivery of mass transit and other transformational transport schemes in Warrington.
NM13	In the first five years of the LTP we will identify the additional major priority infrastructure that will support our aspirations for growth.

14.11 Network Management Actions

Policy	Intervention	Period
NM1	Continue to operate UTMC and deliver greater levels of system automation to minimise the need for human intervention	0-5 years
	Continue to liaise with key stakeholders, Manchester Ship Canal and Highways England, over ways in which the impact of swing bridges and incidents on the SRN can be minimised.	0-5 years
	Maintain and develop highways strategies for motorway closures and major diversions	0-5 years
	Develop a highways network management plan for Warrington's new development areas: South West Extension; Garden Suburb; and Waterfront.	5+ years
NM2	Review the design of new highways schemes to ensure there is adequate provision for pedestrians and cyclists	0-5 years
NM3	Explore traffic signal improvements along Critical Route Corridors: A49 Wilderspool Causeway, A50 Latchford to Bridgefoot, A50 Long Lane and A50 Kingsway	0-5 years
	Explore traffic signal improvements at key network pinch points: A57/A5061 roundabout, A49 Cockhedge Green Roundabout and Sankey Way/Liverpool Road roundabout.	0-5 years
	Explore traffic signal improvements along congested corridors A5060 and Knutsford Road	5+ years
	Roll out air quality detectors and use the information to aid traffic flow and in return reduce NOx gas.	0-5 years
	Combine different modes of control across key corridors, utilising MOVA during off peak situation and only allow SCOOT to take over when large platoons are on the network	0-5 years
NM4	Expand the WITS project to operate along A49, A57, A50 and A574	0-5 years
	Develop the WITS mobile app	5+ years
	Expand the Imesh network including Wi-Fi JTM units across other key highways corridors	5+ years
	Introduce more units on current corridors specifically between junctions in order to highlight problems on the network in more detail	5+ years
	Investigate the feasibility, costs and potential benefits of introducing a bus monitoring and traffic light pre-emption system as an additional element of Warrington's existing UTMC control centre	5+ years

	Continue to seek funding assistance for the further development of WITS from DfT	0-5 years
NM5	Review our Parking Strategy	0-5 years
NM6	Undertake strategic modelling to assess the feasibility of implementing parking demand management strategies in Warrington	0-5 years
	Following the assessment, implement parking demand measures within Warrington	5+ years
NM7	Undertake a study to review the existing 2015 Warrington Parking standards, with a view to revise the standards to ensure they reflect the current policy directive, embed sustainability and are more practical to use.	0-5 years
	Explore the feasibility of new car parks at the following locations: Stadium Quarter; Southern Gateway; School Brow/Cockhedge; and Centre Park.	5+ years
	As part of the Bank Quay Hub Masterplan, explore the redevelopment of parking at the station area	5+ years
NM8	Undertake review of disabled parking provision	0-5 years
NM10	Undertake a review of Parking Standards and Design Guide for new developments	0-5 years
NM11	Work with the Ship Canal Company to connect their operational centre with Warrington's own UTMC system, enabling access to CCTV images of swing bridges.	0-5 years
NM12	Investigate the potential for a Workplace Parking Levy to support the delivery of transformational transport schemes and policies in Warrington.	0-5 years
	Develop and implement a communication and stakeholder management strategy for work to investigate demand management measures	0-5 years
NM13	Identify additional infrastructure requirements for future reviews of the Local Plan Infrastructure Delivery Plan.	0-5 years

15 Freight Management

15.1 Introduction

Freight plays a vital role in the economic well-being of Warrington and the wider UK economy. The geographical strategic position of Warrington from a logistics perspective should not be underestimated as an enabler for the local and national economy.

It is essential that Warrington continues to be an attractive place for business investment, including from the freight and logistics sector to support the local economy. The ease at which freight transport can move to, from, through and around the borough is important. It is essential to find a balance between the quality of life for the local communities and economic prosperity.

15.1.1 Road Freight

The strategic spatial location of Warrington on the highway network is a vital asset for the town in attracting freight and logistics companies that support the local economy. Several international logistics companies have operations in Warrington including Royal Mail, DHL, XPO, Kuehne + Nagel, W.H. Malcolm Ltd, UPS, DPD and ASDA. The movement of goods in and out of Warrington is mainly by road. HGV flows in Warrington are shown in Figures 15.1 to 15.3[45]. Heaviest flows are represented by red and yellow lines and can be seen on the motorways.

[45] Data collection for Warrington Borough Council Multimodal Model

Figure 15.1 - HGV flows in Warrington AM Peak (07:45 – 09:15)

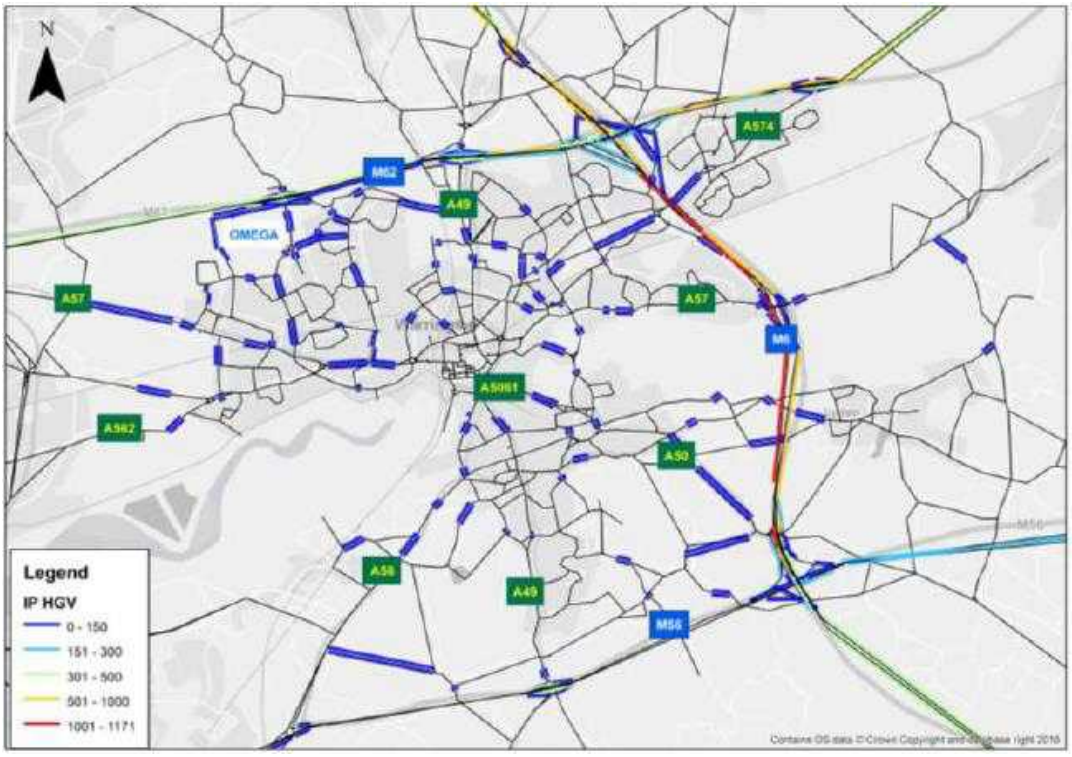


Figure 15.2 - HGV flows in Warrington inter-peak (10:00 – 16:00)

Figure 15.3: HGV flows in Warrington PM peak (16:30-18:00)

The number of Light Goods Vehicles (LGVs) on Warrington's highways network is increasing. 10.3% of vehicle miles were by LGV in 2000, rising to 14.0% in 2015. The percentage of Heavy Goods Vehicle miles in the same period has decreased from 11.7% to 9.9%.

Nearly 80 miles of smart motorway will be built in the North West over the next five years as part of a £1.5bn investment plan by Highways England. The locations for this investment are shown in Figure 15.4. This will provide more reliable journey times for freight operators using the Strategic Road Network to access Warrington.

Figure 15.4: Smart Motorways in the North West (Planned)

15.1.2 Rail Freight

Other modes such as rail and water freight also play a role and are vital to the functioning of the regional and national economy.

Warrington is located directly on the West Coast Main Line (WCML), the most important rail freight artery route in Great Britain, which runs north to south through the town. The Liverpool to Manchester railway runs west to east. Warrington has existing rail freight operations, and there are proposals / aspirations for future rail based distribution centres in the North West. However, the opportunity for more rail freight at certain times is constrained by the capacity on the West Coast Main Line.

There are a number of rail freight terminals in the North West that could potentially serve Warrington including, Freightliner Trafford park, Trafford Park Euroterminal, Urmston Container Base, Mersey Multi modal Gateway, Freightliner Garston, Seaforth Container Terminal and Knowsley Rail Terminal. Goods from the southern ports are often transported by rail to the North-west and the last mile journeys are carried out by heavy goods vehicles.

Warrington is well located to capitalise on a modern and efficient rail freight industry. Future investment in the rail network and rail connectivity will improve Warrington's connectivity in the future. Improved capacity for additional freight trains on the WCML as part of the HS2 delivery should lead to potentially more opportunities for rail freight.

15.1.3 Waterborne Freight

Warrington also benefits from access to the Manchester Ship Canal. The canal runs east-west through Warrington and connects the Port of Liverpool with Salford Quays. The canal carries around 8 million tonnes of cargo a year and forms part of Peel Port's innovative 'Green Highway' which aims to remove freight from overcrowded roads and rail. The tonnes handled by the canal are likely to increase in the future by realising the potential of Liverpool 2 deep water container terminal that opened in 2017.

Warehousing and distribution centres within Warrington benefit from the easy access to the Ports of Liverpool, Birkenhead, Heysham, Holyhead to Dublin and Northern Ireland. As a result warehouses in and around Warrington do act as distribution centres for Ireland.

Warrington Waterfront has been identified as a major development opportunity, and this includes Port Warrington. Whilst there is currently no regular traffic to Port Warrington by ship, the port has the facilities to handle road and water freight. In addition there is an opportunity for rail freight, through extending the railway sidings at Walton Old Junction sidings into Port Warrington. Using the existing railway line could aid in reducing carbon and nitrogen dioxide emissions by cutting local lorry journeys.

Port Warrington presents an opportunity to contribute to a wider regional sustainable transport initiative, the aim of which is to secure a modal shift of goods from road to rail and water.

15.2 Freight Routeing and Management

15.2.1 Town and Village Centres

We aim to ensure that freight is using the most appropriate mode, route and vehicle to travel to, from, and around but not through Warrington Town Centre. Movements that do not add value to the Town Centre in Warrington will be actively discouraged. Freight movements through the town centre where no deliveries or collections are made will be discouraged.

Similarly, where possible, freight movements through villages and smaller towns will be discouraged to reduce the local environmental impacts of freight movements.

15.2.2 Abnormal Loads

An Abnormal Load is a vehicle that has any of the following characteristics:

- a weight of more than 44,000kg
- an axle load of more than 10,000kg for a single non-driving axle and 11,500kg for a single driving axle
- a width of more than 2.9m
- a length of more than 18.65m

We work with partner organisations including the freight industry, bridge owners, Highway England, neighbouring authorities, and the Police to manage the movements of Abnormal Loads through the borough.

POLICY FM 1	**Improve the management and routeing of freight traffic by:** • **routeing freight that does not serve the town centre away from the town centre** • **where possible, routeing freight away from town and village centres** • **continuing to manage the routes that Abnormal Loads use in the borough.**

15.3 Reducing the Impact of Freight on Air Quality

We aim to encourage road freight to use other sustainable modes of transport or vehicles that have less impact on the local environment. This will be achieved through innovative solutions that reduce congestion, improve operations, improve productivity and reduce the freight industry impact on air quality.

There are two Air Quality Management Areas in Warrington. Volume of traffic, including a high proportion of freight vehicles, is a key contributor to the poor air quality in both of these areas. The majority of freight vehicles operating around Warrington are Euro 5 or Euro 6 standard vehicles, which means that they are cleaner than older diesel vehicles, with lower nitrogen dioxide emissions. Traffic counts conducted by AECOM in 2017 found that 47% of vehicles operating in Warrington were Euro 6.

Reducing the impact of freight on air quality can be achieved through a number of key areas such as fleet renewal, re-routing, consolidation, modal switch to rail or water, driver behaviour and the adoption of alternative powered vehicles.

POLICY FM 2	**Support and implement initiatives to improve air quality and ensure they merge into wider clean air initiative schemes.**

Whilst the majority of heavy goods vehicles operating in Warrington are cleaner specification diesel fuelled vehicles, harmful emissions are associated with all diesel and petrol vehicles. Two of our LTP4 priorities are improving air quality and reducing carbon emissions created by freight transport. In order to achieve this we must reduce emissions from freight. There are a number of opportunities to encourage the uptake of low carbon vehicles powered by gas, electric, hybrid and/or hydrogen.

POLICY FM 3	**Work with partners in the freight industry to reduce emissions from freight through best practice, use of alternative powered vehicles, driver training, consolidation centres and traffic management**

To encourage the shift to alternatively powered vehicles there needs to be a review of existing and planned provision for such alternative fuels to ensure that the roll out of charging and refuelling infrastructure will cover the range of potential motives for freight movements in the vicinity of Warrington. Alternative fuelled vehicles e.g. electric amongst others are quieter than diesel fuelled fleets, and so there are some secondary benefits in terms of noise reduction.

There are a number of electric charging points and Liquefied Natural Gas refuelling stations available within the Warrington area, however these may not be compatible with HGVs. Locations of electric charging points and LNG stations are shown in Table 15.1.

In addition there is scope for Hydrogen to be used as an alternative fuel for freight in the borough. The development of a hydrogen pipeline linking the Liverpool City Region and Greater Manchester will facilitate the development of refuelling points in the region. There are already major industrial gas users in the North West and in Warrington, and some of the sites run parallel to the Manchester Ship Canal. There are also existing sources of hydrogen production and of relevance a pipeline connecting Inovyn's site at Runcorn (where hydrogen is produced as a by-product of

chlorine production) with Solvay at Warrington. Therefore there are pre-existing skills and capabilities related to the production, handling and use of hydrogen and this could be developed as a source of fuel for transport use.

Location	Electric Charging Point	Gas (LNG)
Park Royal Hotel	✓	
Moto Services Lymm	✓	✓
Bentleys Toyota	✓	
Warrington Bank Quay Station	✓	
Birchwood Park	✓	
Birchwood Shopping Centre	✓	
Spencer House	✓	
Warrington Motors Nissan	✓	
Halliwell Jones BMW	✓	
ASDA Westbrook	✓	
IKEA Warrington	✓	
Marks and Spencers Gemini Trade Park	✓	
Welcome Break Burtonwood Services	✓	
Apollo Retail Park	✓	
Time Square Multi-Storey Car Park	✓	
Warrington West Station	✓	

Table 15.1 - Alternative fuel charging/refuelling locations within Warrington

POLICY FM4	**Encourage the uptake and facilitate the use of alternative fuels for the freight sector by providing facilities for natural gas, Hydrogen and electric charging/refuelling points.**

15.4 Reducing the Effects of Congestion

Road remains the dominant mode for freight movement, principally because of its flexibility and the need to service a widely dispersed range of sites.

Table 15.2 provides a summary of the traffic flows on key routes from the Warrington Freight Survey conducted in 2016. It should be noted that the peak goods vehicles per hour are not the standard peak hours for other traffic.

Rank	Route	Total Goods Vehicles Observed	Peak Goods Vehicle Hour(s)	Avg. Goods Vehicles per Minute (all directions)
1	B5210 (Woolston Grange Avenue)	1,237	08:00 - 08:59	1.7
2	A49 (Winwick Road)	1,157	11:00 - 11:59 & 14:00 - 14:59	1.6
3	A574 (Cromwell Avenue)	1,018	10:00 - 10:59	1.4
4	A49 (Wilderspool Causeway)/ A5060 (Chester Road)	777	10:00 - 10:59	1.1
5	A57 (Sankey Way)	565	10:00 - 10:59	0.8
6	A574 (Birchwood Way)	470	08:00 - 08:59	0.7
7	A57 (Manchester Road)	421	12:00 - 12:59	0.6
8	A5061 (Knutsford Road)	371	11:00 - 11:59	0.5

Table 15.2 – Goods Vehicle Flow[46]

The B5210 serves a large number of warehouse and logistics businesses. The A49 is a major freight artery serving not only the needs of Warrington but it occasionally acts as a through route particularly when there are traffic problems on the nearby motorway box M62/M6/M56. The A49 between the M56 and M62 has almost 20 signalised junctions or roundabouts and hence is not ideal for through traffic. Whilst the A57 (Sankey Way) provides a link to Junction 7 of the M62 and is therefore a busy arterial route into Warrington. Journey times on both routes can be unpredictable at various times of the day and not just peak hours. The average daily traffic flows on key town centre routes is shown in Table 15.3.

Road	Direction	Road Link	AADT	HGVs AADT	Percentage %
Sankey Way	To Sankey Green AQMA	A57	18,674	318	2%
Winwick Road	Away from the town centre	A49	10,956	383	3%
Mersey Street	Towards Bridgefoot	A49	14,342	315	2%
Wilson Patten	Towards Bridgefoot	A5061	10,771	477	4%

Table 15.3 - Summary of traffic flows on key routes (one direction)[47]

[46] AECOM Warrington Model Data Collection (2016)
[47] TRL Report Warrington Low Emission Strategy Feasibility Study (2015)

POLICY FM5	**We will continue to address congestion at key hot spots for freight in Warrington**

Congestion and incidents on the adjacent motorway have a significant impact on the amount of freight traffic travelling through the borough as strategic traffic including Heavy Goods Vehicles (HGVs) are regularly displaced onto local roads.

POLICY FM6	**Maintain and further develop appropriate enhanced contingency planning measures in conjunction with Highways England for occasions when there are part / full closure of the motorway network both planned and unplanned.**

The new Mersey Gateway Bridge River Crossing opened in 2017. The charges for freight to use the bridge are £6 one way for HGVs between 3.5 and 12 tonnes and £8 for HGVs over 12 tonnes. There is concern locally that charges are affecting the routes some drivers choose to use, potentially impacting on routes through Central Warrington.

POLICY FM7	**Review the effect of New Mersey Gateway Bridge River Crossing on Freight Traffic in Warrington**

15.5 Multi-modal transport

Modal shift from road to more sustainable modes is vital in meeting the Government's target to reduce CO_2 emissions by 80% by 2050 target (42% by 2020). To facilitate modal shift the development of existing and new freight facilities is vital.

Warrington has existing rail freight operations mainly located to the north and south of Warrington Bank Quay station. Warrington also has rail freight facilities for the handling of mail

and parcels at Dallam. Here trains between London and Glasgow call to deliver/collect post and parcels for Liverpool, Warrington and surrounding areas. Warrington does not currently have an intermodal terminal for containers despite it being on the WCML from London to Scotland. Freight companies in Warrington have to use facilities at Widnes, Garston or Trafford Park. However, there are aspirations for an intermodal terminal at Parkside which is just inside neighbouring St Helens.

POLICY FM8	**We will work with partners to identify ways of increasing the use of rail freight**

Opportunities to increase the amount of freight carried by rail are constrained by available capacity on the busy WCML, infrastructure requirements such as Winwick Junction, and by the need for freight trains using the Arpley line to turnabout in Latchford. Furthermore rail's modal share of Trans-Pennine freight is low and yet the M62 carries a large number of HGVs. An increase in freight paths could enable rail freight operators to operate more freight which could remove some road movements and have a net benefit of improving journeys times.

POLICY FM9	**We will continue to support sustainable economic activity generated and sustained by the Manchester Ship Canal and the West Coast Main Line.**

Investment has been made by Peel ports for a multi-modal port facility adjacent to the Manchester Ship Canal. Port Warrington will provide opportunities for freight to be moved by water within the North West.

Transport by water offers environmentally friendly and sustainable alternatives to road freight for different types of traffic, reducing freight's impact on the environment. We will work with the freight industry to identify opportunities to move more freight to water.

Port Warrington

Port Warrington is a proposed 'tri-modal' (water, rail and road) freight interchange on the Manchester Ship Canal, with a direct rail link to the West Coast Main Line.

At 200,000sq.m, Port Warrington will be a major location for port based logistics and manufacturing on the Manchester Ship Canal.

POLICY FM10	**We will support the development of intermodal freight facilities in Warrington, including Port Warrington.**

15.6 Accessing Distribution Centres and Industrial Estates

Warrington is home to a number of parcel companies with large regional distribution centres. For example, along the M62 Omega Business Park has warehouse for Brakes Bros, Hermes, Travis Perkins, The Hut Group and Asda. These distribution centres are often in locations that are difficult to get to for people that work on them. Therefore, providing public transport, such as the B52 bus service to Omega, is vital.

In addition, in delivering goods, trucks often arrive early because if they arrive late they can be rejected by the warehouse. As a result drivers require places to park up whilst they wait. Whilst some distribution centres / industrial estates can accommodate these HGVs most cannot as they do not have suitable or sufficiently large waiting areas. Large distribution centres should be accessible to truck drivers at all times during the days with appropriate waiting areas to reduce the number of trucks parking in neighbouring areas.

POLICY FM11	**All new developments and major developments should build into the design for planning approval sufficient provision for lorry parking at industrial estate / distribution centre locations.**

15.7 Freight Consolidation Centres

Freight Consolidation Centres are distribution centres situated in close proximity to a town centre, shopping centre or construction site. A number of loads are dropped at the centre to be consolidated onto one lorry for transfer to their final destination. This could potentially reduce congestion and the levels of HGV traffic in the town centre, and would encourage operators to work together more efficiently. A conveniently-located Freight Consolidation Centre could provide benefits to both Warrington and the surrounding area.

POLICY FM12	**We will support the development of a freight consolidation centre should it be demonstrated that one serving Warrington is economically viable.**

15.8 Construction Developments

With significant growth anticipated in Warrington there will be a large amount of construction related freight traffic, potentially creating HGV traffic pinch points near to development sites. A Construction Logistics Plan could reduce the impact of construction related traffic movements on the local community by consolidating construction traffic movements throughout the supply chain to cover all movements of goods, waste, and servicing activity to and from a site.

POLICY FM13	**We will investigate the use of Constructions Logistics Plans and site consolidation centres for large construction projects**.

15.9 Lorry Parking

Across much of the UK the availability and utilisation of loading and unloading bays is considered an issue. The misuse of bays can impact local communities through noise disturbance at inconvenient times and creating an obstruction that causes congestion.

POLICY FM14	**We will ensure that freight operators are well informed about the availability and location of loading bays**.

Rest areas for lorry drivers are an important element in an efficient freight network. They also help to avoid inappropriate use of laybys, parking on road and parking on industrial estates which can cause obstruction and serious environmental problems to local residents.

Long distance freight vehicles travelling around Warrington tend to be long distance articulated lorries. Drivers on long distance journeys often need rest breaks between dropping off and collection of a load. Lorry parking facilities on the periphery of Warrington and their utilisation as a percentage of their capacity is shown in Table 15.4.

Type of facility	Name of lorry parking facility	Truck Utilisation
Motorway Service Area	Lymm Truck stop	Acceptable <69%
Motorway Service Area	Burtonwood Services	Critical >85%
Truck Stop	Let's Eat Café	Critical >85%

Table 15.4 - Truck stop Utilisation in Warrington Area[48]

The figures in Table 15.4 suggest that additional lorry parking facilities may be required in the Warrington area in the future. If lorry parking facilities become over capacity there will be an impact on the local community as drivers seek alternative places to park.

POLICY FM15	**We will review local lorry parking facilities and, if required, identify potential locations for additional facilities.**

Once we have sufficient parking facilities in place it is important that they are used, and that inappropriate freight parking is kept to a minimum.

POLICY FM16	**We will use an enforcement regime to control inappropriate freight parking.**

[48] https://www.gov.uk/government/publications/national-survey-of-lorry-parking

15.10 Freight Management Policy Summary

	Policy
FM1	Improve the management and routeing of freight traffic by: • routeing freight that does not serve the town centre away from the town centre • where possible, routeing freight away from town and village centres • continuing to manage the routes that Abnormal Loads use in the borough.
FM2	Support and implement initiatives to improve air quality and ensure they merge into wider clean air initiative schemes**.**
FM3	Reduce emissions from freight through best practice, use of alternative powered vehicles, driver training, consolidation centres and traffic management
FM4	Encourage uptake and facilitate the use of alternative fuels for the freight sector by providing facilities for natural gas, Hydrogen and electric charging/refuelling points.
FM5	We will continue to address congestion at key hot spots for freight in Warrington
FM6	Maintain and further develop appropriate enhanced contingency planning measures in conjunction with Highways England for occasions when there are part / full closure of the motorway network both planned and unplanned.
FM7	Review effect of New Mersey Gateway Bridge River Crossing on Freight Traffic in Warrington
FM8	We will work with partners to identify ways of increasing the use of rail freight
FM9	We will continue to support sustainable economic activity generated and sustained by the Manchester Ship Canal and the West Coast Main Line.
FM10	We will support the development intermodal freight facilities in Warrington, including Port Warrington.
FM11	All new developments and major developments should build into the design for planning approval sufficient provision for lorry parking at industrial estate / distribution centre locations.
FM12	We will support the development of a freight consolidation centre should it be demonstrated that one serving Warrington is economically viable.
FM13	We will investigate the use of Constructions Logistics Plans and site consolidation centres for large construction projects.
FM14	We will ensure that freight operators are well informed about the availability and location of loading bays.
FM15	We will review local lorry parking facilities and, if required, identify potential locations for additional facilities
FM16	We will use an enforcement regime to control inappropriate freight parking.

15.11 Freight Management Actions

Relevant Policy	Action	Timescale
FM1	Research into preferred routes for freight and produce maps and online resources. This could include having delivery service plans for large sites. Dovetail into freight signing strategy	0-5 years
FM2	Research Clean Air Initiatives in other large towns and cities for freight and build suitable interventions around this knowledge	0-5 years
FM3	Identify and learn from best practice in the use of alternative powered vehicles, driver training, consolidation centres and traffic management	0-5 years
FM4	Work with several energy suppliers to ensure Warrington has a good network of 'freight vehicle' accessible charging / refuelling points for alternative fuels and produce a map with these facilities for freight operators	0-5 years
FM5	Monitor freight movements through Warrington and develop a strategy to reduce inappropriate freight movement	0-5 years
FM6	Work Closely with Highways England to maintain and develop appropriate enhanced contingency planning measures for occasions when there are part / full closure of the motorway network both planned and unplanned.	0-5 years
FM7	Continue to review effect of New Mersey River Crossing on Freight Traffic in Warrington	0-5 years
FM8	Work with partners to promote the use of rail freight	0-5 years
FM9	Work with partners to promote sustainable economic activity generated by water and rail freight	0-5 years
FM10	Identify sites suitable for rail freight terminals and engage with potential operators	0-5 years
FM11	Review Parking Standards to consider the need for sufficient provision of lorry parking at industrial estates and distribution centre locations	0-5 years
FM12	Investigate the development of a business case for a Freight Consolidation Centre	0-5 years
FM13	Commission a study into the effectiveness of Construction Logistics Plans and Consolidation Centres for large construction projects	0-5 years
FM15	Undertake a review of lorry parking facilities	0-5 years
FM15	Enforce restriction on lorry parking facilities	0-5 years

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WARRINGTON
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WARRINGTON FOURTH LOCAL TRANSPORT PLAN PART C

APPENDICES

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WARRINGTON FOURTH LOCAL TRANSPORT PLAN

APPENDIX A:

LOCAL CYCLING AND WALKING INFRASTRUCTURE PLAN

Local Cycling and Walking Infrastructure Plan

2019 – 2029

Version Control –

V2.3 – 25/11/2019

WARRINGTON
Borough Council

Local Cycling and Walking Infrastructure Plan – Contents

Section 1:

Introduction

1) INTRODUCTION

1.1 WHY HAVE WE PRODUCED A LCWIP?

Walking and cycling are the two most sustainable and accessible methods of transport. We want walking or cycling to be the first choice for everyday journeys in Warrington.

To ensure that we are taking the right approach to identifying and delivering the improvements that are necessary to enable more walking and cycling in Warrington we have developed a Local Cycling and Walking Infrastructure Plan (LCWIP).

A LCWIP is a long-term approach to developing comprehensive local cycling and walking infrastructure and will help us achieve three key objectives for the network:

Serves the highest levels of current walking and cycling trips.

Enables the highest levels of 'walkable' and 'cyclable' trips to be realised.

Provides for areas expecting the highest growth in population and employment.

Warrington is growing. Over the past ten years we've created new jobs, built new homes and attracted new investment. We are one of the highest economically performing areas in the UK but are experiencing significant traffic congestion on many of our key roads during peak hours.

The built form of Warrington, past and future, makes a compelling case for strategic network planning for walking and cycling:

Over the last 40 years Warrington has grown from a town with a population of 70,000 people to a town of over 200,000 people.

After its designation as a New Town in the 1960's the town grew rapidly, but the premature closure of the New Town meant essential infrastructure, including active travel provision, was never completed to a high standard.

Different parts of Warrington were built at different times and the different designs following the prevailing fashions mean that permeability and thus accessibility is vastly different in different areas.

Warrington's Proposed Submission Version Local Plan proposes significant housing and employment growth across the Borough. This provides a once in a generation opportunity to plan significant new areas of the town with active travel as a first principle.

Warrington's continued success as a place to both live and work is dependent on a transport network that is safe, convenient, and reliable for users of all transport modes. Without a transformational change to the way that we travel we risk Warrington becoming a less desirable place for people to live and invest in.

We have a statutory duty to produce a Local Transport Plan (LTP). The LTP helps us to address current and future local transport issues by providing a framework for decisions on future investment.

The 4th edition of the LTP affirms that we should be seeking a modal shift away from the current high levels of car use towards greater use of more sustainable travel modes. Warrington should be a place where significantly more people choose to walk and cycle, allowing them to live healthier lifestyles. This requires a transformational change in the transport offer that is currently available to residents.

Through this LCWIP we will tackle many of the crucial infrastructure related issues that are currently preventing people from walking and cycling in Warrington.

The term 'cyclist' throughout this document refers to any one person who chooses to use a cycle as a mode of transport (including as a mobility aid). This includes children, elderly and inexperienced cyclists, as much as 'commuter' cyclists who tend to be adults who cycle on a regular basis. It also includes those benefiting from electrically-assisted pedal cycles (e-bikes).

When referring to "pedestrians" or "walking" it is intended that this refers to wheelchair, mobility scooter users as well those with prams and pushchairs. When a place works well for people in wheelchairs it works for everyone.

1.2 STRUCTURE

Walking and cycling as modes of transport have many similarities, however the LCWIP process outlines separate approaches to planning and identifying walking and cycling improvements. It was considered that the different nature of the two modes requires separate approaches to be adopted for improving the infrastructure for walking and cycling.

Walking and cycling both generally have two main purposes - utility and leisure:

- Utility walking and cycling involves making a journey for the main purpose of doing an activity at the journey's end, such as work, education or shopping.
- Leisure walking (including running) and cycling, whether undertaken independently, as part of social activities or within competitive sport.

Whether for utility or leisure purposes, all forms of active travel deliver substantial environmental, health, social and wider community benefits.

The LCWIP focuses on providing fit for purpose walking and cycling infrastructure as a means of everyday transportation, from point A to B to access employment, education and retail, and leisure opportunities. The scope to enable more leisure cycling trips within Warrington should however be considered fully within planned infrastructure.

The structure of this LCWIP is as follows:

- Sections 2 and 3 provides a background to transport in Warrington, highlighting relevant policy documents, examining previous and current trends in walking and cycle use and looking at the existing active travel infrastructure in the Borough;
- Section 4 provides the 'Evidence Base' upon which the cycle network is to be developed. It looks at the different potential markets for new cycle trips, and builds up the different layers of information which are required in order to produce a network of routes;
- Sections 5 and 6 outlines infrastructure interventions which are most likely to result in more people cycling in Warrington and complimentary measures to ensure that cycle trips are enabled;
- Sections 7 looks at the different opportunities to increase walking trips and outlines infrastructure interventions to enable more people to walk more often; and
- Section 8 presents a programme of promotion focusing on the means of communicating Warrington's walking and cycling infrastructure to the different target markets identified.

Section 2:

Warrington's Transport Challenges

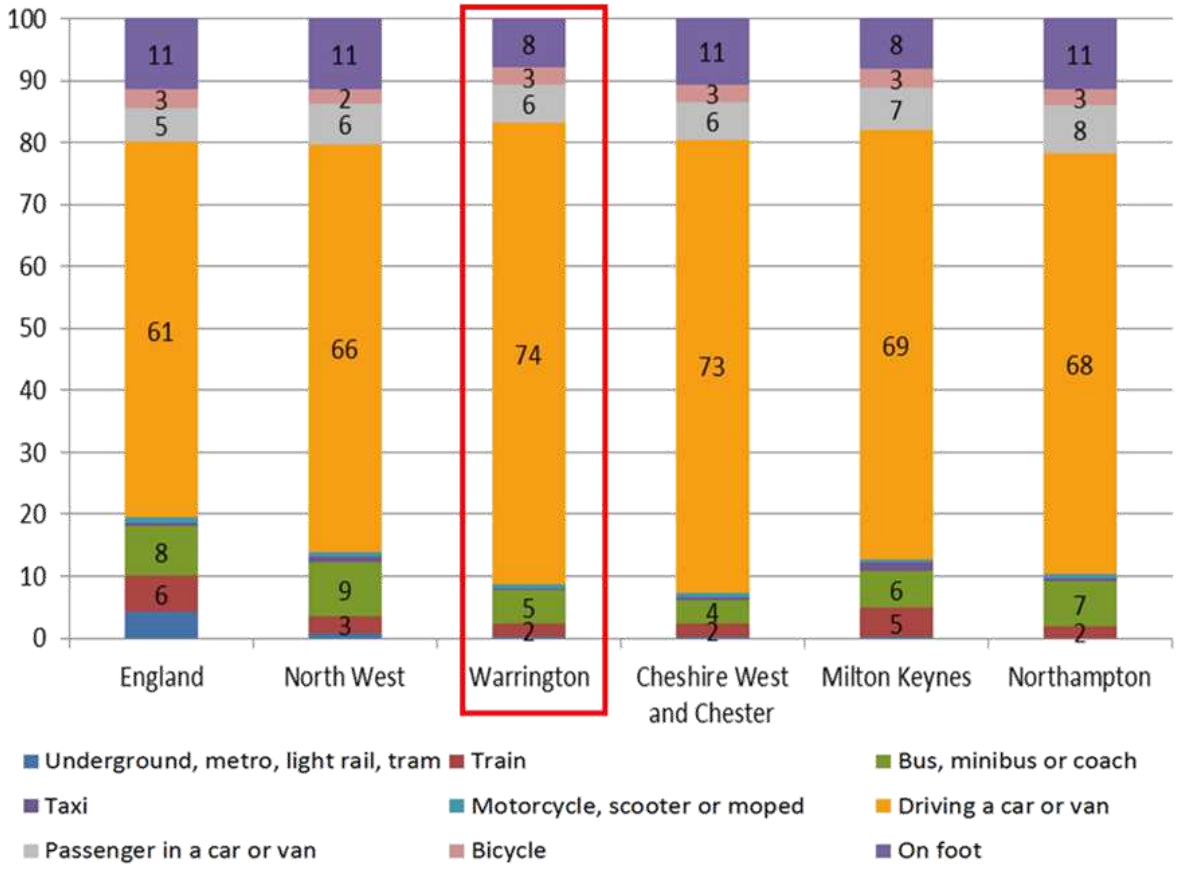
2) WARRINGTON'S TRANSPORT CHALLENGES

2.1 HOW PEOPLE TRAVEL IN WARRINGTON?

Transport is an essential part of our lives as it connects us with jobs, education, healthcare, shopping and a wide range of leisure activities. It is a key component of the economy as it links businesses with their workers, customers and clients, whilst providing for the delivery of goods.

Transport shapes our neighbourhoods and influences our lifestyles. Our choice of transport impacts on us as individuals and on our wider environment.

The travel to work modal split from 2011 Census data shows that nearly three quarters of Warrington residents (74%) drive to work. This high car dependency figure is the highest in the North West and is far higher than the national picture.



Warrington also has very high car ownership levels (81%) and this is also well above the 74% national average. There is an overreliance on the private car as a mode of transport in Warrington.

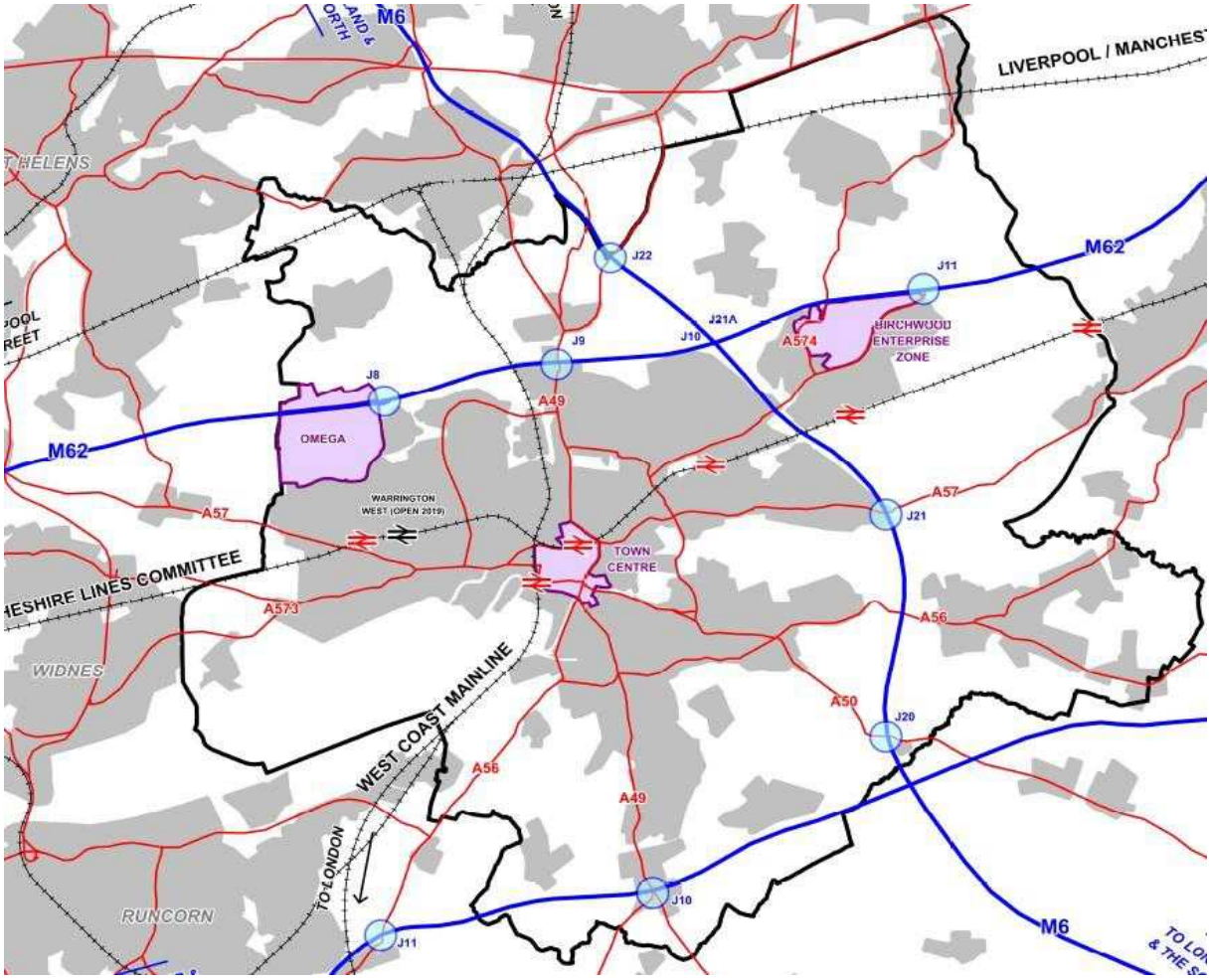
It is a well-documented fact that cars make poor use of available street space and offer a less efficient means of travel compared to walking and cycling.

Motorised transport is also a major cause of harm to the environment including air pollution, noise and its impact on the living environment.

In addition, Warrington's high car dependency is noted in the council's Public Health Annual Report (2017) as an underlying cause of a variety of poor health indicators such as obesity, heart disease and mental health.

The dominance of the car in Warrington has led to the subordination of other travel modes and serious congestion problems within the town. This is compounded by the limited number of crossings across the River Mersey, Manchester Ship Canal and West Coast Main Line, and the frequent diversion of traffic through the town whenever there is an incident on the surrounding motorways (M6, M62 and M56).

The road hierarchy in Warrington is shown below:



Many of the principal roads in Warrington (shown in red) are heavily trafficked, although they do often provide the most direct route between trip origins and destinations and are therefore used by more confident cyclists as the quickest route between destinations.

The road layout developed around the Town Centre to cope with the growing traffic has resulted in a very car dominated urban environment featuring large multi-armed roundabouts and dual carriageways which are very pedestrian and cycling unfriendly.

Many roads in Warrington have been designed for cars, and not for people. Main roads and busy junctions disrupt journeys, and make walking and cycling less enjoyable, less convenient and less safe.

Public Transport – Walking and cycling in Warrington should also be an attractive option for the first and last mile of a person's longer journey, for example by improving integration with public transport and providing the first or last 'mile':

- Rail: Nationally, rail use is growing and this trend is evident in Warrington with a 20% increase in patronage across Warrington's six rail stations between 2013/14 and 2017/18.
- Bus: Warrington's Own Buses (WOB) is the main bus provider within Warrington. Many services are centred on Warrington Interchange providing a circular route from the Town Centre. This provides good access to the Town Centre, but travel across the Borough is less convenient and generally requires interchange in the Town Centre.

Public transport services benefit from more customers if people can easily walk or cycle to a stop or station.

2.2 WARRINGTON'S TRANSPORT CHALLENGES

Without a transformational change to the way that we travel we risk Warrington becoming a less desirable place for people to live and invest in.

We want to create a Warrington that is not dominated by car movements and where streets provide a space for people that is pleasant to be in. The following set out how enabling walking and cycling can be the solution to many of our transport challenges:

Addressing Car Dependency and Congestion

- The car is the travel mode of choice in Warrington and dominates the highways network. To address congestion there is an underlying need to reduce the number of journeys made by car, and increasing the levels of cycling and walking in Warrington is one way to do this.

Grow Bus Patronage and Continue the Trend in Rail Usage

- Many journeys require more than one mode of transport. If we are to encourage people to use sustainable modes for their journeys it is important that the interchange between modes at key locations is as seamless as possible.

Improving Air Quality and Reducing Transport Noise

- Vehicle emissions are the main local source of air pollution. It is vital that we aim to improve health by reducing air quality related transport emissions. This can be done by reducing the number of vehicles on our roads.

Transport Inequalities in Warrington

- The existing transport situation is not the same across the whole borough and for all sections of our community. For example, whilst Warrington as a whole is a car dominated place, with the number of households with no car lower across the borough (19%) than the England national average (26%), the converse is true for Inner Warrington, where car ownership is much lower than it is in the more suburban and rural areas of the borough.

Making Warrington Accessible for All

- It is a myth that disabled people don't (or can't) cycle. Many streets require improvement to the latest accessibility standards so that Warrington's residents can live more independently.

Supporting Growth

- The level of housing and employment growth across the Borough in the Proposed Submission Version Local Plan will result in significantly more trips being made to, from, and within Warrington. To be able to accommodate the increased number of trips there is a critical need to increase cycling and walking as alternative modes of transport.

The following sections sets out the opportunity that is available and how we will create an attractive, high standard, user-friendly environment for walking and cycling trips.

Section 3:

Active Travel in Warrington

3) ACTIVE TRAVEL IN WARRINGTON

3.1 INTRODUCTION

We are not starting from scratch. Work is well underway improving and expanding Warrington's offer for active travel. Warrington's walking and cycling networks have developed over time as funding has become available and as development has come forward. Successful cycling schemes have been delivered through the Council's LTP capital programme which comprises schemes from the annual Integrated Transport Block (ITB) allocation.

In the recent past we have used the Local Sustainable Transport Fund (LSTF) to fund a number of new strategic cycle routes, including the Westbrook to Dallam Greenway and a traffic free route between Daresbury and Warrington.

Section 106 developer contributions have also supported the development of our network, particularly at strategic sites such as Omega and Birchwood.

3.2 WARRINGTON'S ACTIVE TRAVEL NETWORK

The current Warrington cycling network consists of a combination of on and off road routes. Currently, there are over 40 miles of surfaced segregated cycle paths, 18 miles of unsurfaced paths and over 23 miles of shared use paths alongside roads.

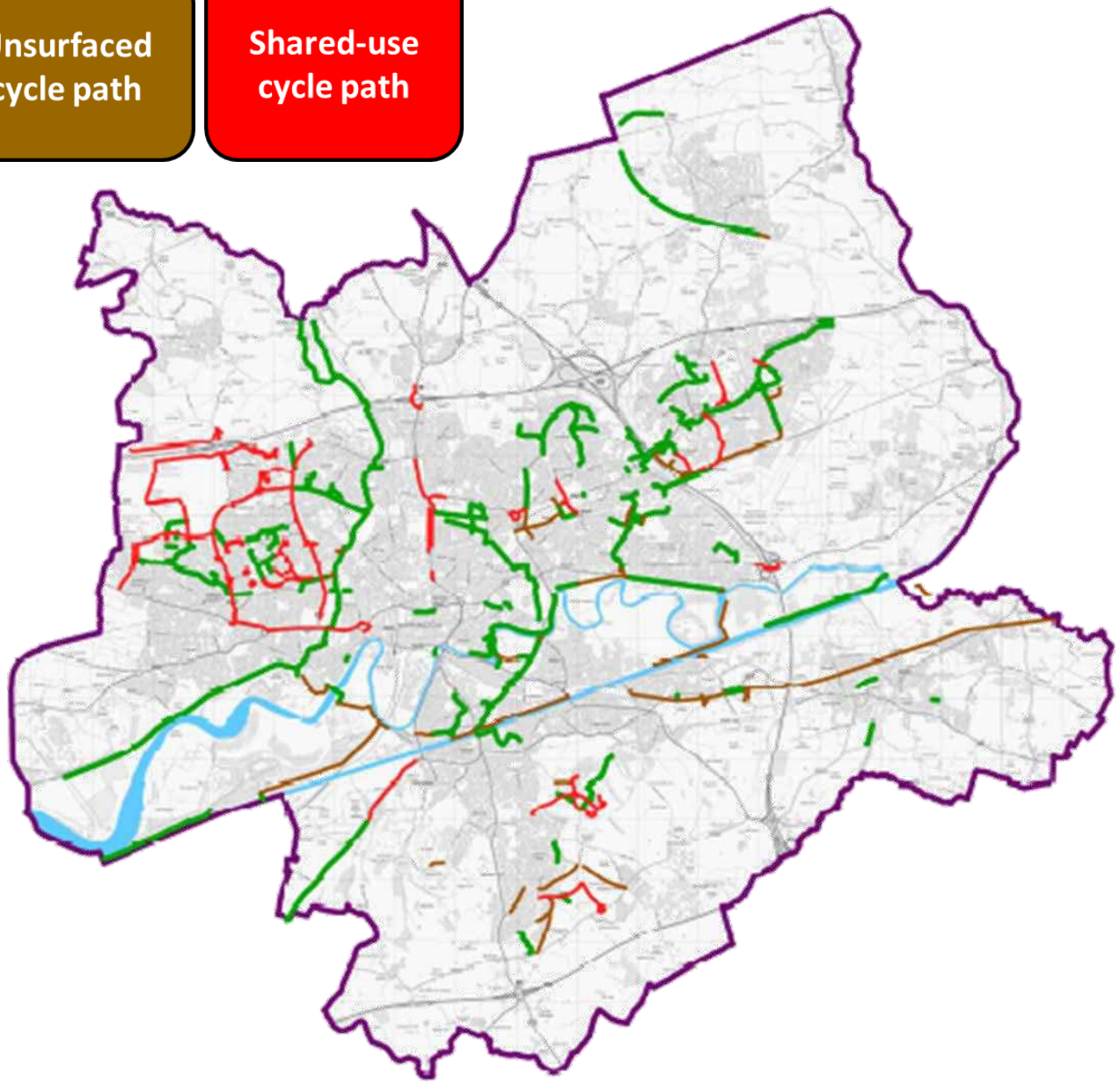
The current network is in many regards good and in places the foundations for a high quality network for active travel are there, but there are gaps in network coverage and variations in quality.

Our Existing Network

Tarmac surfaced cycle path

Unsurfaced cycle path

Shared-use cycle path



‘Greenways’ are a key element of our walking and cycling network, particularly for providing for leisure trips. The term is used to describe a largely off-road and traffic free network of ‘attractive’ routes for getting around on foot, in a wheelchair or mobility scooter, on a bike and where appropriate on horseback.

The Greenway network within the Borough includes the following routes:

- Trans-Pennine Trail;
- Whittle Brook;
- River Mersey Towpaths;
- Westbrook to Dallam;
- Sankey Canal Trail;
- Woolston New Cut and Woolston Park.

The best known of these is the Trans Pennine Trail. This forms part of the National Cycle Network (NCN) and provides a long-distance signed route from Southport to Hornsea. Roughly three quarters of the Trail through Warrington is on traffic free paths. From Warrington, the route provides a connection to Widnes in the west and through Lymm and onwards towards Altrincham in the east.

The north-south route through Sankey Valley Park is also an important greenway link providing cross boundary connections to the Trans Pennine Trail and Halton in the south and St Helens in the north. There is an aspiration to include this route within the National Cycle Network.

This greenway network has been the focal for much of the recent active travel investment, opening up key open spaces and connecting communities. For example, the Westbrook to Dallam greenway is an example of Council investment to provide a new high quality path constructed through an area of open space offering an attractive off-road route for cyclists of all abilities.

The Bridgewater Canal Towpath is currently a public right of way for pedestrians only and its condition is of generally poor standard. The Bridgewater Canal Trust is seeking to upgrade this to a permissive shared route (The Bridgewater Way) for both pedestrians and cyclists. If successful, this will provide a useful off-road route linking Warrington with neighbouring areas in Wigan, Trafford, Halton, Salford, Cheshire East and Cheshire West and Chester.

Shared use paths – There are also many existing shared use paths which form an extensive neighbourhood route network across parts of Warrington. Some of these are on purpose built footway/cycleways such as Lingley Green Avenue in Great Sankey, Admirals Road in Birchwood and Witherwin Avenue in Appleton.

Many new-town roads were not provided with any footways and over the years the highway verges on these routes have been retrofitted with a shared use path adjacent to the road. For example, the new path constructed on Cromwell Avenue near the Gemini retail park.

In places, the combination of shared use paths and greenways provide a good network of traffic free or very lightly trafficked routes:

On-road – Although compared to other urban areas the extent of on-road facilities in Warrington are limited, where these are in place this provision is often focused largely on links (the stretches of road between junctions).

Low Traffic Neighbourhoods – Most walking and cycling across Warrington takes place on quiet streets where people live. Street layouts that create slow speed, low traffic environments are good for people wishing to cycle or walk.

Across Warrington there are high quality examples of 'filtered permeability' schemes, where a direct route for walking and cycling is not open to motor traffic, which create favourable conditions for active travel.

Having measures in place to ensure that traffic uses appropriate routes is an important factor in improving road safety, and has wider benefits in terms of improving air quality, and improving the local environment. As such, within many residential areas across Warrington, such as Callands and Fairfield, area wide traffic calming initiatives have helped discourage rat-running.

In 2014, we completed implementing 20mph speed limits on the majority of residential roads and the Town Centre, where the greatest interaction between traffic and vulnerable road users would be expected. 20mph speed limits and zones for residential developments have also been adopted as a design standard in the planning process.

Sat-nav apps increasingly route vehicles off strategic roads and onto our residential streets to shave seconds off a journey. That means many previously quiet roads in Warrington are becoming increasingly busy and hostile for the people who live on them.

There is huge potential to go further with the protection and creation of low traffic neighbourhoods and expand the coverage wider across the Borough.

Signing – Recognising that the legibility and function of some existing routes require improvement we recently undertook a project to improve wayfinding across our network. This included the creation of our first strategic signed walking and cycling route, the Birchwood to Sankey Way, a signed 8 mile route connecting Great Sankey to Birchwood.

Public Cycle Parking – Within Warrington Town Centre alone there are over 350 publicly available cycle parking areas spread across the two rail stations, retail facilities and the general public realm.

Smarter Travel Choices describes a range of targeted approaches designed to help people to become less car dependent. The ambition is to reduce the number of car trips by providing greater awareness of sustainable travel choices.

The Council provides a Workplace Travel Advisory Service to businesses to inform and promote sustainable travel choices, working with employers and employees to understand the barriers to making more sustainable journeys and where possible instigate change. In addition, jobseekers also receive advice on their travel options to different job destinations which can increase their employment opportunities.

The Council's School Travel Advisory Service supports the existing and growing needs of schools within Warrington, and delivers some of the elements of the current Sustainable Modes of Travel Strategy.

The provision of Bikeability child cycle training has been a major success in Warrington. Professionally delivered training is offered free-of-charge to every 9 – 13 year old child in their school and between 2007 and 2018 over 22,000 pupils were successfully trained.

The main promotional tool to support cycling is Warrington's Cycle Map. This has been developed with the help of many partners, and is regularly reviewed and updated when new routes are built.

3.3 COMMITTED ACTIVE TRAVEL SCHEMES

Work is currently well advanced to enable delivery of three key projects funded by the Cheshire & Warrington LGF3 Growth Deal:

- Strategic route on Chester Road approaching the Town Centre (Indicative value – £900,000;
- Shared use neighbourhood route between Omega and Burtonwood village (Indicative value – £1.6m); and
- Enhanced strategic greenway route along the Trans Pennine Trail (TPT) between Latchford and Chester Road (Indicative value – £750,000).

Chester Road

Omega to Burtonwood

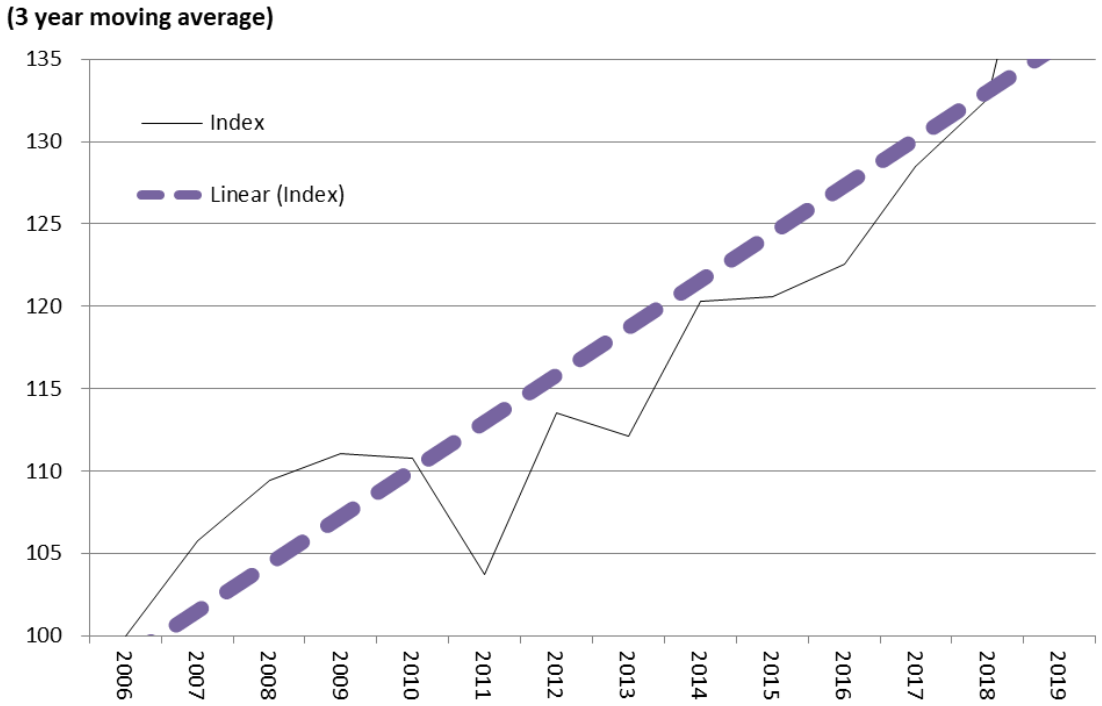
Trans Pennine Trail

The forthcoming Integrated Transport Block (ITB) 2019/20 programme of Active Travel improvements, with a total value of around £300,000, is expected to deliver schemes within Sankey Valley Park, Woolston New Cut, and Howley Lane/Black Bear Park alongside a programme of accessibility improvements, cycle parking, vegetation clearance and signing enhancements across the Borough. Additional ITB themes such as bridge maintenance, road safety and traffic signals, further increase expenditure on Active Travel related schemes.

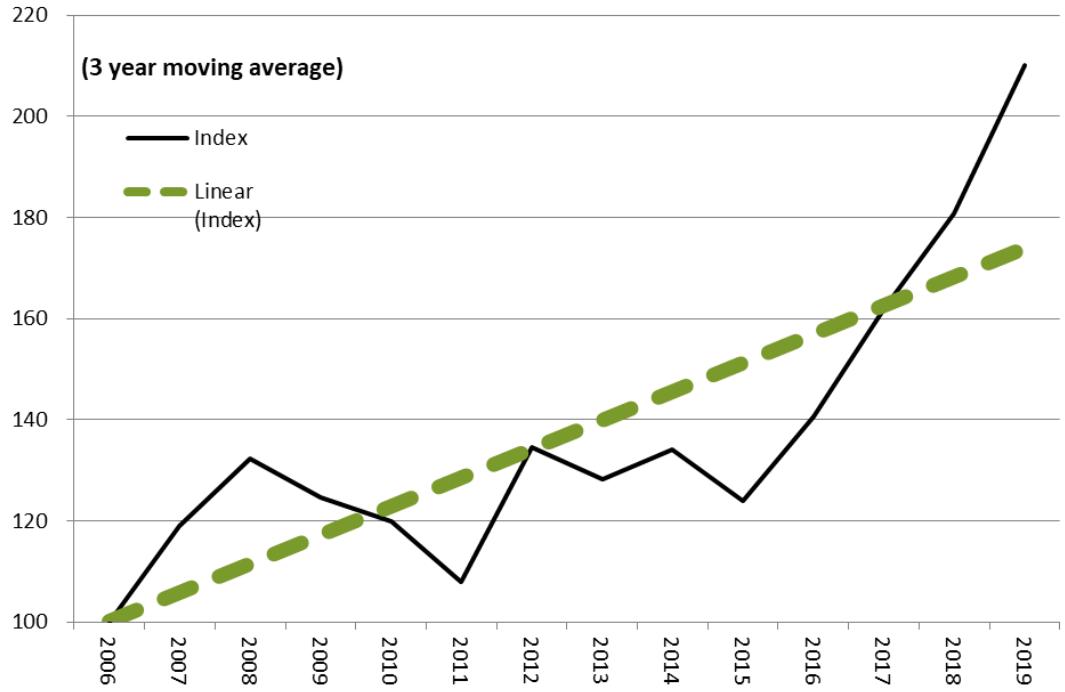
3.4 EXISTING PATTERNS OF WALKING AND CYCLING

Walking and cycling flow trends in Warrington are monitored annually by using data recorded at several survey locations across the Borough. The latest surveys were undertaken in June 2018 at 40 'Greenway' and 'Radial' locations, a number of which provide a time series of data going back to 2004.

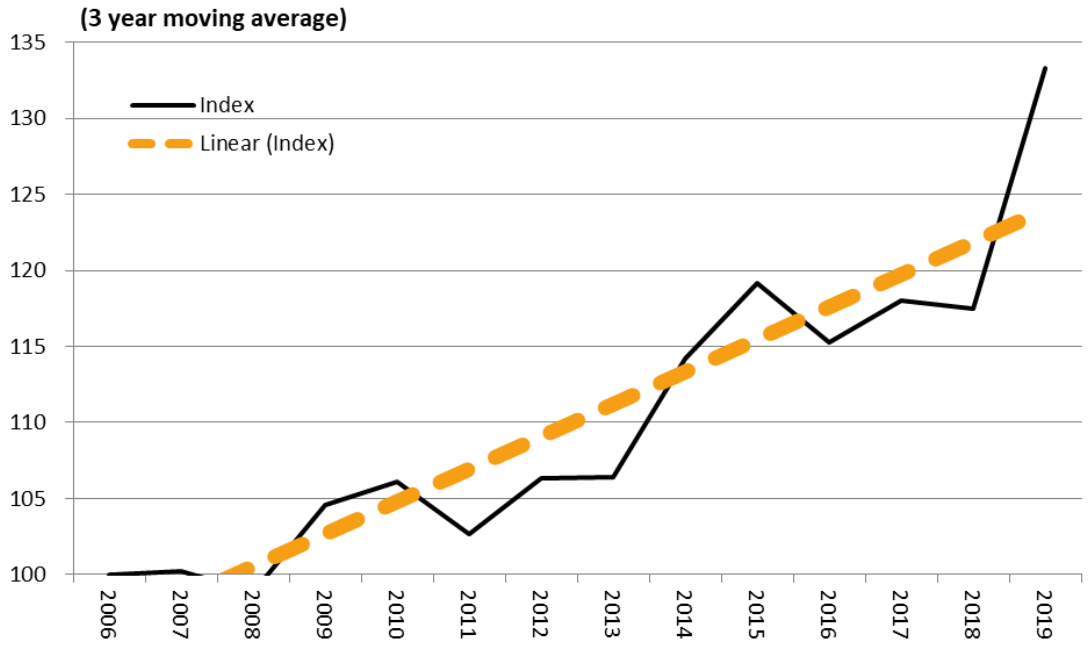
The data from the past surveys show a steady increase in cycling since 2004, with 35% more cyclists on our surveyed routes in 2019.



Data shows that there has been a substantial increase in cycling on 'greenway' routes since 2004 with over 70% more cycle trips on these routes since 2004.



A smaller increase (around 25%) has been seen on radial routes, many of which do not incorporate segregated cycle provision away from traffic, such as Manchester Road and Wilderspool Causeway.



On some key routes in Warrington, the level of cycling is already at a significant level:

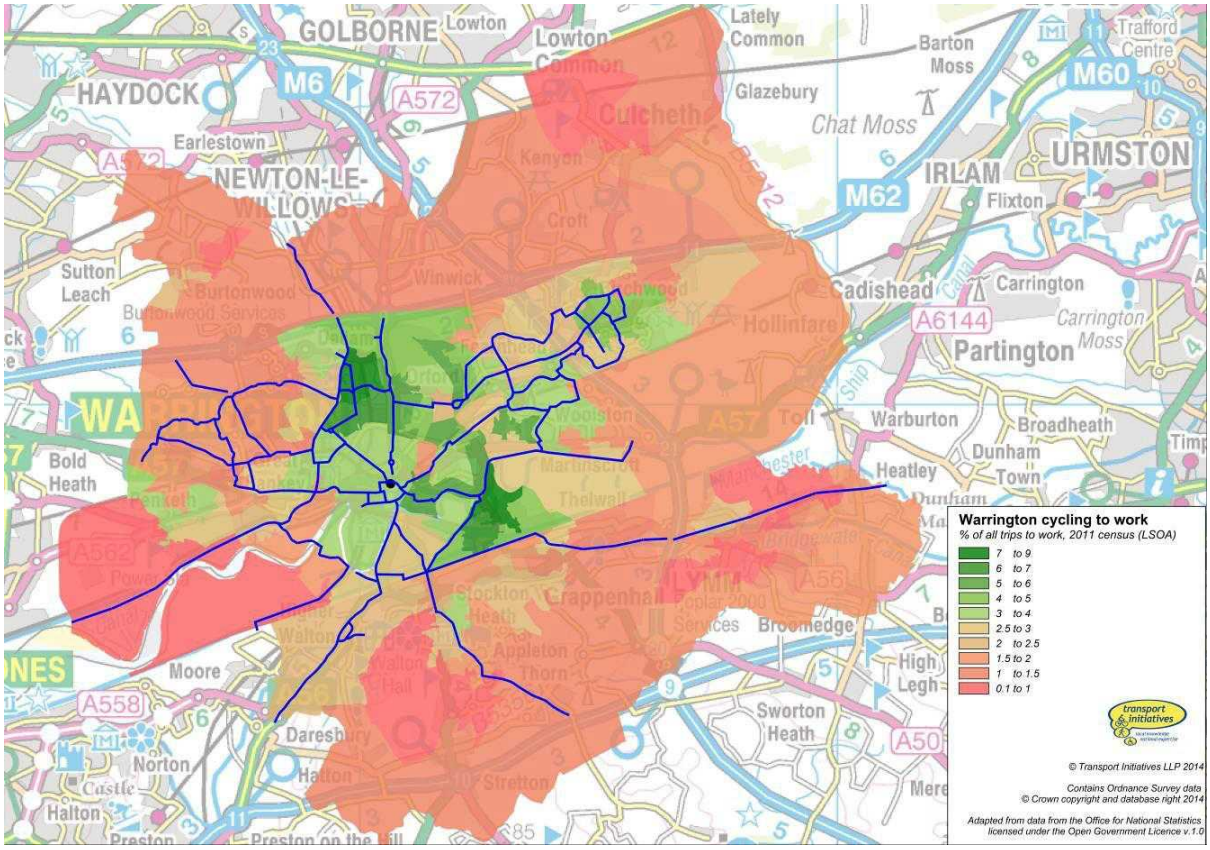
- Liverpool Road – 650 cycle movements per day.
- Kingsway Bridge – 900 cycle movements per day.
- Winwick Street – 500 cycle movements per day.

Also of note is at least 1 in 5 of the surveyed cycle trips across Warrington occurred outside 7am-7pm period. This is notable at many employment sites such as Woolston and Omega where many companies operate on fixed shift patterns.

Data shows that cycling in Warrington is increasing. Where investment have been made, such as in greenway routes, the positive outcomes are clear.

Whilst it is helpful to use data from existing cycling, we need to consider where people would like to travel but currently don't because an attractive route is not available. This is where we need to target our efforts. Footway cycling on certain routes, particularly on the main radial routes to/from the Town Centre, is common. This is a clear indication of suppressed demand for cycling on these routes and represents a strong demand for more suitable infrastructure.

Travel to Work – Cycle to work data was analysed for the Warrington area:



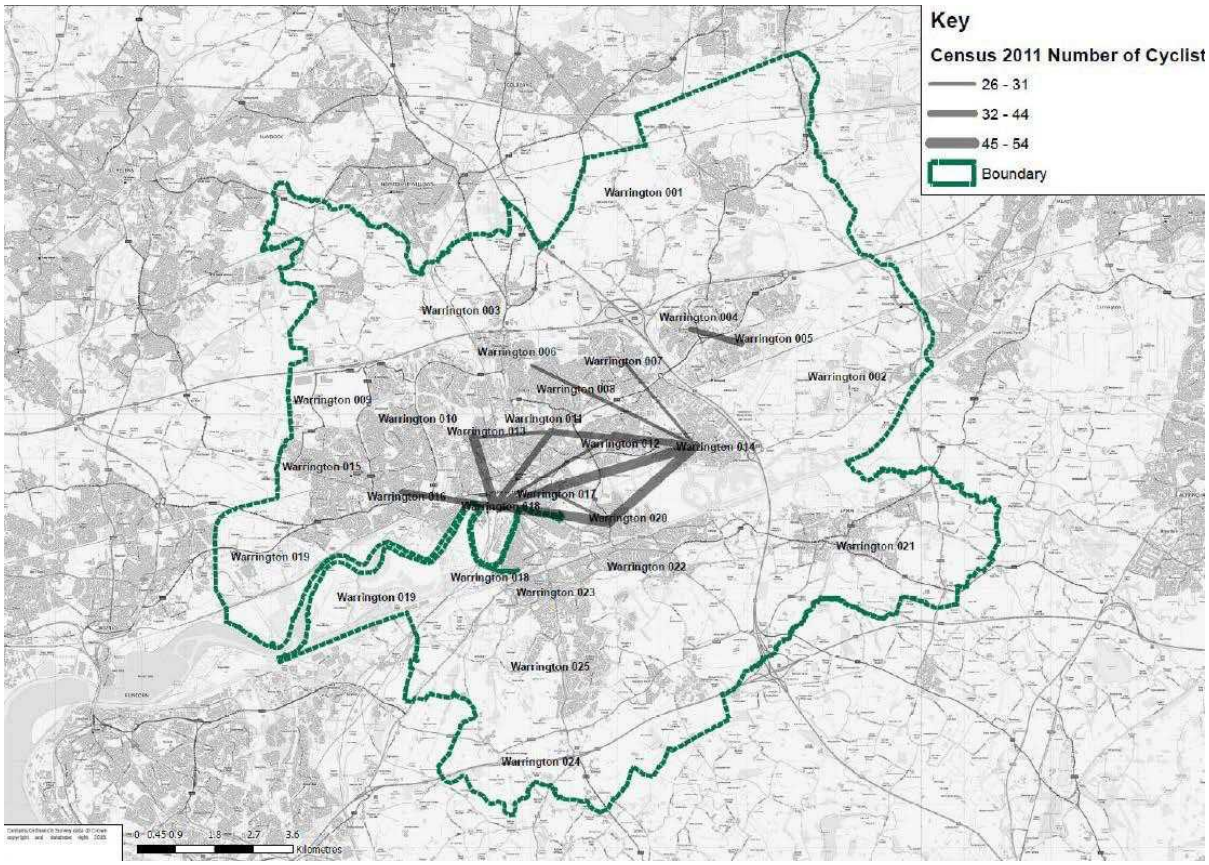
The amount of cycling in Warrington varies significantly between different parts of the Borough, from less than 1% to nearly 9% of trips to work (2011 Census). It is noted that most of the wards with the highest levels of cycling are found in the inner areas of Warrington.

It should be noted that Travel to Work census statistics excludes students and crucially those who cycle for less than half of their total journey (for instance, to the station). This means that the data underrepresents the true level of cycling in Warrington.

Propensity to Cycle Tool/Principal Corridors of Demand – The national Propensity to Cycle Tool (PCT) is a freely-available online resource that has been designed to help with the strategic planning of cycling networks. It shows transport planners and policy-makers where to build cycling infrastructure to increase levels of cycling and have the greatest benefits.

Cycle movements are based on trips between the Census (2011) output areas that people worked and resided in at the time. It has limitations as it is derived from commuting trip data only, does not take into account new developments (i.e Omega in Warrington) and excludes cycle-rail trips where cycling is not the main mode. However it is a useful tool to indicate current and future cycle movements which, together with local knowledge, can inform the planning of new routes.

The top 20 ‘existing’ cycle movements in Warrington were identified and plotted as a starting point for understanding the existing desire lines for cycle trips.



This highlighted how the key movements are into the Town Centre and to/from Woolston and Latchford. The absolute numbers for each route are however low.

Travel to work data is the statistic that we have the most data available. However, if we are striving for mass change to active travel modes, we need to consider the everyday transportation needs of people, rather than just the daily commute. Commuting represents a relatively small proportion of trips.

Although only 2.8% of Warrington residents cycle to work as their main mode of travel, more people cycle in the Borough when other trips and more infrequent cycling are accounted for.

Data collected through Sport England's nationwide survey 'Active Lives' provides detailed and reliable insight into the physical activity habits of Warrington residents:

Proportion of adults that walk and cycle, by frequency and purpose 2017-2018

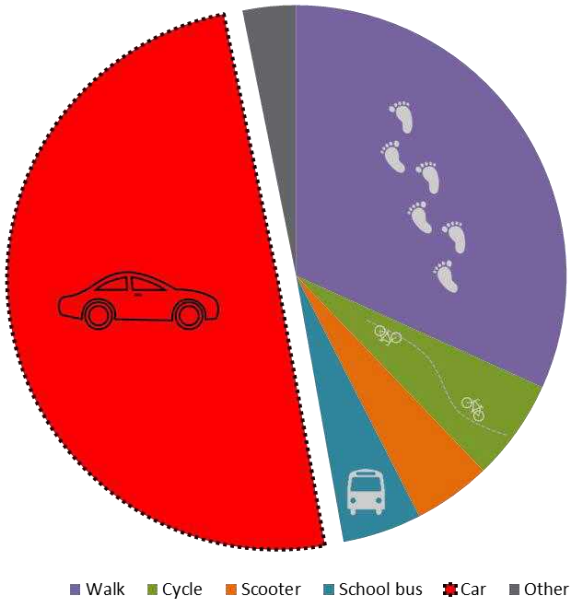
At least:	Once per month	Once per week	Three times per week	Five times per week
Cycling (%)				
Any	18.7	10.6	5.8	2.6
Leisure	15.0	7.7	2.4	1.1
Travel	7.4	5.4	3.2	1.5
Walking (%)				
Any	77.1	69.0	38.7	26.4
Leisure	62.5	48.4	22.6	14.9
Travel	46.5	37.8	18.1	12.3

Department for Transport Statistics
Tables CW0302/3

These statistics cover the time period mid-November 2017 to mid-November 2018.
"Leisure" in this table refers to walking or cycling for the purpose of health, recreation, training or competition, not to get from place to place. Results are grouped according to the area where respondents live, which may not be the same as the area where they walk or cycle.

Travel to Schools/College - Travel associated with education generates a substantial number of trips. Children can get their daily dose of physical activity without even thinking about it, just by walking or cycling their journey. Getting the next generation to fall in love with walking and cycling will form a key part of the LCWIP strategy.

Method of travel to school (Key Stages 1&2)



September 2018
WBC Data

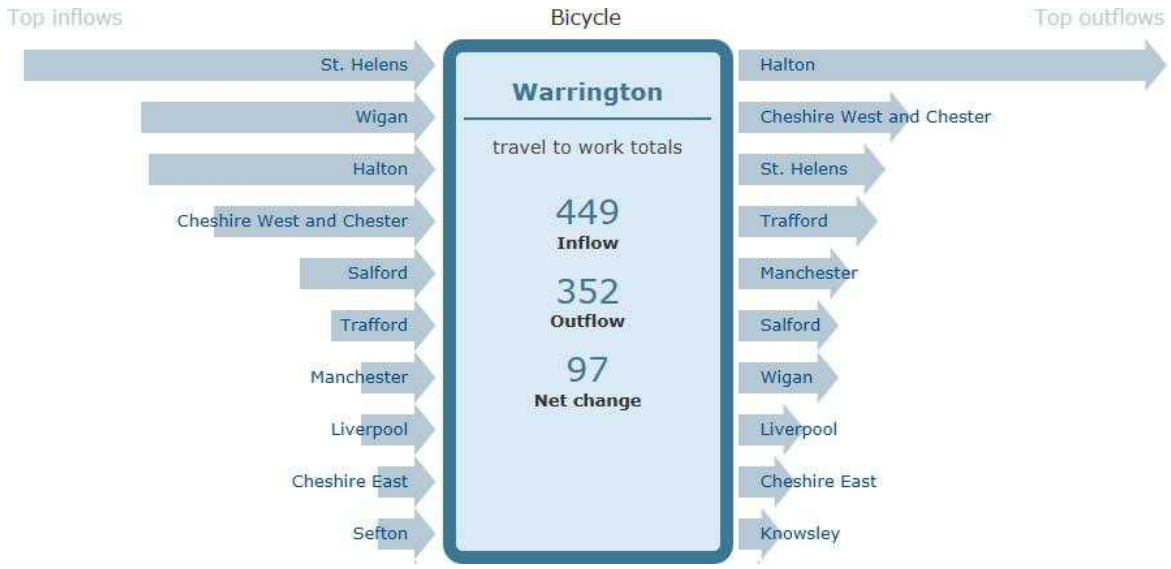
Enabling more walking and cycling trips to be made to education sites is an important aspect of LCWIP.

3.5 CROSS-BOUNDARY ACTIVE TRAVEL TRIPS

Warrington Borough Council share a boundary with 7 other unitary local authorities with various long-distance routes such as the Trans Pennine Trail and the Sankey Valley Trail crossing multiple administrative areas.

Unsurprising given the central location of Warrington, Census data identifies that a substantial proportion of people travel (all modes) into Warrington to work (49,172) from neighbouring Boroughs. Commuting results in a daily net population increase of 14,179 in Warrington.

However, only a very small proportion (449) of these 'inward' trips is however made by bike:



We will continue to work with our neighbours on the development of our LCWIP to ensure high quality cross boundary connectivity. It is however important to acknowledge that a larger proportion of residents travel to work within the relatively compact extents of Warrington (50,422).

3.6 ROAD SAFETY

The safety of people cycling, in terms of actual (number of collisions) and subjective (how safe a journey feels) clearly have an impact on the attractiveness of walking and cycling in Warrington. Concern about safety on the roads is a key barrier to people getting on their bikes and travelling on foot.

Warrington has seen significant improvements in road safety over the last 10 years with a 36% reduction in collision occurrence resulting in a 43% reduction in casualties.

Nationally, only 6% of deaths and 14% of serious injuries are amongst cyclists, although over four times as many pedestrians (25%) are killed in road collisions. In Warrington the picture is slightly better as only 11% of all killed or seriously injured casualties are pedal cyclists and 14% are pedestrians.

44% of Warrington's pedestrian casualties are represented from the 6 to 18 age band. The age band that appears to present the greatest risk of being a pedestrian casualty is 10 to 18.

A key point to emphasise is that the data does not pick up junctions and routes which are potentially hostile to cyclists and pedestrians or there is a perception of danger, to the effect that people avoid using them.

As such, the key distinction to be made is between the number and rate of collisions. If people avoid using a junction, it may have a low number, but high rate of collisions per journey walked or cycled.

3.7 BARRIERS TO WALKING AND CYCLING

In 2017 the council hosted a series of stakeholder summits to gain feedback on a range of transport topics. The first of these focussed on active travel, stakeholders were asked what the barriers were for replacing short car journeys with a walk or cycle trip. Concerns about safety, lack of knowledge of routes and the dominance of the car making walking and cycling unwelcome in some areas were identified as key barriers.

Many busy junctions and routes in Warrington can feel like hostile places, intimidating to people travelling by cycle and on foot. On any journey – to school, to work or to the shops – the route is only as good as its weakest link.

Along with many other authorities nationally, the Council takes part in the annual National Highways and Transport Network public satisfaction survey. This data details the satisfaction of Warrington residents with the provision, location and condition of active routes and facilities.

The most pertinent results for walking and cycling are outlined below, based on overall satisfaction measures:

97% agreed that 'pavements' are important
75% agreed that 'cycle routes/lanes/facilities' are important
93% agreed that 'reducing traffic' is important
90% agreed that 'traffic pollution' is important

49% were satisfied with 'pavements' in Warrington
32% were satisfied with 'cycle routes/lanes/facilities' in Warrington
27% were satisfied with the 'reduction of traffic' in Warrington
24% were satisfied with 'traffic pollution' in Warrington

There is clearly a need to improve existing active travel infrastructure and reduce this general perception so that public confidence and awareness is improved.

Section 4:

Cycling - Our Opportunity

4) CYCLING – OUR OPPORTUNITY

4.1 WHY CYCLING? WHY NOW?

By giving people a true alternative to the car, we will tackle many of our health, congestion and air quality issues in one go. The delivery of a fit for purpose cycle network is not anti-car; it is about giving people an attractive alternative, especially for short journeys.

Cars occupy a lot of space on our highway network and represent the most inefficient use of highway space. Enabling active travel is the cheapest, least disruptive way to improve capacity quickly.

A high proportion of car borne short trips is also an indication that many people in Warrington are being less active which has clear implications for their health and wellbeing.

Cycling has acknowledged positive physical and mental health benefits. As a result physical exercise through cycling for everyday trips has been described as a 'wonder drug' and active travel allows people to build physical activity in to their everyday routines.

4.2 THE OPPORTUNITY

There are clearly areas of the Borough where current cycle levels are particularly low, and particular junctions where sight of a cyclist is a rarity. However, there is a saying that *'it's hard to justify a bridge by the number of people swimming across a river"* and this holds for cycling in particular.

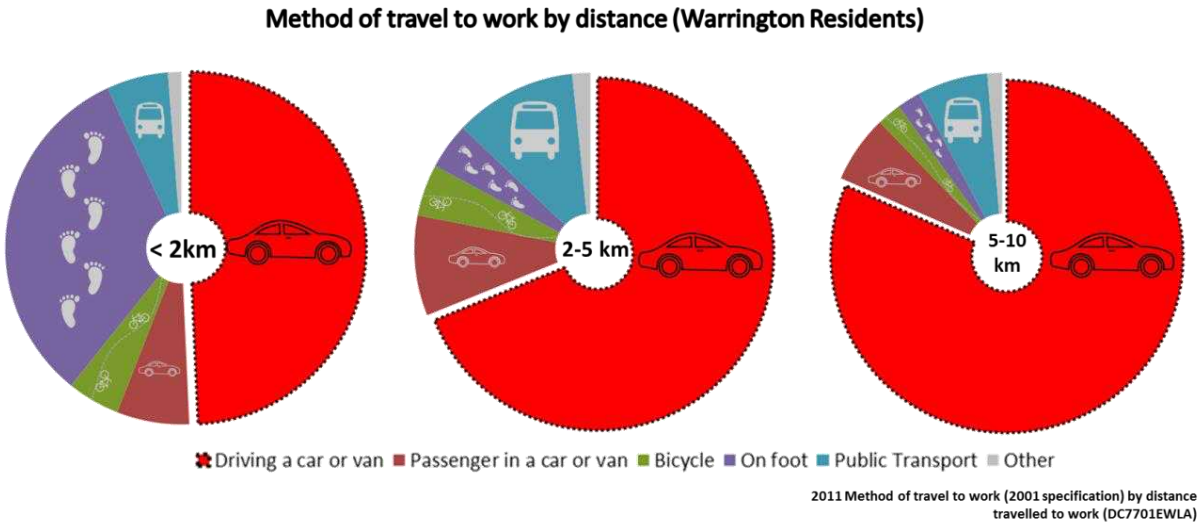
This section presents the results of analysis carried out to better understand the potential to increase travel by bike in Warrington, in terms of what type of trips, places and people offer the best opportunities.

Data from the 2011 Census shows that 2.8% of Warrington's residents cycle to work. Our target is to have 7% of residents cycling to work by 2040. If we want to meet this target and ease the burden of traffic we really need to make it easier for people to use other means of transport.

This means having two and a half times more people regularly using their bike to get to work. This will not happen overnight, and will not occur without significant and sustained intervention. However, as this section will emphasise, whilst the growth target is ambitious, it is eminently attainable.

The first step in testing the opportunity is to examine current travel patterns, including the origin, destination and length of short car trips, to gain a better understanding of the potential for cycling across the Borough.

Purely in terms of travel to work, most short journeys are still made by car:



These car trips contribute to congestion on the roads, poor air quality, and contribute to poor health caused by inactivity.

A majority of working-age residents in Warrington commute less than 5km in length, a highly cyclable distance.

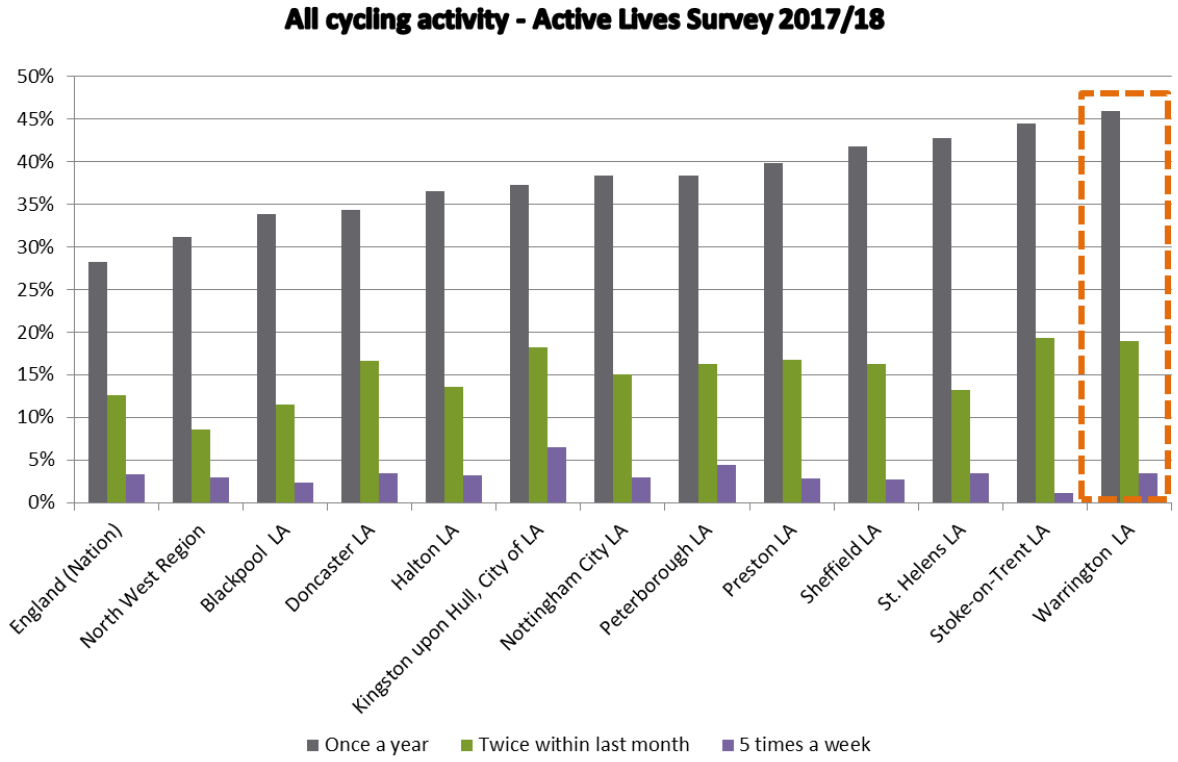
We can predict future demand for high quality cycle infrastructure to some extent by current cycle levels and in some areas a good indication is also provided by counting the number of people cycling on footways or pushing their bike at difficult points.

Better yet, we can count the number of people making short journeys in cars. Those are the people we need to serve. Many discussions about cycling are dominated by people who are already cycling. We need to start enabling those that currently drive.

Not everyone can cycle – but many more people could. It is clear from the data that we need to get people thinking about shorter journeys.

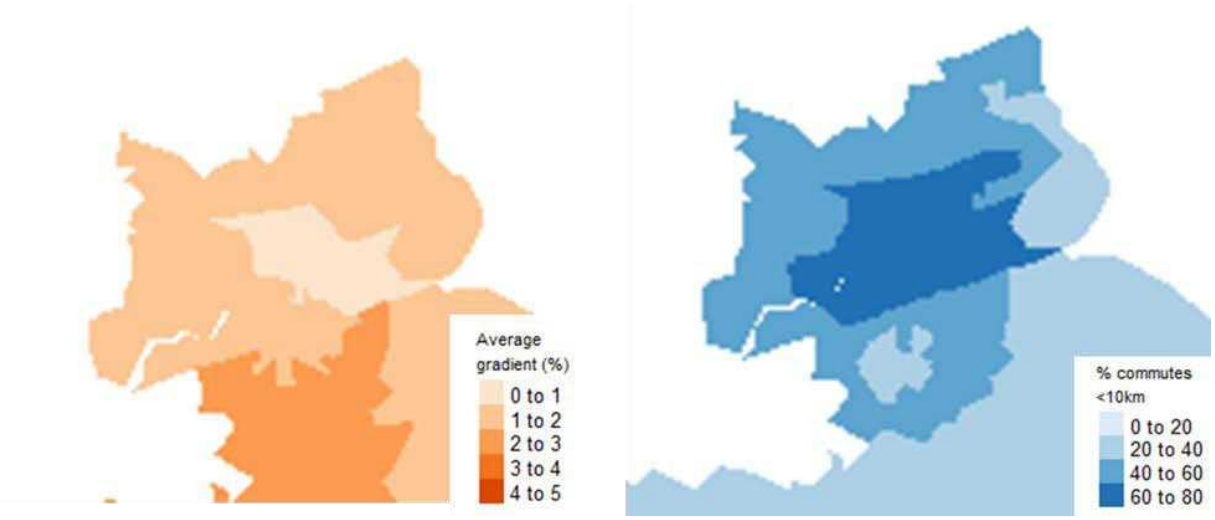
Unless the high quality infrastructure is in place to enable cycle trips, they simply won't occur. We need to predict, provide and enable.

A section of Warrington's population has never cycled and some may never but almost half already do. 46% of the adult population have cycled within the last year, an impressive proportion that is well in excess of the national average and surpassing comparable settlements.



However, one of our primary issues is frequency. For many, whilst the concept of cycling is fine, it is an infrequent activity only. We wish to bring about 'everyday cycling'. A good starting point to increase cycling in Warrington would be to enable existing cyclists to cycle much more and for a wider range of journeys.

The images below, obtained from the Propensity to Cycle Tool, show the proportion of commuters in each zone with a fast route commute distance less than 10km (calculated excluding people with no fixed workplace) and the average hilliness of the fastest routes used by commuters living in each zone.



Warrington's compact size and fairly flat terrain offers a great opportunity for local journeys, currently made my car, to be made by cycling.

4.3 NETWORK PLANNING FOR CYCLING - WHERE ARE THE 'CYCLABLE TRIPS'?

This section presents what the latest datasets, forecasts and models show about potential corridors and locations where current and future cycling demand could justify future investment.

- MAJOR TRIP ATTRACTORS

All trips have an origin and a destination. The DfT guidance states that LCWIPs should be evidence-led. It adds that identifying demand for a planned network should start by mapping the main origin and destination points across the geographical area to be covered by the LCWIP.

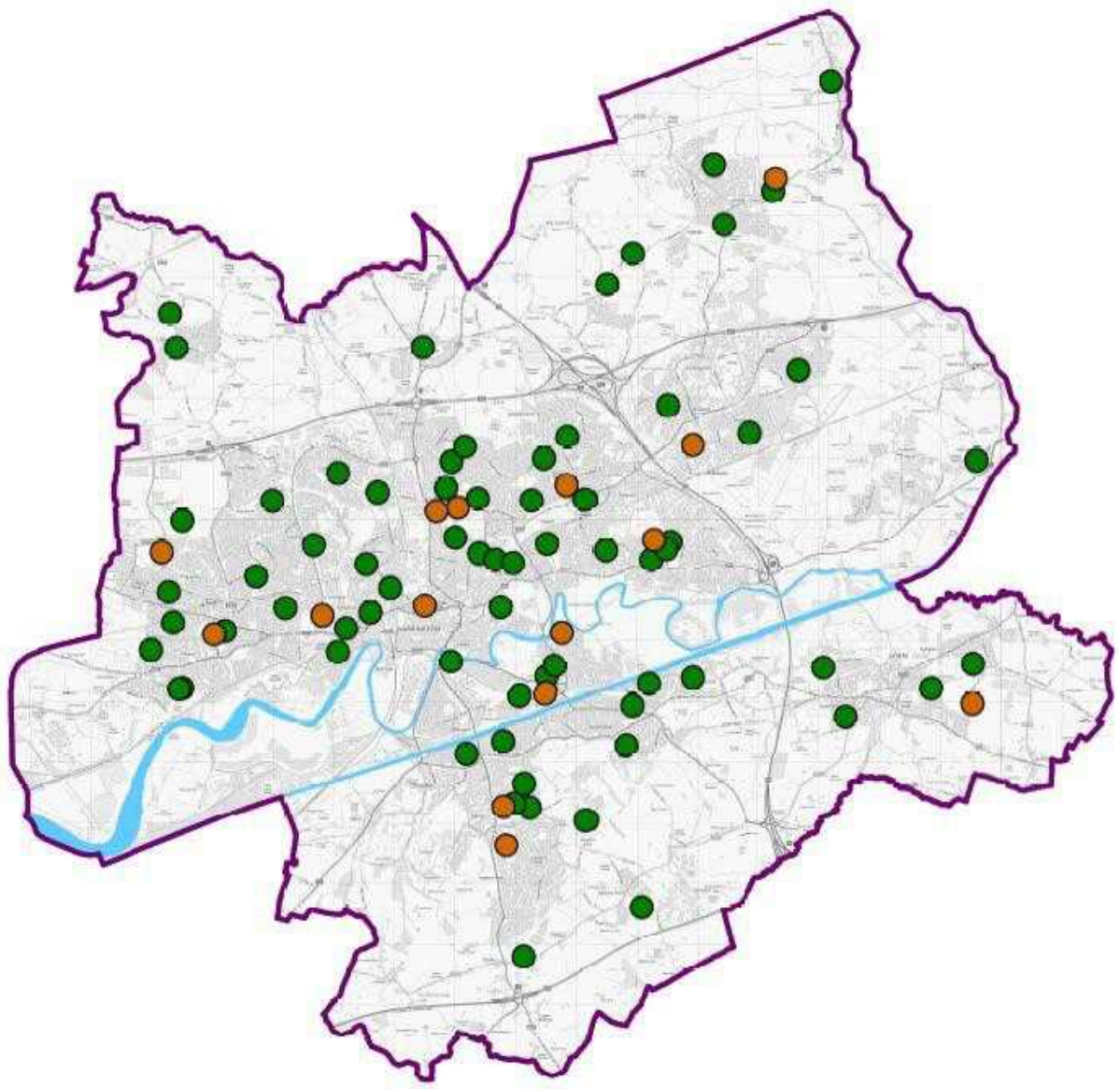
A variety of major trip attractors within Warrington have been identified through site assessments, assessments of relevant data and consultation with key stakeholders. These strategic locations attract a significant number of trips, and as such they could have the potential to attract a sizeable number of future cycling trips.

The DfT guidance identifies that it may be appropriate to include only the most significant trip generators. Some types of destination were excluded (eg schools, individual retail stores) to create a manageable number of destinations.

Major employment sites were identified using Office of National Statistics Workplace Zones combined with Census 2011 journey to work data to identify employment numbers in each workplace zone. Proxy nodes were located to denote the significant employment areas identified through the data. These were typically town or district centres or business/commercial/industrial sites. Town and District Centres were not mapped on their own as they are covered by the other trip generators, predominantly retail. The following retail areas were plotted:

- Golden Square
- Birchwood
- Cockhedge
- Culcheth
- Honiton
- Knutsford Road
- Lymm
- Stockton Heath
- Gemini
- Junction Nine
- Westbrook

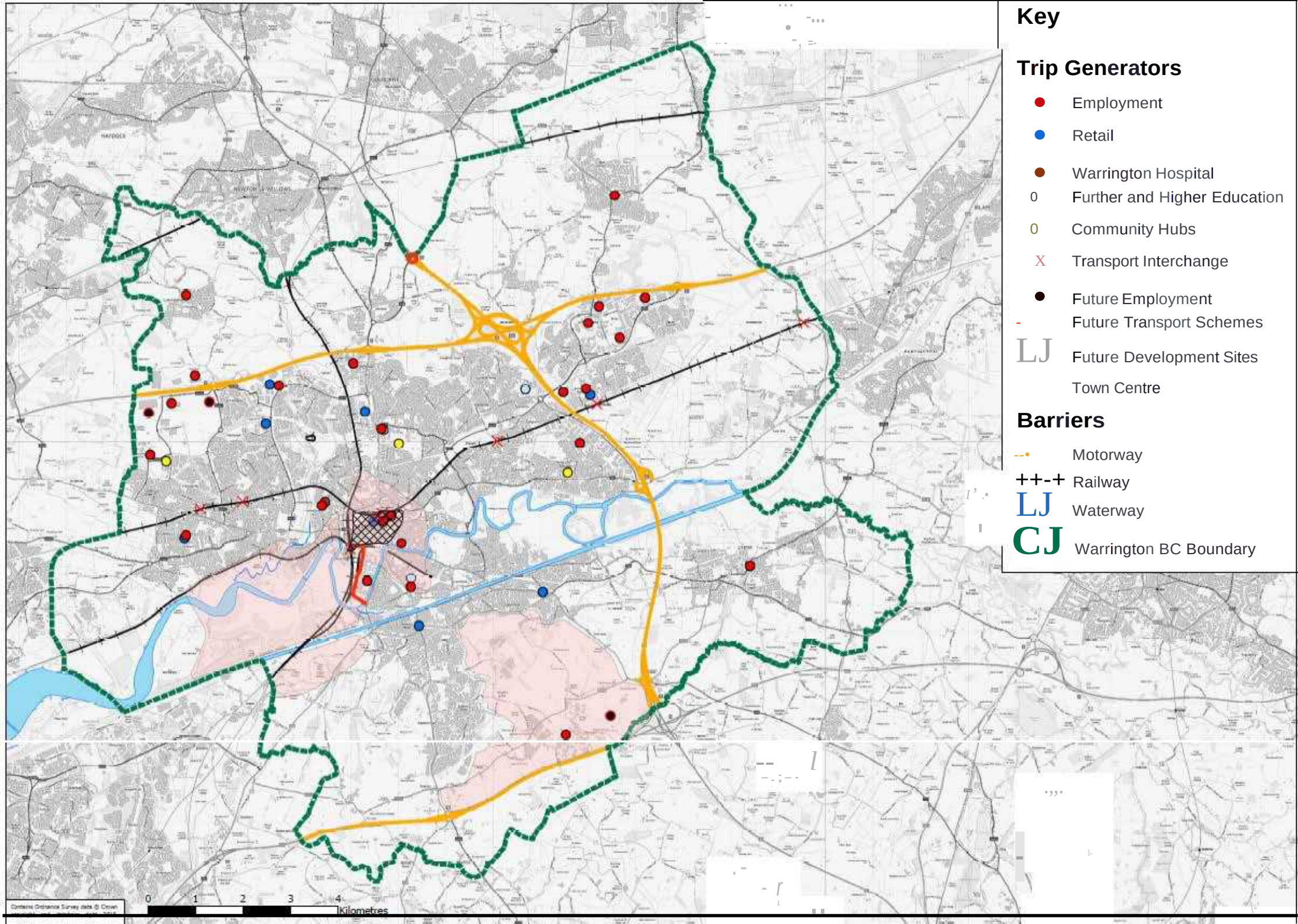
Schools - There are a large number of primary schools in Warrington, which are spread throughout the multiple residential areas. Secondary schools are located more sporadically in the Borough, while there are only three further education establishments.



It was decided to not include primary and secondary schools at the strategic level, but to focus on the larger educational trip generators including Warrington & Vale Royal College, Priestley College and the University of Chester's Warrington Campus. Primary and secondary schools will be considered when we look at local connectivity to ensure that there are appropriate connections within local areas and to the strategic network.

This approach was also applied to healthcare establishments and community facilities. Warrington Hospital and Hubs at Orford, Great Sankey and Woolston have been considered from a strategic level, with smaller healthcare (such as GP surgeries) and community (such as libraries) sites reintroduced when looking at local connectivity.

The transport interchanges identified include all railway stations (Central, Bank Quay, Birchwood, Padgate, Warrington West, Sankey for Penketh and Glazebrook) and Warrington Bus Station.


Key
Trip Generators
Employment
Retail
Warrington Hospital
Further and Higher Education
Community Hubs
Transport Interchange
Future Employment
Future Transport Schemes
LJ
Future Development Sites
Town Centre
Barriers
Motorway
Railway
LJ
Waterway
CJ
Warrington BC Boundary
0
1
2
3
4
Kilometres

- FUTURE DEVELOPMENT OPPORTUNITIES

It is also important to identify future changes to transport and land use that may be completed within the timescale of the LCWIP.

The emerging Local Plan is proposing around 20,000 new homes and 360ha of employment land. It will ensure that walking and cycling are fully incorporated in any spatial planning policies for the Borough.

For locations where a significant growth in population is expected additional nodes have been created to represent future journey origins, and likewise destination nodes for major proposed employment sites. This identify where there is likely to be a future requirement for the Borough's cycling network to penetrate. New developments will also offer significant opportunities to improve or increase the network of facilities for cyclists through the planning process.

No matter how sustainable this development is, it'll create vehicle trips. However, it is predominantly the unsustainable use of existing development that drives local congestion in Warrington. We need to reduce total vehicle trips from existing areas of the Borough. A comprehensive, high quality and well used walking and cycling network will support and enable the growth aspirations of the Borough.

- IDENTIFYING BARRIERS TO MOVEMENT

Barriers to movement were identified to understand how they may impact on potential cycle movements. The existing Warrington cycling network is strongly influenced by several constraints and barriers both natural and man-made. These include:

- The three road crossings of the River Mersey and single footbridge;
- The five crossings of the Manchester Ship canal, four of which are subject to daily opening and constrained width;
- Two main railway line; and
- A busy road network that is difficult to cross (including the motorways).

When combined, these barriers segment Warrington. This is particularly the case within the Town Centre:

Warrington – The Last Mile

The last mile of journeys into Warrington town centre has regularly been identified as a key barrier in encouraging people to walk and cycle into, and within, the town centre.

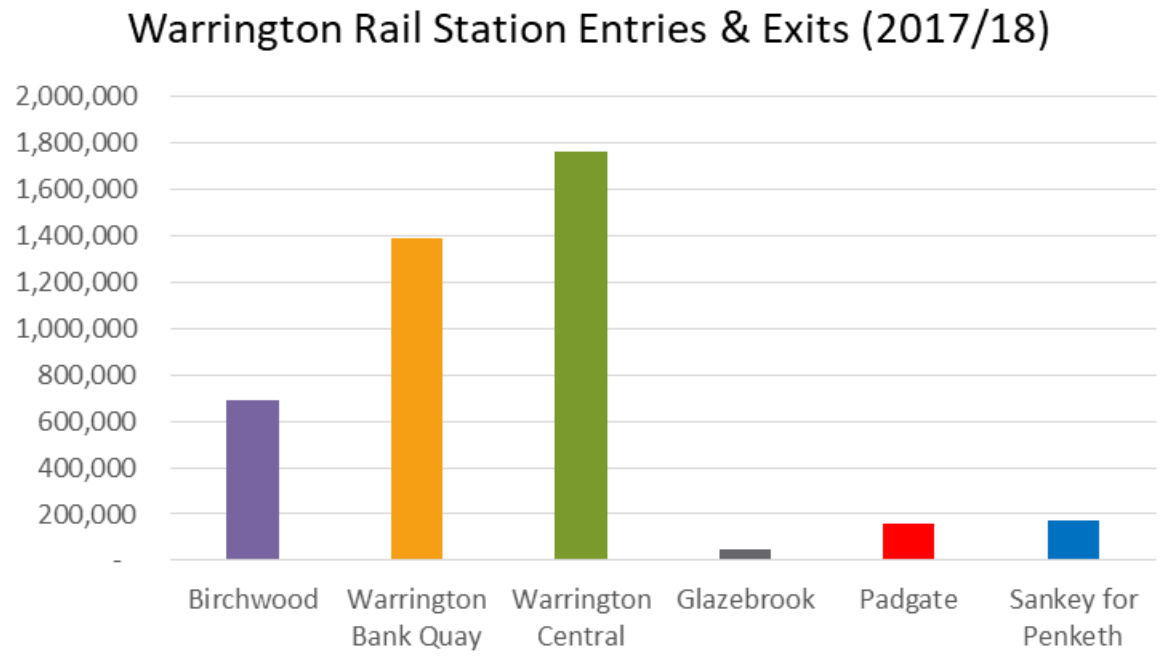
The road layout has been developed to cope with the growing traffic, and has resulted in a very car dominated urban environment featuring large multi-armed roundabouts and dual carriageways.

This results in a limited number of crossing points for pedestrians, and a very unpleasant cycling environment. These barriers are often mentioned by local people as reasons for why they prefer not to cycle into the town centre.

If we are to successfully support a large increase in the number of people travelling into the centre Warrington on foot, on cycle, or by bus we need to make ensure that we create a safe environment that supports reliable journey times for these modes.

- CYCLE-RAIL INTEGRATION

There has been a 20% increase in patronage across Warrington's six rail stations between 2013/14 and 2017/18. A seventh station in West Warrington will be opened in December 2019 with direct services to Liverpool and Manchester provided within the December 2019 timetable.



The level of cycle-rail integration (combining cycling with rail) in Warrington presents unrealised potential.

To quantify this potential we have calculated the number of people (based on 2011 Census) who are within a 3km cycle of each station:

Rail Station	Workplace Population	Residential Population
Sankey for Penketh	6,908	34,009
Warrington Bank Quay	33,569	39,053
Warrington Central	36,438	47,185
Padgate	16,107	51,271
Birchwood	12,893	9,735
Glazebrook	304	1,529

The identification of routes to/from rail stations and the ability to capture these active travel trips as part of longer journeys will form an important part of the plan. Enabling active travel to rail stations can enhance the attractiveness of rail as a means of travelling to key commuter destinations such as Liverpool and Manchester.

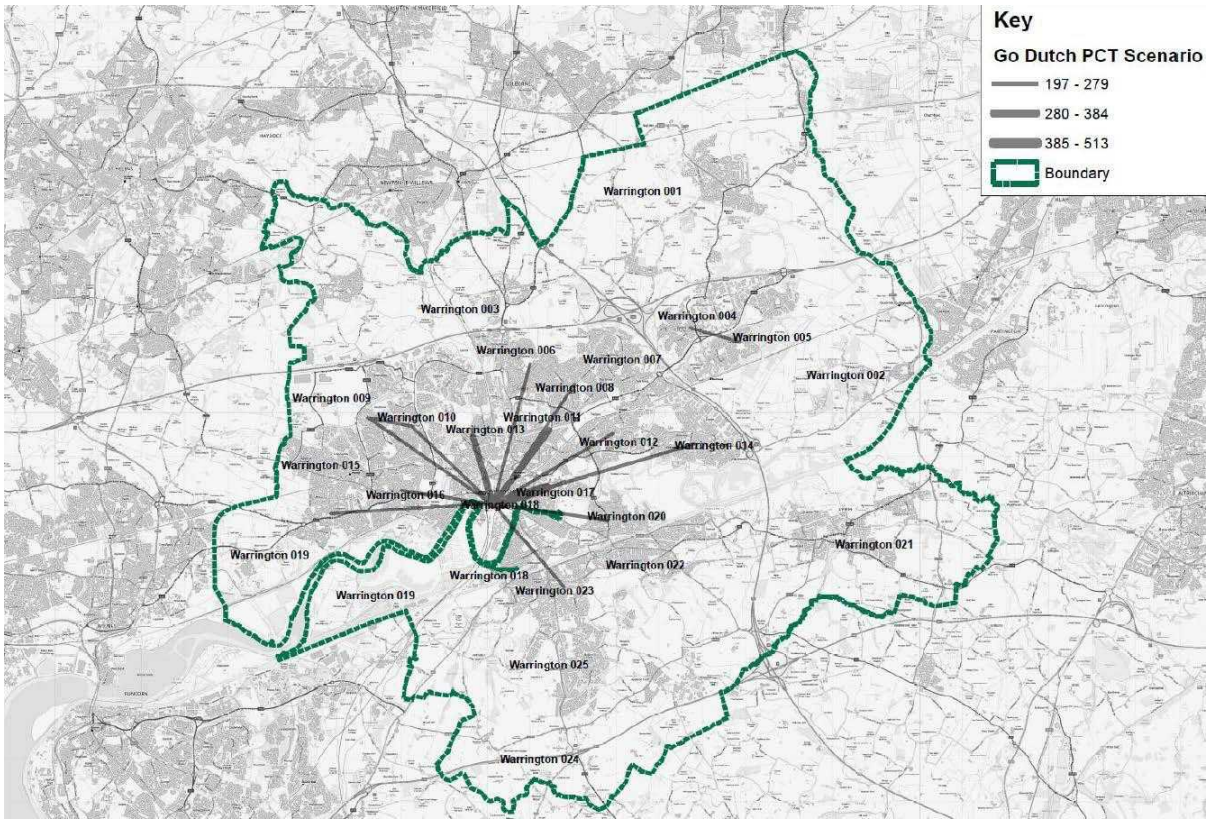
- PROPENSITY TO CYCLE ANALYSIS

As introduced in Section 3, the Propensity to Cycle tool (PCT) comprises an interactive map that shows the current distribution of commuter cycling trips in Warrington.

Crucially, it also predicts potential future cycling trips under different potential future growth scenarios. The PCT allows us to look at where cycling flows go, and which parts of the route network might be busiest. It provides numerical and graphical outputs, including estimated increase in numbers of cyclists in an area, along straight 'desire' lines and along routes.

The 'Go Dutch' scenario provides a simulation of what cycling levels would look like if an area have the same infrastructure and cycling culture as the Netherlands. It is emphasised that 'high quality infrastructure' and 'bike culture' feed each other.

The scenario generates desire lines based on trips that could be expected to be made by bike should this infrastructure and culture be in place, while considering current trip patterns and levels of hilliness. The 'Go Dutch' scenario was used to estimate potential future cycle demand to align with our ambitious vision for cycling within the Borough.



Projected movements are concentrated round the Town Centre with six out of the top seven movements being to/from or within the Town Centre area.

The scenario also identifies potential for a high number of potential cycle movements wholly within Lymm, Birchwood and Woolston.

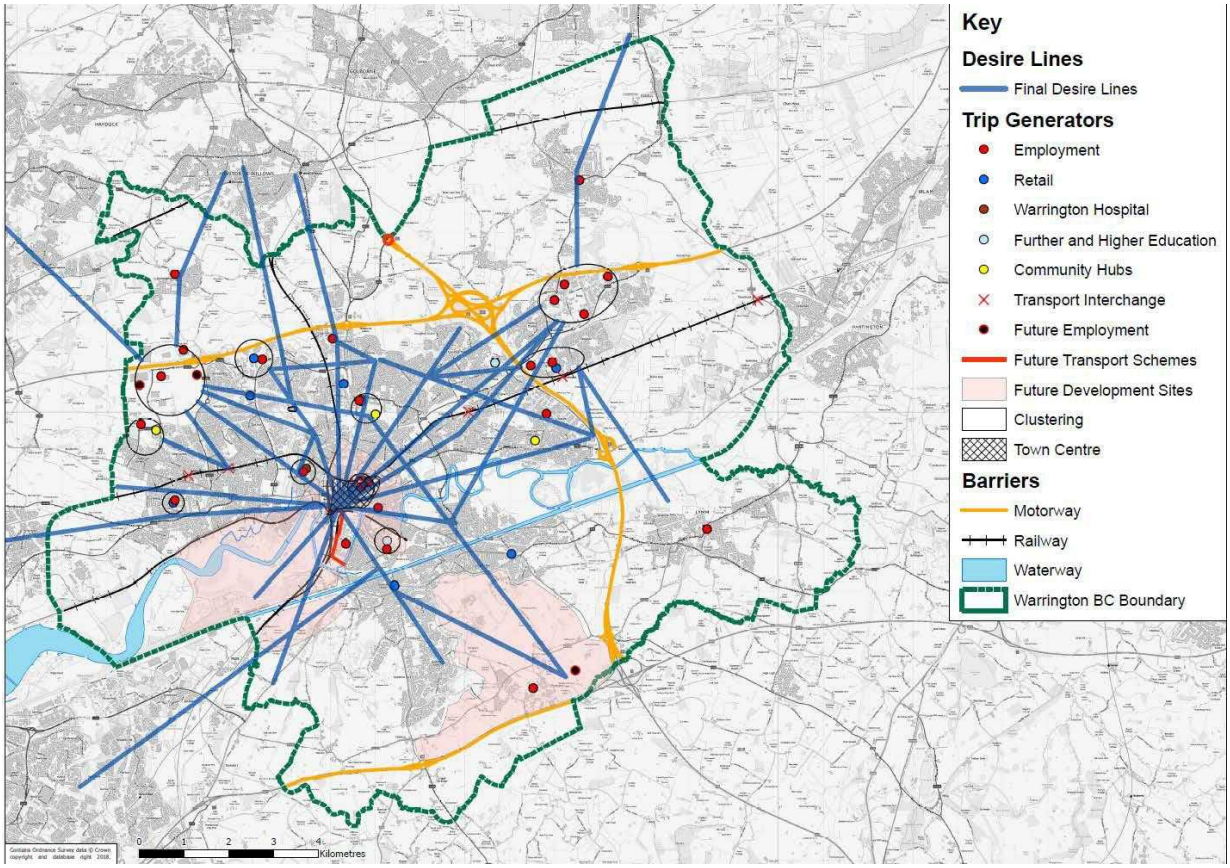
- CLUSTERING

Once the significant trip origin and destination points were identified and mapped, the next step is clustering. This involves grouping trip generators within proximity to each other into clusters allowing for the identification of significant trip generation. However, it is vital that it is acknowledged the clustering exercise doesn't exclude some trip types, including:

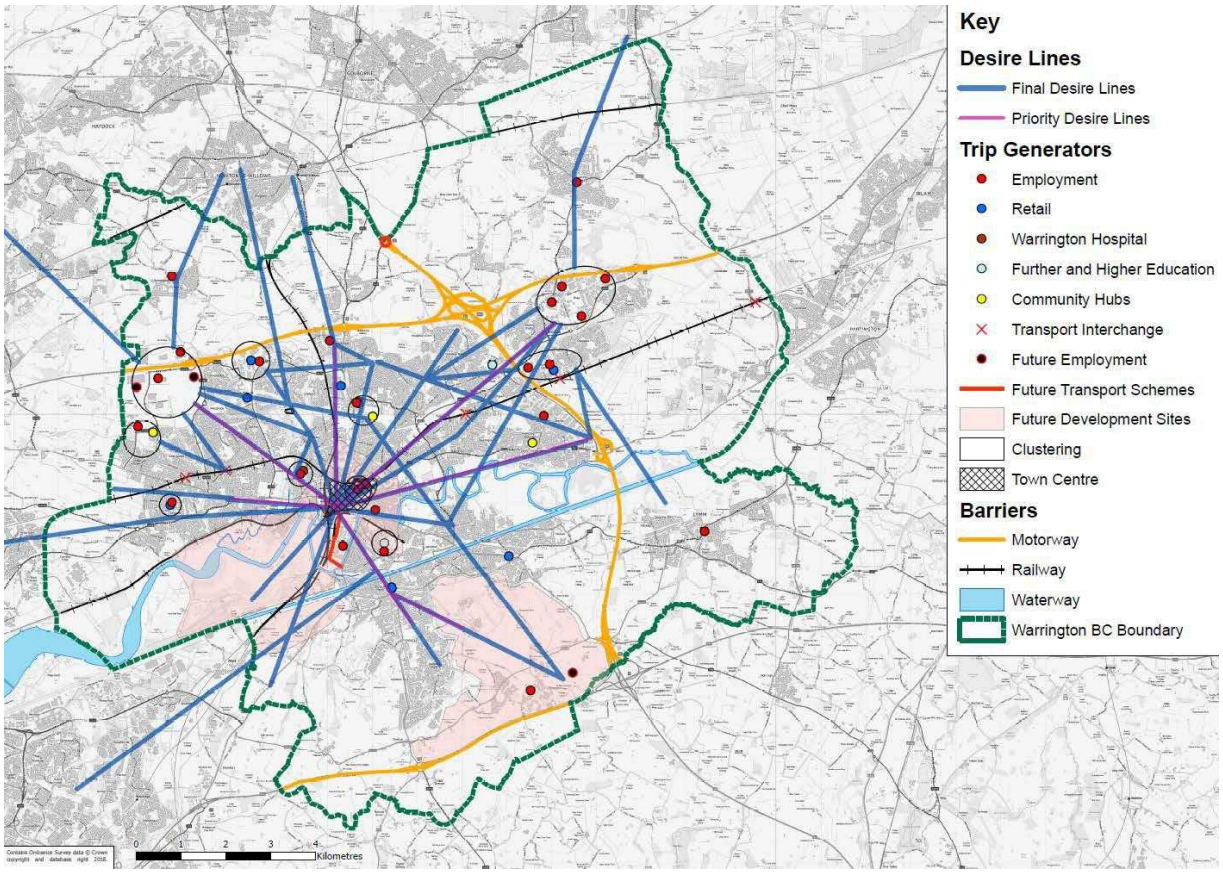
- Leisure/Recreation – Much focus of the LCWIP is centered on catering for utility trips but leisure cycling will not be neglected as it has been shown that this can encourage future utility trips as well as providing huge health benefits.
- Cross Boundary – Although the LCWIP focus on shorter trips within the urban area, desire lines for longer trips, such as those to/from neighbouring authorities are also present. Travel between Warrington and neighbouring authorities is important and will need to be considered as part of improvements to the cycling network.

- DESIRE LINES

With the trip generators, barriers and clusters identified, the next step is to plot direct (i.e currently do not link directly to existing roads or pathways) desire lines between the trip generators and trip generator clusters to identify the links that the cycle network needs to provide.



The purpose of identifying priority desire lines at this stage is to provide focus with regards to identifying routes to meet the maximum number of potential trips. The priority desire lines effectively form corridors within which preferred route alignments and improvements will be identified.

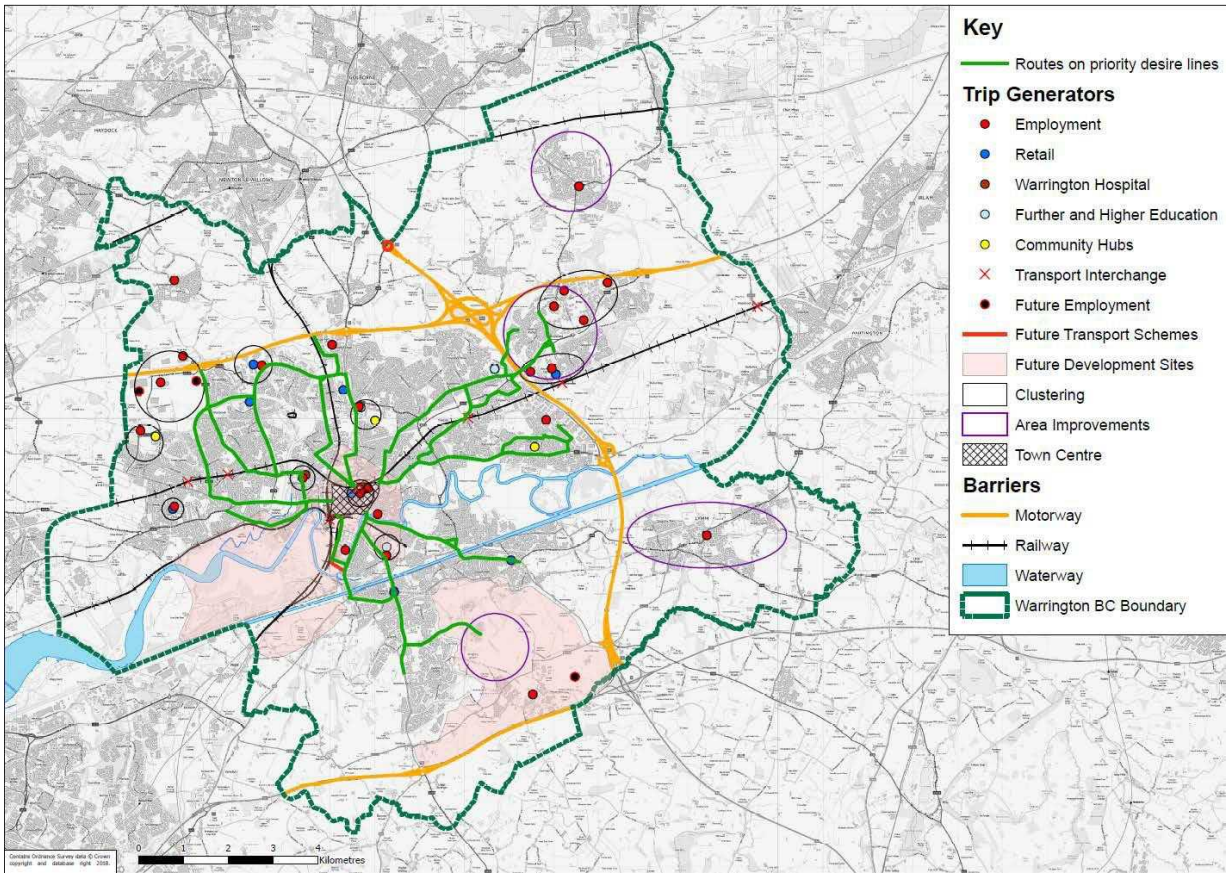


Primary corridors were included in where there are high flows of cyclists forecast along desire lines that link large residential areas to trip attractors:

- Movements to and from the Town Centre were identified due to the concentration of economic activity and for connections to the rail network;
- Connectivity to significant strategic employment sites at Omega, Birchwood, Winwick Quay and Appleton Thorn with desire lines to both sites from the Town Centre and the communities in between.

With the priority desire lines identified, we need to convert into routes. The approach involved identifying the most direct route based on the existing highway network.

Due to the complex nature of cycle network routing within the Town Centre, the routes at this stage extend to the edge of Town Centre only. The Town Centre has been identified as a specific area for further detailed movement analysis for all modes within which a key principle would be improving cycle and walking movements.



In addition to the priority routes, areas were identified where a package of improvements would be appropriate to facilitate local cycling trips. This approach is influenced by the significant potential for short cycle trips within these communities at a local level.

Section 5 and 6 indicates how we intend to transform these desirable routes into safe routes, which include reallocating road space, providing and enhancing greenway corridors and/or quietway corridors.

4.4 WHO ARE THE POTENTIAL CYCLISTS?

We have now identified the locations of potentially cyclable car trips but a cycle network is very different for different users and needs to take account of preferences. Cyclists have differing levels of confidence and experience:

- Some will find it easier to cycle around the Borough as they have the confidence and experience to deal with heavier and faster traffic flows.
- At the other end of the spectrum there will also be those cyclists who may find sections of the road network particularly difficult to negotiate.

In 2016, 62% agreed that “It is too dangerous for me to cycle on the roads” (The British Social Attitudes Survey). This rises to 68% for non-cyclists, the people we’re aiming for.

The 2017 'BikeLife' survey commissioned by Sustrans found that:

For many people, cycling with busy traffic is hugely off-putting. A systematic review carried out found this particularly puts off women, and probably also older people and those riding with children (Aldred et al 2017).

People's willingness to cycle can be categorised as shown in the diagram below. Whilst it can be accepted that there will always be those who will not cycle for personal or perhaps practical reasons, there is a large number of people who can cycle and would cycle more given the right conditions. The Active Lives surveys note that nearly 46% of Warrington adults have cycled at least once a year. This suggests that there is a huge potential target audience for cycling.

Section 4:

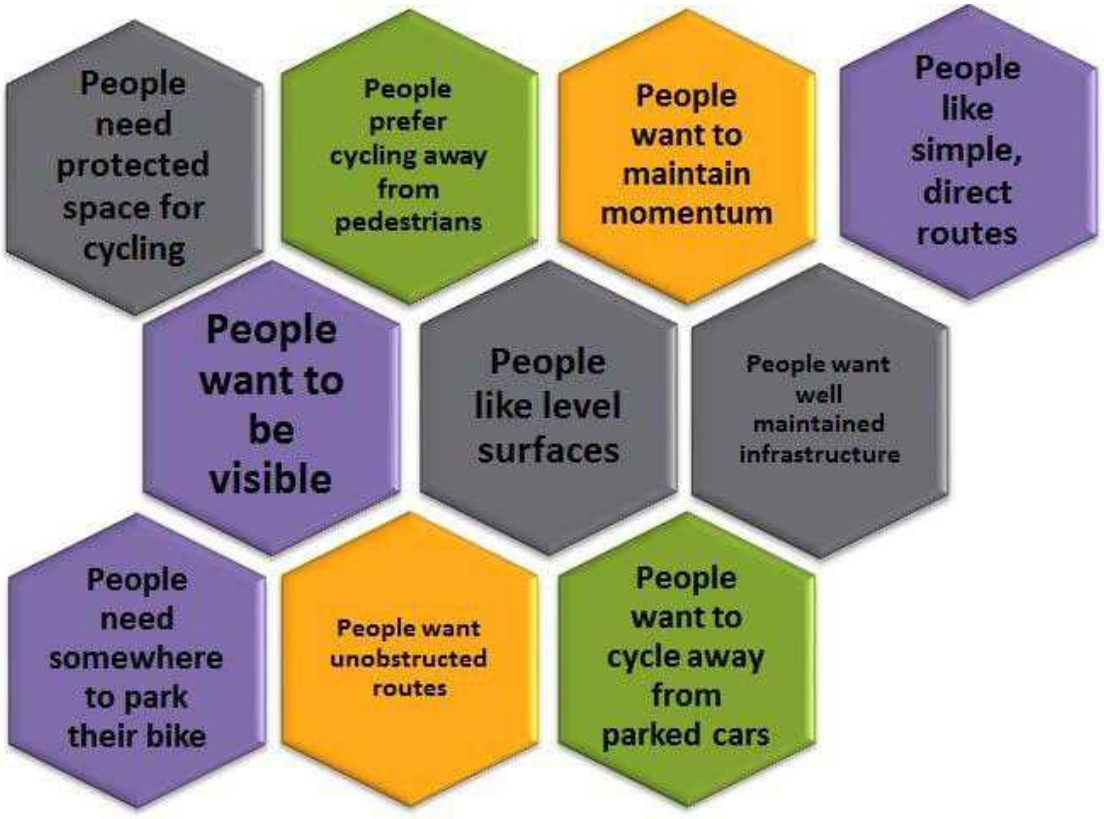
Enabling Cycling - The Plan

5) ENABLING CYCLING

Based on an evidence led approach as outlined in Section 4, the development of a network plan will identify core cycling corridors in Warrington. This network needs to be appealing, pleasant, easy to use and safe to increase cycle numbers. Cycle routes only work if they connect places people want to go. The network infrastructure identified in this section will help people make journeys to work, school, shops and for other utility trips as well as for leisure.

5.1 CORE DESIGN OUTCOMES

Cycling is not walking and it is not driving. It is a distinct mode which requires distinct design details. We want our network to be usable by a competent 12 year old, meaning that it will be easy, accessible and a pleasant experience.



New cycle facilities must be designed to cope not just with existing levels of use, but with the future we are planning.

5.2 THE PROPOSED CYCLE NETWORK

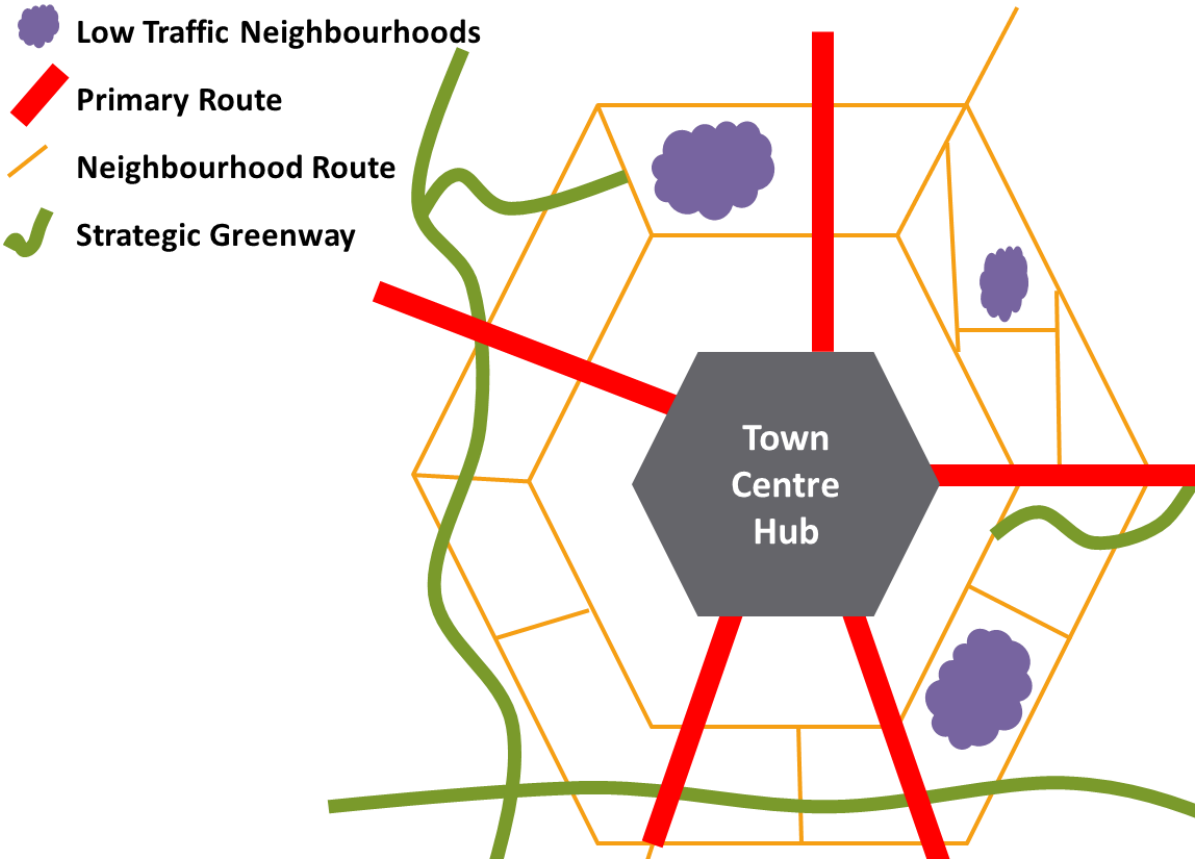
We do not propose dedicated cycle infrastructure everywhere.

On key routes, led by evidence of existing and potential trips, we will seek to provide direct high quality cycling infrastructure.

On quieter residential roads we will seek to ensure that the street environment enables cycling.

We will create a network (ideally meeting a 400m by 400m density) of dedicated space for cycling; creating corridors that link key places of employment, leisure, public transport and residential areas. The proposed cycle network is formed around three guiding principles of making it connected, easier and safer to travel by bike.

The proposed network will bring a good quality cycle route within the reach of most people within the Borough and include both high quality, segregated routes to and from the Town Centre, as well as a network of quiet streets and off-road greenway paths, so that cyclists can choose the route that suits them best. To facilitate this, a range of different categories of cycle infrastructure are planned based on the differing types and needs of people who cycle and trip type.



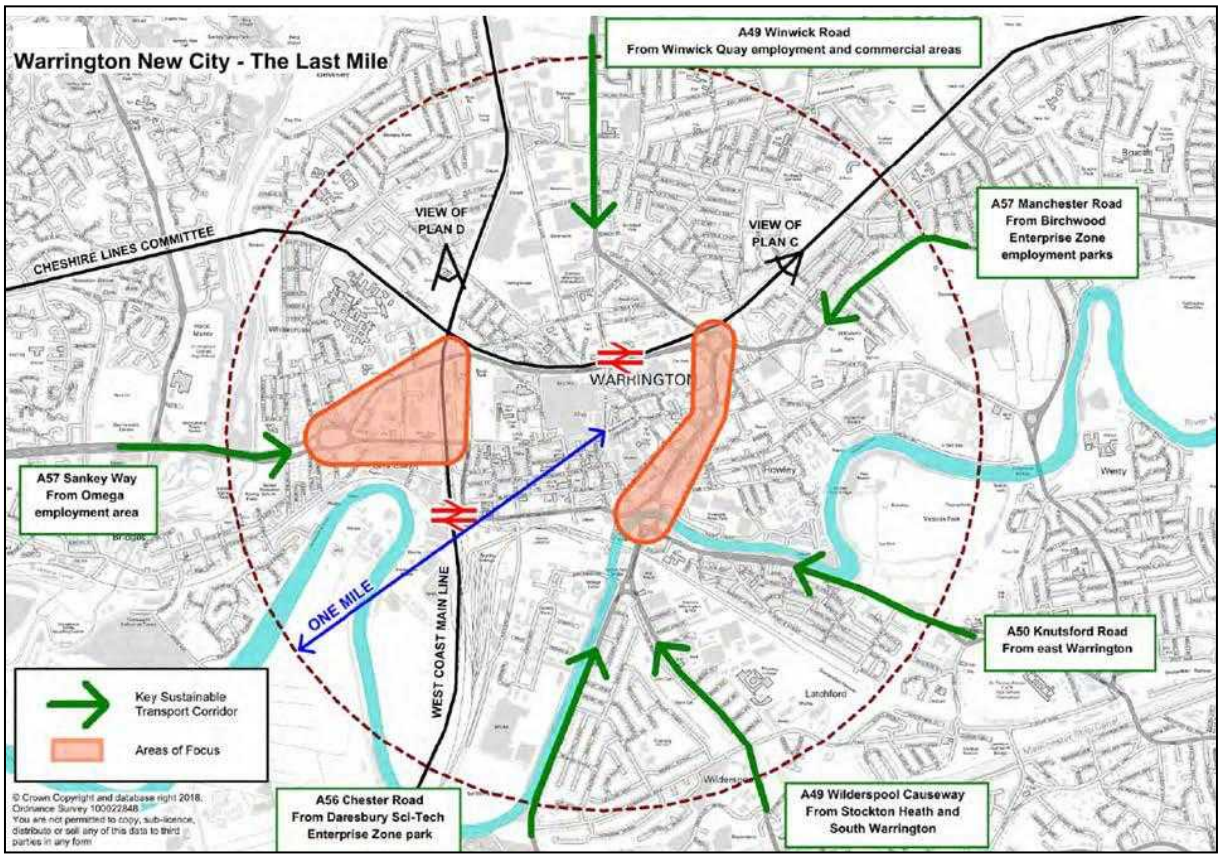
Cycle movements are not confined to a network but the network has been developed so that cycling can be enabled on key desire lines, especially where cycling is inhibited on our main transport corridors.

The proposed approach is for the primary, neighbourhood and strategic greenway cycle corridors to act as core routes for the highest volumes of cycle journeys, from which branches connect to nearby facilities, such as schools, which are often located on side streets or cul-de-sacs.

The cycling network has however not been produced in isolation, with concurrent development of a programme of walking infrastructure improvements with intrinsic links anticipated during delivery, recognising the areas of potential conflict and the differing requirements of each mode.

Town Centre Hub – The issue of the 'last mile' into Warrington Town Centre is a key barrier to being able to cycle towards and through the Town Centre.

Improving the 'last mile' of journeys into the Town Centre for pedestrians, cyclists and buses has therefore been identified as a priority. Our aspiration is to provide high quality and fit for purpose transport infrastructure that will make walking, cycling and public transport the obvious way to get to, from, and through Warrington Town Centre.



Major transport improvements such as the Centre Park Link and the Western Link aim to reduce traffic levels within the Town Centre. This release of road space should be captured for use by walking and cycling.

The "Last Mile" study will be commissioned later in 2019 to identify a Town Centre Masterplan and a package of measures to help meet our accessibility and connectivity objectives. This will receive financial support from the Cheshire and Warrington Local Enterprise Partnership.

The Last Mile project will focus on improving the most acute issues which are experienced on the last mile of sustainable travel trips to key destinations in Warrington Town Centre. The priority corridors for investment are shown in Plan B and described below:

- From the East, the A49 corridor, which forms part of the Major Road Network (MRN), creates a substantial barrier for bus and cycle movements into and across the Town Centre. This is particularly acute at the Cockhedge and Dial Street roundabouts. Warrington Central station is one of the important destinations which would be reached by improvements on this corridor.
- Further south on the A49, the Bridgefoot Gyratory crossing of the River Mersey and Brian Bevan Island create an intimidating and unappealing environment for cyclists. Improvements to this approach to the Town Centre will support the delivery of the Warrington Waterfront and the South East Garden Suburb developments that are proposed in the draft Local Plan. Warrington Bank Quay Station is an important destination within the corridor with its national and regional rail connections.
- From the West, the A57 connects the Town Centre to Great Sankey and Chapelford Urban Village. On this corridor the large, congested Sankey Green Roundabout creates a barrier for walking and cycling trips, and crossings of the West Coast Mainline on Liverpool Road and Priestley Street create pinchpoints entering and leaving the Town Centre for and cyclists.

This will support our ambition to grow the Town Centre and make it more accessible to residents, visitors and workers. A more pleasant environment around the Town Centre will help with inward investment and business confidence as well as attracting new visitors. As the Town Centre is the focal point for many cross-Warrington journeys then removing the transport barriers around the Town Centre will help with the ambitions of the Council to support cycle journeys.

Strategic Greenways – These are completely traffic free routes through parks and open spaces providing pleasant and attractive places for everyone to cycle.

Much of this network already exists, albeit the quality in places is indifferent. In places the greenways feel as if they have not been maintained regularly since they were built, and the network in places has an air of isolation.

Warrington's extensive green infrastructure, its network of green spaces and parks, is an economic resource as well as a resource for nature conservation and wildlife. It is a key component of Warrington's quality of life and image.

New greenway routes are planned within the Infrastructure Development Plan (IDP) as part of the emerging Local Plan.

The Warrington Means Business regeneration framework for the Borough also identifies a number of prominent aspirational routes such as those to be integrated as part of the following developments: Warrington Waterfront, Port Warrington and additional routes into and connecting the Omega north and south sites.

The identified national HS2 cycle way also offers an opportunity to connect parts of our existing off road cycle network into a prominent piece of national infrastructure and to improve cross boundary links.

It is a myth that disabled people don't (or can't) cycle. There is however currently a number of physical, financial and attitudinal barriers that prevent more people from taking up cycling. In many places, particularly on our greenway network, there are examples of infrastructure that disable people from utilising and benefiting from otherwise accessible routes.

We will undertake a programme of improvements to improve surface condition and width, visibility, accessibility and signing on existing greenway routes.

There are also existing cycle routes which form an extensive neighbourhood route network in some areas of Warrington.

Neighbourhood Routes are defined as continuous routes segregated from traffic that may be shared with other non-vehicular users. In general, these would be shared use paths which are at least 3m wide which follow the line of a highway and often benefit from street lighting.

Many of the roads constructed within the New Town estates of Warrington were built with grass verges and no pavements. During the 1990's many had wide pavements provided and many of these have since been re-designated as shared use routes. For example along Lingley Green Avenue in Great Sankey and Admirals Road in Birchwood.

Where some roads were not provided with any pavements, then over the years these have been retrofitted with a new shared use path adjacent to the road. For example Cromwell Avenue near Gemini retail park. This work will continue with the retrofitting of existing roads and/or the construction of new routes within new developments, such as those within the Omega employment park. Improvements will also be made to existing routes, improving continuity and providing additional priority at crossings.

These local routes allow people in neighbourhoods to access local destinations such as shops, secondary schools, and to access the primary routes for longer journeys.

Primary Routes – Arterial cycle routes in and out of the Town Centre with protected space for cycling is the essential starting point for improving Warrington's cycle network.

The speed and intensity of traffic on these corridors is typically too high to enable cyclists to safely integrate with traffic, and as such, the aim will be to provide priority for cycling with segregated, dedicated and safe paths and spaces for people to cycle separated from traffic.

Primary Routes have been defined based on their propensity to increase cycle trips with a focus on the journeys between the Town Centre and suburban destinations. These are high quality integrated corridors that radiate out from the Town Centre hub that use, or follow, the main arterial transport routes.

Key elements of these corridor routes are likely to include:

- Remodelled junctions and provision of cycle facilities physically separated from general traffic or signalised cycle-only movements;
- Various measures to increase the separation of cycles from other traffic: 'wands', cycle tracks between pavement and carriageway height (hybrid) and kerb-separated cycle tracks; and
- Bi-directional cycle tracks between 3.0m and 4.0m wide on one side of a carriageway. Various mitigation measures to be incorporated to minimise the risks entailed by cycles travelling in the opposite direction to which one would expect, particularly at junctions and pedestrian crossings.

Proposed Scheme by Leicester City Council

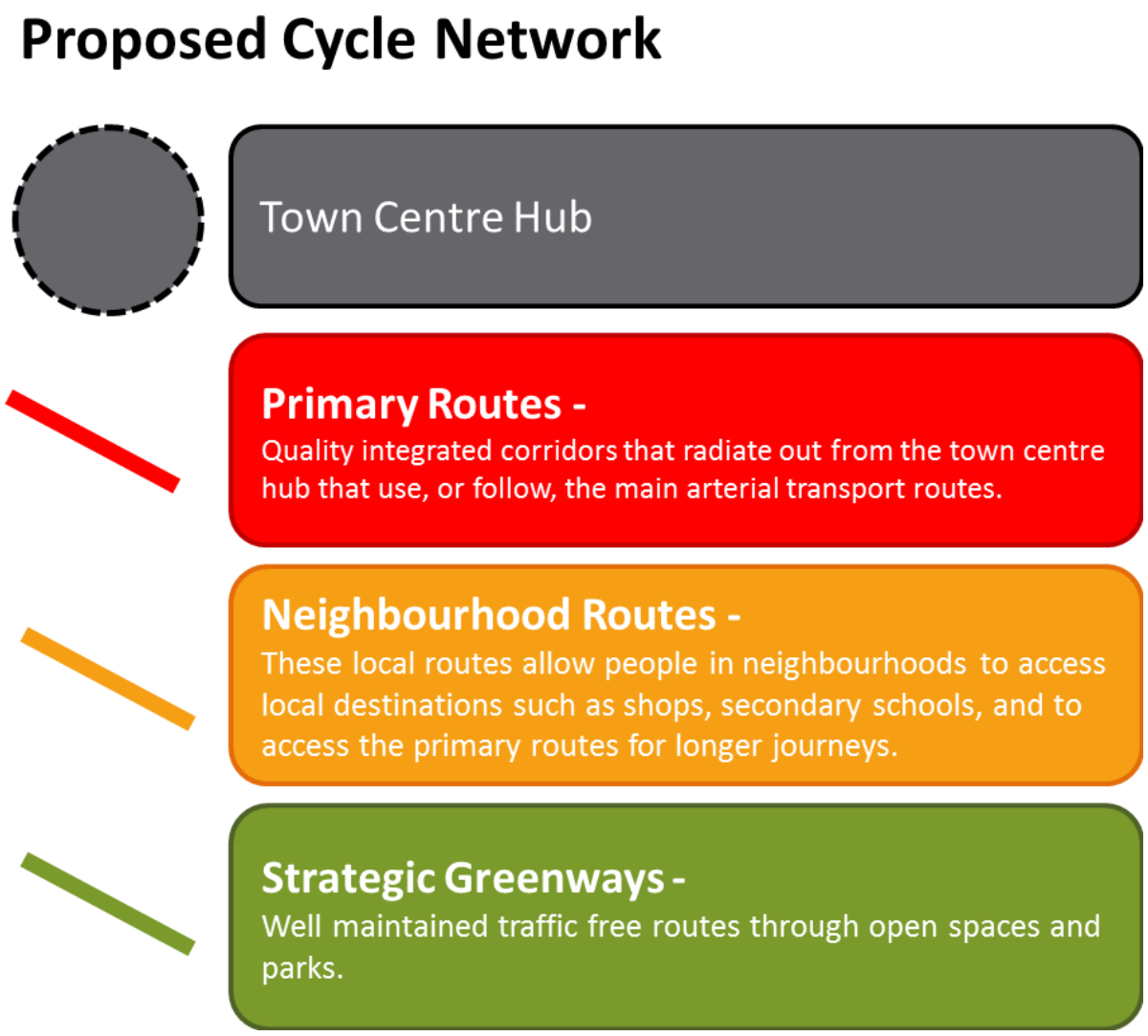
- At bus stops, we will look to introduce 'bus stop bypasses', routeing cycles through the footway, around the back of bus stops.

Lewes Road, Brighton (DfT Case Study)

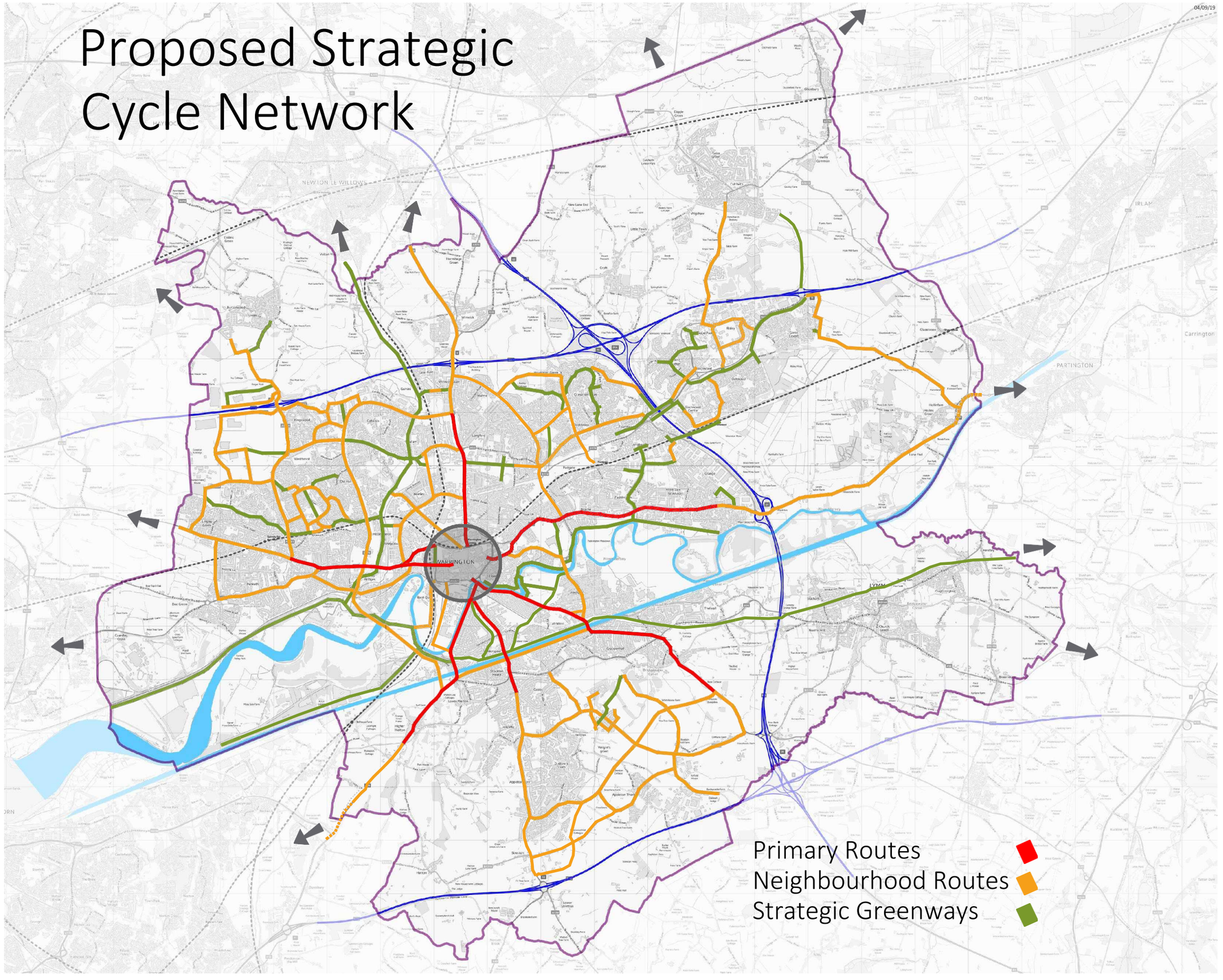
On highly trafficked routes, only distinct and separate provision for cycle traffic can ensure the creation of attractive and comfortable infrastructure for cyclists.

Currently, there are no routes in Warrington which match the definition of a primary route as set out. This is one of the primary ambitions of the LCWIP and LTP4 and allows us to raise the bar on the standard of cycle provision across the Borough.

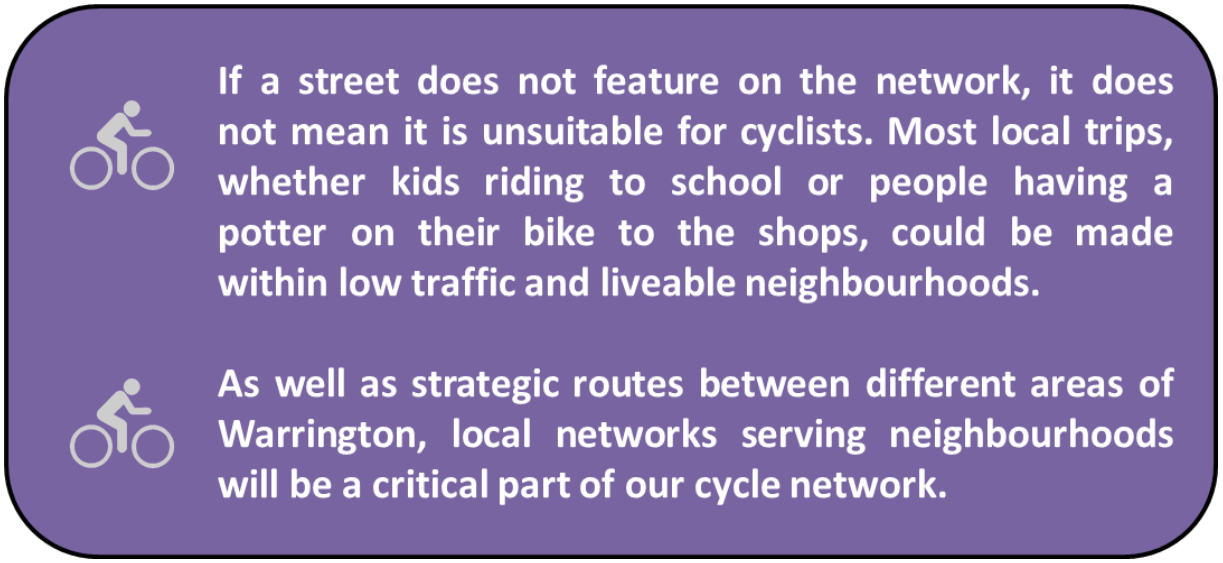
The proposed network would allow a transformational increase in cycling provision and will go some way to improving Warrington as an attractive place to live.



Proposed Strategic Cycle Network



Low Traffic Neighbourhoods



Many of our residential streets were laid out before cars came to dominate the roads and were not intended to carry heavy through traffic. Heavy traffic kills social interaction and we will promote schemes to put the 'right traffic on the right roads'.

In Warrington certain streets have been closed to through traffic for decades, resulting in better quality of life for residents and enabling walking and cycling. There are however many more neighbourhoods in Warrington which should be very lightly trafficked and benefit from low speeds.

A "mesh" of quiet streets will provide the glue between the aforementioned three part route hierarchy and allow people to make direct, safer and comfortable routes to their destinations. Low traffic neighbourhoods are key to ensure that people can cycle safely from their front door to where they want to go.

Removing rat running (non-local traffic which permeates through residential areas in order to save time by cutting out congested main roads or junctions) is a key part of creating low traffic neighbourhoods and conditions that are conducive to people walking and cycling. In most instances, making an area more attractive for cycling doesn't need to exclude cars but should reduce their dominance.

These low traffic neighbourhoods will utilise quiet streets, cut-throughs (e.g. cycle bypasses or traffic-free areas) and most will initially require relatively inexpensive intervention.

Some will however require interventions including reducing traffic volumes or speeds on roads and the provision of filter points, which allow for movement of people walking or on bike but do not allow through motor traffic.

We will implement an active programme of restricting rat-running through residential areas. Traffic travelling through the area should be kept on main roads instead. It sounds like a radical ask – but it's common sense. We will create networks of quieter streets where children play out, neighbours catch up, air pollution is lower, and walking and cycling are the natural choice for everyday journeys.

Section 6:

Delivering the Cycle Network

6) DELIVERING THE CYCLE NETWORK

6.1 INTRODUCTION

Delivery of key elements of this cycle network is dependent on available funding. A variety of funding sources are available to us, but at time of publication there is no specific government funding for delivering LCWIPs.

The identified infrastructure will be delivered via a variety of mechanisms, including delivery by the Council and its partners and through development proposals. As well as its own internal resources, the Council will pursue external funding, particularly given that many of the proposed actions will have positive benefits for many stakeholders.

An audit was undertaken of the existing infrastructure in areas identified as being key to providing a high quality network to serve existing and potential cycle journeys. Gaps in provision, suitable schemes and additional links were then identified.

Based on this audit we will develop a programme of works, including specific 'cycling' projects as well as improvements secured as part of new developments, regeneration projects and wider schemes, and will proactively identify funding opportunities.

6.2 USING THE PLANNING PROCESS

There are ambitious plans for growth in Warrington as set out in the Draft Local Plan. This will bring new houses and new jobs to the Borough and a further increase in the overall population in the town. The Local Plan provides a once in a generation opportunity to plan significant new areas of the town with active travel as a first principle. This, and all subsequent reviews of the Local Plan and its associated documents will include the role of Active Travel in enabling the growth in population and jobs.

We can also influence the Active Travel arrangements through the Development Control Process. Transport for Warrington officers are consulted routinely on planning applications. All relevant planning applications should be accompanied by a Travel Plan (TP) which outlines the developer's proposals for walking and cycling infrastructure that will be built as part of the scheme.

The proposed cycle network aims to identify network development opportunities arising from planned developments and allocations within the Council's Local Plan.

It is envisaged that this plan will be integral in the negotiation of developer contributions for new walking and cycling infrastructure, as part of future developments in the Borough.

6.3 SCHEME DELIVERY

We will prioritise and focus on improvements that will help to enable cycling on journeys under 5km. These will help us to convert some of those car journeys that are less than 5km in length into cycle trips.

Excess road space for vehicular traffic suggests that the environment is for motor vehicles. In most locations, carriageway widths of 3.0m provide enough width for all general traffic to use lanes effectively. To successfully deliver the cycle network, reallocation of space may be necessary.

Typically this will involve one or more of the following:

- Filtered permeability, e.g. road closures (with exemptions for pedestrians and cyclists);
- Removal of one or more general traffic lanes;
- Reduced width of general traffic lanes;
- Removal or relocation of car parking.

The reallocation of road space from motor vehicles to active travel modes makes an important statement about the relative priority of different transport users.

As and when junctions and streets are scheduled for improvement (such as structural maintenance), we will assess the needs of cyclists and include high quality cycling provision where possible to improve priority for cyclists.

We will strive to ensure that, wherever appropriate, new road schemes and changes to existing roads infrastructure will be designed and implemented to reflect the needs of cyclists and a placemaking approach.

We will work towards designing and implementing new infrastructure identified in the cycle network, with detailed design and route alignments taking account of public consultations as part of wider schemes.

A full feasibility study for each route will be needed to determine the precise interventions needed through the corridor, to define the exact routes and more accurate costings.

6.4 ENSURING GOOD QUALITY DESIGN – ACTIVE TRAVEL PROOFING

Cycle-proofing' is cycle-policy-speak for the idea that cycle-friendliness should be designed in at the outset when planning any road or traffic scheme new development or even planned highway maintenance works. We need to ensure that changes work to support people who currently drive but would like to walk and cycle more.

Interim Advice Note 195/16 Cycle Traffic and the Strategic Road Network give requirements and advice regarding designing for cycle traffic for the Strategic Road Network (SRN).

Away from the Strategic Road Network (SRN) no law or standard currently exists in the UK that defines the dimensions of cycling provisions. Unlike some local authorities, WBC does not have adopted design guidance for cycle infrastructure.

The Active Travel (Wales) Design Guidance, Transport for the West Midlands Cycle Design Guidance and the Nottingham City Cycling Design Guide are resources that contain best practice and recommendations for designing high quality cycling infrastructure.

They provides advice on the design, construction and maintenance of active travel networks and infrastructure, and alongside emerging guidance including national guidance, will be used to inform development of our network.

The implementation of modern fit-for-purpose infrastructure will be achieved by engaging with planning, highway engineers, and design staff through training on the use of the best design guidance.

Cycle Parking - Within Warrington Town Centre there are over 350 publicly available cycle parking spaces. We will continue to increase and improve the attractiveness of cycle parking across the Borough, including provision to accommodate non-standard cycles.


Example Wayfinding (Left – Broxap Cycle Shelter/ Right – Hull Public Realm)

Signing and Wayfinding - Walking and cycling journey times are often overestimated. We will review and expand cycle signing as the network expands.

Example Wayfinding (Left – 'Trueform' Totem Sign / Right – Quietway Route Signing)

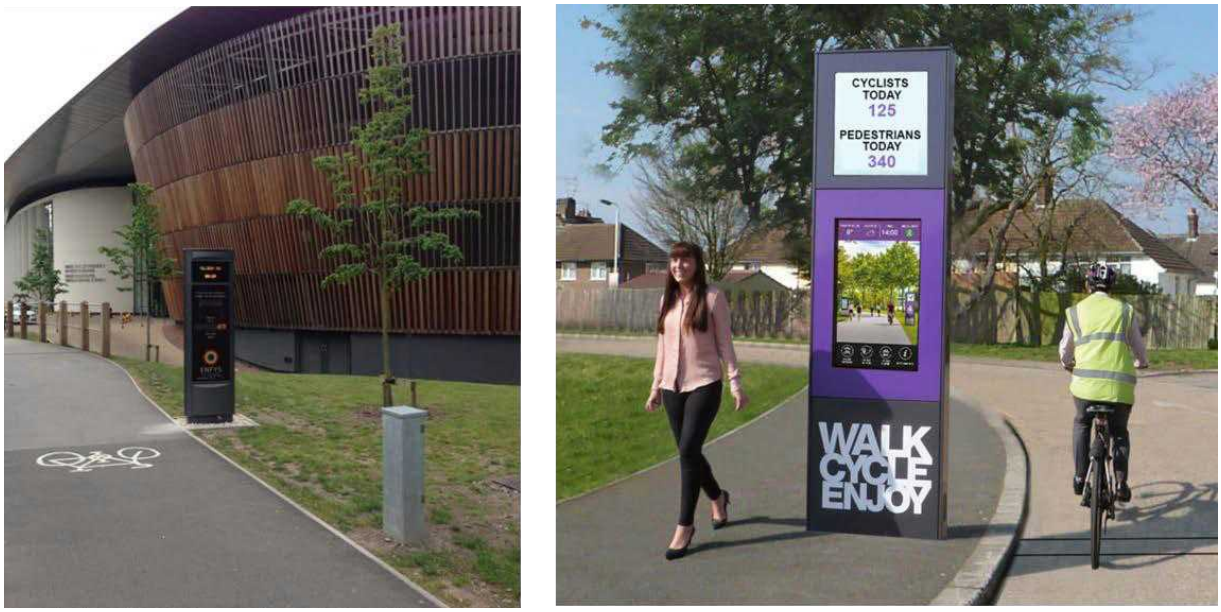
It is important that all signage and wayfinding information across the whole of Warrington is consistent.

6.5 MAINTENANCE & MONITORING

As important as building a route itself is maintaining it properly afterwards. The value of an enhanced network of facilities is greatly reduced if the network is not maintained, and this is an issue which has suffered in Warrington as revenue budgets become more stretched.

Arrangements for proper maintenance should be included in considering the design detail. Active travel corridors need special consideration in terms of maintenance. We will implement an ongoing programme for monitoring and maintaining the cycle network. This will include regular sweeping, surface repairs, gritting in cold weather, drain clearance and lighting repairs.

Monitoring and evaluating the benefits of investment in delivering the cycle network will be critical, and will enable us to make the case for future investment in our streets. Monitoring will be carried out for individual schemes and the whole programme of network improvements.



Example Monitoring Totems (Left – Cardiff / Right – Waltham Forest)

Section 7:

Enabling Walking

7) ENABLING WALKING

7.1 INTRODUCTION

As active transport modes, many of the benefits of walking and cycling are shared, and very often improvements for one will affect the other as large parts of the two networks overlap. For example, pedestrians and cyclists are often in close proximity and may share routes and crossings.

Walking trips are however generally shorter than cycling trips with longer trips being enabled through high quality access around public transport stops and interchanges.

In most places a comprehensive network which accommodates most pedestrian trips already exists. Warrington is well provided with paths and footways which offer an extensive network of routes many of which are traffic free and follow greenways and make use of open spaces and parks.

However, main roads which tend to be the most direct routes often have a poorer physical environment including narrow pavements with overgrown vegetation, infrequent crossing points and uneven surfaces. People may be deterred from using them due to severance issues eg need to cross busy roads or because the facilities are poorly designed or maintained.

The main focus of the LCWIP is therefore to improve and in some cases extend the existing walking network in order to encourage people to make more short trips on foot.

References to “people walking” are made throughout this section, but this should be taken as shorthand to include people using wheelchairs and mobility scooters as well as those using pushchairs or even children using scooters.

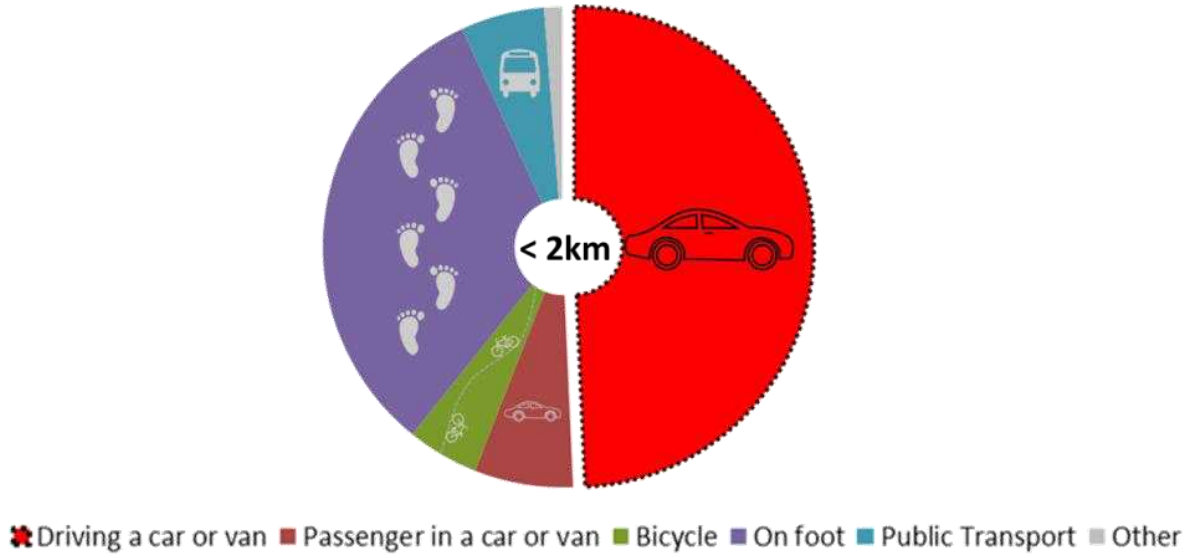
Walking on the wider PRoW network is covered under policies and schemes within the Rights of Way Improvement Plan.

7.2 THE OPPORTUNITY

This section presents the results of analysis carried out to better understand the potential to increase travel on foot in Warrington, in terms of what type of trips, places and people offer the best opportunities.

As has been noted in section 3, many of the car trips driven in Warrington are very short, less than 2km in length. This distance is not only easily cycleable but for most people is well within their capability to walk. A reasonably healthy person should be capable of walking 2km in around 20-25 minutes.

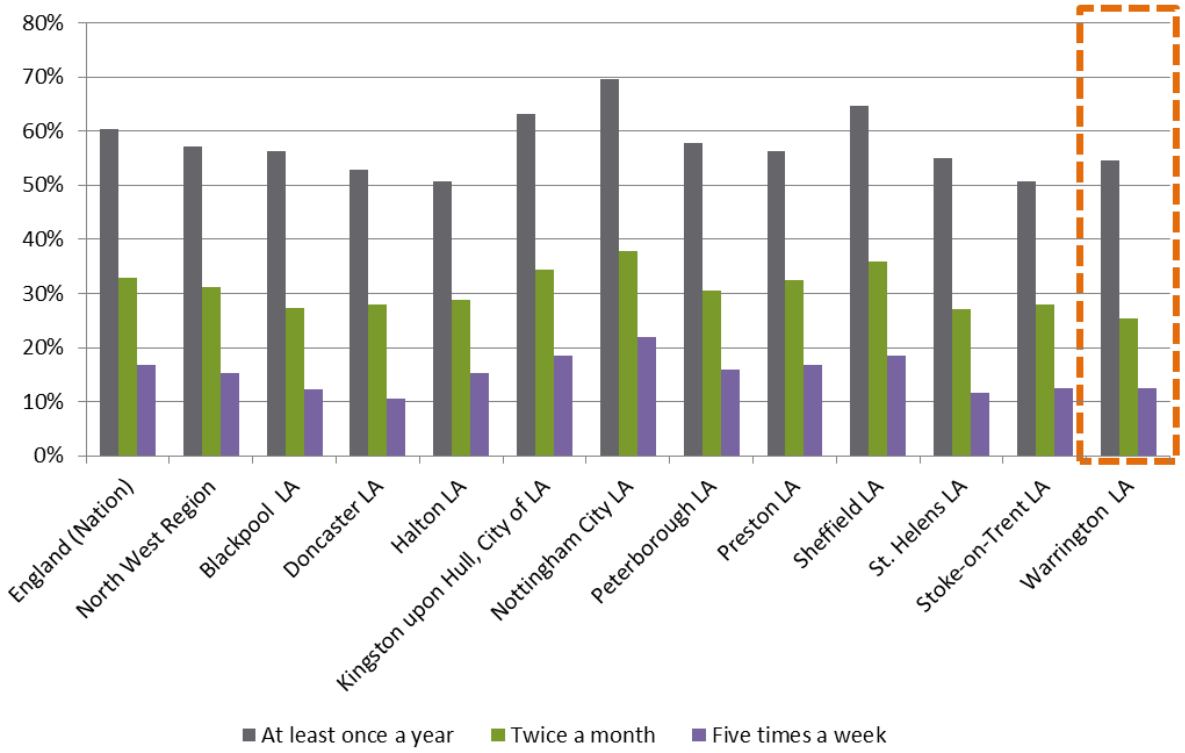
Method of travel to work by distance (Warrington Residents)



2011 Method of travel to work (2001 specification) by distance travelled to work (DC7701EWLA)

Yet Warrington's performance as regards the numbers of people walking is not good. From the national Census it is noted that only 7.7% of Warrington's residents walk to work compared with 10.7% nationally. Also, from the annual Active Lives Surveys it is noted that only 55% of Warrington residents walked as a means of travel at least once a year compared with 60% nationally and 57% in the North West region.

Walking for Travel - Active Lives Survey 2017/18



Department for Transport Statistic: Tables CW0302/3
Sports England

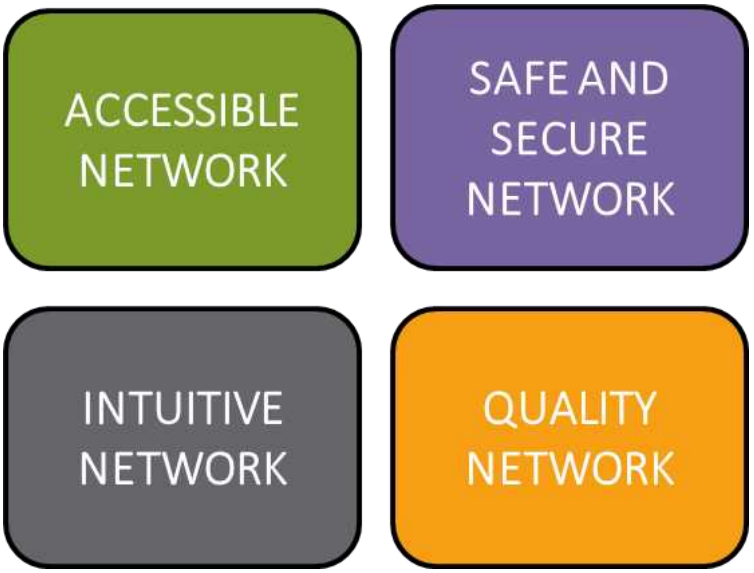
The journey to a local primary school or to the local shops, are examples of journeys where people could be walking rather than using the car.

The British Social Attitudes Survey shows that only 23% disagree that many short journeys currently made by car could just as easily be made on foot.

This is the underlying principle of the opportunity for Warrington. Every time somebody chooses to walk rather than travel by car, it's a win for Warrington.

7.3 BASIC DESIGN PRINCIPLES

A number of factors affect the propensity to walk but if walking is made difficult, people are less likely to do it – particularly if they don't have to. We need to make it easy and safe for people to follow the route that they want. The basic design principles behind our walking strategy are as follows:



- ACCESSIBLE NETWORK

The highway environment has evolved over many years and although new schemes and developments should have dropped crossings incorporated as standard, the majority of the roads and footways in the Borough were built many years ago when there was little or no consideration for the needs of people with mobility difficulties.

Warrington's population is getting older and more people have long term illnesses and conditions. Many streets require improvement to the latest accessibility standards so that Warrington's residents and visitors can live more independently.

8.4% of Warrington residents described their day to day activities being limited a lot by a health condition or disability. An additional 8.9% described their day to day activities being limited a little.

At many locations across the Borough full height kerbs present a significant barrier to mobility. At locations where pedestrians are expected to cross, dropped kerbs should be provided.

Existing networks should be upgraded where practical towards during maintenance or improvement schemes. Section 106 developer contributions may also be available in specific locations to support this activity.

We will continue our ongoing programme of footway reconstruction and routine footpath maintenance which makes paths more usable.

We will continue our ongoing programme of drop kerb crossing provision and new footpaths to address severance issues and ensure continuity for pedestrians.

- SAFE AND SECURE NETWORK

Well designed, responsive pedestrian crossings can benefit all road users. Everybody should be able to cross the road safely, directly and without delay. Crossings should be positioned in the right place and give everyone enough time to cross the road.

Maximum waiting time for signalised crossings varies. Evidence has shown that after 30 seconds of waiting at a crossing encourages risky behaviour such as crossing before the green man comes on. Signalised crossings should prioritise people on foot with short wait times and comfortable crossing times.

We will continue our ongoing programme of improvements to existing signalised crossings.

Footways are provided for pedestrians. Encroachment by vehicles parking or loading reduces the comfort and ease of use of footways, forces pedestrians into the carriageway to pass vehicles (especially people using wheelchairs and pushchairs).

We will work with the police and civil enforcement officers to penalise inconsiderate or illegal behaviour including 'pavement parking'.

Concerns relating to personal security can discourage people from walking, particularly after dark. There are a wide range of factors which impact on this issue which the Council has some influence on including:

- The existence and quality of street lighting
- Vegetation and tree cover which can make some paths unpleasant places to walk
- Subways and underpasses which are in remote locations and are therefore unattractive to use.

We will consider personal security issues as part of the design process for any new transport project.

- INTUITIVE NETWORK

There are many Warrington residents and visitors who are unfamiliar with walking routes in Warrington. As a result the walking distance horizons are very short as people don't know how to get to places which are actually very close.

The fear of getting lost in an unfamiliar area is a barrier to walking, especially when pedestrian routes are not directly between places of interest.

Clear signing on the highway and walking network is a key tool in this respect. The use of fingerpost signs to indicate key destinations is particularly important and whilst there are already good examples of this in the Town Centre there is a need to expand these signs into other areas.

A review of fingerpost signing across the Borough will be undertaken with an emphasis on key destinations such as the Town Centre, transport interchanges and to educational establishments.

Of equal importance is the need to provide maps, both printed and online, which show people how they can walk to their chosen destination. The Warrington cycle map is of equal benefit to pedestrians as well as to cyclists and this will be reviewed to enhance its usefulness to both active modes of travel.

The Warrington Cycle Map will be continually reviewed to ensure its usefulness to pedestrians as well as cyclists.

- QUALITY NETWORK

The propensity to walk is influenced not only by distance, but also by the quality of the walking experience. A 20-minute walk alongside a busy highway can seem endless, yet in a rich and stimulating street, such as in a town centre, it can pass without noticing.

The removal of street clutter, including redundant signing, benefits the pedestrian by reducing confusion and creating a more attractive walking environment.

Although guardrail can be useful in limited circumstances, it is visually and physically intrusive, and reduces the width of available footway.

Electric vehicle (EV) charging points installed on footways could prove hazardous for some pedestrians. All footways should remain as accessible as possible. We will ensure that all new EV charging points provide adequate clear footway width. Unless there are special site circumstances, all new chargers should be installed on build outs in the carriageway.

We will actively explore opportunities to de-clutter streets of unnecessary street furniture.

7.4 TRANSFORMATIVE DESIGN PRINCIPLES

In addition to the programme of Borough wide improvements, due to the physical size of Warrington, it was considered important to identify specific areas for targeted improvement to the pedestrian realm, rather than implement isolated schemes on a borough-wide basis. It is proposed to focus on the following areas:

- Low Traffic Neighbourhoods;
- Warrington Town Centre;
- Access to Public transport interchanges; and
- Access to schools and colleges.

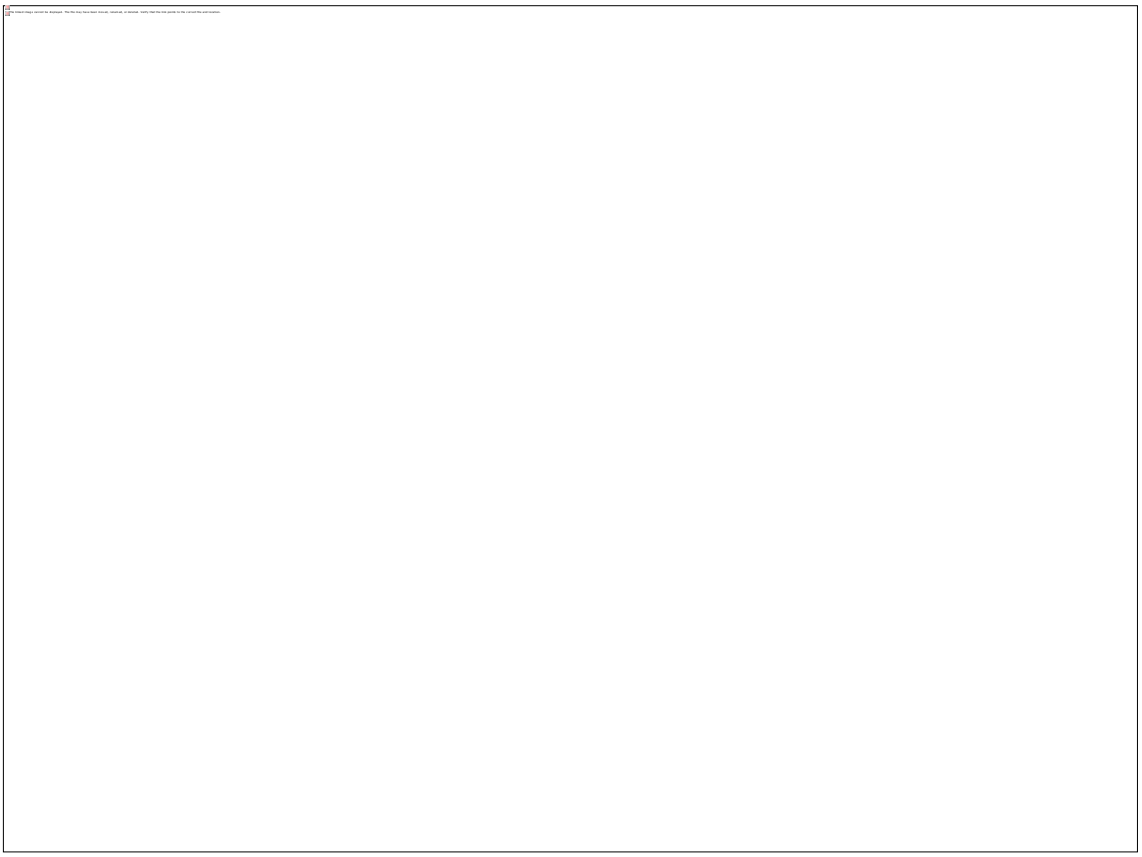
- REDUCING SEVERANCE: CONNECTING OUR LOW TRAFFIC NEIGHBOURHOODS

As described in section 5.3 “Low traffic neighbourhoods” are groups of residential streets, bordered by main or “distributor” roads (the places where buses, lorries, non-local traffic should be), where “through” motor vehicle traffic is discouraged or removed. Applying this approach benefits both walking and cycling.

The creation of low traffic neighbourhoods can deal with residential and local streets, but we know that many trips, even short ones, pass across a number of ‘cells’. These are often severed by busy roads.

Some of our major roads create both psychological and physical barriers to pedestrian movement with limited at-grade crossing. A lack of adequate pedestrian crossings has the ability to create severance and discourage active travel choices.

Busy urban junctions without adequate pedestrian facilities increase the likelihood that pedestrians will be injured while crossing the road, or at least intimidated. The quality, provision or absence of crossing points also affect people’s ability and desire to walk in the first place.



Peterborough (DfT Case Study)

Once we've set up one low traffic neighbourhood, by placing crossings cleverly on main roads, we can join it to the next one and the next one, so anyone can walk easily across several low traffic neighbourhoods, from home to school, or work, or the station.

We need to ensure that crossings are sufficient in number and direct, avoiding diversions or unnecessary delays. Major junctions of key classified roads should have controlled pedestrian crossings to accommodate desire lines.

We have been successful in providing pedestrian crossing facilities as part of major schemes in recent years, for example as part the Warrington East Phase 2 project (www.warrington.gov.uk/WE2) which was part funded by Local Growth Fund resources.

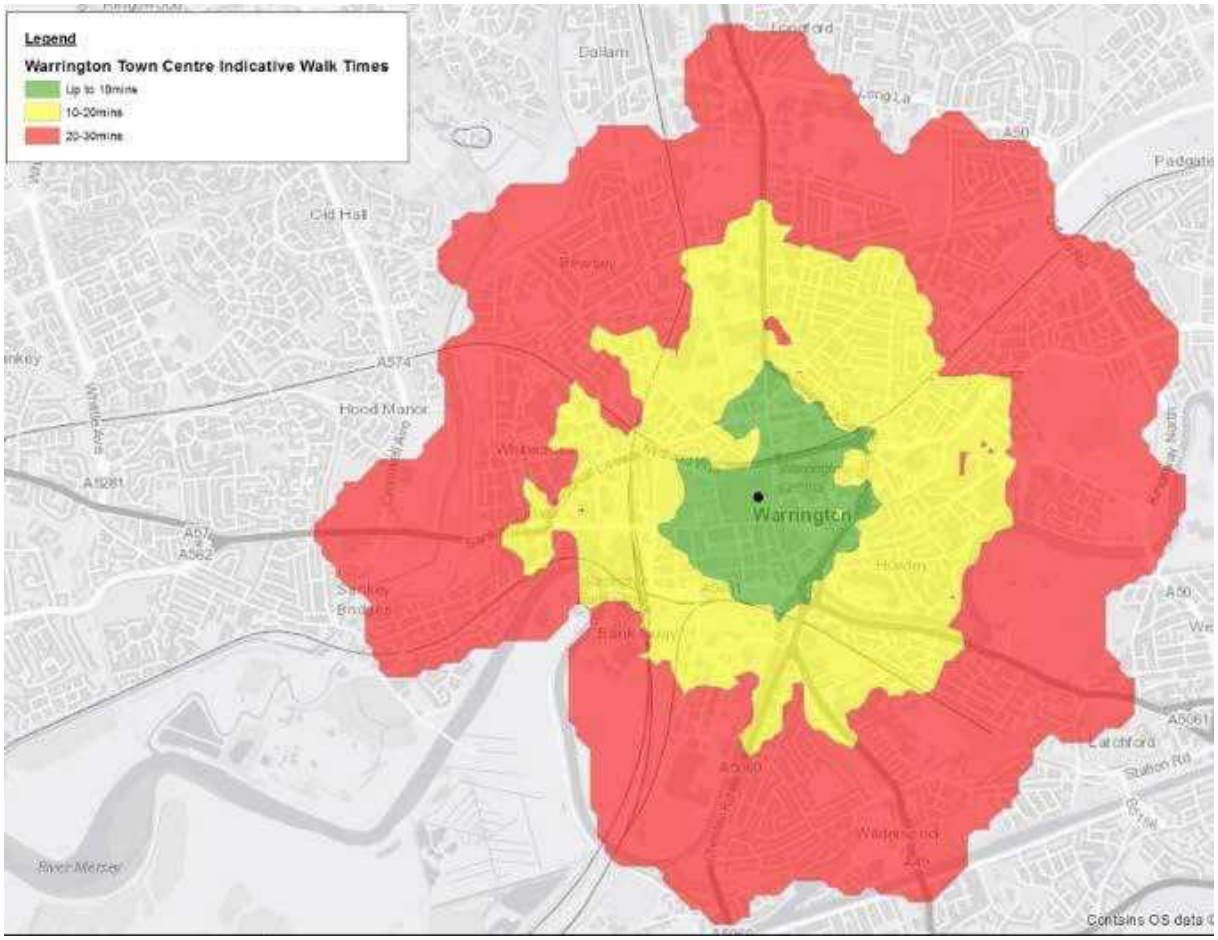
College Place roundabout – new crossings and paths

We will continue to identify opportunities to reduce severance between neighbourhoods, and between the origins and destinations of potentially 'walkable' trips.

We shall ensure that caution is exercised when using existing pedestrian flows as a guide to demand. Low pedestrian flows may be an indication of people being intimidated by traffic or finding it difficult to cross and therefore are not crossing the road.

- WARRINGTON TOWN CENTRE (CORE WALKING ZONE)

Residential development and more people living in Warrington's Town Centre is fundamental to our Local Plan. This will drive vitality, activity and foot-flow, reinforce Warrington's sense of place and enable regeneration as well as providing new homes for local people. It will change the face of the Town Centre.



The key streets in the Town Centre have already been successfully pedestrianised and enhanced to a high quality. We have also extended environmental improvements to some of the adjoining streets – Lower Bridge Street and the Cultural Quarter.

With its excellent public transport connectivity the Town Centre will be a focus for new businesses development – putting business at the heart of Warrington.

The delivery of this major change programme in the heart of Warrington means that there needs to be a step change in street purpose and design. A substantial redesign of the Town Centre is required to make it genuinely excellent for pedestrians. We have to realign our thinking when it comes to pedestrian infrastructure in the Town Centre.

We will reduce the number of vehicles (except buses) driving through the core of the Town Centre.

- WALKING TO ENABLE PUBLIC TRANSPORT

Attractive walking links are also needed at key origins and destinations to enable longer journeys using public transport. Our ambition is to create an environment where more residents can consider Door to Door sustainable integrated journeys within and beyond the Borough, rather than using a private vehicle for longer trips.

Measures can be relatively straight forward and low cost and could include additional or enhance crossings of busy roads, new footpath links, clearer signing, and better lighting.

The forthcoming 2019/20 programme of Active Travel improvements is expected to deliver schemes to improve accessibility on walking routes to and from Warrington West Station.

- WALK TO SCHOOL

The walk to and from school should be safe, calm and free of pollution. Over 50% of children currently walk to school in Warrington though in line with national trends noted in the National Travel Surveys this figure has been falling. There are many factors associated with this issue and not all are related to improving the walking environment.

Factors such as more working parents, larger school catchments areas and the growth in the personal security fears has reduced the number of children walking to school. Yet school children are the commuters of the future and this issue should be addressed head on.

It follows that as regards the physical walking environment a greater emphasis will be placed on measures which provide a safer route to school (as well as having wider community benefits). Again, these could include a mixture of new or improved crossing points, widened or improved pavements, and better lighting. Each school will have its own specific requirements and this would be strongly influenced by the school travel plans and road safety plans already in existence.

We will work in partnership with all schools in order to carry out an accessibility review of their approaches and the development of an accessibility plan.

Section 8:

Promoting Active Travel

8) PROMOTING ACTIVE TRAVEL

Improvements to infrastructure alone will not be sufficient to get people out of their cars on school trips, work trips and leisure outings. Smarter travel choices interventions will be needed, particularly to persuade people that journeys have become easier.

Evidence shows that complementing infrastructure with practical support and promotion achieves greater levels of uptake in walking and cycling and ultimately better value for money from investment.

A significant element of delivering the plan will be a package of home and work-end smarter travel measures. These will be critical to encouraging take-up and continued use.

Our programme will include:

- Awareness and communication – a marketing plan to raise awareness of the emerging network, which will feature positive messaging, using case studies and happy, healthy images. We will use social media as well as conventional techniques to change the traditional perception of cycling to encourage a positive and confident growth in uptake. The main promotional tool to support cycling is the Warrington's Cycle Map. This can be found at www.warrington.gov.uk/cyclemap.
- Cycle training and organised rides – Many people never learn to ride a bike and others never ride once they are adults. Also, for many people, a lack of confidence and feelings of vulnerability are common reasons for not cycling. Training can give new or less confident cyclists the help that they need to give cycling a try. A scheme of group and one-to-one training sessions will be established, from learn-to-ride to advanced, and organised rides will help to raise confidence and promote new routes.
- School travel planning – In 2017/18, nearly 82% of all 10 year olds in Warrington received Bikeability training. Bikeability is 'cycling proficiency' training for the 21st century, designed to give the next generation the skills and confidence to ride their bikes. Bikeability not only ensures young people can cycle safely but also demonstrates to them the value of cycling more often.
- Workplace Travel Planning – WBC will work with employers to help them develop travel plans to promote sustainable travel. Marketing, promotional and training support will be offered to businesses along improved routes.
- Travel planning at major trip attractors – in addition to workplaces and schools, we will seek out opportunities to promote the network at key destinations, events and trip attractors, including shopping centres, in the Town Centre, at organised events and even within new housing developments.
- Cycle hire – many people, especially those living in apartments, don't have the space to store a bicycle. To enable them to and get around without a car and experience the many benefits cycling has to offer, we will continue to investigate opportunities for a cycle hire scheme.

Section 9:

Proposed LCWIP Delivery Plan

9) PROPOSED LCWIP DELIVERY PLAN

Parts of the LCWIP network already exists with cycling and walking infrastructure that is generally fit for purpose. Other parts have existing infrastructure in need of an upgrade, whilst the remaining locations will require entirely new infrastructure.

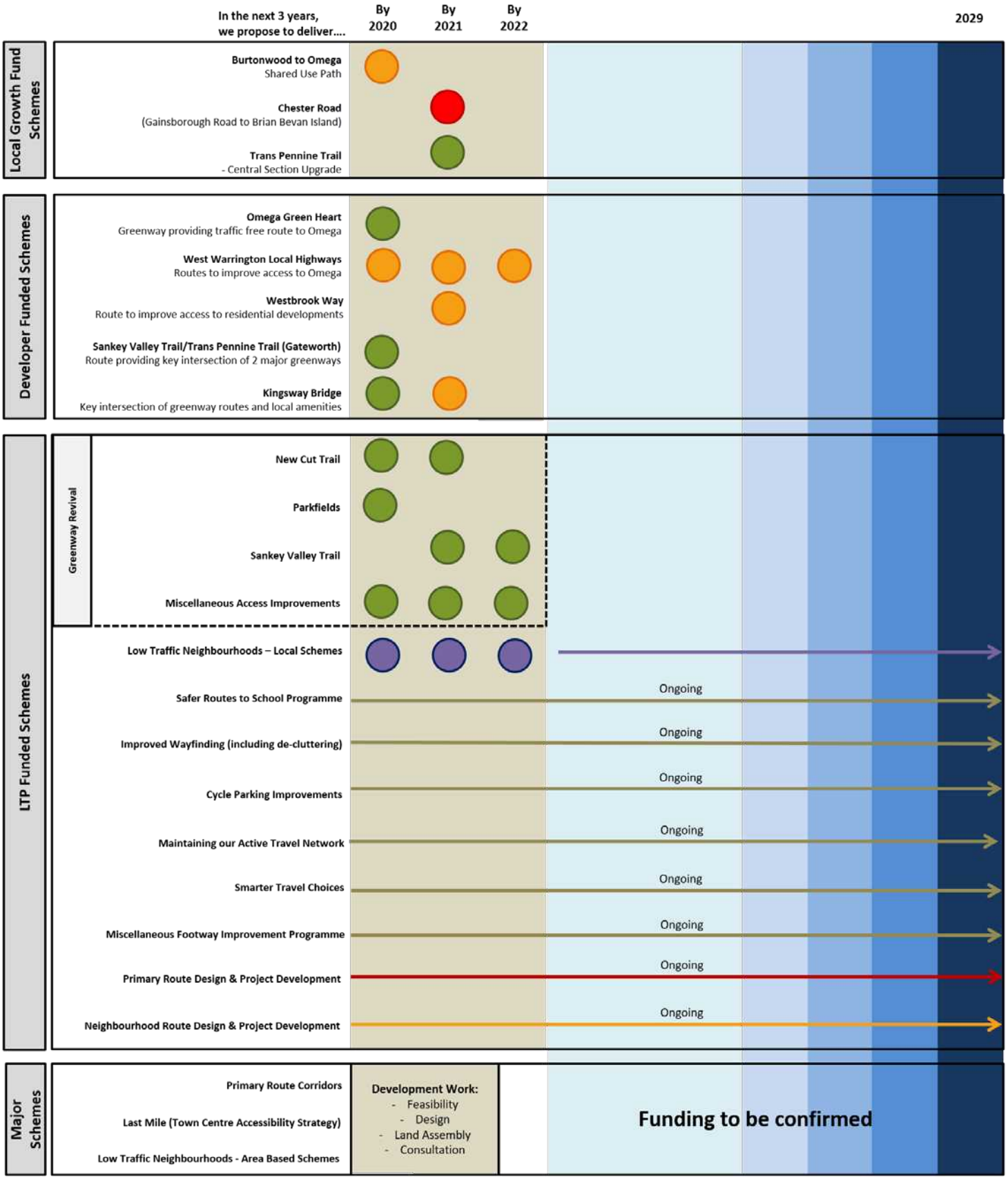
There is significant amount of work to be done to implement the improvements to deliver our network. The LCWIP covers a period of 10 years throughout which routes proposed for the network are planned to be rolled out for design and implementation.

The Warrington LCWIP Delivery Plan reflects the existing work programmes which are funded through the Council's LTP capital programme and amounts to over £500,000 a year. In the first 2-3 years this is being supplemented by £1.7 million from the Cheshire and Warrington LGF3 Growth Deal to deliver three large active travel projects. The challenge will be to maintain and increase this level of expenditure for the life of the LCWIP, i.e. to 2029, so that the aspirational network can be delivered.

The LCWIP delivery programme will be reviewed on an annual basis to reflect the development of the planned schemes and the availability of new funding.

A summary of the current programme is provided overleaf.

LCWIP Programme



Enabling Active Travel in Warrington
Our Proposed Plan

Walking and cycling brings cheaper travel, better health, better air quality, increased productivity, increased footfall in shops, better community and lower congestion, and it creates vibrant and attractive places and communities.

Warrington's compact size and fairly flat terrain offers a great opportunity for local journeys, currently made my car, to be made by cycling or on foot. We can and should be ambitious for the future of walking and cycling in Warrington.

Enabling more people to walk and cycle short journeys doesn't mean everyone will be forced to walk and cycle. Not everyone can – but many more people could.

We need to deliver a network, through provision of high quality infrastructure, to enable walking and cycling.

Our proposed approach to deliver this transformative change is to:

- Provide a network of primary, neighbourhood and strategic greenway cycle corridors to act as core routes for the highest volumes of journeys;

- Improve the 'last mile' of journeys into the Town Centre for pedestrians and cyclists; and

- Create networks of quieter streets where children play out, neighbours catch up, air pollution is lower, and walking and cycling are the natural choice for everyday journeys.

WARRINGTON
Borough Council

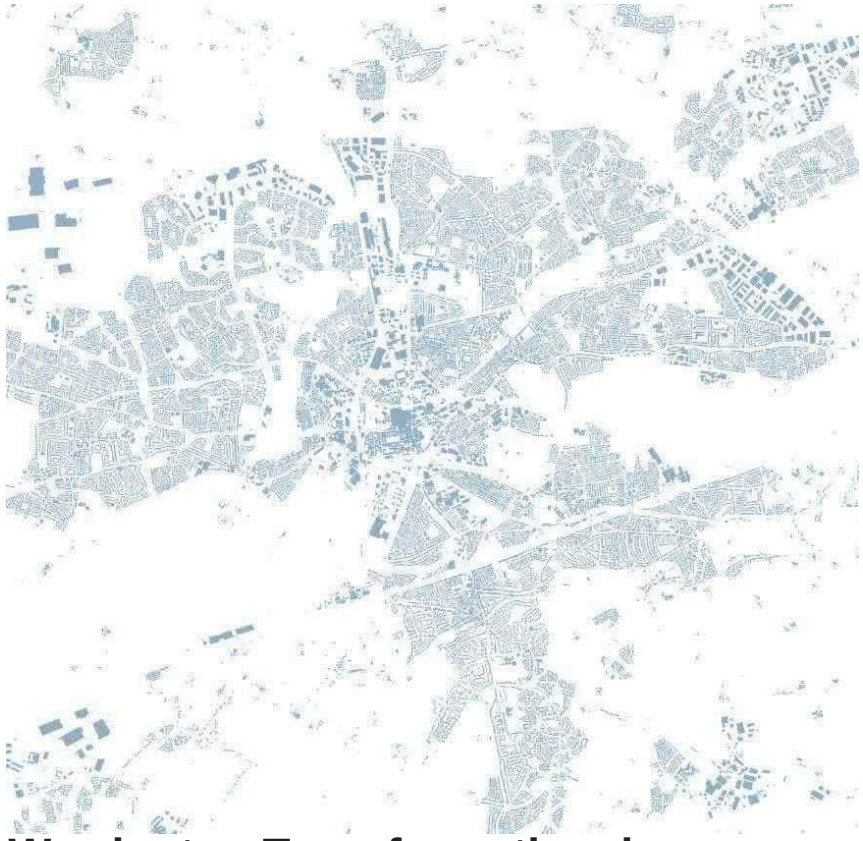
WARRINGTON
Borough Council

WARRINGTON FOURTH LOCAL TRANSPORT PLAN

APPENDIX B: TRANSFORMATIONAL PROJECTS STUDY

MOTT MACDONALD

WARRINGTON Borough Council



Warrington Transformational Projects Study

Final Report

February 2019

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Contents

1 Introduction

1.1 Scope

Mott MacDonald was appointed by Warrington Borough Council (WBC) in December 2017 to help identify a transport solution to support long term, sustainable growth in Warrington, and to help to reduce the borough's dependence on the private car to provide access to work, leisure and retail opportunities. In many instances, taxis and cars provide the cheapest and most convenient motorised mode of travel for short distance journeys completed within Warrington. The aspiration of the Council is to make sure that public transport becomes a more attractive and widely available alternative to the private car for all trips in the town.

The study has three concurrent and inter-connected themes as follows:

1.1.1 Theme A: Demand Management

The Demand Management element of the study will identify ways in which WBC can better manage demand from private vehicles within Warrington including mitigating through-traffic and better managing workplace parking. The feasibility of a number of demand management concepts including a Workplace Parking Levy and Clean Air Zone will be investigated through exploration of the concepts, review of benchmark examples, initial feasibility assessments and SWOT analysis.

1.1.2 Theme B: Strategic Mass Transit

The second element of the study will explore potential large-scale, high quality, public transport solutions to help reduce congestion across Warrington and to help support Warrington's ambitious growth plans. It is intended that a mass transit solution for Warrington would work alongside and potentially be funded by options assessed within the Demand Management element of the study. Initially, this section will analyse the need for transit in Warrington through considering long term growth proposals within the town and surrounding areas. The section will then identify potential corridors and modes which best meet the growth needs and aspirations of Warrington. Transit solutions to be assessed include tram/metro, bus rapid transit and park and ride.

1.1.3 Theme C: Funding, Finance and Legislation

The final theme for the study will tie the Demand Management and Strategic Mass Transit elements of the study together to identify how the transformative connectivity improvements for Warrington can be delivered. The section will identify and assess potential transit funding sources for the council and assess relevant legislation and powers that should be considered in order to enable the demand management and transit schemes to come forward. Key delivery issues will also be explored including procurement, resourcing and reporting.

1.2 Background

WBC is currently reviewing the Local Plan Core Strategy, with public consultation having taken place in 2017 on the Preferred Development Option to deliver over 24,000 new homes and over 380 hectares of employment land over the next twenty years. Whilst the figures have since been reduced in the Draft Local Plan, such transformational growth proposals require equally transformational investment in transport within the town.

This Transformational Projects Study is the first of a number of commissions to be completed to support WBC's growth proposals. The study will inform the development of an updated Transport Vision for Warrington which, in turn, will inform the updated Warrington Local Transport Plan (LTP). The updated LTP 4 (in draft form) is expected to be published alongside the draft final of the Warrington Local Plan in early 2019. The opportunity to publish the new LTP and Local Plan at the same time is a real opportunity for the borough in terms of ensuring that Local Plan policy best supports the borough's transport ambitions and that development and strategic transport investment proposals are aligned over the length of the plan period.

Informed by this study, the new transport vision within the draft LTP 4 will help to shape transport investment in Warrington over the twenty-year lifespan of the Local Plan. It is imperative that transport objectives and investment proposals are identified and prioritised as early as possible to ensure that private and public sector driven residential and employment investment responds to transport proposals and comes forward in a manner that best supports the needs of the town.

It should also be highlighted that a number of the transit proposals identified within later sections of this report are not entirely new concepts. Prospective tram operators have been in discussion with WBC and produced feasibility studies for a new tram system for Warrington in recent years. The relative merits of solutions that have already been identified will therefore be appraised alongside new proposals within later sections of this study.

The remainder of this report is structured as follows:

- **Chapter 2:** Context
- **Chapter 3:** Issues
- **Chapter 4:** Opportunities
- **Chapter 5:** Demand Management and Funding Options
- **Chapter 6:** Demand Management and Funding: Concept Feasibility
- **Chapter 7:** Mass Transit Concepts
- **Chapter 8:** Mass Transit Corridors
- **Chapter 9:** Conclusions and Recommendations – Preferred Options

2 Context for Study

2.1 Overview

This chapter outlines the context for this Transformational Projects Study, considering the significant economic development, future growth, environmental and transport factors that are driving the need for this study. This contextual analysis is crucial to understanding the current and anticipated future baseline situations from which possible demand management and strategic mass transit schemes can be identified and delivered.

Already the best performing economy in the North West, rates of growth in Warrington continue to be amongst the highest in the UK. Sustaining and enhancing this growth is crucial for Warrington ensuring it remains attractive to residents, workers, visitors and investors.

2.2 Economic and Development Context

Warrington represents a major focus for employment in the North West and the Northern Powerhouse as a whole, supported by Warrington's well-developed highway infrastructure. The M62, M6 and M56 motorways provide strong north-south and east-west connectivity for Warrington and help bring 2.5 million people to within a 30-minute drivetime of Warrington, the highest catchment for any town outside of the M25. As shown in the table below, Warrington is a town of extremely high economic performance:

Ranking Warrington's Economic Performance (2017)[1]:

1st	1st	3rd	5th	14th
out of 64 UK towns and cities for the highest percentage of employment per population, with **79.8%** of the population in employment	for the second year in a row in terms of supporting the **highest proportion of high growth firms** of any UK location – 15.8% vs the national average of 11.8%	in terms of the highest level of **business growth** of any UK location, bettered by only Aberdeen and London	place ranking in terms of best **GCSE results** nationwide including for Maths and English	highest UK town or city in terms of its wages and welfare ranking and the only location in the North of England to be defined by the Centre of Cities as '**high wage and low welfare**'

Progress towards Warrington's ambitious economic objectives has been rapid. By virtue of positive attitudes towards growth and investment as well as excellent locational characteristics at the confluence of major road and rail networks, Warrington has established itself as the primary North West location where people want to live and business wants to be located outside of the two major cities, Manchester and Liverpool. The attractiveness of Warrington as a place to live is reflected by the fact that over the last 40 years, Warrington's population has grown from around 70,000 to over 200,000. Specifically, between 2008 and 2016, the borough's population grew at double the rate of the wider North West region and slightly higher than for Great Britain as a whole, as shown in **Table 1**. Over the longer term, between 2000 and 2016, population growth in Warrington (10%) far exceeded the level of growth for the North West (6.6%). This reflects the strong job prospects and living environment in Warrington, with aspirational and affordable homes and neighbourhoods, good schools and colleges and attractive parks and open spaces.

Table 1: Population Growth 2000-2016 (000s)

Area	Total Population			Population Growth	
	2000	2008	2016	2000-2016	2008-2016
Warrington	**190**	**196**	**209**	**10%**	**6.6%**
North West	6,774	6,958	7,219	6.6%	3.8%
Great Britain	57,203	60,044	63,648	11.3%	6%

Source: Mid-Year Population Estimates (ONS)

A summary of the key recent and emerging economic success stories for Warrington are outlined below:

- As highlighted within the Warrington Means Business document, **development projects exceeding £750m in value** are either recently completed or underway within the town, with **over 5,000 jobs created** in the last two years.
- In less than three years, a vacant airfield in the north of the town has been transformed into the **Omega** site, delivering over **7,500 jobs**.
- The **£11 million investment** in **UTC Warrington** was completed in September 2016 for over 350 students, dedicated to providing the young people in the region with the Science and Engineering skills they need to be employed by locally based businesses in this field including Amec Foster Wheeler and Sellafield Ltd. This will enable these businesses to be sustained and grow over the coming years.
- **New Balance, Sonova** and a number of other multinational corporations have established their UK and European **head offices within the borough** over recent years, creating hundreds of jobs. This reflects the attractiveness of Warrington to international businesses as a result of the town's excellent strategic connectivity relating to Manchester Airport and the motorway and rail networks that are served by the town. It is also indicative of the fact that employers see Warrington as a town where skilled employees will want to live and work.
- Progress towards completion of the £107 million **Time Square** development is well underway and will deliver a **step change in retail and leisure in the centre of Warrington** (**Figure 1**) upon completion in 2019, including a new cinema, market hall and multi-storey car park.

[1] Warrington Means Business (2017) Available at: http://warringtonandco.com/wp-content/uploads/2017/01/Warrington-Means-Business-December-2016.pdf

Figure 1: Vision for Time Square

Source: Warrington Borough Council

2.3 Future Growth Context

An *Area Profiles and Options Assessment (2017)* document has been prepared by WBC to understand the implications of different growth scenarios for the different geographic areas within the main urban area of Warrington and for each of the outlying settlements of the borough. This has helped to identify and progress the Preferred Development Option for the emerging 20-year Warrington Local Plan (2017 to 2037), highlighted within the *Preferred Development Option Regulation 18 Consultation (2017)* paper. The total Local Plan growth proposals for Warrington are outlined below:

WARRINGTON DRAFT LOCAL PLAN (2017 - 2037) GROWTH PROPOSALS

- **Target delivery of 945 new homes per annum**
- **Employment land target of 362 hectares by the end of the Plan Period**
- **Total target for a minimum 18,900 new homes across the borough in the full Plan Period to 2037 (with a total requirement of 20,790 homes including 10% flexibility)**

(Source: Warrington Borough Council)

The Council believes that planning for this level of growth provides a major opportunity for Warrington. Addressing severe town centre congestion, unlocking major brownfield sites, delivering improved infrastructure and enabling the creation of new sustainable communities are also key to making this transition. The proposed 20,790 new homes will be located across the following areas:

- **Existing Urban Area** including Warrington Waterfront, inset settlements and other sites identified in the Council's Strategic Housing Land Availability Assessment: Approximately 13,700 new homes.
- **Garden Suburb**: Approximately 6,400 new homes, of which c4,200 homes are to be delivered in the Plan Period. This is in addition to 930 homes within the allocation which already have consent.
- **South West Warrington Garden Village**: c1,600 new homes in the Plan Period.
- **Outlying settlements**: Approximately 1,085 homes to be delivered on allocated sites to be removed from the Green Belt.

2.3.1 Urban Area & Warrington Waterfront

The Local Plan will guide the evolution of Warrington over the next 25 years.

Significant town centre investment has been achieved in recent years including enhanced public realm centred around Horsemarket Street and Buttermarket Street, the delivery of Golden Square and most recently the completion of 50,000 sq ft office space at The Base on Dallam Lane which forms the first phase of the new Warrington Business District development.

Warrington Town Centre Urban Quarters and Development Proposals

As highlighted within Warrington Means Business, regeneration and development of Warrington town centre will be focused around key quarters. Targeted investment in these key urban quarters will help drive forward growth in Warrington.

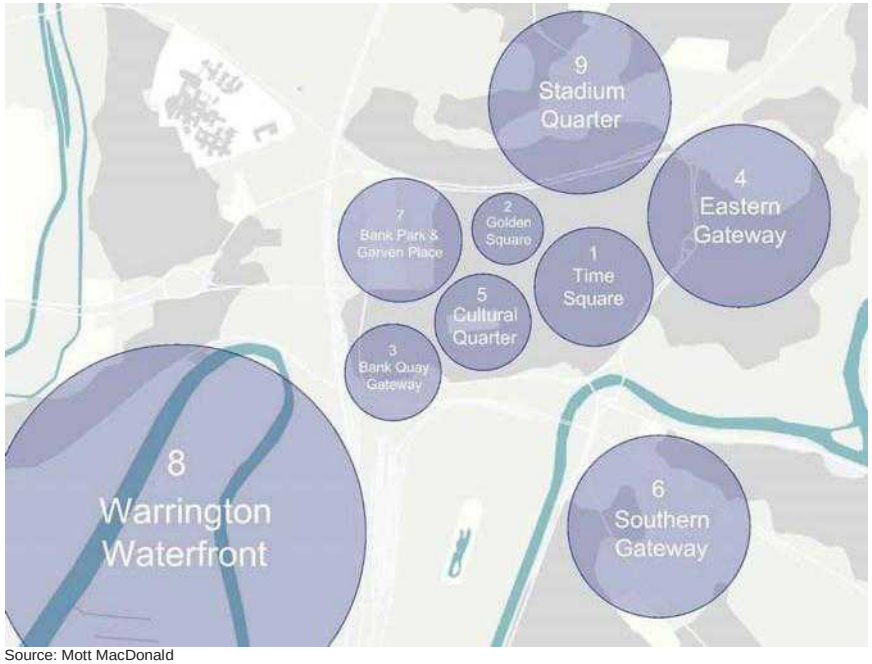
A step change in public realm across the town will help to connect these sites and increase the attractiveness of the town for all investors and users. The key characteristics of the town's urban quarters and the nature of investment proposals are outlined below.

1) Time Square • Phase 1 of this development focuses on the delivery of a vibrant new leisure destination including: – New Market Hall – Multi-screen cinema – New offices and restaurants – New 1,160 multi-storey car park	**2) Golden Square** • Thriving major indoor shopping mall at the heart of the town including major nationwide retailers. • This includes emerging opportunities to further use the Old Market Place as a focus for outdoor cafes.	**3) Bank Quay Gateway** • Delivering a new major rail station based development area to the west of the town centre is a key objective.
4) Eastern Gateway & St Elphin's Urban Village • Creating a new urban village and new Eastern Gateway in an area of underused land at the heart of the town centre.	**5) Cultural Quarter** • Delivering heritage urban living in Warrington's premier Conservation Area. • The aim is to use development to complete the gaps in the unique and attractive built form of the area.	**6) Southern Gateway** • New urban quarter to link Stockton Heath to the city centre along Wilderspool Causeway.
7) Bank Park & Garven Place • Over the last two years, the council has updated Bank Park to produce a revitalised urban park and festival venue. • Garven Place will be redeveloped as an area of new town houses.	**8) Warrington Waterfront** • Bringing forward new homes and new business space at the waterfront and Port Warrington. • Development of the waterfront has been historically constrained by a lack of access infrastructure however the forthcoming Centre Park Link, Western Link will address this.	**9) Stadium Quarter** • Creating a new Central Business District and a wider mixed-use area to live, work, study and enjoy. • Redevelopment of key sites including Central Rail Station and vacant and underused sites and buildings will create a new northern gateway into the town centre.

These significant growth proposals within the urban centre emphasise the importance of delivering solutions to reduce the already high congestion levels on the highway network in order to increase the attractiveness of the town for prospective developers and investors. Proceeding sections of this report will explore how demand management solutions and strategic mass transit might help to support delivery of the ambitious town centre growth.

The graphic displayed below as **Figure 2** indicates the spatial distribution of the town's urban quarters.

Figure 2: Town Centre Urban Quarters



Source: Mott MacDonald

2.3.2 Green Belt

In addition to the growth proposals for the existing urban centre and at Warrington Waterfront, to meet the proposed total 20,790 new homes and 362 hectares employment land target by 2037, significant development is to be brought forward across the rest of the borough. In the *Local Area Profiles and Options Assessment (2017)* work, WBC noted that the preferred spatial distribution for new development in outlying areas would be to accommodate the majority of new development in the green belt adjacent to the main urban area, with incremental growth in outlying settlements.

It is expected that around 6,400 new homes will be brought forward through green belt release in the Garden Suburb to the south east of the town. A key point of consideration for the proposed Garden Suburb is the lack of direct rail connectivity for the area whereas a number of other proposed garden suburbs of similar scale also incorporate plans for a new station or are already served by a station.

At a smaller scale, 1,600 new homes are expected to be developed through the release of green belt to the south west of the urban centre, the South West Warrington Garden Village. A further 1,085 homes are proposed through green belt release and 'incremental growth' in the borough's outlying settlements. This incremental growth is defined as development that could be accommodated by existing infrastructure, subject to minor expansion, up to 10% of settlement size.

In total, the proposed delivery of new homes and employment land in the borough's green belt could have significant implications on access and movement across the borough. The demand management and strategic mass transit sections of this report will consider how WBC can work with investors to ensure that reliance on single occupancy car trips for access to and from new sites in the green belt to employment, education and leisure opportunities can be reduced.

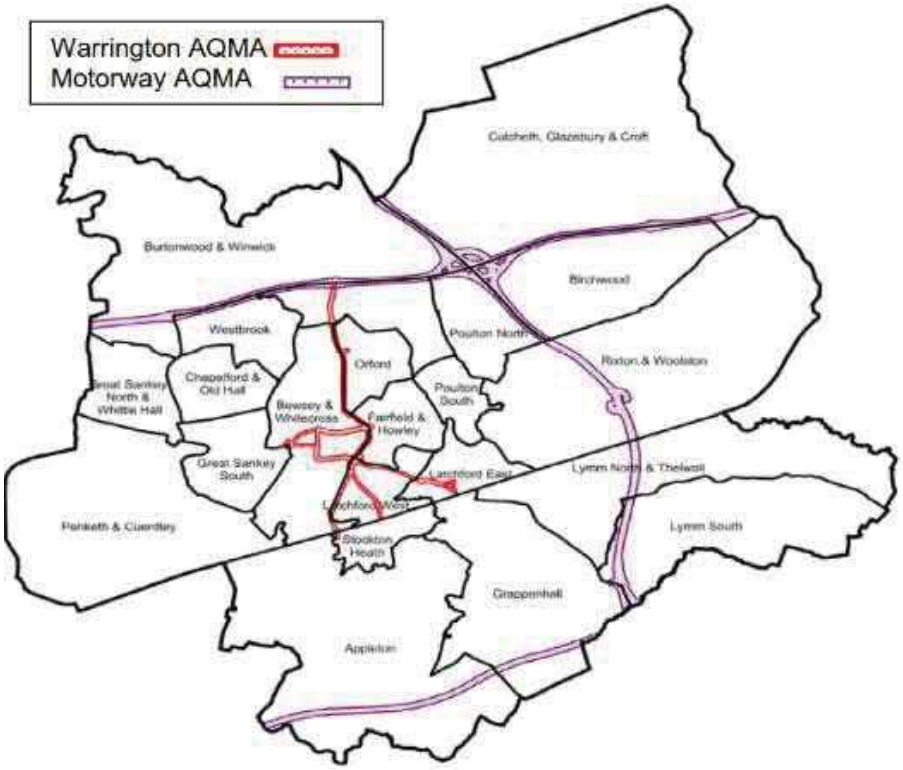
2.4 Environmental Context

The Warrington Means Business Growth framework highlights that the proposed growth could be built on a number of key principles including being a *Sustainable and Self Sustaining place* where Warrington is low carbon and energy positive, self-sustaining financially through growth and is connected by modes of travel that are fit for the 21st century.

A key challenge for the Council is to ensure that growth is promoted across the borough whilst at the same time improving air and noise quality and congestion and reducing carbon emissions. The Warrington *Air Quality Action Plan (2017)* has been produced to outline how air quality in Warrington will be improved between 2017 and 2022, focusing on reducing nitrogen dioxide (NO_2) levels within Warrington.

Whilst the majority of Warrington benefits from good air quality, two Air Quality Management Areas (AQMAs) are currently in place (**Figure 3**). The motorway related AQMA was designated in 2002, whilst there are areas close to the main arterial roads that lead into and around the town centre where national standards for NO_2 are also being exceeded. This led to the creation of the Warrington AQMA in November 2016.

Figure 3: Map of Warrington's AQMAs



Source: Warrington Brough Council

2.5 Transport Context

A range of previously completed studies have identified key transport issues and opportunities for the borough as well as potential transport investments which will help to support long term sustainable growth within Warrington. Key concepts and investment opportunities will be explored in further detail within the following sections of this report.

Notably, the *Warrington Transport Summary Evidence Base (2017)* highlights that bus patronage has been declining across the borough. This study also notes that there are a number of congestion hotspots across the borough including within the town centre and on the motorway network. A key transport challenge identified is also that population growth in areas of lower population density can make the promotion of sustainable travel more challenging if the public transport network is not developed. A further key challenge is the fact that growth of LGVs in Warrington has been significant and will need to be considered in transport policy and strategy within the borough.

2.6 Health and Social Context

Decreasing bus patronage, the dominance of the car for journeys undertaken across the town and reduced propensity to walk and cycle for shorter distance journeys, or as part of a longer journey, are combining to reduce individual and community health standards. Going forward, it is fundamentally important to ensure that public realm and walking and cycling routes are attractive enough to encourage modal shift from vehicular modes in order to deliver individual health and wellbeing benefits as well as wider air quality improvements. Specifically in the context of this study, any investment in mass transit will need to be accompanied by improvements to walking and cycling routes between key residential and employment areas and transit stops in order to encourage patronage on the route(s).

2.7 Summary

This baseline analysis of Warrington has outlined a number of key implications for the demand management and strategic mass transit elements of this study. Headline findings are as follows:

- It is recognised that Warrington suffers from regular traffic congestion (most significantly within peak periods on select links) and notable air quality issues within both the town centre and on the motorway network. If Warrington is to realise its target for 20,790 new homes and 362 hectares employment land by 2037, it is essential that all residents, commuters and visitors are provided with attractive non- car modes to be able to access opportunities within the borough.
- Given the scale of proposed growth within the urban centre and in green belt land that surrounds the existing town, as well as sustained population growth in Warrington, it is likely that sustained and radical investment in transport infrastructure will be required to create the conditions for future high growth. Isolated junction improvements and new car parking will not be enough to realise the ambitious economic ambitions within the Local Plan and Warrington Means Business.
- Delivering sustainable transport enhancements for Warrington is only one element of the long term transport plan for Warrington. Exploration of demand management concepts such as the Workplace Parking Levy as well as exploring opportunities relating to a Clean Air Zone are important for identifying ways to reduce congestion, improve air quality and improve the attractiveness of the borough for new investment.
- Furthermore, whilst it has been demonstrated that Warrington is a hugely economically successful location, the connectivity needs of the most deprived areas of the borough should not be forgotten. Exploring opportunities to deliver attractive, safe and convenient non-car modes of travel are particularly important to these localities.

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3 Issues

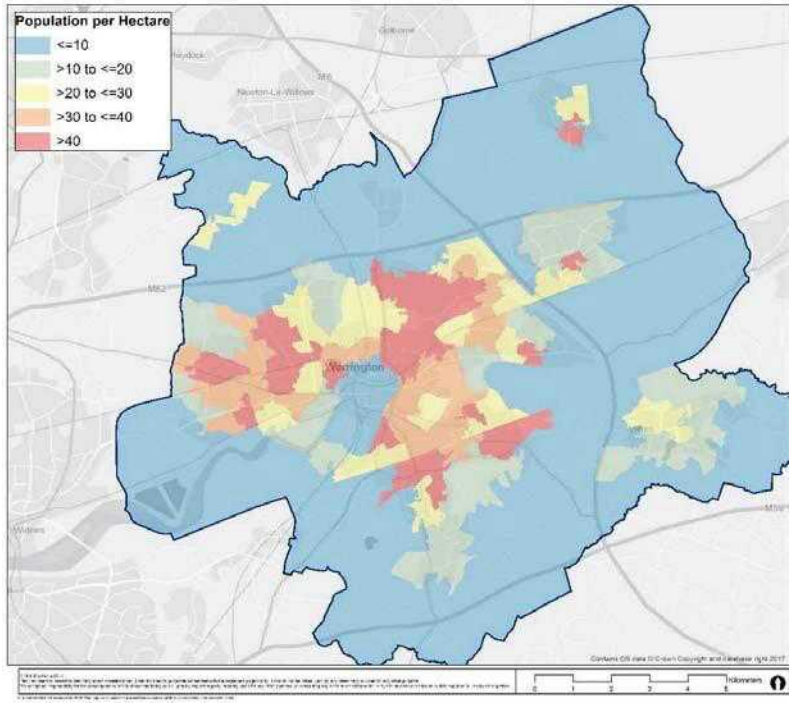
3.1 Overview

To achieve the high levels of growth aspired to in the Local Plan, a step change in Warrington's transport infrastructure is required to support the additional housing and employment sites and to ensure that transport connects residential areas to existing and emerging job opportunities. This chapter provides an assessment of Warrington's current and likely future transport and demographic baseline in order to identify where there are currently gaps in the transport network. Without addressing these issues, negative impacts in terms of congestion and air quality, are likely to constrain economic and housing growth in Warrington.

3.2 Baseline Situation

3.2.1 Population and Employment

Figure 4: Population per hectare (2016)

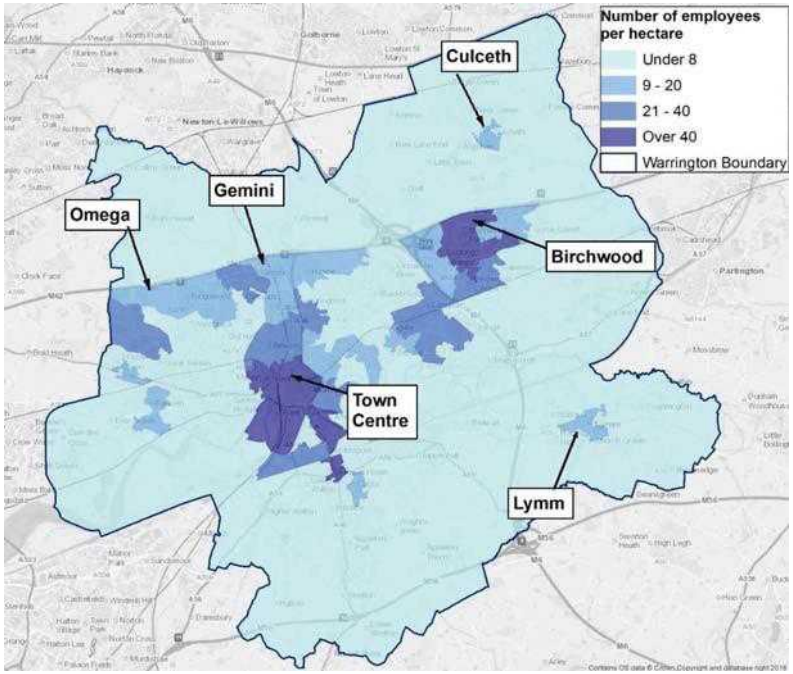


Source: ONS Mid-year Estimates 2016

Warrington is a multi-centric borough in terms of population and employment. **Figure 4** shows the current population per hectare for each LSOA in the borough. This demonstrates that the urban area of Warrington covers a large expanse, with the majority of the borough's population located to the west, east and south of the town centre, with fewer residents north of the M62. There is also a sizeable number of outlying settlements in the borough, such as at Lymm, Culcheth and Birchwood.

According to the latest available census data from 2011, levels of car ownership in the borough are above the regional and national averages; 81% of households had access to a car or van, compared to 74% in England and 72% in the North West. As well as the residential area of Warrington being dispersed (**Figure 4**) employment density is also spread out (**Figure 5**). As in the case of the distribution of the borough's population, a 'T' shaped distribution can be seen, with employees concentrated in the town centre, and along the M62 corridor to the north of the town centre. There is an inverse relationship between residential and employee densities as the densest employment locations are predominantly located in the areas where residential densities are smallest.

Figure 5: Employees per hectare

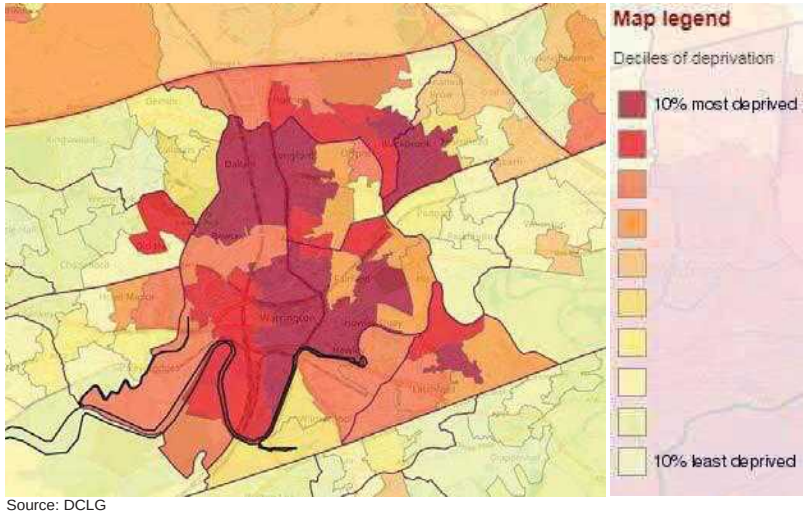


Source: BRES, 2016

Warrington is a borough of relatively low deprivation when compared regionally and nationally, although there are pockets of higher deprivation in the town centre and to the north around

Longford, Dallam and Blackbrook. **Figure 6** displays a graphical summary of 2015 IMD data for the town centre and immediate surrounding areas, reflecting the fact that a small number of town centre and north of town centre wards fall within the 10% most deprived in the country. Better connecting residential populations in these areas to education and employment opportunities by non-car modes will be a crucial step in helping to reverse economic decline and deprivation in these areas.

Figure 6: Warrington Town Centre IMD Mapper



Source: DCLG

3.2.2 Travel

3.2.2.1 Cars

Travel within and into Warrington Borough is dominated by private vehicles. Census data indicates that the private car or van is used by 80% of Warrington residents to get to work (anywhere). Further to this, 73% of Warrington residents who also work within the borough travel by car to work – 65% as a driver, 8% as a passenger (see **Figure 10**). **Figure 7** shows the proportion of people in each MSOA who travel to work within Warrington borough by car (driver or passenger). **Figure 8** and **Figure 9** show the proportions of people who work in Central Warrington and Birchwood respectively who travel by car to work as a driver, despite both being served by rail stations. Even greater dominance of car usage is seen at Omega, which is not served by a rail station.

The situation is undoubtedly influenced by the geography of employment in Warrington, with many large employment sites, namely Birchwood, Gemini and Omega, being spread out around the borough and away from public transport hubs. This is reflected by larger than national average increase in households with 2 or 3 cars/vans between 2001 and 2011, and a larger than national average drop in the number of households with no cars.

3.2.2.2 Buses

Bus services in Warrington are mainly operated by two companies: Warrington's Own Buses and Arriva, with smaller numbers of services operates by companies including First and Springfield. Warrington's Own Buses are the largest operator and are well placed to work in partnership with the council given their status as a council-owned arms-length organisation. The overall bus network is strongly centred around the town centre, with almost all routes starting/ending in the town centre, in a hub-and-spoke layout. There are very few cross-town routes or routes between outlying parts of the borough, leading to passengers often requiring two services to get to destinations beside the town centre. Bus patronage in Warrington has fallen from 11.1 million passenger journeys in 2010/11 to 6.9 million in 2015/16 – a drop of nearly 40%. This is significantly more than the 10% decrease observed across the North-West region over the same time period. Moreover, according to Department for Transport statistics for 2016/17, the number of bus passenger journeys completed per head across Warrington was only 31.8. Whilst this is broadly similar to the figure for Cheshire West and Chester (31.5), it compares unfavourably to the number of bus journeys per head at North West level (56.6), and at national level (80.0).

However, officers from WBC have highlighted that previously, patronage on Warrington's bus network had held up better than for the region as a whole and a more accurate interpretation of the falling patronage is that the borough has experienced a later and slightly sharper decline in patronage rather than a larger overall decline. Whilst route coverage and frequencies of the bus network have fallen in Warrington in recent years, it is understood that no more than 10% of services are publicly subsidised and WBC have also significantly reduced funding for evening services. There has, in fact, been some increase in evening bus services across the borough in recent years, implying that some of these routes are now considered commercially viable by operators. During 2018, new high frequency services between south Warrington and Warrington Interchange and Bank Quay, and rebranded "Cheshire Cat" services between the town centre and Stockton Heath were introduced.

3.2.2.3 Rail

Warrington has six rail stations within its boundary, but the frequency of rail services between them are poor. Five of these lie on the CLC Liverpool – Manchester line, with Bank Quay on the north-south West Coast Main Line. There is one train an hour between Sankey for Penketh and Warrington Central, and no direct services between Sankey for Penketh and Birchwood before 08:00am. Interchanges between the Central and Bank Quay stations in Warrington town centre require a 15-20-minute walk, and no bus services call immediately outside Bank Quay Station.

The combination of dispersed employment sites, out of town retail parks, limited cross-town bus routes, and limited rail services between local stations, is a major driver of the car dependent culture, and associated congestion, which is observed in Warrington. Further to this, the 'New Town' urban form with historically poor pedestrian links, disconnected cul-de-sacs and limited connection points is another important driver for this car dependent culture. Cars account for 75% of traffic miles on major roads in Warrington[2].

[2] DfT (www.dft.gov.uk/traffic-counts/area.php?region=North+West&la=Warrington)

Figure 7: Proportion of Warrington residents who travel to work in Warrington by car as driver or p'ngr

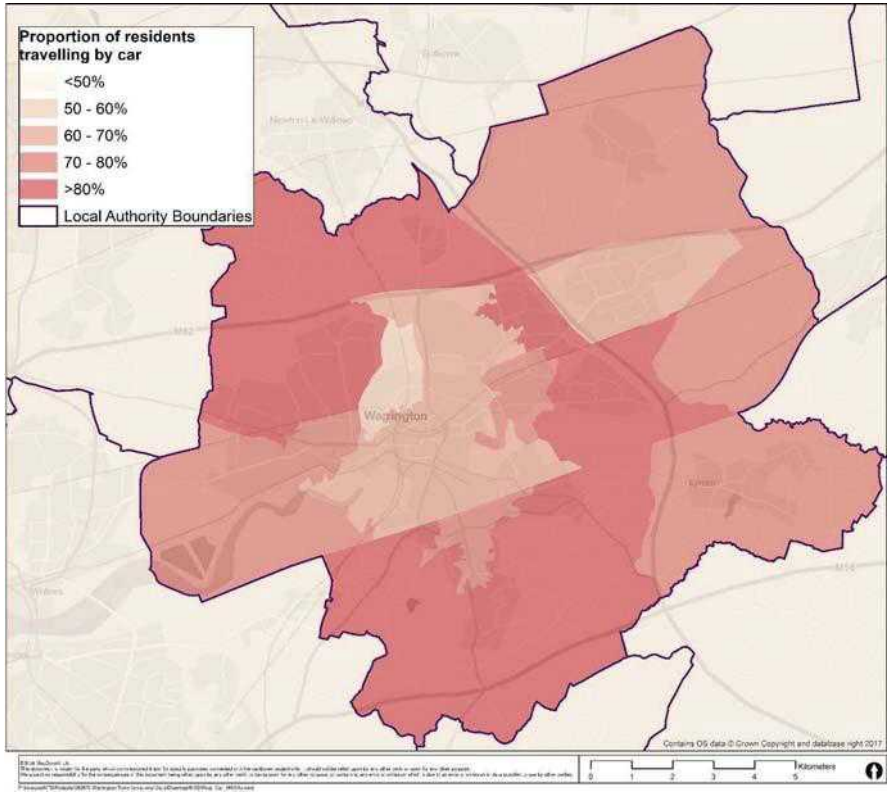
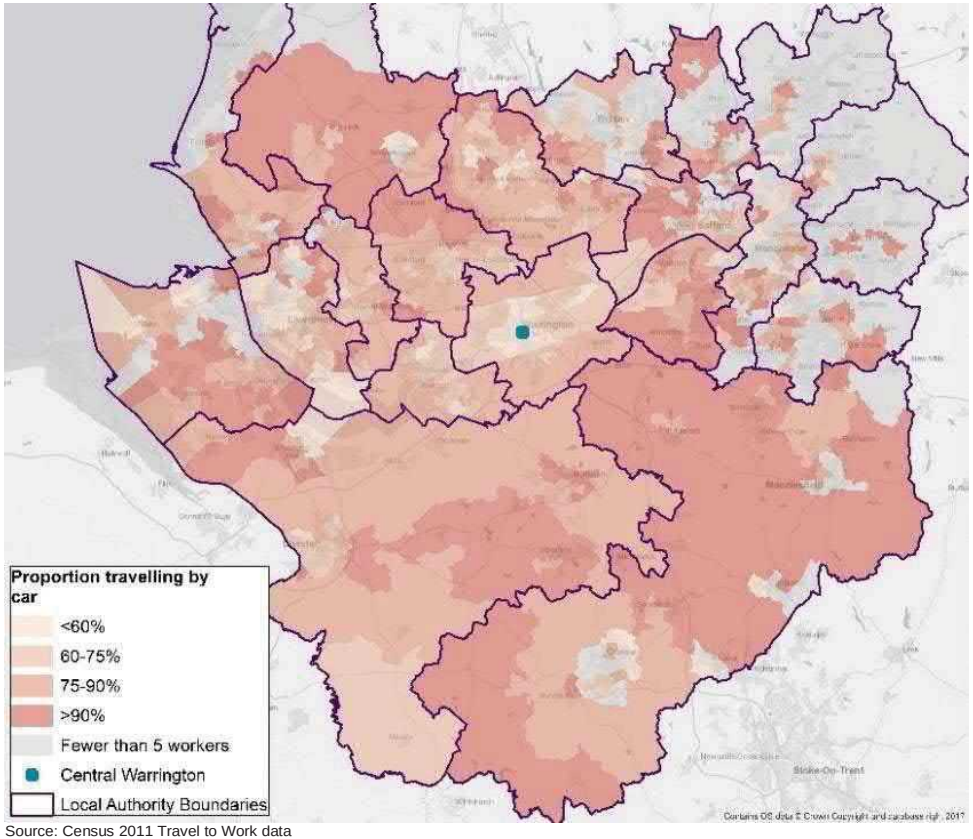
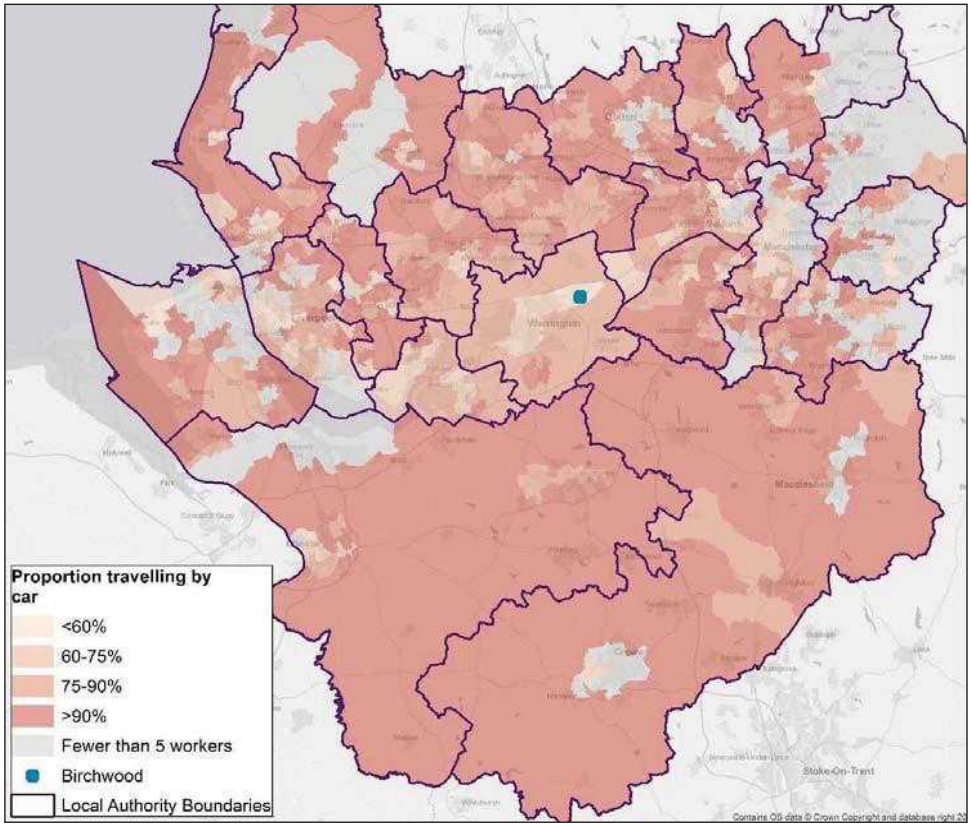


Figure 8: Proportion of people who travel to work in Central Warrington by car



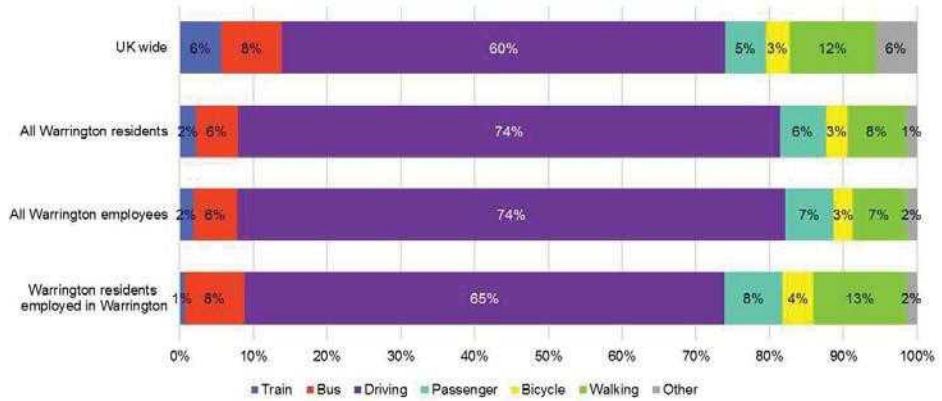
Source: Census 2011 Travel to Work data

Figure 9: Proportion of people who travel to work in Birchwood by car



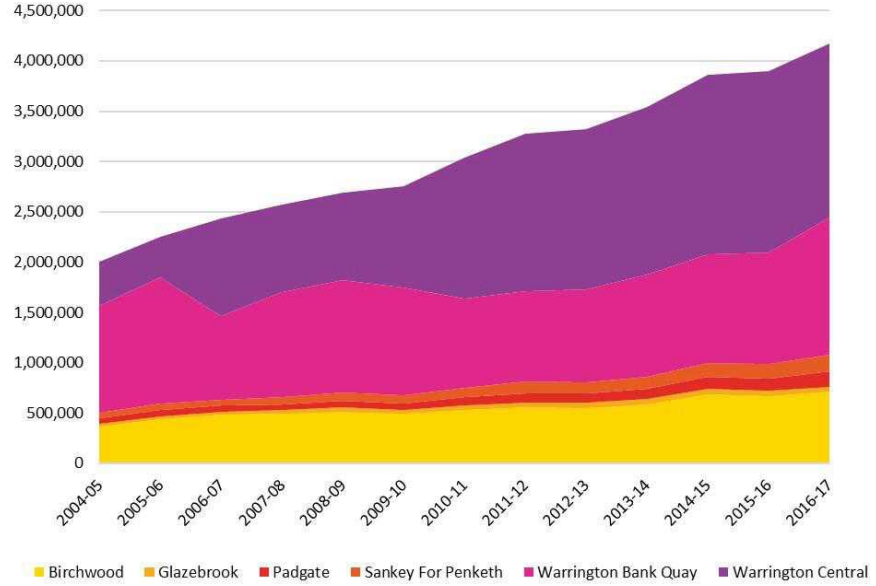
Source: Census 2011 Travel to Work data

Figure 10: Usual method of travel to work by Warrington residents and employees



Source: Census 2011 Travel to Work

Figure 11: Warrington Station Usage



Source: ORR, 2017

Figure 11 shows that despite rail accounting for a low proportion of mode share for travel to work, patronage at rail stations has risen steadily since 2004. Growth at Warrington Central station from 444,000 in 2004-05 to 1,730,000 in 2016-17 accounts for 60% of the increase.

3.2.2.4 Walking and Cycling

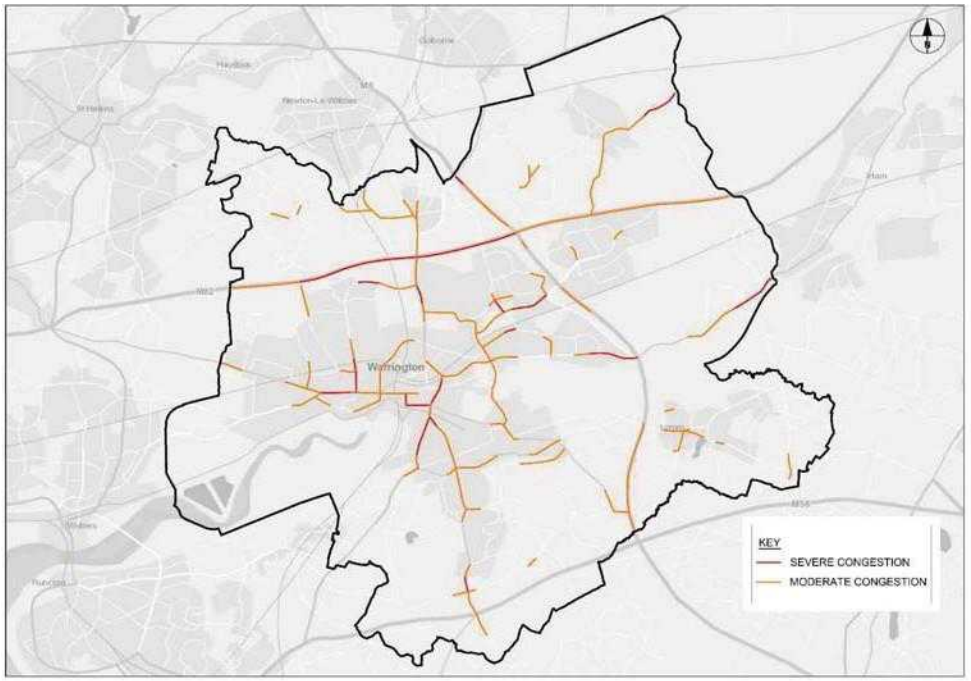
It is important to consider active travel within this report given that mass transit is part of a wider transport vision for the borough and opportunity to increase levels of walking and cycling should be considered. According to government figures from 2016, at borough level, levels of walking and cycling among adults in Warrington fall slightly below the national average but just above the average for the North West. In Warrington, just over 69% of adults walk or cycle at least once per week, while 44% walk or cycle at least three times per week. This compares to the regional averages of 68% and 42% respectively and the national averages of 71% and 46%[3]. On the whole, pedestrian and cycle counts conducted by WBC indicate that level of walking and cycling in the borough are on an upward trend, particularly for access to and from Omega and in part due to the demographic of the workforce.

Improving the 'last mile' of journeys into the town centre for pedestrians, cyclists and public transport is a key priority within the emerging LTP4. It is imperative that any investment in enhanced public transport for Warrington is integrated with walking and cycling proposals to deliver seamless journeys for all users in the area.

3.3 Implications of CarCulture

The clearest impacts of such heavy dependence on private vehicles is demonstrated in **Figure 12** and **Figure 13** which show levels of highway congestion in the AM and PM peaks. Congestion, particularly in the AM Peak, is observed on most of the main routes into Warrington town centre, plus a long section of the M62 to the north of the town centre. This congestion is already beginning to have economic implications for the borough; some consultation responses received from developers in relation to the Preferred Development Option of the Local Plan have expressed concern that the borough's highway network may not be able to accommodate the expected increased travel demand that their developments would have. Further implications of this car culture include health inequalities related to atmospheric pollution, community severance and noise as well as in relation to quality of life in terms of increased inactivity.

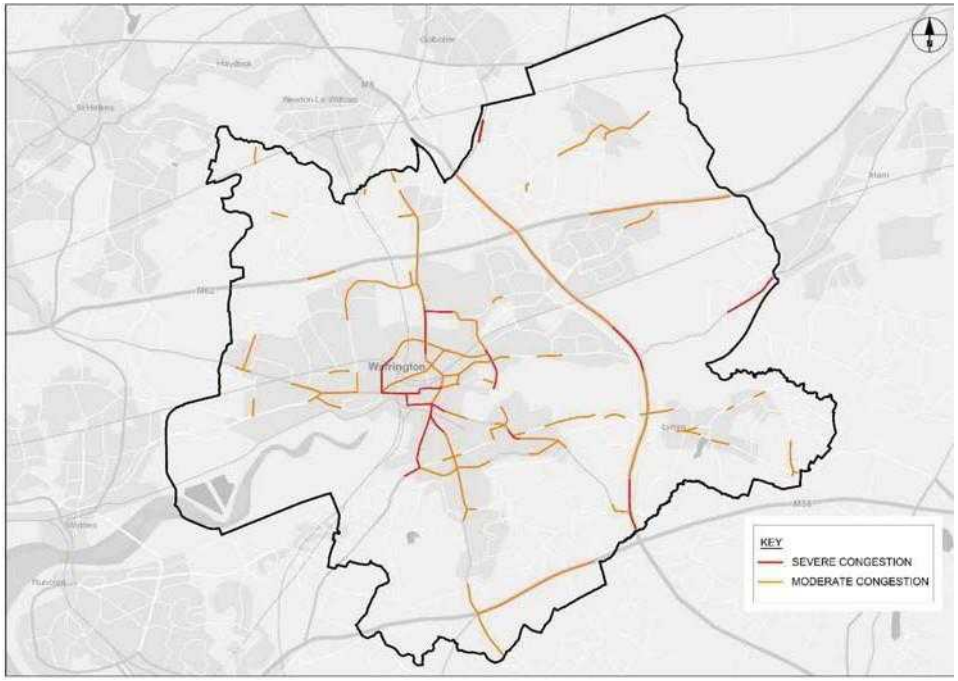
Figure 12: Congestion in AM Peak



Source: Google Maps

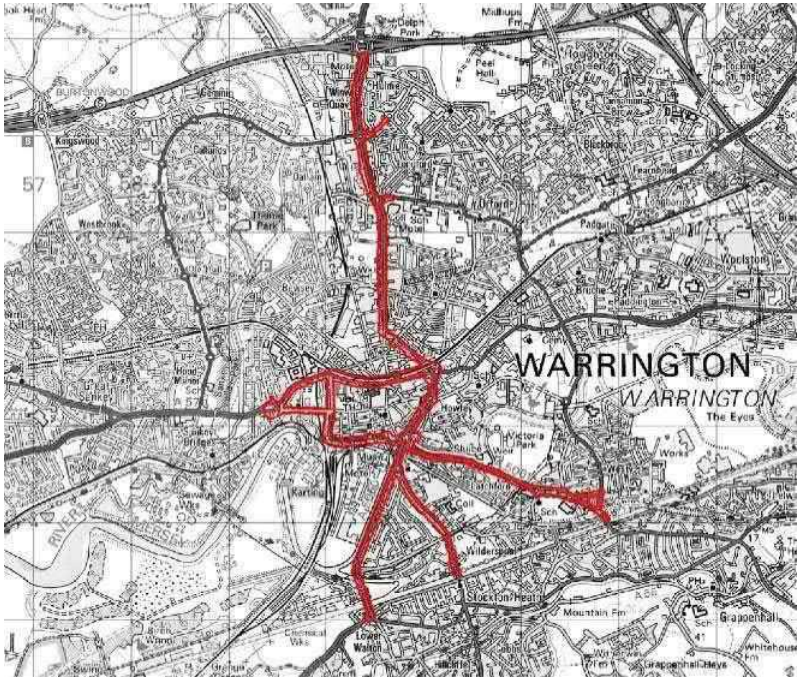
[3] https://www.gov.uk/government/collections/walking-and-cycling-statistics#data-tables

Figure 13: Congestion in PM Peak



Source: Google Maps

Figure 14: Central Warrington AQMA



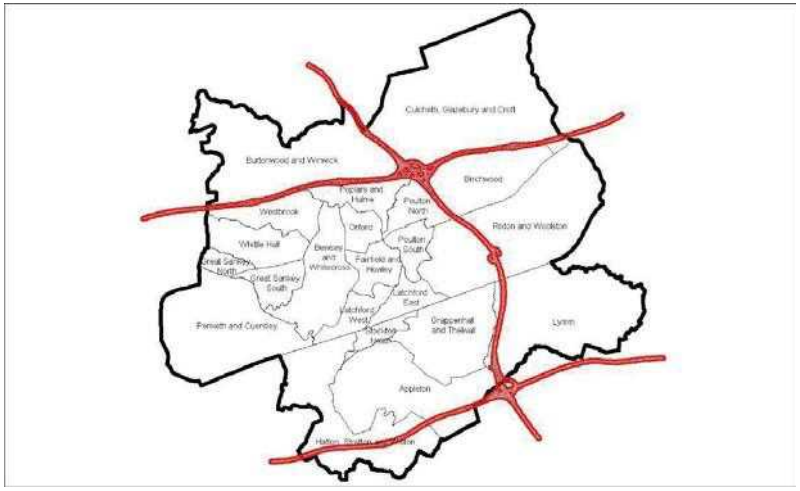
Source: Warrington BC

Beside congestion, poor air quality is a key issue in Warrington. This is reflected by the fact that in 2013, 4.8% of all mortality in the town was attributable to man-made particulate pollution, the equivalent to 95 premature deaths. This is slightly worse than the average for the north west of 4.6%[4]. Air pollution, in the form of Nitrogen Oxide (NO_x) and Nitrogen Dioxide (NO_2), has severe detrimental impacts on people's health and wellbeing.

Two Air Quality Management Areas have been declared by Defra in Warrington. The extents of these are shown in **Figure 14** and **Figure 15**. Whilst not the only component, vehicular traffic is a strong contributor to air pollution, hence AQMAs are along heavily-trafficked major roads.

[4] https://www.warrington.gov.uk/info/201090/environmental_issues/2024/air_quality_and_pollution

Figure 15: Motorway AQMA



Source: Warrington BC

3.4 Emerging Trends

The Mersey Gateway Bridge opened in Halton in late 2017 and is located 5.5 miles west of Warrington town centre, taking much of the traffic demand from the older Silver Jubilee Bridge. The standard toll for crossing the bridge is £2.00 for a one-way trip, rising to £8.00 for an HGV. The Mersey Gateway scheme represents a substantial increase in capacity for crossing of the Mersey at Halton, but the imposition of a toll raises the possibility that some traffic may find the option of cross river travel using the bridges at Warrington more attractive and that may have consequent traffic impacts across the Warrington area.

To better understand the impacts of the new Mersey Gateway on traffic within Warrington, flows on ten strategic routes in the town have been monitored in the period before and after the opening of the Mersey Gateway. Interim results suggest that changes in travel levels since the opening of the Mersey Gateway have been relatively small, with the most notable proportionate increases being off peak, although small in actual numbers.

The new Warrington West rail station was approved in late 2017 where it received full funding, and opening is expected in 2019/20. It is located on the CLC line, to serve Chapelford, Lingley Mere and Omega with three services per hour: two stopper services (Liverpool Lime Street – Manchester Oxford Road) and one semi-fast (Liverpool Lime Street – Manchester Airport). Crucially, this station will deliver a fit for purpose rail station in the west of the town, opening up access to rail services for a significant number of residents and employees in this area. The station will have a large 250-space car park which will also make it an attractive park and ride station for those living within the wider catchment of the station

Warrington Western Link is a proposed new highway between the A56 and A57 on the western side of Warrington and is expected to bring much needed relief of congestion for Warrington town centre. The route will connect between the A57 and A56 providing a bypass of Warrington Town Centre and a new higher capacity river crossing. The key opportunity related to Western Link and this study is for greater segregation of Warrington's public transport offer on roads where traffic flows are reduced by the new Western Link, particularly in the town centre.

3.5 Future Baseline

As highlighted within Chapter 2 of this report, the Warrington Draft Local Plan Preferred Development Option sets out the future requirements for housing and employment sites in the borough. Approximately 20,790 new homes and 362 hectares of employment land are incorporated in to the preferred development option for building over the next 20 years.

To estimate the additional quantum of trips produced each day as a result of the additional housing proposed in Warrington over the next 20 years, a simple calculation based on a number of assumptions and first principles is possible. From the 2011 census, the average number of employees per household is 1.3 so for 20,790 additional households, this amounts to 27,027 additional employees living in the borough. If we assume each of these employees makes two trips (1 outbound, 1 inbound per day) this equates to 54,054 additional daily trips. Not all of these will be by car, however, so assuming car driver current mode share for Warrington residents (74% from **Figure 11**) we obtain a total of around **40,000** additional car trips. This however doesn't take into account increased car trips to Warrington employment sites from those who don't live in the borough, or any non-work trips by new residents.

If a standard urban traffic lane has a throughput of about 2,000 vehicles per hour in free-flowing conditions, this amounts to a requirement for **20 additional traffic lanes in the peak hour.** Clearly this is a significant additional traffic impact however **Figure 19** also demonstrates how much more efficiently we can use space in the town is if we encourage more people to travel by bus, by bicycle or on foot as opposed to by car.

Figure 16: Difference in road space requirement for 60 pedestrians, cyclists, bus users and car drivers

Source: Mott MacDonald

Employment sites are likely to be concentrated in areas where high levels of employment already exist, namely the town centre, Birchwood, Omega and around J20 of the M6 on the southern edge of the Garden Suburb. Additionally, employment development is proposed in the Waterfront area to the west of the town centre.

Whilst some residents will be employed within the new development areas, such as in new schools, health centres, retail and community facilities, many will likely travel to work in other

parts of the borough. To ensure Warrington's economy benefits from the new housing and population associated with it, and does not simply become a commuter settlement for people working in other places such as Liverpool and Manchester, improving transport connectivity within the town is of utmost importance. The proximity of the Garden Suburb to a good motorway network makes commuting by car to other locations an attractive option for many; without careful consideration and transport investment within Warrington, the borough will miss out on the business investment and growth which could be generated.

The growth proposals for new residential (and employment) developments for Warrington Borough will put added pressures on to an already congested network. With many of the proposed new residential developments being on the south-eastern and south-western edges of the urban area, the propensity to default to car-dominant travel is high unless viable, high-quality alternatives are provided, with suitable demand management to discourage people from travel by car. Later in this report, various demand management and public transport improvements such as mass transit are considered.

3.6 Summary

The assessment of the baseline current and future transport situation has identified the following key potential issues for Warrington to be resolved by the Transformational Scheme Strategy:

- **Car Dominance:** The Census 2011 shows that 80% of Warrington residents travel to work by car (74% as drivers). This congestion and air quality issue situation is exacerbated by:
  - The geographical spread of employment;
  - Higher than national levels of average car ownership;
  - Good access to the motorway network on most radial corridors within the borough; and
  - Low density housing and employment development away from town centre.
- **Accessibility to Public Transport:** Many people that live and work in Warrington borough do not enjoy easy access to a high frequency public transport corridor. This is because of a variety of factors including:
  - Dispersal of the population in areas of low density which are notoriously difficult to serve by cost effective public transport;
  - Significant amounts of employment in out-of-town business parks not well served by public transport;
  - A public transport network focussed on the town centre despite the dispersed nature of both housing and employment across the borough; and
  - Reduced availability of funding from Central Government to spend on non-commercial bus services.
- **Future Housing and Employment Growth:** Over the next 20 years, the Local Plan aspires to build 20,700 new houses. This could equate to around 40,000 additional car trips per day from Warrington residents for employment alone.
- **Congestion and Air Quality Issues:** As a result of the above, Warrington's road network experiences some of the worst congestion in North West England and has led to the declaration of two Air Quality Management Areas: one covering the town centre and A49 Winwick Road and the other covering the M6, M62 and M56 motorways within Warrington. In this context, improving pedestrian and cycling accessibility is an opportunity that Warrington should investigate as part of any investment in transformational transport schemes.

As Chapter 2 explained, Warrington is one of the best performing economies in the North West and has significant economic potential for further growth and development. A failure however to ensure that the borough is both better connected by public transport and has a transport network which can accommodate future growth, will stifle the economic prosperity and success of the borough.

4 Opportunities

4.1 Overview

A review of economic context has demonstrated that Warrington is a key location outside of the two big cities in the North West where businesses want to invest and people want to live. Sustaining this position of strength requires targeted and sustained investment in our key infrastructure. At the more local level, the concurrent production of Warrington's Local Plan and LTP provide a key opportunity to ensure that transport aspirations are captured within the Local Plan. At the more strategic level, the opportunity for north south and east west high speed rail connectivity provided by HS2 and Northern Powerhouse Rail will support our advanced businesses to grow and thrive, strengthening Warrington's position as the cornerstone of the UK's research and technology sector. Investment to establish Warrington Bank Quay station as a destination and transport hub is crucial for Warrington to be able to capture the full benefits of high speed rail connectivity.

4.2 Local Context

A unique and exciting opportunity is presented for Warrington due to the Local Plan and the Local Transport Plan (LTP) being refreshed simultaneously. The Local Plan and the LTP are two of the most important documents for shaping the strategic direction and development of the housing and transport network at a local level, and producing them concurrently allows for them to be aligned and consistent with one another. This study aims to identify major transformational transport projects which will be needed to support and enable the full realisation of the ambitious plans for housing and employment growth in Warrington. Both the Local Plan and LTP can be written with regard to the identified projects to prevent conflicts between them and ensure full local policy support. The Local Plan and the LTP are Warrington's own documents and cover policy and decision making that is within the control of Warrington Borough Council. This means they can be shaped to reflect the specific needs and situation of Warrington and implemented fully whereas other policies such as those relating to High Speed 2 and Northern Powerhouse Rail are national policies which Warrington has limited power to influence.

Two Stakeholder Transport Summits have recently taken place in Warrington, each covering a key area of transport network development: public transport and highways network management. The purpose of these summits was to get stakeholder input into the development of the fourth LTP, explain the development process to stakeholders and to gather ideas for transforming the public transport and highways networks of Warrington to be considered for incorporation in to the LTP, based on feedback from the Transport Summit in June 2016.

The Passenger Transport Summit outlined the existing situation with the public transport networks in Warrington (bus, rail and taxi) in terms of patronage and service provision, the scope of the Council's powers to influence and change the situation, and the actions the Council is currently undertaking to improve the network. It then looked at the future situation as it is currently understood and highlighted the biggest changes which are expected to come: the Buses Bill, which will give Council's greater power to improve bus service provision, Smart and Integrated Ticketing, and future rail services on the CLC Line, HS2 and NPR. The key themes and issues identified by stakeholders for where improvements to public transport are needed are:

- Frequency of services and off-peak coverage
- Provision and speed of services to out of town destinations
- Cost and affordability, including season tickets and multi-operator tickets
- Information and communication, both of changes to services and real-time updates
- Prioritisation of public transport and disincentivisation of car usage
- Improvements to air quality.

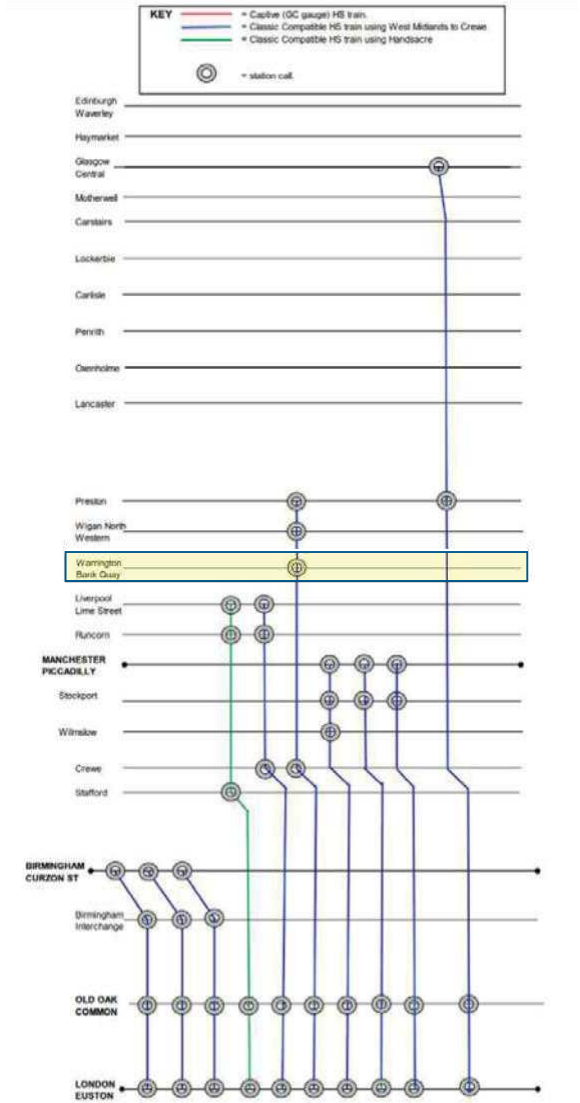
The second summit focused on managing highways in terms of vehicular movement and the maintenance of the highway assets. As with the public transport summit, the session followed a format that facilitated discussion of: the current situation; current issues; the Council's existing powers; and future opportunities. Vehicle flows on Warrington roads are high, with cars accounting for around 75% of traffic. Particular areas of congestion and slow average speeds include Wilson Patten Street and the A574. As the highways authority, the Council is responsible for maintaining the highways network to ensure it remains fit for purpose and maintains movement of traffic around the borough.

The Council has a range of technological systems to monitor and manage the live situation on the highways network; this infrastructure is currently being updated to the latest systems. The use of technology and apps was a recurrent theme with regards to improving management of the highway. Good maintenance of active travel routes was identified as a factor which would encourage modal shift towards active travel, along with better integration and coverage of affordable public transport services to provide a viable alternative to car use.

4.3 High Speed 2 (HS2)

Warrington will be served by HS2 from day one of Phase 1 of the scheme. At present, the core consulted scheme suggests an hourly service in both directions between London Euston and Preston serving Warrington Bank Quay providing an approximate 80-minute journey time to London in 2026 reducing by 12 minutes upon the completion of Phase 2A in 2027 (**Figure 17**). This compares with typical current fastest journeys of 110 minutes. HS2 services are not yet set but Warrington will be lobbying for a residual West Coast Mainline service between Scotland and London Euston via Warrington Bank Quay to be retained providing multiple journey opportunities from Warrington each hour as per **Figure 18** which shows the modelled assumptions for classic rail services on the West Coast Main Line consistent with assumptions for HS2 shown in **Figure 17**.

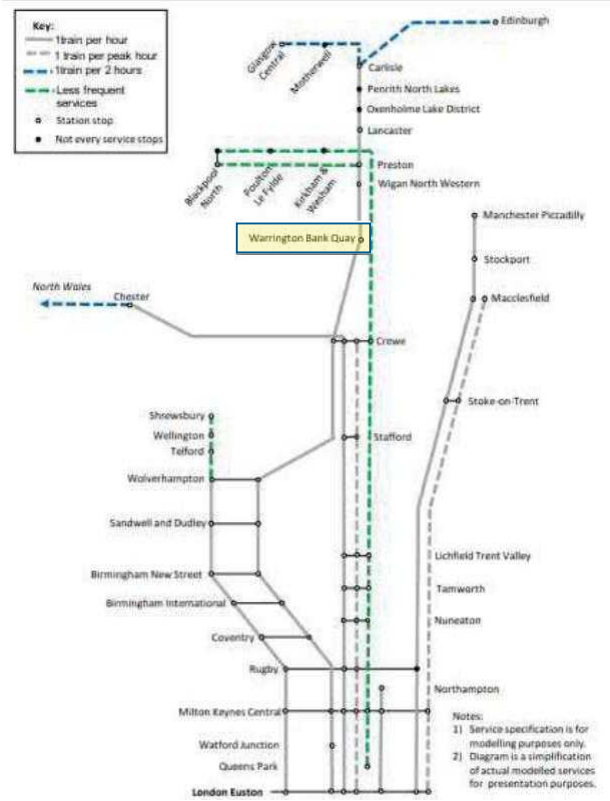
Figure 17: HS2 Phase 2A Service Patterns



Source: HS2 Ltd

The primary opportunity around HS2 for Warrington is in the increased number of passengers passing through Warrington Bank Quay as a result of the increased accessibility and reduced journey time to London. This may, in turn, make Warrington a more desirable place to live and/or locate a business in, and will see significantly increased passing trade as a result of increased passengers using the town as a transport interchange hub. Warrington would become a key access point to the HS2 network for a large catchment of people from within Warrington borough, from the St Helens and Widnes areas and their surrounds, and from selected parts of north Cheshire and north Wales, Merseyside and western Greater Manchester. This emphasises the importance of providing high quality accessibility into Warrington Town Centre from these areas. Later sub-sections detail the proposals to transform Warrington Bank Quay into a 21st century interchange station, and to significantly improve its accessibility and attractiveness in its urban context.

Figure 18: Residual West Coast Mainline Service Patterns – HS2 Phase 1/2A



Source: HS2 Ltd

WBC has put forward an alternative option to HS2 in its response to the Phase 2 consultation in which the so-called Golborne link (which bypasses Warrington) is removed and the West Coast Mainline is upgraded between Crewe and Wigan instead. This option would see significantly more trains passing through Warrington with the potential for some or all of these to stop, improving the service level for the town. Nonetheless, even if this option is not realised, Warrington will still reap the benefits of its hourly HS2 service and will represent the best access to the HS2 network for a large catchment of the Mid-Mersey and north-Cheshire region.

4.4 Northern Powerhouse Rail (NPR)

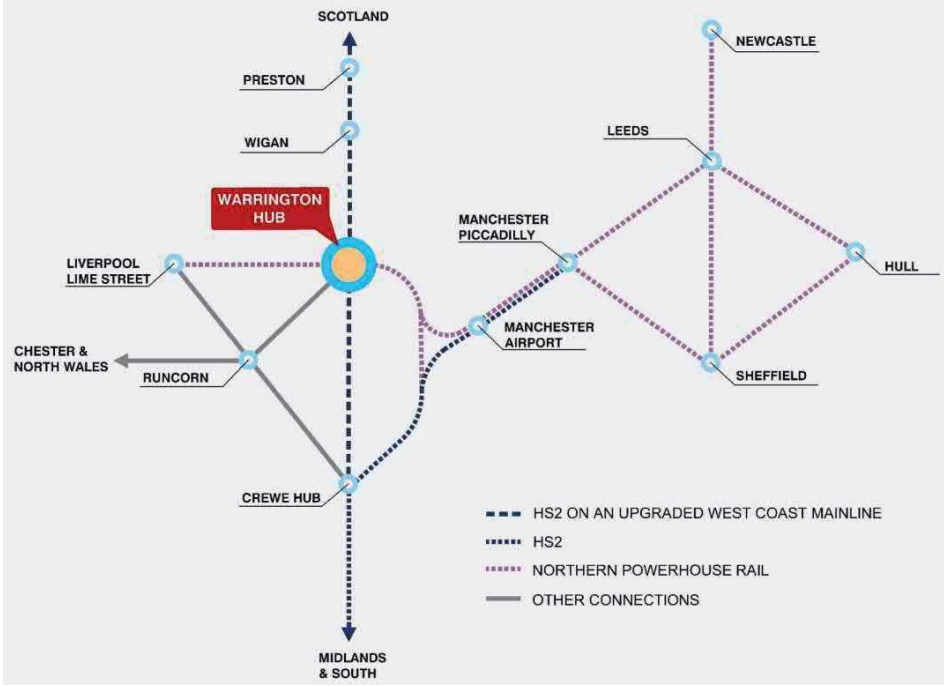
NPR represents a significant aspiration for northern city regions and local authority areas to enhance their intra-regional connectivity and to create a so-called 'Crossrail of the North'. The ultimate prize of this endeavour is for the North of England to operate as a single economic region with a population and economy to compete with the South East and London. The aim is to create a more balanced economy with the northern towns and cities better able to tap into the agglomeration benefits that a more mobile workforce and a polycentric economy can bring. Although currently uncommitted, NPR enjoys the support of significant political leaders across the North of England and central Government, and is included in Transport for the North's recently published Strategic Transport Plan.

The Strategic Transport Plan has confirmed that the preferred NPR proposals include a stop in Warrington, Warrington having been confirmed as an Other Significant Economic Centre (OSEC). The exact alignment of NPR will be the subject of further development work, but there are clear advantages in developing a hub station in Warrington town centre.

The benefits would be enhanced attractiveness of Warrington town centre as a location from which to catch long distance services, and better levels of investment in the town both in terms of those attracted to live by the increased accessibility, and those attracted to locate businesses in the town. The increased number of trips passing through Warrington town centre under the HS2 and NPR proposals will also significantly justify a focus for a new mass transit network for the town centre.

Figure 19 illustrates a potential future network incorporating NPR and HS2 and a Hub in Warrington town centre.

Figure 19: Potential Northern Powerhouse Rail and HS2 Connectivity at Warrington



Source: Mott MacDonald

4.5 Warrington Bank Quay

HS2 and NPR provide a unique opportunity to enhance the area surrounding Bank Quay station. With an enhanced high speed hub at the heart of the town serving HS2 and NPR, Warrington will provide a crucial point where 'North South meets East West' and high speed rail services will meet an expanded town centre offer. It is possible that this new hub could be centred around Bank Quay station incorporating HS2, NPR and conventional rail connectivity. The viability of a nationally significant station gateway will also be boosted by the fact that Warrington will provide a connected hub for the populations of the West Cheshire and North Wales areas, linking them to both NPR and Scotland/Lancashire bound HS2 services. In total, over a million people from the Mersey Dee area would have better, more logical access to the NPR network if Warrington comes forward as an NPR hub, with the additional interchanging passengers.

Increased rail connectivity for Warrington will also increase the attractiveness of the location as a place to do business, helping to stimulate the wider Bank Quay area in terms of new residential and employment growth. Ultimately, there is no reason why Warrington should not

be aspiring to deliver a station hub and gateway area similar to what is proposed at Birmingham International (**Figure 20**).

Figure 20: Example HS2 Hub – Birmingham International

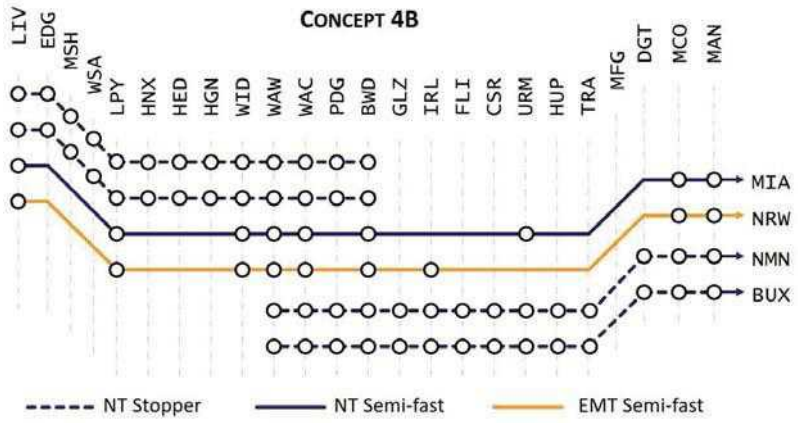
Source: Grimshaw and Mott MacDonald

4.6 Cheshire Lines Committee (CLC) Route Enhancements

The majority of rail trips into and out of Warrington at present are made via the busy Cheshire Lines Committee Rail Line which runs through the town on its way between Liverpool and Manchester. As important as inter-regional and long-distance connectivity is for the borough, the priority of the highest proportion of rail travellers (as revealed by recent survey work) is good connectivity to these two cities. The CLC experienced, in May 2018, a significant change in service patterns when the Liverpool – Scarborough TransPennine Express service transferred to a different route. It has been replaced by an hourly Northern Liverpool – Manchester Airport service, however Trans-Pennine connectivity from Warrington Central and Birchwood stations has been lost (an additional service between Chester and Leeds via Warrington Bank Quay will mitigate against this loss slightly, but will now not be delivered until December 2019 at the earliest).

To provide guidance as to the future use and identity of the CLC, the route has recently been the subject of a strategic study looking at the types of service and likely calling patterns that might use it in future. A variety of options were modelled with the most favourable from Warrington's perspective being increased frequencies to both east and west through extending Merseyrail suburban rail services from Liverpool Central to the town from the west, and Metrolink light rail services from Manchester in the east, possibly with a degree of overlap in Central Warrington. Concurrently there is a strong desire to retain semi-fast services through the town to provide through connectivity. An indicative diagram of stopping patterns under a scenario where semi-fast services are retained for Warrington is included as **Figure 21**. This future for the CLC line would deliver faster journey times for key CLC flows and include splitting of stopping services to improve service reliability whilst also providing a high-level service frequency between Warrington West and Birchwood across the town. It would also facilitate future extensions of Merseyrail towards Warrington, increasing connectivity between Warrington and Liverpool.

Figure 21: Stopping Pattern for CLC Strategy Concept 4B



Source: AECOM (2017)

The CLC does not have line capacity to support these aspirations at present and enhancements such as increased passing loops, re-signalling work and possible future electrification could be required to realise these aspirations. It is clear that Warrington has strong levels of demand to both east and west and, as evidenced in the previous section, large amounts of this demand are currently being catered for by private car leading to congestion and environmental ill effects. Accommodating the current and future demand on rail is key to the success of the town and its continued growth, and the CLC will remain a vital corridor to achieve this.

5 Demand Management and Funding Options

5.1 Overview

Theme A of this study focuses on concepts which could help support the delivery of Strategic Mass Transit, exploring both:

- **Demand Management** mechanisms in terms of how WBC can better manage demand from private vehicles within the town centre of Warrington including mitigating the impacts of through traffic. This includes analysis of:
  - Workplace Parking Levy (WPL)
  - Clean Air Zone (CAZ)
  - Road User Charging
- **Non-Demand Management** mechanisms in terms of their potential to raise revenue for investment in Strategic Mass Transit. This includes analysis of:
  - Community Infrastructure Levy (CIL)
  - Council Tax Levy

Assessments of each of these concepts will be made using a multi-stage process, structuring our approach to understanding both the likely implications of the demand and non-demand management mechanisms as well as experience from introducing the concepts elsewhere. In this section (5), the options themselves will be explored further, looking in particular at the logic mapping of each option, and the lessons learnt from elsewhere using benchmark examples worldwide.

In the following section (6) we will review the suitability of each option in relation to demand management and revenue generating concepts in Warrington itself, providing details of the legislative framework, implementation requirements, ability to achieve the required objectives and specific modelling results if available.

5.2 Demand Management

5.2.1 Workplace Parking Levy

A Workplace Parking Levy (WPL) is a charge on employers who provide workplace parking for their employees. Where a local authority introduces a WPL, all businesses who provide more than a given number of free employee-only parking spaces are charged an annual 'per-space' fee. Employers are therefore encouraged to manage and potentially reduce the level of free workplace parking spaces that they provide when the WPL is introduced. The levy charged per space creates a revenue stream which must be reinvested in sustainable transport improvement projects. The underlying aim of WPL is to facilitate enhanced economic growth and increased public wellbeing by managing congestion, improving accessibility to urban centres and encouraging a shift towards healthier and cleaner modes of travel to work.

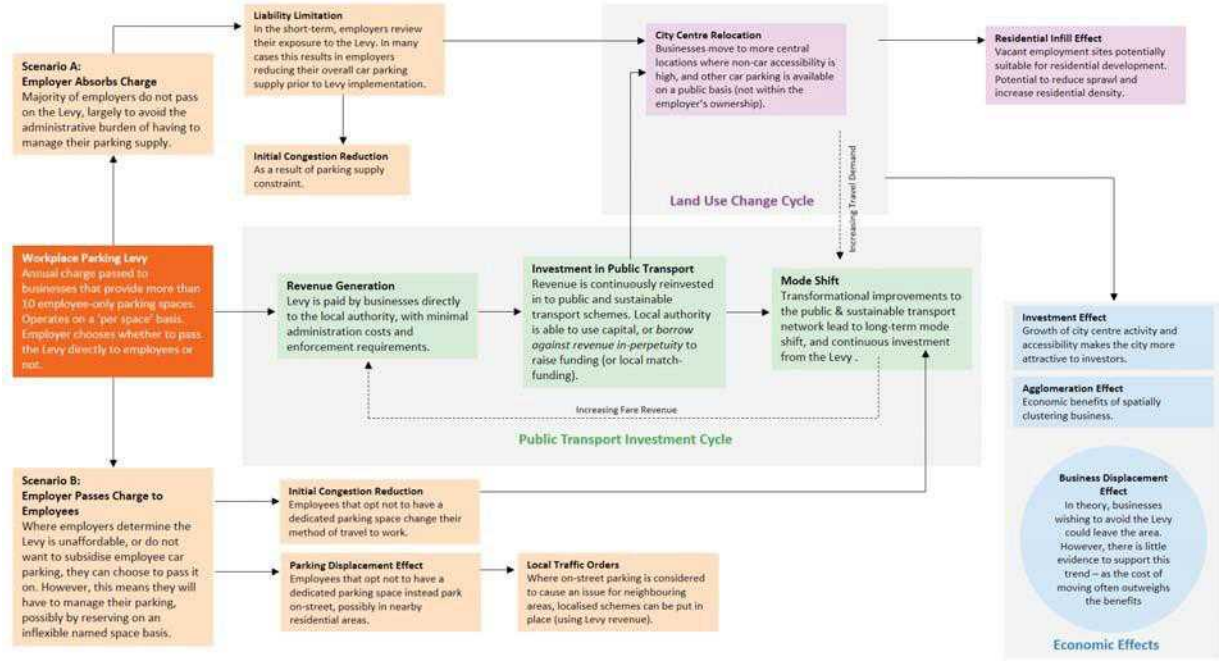
The Government first consulted on the idea of WPL in 1998 and granted implementation powers to local authorities in England and Wales through the Transport Act 2000. A WPL can be introduced provided that the revenue stream from charges is ring-fenced and invested in transport improvements (i.e. effectively a hypothecated tax) for a period of at least ten years.

The only local authority so far to have piloted and introduced the levy is Nottingham City Council. The introduction of WPL in Nottingham has a dual function, acting both as a major funding mechanism for transport infrastructure initiatives as well as a travel demand management tool by incentivising employers to manage their workplace parking provision. Parking provision and enforcement can exert a powerful influence on congestion in towns, as parking availability and the cost of parking is a significant consideration for motorists when deciding whether to drive to a destination. Where there is limited private, non-residential parking and through-traffic can be controlled, parking controls can be effective in reducing private car use, which can in turn reduce congestion.

5.2.1.1 Logic Mapping

The concept map below (**Figure 22**) outlines the key elements of the WPL, based upon a scenario where a local authority introduces a WPL charge on all businesses providing more than 10 employee-only parking spaces. Key elements of the WPL are also described below:

Figure 22: WPL Concept Map



Source: Mott MacDonald

1) Revenue Generation

The levy is paid by businesses directly to the local authority. As all businesses are legally required to register their workplace parking spaces, the authority is able to accurately calculate the revenue that the WPL will generate on a year to year basis. The stable revenue stream enables better long-term planning for new investment and the authority can borrow against this income stream in perpetuity to raise funding for transport investment.

2) Investment in Public Transport

This ability to borrow capital against revenue in perpetuity unlocks the ability to match fund to deliver transformational transport schemes that would not possible when the local funding model is short-term. The WPL revenue stream and borrowed capital are therefore continuously invested in public and sustainable transport schemes. Ring fenced money can also be used to repay capital borrowing for scheme delivery, with the full WPL spending guidelines outlined in the Transport Act regulation on WPL (179(2)).

3) Mode Shift

The delivery of transformational improvements to public and sustainable transport leads to long-term modal shift from private cars towards these more sustainable modes. Increased public transport patronage and associated revenue adds to the level of funding available for sustained investment in the network.

4) Land Use Change

In the short term, as employers and their employees review their exposure to the levy, many employers choose to reduce their overall parking supply, opening up new parcels of land for development. In the longer term, following investment in local public transport networks, businesses on the periphery of the urban area are likely to relocate to more central locations where non-car accessibility is high and employers are able to make use of public car parking (not owned by the employer) stock if required. The growth and increased accessibility of the urban centre makes it more attractive to new investors and vacant employment sites on the outskirts of the town become potentially suitable for residential infill or various other new development.

5) Business Displacement Effect

In theory, businesses wishing to avoid the levy could leave the area or relocate to another locations outside of Warrington however there is little evidence to support this as the cost of moving and difficulties that staff may have in being able to work in the new location often outweigh the benefits. Experience from the implementation of the WPL in Nottingham is explored below.

5.2.1.2 Benchmarking

Restricting free workplace parking in towns and cities is an established phenomenon. In Sydney, Australia, a Parking Space Levy (PSL) has been in place since 1992 for the central business district and other areas of the city with a high concentration of office space. In the UK, the *Transport Act (2000)* gave local authorities the power in principle to introduce a WPL, with the implementation in Nottingham taking just over 10 years. Nottingham remains the only UK town or city to have introduced a WPL, with the scheme rolled out in full in 2012.

Case Study: Nottingham	*Warrington*
Population (City): 321,500	**Population (Town): 39,580**
Population (Urban): 916,000	**Population (Borough): 208,809**
City Pop Density: 4,359 p/km^2	**Borough Pop Density: 1,156 p/km^2**
City Governance: Nottingham City Council	**Governance: WBC**

The Nottingham WPL was introduced in 2012 and employers with 11 or more parking spaces pay £402 per year per space (increasing to £415 per year per space from 1st April 2019), although there are some exemptions including relating to visitor and disabled spaces. Despite initially mixed reviews from the business community, with some smaller companies blaming the WPL on having to leave the city, the scheme has received plaudits from the early stages for its role in increasing the propensity of staff to travel to work by active modes, delivering improvements to quality of life. Currently, the supply of liable workplace parking spaces stands at around 75% of the city's pre-WPL level and the levy has also helped Nottingham reach its carbon reduction target in recent years[5]. As per the *Transport Act (2000)*, it is also important to highlight that the WPL revenue stream must be ring-fenced and invested in transport improvements for at least 10 years from implementation. For every £1 raised, the Levy also helps to lever in at least £3 of external funding in the city through additional investment related to reduced levels of congestion.

As highlighted within the 2011-2026 Local Transport Plan strategy, commuters in Nottingham account for about 70% of peak time congestion and the city council therefore considers it only fair that employers accept their responsibility for this and to contribute to investment in public transport alternatives to the car. This investment in public transport is understood to be a major factor in the city continuing to attract inward investment from new businesses into the city, resulting in an extra 2,000 new full-time jobs.

Nottingham's WPL in numbers:

3 years	**18%**	**40%**	**95%**	**£25 million**
now the estimated timeframe for introducing a WPL scheme in a UK city despite taking 12 years in Nottingham	employers currently with more than 10 spaces and therefore required to pay the levy	journeys in the city now undertaken by public transport	customer satisfaction across the city's bus and tram networks and the highest level of bus and tram usage per head outside of London	raised for public transport projects in just 3 years, supporting investment in new tram lines, cycle lanes, 45 electric buses and a redeveloped train station

WPL collection rates in Nottingham stand at 100%, and therefore no penalty notices have needed to be issued to businesses who have failed to pay the levy. This acceptance of the levy from businesses is reflective of the successful comprehensive communications campaign for the scheme which includes a dedicated hotline with trained staff to deal with day to day inquiries, an online licence registration system and meetings with specific groups of employers,

[5] Nottingham City Council. 2016. Workplace Parking Levy (WPL) Evaluation Update – April 2016.

such as those on business parks. Grants have also been made available to help companies to put car park management schemes in place.

Further positive headlines from the WPL scheme in Nottingham include that there has been a total 1 million person increase in total public transport patronage since the opening of Phase 2 of the tram network, and it is predicted that public transport improvements associated with WPL will take 2.5 million cars off the roads[6]. However, it is also considered difficult to isolate the effect of the WPL charging scheme from that of other traffic management measures that have been implemented across the city[7].

Without more detailed work, it is hard to estimate the possible effects that a WPL scheme could have on the potential future relocation of businesses currently based in Warrington. It is not possible to make a direct parallel between outcomes in Nottingham and potential impacts in Warrington as spatial form and sectoral composition of the local economy vary from place to place. It is also noted that the Nottingham City WPL has only been operational for around five years. Firm relocation decisions tend to be experienced over the longer-term due to existing contractual commitments of these businesses (e.g. with employees or landowners).

A few potential factors which could arise after the implementation of a WPL and which could lead businesses to relocate out of the licensing scheme area can be identified as:

- A sharp increase of overall operating costs due to the WP affecting the profitability and the competitiveness of a company;
- The inability of a firm to recover this operating cost increase through the sales revenue of the company or through passing on these costs to employees;
- Challenges in attracting new employees on the companies' site/s within the licencing scheme area.

Nottingham City Council decided to allow exemptions from the scheme for car spaces allocated for retail purposes and for companies providing less than 11 workplace parking spaces. In the first case, the reason was to not penalise retailers' activities at the city scale, whereas in the second case, the explanation was to not damage SME activity, given its often marginal economic viability. This flexibility offered by the enabling legislation in designing a scheme tailored to the needs of a local authority area, would apply in equal measure to any scheme that Warrington Borough Council might adopt.

Building on the success and lessons learnt from Nottingham, from 2017/18, more UK cities as well as the Scottish Government, have been exploring potential schemes to cut congestion and improve air quality, including introduction of a WPL:

- **Cambridge:** A detailed consultation was staged in 2017 with employers around the potential introduction of a WPL. Initial analysis from the county council has reflected that the needs of the Cambridge region are "very different" to Nottingham, highlighting the importance of detailed analysis and consultation before rolling out a WPL.
- **Oxford:** As part of a drive to create a Zero Emission Zone in central Oxford, Oxfordshire County Council explored demand options for the city including a congestion charge and a WPL. In October 2017, the county council commenced a survey of 1,500 businesses to understand levels of staff parking and staff travel habits to help inform how a WPL could be implemented. A public consultation also took place in 2018. It is hoped that the WPL could fund the development of a Bus Rapid Transit network in the city.
- **Leeds:** Leeds City Council consulted in 2018 on both the Clean Air Zone (CAZ) that they have been ordered by Government to introduce, as well as a WPL. CAZ as a concept will be further explored below in Section 5.3.
- **Scotland**: The Scottish Government also approved plans in February 2019 to enable councils across the country to introduce a WPL.

Further discussion of WPL feasibility is included in Section 6.

5.2.2 Clean Air Zone

Clean Air Zones (CAZ) seek to improve the urban environment and air quality by placing restrictions or charges within a given zone on the most polluting road vehicles. Clean Air Zones are typically linked to locations with established air quality problems. Warrington as a borough has two Air Quality Management Areas (AQMAs), as shown in **Figure 3**.

A CAZ is an area where targeted action is taken to improve air quality and resources are prioritised and coordinated in order to shape the urban environment in a way that delivers improved health benefits and supports economic growth. CAZs fall into two categories:

- Non-charging CAZ: defined geographic areas where action is focussed to improve air quality. Actions can include a range of forms but does not the use of charge based access restrictions.
- Charging CAZ: zones where vehicle owners are required to pay a charge to enter or move within a zone if they are in a vehicle that does not meet a particular standard for their vehicle type.

In the national air quality plan for nitrogen dioxide, published in December 2015, the UK Government (Department for Environment, Food and Rural Affairs (Defra)) set out that five cities (Birmingham, Derby, Leeds, Nottingham and Southampton) would be mandated to implement a charging CAZ. Legislation to facilitate this was published for consultation in late 2016 and the Government expects charging schemes to be introduced by the end of 2019. Councils in the five cities covered by Defra's plans will be permitted to set charges for CAZs to recoup costs but not to raise additional revenue.

In January 2019, Leeds City Council approved its CAZ charging regime and will charge up to £50 per vehicle per day to enter the CAZ from January 2020. Non-compliant buses, coaches and HGVs will all be charged the full £50, with a £12.50 charge for taxis and private hire vehicles. By contrast in Southampton, following a period of consultation and assessment, plans to charge up to £100 per vehicle per day were scrapped and a non-charging CAZ was agreed, also in January 2019.

London has operated a Low Emission Zone since 2008, covering the whole of the Greater London Authority Area. Further to this, an Ultra Low Emission Zone (ULEZ) in central London, targeted at diesel vehicles, will be launched in April 2019 and extended to inner London from October 2021. Separately, a "Toxicity Charge" was introduced as a supplement to the central London Congestion Charge in late 2017, payable by older vehicles that do not meet Euro 4 emission standards.

[6] http://www.cbtthoughtleadership.org.uk/WPL-Briefing-Nottingham.pdf

[7] Dale et al. 2017. Evaluating the impact of a workplace parking levy on local traffic congestion. The case of Nottingham UK. *Transport Policy 59.* 153-164.

5.2.2.1 Logic Mapping

The logic map below (**Figure 23**) encapsulates the main elements of a Clean Air Zone, where highly polluting vehicles are restricted from entering a designated zone. It covers both a ban of highly polluting vehicles and charges for said vehicles to enter the zone. Key elements include:

1) Poor Air Quality

Warrington has two air quality management areas declared, as shown above. Poor air quality contributes to poor health and wellbeing of residents and workers, resulting in additional sick days, early deaths, and additional health care costs. High levels of greenhouse gases also contribute towards climate change.

2) Removal or reduction of highly polluting vehicles

The worst vehicles in terms of emissions of PM10, NOx and NO2 are either completely banned from entering the designated zone, or are charged to do so. Both options should lead to fewer or no vehicles such as older HGVs and buses entering the zone. Owners may choose to retrofit their vehicles to make them conform to the standard, or replace vehicles with newer, less polluting vehicles. Alternatively, operators may choose to reassess whether the journey is absolutely necessary and potentially avoid making the trip.

3) Environmental benefits

A complete ban on the dirtiest vehicles would prevent all highly polluting vehicles from entering the zone, whereas a charge would disincentivise such vehicles from entering. A blanket ban would likely have greater environmental impacts, while the second option would lead to some drivers/operators choosing to pay the charge, raising some revenue (subject to a change in legislation) which can be invested in to other transport initiatives, while others would choose to replace vehicles or avoid driving in to the area. The exact split between 'payers' and 'changers' would probably depend on the level of the charge, the feasibility of changing vehicles to meet the limits, and alternative route options.

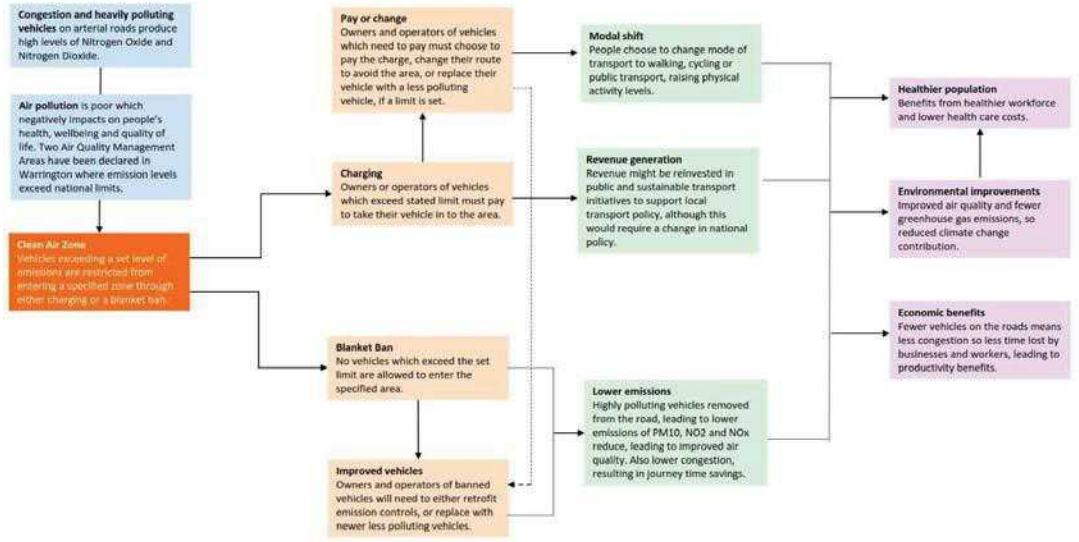
4) Health benefits

The reduction in highly polluting vehicles from residential and employment areas generates health benefits for people due to less inhalation of particulates and pollution. Also, the removal of highly polluting, large vehicles makes for a more pleasant environment which may encourage people to choose to walk or cycle journeys rather than use their car. This results in further environmental and health benefits.

5) Reinvestment

The revenue generated if highly polluting vehicles are charged to enter the area but not banned might be used for investment in publicly beneficial transport schemes, such as improved cycle/walk infrastructure, or strategic mass transit systems as discussed in subsequent chapters. However current regulations prohibit the use of CAZs to raise additional revenue for unrelated schemes, reducing their impact as a means of funding potential improvements to public transport.

Figure 23: CAZ Concept Map



Source: Mott MacDonald

5.2.2.2 Benchmarking

No cities yet operate direct Clean Air Zones, but the UK Government has informed five cities – Leeds, Birmingham, Nottingham, Derby and Southampton – that they must have CAZs in place by 2019/20. These cities are currently developing their CAZ system. A further 29 local authorities, not including Warrington, have been instructed to draw up plans for how they will tackle dangerously high levels of roadside nitrogen dioxide (NO2) in their area.

A number of cities in the UK already operate a similar concept to Clean Air Zones, in the form of Low Emission Zones.

London charges HGVs and coaches registered before 2006, and vans and 4x4s registered before 2002 a charge of £100 or £200 per day to enter the Greater London Local Authority Boundary due to their high emission rates. This is in addition to the well-known London Congestion Charge, but covering a much larger area.

Oxford, Brighton and Norwich operate Low Emission Zones which do not permit any buses not meeting Euro V emissions standards to enter the central urban area. The rules are enforced using Automatic Number Plate Recognition (ANPR) technology as vehicle registration plates are linked to the DVLA. Proposals for a full ban on all petrol and diesel vehicles in Oxford City

Centre from 2020, and the potential to expand this in future years, are currently under consultation.

5.2.3 Road User Charging

The ability for charging authorities to introduce Road User Charging is set out in the Transport Act 2000. Road User Charging is, in simple terms, a mechanism through which motorists pay to use a defined area of road (for example, by tolling). This approach is currently used extensively across Europe and on key estuarial and river crossings in the UK. It can also form a larger scheme to charge for use of road space, and provide a means through which road space can be re-allocated to public transport, for example. It is commonly referred to as "congestion charging", particularly by the media, but strictly speaking, congestion charging is just one possible form of road-user charging[8].

It is a method of internalising for the driver the external costs of congestion such as the cost of extra congestion for all other vehicles on the road due to this driver being there, pollution/environmental costs and accident costs[9].

There are a variety of different Road User Charging options, including[10]:

- **Area Licensing**: allows for provision of a licence, which enables the user to enter a certain defined area an unrestricted number of times.
- **Cordon/zone charging**: involves setting up a linear cordon and charging at access points to the zone.
- **Distance-based charging**: The fee levied is proportional to the distance travelled.
- **Time-based charging**: The driver is charged a fee related to how much time is spent on charging roads, or in an urban area, within a cordon.
- **Congestion charging**: This can be considered as a sub-set of road-user charging, as the fee levied would be directly related to the amount of congestion caused by a car's journey.

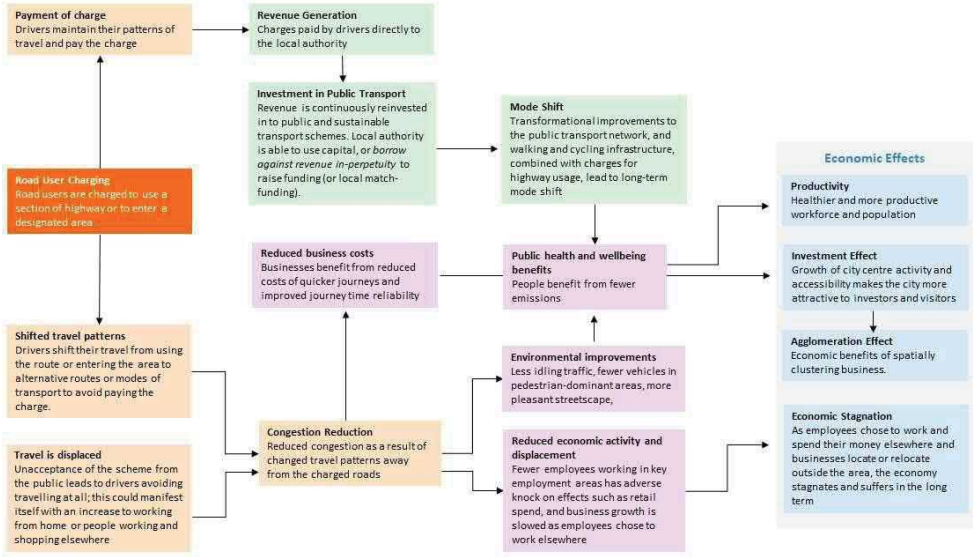
Road users tend to perceive that their usage of the road does not preclude others from using it. However, capacity of roads is not limitless and each vehicle on a road occupies space. When the demand for space on the road approaches capacity, congestion occurs. This is becoming an increasing problem in Warrington. Road user charging is a way of managing that demand by making users pay towards the costs of them occupying road space. Road user charging can be imposed to cover a defined area (such as the London Congestion Charge), or on specific sections of highway, such as on bridges and tunnels.

It is also noted that the establishment of road user charging in the form of tolls for the new Mersey Gateway Bridge not only sets a precedent for charging to cross the River Mersey, but also potentially provides an extant system which could be extended in to Warrington.

5.2.3.1 Logic Mapping

The logic map opposite (**Figure 24**) outlines the concepts of a road user charging scheme. The following paragraphs provide additional commentary on this diagram

Figure 24: Road User Charging Concept Map



Source: Mott MacDonald

Congestion has a number of negative benefits including making journey times unreliable, adding to businesses' operating costs, reducing economic productivity, and adding to pollution from stationary vehicles. The situation can worsen locally as a result of growing out of town employment and retail sites, but can also be negatively affected by more strategic regional interventions in neighbouring areas such as the introduction of tolls or schemes which lead to the large-scale reassignment of traffic movements.

Route changes and mode shift are affected as some drivers/operators choose to re-route their journey in light of the tolls or elect to use different modes of transport which don't attract toll charges. Traffic flows are then lighter, leading to reduced congestion and fewer emissions generated from stationary vehicles.

Revenue generation or travel displacement – for those drivers who do not re-route, there is the potential that they will may choose to pay the charge to use the section of route or enter the designated area. Vehicle registration plates are captured on ANPR cameras, and drivers (or businesses) must pay for the vehicle charge online. The revenue collected can then be used to reinvest in transport infrastructure, such as public transport and walking and cycling infrastructure. Alternatively, lack of public acceptance of the scheme could encourage drivers to avoid travelling in the area at all, choosing to either work from home or work in a different area.

[8] Lloyd D Bennett (2017) Measures to Reduce Congestion and The Demand to Travel Road-User Charging
[9] Lloyd D Bennett (2017) Measures to Reduce Congestion and The Demand to Travel Road-User Charging
[10] Lloyd D Bennett (2017) Measures to Reduce Congestion and The Demand to Travel Road-User Charging

Economic effects - on one hand, as revenue is raised and investment can be made in public transport and active travel, businesses could benefit from a healthier workforce and improved economic productivity. However, if people choose to neither pay the charge or travel by an alternative mode, activity in the area will be reduced and retail spend for example will decrease. As the available workforce choses to work and spend their money elsewhere, businesses also locate or relocate elsewhere, leading to economic stagnation.

5.2.3.2 Benchmarking

London: The London Congestion Charge has been in place in the centre of the city since 2003. Most vehicles which enter the designated zone are charged £11.50 per day. The charge only applies 07:00 – 18:00 Monday to Friday, excluding holidays, and does not apply to buses, taxis, residents of the zone or blue badge holders. The impact of the charge has been overwhelmingly positive in terms of congestion reduction and air quality improvements; traffic volumes entering the original charging zone have remained stable at 27% lower than pre-charging conditions in 2002 - the equivalent of nearly 80,000 fewer cars entering the zone each day[11] and PM10 emissions within the zone decreased by 22% between 2002 and 2004[12].

Durham Road User Charging Zone: Durham operates a congestion charge in a specific area of the city between 10am and 4pm Monday to Saturday. The daily charge is £2.00 and is again enforced using ANPR cameras. The underlying aim of the zone is to reduce traffic congestion and pollution in the area, improve air quality, and make the centre of Durham safer and more attractive to pedestrians and cyclists[13]. The scheme is operational in the interpeak periods as a result of the type of traffic that cause the problem e.g. students and day trippers, rather than employees.

Most other tolls in the UK are for bridges and tunnels. Examples include Severn Bridge Crossings, Dartford Tunnel, and Kingsway and Queensway Tunnels between Liverpool and Wirral.

Mersey Gateway Bridge: The Mersey Gateway Bridge across the River Mersey in the neighbouring borough of Halton, has recently opened and is tolled at £1.80 to £8.00 per crossing depending on vehicle type, with £2 being the single crossing price for cars. Halton residents are exempt from the charge.

5.3 Non-Demand Management

5.3.1 Community Infrastructure Levy

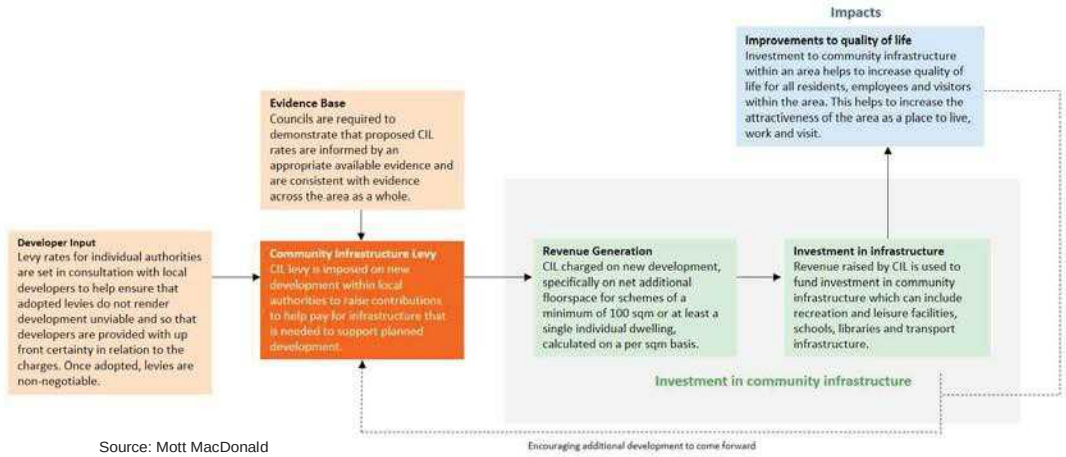
Transport investments can encourage development by changing the value of the land around them, making different uses and/or increased densities viable. This is often known as transit orientated development. Local authorities have tools to obtain funding to mitigate the impacts caused by these developments, including S106 and S278 agreements (negotiated between the developer and authority to deliver infrastructure and non-infrastructure measures), and more recently the Community Infrastructure Levy (CIL). Whether or not to charge a CIL is a decision for the charging authority, usually the local planning authority.

CIL is a planning charge, introduced by the Planning Act 2008 as a tool for local authorities in England and Wales to help deliver infrastructure to support the development of their area. New development which creates net additional floor space of 100 square metres or more, or creates a new dwelling, is potentially liable for the levy. The CIL levy is a fixed charge (per square metre) on the development of new floorspace. Local authorities may vary charges by location, use, size and type of development[14]. Once Local Plan growth targets for new jobs and homes have been confirmed, it will be possible for WBC to introduce a CIL.

5.3.1.1 Logic Mapping

As highlighted within the associated logic map (**Figure 25**), developers play a key role in the shaping of CIL's. Local authorities are required to consult with developers when setting levy rates in order to ensure that developers are not unduly discouraged from investing in an area and so that they have certainty in terms of the levy they can expect to pay in relation to a given development. The money then raised through CIL can be used by local authorises to fund a wide range of infrastructure needed as a result of development. This can include investment in road schemes, flood defences, schools, health and green spaces and leisure centres[15]. CIL is intended to provide funding to address the cumulative impact of development.

Figure 25: CIL Logic Map



Source: Mott MacDonald

5.3.1.2 Benchmarking

As of October 2016, there were a total of 130 local authorities across England and Wales charging CIL, not including the Mayor of London and the London Legacy Development Corporation, with a further 88 working towards adoption of a CIL[16]. CIL implementation is much further advanced in the south and east of England, including almost complete coverage in London. Implementation is however much patchier in the north, midlands and Wales.

[11] Transport for London Congestion Charge Factsheet: http://content.tfl.gov.uk/congestion-charge-factsheet.pdf
[12] Centre for Public Impact, London's Congestion Charge: https://www.centreforpublicimpact.org/case-study/demand-management-for-roads-in-london/
[13] Durham County Council: https://www.durham.gov.uk/article/3437/Durham-Road-User-Charge-Zone-congestion-charge
[14] https://www.gov.uk/guidance/community-infrastructure-levy
[15] DCLG, 2011, 'Community Infrastructure Levy: An overview'
[16] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/589637/CIL_REPORT_2016.pdf

Case Study: Camden

Camden Council has one of the most progressive approaches towards CIL, with 25% of total CIL funds put in the hands of local ward councillors who nominate projects for funding in their respective wards. This has helped to fund projects including upgrades to libraries and community centres. The remaining 75% of Camden CIL is used to fund general infrastructure including schools and transport improvements. In total it is estimated that over the four-year period between 2016/17 and 2019/20, CIL would raise over £22.5 million worth of funding to the borough to deliver essential local infrastructure.

5.3.2 Council Tax

In theory, council tax is a type of property tax and therefore a form of land value capture however in reality, unlike with business rates, domestic property valuations in England and Wales have not been revalued since the introduction of the tax in 1991. As a result, council tax does not necessarily reflect changes to land value in an area that have resulted from improvements to transport infrastructure. Mechanisms that could capture this benefit and be used to fund prolonged investment in transport infrastructure include:

- **Council Tax Precept** – Households within a defined area are subject to increased council taxes for a defined period.
- **Special Infrastructure Tax** – Payable by all individual and business taxpayers within a given area. This mechanism is being used to contribute to the development and construction of the new multi-billion-pound Grand Paris Express metro system in France and is estimated to directly generate up to €117m per year. For individuals it operates on a per capita basis.

5.3.2.1 Logic Mapping

The concept map opposite (**Figure 26**) shows the key elements to explain how council tax can be used to raise local authority income to fund transport improvements.

In December 2017, the Department for Communities and Local Government approved proposals to allow authorities to raise council tax by up to 5.99% for the 2018/19 financial year, up from 4.99% for unitary authorities such as WBC, increasing the level of funding that can be raised through council tax levies[17].

5.3.2.2 Benchmarking

The only contemporary examples of a council tax levy being used to fund a package of transport improvements are in Greater London relating to the London 2012 Olympics and in Greater Manchester for various transport works[18].

Case Study: Greater Manchester

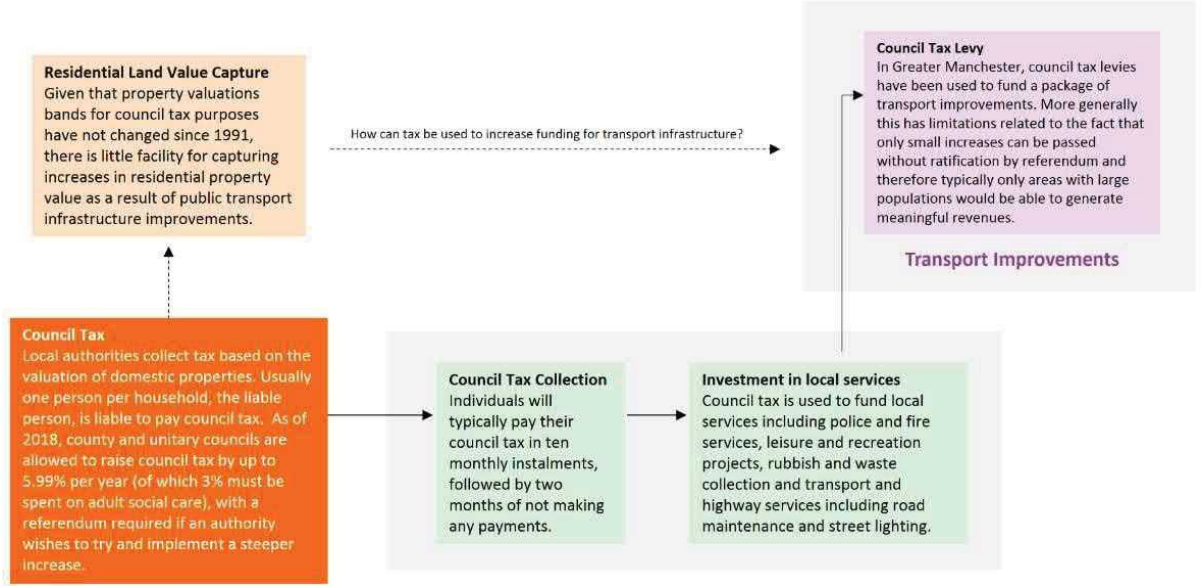
After the proposed introduction of congestion charging in Greater Manchester was rejected in a 2008 referendum, the ten councils of Greater Manchester explored a number of different options to fund major transport schemes. The final funding package included a 3% annual increase in the council tax levy to the Greater Manchester Integrated Transport Authority for six years, estimated to contribute an extra £300 million of transport funding.

Subsequently, in January 2018 it was announced that all households across Greater Manchester would have to pay an extra £6-£18 annually as part of the new Greater Manchester Mayoral Precept which will raise £6.5m across the region for investment in transport, housing and social schemes. Just under £4m of this has been allocated to fund plans to ease congestion and improve public transport[19]

Case Study: Olympic Council Tax Precept

The Olympic Council Tax Precept demonstrates a further UK precedent for levying tax precepts for specific and time bound purposes. The theory behind this precept was that Greater London residents would disproportionately benefit from the 2012 Olympic Games and should therefore contribute to its staging. The introduction of the precept commenced in 2006/7 and raised £625 million across a ten-year period.

Figure 26: Council Tax Levy Concept Map



Source: Mott MacDonald

[17] BBC News. 2017. Council tax bills in England may rise by up to 5.99%.
[18] Campaign for Better Transport, 2016, 'Funding and Financing Public Transport Infrastructure'

[19] http://www.bbc.co.uk/news/uk-england-manchester-42833518

6 Demand Management and Funding Options: Concept Feasibility

6.1 Overview

In this section the feasibility of each Demand Management and revenue raising (Non-Demand Management) option is assessed taking into account a number of considerations. For each option the legislative process required for implementation is discussed alongside the specific requirements for each. A local feasibility assessment is then undertaken to include:

- Key considerations
- Geography
- Costs and Revenue and
- A SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) of each option.

Finally, where possible an estimate is made, using standard modelling tools, of the likely generated revenue that may be available to Warrington Borough Council as a result of the implementation of the option.

6.2 Workplace Parking Levy

6.2.1 Legislation and Implementation

A WPL can be introduced by any local traffic authority outside of London, either singly or jointly with another local traffic authority. Government policy makes clear that a scheme may only be made if it facilitates the policies set out in the local authority's Local Transport Plan (LTP). The January 2011 Local Transport White Paper states that the local authority must demonstrate that they have properly and effectively consulted local businesses and addressed any proper concerns raised by local businesses during those consultations.

It is expected that the introduction of a WPL involves an extensive period of consultation with residents and businesses, and with boroughs of the area it is being implemented. An important part of the consultation would be deciding on suitable boundaries for the area covered by the levy. A WPL works best when there are controlled parking zones (CPZs) in order to avoid commuters parking on nearby streets instead of at work. It is therefore helpful if comprehensive resident parking controls are in place. There also needs to be a comprehensive audit of workplace parking spaces within the area.

Once a register and licensing system is in place, the administration is relatively simple. A consultation and implementation timetable in London, for example, was estimated to be 18 months. Implementation of the WPL in Nottingham was a long process, involving several updates of a business case, several public consultations, a public examination and several approvals needed from the City Council and higher boards such as the Secretary of State for Transport. A three-month period was needed which allowed workplace parking places to register for the WPL.

[20] DALE, S. ....et al, 2013. Workplace parking levies: the answer to funding large scale local transport improvements in the UK? Thredbo 13, 13th International Conference on Competition and Ownership in Land Passenger Transport, St Anne's College, Oxford, 15th - 19th September 2013, 16pp.

A crucial part to its acceptance was the comprehensive communications campaign, which involved: mailouts to over 5,000 employers in the city, dedicated hotline and email contact with trained staff to deal with day to day inquiries; workshops for employers liable to pay a charge; 1:1 meetings with individual employers; meetings with specific groups of employers, such as those in business parks; consultations and presentations to employer organisations including the Chamber of Commerce; and a dedicated website and user-friendly online licence registration system.

The delivery of the scheme was successful due to its heavy focus on compliance with officers working with employees to assist them in licensing their parking spaces correctly and encouraging them to take advantage of the business support available

As of February 2019, few studies have attempted to estimate the expected or actual budget required to implement and monitor a WPL scheme in the UK.

Dale et al (2013) have published a study which gives an overview of the actual WPL scheme's costs after its first year of operation in Nottingham[20].

According to the study, WPL revenue was £7.8 million in 2012/2013. Approximately 10% of this total amount was used to recover the cost of support to employers (travel planning and travel management advices[21]) and the scheme's operating cost (5% each). This data reveals that, after its first year of operation, the WPL scheme in Nottingham contributed 90% of its revenue towards further transport improvements. This last ratio suggests the financial efficiency of the WPL scheme, relative to other demand management options (e.g. the London Congestion Charge, where operating costs amount to around 33% of revenues).

Another study published by Frost, M.W and Ison (2009), tried to give an estimate of the required implementation and operation costs in Nottingham[22]. The implementation costs, including employer assistance package, were estimated to be £1.9m (in 2008 prices, equivalent to £2.41m in 2017 prices), which makes the investment cost required for such a scheme's implementation low.

6.2.2 Local Feasibility Assessment

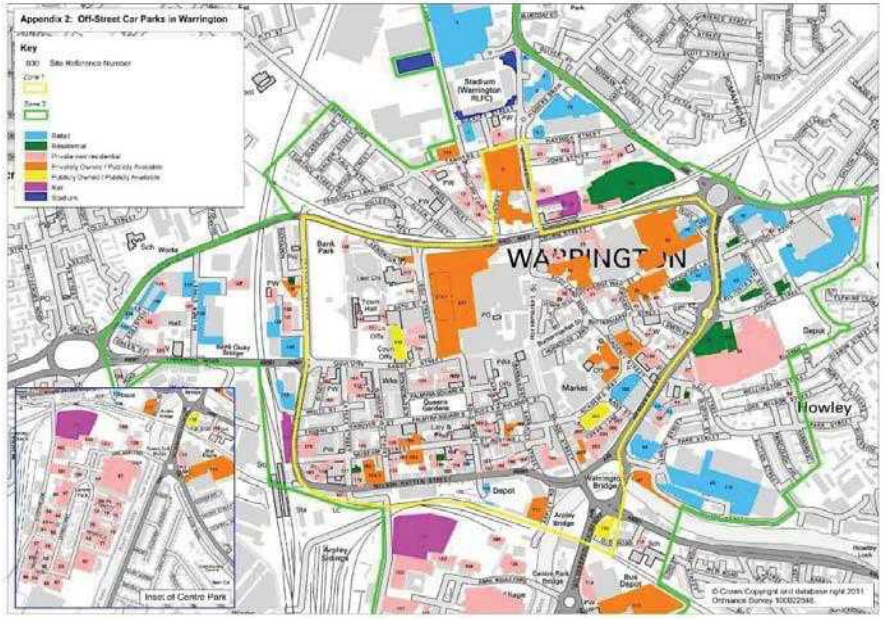
6.2.2.1 Key Considerations

WBC last completed a comprehensive assessment of public and private car parking spaces in 2010/11 in order to inform the WBC Parking Strategy which was published in 2013. Clearly the number of employee parking spaces across the borough will have shifted since this period and private sector operators in particular may have changed tariffs and opened/closed car parks relatively quickly. **Figure 27** indicates the approximate extent of the town centre parking study area and car park distribution completed in 2010/11, with around 4,800 private non-residential spaces (i.e. parking for employee on private property) located within this geography. Further to this, WBC holds data for the number of available private employee-only car parking spaces at Lingley Mere and Birchwood Park, however this does not account for all Birchwood employment sites. 2,413 spaces are currently located at Lingley Mere, with in excess of 4,832 at Birchwood Park. The decision on the geographical extent of the WPL (explored below) will ultimately influence the scale of additional data collection required to support the introduction of the scheme.

[21] Workplace Parking Levy Employer Handbook, Nottingham City Council, February 2015, source: https://secure.nottinghamcity.gov.uk/wpl/common/Employer_handbook.pdf

[22] FROST, M.W. and ISON, S.G., 2009. Implementation of a workplace parking levy: lessons from the UK. Transportation Research Board 88th Annual Meeting, 11-15 January, Washington DC., USA, Paper No. 09-0249

Figure 27: Warrington Town Centre Car Parks (2011)



Source: Warrington Borough Council

6.2.2.2 Geography

There are a range of potential options for the ultimate geographical scope of the WPL in Warrington. Summarised merits and disadvantages of these are outlined below:

Table 2: WPL Geographical Assessment

Geography	✓	
Borough wide	• WPL should be easy to understand – businesses within the borough will know that they need to comply with WPL regulations.	• Likely to lead to challenges from business located in rural areas who have reduced access to non-car modes of travel for workplace trips compared to businesses in urban areas.
Town Centre only	• In the long run, this could help to increase available development land in the town as businesses reduce their parking supply to reduce WPL costs.	• There is a relative lack of high quality office space in the town centre and if WPL is only enforced here, skilled jobs could be further pushed away from the town centre.
Selected Geographies (including Town Centre, Birchwood and Omega)	• Will ensure that businesses located in the key employment areas of the borough are forced to review their parking stock and their exposure to the levy.	• Could lead to criticism from businesses that WBC are cherry picking the employers across the borough that they want to enforce the WPL upon.
Wider Urban Area	• Ensures that businesses located in the periphery of the borough who are reliant on car access are not penalised by the WPL.	• May lead to challenges from businesses on the periphery of the urban area who are poorly served by public transport.

Source: Mott MacDonald

In addition to these geographical considerations, there are a number of additional factors which should be considered when devising a potential WPL charging schedule for Warrington. These considerations have been identified in discussion with officers from WBC and include:

- If a borough or wider urban area wide charge was introduced, there could be merit in introducing a reduced town centre charge given the ongoing difficulties for WBC to attract new office space to the town centre.
- At borough level, and if legislatively enforceable through either existing (Transport Act 2000) or new national policy, it may be useful to exempt certain types of new developments i.e. new Grade A office development from paying the levy for a given number of years in order to not unduly discourage the creation of skilled jobs in the borough. Whilst not explicitly enforceable through existing legislation, the Transport Act was written with the potential flexibility to facilitate this, although this would likely require significant input by legal counsel.
- The need to recognise that some businesses are already contributing significant sums towards public transport, including contributions for bus services, through established planning arrangements. Again, if legislatively possible, WBC may wish to explore implementing a reduced charge for these businesses.

6.2.2.3 Costs of implementation

A key early cost in the development of a WPL for Warrington would be the need to collect more up to date parking information for existing businesses within the geography that the WPL is proposed. In Oxford, the costs to prepare and submit a WPL scheme to the DfT have been outlined at £505,000 over the period 2016/17 to 2019/20[23]. Once operational however, it is not forecast that significant revenue is required to maintain the scheme. In Nottingham, the WPL costs less than 5% of the annual revenue to run, with fewer than 10 FTE employees required to manage the scheme.

6.2.2.4 SWOT Analysis

Strengths	Weaknesses
• Experience from Nottingham highlights that WPL has been incredibly successful in helping to raise funding for major public transport schemes. • WPL can also be supported and maintained using a very small proportion of the total scheme revenue. • Evidence from Nottingham indicates that the new tram routes in the city, supported	• Evidence from cities which are also exploring the introduction of WPL reinforces the fact that WPL is politically a highly sensitive issue.

[23] Oxfordshire County Council (2016) *Oxford Workplace Parking* Levy – *Cabinet Report 22 November.* Available at: https://mycouncil.oxfordshire.gov.uk/documents/s35345/CA_NOV2216R02%20Workplace%20Parking%20Levy.pdf

by the WPL scheme, have attracted new businesses along their length.	
Opportunities	**Threats**
• Congestion relief and associated air quality improvements. • Increased investment in major transport schemes, enhancing the attractiveness of the borough as a place to invest for existing and new businesses and investors. • Modal shift will help unlock road space for alternative modes. • Land use change and increase in land values.	• Whilst officials in Nottingham estimate that a WPL could now be introduced elsewhere in the UK within 3 years, there is no available evidence on length of WPL implementation from another UK location. • Distortions created by the levy could lead to economic displacement, potentially reducing the economic case for the measure, however once investment in public transport has been delivered, this threat can easily become a strength with which new employees and businesses can be attracted rather than lost.

6.2.2.5 Further Study

Commissions to develop feasibility work and undertaken traffic modelling will be required to support further feasibility work for WPL. WBC will also need to update the existing parking strategy evidence base for the town centre, key employment locations and other district and neighbourhood centres within the borough depending on the proposed geographical scope of the WPL.

It is recommended that an ultimate decision on whether to progress with optioneering for a WPL or to discount it as a new demand management scheme for the borough should be taken once this further work is complete.

6.2.3 Revenue Modelling

6.2.3.1 Description

Nottingham's WPL constitutes a substantial and stable funding model that has been applied across the city to part-fund new transport investment. If applied in Warrington, the WPL could potentially generate revenues for similar transport investments. Car Parking revenues are generally a stable source of revenue, allowing private finance to be raised against them at a relatively low cost of capital. Implementing a WPL scheme in Warrington would however require defining precisely the licensing scheme's area of coverage, the categories of workplace parking spaces and companies liable as well as the level of fees to be charged to employers.

6.2.3.2 Basis and methods of calculation

In terms of the geographical coverage for a WPL in Warrington, it is expected that as a minimum, any scheme would apply to businesses located in the town centre and at the Lingley Mere and Birchwood Park business parks who have with 11 or more free parking spaces.

In terms of calculating the total number of eligible spaces across these three areas, a town centre wide parking stock survey for Warrington town centre was last completed in November 2013. Whilst it is acknowledged that the number of private non-residential business parking sites will have changed since this survey was conducted, given the growth of the town in recent years, we can use the data from this survey as a conservative estimate of the total number of eligible spaces within the town centre. The survey indicates that the total number of private non-residential spaces for premises with 11 or more spaces is 4,742. Data on the total number of available business parking spaces in Birchwood Business Park and Lingley Mere Business Park has been collected within the last two years and is assumed to be a fairly accurate representation of the total number of eligible parking spaces. In total, 4,832 spaces are located at Birchwood Business Park, with a further 2,413 at Lingley Mere. For the purposes of calculation, it is assumed that all available spaces at these two business parks will be subject to the WPL charge, giving a total 11,987 eligible spaces across the Warrington Borough Council area.

To calculate the total annual revenue that could be raised from a WPL in Warrington Borough Council, we have looked to the WPL amount in Nottingham which stands at £402 per space per annum as of 2018. It is however worth noting that the annual cost to park in the 277-space car park at Warrington Bank Quay Station is £1,200 and this indicates that parking might be more finite in Warrington than in Nottingham and therefore the WPL annual charge per space in Warrington could be increased from the £402 figure. Consequently, we have taken the £402 charge in Nottingham and have devised three charging scenarios, with £400 as a medium charge scenario and £300 and £500 per space per annum as lower and high charge scenarios respectively.

No assessment has been made of the costs of implementing or operating a WPL in Warrington. No allowance has been made in the model for compliance costs. It has been assumed that 100% of applicable companies will pay the WPL. No fine income has been assumed.

6.2.3.3 Model outputs

As noted above, we expect that a conservative estimate for the total number of eligible parking spaces to be subject to a WPL charge is 11,987. For the purposes of further calculations, we have rounded this figure up to 12,000. Data set out in **Table 3** applies the low, medium and high charge scenarios to the total number of eligible spaces, giving an indication of the revenue that the scheme could raise annually as well as across a 20-year period.

Table 3 : Estimated WPL Revenues in Warrington

Scenario	Low Charge (£300)	Medium Charge (£400)	High Charge (£500)
Annual Revenue	£3.6m	£4.8m	£6.0m
20-Year Revenue	£72m	£96m	£120m

Source: Mott MacDonald (using parking data supplied by WBC)

Under the medium charge scenario it is estimated that circa £4.8 million could be raised per annum through applying the WPL in Warrington.

If we assume that, similarly as what has been observed in Nottingham after the WPL's first year of operation, 90% of the WPL's revenue will be hypothecated, we can estimate at this early stage, that £4.3m could be raised on average under the medium charge scenario to finance transport investment in Warrington. Over a 20-year period, this medium charge rate could generate around £86.4m of cumulative transport investment in Warrington (all prices based in 2018).

6.3 Clean Air Zone

6.3.1 Legislation and Implementation

Similarly to WPLs, the ability for charging authorities to introduce a CAZ is set out in the Transport Act 2000. Part III of the Act empowers local authorities (as "charging authorities") to make a local charging scheme in respect of the use or keeping of motor vehicles on roads. The CAZ Framework does not stipulate that Clean Air Zones must incorporate charging, however it does note that they cannot be used as a form of taxation to raise general revenue for the local authority. As a result, it is considered unlikely that CAZ could form an effective method of raising revenue to support Mass Transit schemes in Warrington. The Framework indicates that Clean Air Zone restrictions are applied equally to all vehicles. Annex A of the framework sets out the minimum classes and standards for Clean Air Zones.

As a minimum Defra guidance expects any CAZ to[24]:

- Address and improve a clearly defined air quality problem, and ensure it's understood locally;
- Be included in local strategies (e.g. local land use and local transport plans) to ensure consistency;
- Actively support ultra-low emission vehicle (ULEV) take up through facilitating their use;
- Include a programme of awareness raising and data sharing;
- Include local authorities taking a lead in their own/contractor vehicle operations and procurement;
- Ensure bus, taxi and private hire vehicle emission standards meet or improve to meet CAZ standards using licensing, franchising or partnership approaches as appropriate;
- Support healthy, active travel by reducing vehicle emissions; and
- Have signs in place along major access routes to clearly delineate the zone.

The introduction of the zone requires extensive engagement and consultation with neighbouring authorities, local communities and businesses to: explain the aims, including the potential health and economic benefits; understand any concerns; and assess the need for any mitigating actions.

The longer lead-in time that businesses and individuals have to make these changes the easier it will be for them to do so, and increase compliance/behaviour change. Early engagement in the planning of a zone helps to raise awareness of the implementation and allows individuals and businesses to prepare for the zone's introduction and to understand the impacts on their personal circumstances.

Time will need to be allowed between formally announcing the details of a zone and it beginning to operate to allow businesses and individuals to adjust.

Items for consideration within the CAZ include:

- Designating the roads and classes of vehicles subject to a charge;
- The charges imposed;
  - charging zones should apply only to older, higher-polluting models of the vehicle types, so as to have a targeted impact on pollution. Local authorities implementing a charging CAZ should ensure they are using the most recent version of the minimum classes and standards.
- The manner in which charges are to be made, collected, recorded and paid;
  - The CAZ guidance states that Automatic number plate recognition (ANPR) should be used for the operation of charging CAZ. Cameras will capture all vehicles on the monitored road(s), regardless of whether it is their final destination or they are moving within or passing through the zone.
- The period for which a scheme is in force;
- Exemptions and reduced rates from charges;
  - Guidance states that there is a general presumption that charges for CAZs will apply to all vehicles according to the relevant zone class. However, certain circumstances where exemptions and discounts may be appropriate i.e. a person's particular circumstances; the type of vehicle concerned may be difficult or uneconomic to adapt to comply; or the operation a vehicle is engaged in is particularly unique or novel.
- Enforcement regimes and penalties for non-payment of charges.

The Draft Impact Assessment prepared by Defra and published in May 2016 includes a Competition Assessment sub-section which deals with the potential impacts of the CAZ schemes on businesses' activities[25]. It mentions that Clean Air Zone schemes will likely impact businesses located within the zone or those entering the zone who own vehicles that would be subject to a charge, as they will face an additional cost of complying with the zone restrictions. The impact should be stronger during the first years of the implementation as some businesses who own vehicles subject to a charge will opt for renewing their fleet towards cleaner vehicles exempted from the scheme. No attempt is made to quantify these impacts in the Draft Impact Assessment.

There is no evidence of the implementation and operational costs borne by a local authority outside London in the UK in implementing a Clean Air Zone. The Draft Impact Assessment prepared by Defra and published in May 2016, however, proposes some estimated implementation and operational costs required in the case of the implementation of a Clean Air Zone in one of the five selected cities outside London as well as in the capital[26].

Implementation costs estimates include scoping studies, infrastructure costs such as installation costs and IT equipment (automatic number plate recognition). These costs have then been scaled up based on population and perimeter lengths of the CAZ considered, according to the three options defined. Operating costs have been defined as enforcement, running costs of equipment and staffing costs' estimates. They also vary according to the CAZ scheme scenario in question. These two main categories of costs were estimated as inputs to calculate the net present value of each scheme option.

The three scenarios considered for the implementation of a CAZ are as follows:

- Option 1: Implementation of ULEZ and tightening of LEZ standards in London; mandatory Clean Air Zones within five local authorities, Petrol Euro 4, Diesel Euro 6/VI

[24] Department for Environment Food and Rural Affairs and Department for Transport (2017) Clean Air Zone Framework

[25] Committed Clean Air Zone Impact Assessment, Department for Environment, Food and Rural Affairs, 26th May 2016, Consultation https://consult.defra.gov.uk/airquality/implementation-of-cazs/supporting_documents/161012%20%20CAZ%20Impact%20Assessment%20%20FINAL%20consultation.pdf

[26] Committed Clean Air Zone Impact Assessment, Department for Environment, Food and Rural Affairs, 26th May 2016, Consultation

- Option 2: Implementation of ULEZ and tightening of LEZ standards in London; non-mandatory Clean Air Zones within five local authorities, Petrol Euro 4, Diesel Euro 6/VI
- Option 3: Implementation of ULEZ and tightening of LEZ standards in London; mandatory Clean Air Zones within five local authorities with lower emission standards, Petrol Euro 3, Diesel Euro 5

The estimated implementation and operational costs for each scenario are shown in **Table 4.**

Table 4: Estimation of implementation and operational costs for each CAZ scenario, in £m 2016 prices

£m (2016)	Option 1	Option 2	Option 3
Implementation costs	20	10	20
Operational costs (10Y period)	81	41	81

Source: Defra, Impact Assessment Consultation Draft, May 2016

As Table 4 shows, implementation costs, estimated in 2016 prices and assumed to be spent in 2020, would range between £10 and 20m, while operational costs would vary between £41m to £81m over a ten years period, hence representing an annual average £4.1 or £8.1m cost.

6.3.2 Local Feasibility Assessment

6.3.2.1 Key Considerations

The two key considerations relating to a Clean Air Zone are whether highly polluting vehicles are banned from entering the zone or are charged to do so, and identifying which Euro emissions standard group(s) should be charged or banned from the CAZ. The rationale for these differ slightly – a charged system would likely generate revenue but may not be effective in reducing congestion and pollution if the charge is insufficiently high enough to deter people from entering the zone. A blanket ban would not generate revenue except for fines for non-compliance, but would likely be more effective in engendering environmental and congestion benefits.

6.3.2.2 Costs of implementation

Establishing the potential cost of implementing a CAZ for Warrington will become clearer once the first of the five UK cities mandated to introduce CAZ by 2019/20 have made further progress on their CAZ proposals. Oxford City Council and Oxfordshire County Council are however currently consulting on proposals to ban all petrol and diesel vehicles from parts of their city centres, with longer term proposals in place to expand the geographical extent of the ban to cover the wider city. Estimated costs for installing CCTV cameras and electric vehicle charging points are £7m, while a further £7m is estimated to be needed to replace buses, taxis and goods vehicles with electric vehicles.

Enforcement method is a key determinant of cost for CAZ. The CAZ Framework produced by Defra states that ANPR cameras linked to the DVLA database are to be used for enforcement[27]. This enables vehicles exceeding the emissions threshold to be identified based upon vehicle emissions records held by the DVLA. Naturally, the wider the geographical extent of the CAZ, the more cameras will be required to monitor emissions. Whilst this will have a greater financial burden on the authority in terms of outline capital and revenue costs, it is likely to generate more revenue.

[27] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/612592/clean-air-zone-framework.pdf

The revenue generated by a CAZ will be strongly influenced by whether a charged system or blanket ban is used to enforce it. A charged system would generate net revenue for the council in the long term, offsetting the costs of implementation and enforcement; any excess revenue must also be invested in supporting local transport policies. A non-charged blanket ban of highly polluting vehicles would only generate revenue through fines issued to non-compliant vehicles entering the zone. The CAZ Framework notes that charges do not have to applied – authorities are free to choose – but any charges applied to vehicles must be appropriate for the local circumstances.

6.3.2.3 Geography

Table 5: Clean Air Zone Geographical Assessment

Geography	✓	
Borough wide	• Uniformity across the borough should help to make CAZ easier to understand and is likely to have the greatest impact in terms of delivering air quality improvements for Warrington.	• Unpopular to charge all users in Warrington, especially so for the numerous warehousing and logistics companies in the borough who play a significant role in the local economy. • Impractical to apply charges to motorway users who don't otherwise drive on Warrington roads.
Town Centre only	• Focuses on where air quality in the borough is poorest without penalising the owners of more polluting vehicles in areas without air quality problems. • Buses and HGVs, which usually make up the highest proportions of vehicles failing to meet the CAZ standards, account for a large proportion of town centre traffic.	• Could reduce the town centre's economic vitality if businesses and owners of the most polluting vehicles are unable to find a solution to avoiding CAZ charges and as a result of the potentially negative press coverage that may stem from this. • Risk of drivers choosing to drive further to avoid restrictions which merely shifts the vehicle pollution to other locations. • Risk that bus companies merely shift their most polluting buses onto routes away from the town and businesses receiving deliveries from HGVs divert their dirtiest vehicles away from Warrington, potentially shifting pollution problems elsewhere. • Work will be required to identify which roads should fall within the liable town centre charging zone.
Selected hotspots of poor air quality (e.g. AQMAs)	• Seeks to directly address air quality issues in the locations where air pollution is currently most serious.	• Likely to cause drivers of non-compliant vehicles to use alternative routes to avoid the charges, therefore merely shifting rather than solving the problem. • Impractical to apply to motorway users who don't otherwise drive on Warrington roads.
Wider Urban Area	• Outside of a borough wide implementation, charging CAZ at the scale of the Wider Urban Area is likely to have the most significant positive impact on the borough's air quality.	• Defining the urban area and therefore which of the borough's businesses fall within the CAZ catchment may cause upset amongst businesses and encourage them to seek to move their operations outside of the borough.

Source: Mott MacDonald

6.3.2.4 SWOT Analysis

Strengths	Weaknesses
• Reductions to vehicle emissions and improved air quality as the dirtiest vehicles are slowly replaced by their owners with cleaner vehicles which comply with CAZ regulations. • As owners of the vehicles which are liable to pay CAZ review their exposure to the charges, they may seek to reduce their total mileage. Reduced vehicle volumes on the borough's roads may increase the propensity of Warrington's residents and workforce to undertake more local journeys on foot and by bicycle.	• Aimed at heavily polluting vehicles such as older buses and HGVs and avoids tackling emissions from the most heavily polluting cars. • Requires significant cooperation with bus operators and delivery companies/local businesses to help them to upgrade their fleets to CAZ compliant vehicles. • If CAZ is only enforced within the town or the urban centre, there is a risk that bus operators and businesses will merely avoid routing their dirtiest vehicles in this area and use them elsewhere in the borough. • As noted previously, CAZ cannot be used as a means of raising general revenue implying that any revenue generated must be used to fund the CAZ implementation only (and not potential Mass Transit options).
Opportunities	**Threats**
• Choice between blanket ban or charging most polluting vehicles to enter defined area • In addition to delivering significant air quality improvements for the borough, CAZ can revenue can also be used to fund investment in public and sustainable transport.	• Warrington has a high concentration of businesses across logistics, manufacturing and distribution which are most likely to be at risk of being liable to CAZ charges. If these businesses perceive CAZ charges to be unaffordable they may relocate elsewhere which is likely to have negative socio-economic impacts for the borough. • Long term viability and effectiveness of CAZ may be reduced by natural improvements to fleet efficiencies.

6.3.2.5 Further Study

With five cities in the UK being mandated by central Government to implement Clean Air Zones, and other cities, such as Bristol, conducting feasibility studies in to the appropriateness of CAZ for their area, a wealth of information is likely to be emerging soon regarding the extent of coverage, levels of emissions which will be banned/charged, revenue estimations and the impact that the CAZ will have on overall air quality. WBC should pay close attention to the publication of these reports to further understand the relative merits of introducing CAZ. The borough has also recognised the need to commission a study to further inform the decision about implementing CAZ for Warrington.

6.4 Road User Charging

6.4.1 Legislation and Implementation

Traffic authorities wanting to introduce a road user charging scheme must do so by making a charging scheme order (CSO) under section 168 of TA 2000. Any CSO needs to be approved by the Secretary of State for Transport prior to being made.

Sections 171 to 172 of TA 2000 set out the content which must be included in a CSO – for example, the location of the road to be charged, how the charges are defined, the classes of motor vehicles that will be subject to a charge, the levels of road user charge that will apply and the duration of the scheme. These elements are for the traffic authority to determine, subject to the approval of the Secretary of State for Transport.

Automated vehicle tolling systems require four components: automated vehicle identification, automated vehicle classification, transaction processing, and violation enforcement. A variety of implementation models exist for tolling systems with the major variable being how far these functionally independent systems are delivered in an integrated vs disaggregated manner.

Subsequent changes to regulations surrounding penalty charges, adjudication and enforcement have been introduced in 2013 and 2014 as road user charging has evolved in the last few years to incorporate free-flow charging (as in place on the Mersey Gateway) which makes use of ANPR technology to link liable vehicles to online charging systems. The system of penalty charge notices for free-flow charging falls in line with the penalty charge mechanism used for the London Congestion Charging Scheme.

6.4.2 Local Feasibility Assessment

6.4.2.1 Key Considerations

Road user charging can be implemented on specific roads, such as bridges, or for a whole area, such as the London Congestion Charge, depending on what the intended outcomes are for the area. There is scope for local residents to be exempt, as is the case for the Mersey Gateway Bridge, so as to target through-traffic, but the rationale for this would need to be established. Exempting local residents from the charges may not be effective in managing demand of private vehicle flows on Warrington roads, and may not therefore generate the congestion benefits desired. It may therefore not be considered to be acceptable publicly. Any charge applied in Warrington would need to be set broadly in line with the other tolls in the area, notably the Mersey Gateway Bridge and the Mersey Tunnels. The toll charged would be hugely important in striking the right balance between the revenue raising mechanism and journey times, since traffic may divert if alternative routes with only a minor journey time penalty are available.

Other key considerations include whether sufficient transport alternatives, such as adequate service provision of public transport, and safe cycling routes are available. Reliable, frequent and affordable public transport across the charged route/area, with a simple and integrated ticketing system, is vital to provide people with an alternative for moving away from private vehicles. Such a system would need to be well established and demonstrably high quality and comfortable, to serve as a sufficient alternative before road user charging can be implemented. The current hub and spoke layout of the bus network, combined with disjointed ticketing between operators and diesel vehicles, makes the current offer sub-optimal.

Enforcement of road user charges is most easily done using ANPR cameras which record the vehicle registration details of all vehicles which enter/cross the charged area or route, and

drivers must register and pay for their vehicle using an online system. This method is employed on the Mersey Gateway Bridge and for the London Congestion Charge but can be costly. There is potential for a system in Warrington to be linked to the Mersey Gateway Bridge system, pending discussions with Merseyflow as the operator. If a cross-river charge were implemented in Warrington, it is likely that the charges would need to mirror the Mersey Gateway charging structure in order to reduce challenges from Halton BC.

One possible mitigation to take into account when planning a Road User Charging scheme is the potential to provide free or discounted parking within Warrington Town Centre for those paying the toll. The aim of this is to provide an incentive for Warrington visitors to make use of the Town Centre whilst providing a meaningful mitigation to the impact of charging.

6.4.2.2 Geography

Table 6: Road User Charging Geographical Assessment

Geography	✓	
Borough wide (except motorways)	• A standard charge applied across the borough (excluding the motorways) for all vehicles would likely have the greatest impact on traffic flows and air quality whilst also being fairly easy to understand.	• A daily charge for all drivers will be extremely unpopular with all road users and is likely to encourage residents and businesses to move away from Warrington as they are unable to avoid the charges. • A borough wide charge will reduce the attractiveness of the borough for new investment, stifling economic growth.
Town Centre only	• Will focus charges on some of the geography where AQMAs have been declared. • Buses and HGVs account for large proportion of town centre traffic, which are usually the highest polluting vehicles.	• Could decrease town centre's vitality as drivers choose to drive to both out of town and out of borough retail areas to avoid paying the charge. • Risk that drivers will take more circuitous routes to avoid the charges, increasing congestion on potentially low capacity and unsuitable routes. • Work will be required to identify which roads should fall within the liable town centre charging zone.
Wider urban area	• Charges for road users across the wider urban area of Warrington should pick up the vast majority of all trips completed within the borough, helping drive a reduction in total volumes of traffic on the borough's roads.	• Significant work and consultation will be required to determine the geographical extent of the wider urban area and therefore which roads should be subject to the charge. • A catchment for the wider urban area will encompass the majority of identified Local Plan development land within the borough. If the charging is introduced, the attractiveness of these sites for developers and occupiers is likely to be significantly reduced.
Cross-river	• Consistency with road user charging approach in Halton re. the Mersey Gateway Bridge • Would reduce through-traffic seeking a free cross-Mersey alternative to the Mersey Gateway.	• Would comprise of the following charging places – A50 Kingsway Bridge, A49/A5061 roundabout, Forrest Way and (in future) Western Link, Centre Park Link and Park Boulevard (if bus gate is opened up as part of Centre Park Link) – this would require notable investment in charging technology (although there is potential to potentially piggy-back on existing nearby schemes such as Merseylink). • Threat that river crossing might use the J20/J21A Thelwall Viaduct Crossing on the M6 to avoid charges however this also provides benefits to the borough in terms of reducing vehicles from the town centre of Warrington.

Source: Mott MacDonald

Note: For the purposes of modelling and ongoing discussion at this stage, it is assumed from this point that Road User Charging relates to tolling of the river crossings in Warrington only given that use of the river crossings is perceived as the most achievable and publicly understandable geography for which charging could be applied to. An exception would also be applied for Local Residents (in common with the existing Mersey Gateway Scheme in Halton). It is clear, however, that further investigation is required to establish the most effective form of Road User Charging.

6.4.2.3 Costs of implementation

Implementation of the scheme is likely to be relatively low cost, especially if it is possible to use the Merseyflow system already in place on the Mersey Gateway Bridge. Cameras and signage would be required, but it is not envisaged that toll booths would be necessary with the system operated using ANPR and an online payment system. Discussions would need to be had with Halton Borough Council and Merseyflow to discuss potential alignment of the scheme with the existing tolling regime – given the potential increase in demand for use of the existing Mersey Gateway bridge as a result of the scheme, it is not anticipated that there would be significant opposition to this proposition from Halton and Merseyflow.

6.4.2.4 SWOT Analysis

Strengths	Weaknesses
• The Mersey Gateway has established a local precedent for charging both new and existing (Silver Jubilee Bridge) crossings of the River Mersey. • Forecast congestion benefits in Warrington town centre associated with road user charging should play a significant role in facilitating economic growth in the town.	• If charging exemptions for local residents are introduced, the overall congestion benefit and reductions to car dependency will be weakened. • Introducing tolls on Warrington's river crossings will attract political challenges from Halton BC if transport modelling indicates that tolling in Warrington will reduce traffic on the Mersey Gateway.
Opportunities	**Threats**
• There is the potential for significant revenue to be generated via this method which could be used to fund Public Transport enhancements including Mass Transit. • There will be opportunities for Warrington to tie into the Mersey Gateway tolling system in terms of using the same	• If an inappropriate geography for road user charging is chosen, drivers **may** choose to drive further to avoid charges, thus adding to overall congestion and negating benefits. • If charges are set too low, they may not be sufficient enough to stimulate changes to driver behaviour top reduce the number

technology and monitoring rooms which will deliver efficiency benefits for both WBC and Halton. • Using ANPR technology and cordon points would enable the toll cameras to pick out which vehicles are through traffic and therefore, if desired, the tolls could ensure that only through traffic rather than local traffic or commuters are charged.	of through trips made through Warrington town. centre. • Drivers may choose to neither pay the charge or travel by another mode, instead relocating to another area for work or for leisure and retail opportunities. This will encourage businesses to relocate elsewhere and lead to a stagnation of the local economy.

6.4.2.5 Further Study

If Warrington wish to implement a road user charging scheme, early discussions with Halton Borough Council and Merseyflow should be a priority. More detailed studies, including traffic modelling, need to be carried out in order to understand what impact different road user charging scenarios may create. Traffic modelling will be used to understand flows of vehicles which are passing through the town from outside the local exemption area and therefore the number of vehicles which would be liable to pay the charge. This will enable the borough to build up a more detailed understanding of the likely revenue that the scheme will generate, over and above the figures presented below.

However, at this current stage it is not proposed that further study for Road User Charging will take place due to low levels of public, stakeholder and political support. As has been observed in a range of locations across the UK, proposals to introduce Road User Charging have led to significant public backlash and political instability. In Manchester, proposals to introduce a congestion charge were worked up in detail over a number of years at significant cost to the public purse, before ultimately being rejected by referendum in 2008[28]. Ongoing debate in Reading to explore a potential WPL, CAZ and Road User Charge is also worth noting, with one local party outright rejecting Road User Charging at options identification stage due to the perceived adverse effect of the charging on businesses, as has been discussed earlier in this report[29].

6.4.3 Revenue Modelling

For the reasons outlined above, centring on anticipated lack of public, stakeholder and political acceptability, we are not proposing any further development of Road User Charging as a demand management mechanism for Warrington. Consequently, no revenue modelling has been undertaken for Road User Charging at this stage. There is potential to revisit this in the longer term should it be deemed that Road User Charging is publicly and politically palatable.

6.5 Land Value Capture Option - Community Infrastructure Levy

6.5.1 Legislation and Implementation

Transport investments can encourage development by changing the value of the land around them, making different uses and/or increased densities viable. This is often known as transit orientated development. Local authorities have tools to obtain funding to mitigate the impacts caused by these developments, including s106 and s278 agreements (known for the relevant sections of the acts of Parliament in which these measures were enacted), and more recently the Community Infrastructure Levy (CIL).

s106 and s278 agreements are negotiated planning agreements between a developer and a local authority. s106 agreements can relate to a broad variety of infrastructure and non-infrastructure measures. s278 agreements relate to provision of highways infrastructure only.

CIL is a planning charge, introduced by the Planning Act 2008 as a tool for local authorities in England and Wales to help deliver infrastructure to support the development of their area. New development which creates net additional floor space of 100 square metres or more, or creates a new dwelling, is potentially liable for the levy. The CIL levy is a fixed charge (per square metre) on the development of new floorspace. Local authorities may vary charges by location, use, size and type of development[30].

The money raised through CIL can be used by local authorises to fund a wide range of infrastructure needed as a result of development. This can include investment in road schemes, flood defences, schools, health and green spaces and leisure centres[31]. CIL is intended to provide funding to address the cumulative impact of development.

In 2016 the Department for Communities and Local Government (CLG) commissioned an independent review into the use of CIL to fund infrastructure projects[32]. The review found that the CIL mechanism was failing to facilitate a faster and more transparent way of collecting contributions towards the infrastructure necessitated by the impact of development. It also found that CIL is not raising sufficient revenue to contribute effectively to the funding of the infrastructure needed to support development. Evidence suggested that CIL was not raising sufficient funds needed support infrastructure development. The report estimated that £170 million had been raised via the CIL mechanisms by March 2015, significantly less than the estimated £470 million to £680 million per annum outlined in the original impact assessment.

The report recommended CIL be replaced with a hybrid system of a broad and low level Local Infrastructure Tariff and s106 agreements for larger developments. The mechanism would constitute a twin track system with all developments subject to an extremely low-level tariff (almost without exception) and larger or strategic developments having an increase but be able to negotiate additional and specific section 106 arrangements[33].

6.5.2 Local Feasibility Assessment

6.5.2.1 Key Considerations

In October 2015, WBC undertook a statutory consultation on a draft charging schedule for CIL. After receipt of initial representations, further viability work was commissioned to review technical issues contained within the representations, however it was concluded that there were no issues raised which required revision to the draft charging schedule. Despite this, additional viability work identified that the council requirement to provide new Starter Homes within the borough could enable WBC to increase proposed charges. Following this work, it was subsequently determined not to pursue CIL any further and that fresh feasibility work would be undertaken in line with the Local Plan process[34].

[28] https://www.manchestereveningnews.co.uk/news/greater-manchester-news/c-charge-a-resounding-no-976016
[29] https://www.inyourarea.co.uk/news/councillors-clash-over-plan-to-introduce-reading-congestion-charge/
[30] https://www.gov.uk/guidance/community-infrastructure-levy
[31] DCLG, 2011, 'Community Infrastructure Levy: An overview'
[32] DCLG, 2017, 'A New Approach To Developer Contributions: a report by the CIL review team'
[33] Ibid.
[34] https://www.warrington.gov.uk/info/200564/planning_policy/1903/local_plan/5

6.5.2.2 Geography

Guidance for CIL highlights that charging rates may vary across geographical zones, building uses and scale of development. However, there are restrictions in terms of differential charging in that it must be justified by differences in development viability rather than by policy or varying infrastructure costs. Further work will be required to determine how a CIL might be enforced in Warrington though given that key strategic development sites are both located within the urban centre and in the green belt. It is likely that WBC would be best enforcing the CIL borough wide in order to help mitigate the impacts of new development across the borough.

6.5.2.3 Implementation Costs

A *Community Infrastructure Levy Viability Report* commissioned by WBC in 2015 explored the viability of the CIL for a range of development types including residential, office and industrial and retail and leisure land uses. For residential developments varying in both size (between 0.25ha and 5ha) and value, it was estimated that overages would fall between £40 per sqm to £163 per sqm, from which a CIL charge could be drawn. Based on 2015 market conditions, it was however estimated that pure office development within the town centre of Warrington was not viable based on the cost assumptions applied to development and therefore no potential CIL charging rates were further explored. There is provision within the CIL regulations to use up to 5% of CIL receipts towards the administration and set up expenses related to the operation and management of the levy, which would provide WBC with a useful funding source.

In the Autumn Budget 2017[35], the UK Government responded to the CIL Review, and committed to introduce changes to CIL designed to speed-up its implementation, make it more tailored and responsive to changes in land values, and allowing Combined Authorities and planning joint committees with statutory plan-making functions the option to levy a Strategic Infrastructure Tariff in future that would be additional to CIL. Given the shortfalls in funding the CIL has been raising, in late December 2017, the draft Community Infrastructure Levy (Amendment) Regulation 2018 was published. This legislative change ensures that where development is granted permission before a CIL comes into force in an area and then conditions of the permission are later amended after a CIL has come into effect, the developer will then be liable to pay CIL[36].

6.5.2.4 SWOT Analysis

Strengths	Weaknesses
• As community infrastructure improvements are brought forward using funds raised by the levy, developers will be encouraged to further invest in an area. • New CIL legislation will speed up the process for local authorities to introduce and revise the CIL. • Legislation enables up to 5% of CIL receipts to be used towards administration and set up expenses relating to the management of the levy	• Previously commissioned CIL viability reports in the borough have indicated that it would be unsuitable to enforce the levy on office and industrial land uses in the town centre as a result of the narrow margins associated with this development.
Opportunities	**Threats**
• There is huge potential for CIL to raise revenue to fund transport as Local Plan development comes forward. • Changes to CIL legislation will enable WBC to enforce the levy on previously approved developments when conditions are amended following the introducing of the CIL.	• Liable developers who have not engaged in the CIL consultation process and are unaware of the charging structure may be discouraged from investing in Warrington once they have calculated the financial implications.

[35] HM Treasury 2017, Autumn Budget 2017

6.5.2.5 Further Study

A crucial next step for WBC if the implementation of a CIL is to be further assessed will be to explore key development cost and land value assumptions based on latest information. If build costs have materially increased and sales values have decreased, this is likely to have a significant impact on overall development viability and therefore introducing a CIL charging schedule would unlikely be justified. Conversely, if values and costs have risen at a broadly similar level or values are further outstripping costs, the implementation of a CIL would appear more feasible.

6.6 Land Value Capture Option – Council Tax Levy

6.6.1 Legislation and Implementation

Council tax is a form of land value taxation. However it is poorly targeted because a) it takes account of the value of the "betterment" of the land via including the value of the property on the land as well as the underlying value of the land itself and b) the tax is charged in broad bands rather than being set on a more granular basis and these bands have not been revalued since 1991.

Council tax is explicitly used to fund infrastructure around England. In London and in combined authority/integrated transport authority areas around the country, a "precept" is placed on council tax bills to pay for transport investments and services. This option is less relevant to Warrington Borough, as it is not in a combined authority/integrated transport authority area. It would be possible however, for individual parish councils within Warrington to apply a precept that was explicitly tied to transport investment in their parish area however.

Local authorities are limited in their discretion on increasing council tax charges in their area. From the 2012-13 financial year, local authorities, have been required to hold a referendum if they wish to increase council tax by more than a set percentage. This is fixed by the Secretary of State each year. To date, no local authorities have held a referendum on increasing council tax that was explicitly tied to transport investment. Secondary legislation may also be required to enable WBC to introduce the levy and it is recommended that transport colleagues enter discussions with policy makers if the council tax levy is to be taken forward.

[36] http://www.legislation.gov.uk/ukdsi/2018/9780111163030

6.6.2 Local Feasibility Assessment

6.6.2.1 Key Considerations

Examples from Greater Manchester and Greater London highlight that this method has been used to raise additional revenue for transport investment however these do represent isolated examples, indicative of the political sensitives required to enforce the levy.

6.6.2.2 Geography

It is anticipated that the levy would be enforced over the entirety of the borough for all houses.

6.6.2.3 Costs of implementation

Both upfront and ongoing administrative costs would be required to introduce the levy. In terms of revenue, experience from the Olympic Council Tax Precept indicates that a band D Council tax payer paid in the order of £20 extra council tax each year for the ten-year period whilst under the new Greater Manchester Mayoral Precept, the average household will be charged an extra £7 annually. At the time of the 2011 census, the borough of Warrington had 85,100 households; charging each Warrington household an extra £7 on their council tax bill annually would raise an extra £595,700 each year, whilst an average extra £20 on top of council tax bills in the borough would raise just over £1.7 million per year.

6.6.2.4 SWOT Analysis

Strengths	Weaknesses
• An established mechanism is in place to collect the council tax levy whereas some of the other demand management systems have significant costs to establish.	• Increases in council tax above 6% must be ratified by a referendum across the area. • As only small increases can therefore be passed without referendum, the total raised levy can be small.
Opportunities	**Threats**
• Whilst politically sensitive, there is a clear legal route to enable the levy to be introduced. • The evolution of the Special Infrastructure Tax, in place to fund Grand Paris Express project, may also offer some opportunities for WBC in understanding how a similar tax could operate in the borough.	• Levies on council tax are very politically sensitive and can be greatly unpopular with the public. • In the case of the Olympic Council Tax Precept, there were cases of non-payment that received notable press coverage, underlying the political sensitivity of council tax increases.

6.7 Conclusions and Recommendations: Preferred Demand Management / Funding Option

It is clear from the analysis presented above that each of the Demand Management and revenue raising options have some distinct advantages and disadvantages in relation to their application in Warrington. For the purposes of this study, we are primarily interested in the options that perform the dual role of both managing demand and raising revenue to support enhanced public transport within and around the borough.

CAZ, whilst evidentially highly effective at bringing about widespread changes to the quality and cleanliness of the commercial transport fleet within a given area, is restricted in its ability to raise revenue to be spent on transport schemes such as Mass Transit. It is also less effective historically at reducing the demand for private cars. As a result it is not considered suitable for the purposes of this study, however it may be considered as a worthwhile complimentary exercise in its own right to bring about improved environmental outcomes for the borough. The land value capture options of CIL and Council Tax are conversely seen as effective ways of supplementing the revenue streams for transport schemes including Mass Transit (particularly following the changes to guidelines and regulations surrounding CIL), however neither can be considered as Demand Management options. As a result they are considered unsuitable as primary solutions to the problem under consideration, although they could be investigated further as potential supplementary revenue sources.

A tolling or Road User Charging system for Warrington is also deemed unsuitable, primarily due to low levels of public, stakeholder and political support. A number of key risks of introducing Road User Charging for Warrington have been outlined, including that people will chose to work of shop elsewhere if the charging comes in, which will ultimately encourage businesses to locate or relocate elsewhere, leading to stagnation of the economy.

Consequently, further investigation is recommended for a borough-wide Workplace Parking Levy, with a view to implementing this demand management measure. It would effectively manage private car demand whilst raising revenue, prioritising public transport, walking and cycling, and encouraging sustainable modes to become the modes of choice for residential and employment populations in the borough. It is anticipated that CIL or Section 106/278 contributions could supplement the revenue raised by WPL, with these multiple funding options working together to enable WBC to borrow increased capital against these revenue streams to fund investment in mass transit systems.

7 Mass Transit Concepts

7.1 Overview

This chapter explores a number of benchmark 21st century transit solutions from across the UK and Europe that will inform optioneering for strategic mass transit solutions in Warrington within the Theme B element of the study. As highlighted within Transport for the North's recently published *Strategic Transport Plan (2018)*, enhancement of new and existing multi-modal transport systems, including rapid transit, are key to the long term economic strength of the north of England. The following transit modes have been identified as those which WBC wishes to pay particular consideration to within the scope of this study and therefore benchmark solutions which fall under these categories will be explored:

- Tram/Metro
- Bus Rapid Transit
- Park and Ride

Through a review of tram/metro, bus transit and park and ride, WBC is seeking to understand the common strengths of successful strategic mass transit schemes which should be further explored within the optioneering phase for a new transit solution(s) for the borough. This review aims to succinctly understand the key reasons behind why these transit solutions are successful, being mindful of unique geographical and economic factors which may influence the network.

7.2 Trams

At national level, through the *Creating Growth, Cutting Carbon, Making Sustainable Local Transport Happen (2011)* paper, the previous government set out their ambitions to enhance sustainable travel choices for everyday local transport journeys. This highlighted that light rail and trams specifically can play a significant role in improving the attractiveness and quality of public transport in major conurbations. Support for enhanced investment in the rail network and other mass-transit systems has subsequently been expressed through the *Transport Investment Strategy: Moving Britain Ahead (2017)* plan.

7.2.1 Case Study: Nottingham

- **Location:** East Midlands, UK
- **Population (city):** 321,550
- **Population Density:** 4,190 p/km^2

Whilst Nottingham is much more densely populated than Warrington with around 4,190 people per sq km, the city offers a number of valuable lessons in relation to the development of a successful tram system. The Nottingham Express Transit (NET) is a cross city tram system which has been open since 2004 and has subsequently more than doubled in size following the opening of Phase 2 in August 2015.

The network now consists of two lines with a total of 51 stations providing trams every 3-5 minutes during peak times and every 7-10 minutes into Nottingham from the surrounding areas of Hucknall, Phoenix Park, Toton Lane and Clifton South. An overview of the network is shown in **Figure 28**. To enhance the attractiveness and efficiency of the network, 7 of the tram stops are also Park and Ride hubs, including Hucknall, Clifton and Totton Lane, located on the outskirts of the city. These Park & Ride sites are available 7 days a week and each provide over 500 free parking spaces to help make use of the tram network more attractive for those who live in areas which are not directly connected to a stop on the network.

Figure 28: Nottingham Express Transit Network

Source: thetram.net

Similar to how a tram network might work for Warrington to serve Birchwood and Omega, NET also directly serves a number of business parks and industrial estates on the outskirts of the city including the NG2 Business Park, which supports 4,000 jobs.

7.2.1.1 Why does the network work well?

Nottingham's Express Transit network is well positioned to serve a large number of both commuting and leisure trips between the centre of Nottingham and surrounding urban areas. Park and Ride facilities at the periphery of the network also increase the number of potential passengers on the network. The NET therefore offers a convenient alternative to car travel, helping to reduce peak time congestion on key routes into and out of the city centre.

The success of the tram network alongside active demand management measures including the WPL system has meant that Nottingham has seen less of an increase in car usage over recent years in comparison to comparable cities. The WPL scheme has also provided a ready revenue source which has been used to help fund the network. This helped support the case for the substantial expansion of the network which increased passenger journey numbers by 35% to 16.4 million in 2016/17 over the previous year (DfT Light Rail and Tram Statistics 2016/17). The attractiveness of the network as a key mode of transport is also reflected by a high level (97%) of overall passenger journey satisfaction.

7.2.1.2 Lessons for Warrington

The following lessons for Warrington can be learnt from the Nottingham Express Transit:

- Nottingham provides seamless journeys for commuters, visitors and shoppers through offering a range of ticket options which can be used across services and modes. Smart ticketing must be applied in Warrington to increase the attractiveness of rapid transit.
- The tram network is complemented by park and ride facilities which increase the accessibility of the tram for people in more rural areas around Nottingham.
- It is important to plan the network to ensure the largest most densely populated settlements are well connected to maintain a good level of patronage. Direct connectivity to large employment centres should also be considered.

7.2.2 Case Study: Vauban, Freiburg im Breisgau

- **Location:** Baden-Württemberg, Germany
- **Population:** Vauban (5,500); Freiburg (226,400)
- **Population Density:** Vauban (13,490 p/km^2); Freiburg (1,479 p/km^2)

7.2.2.1 Overview

The district of Vauban in the Black Forest represents a world leading example for how to develop and sustain new environmentally sensitive neighbourhoods. Vauban occupies the site of a former army barracks to the south of the city of Freiburg, a city of over 200,000 residents and a population density just under 1,500 inhabitants per km^2, broadly similar figures to that for Warrington as a borough. At city level, Freiburg is renowned across Europe for their progressive approach to urban development and sustainable environmental policy.

Freiburg is connected by five cross-city tram lines which connect 20 of the city's 28 districts including Vauban. This network has benefited from ongoing investment, expansion and upgrade since its inception in 1901, with the emerging €150 million 'Stadtbahn 2020' programme adding significant extensions to the inner city tram network as well as extending the network further into the city suburbs. Annual patronage on the city tram network exceeds 63,000,000, equating to over 275 journeys made on the network per year by each inhabitant in the city. The network also has close to 30 million more riders on an annual basis than Manchester Metrolink despite Greater Manchester boasting a population of over 2.7 million. The attractiveness of the Freiburg tram network is further reflected by a number of special services which are put in place on a regular basis, including night services on selected lines at weekends and additional matchday services when the SC Freiburg football team play their home fixtures in the city.

7.2.2.2 Why does the network work well?

High density development in Vauban has been key to driving strong patronage levels on the Line 3 tram link which runs from Vauban, into the city centre and out to suburbs north of the city. As indicated in **Figure 29**, typical residential blocks in the neighbourhood are four-storeys high, giving rise to a total population density well 13,000 p/km^2, and supporting peak time frequencies of 8 trams per hour in each direction.

It is important to also emphasise the role that progressive transport policy has played in establishing Freiburg's reputation as one of Europe's most sustainable cities. City level transport objectives to reduce reliance on car travel for short distance travel first emerged in 1989, with more recent policies including forward thinking proposals to reduce the extent to which cars can penetrate new residential neighbourhoods. Commitment to this policy is clearly demonstrated in Vauban; as indicated in **Figure 30**, only a small number of 'collector' roads that surround the residential core are designated for use by cars. Consequently, Vauban residents must pay an annual €18,000 charge to park their car in one of the interceptor car parks located on the outskirts of the neighbourhood and this has played a key role in the fact that there are less than 200 cars per 1,000 residents in Vauban[37].

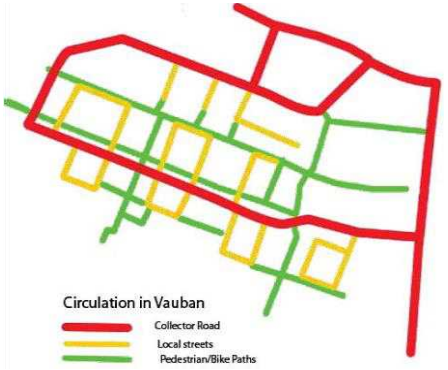
For residents who live in car-free streets but still wish to use their own car, they are able to make use of designated loading and unloading bays before parking in one of the car parks that surround the neighbourhood. Pool cars are also available across Vauban to further discourage the need for residents to purchase their own car.

[37] https://www.theguardian.com/environment/2008/mar/23/freiburg.germany.greenest.city

Figure 29: Typical Vauban street

Source: Mott MacDonald

Figure 30: Road Hierarchy in Vauban



Source: Fgrammen

The drive within Vauban and Freiburg more generally to promote car -free living is also reflected in the city's strategic approach towards cycling. Across the city as a whole, there are over 60,000 bike parking spaces, with covered bike parking places in key public spaces and residential neighbourhoods. 450km km of cycle paths have also been created across Freiburg, with quieter streets also designated as 'Cycle Streets' where bicycles have priority over cars. 2016 data indicates that for journeys started and completed within the city, 29% of all journeys are completed on foot, a further 34% are made by bicycle, 16% are made using public transport and only 21% of all cross-city journeys are made by car[38].

7.2.2.3 Lessons for Warrington

Whilst it is recognised that Freiburg, and more specifically Vauban, represents a highly ambitious benchmark for investment in transport and their approach towards sustainable living, there are a number of key lessons that Warrington can take from the city:

- The desire from the local government of Freiburg to reduce car dependency across the city is not only backed up by sustained investment in public transport but a positive approach towards walking and cycling connectivity with local transport policy.
- Progression to a position where car trips make up only a fifth of all cross-city journeys has not taken place overnight and has required sustained effort. Transport policies specifically focused towards ensuring that walking, cycling and public transport are the most attractive modes of travel for local journeys emerged over 25-years ago. Ambitious policy within the forthcoming LTP is required to help ensure that transformational improvements to local transport are supported.
- In addition to the commitment from local government to support sustainable development, high population density and reduced car access for individual dwellings has played a key role in supporting the viability of the tram link to Vauban. WBC must take a proactive approach in discussions with developers across the borough to help ensure that the design of new neighbourhoods encourages the occupants of new properties to use non-car modes for regular journeys as far as possible.

[38] https://www.freiburg.de/pb/,Lde/231648.html

7.2.3 Case Study: Dresden

- **Location:** Sachsen, Germany
- **Population:** 543,825
- **Population Density:** 1,656 p/km^2

7.2.3.1 Overview

Dresden has one of the most successful public transport networks in Germany, with the municipal transport company Dresdner Verkehrsbetriebe AG (DVB) operating a system of trams, buses, hillside railways and ferries. In recent years, the city has also led the way nationally for the highest average number of public transport journeys undertaken per resident, at close to 250 trips per person[39]. Following near complete destruction of the city centre during World War II, restoration work has helped to deliver a significant expansion to the city tram network. In total, twelve tramway lines help to form a 134km network across the city, with individual trams up to 45m in length (**Figure 31**), some of the longest in the world. Given the geological setting of the city, all tram lines in the city are at ground level, with a number of sections of network on reserved track sewn with grass to help reduce the noise of the running trams, as shown in **Figure 32**. Where Dresden's tram network stands out from others and offers a number of interesting lessons for other locations is in relation to the fact that the tram lines are used throughout the day by both passenger trams and cargo trams. These cargo trams, referred to as 'CarGo', are operated by DVB and used exclusively to supply Volkswagen's 'Transparent Factory', a construction facility for the e-Golf model.

Figure 31: Dresden Passenger Tram

Source: Flickr

Figure 32: CarGo Tram Dresden

Source: Flickr

7.2.3.2 Why does the network work well?

CarGo trams were launched in Dresden in 2001 to help reduce the need for lorries to pass through the city centre between the Friedrichstadt freight terminal and the Volkswagen factory. These trams were in part launched to help alleviate significant local concern that deliveries to the factory would lead to increased congestion and a reduction to air quality within the city.[40] With the exception of the car chassis, all other car parts and components (of which there are over 1,000 per car) are shipped from the Dresden freight terminal in the west of the city to the Volkswagen factory in the east of the city by tram, significantly reducing the need for goods vehicles to penetrate the city centre. Whilst Dresden has only 2 CarGo trainsets, both are 60m long and can run up to every 40 minutes, using one of a number of different routes to cover the 5.5km distance between the freight terminal and the car assembly factory depending on the volume and distribution of passenger traffic on the network at the time of travel.

DVB and the City Council of Dresden are also delivering demand responsive investment in the tram network as part of the 'Stadtbahn 2020' programme **(Figure 33**). One of the city's key bus routes, which serves the Technical University of Dresden, suffers from regularly overcrowding and delay, with in excess of 15,000 passengers per day using the route. Consequently, the entire line is to be replaced in a number of stages with a new tram line, construction of which is due to begin in 2020. Alongside key sections of the route, cyclists will also benefit from new dedicated cycle lanes for the first time.

Figure 33: Stadtbahn 2020

Source: DVB

7.2.3.3 Lessons for Warrington

Whilst the introduction of cargo specific trams for Warrington are likely to be a more long-term aspiration for both WBC and for key construction, distribution and logistics firms within the town, there are a number of lessons and potential opportunities that Warrington can take from Dresden's CarGo system:

- Experience from Dresden highlights the potential to integrate passenger and freight traffic on the same tram network. More specifically, freight routes can be adapted depending upon the time of day that the journey is made and which areas of the network are most busy with passenger services. This helps to ensure that the freight movements do not adversely impact on the efficiency of the passenger network.
- A number of new and emerging sites might benefit from freight tram connectivity in the borough including Omega, Gemini and Port Warrington.
- The City Council and municipal transport company in Dresden are also now delivering demand responsive investment to replace over-capacity bus routes with new higher capacity tram routes.
- It is however important to note that Dresden and its hinterland are far larger than Warrington, helping increase the viability of capturing internal freight movements by rail.

[39] https://web.archive.org/web/20080128233503/http://dvb.de/untnehm/unnehm.htm

[40] http://www.metro-report.com/news/single-view/view/freight-tram-to-support-electric-car-production.html

7.3 Bus Rapid Transit

Bus Rapid Transit (BRT) is a growing form of rapid transit within the UK, typically incorporating dedicated stretches of road which can be used solely by specialist buses. These buses will often make use of normal stretches of highway at junctions or for part of their route where land constraints make it unfeasible to have a dedicated bus route alongside the main carriageway. At intersections with public highway, all buses (including conventional services) will typically be given priority over other road users in order to reduce journey delay and maintain the attractiveness of the system as an efficient mode of travel. Recently completed BRT systems in the UK include the Leigh to Manchester system, explored in more detail below. A number of leading systems are also in operation in Europe, including in Eindhoven, again explored below in order to better understand the characteristics of successful BRT systems elsewhere and the lessons that Warrington can learn from these.

7.3.1 Case Study: Leigh-Salford-Manchester Bus Rapid Transit

- **Location:** Greater Manchester, UK
- **Population:** 52,855
- **Population Density:** 4,865 p/km^2

7.3.1.1 Overview

Opened in 2016, the Leigh-Salford-Manchester BRT scheme has delivered a high quality public transport service that links Leigh, Atherton, Tyldesley, Ellenbrook, Salford and Manchester via a guided bus way and on-street bus priority measures. The scheme formed part of a total £122 million bus priority package for Greater Manchester. The importance of Manchester city centre as a regional centre for the inflow of commuters demands high quality transport links to satellite towns of Greater Manchester, a primary objective of this scheme. A further key objective for the scheme is to facilitate regeneration of the former Lancashire Coalfield area which suffers from high economic deprivation and poor access to social services.

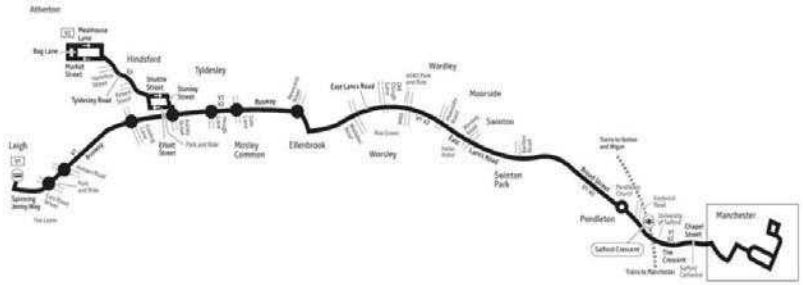
The scheme is located approximately 10 miles to the north of Warrington town centre and provides a working case study for how to connect a large suburban population with an urban centre to improve connectivity and reduce network congestion. A scheme of this nature for Warrington could similarly incorporate new guided bus corridors as well as utilising the existing highway network with added bus priority measures in a similar way to the Leigh scheme. This would enhance Warrington's local transport network with a rapid transit link between key residential areas and the town centre.

To this point, the populations of Leigh, Atherton, Tyldesley and Astley have immediate access to services along the route, a catchment exceeding 94,000 people. The busway section of the service runs through farmland and open greenspace but utilises the converted rail alignment to follow a flat route between Leigh and Ellenbrook. As part of environmental mitigation for the project, TfGM worked with the Forestry Commission to secure the planting of 25,000 trees to create a 10ha Community Forest at Higher Folds.

7.3.1.2 Why does the network work well?

Further to supporting commuter inflows and access to Manchester city centre, the scheme is driving inward investment along the length of the corridor between Leigh and Manchester (**Figure 34**). For Leigh specifically, the scheme will support the further development of the town as a key commercial and business centre within the Greater Manchester Combined Authority area. Greater Manchester's road network is heavily congested and this scheme serves an area where heavy rail access is restricted. In addition to the new guided busway element of the scheme, bus priority measures on existing highways will enable buses to become a more attractive mode of travel for all users. This is reflected by the fact that peak hour bus journey times between Leigh and Manchester reduced by 30 minutes, with over 50,000 passengers carried per week. This has exceeded any patronage forecasts put forward within the business case. In terms of customer satisfaction in early surveys, 98% of customers were satisfied with their overall journey and 97% would recommend the guided busway to a friend or relative[41].

Figure 34: Leigh-Salford-Manchester route map.



Source: The Transport Knowledge Hub

7.3.1.3 Lessons for Warrington

This Leigh-Salford-Manchester BRT scheme provides several lessons when considering the possibility of implementing a similar scheme in Warrington:

- A guided busway is a costly and environmentally sensitive scheme to develop though it should be noted that that BRT does not necessarily require guided routes. In Leigh, the guided section utilises the former rail alignment to help reduce environmental sensitives regarding green belt release. Warrington must replicate this approach where possible to maximise disused corridors and to protect green space.
- Leigh is in an area with poor heavy rail services, increasing the potential catchment of the BRT system. Warrington must ensure that any BRT scheme does not unduly compete with patronage with the existing rail network.
- To deliver an attractive BRT scheme, Warrington must ensure bus priority measures are implemented where appropriate to ensure journey times are competitive with car travel. A high standard of facilities must also be maintained on services to maintain an attractive travel offer.
- Vehicles should also be low polluting and ideally electrically powered, with a high frequency of service to reduce passenger waiting times and increase the overall attractiveness of the service.

[41] http://www.brtuk.com/wp-content/uploads/2016/11/BRT-UK-presentation-Sept-16.pdf

7.3.2 Case Study: Caen

- **Location:** Normandie, France
- **Population:** 106,260
- **Population Density:** 4,135 p/km^2

7.3.2.1 Overview

The city of Caen is located in northern France, connected to the English Channel by the 9-mile Caen Canal. Historically, direct connectivity to the sea played an important role in Caen becoming established as a key economic centre in the region. Whilst the city has a significantly smaller population than Warrington as a whole, public transport systems are supported by the dense belt of residential development that surrounds the historic city centre. The residential blocks in the background of **Figure 35** are indicative of the dense nature of residential development in the city. Car access to, from and within the inner city is also constrained by the number of narrow, pedestrianised and one-way streets, increasing the attractiveness of travel by non-car modes for local journeys.

Both conventional and guided buses have been operated in Caen by Keolis, the largest private sector transport organisation in France. The city's two guided bus lines were introduced in 2002 however all services on these two lines ended in December 2017 and will be replaced with new conventional tram lines. During operation, the two north-south guided bus lines connected over 15km of the city centre, with a daily patronage in excess of 40,000 and services operating at frequencies of up to every 4 minutes[42]. The replacement of the guided bus network is indicative of both the issues that the guided buses have faced in Caen as well as the opportunities for the city that tram conversion offers.

Figure 35: Guided Busway, Caen

Source: Wikimedia Commons

7.3.2.2 Why does the network work well?

Rather than being an example of a successful BRT system that Warrington should seek to emulate where possible, WBC should be aware of the challenges and issues that the guided bus system faced in Caen. The most notable of these are as follows:

- During the planning phase for the busway network, reports suggested that less than one in four residents were in support of the project, with this disapproval growing following the opening of the network because of the increased local congestion relating to the new bus priority measures introduced across the city.
- As has been recognised in the documentation for the new tramway, a number of technical problems and poor reliability affected the old busway system, with the operator regularly failing to fulfil their full daily contracted service pattern[43].

By September 2019 it is expected that the transition from a two-line guided bus system to a three-line tramway system will have been completed. Advantages of the new tram system over the previous bus rapid transit system include that all 37 stations on the network will be accessible for passengers with reduced mobility, unlike many of the busway stops. Each of the new trams will also have capacity for 210 passengers, a 60% increase in capacity compared to each of the busway vehicles. By 2023, it is expected that total public transport patronage in the city will have increased by 19.5% on 2017 levels when the busway was still in operation This is reflective of the fact that 74,000 (approximately three quarters) of the city's residents will be within 500m of a tram station once the network opens[44]. In order to ensure that the rest of the city can benefit from improved public transport accessibility, a new circular urban bus route will be launched alongside the tram system.

The tram services are also expected to run at 3-minute headways in peak times on the section of the route within the city centre used by all three new routes. The network will be served by a total fleet of 23 trams, with the total project cost estimated at €247m.

7.3.2.3 Lessons for Warrington

The guided busway experience from Caen offers a number of important lessons for WBC when considering the opportunities and threats of introducing a similar scheme in Warrington:

- Despite the obvious issues which the guided bus network has faced in Caen, daily patronage remained in excess of 40,000 across the two lines. This is driven by a number of factors but can be best attributed to the high density of development in the city. WBC must seek to maximise the density of residential and commercial development in the borough, particularly in areas which are identified as having potential to significantly benefit from and support a new transit system.
- Experience from Caen has indicated the pitfalls of investing in a rapid transit system which is poorly supported by the public. Before committing to investment in any form of mass transit, extensive public consultation and information sharing sessions must take place to help shape the development of the network and educate the public on the impacts of the system.
- Caen's guided bus system was persistently affected by poor reliability and timetabling issues, with late running services causing increased congestion in the city centre. WBC must ensure that assessments of the reliability of various BRT systems are completed if further feasibility for BRT takes place.

[42] https://france3-regions.francetvinfo.fr/normandie/calvados/caen/caen-ville-travaux-preparer-chantier-du-tramway-1318793.html
[43] https://www.tramway2019.com/questions-reponses/
[44] http://www.metro-report.com/news/single-view/view/keolis-awarded-caen-operating-contract-covering-bus-to-tram-conversion.html

7.3.3 Case Study: Eindhoven

- **Location:** North Brabant, Netherlands
- **Population:** 227,751
- **Population Density:** 2,596 p/km^2

7.3.3.1 Overview

Eindhoven is the only one of the Netherlands' largest five cities without a tram network, however significant and sustained investment has been made to deliver a highly attractive bus network. The bus network is comprehensive and includes a number of dedicated busways including between the city centre and Eindhoven Airport, one of eight segregated high quality HOV (Hoogwaardig Openbaar Vervoer) bus routes in the city. These busways are served by the advanced guided buses known as Phileas (**Figure 36**) which have been branded by the city's transport officials as a 'tram on tyres' and have been specifically designed to deliver an improved passenger experience over conventional buses and give passengers the feel that they are travelling by tram rather than by bus. These buses were developed in the city and introduced onto the city's network in 2004, with varieties of the vehicles being introduced in a number of other cities within the Netherlands and worldwide including Amsterdam, Istanbul and Cologne. With the exception of the dense city centre which is characterised by a number of high rise office and apartment blocks, development in Eindhoven is fairly low density, with a number of typical suburban neighbourhoods located only kilometre of the heart of the city centre. This makes the city better suited for supporting a conventional bus network, supported by BRT on select high patronage routes, as opposed to a full tram system.

Figure 36: Phileas Bus

Source: VDL

7.3.3.2 Why does the network work well?

The network of guided bus routes and associated Phileas buses in Eindhoven offers a number of advantages over other forms of mass transit and conventional buses. These include that the buses deliver a tram-like experience for passengers at a very low cost as no rails or overhead lines need to be provided **(Figure 37**). The outline savings in terms of infrastructure costs can also be reflected in ticket prices for users. In terms of operation, magnets are built into the busways and the Phileas buses are fitted with magnetic sensors which enable the buses to be automatically steered by an onboard computer using signals received from the sensors. This automatic steering delivers jerk-free acceleration and deceleration, reduced noise and improved comfort for passengers, however the vehicles are also flexible as they can also operate on conventional roads and be steered manually. Further advantages of the Phileas buses are that the batteries are charged by electromagnetic induction, improving efficiency and delivering environmental benefits over regular buses including an estimated 25% reduction in fuel use compared to regular buses[45].

Phileas buses offer a number of the same advantages as tram systems including that vehicles are fitted with tracking technology which is fed back to display boards at stops in addition to the fact that the buses are fitted with luggage storage compartments, bicycle storage and are entirely accessible for users with mobility impairments. Going forward, there are plans for further investment in the segregated HOV bus network to enable routes to towns on the outskirts of Eindhoven including Nuenen to be served the Phileas buses. Innovation in the Phileas bus technology is also continuing to take place and newer vehicles are being designed to comply with new higher European emissions standards (**Figure 38**).

Figure 37: Eindhoven Busway

Source: Mott MacDonald

Figure 38: Guided Bus to Eindhoven Airport

Source: Mott MacDonald

7.3.3.3 Lessons for Warrington

Eindhoven's system of busways and the associated Phileas vehicles provides an interesting example for how new investment in busways and specialist vehicles could combine with the existing bus network to deliver an enhanced local transit system:

- As opposed to a tram system, Phileas buses are flexible and not fixed to infrastructure. As well as using the magnet technology on dedicated busways, the vehicles can operate on normal roads and operate on roads with higher gradients than trams are typically able to. The advantages of this flexibility must not be forgotten when further assessing the relative merits of tram and BRT systems for Warrington.

[45] https://www.polisnetwork.eu/uploads/Modules/PublicDocuments/os_aw_appl_eindhoven.pdf

- If funding constraints necessitate that WBC can only commit to a lower level of funding at the outset, a Phileas type system that can be expanded with new track and more vehicles could be an attractive investment option. In Pescara, a Phileas system was established was established for the relatively modest cost of €28 million including an 8km long track, 34 stops and 6 vehicles.
- Phileas vehicles offer a number of advantages over conventional buses including that they are fitted with luggage compartments, bike storage and have space for mobility scooters, helping increase the attractiveness of travel on these vehicles for all users. The multiple doors which open on these buses also increase the efficiency of boarding and alighting.

7.3.4 Case Study: Metz

- **Location:** Grand Est, France
- **Population:** 119,775
- **Population Density:** 2,900 p/km^2

7.3.4.1 Overview

The city of Metz is located in the northeast of France where the River Moselle and River Seille meet. The city's Bus Rapid Transit Network, known as METTIS, comprises 24m hybrid articulated buses across 38 stops to accommodate around 25,000 passengers per day[46]. Spacious tram-like Van Hool vehicles, each with a capacity of 150 passengers, are used in Metz to provide a high level of technical and environmental performance and maximise passenger experiences. A total of 27 buses are in operation across the city and these have helped change local perceptions towards using buses as a main mode of travel as a result of the transformational improvement that they have delivered in terms of passenger experience compared to conventional buses (**Figure 39**).

Figure 39: METTIS Vehicle on dedicated BRTtrack

Source: Wikimedia Commons

[46] https://brtdata.org/location/europe/france/metz

Metz is situated at the economic heart of the Lorraine region, specialising in information technology and automotive industries with around 73,000 people travelling to work in and around the city each day. Metz is also home to the University of Lorraine where more than 55,000 students are enrolled. The BRT network plays a central role in supporting economic activity and research facilities, providing thousands of employees and students with efficient public transport.

A number of waterways run through Metz such as the Moselle and the Seille rivers which meet just north east of the city centre. These rivers segregate the land and create small island districts within the city such as Les Îles and Île du Saulcy. However, bridges constructed across rivers allow the BRT network to maintain connectivity across these areas.

There are two different BRT lines (A and B), with a total line stretch of about two miles. The buses of lines A and B circulate with priority at lights and tramway type signalling at intersections in order to maintain commercial speed and to ensure punctuality. Key destinations across the city that are served by the high capacity vehicles include the Grigy-Technopôle Science Park and new Mercy Hospital. In total, the buses run on dedicated traffic free carriageway for just under 86% of the route, ensuring that the BRT network offers an efficient and attractive alternative to private car travel.

7.3.4.2 Why does this network work well?

The BRT was introduced in Metz to provide the city with a network which encouraged people to travel collectively to reduce traffic and improve the environment. Although a tram network was considered, BRT was seen to be a more cost effective solution which did not compromise any of the historical elements of the city.

Since the beginning of 2013 when the METTIS was introduced, travel by public transport has increased by 45% and has helped to bring forward further regeneration in areas along Lines A and B of the network. Fare integration within the system allows electronic integration between buses, permitting passengers to make transfers between services with one type of ticket/card in limited period of time. In this case, the passenger validates the ticket/card in each new trip, without paying for the transfer or paying a reduced fare. Smartphone applications are also available to make it easier to access network information.

Due to priority at junctions and tramway type signalling for buses it is now faster, and in some cases cheaper, to travel by bus than it is to travel by car. This means that for many commuters, students and visitors the METTIS is likely to be the preferred mode of travel. This transit network is particularly important for students who live in and around Metz and are less likely to have access to a car than residents in full-time employment. Reasonable METTIS fare prices (€229.50 for a year) make this a viable and attractive mode of travel for students requiring access to university facilities.

7.3.4.3 Lessons for Warrington

Warrington can take the following lessons from Metz's BRT system:

- Ensuring that the BRT fleet of vehicles is efficient, comfortable and reliable is important for reducing potential stigma around buses as an attractive alternative to car travel for local journeys. WBC should also consider the relative costs and benefits of facilities such as Wi-Fi to enable travel time to become more productive and increase the attractiveness of the service for commuters.

- Priority signalling for BRT vehicles at junctions is crucial for improving commercial performance and punctuality and ensuring that journeys by bus can become faster and more reliable than car, especially during the morning and evening peak periods when congestion on the highway network is likely to be greater.

7.4 Park and Ride

Establishing a new Park and Ride system within Warrington could provide an attractive mass transit solution for the borough as well as potentially being more cost effective to a new BRT or tram network. Over the following pages we explore some of the key characteristics of successful Park and Ride schemes within Chester, Norwich and Shrewsbury and the lessons that WBC should take from these systems if further work within this study and going forward identifies that a Park and Ride system is the, or one of, the preferred options for transit investment in the borough.

7.4.1 Case Study: Chester

- **Location:** Cheshire, UK
- **Population:** 118,200
- **Population Density:** 4,009 p/km^2

7.4.1.1 Overview

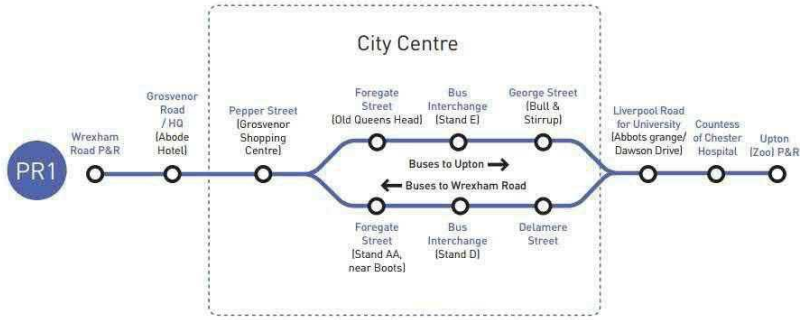
Chester is a historical city with a number of physical barriers to cross-city movement including the historic city walls, River Dee and the Shropshire Union Canal. In addition to the attractive cultural and retail offer within the city centre, Chester has a number of major trip attractors located on the periphery of the city, including Chester Zoo, Chester Business Park and Sealand Industrial Estate. Whilst the historic nature of Chester city centre makes it far denser than the centre of Warrington, cross-city movement within Warrington is similarly constrained by the River Mersey and Manchester Ship Canal and can relate to Chester in terms of key destinations being located on the outskirts of the urban area. This includes Gulliver's World, Birchwood Park, Gemini Park and Omega Park all on the periphery of the town centre.

Two Park and Ride routes operate in Chester between a total of four Park and Ride sites, connecting the historical city centre to key strategic sites on the outskirts of the city including the Sealand Road Industrial Estate and Chester Zoo (**Figure 40**). With employment and leisure trip attractors located at either ends of the routes, as shown in the figures below, patronage along the length of the line via the city centre is strong. The network has high frequency throughout the day, making it attractive to commuters and shoppers, with the following hours of operation in place on both routes:

- Monday to Friday: every 12 minutes between 7am and 7pm.
- Saturdays: every 12 minutes between 8am and 7pm
- Sundays and Bank Holidays: every 15 minutes between 9.30am and 6pm.

Operated by Stagecoach on behalf of Cheshire West and Chester Council, a fleet of 12 new buses were introduced in 2016 and feature free 4G Wi-Fi for passengers, improved climate control and USB charging. This fleet upgrade was part funded by the Local Sustainable Travel Fund (LSTF) and a new ticketing system has also recently been introduced to enable passengers to make card payments to pay for their travel, helping to reduce passenger boarding delay.

Figure 40: PR1 route map.



Source: Cheshire West and Chester

7.4.1.2 Why does the network work well?

The success of the service is largely attributed overall affordability and the strategic location of each Park and Ride site. Ticketing includes free parking for Park and Ride customers, with a return ticket costing £2 per adult, and children able to travel free if accompanied by a paying adult. The service also runs a series of promotions included discounted fares to the Countess of Chester Hospital, multi day saver offers for frequent travellers and free travel promotions on certain days. It should however be highlighted that the Chester Park & Ride network is heavily subsided by Cheshire West and Chester Council, and publicly available information indicates that the operators of the bus services across the four sites received a gross £1.1 million subsidy for the period April to December 2014 inclusive[47].

The Park & Ride network in Chester is also supported by the fact that the overall parking stock in Chester is low, with just over 5,000 spaces distributed across 18 private and 14 public car parks. Car parking prices are also relatively high in Chester, with the average car park charging £1.45 per hour (averaged over the first 8 hours).

As highlighted above, the decision to locate Park and Ride hubs at the site of key trip attractors within the city plays a significant role in supporting high patronage on the network. The strategic locations of the Park and Ride sites serve the key employment sites on the periphery of Chester and the Upton Park and Ride site serves Chester Zoo, the leading UK attraction outside of London (AVLA, 2016). The cross-city bus routes between the Park and Ride sites provide a high-quality transit system that attracts trips for employment and recreation across the area.

7.4.1.3 Lessons for Warrington

Chester's Park and Ride scheme provides a leading example for Warrington when considering park and ride opportunities for the area. Key lessons are:

[47] https://www.whatdotheyknow.com/request/park_and_ride_subsidy_in_chester

- Cross-city routes can maximise efficiency through attracting two-way journeys both into the city centre and to key destinations on the city centre's periphery.
- The location of park and ride sites must be carefully considered to maximise service demand. In Chester, the location of park and ride hubs provide a north-south and east-west route via the city centre, all of which are located at key sites that attract high footfall.
- Warrington has many important employment and visitor sites on the periphery of the town centre where strategically placed park and ride sites could be located. From here, buses could provide a through route to the town and outward to key destinations on the opposite side of Warrington, enhancing overall connectivity around the town.

7.4.2 Case Study: Norwich

- **Location:** Norfolk, UK
- **Population:** 213,166
- **Population Density:** 3,480 p/km^2

7.4.2.1 Overview

In comparison to previously introduced bus transit examples from Chester and Leigh, Norwich provides an example of a city of a similar scale to Warrington. The Norwich Park and Ride network is operated by Konect Bus on a commercial basis with no public subsidy and comprises a combination of cross-city and peripheral routes to serve the city centre and key locations on the periphery of the city including Norwich International Airport, the University of East Anglia (UEA) and the Norfolk and Norwich University Hospital (**Figure 41**).

Figure 41: Norwich Park and Ride Network

Source: Konect Bus Ltd

[48] http://news.bbc.co.uk/1/hi/england/norfolk/6649831.stm

Routes serving the city centre (5, 501, 502) operate Monday to Saturday, and the peripheral routes (501, 511) operate on weekdays only. Ticketing across the Park and Ride network also varies vary depending on the service used, with a peak adult return ticket on routes via the city centre costing £3.50, including cost for parking.

Peripheral routes are also highly affordable with an adult return ticket costing £1 between Costessey and the hospital. The 511 service from Costessey to University of East Anglia is also free, for all students and staff at the university. This free service has helped contribute to the reduction in private vehicle use at the hospital and university with Park and Ride becoming an attractive mode of travel to and from these campuses.

Norwich is Norfolk's largest and most important economic centre, with a large inflow of commuters from across the county on a daily basis. This contributes to significant peak time congestion on key arterial routes in and out of the city, as Warrington also suffers from. Norwich's largest employers operate in financial services, public services, retail and hospitality, many of which are located in the city centre. A number of key employment destinations are also located to the south west of the city centre including the University of East Anglia, Norfolk and Norwich University Hospital and Norwich Research Park. This area is well served by the Park and Ride services from Costessey Park and Ride as discussed above.

Residential neighbourhoods surround the city on all sides and are well connected by the Park and Ride sites. Sprowston and Postwick are two of the densest residential areas of the city and benefit from direct access to the Park and Ride network, enabling commuters from these areas to access the city centre more quickly and often more cheaply than if they were to undertake the journey by car.

7.4.2.2 Why does the network work well?

As observed within the route network diagram, Norwich's Park and Ride termini are strategically located around the city centre to intercept vehicles on key routes into the city including the A140, A47 and A11. This increases the convenience of the service to Norwich commuters and shoppers from the wider area, helping to reduce the number of vehicles penetrating the city centre. The cost and time benefits of the scheme for users and the easy access from the road network to each site also helps maintain a high level of service demand.

The attractiveness of Norwich's Park and Ride network has contributed to the sustained high patronage since the scheme's inception in the early 1990s. The range of available payment mechanisms, fare structure and mobile fares app all maintain the scheme's appeal to users. Annual patronage levels of around 3 million passengers per over the last decade also helps keep up to a million cars out of Norwich city centre on a yearly basis[48].

The success of the scheme and the future development of Norwich's Northern Distributor Road has led to proposals to amalgamate the current Sprowston and Norwich Airport sites to develop a new super Park and Ride site close to the A140 and Northern Distributor Road. Proposals to release new land for development means that greater expansion of the scheme is required to enhance the service further.

7.4.2.3 Lessons for Warrington

Norwich's Park and Ride scheme provides several important lessons for Warrington

- The strategic planning of park and ride sites is an important facet in delivering a successful scheme. Patronage can be increased through locating sites on the urban centre periphery, with strong links to the immediate A-road and motorway network.
- Experience from Norwich demonstrates that not all routes must be cross-city routes, peripheral routes can be utilised to serve key employment destinations such as business parks, hospitals and education facilities. Norwich have successfully combined periphery and cross-city routes to deliver an encompassing network of routes.
- Norwich provides a high standard of customer service through delivering a range of payment options, a modern fleet of buses and an affordable and safe experience. These components that must be adopted to attract uptake in a park and ride scheme.

7.4.3 Case Study: Shrewsbury

- **Location:** Shropshire, UK
- **Population:** 71,715
- **Population Density:** 3,411 p/km^2

7.4.3.1 Overview

Shrewsbury is a market town located on the River Severn in Shropshire with a notably smaller population to that of Warrington. Shrewsbury has a constrained historic town centre and has a significant Park and Ride system to help reduce town centre congestion, reduce parking requirements within the town centre and create a more pleasant and less car dominated feel within the town. There are three Park and Ride sites serving Shrewsbury located to the north, west and south of the town centre including:

- Harlescott - 677 spaces
- Meole Brace - 672 spaces
- Oxon - 500 spaces

All Park and Ride sites are closed and locked after the arrival of the last bus from the town centre which is 6.40pm for the Oxon and Meole Brace car parks and around midnight for Harlescott, with this later service helping to connect both the edge of town retail and residential area with the town centre supporting retail and leisure facilities in the town centre. The services also stop at key locations such as the railway station facilitating easy access to the town centre by public transport. Buses run every 20 minutes from all sites to the town centre from Monday to Saturday from 7.20 am to 6.20pm and all vehicles are equipped to support pushchairs and people who are less mobile. There are no services on Sundays or bank holidays.

All day parking at all sites is free when purchasing a return bus fare which costs as little as £1.60 which is considerably less than the commercial fare for an equivalent bus journey. A number of different ticket types are available including group tickets (£2.50), season tickets (£6.40 per week, £24 per month) and 50% discount for students during term time.

Both the town and county councils, and a number of retail complexes are located in and around the town centre, providing significant employment. In addition to be a key centre of employment in the borough, the town is home to four shopping centres and has a strong visitor economy. Therefore, the Park and Ride in Shrewsbury provides an important facility for large numbers of both commuters, shoppers and visitors.

An overview of the Park and Ride network is indicated in **Figure 42**.

Figure 42: Shrewsbury Park and Ride Network

Source: Shropshire Council

There are a number of suburbs and surrounding villages separated from the town centre by the River Severn. Bayston Hill is a large neighbouring village 3 miles south of the town centre which is now separated from the Meole Brace suburb by the A5 bypass. The smaller village of Battlefield, north of the town, is considered a suburb of the metropolitan area. These large settlements and suburban areas are all well connected to the town centre via the Park and Ride facilities, reducing the need for large populations to travel to the centre by car.

7.4.3.2 Why does the network work well?

The success of the current Park and Ride sites have led to recent proposals within Shropshire Council's car parking strategy to add an additional site to the network and include the Royal Shrewsbury Hospital along the route.

As shown in **Figure 42**, the town's Park and Ride sites are located adjacent to key A roads, such as the A5, A458 and A49, which link Shrewsbury to the wider area. This offers opportunities for visitors and commuters from further afield to access the town centre and its retail facilities via by a potentially cheaper mode than if they were to travel and park within the town. Bus routes connecting the sites to the town centre are direct to help minimise journey time and ensure the service remains attractive and competitive with the car.

7.4.3.3 Lessons for Warrington

Shrewsbury's network provides a good example of a successful park and ride scheme offering more sustainable travel for commuters and visitors. Key lessons that Warrington should consider from Shrewsbury include:

- Ensure car park opening times and bus services can facilitate business hours for commuters and retail/entertainment facilities for visitors.
- Consider the location of park and ride sites close to key strategic road links on the periphery of the area. For Warrington, this could be in proximity to junctions on the surrounding motorway network such as the M6, M56 and M62.
- Fare prices must be kept low to increase the attractiveness of the facility as an alternative to the cost of driving and parking within the town centre.

7.5 Headline Findings

This chapter has explored the key details of a number of established successful mass transit schemes within the UK and Europe. Whilst some of the key lessons learnt in these locations are more geographically unique to the town or city where the system has been implemented, including the fact that the city centre of Caen is highly constrained by a dense network of pedestrianised and one-way streets and less navigable for private vehicles than Warrington, many of the key lessons should help to guide further optioneering for mass transit in Warrington. Key lessons from the UK and European examples of different rapid transit modes are as follows:

7.5.1 Tram

- It is important to plan tram networks so that the largest and most densely populated settlements are directly connected to the network. This helps to support high levels of patronage on the line. Providing park and ride facilities at select stations on the route towards the outskirts of the urban area can also increase the accessibility of the tram network for those who live further from the line in more rural areas.
- A drive to reduce car dependency and congestion and to improve air quality is not only supported by investment in public transport but should be backed up by a positive approach towards investment in walking and cycling connectivity.
- A proactive approach from local authorities through both policy and in discussions with developers is needed to help deliver the development pattern and density required to support usage of rapid transit systems and to help reduce the propensity to travel by car for short distance journeys. In terms of development patterns, at the most extreme level, this could include reducing car access to new dwellings.
- Given the nature of Warrington's economy, there could be potential to integrate passenger and freight traffic on the same tram network, thereby reducing freight movements on congested roads within the borough. Depending on the total size and scale of the tram network, freight routes can be adapted depending upon the time of day that the journey is made and which areas of the network are most busy with passenger services. This helps to ensure that the freight movements do not adversely impact on the efficiency of the passenger network.

7.5.2 Bus Rapid Transit

- Before committing to investment in any form of mass transit, extensive public consultation and information sharing sessions must take place to help shape the development of the network and educate the public on the impacts of the system. This point can also apply to all other forms of mass transit.
- Priority signalling for BRT vehicles at junctions is crucial for improving commercial performance and punctuality and ensuring that journeys by bus can become faster and more reliable than car, especially during the morning and evening peak periods when congestion on the highway network is likely to be greater.
- Ensuring that the BRT fleet of vehicles is efficient, comfortable and reliable is important for reducing potential stigma around buses as an attractive alternative to car travel
- As well as using the magnet technology on dedicated busways, most BRT vehicles can operate on normal roads and operate on roads with higher gradients than trams are typically able to. In addition, BRT systems may be rolled out gradually over time potentially starting as road-based but with the ultimate potential for more segregated running. The advantages of this flexibility must not be forgotten when further assessing the relative merits of tram and BRT systems for Warrington.

7.5.3 Park and Ride

- The location of park and ride sites must be carefully considered to maximise service demand. Cross-city routes can maximise efficiency through attracting two-way journeys both into the city centre and to key destinations on the city centre's periphery.
- The strategic planning of park and ride sites is an important facet in delivering a successful scheme. Patronage can be increased through locating sites on the urban centre periphery, with strong links to the immediate A-road and motorway network.
- For out of town park and ride facilities, fare prices must be kept competitive to increase the attractiveness of the facility as an alternative to the cost of driving and parking within the town centre. In essence, Park & Ride fares must be lower than the cost for parking within Warrington and driving to and from the town centre.

8 Mass Transit Corridors

8.1 Establishing Need

Warrington is a rapidly growing town. It is one of the North West's strongest economies and is a net 'importer' of workers. The draft Local Plan proposes nearly 21,000 new houses to be built in the borough in the next twenty years, however Warrington is currently a town dominated by car usage. As discussed shown in section 3, 80% of Warrington residents use a private vehicle (car or van) to get to work, and 73% of commutes within the borough (people who both live and work in the borough) are done by people driving a car or van.

The impact of this dependency manifests in two key ways: congestion (and associated journey delays, costs and reduced accessibility) and poor air quality. These have negative consequences in terms of added operating costs for businesses, decreased efficiency, health impacts due to pollution and reduced quality of life.

The dispersed nature of the borough, with many out of town employment and retail sites, does play a part in this, but need not mean that car dependency is inevitable. However, to redress the balance, a transformative approach to transport needs to be taken. As previously mentioned, to increase public acceptance of new demand management mechanisms within Warrington, viable alternatives to incentivise people away from car usage will need to be provided. With growing employment and residential numbers in Warrington spread across the borough, a mass transit system must be considered.

8.1.1 Origins and Destinations

Analysis of trip origins and destinations for all trip purposes, not just commuter trips, has been carried out using the Warrington Multi Modal Transport Model (WMMTM)[49]. **Figure 43 - Figure 46** show the numbers of trips originating and destinating in each model zone in the AM Peak in 2036, with the Local Plan Preferred Development Option proposals realised.

The origin and destination plots for journeys by all modes show a wide spread of journey origins in the AM Peak, reflecting the fact that most people's trips will begin at home. The destinations of trips are concentred in five areas – the town centre and the four corners of the borough – Omega//Lingley Mere, Birchwood/Culcheth, the Waterfront and the Garden Suburb around J20 of the M6.

Figure 43: Number of originating trips, AM Peak 2036, all modes

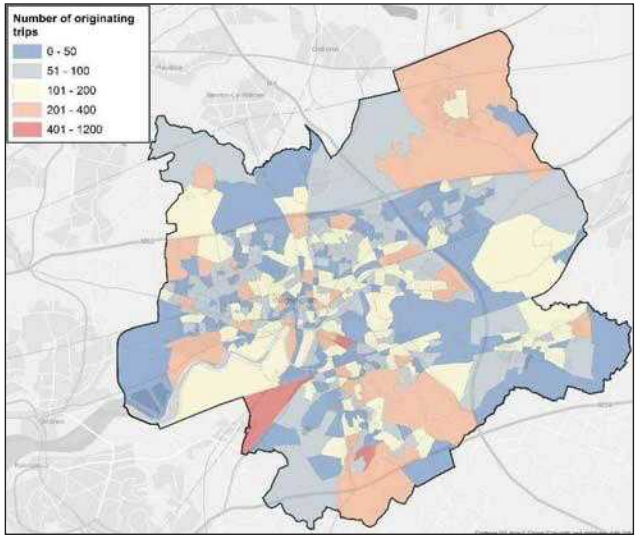
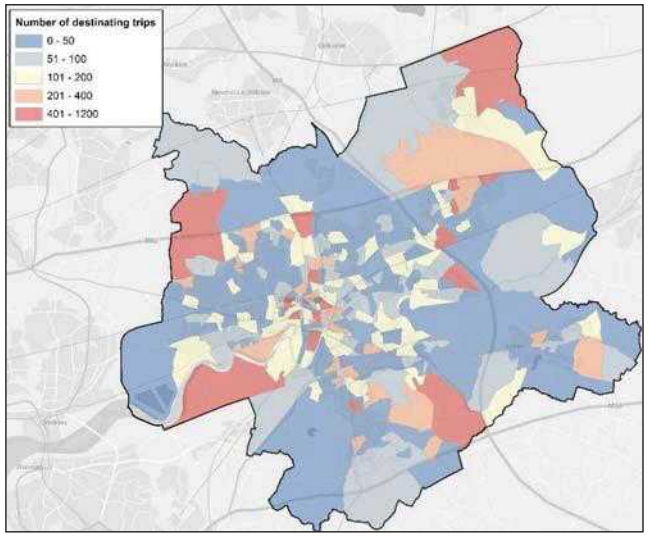


Figure 44: Number of destinating trips, AM Peak 2036, all modes



[49] Based on Preferred Development Option land use

Figure 45: Number of originating trips, AM Peak 2036, Public Transport only

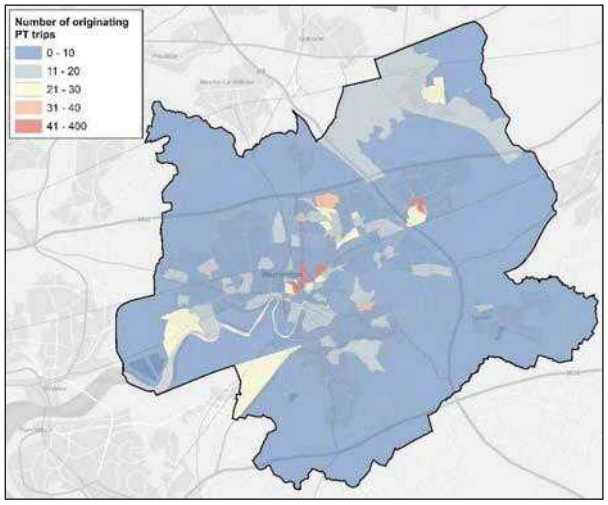
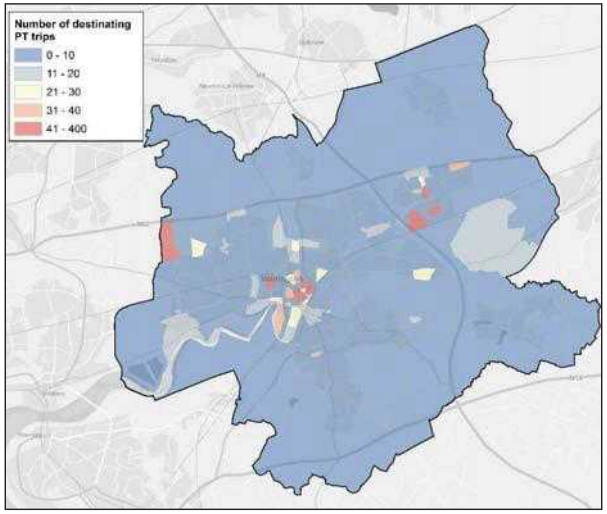


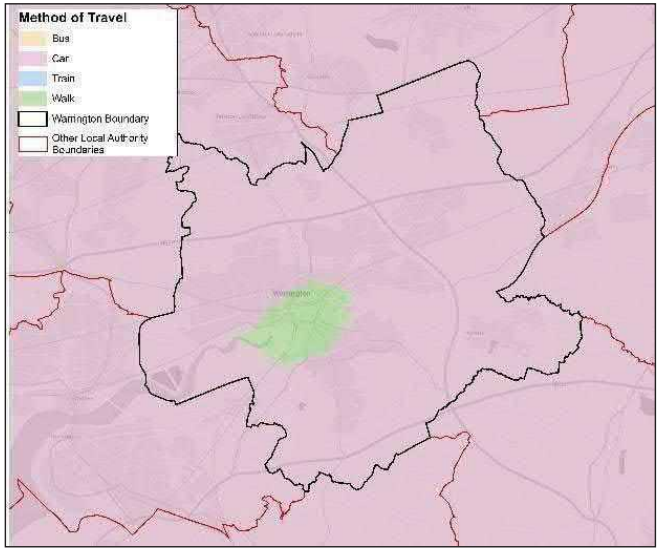
Figure 46: Number of destinating trips, AM Peak 2036, Public Transport only



For public transport trips, a broadly similar pattern is observed to all trips, with origins spread across the borough; destinations of public transport trips are constricted to the town centre, Omega/Lingley Mere and Birchwood.

8.1.2 Modes of travel

Figure 47: Most common mode of travel to work trips into Warrington Town Centre



Source: Census 2011

Figure 47 above indicates the domination of the car for work trips into Warrington. **Figure 6** (earlier in the document) shows the areas where population densities are currently high: broadly the eastern (from Orford south to Grappenhall and Thelwall) and north-western (Penketh and Westbrook) parts of the wider urban area. In terms of employment density, the key areas, as already mentioned, are the town centre, Birchwood and the corridor bordering the M62, covering Gemini, Omega and Lingley Mere. This is reflected in the WMMTM outputs which show large concentrations of journeys in the AM Peak ending in these areas.

Following the full implementation of the Local Plan growth proposals, residential population densities are expected to significantly rise in the areas where large developments are planned – particularly the Garden Suburb and Waterfront areas, but also along the South West Warrington Garden Village towards Daresbury. 6,400 new houses are proposed to be built in the Garden Suburb area, to the south east of the town centre, equating to a population increase of around 15,360. Similarly, the Waterfront area (towards Fiddler's Ferry) will have 4,000 new properties (9,600 people). Outputs from WMMTM **(Figures 43 – 46)** show large numbers of trips originating in the AM Peak in the Waterfront and Garden Suburb areas, and also the Culcheth area.

Based on current trips rates, the 20,790 new houses proposed under the Local Plan could generate as many as 40,000 additional car commute trips across the borough each day (based on Census 2011 data which indicates there are 1.3 employees per household and 74% of work trips as car drivers on return journeys). Leisure, school, and business trips would be in addition to this and these calculations are only looking at trip growth from new development areas; it is

likely that there will also be growth in population and car trips in established areas. Given the already congested nature of many of Warrington's strategic routes, these additional trips would lead to even greater congestion issues, resulting in more delays, more pollutant emissions, and generally greater and unsustainable pressure on the highway network. The sections below describe the process by which the options for a future bespoke Mass Transit system in Warrington, to avoid dependency on the private car and to promote sustainable journeys between home and work, were identified and prioritised. This includes a description of the multi-criteria analysis used to assess the best performing options, the mode assessment analysis work used to suggest a suitable mode in each case, and proforma treatment of each corridor to illustrate each in more detail.

8.2 Option Identification

As a first step in the identification of Mass Transit options for Warrington, a workshop was held with Warrington Borough Council officers including representatives from the Transport Planning and Development Control, and Local Plan teams. During this workshop, discussion focussed on the proposed Local Plan Growth areas and on the full spectrum of future corridors that could best serve these in future, regardless of existing constraints. The output of these discussions was a plan of potential corridors overlaid on key growth zones.

Using the Local Plan proposed growth areas and outputs from the WMMTM as a guide, ten primary corridors where high levels of movement are anticipated following the implementation of the Local Plan have been identified. On these corridors, future congestion might reasonably be anticipated to be significantly worse than at present if no or minimal intervention is undertaken. Without good accessibility to existing and future growth areas, the economic development and success of the borough may be stifled. Therefore, some form of mass transit system, whether it be light rail (LRT), bus-based (BRT) or another alternative, is to be considered as an option for providing good accessibility between residential, employment, and retail and leisure areas, to enable the borough of Warrington to achieve its maximum potential. This is vital to ensure Warrington retains its position as an excellent economic and employment centre and continues to attract a highly skilled workforce to both live and work in the borough.

The ten corridors selected in this way form a long list of potential origin-destination pairs to be appraised in the assessment phase of the study. For many of these, a number of options exist in terms of specific routing, however the appraisal in this section looks in general at the corridor itself rather than the specific routing. For the purposes of appraisal, the following general corridors were identified:

1: Town Centre to Winwick

2: Town Centre to Birchwood / M62 J11

3: Town Centre to Lymm

4: Town Centre to Garden Suburb / Poplar 2000

5: Town Centre to Stretton

6: Town Centre to Daresbury

7: Town Centre to Fiddler's Ferry

8: Town Centre to Lingley Mere / Omega / M62 J8

9: Lingley Mere / Omega / M62 J8 to Birchwood / M62 J11

10: Garden Suburb / Polar 2000 to Birchwood / M62 J11.

Most of these corridors are radial routes from the town centre and may be linked to run continuously across the town centre – this is examined according to convenience and feasibility following the assessment stage. Two of the corridors are orbital corridors and therefore do not necessarily enter the town centre but instead link two or more out-of-town localities by a more direct route. This type of corridor has a number of distinct advantages and disadvantages in terms of operation and these are discussed briefly in the following sub-section Two

8.2.1 Orbital Corridors

Public transport routes may be divided into those that run radially to a town centre and provide direct linkage between that centre and the locality in question, and those that run orbitally. The latter type is significantly less common than the former due to a number of operating and commercial difficulties including:

- The difficulty in locating sufficient demand to justify the service since often the main economic area within a town or city is within the town centre which becomes the main focus of the network as a result. Orbital corridors often are only able to link residential areas with other residential areas which frequently fails to generate the level of demand required to justify the service;
- Long and circuitous routing - In many cases, due to the need to link multiple areas of trip production with trip attraction, orbital corridors must follow long and indirect routes in order to serve the level of demand that they require. This can lead to long journey times and lack of competitiveness with the private car as a result unless significant amounts of priority can be provided.

In the circumstances in which an efficient and cost effective route can be delivered by an orbital service they do offer some distinct advantages, most notably by:

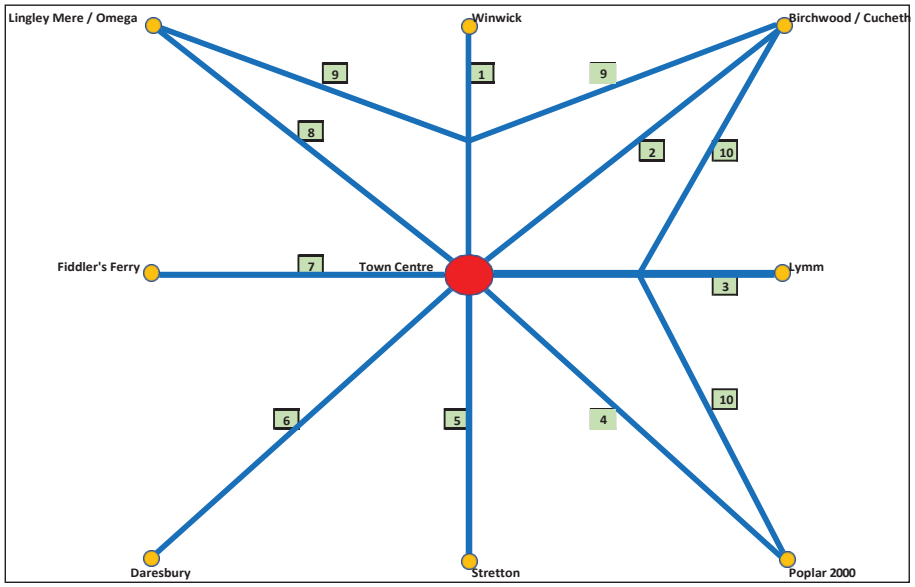
- Avoiding the congestion that can build up around town centres as the usual focal points of the transport network; and by
- Connecting residential areas into out-of-town employment locations such as business parks and industrial sites.

In the case of Warrington, there may be justification for a number of orbital corridors due to the previously noted dispersion of commercial development around the borough and the relatively reduced economic importance of the town centre compared with some other locations. In this way, providing orbital corridors that connect residential areas with key employment localities such as Birchwood, Omega or Lingley Mere, may lead to sustainable and successful interventions as long as the demographics linking these people and jobs are coherent and that an efficient route that balances the need to access demand with the relative speed of the journey compared to competitor modes can be identified.

8.2.2 Corridors to be Appraised

The large trip generator (residential) and attraction (employment and retail) areas can be drawn in the following schematic configuration' as shown in **Figure 48** with links representing the major flows of movement between the key locations.

Figure 48: Schematic of key travel corridors



Source: Mott MacDonald

Following the identification of the ten long-listed corridors for which a mass transit system may be a potential solution, each corridor was subjected to a Multi-Criteria Assessment to differentiate their feasibility against a number of set objectives. This assessment covers a wide range of criteria, which is explained in the following section. It should be noted that, at this stage, there is no attempt to differentiate between route options within a specific corridor nor to determine a specific mode, Instead the assessment is proposed to decide which of the corridors have potential to carry future Mass Transit – a key next stage in the process will be to undertake more detailed routing of the resulting corridors.

8.3 Multi-Criteria Assessment

A bespoke multi-criteria assessment has been developed for the ten long-listed corridors in Warrington, to ensure the specific geographic, economic, social and environmental aspects of Warrington are considered. Four main criteria were used, each of which had 5-6 sub-criteria. A description is provided below of the specific criteria and sub-criteria against which each corridor options was assessed.

8.3.1 Assessment Criteria

Economic Drivers

- Economic Growth – This assessed the level of linkage between the town centre and the main existing (i.e. non-Local Plan) poles of growth within and adjacent to the borough i.e. Birchwood, Lingley Mere / Omega, Daresbury, and the area to the west including Fiddler's Ferry;
- Local Plan Fit – This scored the level of linkage offered by the corridor between the town centre and the main Local Plan sites for growth (particularly the Garden Suburb, Waterfront and South West Warrington Garden Village since these represented the highest concentrations of new housing and employment);
- Journey Time – This assessed the likely journey times by transit assuming a realistic amount of priority (if road based) as compared with the private car in standard conditions at midday on a weekday (taking into account normal traffic congestion). This rewarded routes that provide an alternative to the most congested traffic corridors in Warrington according to traffic data available from Google;
- Reliability – This provided an estimate of the likely reliability of transit journey times compared with current car journey time reliability (i.e. how variable journey times on the network are at present). Most corridors scored positively, but the highest scores were reserved for corridors in which there is currently a high level of journey time variability by private car according to traffic data available from Google;
- Congestion – This assessed the qualitative potential of each corridor to alleviate highway network congestion on that corridor by providing an alternative to the private car. It provided a measure of the likely attractiveness of the mass transit mode as compared with private car as a result of current level of congestion on that particular corridor according to traffic data available from Google;

Environmental drivers

- Safety – This sub-criterion assessed the potential reduction in the number of serious and fatal accidents as a result of implementing Mass Transit on a particular corridor. This was done by assessing the number of serious and fatal accidents on the highway equivalent of that particular corridor in the past 3 years using Crash Map statistics (http://www.crashmap.co.uk/search);
- Public realm – This score reflected the ability of Mass Transit to bring about improvements to public realm environments on a particular corridor i.e. the potential for integration with new district centres and public square developments. Given the lack of available information at present as to the specific plans for public realm, all options score equally in this area;
- Air Quality – This measured the potential impact on air quality as a result of switching from private car to Mass Transit with corridors intersecting with Air Quality Management Areas scoring more highly than others;
- Noise – The potential reduction in noise nuisance as a result of switching to Mass Transit formed the basis of this score with corridors in which traffic may be expected to transfer away from busy roads near to residential areas scoring the most highly. Given the similar conditions of each corridor in this regard, and in the absence of specific details on routing, all corridors are assumed to score equally for the time being;
- Carbon – This assessed the ability of each Mass Transit corridor to bring about a reduction in global carbon emissions. Given the similar distance of each corridor and lack of currently available information on demand in each case, each option was assumed to score equally for this sub-criteria.

Transport drivers:

- Employment connectivity – This score was awarded to measure the ability of each corridor to connect areas of residential population with key employment sites – namely Lingley Mere, Birchwood, Daresbury, Gemini and Omega;

- Other attractor connectivity – A further score was awarded to compare each corridor's connectivity to major attractors including retail and leisure. Corridors linking to key sites such as Gemini for IKEA and the stadium quarter scored the most highly in this assessment;
- Efficiency – This assessed the potential efficiency of Mass Transit compared with current public transport and car journeys and considering items such as parking, layover and vehicle capacity. In the absence of more specific data here, each option was assumed to score an equivalent amount in the field;
- Capacity – This measure provided an indication of the corridors' ability to provide the required additional capacity to meet demand. Corridors with the largest existing capacity problems were specifically prioritised in this context;
- Existing demand – A qualitative assessment was made of the ability of each corridor to cater for existing demand (both demand currently catered for by existing networks, and an estimate of likely levels of latent demand due to existing capacity shortfalls;
- New demand – A further assessment was made of the ability of each corridor to provide capacity for new demand generated on the routes in the corridor as a result of the Local Plan and other organic growth on each corridor.

Deliverability

- Affordability – This assessed the likely cost of Mass Transit on each corridor compared against the likely level of benefit (estimated qualitatively). Corridors with large infrastructure costs (i.e. those requiring new bridges or large amounts of dedicated priority, therefore required higher threshold of potential benefit in order to score well in terms of affordability;
- Acceptability – This provided an estimate of the likely acceptability of Mass Transit on each corridor to politicians, stakeholders and members of the public. Corridors requiring works that would likely impact negatively on accessibility for other modes were considered likely to score less well in this regard, as were corridors that were likely to require significant amounts of demolition or relocation;
- Constructability – This assessed the estimated ease of construction, taking into account physical constraints such as watercourses, and the need to provide new infrastructure;
- Suitability – This provided an indication of the estimated fit of a mass transit system to the corridor in terms of demographics, density of housing, scale of existing problem and potential resultant take-up of the offer;
- Legislative framework – A score was awarded to quantify the difficulty in overcoming the assumed legislative barriers for each corridor. It was assumed that all Mass Transit corridors would have the same legislative framework and they were therefore scored equally;
- Independency – The final score was awarded according to the extent to which the Local Plan schemes must be adopted in order to justify the route in terms of proposed developments. In this way, the highest scoring schemes are those that could potentially be justified even without the Local Plan growth and for which there is an existing problem to overcome.

8.3.2 Scoring Mechanism and Weighting

In undertaking the Multi-Criteria Assessment, each sub-criteria was assessed on a five point scale, from -2 for a strongly negative / poor fit score, to +2 for a strongly positive / good fit score, and with 0 representing a neutral (no benefit or disbenefit) position.

Each main-level criteria (Economic, Environmental, Transport and Deliverability) was equally weighted in terms of impact, with each sub-criteria equally weighted within each criteria. This meant that sub-criteria within the Economic bracket were each worth 20% of the total score for Economic Drivers, whilst each of the Transport sub-criteria was only worth around 17%.

8.3.3 Assessment Results

The full appraisal table and scoring exercise is included as **Appendix A**. The average scores of the sub-criteria, weighted as described above within each main-level criteria, were summed to produce a final score, which ranged from a low of 2.50 to a high of 4.33. Based on these scores, corridors were ranked in order of greatest overall benefit to lowest overall benefit. The rankings serve as a prioritisation for Mass Transit system intervention by corridor. The scores and ranks awarded, broken down into scores awarded for each of the main-level criteria, are shown in the following **Table 8**. A more detailed description of the findings from this exercise, and the final shortlist of corridors for consideration is then presented below:

Table 7: Transport Corridor Scoring Summary

Corridor Reference	Economic	Environmental	Transport	Deliver'ty	Total	Rank
1: Town Centre to Winwick	1.20	1.50	1.33	-0.50	3.63	7
2: Town Centre to Birchwood / M62 J11	1.00	1.00	1.67	0.50	4.17	2
3: Town Centre to Lymm	1.00	1.00	0.83	-0.33	2.50	10
4: Town Centre to Garden Suburb / Poplar 2000	1.40	1.25	1.67	-0.17	3.90	4
5: Town Centre to Stretton	0.80	1.50	1.00	-0.50	2.90	9
6: Town Centre to Daresbury	0.80	1.50	1.83	-0.17	3.87	5
7: Town Centre to Fiddler's Ferry	1.40	1.25	1.50	-0.17	3.93	3
8: Town Centre to Lingley Mere / Omega / M62 J8	0.80	1.25	1.83	0.50	4.33	1
9: Lingley Mere / Omega / M62 J8 to Birchwood / M62 J11	0.20	1.50	1.33	0.33	3.27	8
10: Garden Suburb / Polar 2000 to Birchwood / M62 J11	0.80	1.50	1.50	0.00	3.70	6

Source: Mott MacDonald

- **Town Centre to Winwick** – This corridor scores well for economic drivers due to potential relief for heavy congestion on A49, which also explains the high environmental score. The corridor scores well for connectivity to existing markets but does little to connect new markets from Local Plan sites. In addition, the option has potential acceptability issues since it would inevitably involve a loss of road-space for general traffic, potentially exacerbating delays for the drivers that do not change modes;
- **Town Centre to Birchwood / M62 J11** – This corridor scores very well in terms of connectivity to growth areas, but less well in terms of Local Plan connectivity. It is also less beneficial in terms of congestion relief and environmental benefit since congestion has reduced significantly since the Birchwood pinchpoint scheme has been implemented. There are major transport benefits, however, due to the ability to serve both existing and new markets and the option is considered deliverable and potentially popular with stakeholders and the public;
- **Town Centre to Lymm** – This corridor has limited value in terms of connectivity to areas of economic growth. Whilst there is some congestion on the A57 corridor that would be alleviated as a result of the scheme, this is not enough to offset the lack of connectivity to employment or residential growth areas. In transport terms, there is potential to better serve existing markets, however there is little potential to cater for new markets and the scheme has low affordability (benefit vs cost). There is no obvious Mass Transit fit for this corridor.
- **Town Centre to Garden Suburb / Poplar 2000** – This corridor has high economic benefits due to its ability to serve a key Local Plan Growth area. It also provides an alternative route to areas such as Grappenhall that avoid the congested Manchester Ship Canal bridges, creating Journey Time and Reliability benefits, and reducing environmental impacts.

Transport benefits are based around new markets of demand which are significant. Affordability is potentially low (requiring a new bridge) but acceptability is likely to be high.

- **Town Centre to Stretton** – The economic argument for this corridor suffers due to its lack of ability to serve key growth areas, either existing or Local Plan related. It is highly congested, however, and if a route that avoids the Swing Bridge at Stockton Heath can be avoided it could potentially bring substantial benefits in terms of congestion and environment. The transport argument cannot currently be made in terms of demand for existing or new markets due to low density development, and deliverability is low due to the lack of alternatives to routing Mass Transit along the A49.
- **Town Centre to Daresbury** – Although not officially in Warrington borough, there is a significant cross-boundary movement to and from Daresbury scoring well in terms of economic growth. The route would also serve the South West extension Local Plan site. The existing A56 route is not currently a congestion hotspot in the town and hence the benefits to journey time, reliability and environment are limited. Transport benefits are potentially significant, in linking such an important employment area with new markets of demand, and deliverability is good – Mass Transit could potentially be designed into the South West extension Local Plan site.
- **Town Centre to Fiddler's Ferry** – The corridor between Warrington and Fiddler's Ferry scores well regardless of route due to the ability to serve the Waterfront Local Plan growth area as well as the potentially redeveloped Power Station site. Congestion on the A562/A57 corridor can be significant ensuring it scores well environmentally as well as economically. The corridor can serve both existing and new markets, particularly the latter, and is on the deliverable side with good levels of acceptability and suitability.
- **Town Centre to Lingley Mere / Omega / M62 J8** – The 8th radial corridor is perhaps the most compelling economically serving Warrington's biggest business park and the major employment opportunities at Omega. Routing could either take in the under construction Warrington West station and Chapelford Urban Village, or could route via the existing Hospital site and the Bewsey / Dallam residential community bringing regeneration and economic benefit to the areas. Alternatively, the route could split to serve both the hospital and Chapelford areas. Transport benefits are correspondingly major and the corridor is considered to have good deliverability, being essentially independent on much of the Local Plan growth.
- **Lingley Mere / Omega M62 J8 to Birchwood / M62 J11** – The so-called Northern Orbital corridor has some challenges to overcome, however if a route can be identified and prioritised to strike a balance between servicing demand and speed, it has significant potential to be suitable for Mass Transit. High levels of priority are likely to be required to overcome the speed competition from the M62, but the route will also serve some key areas of deprivation and older housing and, as such, may have an important social role to play in terms of connecting residential and employment areas.
- **Garden Suburb / Polar 2000 to Birchwood / M62 J11** – Similarly to the above, this route may struggle on speed due to competition from the M6 motorway alternative, however the option could effectively connect corridors 2 and 4 without needing to cross the town centre providing a potentially viable option, and connecting an area of high employment with a key Local Plan growth zone. Although difficult to justify and deliver as a route in and of itself, its ability to run alongside corridors 2 and 4, sharing infrastructure costs and increasing service levels on high demand sections of line makes this routing significantly more feasible.

Following the logic described above and the scoring in **Table 10**, the following routes are shortlisted for further consideration. All scored more highly than the 20th percentile score of 3.19.

- Corridor 1: Town Centre to Winwick;
- Corridor 2: Town Centre to Birchwood / Culcheth;
- Corridor 4: Town Centre to Garden Suburb;
- Corridor 6: Town Centre to Daresbury;
- Corridor 7: Town Centre to Fiddler's Ferry;
- Corridor 8: Town Centre to Lingley Mere / Omega;
- Corridor 9: Lingley Mere / Omega M62 J8 to Birchwood / M62 J11; and
- Corridor 10: Garden Suburb to Birchwood / Culcheth.

It should be noted that no specific routing options within corridors have been undertaken at this stage and several options exist. It is also noted that the corridors which are not being further considered within this work could still come forward as a new conventional bus route. More work would need to take place to explore this outside of the scope of this study.

8.4 Mode Feasibility Assessment

For the eight corridors taken forward to the short list, the second part of the assessment focuses on mode. The mode assessment aims to identify the mass transit mode which is most suitable and could reasonably be justified and financially viable for the corridor. Three main factors taken into account in determining the most appropriate mode for a corridor are:

- Operating Costs per year;
- Number of vehicles required to operate a service;
- Likely catchment and revenue for a service.

8.4.1 Capital Costs for Construction

As noted previously, two potential Mass Transit modes have been considered as part of this study, although in reality there are a kaleidoscope of potential modal solutions for Warrington (with varying costs, benefits and disadvantages). The two more conventional transit modes considered are Tram / Light Rail (LRT) and Bus Rapid Transit (BRT – incorporating potential bus-based Park & Ride).

The biggest cost differentiator between these two potential modes is in the cost of construction of each of the systems, i.e. the capital cost required to lay the infrastructure and purchase all of the equipment required for the system. Although it is the ongoing revenue (operating) cost of the system that will ultimately decide it's viability, capital cost will clearly be a major determining factor in the ultimate mode choice for the system.

For LRT, capital costs vary significantly. Worldwide examples studied range from £96m per km (for the in-construction Ottawa Confederation Line) which includes significant amounts of tunnelling, to the proposed LRT system in El Paso which is projected to cost only £8.8m per km. Taking an average capital cost of all UK LRT systems and converting to 2018 prices, then based on previous experience LRT costs around **£20m per kilometre** to construct. It should be noted that Warrington Borough Council has been made aware of proposals for significantly cheaper systems and investigations into the feasibility and value for money of these are ongoing.

In the case of BRT, fewer UK examples are available to draw upon, however systems that have been completed include the c£230m Bristol Metrobus, Vantage BRT network in Greater Manchester which utilises the Leigh – Salford Guided Busway, and the Luton to Dunstable Busway. Costs for these networks range from around £4.6m per km in the case of Bristol

Metrobus (though it should be noted that this scheme has faced a number of fundamental challenges including that vehicles are unable to run along parts of the route) to £8.9m per km for the Luton to Dunstable scheme and £9.7m per km for the guided busway stretches of the Leigh – Salford scheme. Despite the observed range in costs for different BRT systems of between **£4.6m to £9.7m per kilometre**, as a rule we would expect that LRT is more expensive than BRT to implement on balance.

8.4.2 Operating Costs per Year

In the case of LRT, Mott MacDonald's Light Rail Team provided costs per km of operation for the primary cost components of an exemplar light rail network in the UK – the Manchester Metrolink system. Considering the key operating (revenue) cost components and excluding any capital costs, the main cost elements per tram per kilometre of travel are shown in the following **Table 8** which has been uplifted to 2016 cost.

Table 8: LRT Operating Costs per km

Cost Element	Operating Cost per Tram per km (£2016/km)
Driver wages	1.23
Other staff wages	0.87
Insurance and legal services	0.17
Energy (inc risk)	0.45
Vehicle maintenance	0.11
Total	**2.84**

Source: Manchester Metrolink and Mott MacDonald Light Rail Team

For the case of a bus-based system, component costs and proportions were extracted from the DfT's annual bus statistics publication (2016) and from the Confederation of Passenger Transport's Cost Index (2016). The most relevant cost elements relating to operation only were extracted from the DfT's annual bus operation statistics and these were grouped to match the LRT costs in Table 8. The specific cost elements for bus are shown in the following **Table 9**.

Table 9: Bus Operating Costs

Cost Element	Operating Cost per bus per km (£2016/km)
Drivers wages	0.94
Other staff wages	0.29
Insurance and legal services	0.05
Energy (fuel)	0.34
Vehicle maintenance	0.09
Total	**1.71**

Source: DfT and CPT[50]

Significantly, given the notably higher capital and operating costs for LRT systems compared to BRT, and the fact that BRT in general operates more flexibly than LRT as shown by the case study analysis presented within Chapter 7, we would expect that BRT systems are likely to be more deliverable than LRT for Warrington in the shorter term.

[50] www.gov.uk/government/organisations/department-for-transport/series/light-rail-and-tram-statistics and http://www.cpt-uk.org//_uploads/attachment/4159.pdff

8.4.3 Operating Kilometres for Each Corridor

The next stage is to determine the specific number of kilometres that may be expected to be required for each corridor to run a potential service. A number of assumptions are made in calculating these values. These may be summarised as follows:

- Average vehicle speed is 20km/h (12mph) across the whole route – this accords with normal speeds in an urban environment (although speeds on segregated track are likely to be significantly higher);
- Frequencies should be set at every 6 minutes over the majority of each corridor, corresponding to 10 services per hour in each direction – this accords with standard frequencies on rapid transit corridors worldwide;
- A 20% uplift on the minimum number of vehicles required to run a service is required for resilience, reliability and maintenance purposes;
- Each vehicle is assumed to operate over an 18-hour day

For Corridor 1: Town Centre to Winwick

Route Length = 4.3km
Round Trip Length = 8.6km
Round Trip Journey Time = 25.8 mins
No of vehicles required for 6 min frequency = 6
Total Annual Operating Cost if LRT ~ £1.6m
Total Annual Operating Cost if BRT ~ £1.0m

For Corridor 2: Town Centre to Birchwood

Route Length = 8.1km
Round Trip Length = 16.2km
Round Trip Journey Time = 48.6 mins
No of vehicles required for 6 min frequency = 10
Total Annual Operating Cost if LRT ~ £3.0m.
Total Annual Operating Cost if BRT ~ £1.8m

For Corridor 4: Town Centre to Garden Suburb

Route Length = 8.1km
Round Trip Length = 16.2km
Round Trip Journey Time = 48.6 mins
No of vehicles required for 6 min frequency = 10
Total Annual Operating Cost if LRT ~ £3.0m
Total Annual Operating Cost if BRT ~ £1.8m

For Corridor 6: Town Centre to Daresbury

Route Length = 6.4km
Round Trip Length = 12.8km
Round Trip Journey Time = 38.4 mins
No of vehicles required for 6 min frequency = 8
Total Annual Operating Cost if LRT ~ £2.4m

Total Annual Operating Cost if BRT ~ £1.4m

For Corridor 7: Town Centre to Fiddler's Ferry

Route Length = 6.3km

Round Trip Length = 12.6km

Round Trip Journey Time = 37.8 mins

No of vehicles required for 6 min frequency = 8

Total Annual Operating Cost if LRT ~ £2.4m

Total Annual Operating Cost if BRT ~ £1.4m

For Corridor 8: Town Centre to Lingley Mere

Route Length = 6.6km

Round Trip Length = 13.2km

Round Trip Journey Time = 39.6 mins

No of vehicles required for 6 min frequency = 8

Total Annual Operating Cost if LRT ~ 2.5m

Total Annual Operating Cost if BRT ~ £1.5m

For Corridor 9: Lingley Mere / Omega to Birchwood

Route Length = 13.5km

Round Trip Length = 27.0km

Round Trip Journey Time = 81 mins

No of vehicles required for 6 min frequency = 15

Total Annual Operating Cost if LRT ~ 5.0m

Total Annual Operating Cost if BRT ~ £3.0m

For Corridor 10: Garden Suburb to Birchwood

Route Length = 16.2km

Round Trip Length = 32.4km

Round Trip Journey Time = 97.2 mins[51]

No of vehicles required for 6 min frequency = 20

Total Annual Operating Cost if LRT ~ £6.0m

Total Annual Operating Cost if BRT ~ £3.6m

8.4.4 Likely Catchment and Revenue

A corridor's catchment assesses the number of residents who potentially could use the mass transit system. National planning policy guidelines consider 800m to be a reasonable distance for people to walk to a public transport (bus, tram or train) stop, therefore the number of people expected to reside within 800m of the corridor, assuming full implementation of the Local Plan proposed developments, has been calculated to use in the assessment.

In order to convert corridor catchments to likely tram users and resultant revenue for the proposed service, further assumptions are required. The following bullet points list our core assumptions on which we base our calculations. In the following sub-section, a number of sensitivity tests and the impacts these have on the results are discussed for each corridor.

[51] This journey time is uncompetitive compared to private car travel and therefore not a viable journey time to get residents of the Garden Suburb to Birchwood Park. The viability of the route would therefore depend on other shorter trips on the corridor.

Core Assumptions for Catchment and Revenue Calculations

- Average household size in Warrington is 2.34 people;
- 1 return trip is made per day for each household;
- Proportion of employees living in Warrington that also work in Warrington is 60%;
- Mode share of the transit mode is 10%;
- Average return fare for journeys on the transit mode is £3.

The expected annual revenue for each corridor may then be calculated as the product of the various factors noted. For example, for Corridor 1:

Corridor 1 – Example Calculation using Core Assumptions

- The total predicted catchment living within 800m of Corridor 1 (after implementation of the Local Plan) is 39,207 people;
- Assuming 2.34 people per household, the number of households within 800m of the corridor is 16,755;
- The total daily revenue expected for Corridor 1 may be estimated by applying the assumptions above:
  - Daily Revenue = 16,755 x 1 return trip x 60% live and work x 10% mode share x £3 average fare
  - Daily Revenue = £3,015.92
  - **Annual Revenue = £1.1 million.**

Following a similar logic to the example above, the following table (**Table 11**) shows, for each of the prioritised corridors, the expected catchment of people within 800m of the route assuming the Local Plan Preferred Development Option is fully implemented, and the resultant annual revenue (assuming 365 days per year) after inputting the above core assumptions. The table also compares these revenues with the previously estimated annual operation costs of LRT and BRT systems.

It should be noted that the revenue calculation is based on a high level estimation process only based on catchments rather than existing trip origin and destinations, Further research using the Warrington Multi-Modal Model, or similar, is likely to be required as the proposals are refined and routes are solidified to confirm likely demand and revenue results.

Table 10: Comparison of Revenue vs Operating Costs

Corridor	Route Length (km)	LRT Annual Op Ex (£m)	BRT Annual Op Ex (£m)	Catchment	Revenue (£m)
1. Town Centre to Winwick	4.3	1.6	1.0	39,207	1.1
2. Town Centre to Birchwood / M62 J11	8.1	3.0	1.8	54,508	1.5
4. Town Centre to Garden Suburb / Polar 2000	8.1	3.0	1.8	57,305	1.6

Corridor	Route Length (km)	LRT Annual Op Ex (£m)	BRT Annual Op Ex (£m)	Catchment	Revenue (£m)
6. Town Centre to Daresbury	6.4	2.4	1.4	25,602	0.7
7. Town Centre to Fiddler's Ferry	6.3	2.4	1.4	38,867	1.1
8. Town Centre to Lingley Mere / Omega / M62 J8	6.6	2.5	1.5	42,800	1.2
9. Lingley Mere / Omega / M62 J8 – Birchwood / M62 J11	13.5	5.0	3.0	63,908	1.8
10. Garden Suburb / Polar 2000 to Birchwood / M62 J11	16.2	6.0	3.6	111,813	3.1

Source: Mott MacDonald

It is clear that, using these core assumptions, insufficient revenue is likely to be generated to meet operating costs in full, particularly in the case of LRT, although the deficit is significantly less in the case of BRT. This analysis therefore shows the need for additional complimentary funding sources to meet the operational requirements of the network, and highlights the value of measures such as Workplace Parking Levy (WPL) which could both help to manage demand by vehicular traffic, and generate revenue to support the mass transit system. It is also worth noting that a complimentary demand management measure such as WPL could serve to increase the mode share of the mass transit system above the 10% assumed here, thereby increasing the revenue of the service helping it to become more self-sustaining.

8.4.5 Sensitivity Tests

Given that the above analysis is based on a set of core assumptions around factors such as number of return trips made per day per household, and proportion of the working population that both lives and works in Warrington, there is a need to undertake a number of sensitivity tests to understand better the impact of changing these. In particular, five sensitivity tests have been undertaken which review the impact on annual estimated:

- Sensitivity Test 1: Increasing mode share to 20% to account for the impact of WPL in changing travel behaviour;
- Sensitivity Test 2: Reducing the number of trips made per day per household to 0.5;
- Sensitivity Test 3: Reducing the proportion of people that live and work in Warrington to 40%;
- Sensitivity Test 4: Increasing the proportion of people that live and work in Warrington to 80%;
- Sensitivity Test 5: Reducing the number of operating hours for the service per day to 12 hours and reducing the number of trips per day to 0.5 per household at the same time (note this affects both operating costs and revenue).

Table 11 highlights the revenue results from sensitivity tests 1-4 compared with the BRT operating costs and the core assumption test, whilst **Table 12** presents results from test 5:

Table 11: Comparison of Revenue vs Operating Costs – Sensitivity Tests 1-4

Corridor	BRT Annual OP Ex (£m)	Core Revenue (£m)	ST1 Revenue (£m)	ST2 Revenue (£m)	ST3 Revenue (£m)	ST4 Revenue (£m)
1. Town Centre to Winwick	1.0	1.1	2.2	0.6	0.7	1.5
2. Town Centre to Birchwood / M62 J11	1.8	1.5	3.1	0.8	1.0	2.0
4. Town Centre to Garden Suburb / Polar 2000	1.8	1.6	3.2	0.8	1.1	2.1
6. Town Centre to Daresbury	1.4	0.7	1.4	0.4	0.5	1.0
7. Town Centre to Fiddler's Ferry	1.4	1.1	2.2	0.5	0.7	1.5
8. Town Centre to Lingley Mere / Omega / M62 J8	1.5	1.2	2.4	0.6	0.8	1.6
9. Lingley Mere / Omega / M62 J8 – Birchwood / M62 J11	3.0	1.8	3.6	0.9	1.2	2.4
10. Garden Suburb / Polar 2000 to Birchwood / M62 J11	3.6	3.1	6.3	1.6	2.1	4.2

Source: Mott MacDonald

Table 12: Comparison of Revenue vs Operating Costs – Sensitivity Test 5

Corridor	BRT Annual OP Ex (£m)	ST5 Revenue (£m)
1. Town Centre to Winwick	0.6	1.1
2. Town Centre to Birchwood / M62 J11	1.2	1.5
4. Town Centre to Garden Suburb / Polar 2000	1.2	1.6
6. Town Centre to Daresbury	1.0	0.7
7. Town Centre to Fiddler's Ferry	0.9	1.1
8. Town Centre to Lingley Mere / Omega / M62 J8	1.0	1.2
9. Lingley Mere / Omega / M62 J8 – Birchwood / M62 J11	2.0	1.8
10. Garden Suburb / Polar 2000 to Birchwood / M62 J11	2.4	3.1

Source: Mott MacDonald

It may be seen that the revenue estimates are highly sensitive to the assumptions used. On mode share, in reality, it is likely that this will increase gradually with time and there will clearly be a desire to keep average fares as low as possible in order to stimulate usage. In most cases it is likely that some corridors will generate a higher proportion of their required operating costs with revenue alone than others and there may be a need to cross-subsidise the less profitable parts of the network using revenue generated from more profitable parts (as well as from funding streams such as that raised by WPL).

The analysis in this section would seem to point to a BRT system (supported with additional revenue from the Demand Management options) being most feasible at least initially within the borough. It is likely, however, that once the route is established and the passenger base is solidified, that the viability of LRT on certain corridors will increase, potentially leaving the door open for system upgrades and enhancement at points in the future.

8.5 Emerging Preferred Mass Transit Network

The analysis in this section has concluded that a total of 6 radial and 2 orbital corridors are considered most feasible to support a Mass Transit system in Warrington, and that all of these (apart from the corridor between the Town Centre and Daresbury) could potentially be served with either BRT or LRT systems (assuming some additional revenue is available from the Demand Management measures – to be discussed further in the next section). In practice, it is unlikely that these corridors would be served as radial routes with one end in the town centre since this would require expensive layover and turnaround facilities in the densest part of the borough where space is at the highest premium. Instead, routes would likely operate as cross-town services formed of linkages between 2 or more services and taking layover at the extremities of the network only.

To create logical journey opportunities, direct straight-line cross-town journeys are favoured since these provide the greatest potential journey time advantage over the alternative car journey around the outside of the borough via the motorway and strategic road network. Consequently, the strongest linkages are considered to be formed of:

- The Birchwood corridor and the Fiddler's Ferry route;
- The Lingley Mere route and the Garden Suburb route;
- The Daresbury route and the Winwick route.

It is also logical to extend routes to key Park and Ride opportunities as much as possible, which are most easily envisaged at key motorway junctions or adjacent to busy traffic corridors. These could include:

- M62 Junction 8 at Omega;
- Fiddler's Ferry off the A562;
- Daresbury Park off the A56;
- Poplar 2000 at M6 Junction 2

The core of the proposed network would be a town centre routing system that provides linkage to the key hubs of Warrington Central, Bank Quay and Bus Interchange. The network would integrate with the future HS2 and NPR networks at Bank Quay and with the enhanced CLC system at Warrington Central. If the ultimate solution for the CLC is light rail based (extension of Manchester's Metrolink) there is also the potential in the future for direct linkage between a future LRT Warrington network and the CLC although initially at least this is likely to be formed of interchange at Warrington Central with extended Merseyrail and Metrolink services from Liverpool and Manchester respectively.

Also included in order to promote further discussion is a dedicated fast coach link between Poplar 2000 services and Manchester Airport to provide interchange with air and HS2 services. Whilst it is unlikely that the rapid transit could extend to the airport itself (due to unfavourable journey time compared with the fast motorway route), it is conceivable that a fast dedicated interchange with coach services could be achieved.

No analysis of specific routing has been undertaken at this stage, there remain several options for routing of many lines.

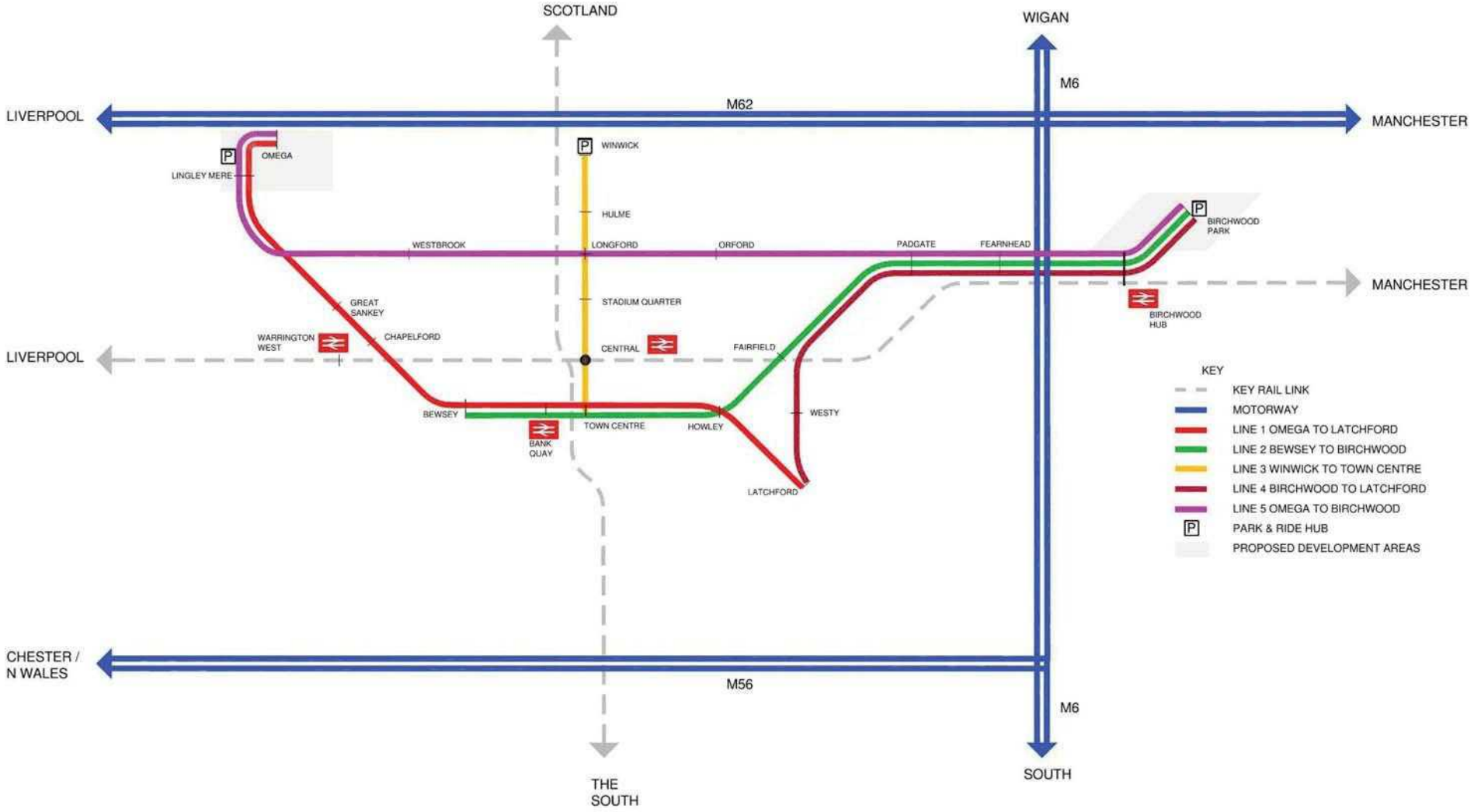
Translating these above points into schematic network maps for the potential mass transit system in Warrington leads to Figure 49 to Figure 52 overleaf, which summarise how a transit network for Warrington could build up over a number of phases. The build up of the network is as follows, **however it should be noted that this network is illustrative only and should not be considered as a detailed proposal**:

- **Phase 1**: Serving existing geographies and built up areas of the town including the town centre, Omega and Lingley Mere and Birchwood.
- **Phase 2**: The line between Winwick and the town centre is extended southward to serve Warrington Waterfront and out towards Sci-Tech Daresbury.
- **Phase 3**: Lines from Birchwood and Lingley Mere which terminate at Latchford are extended south west to serve the Garden Suburb, with a new link to Manchester Airport from Lymm Interchange also being introduced.

8.6 Future Expansion beyond Warrington

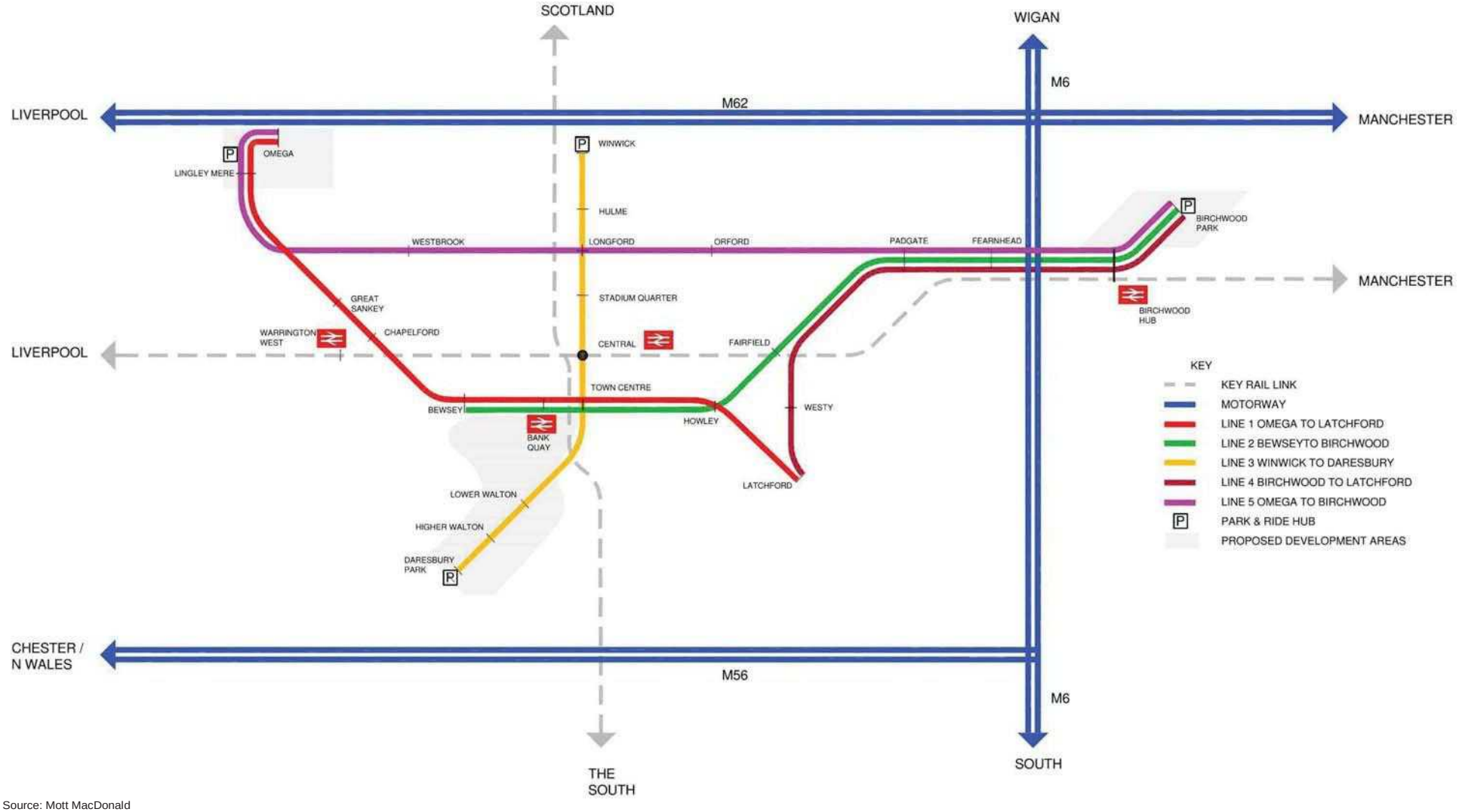
Although a comprehensive and self-contained network in its own right, it is clear that the preferred network is currently geared towards serving the internal Warrington market and is therefore more-or–less fully deliverable by Warrington Council. The exception to this is Daresbury which is politically within Halton but relates strongly towards Warrington. It is considered likely that the attractiveness of the system and the business case for constructing the above network could be strengthened further if some or all of the lines were extended across political boundaries to serve neighbouring locations since this would open up new markets to the network and effectively use its capacity for multi-use journeys and in multiple directions.

Figure 49: Warrington Area Rapid Transit Network (Phase 1)



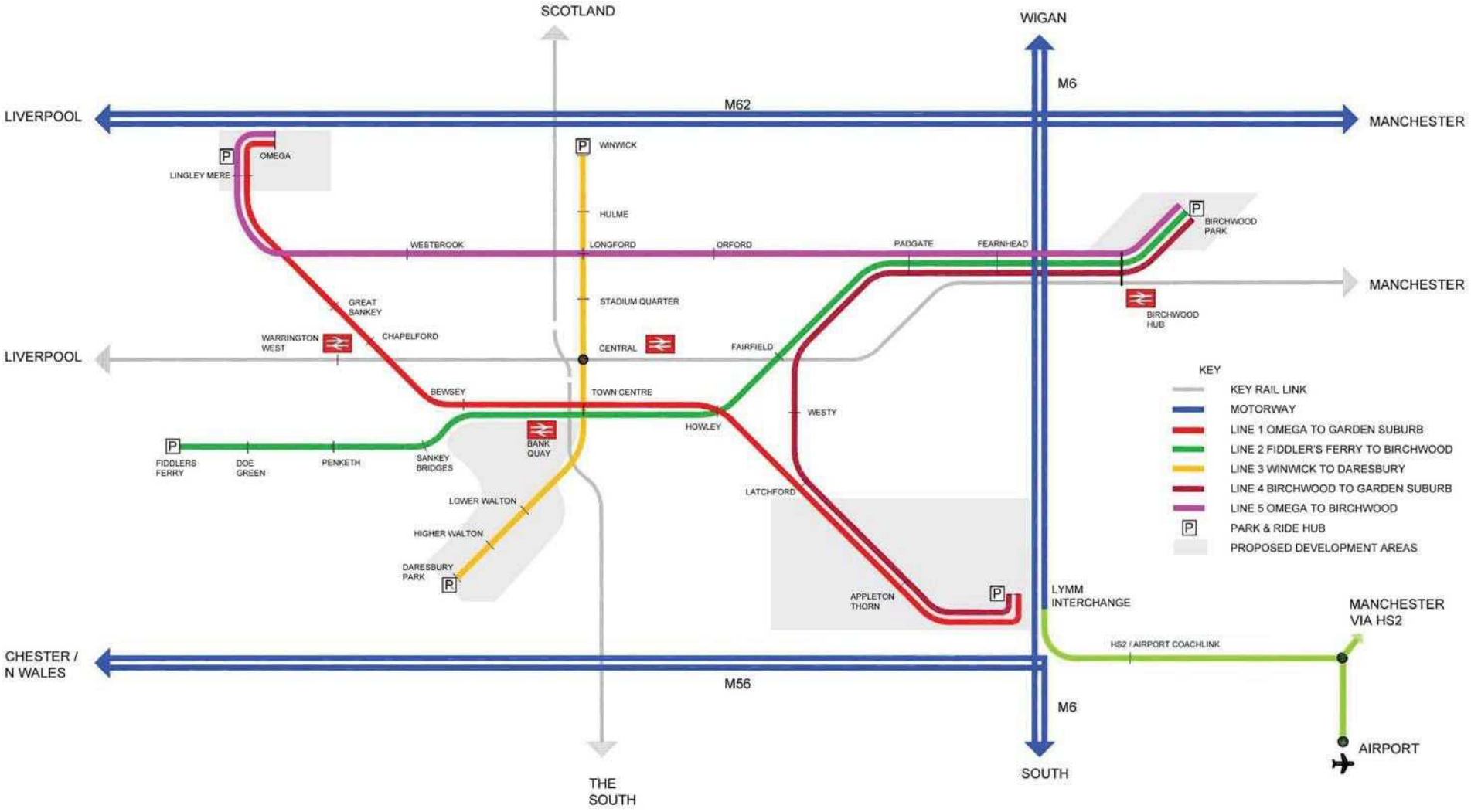
Source: Mott MacDonald

Figure 50: Warrington Area Rapid Transit Network (Phase 2)



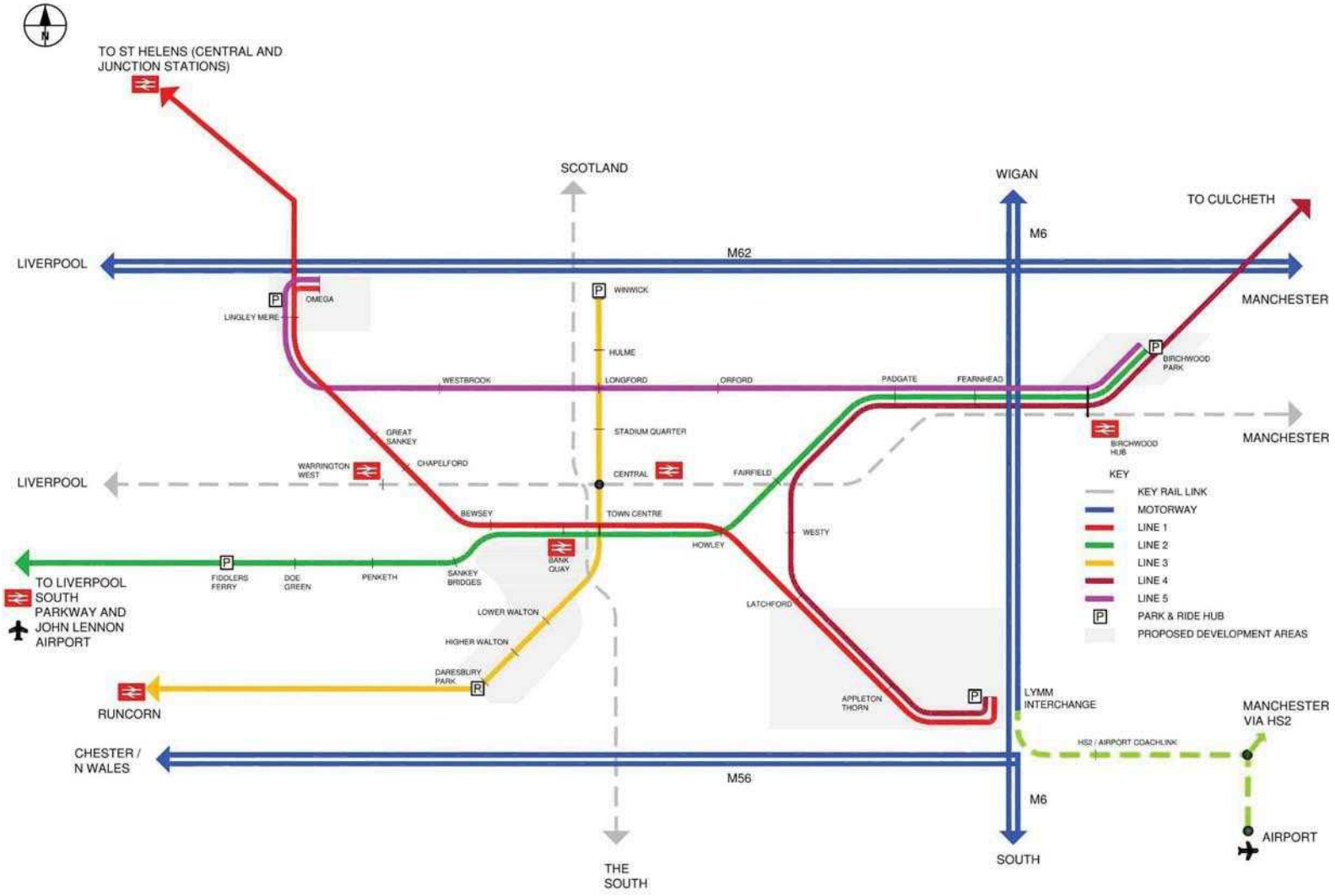
Source: Mott MacDonald

Figure 51: Warrington Area Rapid Transit Network (Phase 3)



Source: Mott MacDonald

Figure 52: Full Mid-Mersey Rapid Transit Network (Phase 4)



Source: Mott MacDonald

9 Conclusions and Recommendations - Emerging Preferred Package of Options

9.1 The Key Issue for Warrington

The analysis and assessment of differing options for Warrington Borough Council to adopt in the coming years has provided a tangible starting point for the more detailed development work ahead. In assessing the various transformative schemes that the borough might employ in the coming years, this study has been successful at highlighting the options that have significant potential as compared with those that are less likely to provide a beneficial outcome for the borough. What is abundantly clear, however, is that to do nothing is not an option for the Council. If the Local Plan is fully realised over its lifetime, the population of the borough will have increased by around **50,000 people** and many of these people will live in areas not well served by the current public transport network. Inaction could lead to an additional **40,000** commuter car trips per day on an already overcrowded and congested road network. This is considered an unattractive prospect.

The difficulty in the choice for Warrington lies in the challenge the Council faces in capturing the value of the new development to facilitate the dramatic improvements to public transport, walking and cycling required. Some of the options may be shown to be highly advantageous from a demand management and revenue raising standpoint, however they may be extremely difficult to accept politically leading to some difficult choices with large implications for the borough's development prospects. However, the opportunity that is presented by the coming together of planning and strategic transport policy within the borough provides a once in a generation opportunity to act in a truly progressive manner to ensure the prosperity of the borough and its residents for years to come.

With this in mind, the study has explored the positives and negatives of the various options available to Warrington Borough Council which may be broadly summarised in the following table.

Table 13: The Options Available to Warrington Borough Council

Option	Positives	Negatives
Do Nothing – maintain status quo	• Potentially the easiest course in terms of public acceptability and requires the smallest capital outlay at least initially…	• Likely to lead to significantly increased traffic congestion in the future, getting more problematic over time • Congested environment and significant amounts of lost time lead to a reduction in investment in Warrington and a downturn in its outlook • Further development becomes less desirable and Warrington loses the benefits of its vibrant economy (e.g. high levels of employment and mobility). • Further congestion on the strategic road network in the Warrington area.
Implement demand management scheme only	• Traffic levels are reduced with road demand transferred to other routes including those outside of the borough • Congestion is reduced and air quality is improved	• With no alternative transport provision in place, Warrington becomes less accessible and less desirable due to the high cost of access • Demand for residential and employment development in Warrington decreases in favour of its neighbours and Warrington loses the benefits of its vibrant economy. • Further congestion on the strategic road network in the Warrington area.
Fund significant improvements to Public Transport and Walking and Cycling	• Mass Transit schemes are introduced on key corridors • Local Plan development sites are made more accessible by non-car modes	• Lack of additional funding for Mass Transit schemes limits the scope of what can be achieved. Quality, extent and ultimately attractiveness suffers. • Non-Local Plan growth areas such as Birchwood and Lingley Mere are not prioritised for Mass Transit due to their relatively good road access. Growth in these areas is stifled by increasing car traffic and congestion.
Implement mixed package of both	• Reductions in car traffic in Warrington are offset by increases in use of sustainable transport modes • Congestion is reduced, air quality is improved and revenue is generated to help fund sustainable alternatives • Warrington gains a reputation as a national leader in progressive transport policy which adds to the attractiveness and investibility of the borough.	• Warrington Borough Council must navigate a challenging path balancing long term aspiration against potential short term political and public opposition

Source: Mott MacDonald

From a cold analysis, the most advantageous course of action seems clear, however the potential challenges are significant. It is considered essential therefore that the logic and full narrative of the policy decisions are communicated effectively to stakeholders and the public at large as proposals are developed. An effective communications strategy is likely to be an integral part of the package of schemes going forward and forms a key next step consideration to be discussed later in the following section.

9.2 The Emerging Preferred Package

The emerging preferred package of options from this study, and therefore recommended for further development and study, is formed of a combined package of both Demand Management and Mass Transit solutions. This will provide both the incentive to use private cars less and to prioritise journeys in which there is no alternative, whilst at the same time providing a valid alternative for the journeys with the highest demand both currently and following the build-out of the Local Plan.

In terms of Demand Management, a combined package of options is favoured from the analysis undertaken:

- Pending further study, scheme optioneering, and detailed scheme design, it is recommended that Workplace Parking Levy is investigated further with a view to potential implementation within Warrington. The specific details of the scheme are yet to be fully investigated, however it is anticipated that revenue raised through WPL could be supplemented by CIL or Section 106 contributions to provide a 'cocktail' of revenue funding which could be used as a means to borrow capital for investment in BRT/LRT;
- A borough-wide Clean Air Zone could potentially be considered as a complementary scheme to improve air quality, but this measure is not recommended as a demand management or revenue raising tool due to the inability to use revenue on public transport improvement schemes, and the relatively limited amount of time that these schemes remain effective;
- Further investigation is required as to whether the funds raised by WPL could be supplemented by levies from Council Tax. If so, this could be a useful additional funding source, although it is unlikely that this measure could generate sufficient additional revenue to be anything other than a top up measure. As such, the business case for pursuing this may be marginal.

In parallel with the preferred Demand Management package a Mass Transit network is recommended for Warrington. There is the potential to link corridors across the town centre to create a 5-line network (60):

- Line 1: Poplar 2000 (M6 Junction 20) to Omega (M62 Junction 8);
- Line 2: Fiddler's Ferry to Birchwood and M62 Junction 11;
- Line 3: Daresbury to Stadium Quarter; and
- Line 4: Poplar 2000 (M6 Junction 20) to Birchwood and M62 Junction 11
- Line 5: Omega to Birchwood Park
- Potential for new P&R sites at M62 J8 (Line 1), Fiddler's Ferry (Line 2), Daresbury (Line 3), Poplar 2000 (Lines 1 and 4), and M62 J11 (Lines 2 and 4).

The core of the proposed network would be a town centre routing system that provides linkage to the key hubs of Warrington Central, Bank Quay and Bus Interchange and therefore with the proposed HS2, NPR and CLC (Merseyrail and Metrolink) networks. This town centre connectivity could take the form of a Warrington focused network as shown in **Figure 53** or as an expanded sub-regional transit system (**Figure 54)**. It is also imperative that onward walking and cycling connections from mass transit stops, particularly town centre stops, are of the highest quality to deliver efficient access to leisure, training and employment opportunities. This will help maximise the return on any investment in mass transit.

Clearly significant further work is required to develop these proposals further, however a package of measures similar to that described above is considered to be the most ultimately beneficial future direction for Warrington Borough and will allow it to realise its aspirations in terms of housing and population growth. The analysis presented in this report brings into ever sharper focus the assertion that Warrington will not be able to accommodate its full growth aspirations without significant intervention in the form of a package of Demand Management and Mass Transit investment.

Figure 53: Warrington Rapid Transit Network (Phase 3)

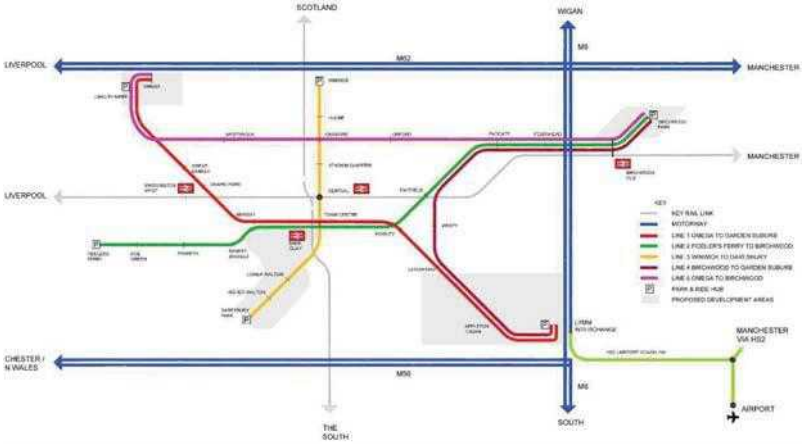
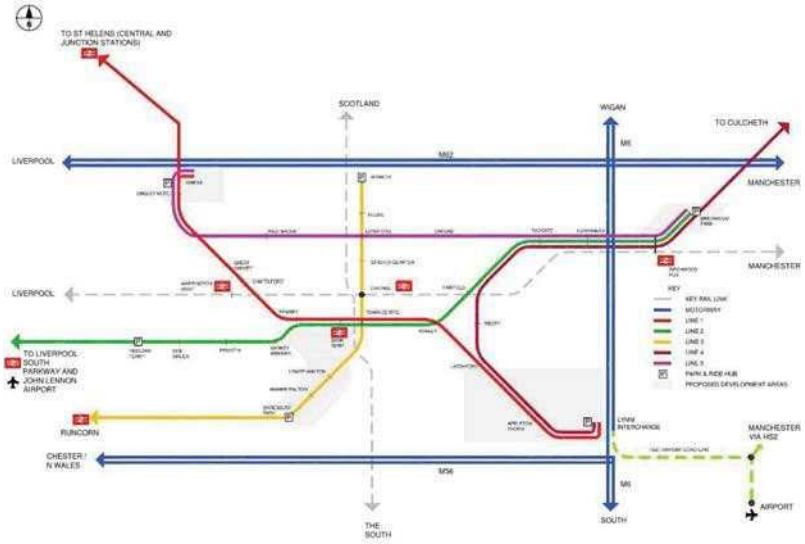


Figure 54: Potential Expanded Rapid Transit Network (Phase 4)



9.3 Next Steps – Turning Vision into Reality

The work undertaken in this study has been necessarily high level and has formed an important conceptual first step to provide Warrington Borough Council with a strategic direction for the joint development of transport and planning policy. It has investigated the options in terms of

demand management and mass transit and has recommended a preferred package of measures that, whilst transformational in scope and impact, would set the borough on a course towards a sustainable and prosperous future.

Clearly, significant amounts of further study are required to hone and refine the preferred strategy, and to fully develop the feasibility, implementation, legislation and construction steps required to move the project forwards. The items below provide a list of the main tasks that will need to be undertaken to progress the concepts recommended here towards implementation:

- **Further option specification and identification:**
  - *Detailed demand forecasting and revenue calculation* – a key task will be to look in significantly more detail at the likely demand and resultant revenue that may be generated by the mass transit propositions. This will include use of local growth forecasts, flavoured with corridor specific development and growth characteristics, and national trends towards mode shift, to understand more completely the likely usage of the lines and the proportion of self-sustainability each could generate;
  - *Consultation with stakeholders, politicians and the public* – in implementing a strategic direction such as that described here, it will be of the utmost importance that it is supported in principal by local politicians, stakeholders and ultimately the general public. Whilst it is always difficult to make the case for increased demand management measures to regulate the flow of private transport, this must be put in the widest context i.e. development of the borough with high growth, improved quality of life for the borough's residents, and provision of a high quality public transport alternative that is usable by all. This is particularly important if the mistakes of previous schemes where lack of public support has led to cancellation and watering down of the ultimate offer.
  - *Further investigation of available technologies* – Whilst a brief benchmarking section has provided some insight into the technologies that are being employed elsewhere to address similar transport issues, further work is required to establish the correct system for Warrington. In the case of WPL, the mechanisms already in place in Nottingham could potentially be adapted for Warrington's market.

- **Business Case work and funding applications:**
  - *Further design and costing work* – As part of the development of a strong WebTAG compliant business case for funding to implement the scheme, a significantly higher level of detail will be needed in terms of design and costing. In the case of the mass transit lines, specific routes will need to be developed (to allow these to be protected and for any Compulsory Purchase Orders to be prepared). These can then be fully costed using cost consultants to provide a solid basis on which to base an economic case assessment.
  - *Business Case Production* – The business case process will need to be followed (either for the package of schemes as a whole or for individual elements (whichever is felt to be more expedient in terms of obtaining funding). The usual route is for a Strategic Outline Business Case to be produced first to alert the funder of the schemes and to obtain backing for progression, followed by an Outline Business Case to support legal and planning requirements and a Full Major Scheme Business Case to obtain the funding from the relevant agency. In this case, this is likely to be the Department for Transport but funding elements could potentially be made available from allocations from Transport for the North (TfN) and Highways England in the future.
- **Detailed design and implementation:**
  - The final stage in the process is the detailed design and implementation of the scheme package which might be undertaken by a contractor under a Design & Build commission.

It is clear that the list of above-specified tasks is significant and much work is required in order to implement the types of options recommended within this study, however the workload should be measured against the potential requirements if a more Do Minimum approach is followed. In this case, further development of land as specified within the Local Plan would lead to large-scale growth in traffic levels in and around the borough resulting congestion and air quality reductions. Such issues would inevitably lead to the need for a major reactive response at some point in future and, having missed the optimum time for action, the scale of this reactive work is likely to exceed the proactive schemes proposed here.

To conclude, with its excellent track record of attracting the very highest quality business and investment, and its enviable top-rated position in terms of employment and prosperity, Warrington is in a strong position as it looks towards its future. With population set to continue growing and increasing interest from business in setting up regional and national headquarters in the borough, the objectives to make Warrington a better place to live and work seems highly achievable. However, in order for this to be realised, Warrington cannot depend on the private car for accessibility in the way it has in the past. By investing in a proactive manner at a time in which land use and transport policy can align, a solution can be found that is ultimately sustainable and that, if well planned, will allow Warrington to achieve its fullest potential.

Appendices

A. Multi-Criteria Appraisal Table and Results

Warrington Transformational Mass Transit Corridors - Multi-Criteria Assessment Scoring

Rank (Copy)	Corridor	Terminus	Route	Economic Drivers						Environmental Drivers						Transport Drivers							Deliverability Drivers							Total Score	Priority
									1						1							1							1			
				Economic Growth	Local Plan Fit	Journey Time	Reliability	Congestion	Total	Safety	Public Realm	Air Quality	Noise	Carbon	Total	Employment Connectivity	Other Attractor Connectivity	Efficiency	Capacity	Existing Demand	New Demand	Total	Affordability	Acceptability	Constructability	Suitability	Legislative Framework	Independenc	Total		
7	1	TC to Winwick	A49	1	0	2	1	2	1.20	2	1	2	1	2	1.50	1	2	2	2	1	0	1.33	-1	-2	-2	1	-1	2	-0.50	3.63	
2	2	TC to Birchwood / Culcheth	A57 - A50 - A574 or A49 - Former CLC - A574	2	0	1	1	1	1.00	1	1	0	1	2	1.00	2	1	2	2	2	1	1.67	-1	2	-1	2	-1	2	0.50	4.17	
10	3	TC to Lymm	A57 or Former Warrington - Lymm Railway (FWLR)	0	1	2	1	1	1.00	1	1	0	1	2	1.00	0	0	2	2	1	0	0.83	-1	0	-1	0	-1	1	-0.33	2.50	1
4	4	TC to Garden Suburb	FWLR - New route via Thelwall Heys or FWLR - New route via Grappenhall or A5061 - New route via Grappenhall or A57 - Victoria Park - New route via Grappenhall	1	2	1	2	1	1.40	0	1	1	1	2	1.25	2	2	2	2	0	2	1.67	-2	1	-1	2	-1	0	-0.17	3.90	
9	5	TC to Stretton	A49 or New route via Grappenhall	0	1	1	1	1	0.80	2	1	2	1	2	1.50	0	1	2	2	1	0	1.00	-2	-1	-2	1	-1	2	-0.50	2.90	
5	6	TC to Daresbury	A5060 or New route via South Western Development	2	2	0	0	0	0.80	1	1	2	1	2	1.50	2	1	2	2	2	2	1.83	-1	-1	-1	2	-1	1	-0.17	3.87	
3	7	TC to Fiddler's Ferry	Fiddler's Ferry Railway or A57 - A562	1	2	2	1	1	1.40	1	1	1	1	2	1.25	1	1	2	2	1	2	1.50	-1	1	-1	1	-1	0	-0.17	3.93	
1	8	TC to Lingley Mere / Omega	A57 - New Chapelford route - Whittle Avenue - Lingley Green Avenue or A57 / New Hospital route - Bewsey/Dallam - Sankey Valley Park - Westbrook Way	2	0	0	1	1	0.80	1	1	1	1	2	1.25	2	2	2	2	2	1	1.83	-1	2	-1	2	-1	2	0.50	4.33	
8	9	Lingley Mere / Omega - Birchwood / Culcheth	Charon Way / Cromwell Avenue / New Hulme Fearnhead route / A574 or Westbrook Way - Sankey Valley Park - A50 / Cheshire Lines - A574	2	0	-1	0	0	0.20	1	1	2	1	2	1.50	2	1	2	2	1	0	1.33	-1	2	-1	1	-1	2	0.33	3.27	
6	10	Garden Suburb - Birchwood / Culcheth	M6 or New route via Grappenhall - Victoria Park - A57 - A574	2	2	-2	1	1	0.80	1	1	2	1	2	1.50	2	1	2	2	0	2	1.50	-2	2	-1	2	-1	0	0.00	3.70	

Warrington Transformational Schemes - Mass Transit Appraisal Results

Priority Rank	Corridor	Terminus	Route	Economic Score	Environmental Score	Transport Score	Deliverability Score	Total Score	20th Percentile	Pass / Fail
1	8	TC to Lingley Mere / Omega	A57 - New Chapelford route - Whittle Avenue - Lingley Green Avenue or A57 / New Hospital route - Bewsey/Dallam - Sankey Valley Park - Westbrook Way	0.80	1.25	1.83	0.50	**4.33**	**3.19**	**Pass**
2	2	TC to Birchwood / Culcheth	A57 - A50 - A574 or A49 - Former CLC - A574	1.00	1.00	1.67	0.50	**4.17**	**3.19**	**Pass**
3	7	TC to Fiddler's Ferry	Fiddler's Ferry Railway or A57 - A562	1.40	1.25	1.50	-0.17	**3.93**	**3.19**	**Pass**
4	4	TC to Garden Suburb	FWLR - New route via Thelwall Heys or FWLR - New route via Grappenhall or A5061 - New route via Grappenhall or A57 - Victoria Park - New route via Grappenhall	1.40	1.25	1.67	-0.17	**3.90**	**3.19**	**Pass**
5	6	TC to Daresbury	A5060 or New route via South Western Development	0.80	1.50	1.83	-0.17	**3.87**	**3.19**	**Pass**
6	10	Garden Suburb - Birchwood / Culcheth	M6 or New route via Grappenhall - Victoria Park - A57 - A574	0.80	1.50	1.50	0.00	**3.70**	**3.19**	**Pass**
7	1	TC to Winwick	A49	1.20	1.50	1.33	-0.50	**3.63**	**3.19**	**Pass**
8	9	Lingley Mere / Omega - Birchwood / Culcheth	Charon Way / Cromwell Avenue / New Hulme Fearnhead route / A574 or Westbrook Way - Sankey Valley Park - A50 / Cheshire Lines - A574	0.20	1.50	1.33	0.33	**3.27**	**3.19**	**Pass**
9	5	TC to Stretton	A49 or New route via Grappenhall	0.80	1.50	1.00	-0.50	**2.90**	**3.19**	**Fail**
10	3	TC to Lymm	A57 or Former Warrington - Lymm Railway (FWLR)	1.00	1.00	0.83	-0.33	**2.50**	**3.19**	**Fail**

= Shortlisted

WARRINGTON
Borough Council

WARRINGTON FOURTH LOCAL TRANSPORT PLAN

APPENDIX C: MONITORING AND EVALUATION PLAN

1 Introduction

Warrington Borough Council's Local Transport Plan Four (LTP4) aims to address local transport issues in Warrington by providing a framework for decisions on future investment. LTP4 does the following:

- sets objectives for transport to support our wider goals and ambitions;
- establishes policies to help us achieve these objectives; and
- contains plans for implementing these policies.

A key focus of the LTP4 is supporting the transformational change of Warrington's transport system. The transport plan recognises Warrington's over-dependency on the private car and how the vehicle is the cause of many of the town's travel and environmental problems.

LTP4 aspires for Warrington to be a place where significantly more people choose to walk, cycle, and use public transport, allowing them to live healthier lifestyles. Thereby, a transport system that transitions from one which is dominated by car movements to one that is more balanced in favour of sustainable transport.

In order to achieve this change, the borough's public transport services and active travel network need to be significantly improved to provide a more attractive alternative to the car. There are four key elements that will support transformational change:

1. **Increasing walking and cycling:** LTP4 focuses particularly on improving the walking and cycling network within Warrington, as well as enhancing last mile access to the town centre for active travel users.

2. **Transforming public transport:** delivery of a mass transit solution (Light rail/Bus rapid transit) which can enhance the quality of public transport services through delivering substantial journey time savings.

3. **Managing demand for private car travel:** implementation of demand management measures which can help reduce private car use and support the use of other travel modes. Once LTP4 is adopted, the strategy will further investigate the implementation of a workplace parking levy in Warrington, as a way of managing demand for private car use.

4. **Major and priority infrastructure:** creating sufficient transport capacity on the network through major and priority infrastructure.

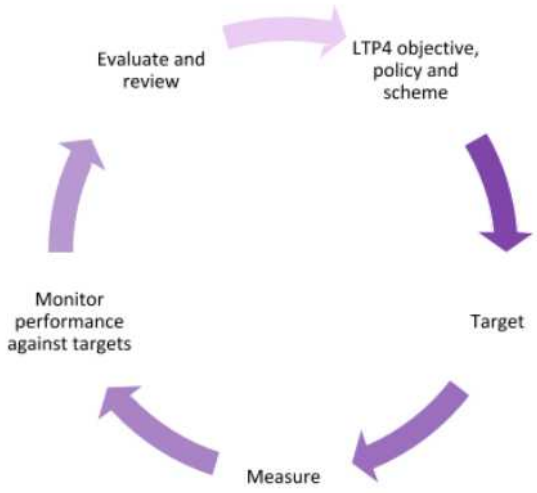


Figure 1 - LTP4 Delivery Cycle

Following the adoption of LTP4, Warrington Borough Council (WBC) has a responsibility to report and monitor the impact of the strategy. This document sets out the monitoring and evaluation plan for LTP4 and identifies a structured method for evaluating LTP4 objectives and key interventions.

Monitoring and evaluation is an integral part of any transport strategy or scheme, it forms a crucial part of the delivery cycle (Figure 1). Once a scheme or strategy is implemented, monitoring and evaluation provides the opportunity to assess the effectiveness of the action as well as giving an indication of how to prioritise future action.

2 Our Monitoring Strategy

Our strategy is split into monitoring of the LTP4 and stakeholder engagement. These are outlined in greater detail below.

Monitoring of the LTP4 encompasses two aspects:

- Monitoring of LTP4 objectives
- Monitoring of key LTP4 policies (which have been identified as important in achieving transformational change).

Performance indicators are identified under each of these aspects in order to derive changes of travel behaviour, modal shift, transport trends and differences. The performance indicators will be used as a proxy to help determine if key actions of the LTP4 have been delivered over the course of the strategy.

A key part of determining the success of LTP4 objectives will be to evaluate if transformational change has been met. To have a transformative effect on the town, LTP4 identifies that there needs to be increases in cycling (approximate 2.5 times increase in the proportion of cycling), bus (nearly 3 times the proportion for bus use), and increases in walking. To monitor this, LTP4 identifies modal shift targets shown in Figures 2 and 3.

The monitoring of the LTP4 objectives will therefore include reviewing these modal shift targets at 2031 and 2041 census periods.

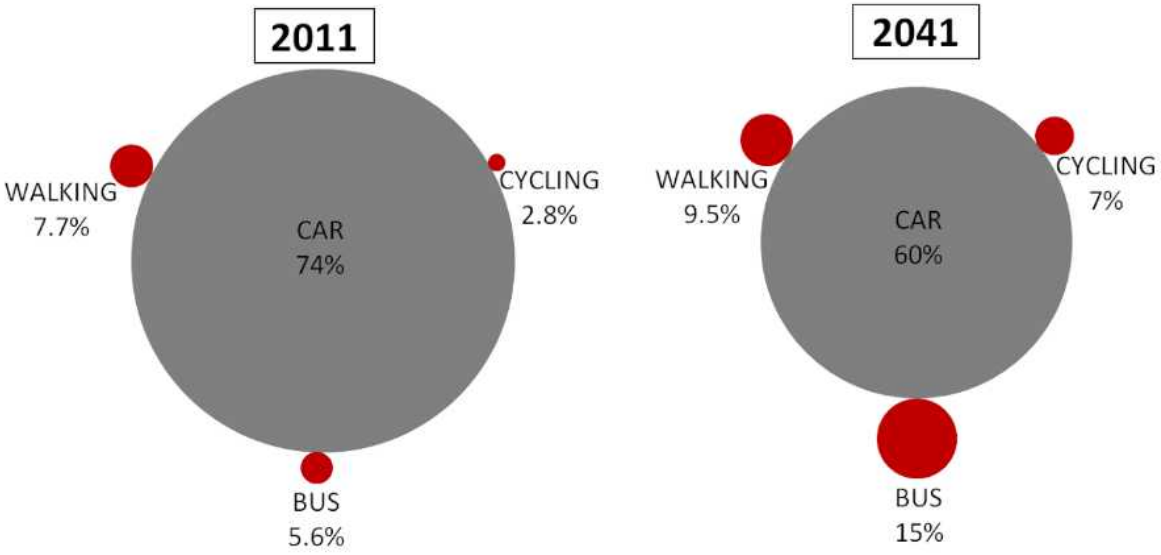


Figure 2 - Aspirational Mode Share Change

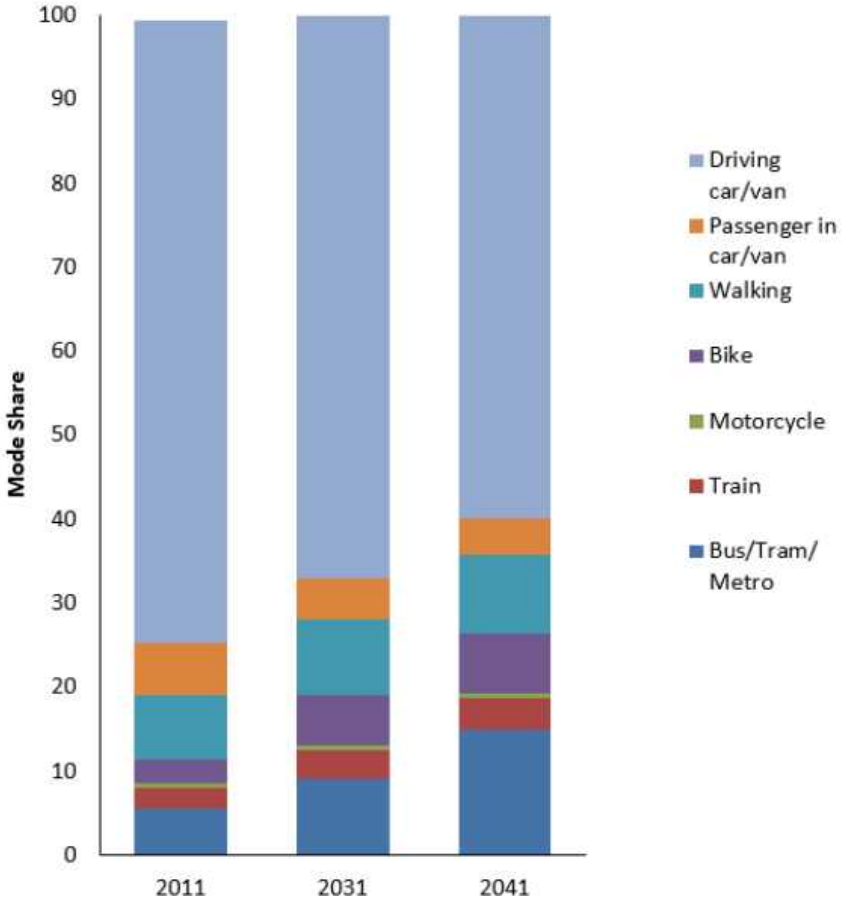


Figure 3 - Aspirational Mode Share Change Graph - All modes

LTP4 identifies several priority transport infrastructure schemes that are required to support the vision, transform transport in Warrington and help to deliver the growth that is proposed in the Local Plan. The identification of this forward programme has been informed by transport modelling undertaken using the Warrington Multi-modal Transport Model. A further set of major schemes have been identified that will support the growth of the borough and also help us to achieve our vision for transport in Warrington. These are shown in Table 1.

Scheme Name	Scheme Type	Description	Status
Priority transport infrastructure required to deliver the growth that is proposed in the Local Plan			
Warrington Western Link	Highway	Major infrastructure improvements including new high-level bridge across the Manchester Ship Canal and link road.	Awarded Programme Entry Status by DfT
Warrington South Strategic Infrastructure Phase 1 (Garden Suburb Strategic link)	Multi - modal	Major highway and public transport infrastructure to support development in south Warrington.	Development Concept
Scheme Name	**Scheme Type**	**Description**	**Status**
Major schemes required to support our vision for transport			
Local Cycling and Walking Implementation Plan	Cycling	Major strategic corridors schemes and completion of neighbourhood and greenway networks	Concept stage. Design work required
Mass Transit Network for Warrington	Public Transport	Network of mass transit corridors.	Indicative concept
The 'Last Mile' project / Town Centre Vision Access Package	Multi-modal	Major package of junction improvements, rail station enhancements and access measures to support town centre growth.	Indicative concept Bid submitted to Transforming Cities Bid

Table 1 - Transport Infrastructure Required to Support Housing and Economic Growth and Deliver Our Vision for Transport

Each priority infrastructure scheme will have its own individual monitoring and evaluation plan. This is for the reason that they form substantial infrastructure schemes and will require enhanced monitoring.

3 What We Will Monitor

Details of what we will monitor during LTP4, and how these contribute to delivering our objectives are shown in Table 2.

Policy Area	Performance Indicator	Methodology	Warrington will be a thriving, attractive, accessible, and well-connected place with popular, high-quality walking, cycling, and public transport networks supporting our carbon-neutral future										Baseline	Target	Target Year	Interim Target(s)			
			LTP4 Objectives (Summarised)																
			Provide travel choice	Reduces the need to travel by car	Sustain-able access to town centre	Resilient & efficient network	Reduce traffic congestion	Reduce emissions	Maintain & improve infra-structure	Healthier lifestyles /activity	Improve safety for all	Disabled friendly place							
Vision	% decrease in travel to work by car	Census travel to work data		✓		✓	✓	✓		✓			74%	60%	2041	67% by 2031			
Active Travel	% increase in the proportion of Warrington residents regularly cycling	Active Lives Survey (CW0302) Any cycling at least 3 times per week		✓		✓	✓	✓				✓	5.8% (17/18)	15%	2022 /23	18/19	19/20	20/21	21 22
																6.8%	8.3%	10.3 %	12.5 %
Active Travel	% increase in the proportion of Warrington residents regularly walking	Active Lives Survey (CW0303) Any walking at least 5 times per week		✓		✓	✓	✓					26.4% (17/18)	35%	2022 /23	18/19	19/20	20/21	21 22
																27.4 %	28.9 %	30.9 %	33.4 %
Active Travel	% increase in cycle counts on key routes	Annual Survey		✓		✓	✓	✓					3,760 (Index 100) 2019	4,512 (Index 120)	2024	N/A			

Policy Area	Performance Indicator	Methodology	Warrington will be a thriving, attractive, accessible, and well-connected place with popular, high-quality walking, cycling, and public transport networks supporting our carbon-neutral future										Baseline	Target	Target Year	Interim Target(s)			
			LTP4 Objectives (Summarised)																
			Provide travel choice	Reduces the need to travel by car	Sustain-able access to town centre	Resilient & efficient network	Reduce traffic congestion	Reduce emissions	Maintain & improve infra-structure	Healthier lifestyles /activity	Improve safety for all	Disabled friendly place							
Active Travel	Primary routes installed	Recording of quality segregated routes implemented through LCWIP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	0km	10km	2024	N/A			
Smarter Travel Choices	Number of people signed up to car club and bike share scheme	Recording of member numbers	✓	✓	✓		✓	✓		✓			0	1000	2025	N/A			
Smarter Travel Choices	Number of cycle training courses delivered	Recording of activities	✓	✓	✓		✓	✓		✓	✓		2500	4000	2024	N/A			
Smarter Travel Choices	% decrease of children being driven to school	Annual school travel survey	✓	✓	✓		✓	✓		✓	✓	✓	56%	53.5%	2024	N/A			
Smarter Travel Choices	Number of businesses engagements relating to smarter travel	Recording of activities	✓	✓	✓		✓	✓		✓			58	500	2024	20/21	21/22	22/23	23/24
																100	100	100	100
Smarter Travel Choices	Number of residences receiving smarter travel pack	Recording of activities	✓	✓	✓		✓	✓		✓			0	2000	2024	20/21	21/22	22/23	23/24
																500	500	500	500

Policy Area	Performance Indicator	Methodology	Warrington will be a thriving, attractive, accessible, and well-connected place with popular, high-quality walking, cycling, and public transport networks supporting our carbon-neutral future										Baseline	Target	Target Year	Interim Target(s)
			LTP4 Objectives (Summarised)													
			Provide travel choice	Reduces the need to travel by car	Sustain-able access to town centre	Resilient & efficient network	Reduce traffic congestion	Reduce emissions	Maintain & improve infra-structure	Healthier lifestyles /activity	Improve safety for all	Disabled friendly place				
Smarter Travel Choices	Number of residences receiving travel advice via Town Centre travel plan	Recording of activities	✓	✓	✓		✓	✓		✓			0	400	2025	N/A
Passenger Transport	% increase in public transport for travel to work	Census travel to work data		✓		✓	✓	✓		✓			5.6%	15%	2041	9% by 2031
Passenger Transport	Passengers Boarding Bus Services (Warrington Stops)	Bus patronage data	✓	✓	✓	✓	✓			✓			6.8m	8m	2024	20/21: 7m; 21/22: 7.3m; 22/23: 7.5m; 23/24: 7.8
Passenger Transport	Feasibility study for mass transit system with identification of mode and corridors	Approval of mass transit feasibility study	✓	✓	✓	✓	✓	✓	✓	✓			0	1	2021	N/A
Safer Travel	% reduction in Car Occupant casualties	Cheshire Police Casualties data				✓					✓		2016 to 2018 Average 260	46% (140)	2030	N/A
Safer Travel	% reduction in Two-wheeled Vehicle casualties	Cheshire Police Casualties data				✓					✓		2016 to 2018 Average 43	18% (35)	2030	N/A
Safer Travel	%reduction in Car Occupant casualties	Cheshire Police Casualties data				✓					✓		2016 to 2018 Average 72	15% (61)	2030	N/A

Policy Area	Performance Indicator	Methodology	Warrington will be a thriving, attractive, accessible, and well-connected place with popular, high-quality walking, cycling, and public transport networks supporting our carbon-neutral future										Baseline	Target	Target Year	Interim Target(s)
			LTP4 Objectives (Summarised)													
			Provide travel choice	Reduces the need to travel by car	Sustain-able access to town centre	Resilient & efficient network	Reduce traffic congestion	Reduce emissions	Maintain & improve infra-structure	Healthier lifestyles /activity	Improve safety for all	Disabled friendly place				
Safer Travel	% reduction in Pedal Cyclist casualties	Cheshire Police Casualties data				✓					✓		2016 to 2018 Average 68	25% (51)	2030	N/A
Cleaner Fuels	Study to identify preferred strategy for increasing EVs	Approval of study	✓					✓					0	1	2021	N/A
Network Management	Reduction in average delay compared to free flow on local A roads	DfT monthly & 12 monthly rolling average delay compared to free flow on local A roads				✓	✓	✓					50.7sec in 2018	50.7	2024	Annually
Network Management	Number of swing bridge movement in peak periods fewer than 100 per year, in line with MoU	Bridge Swing data				✓	✓	✓					45 in 2017	< 100	2024	Annually
Network Management	Feasibility study for Workplace Parking Levy	Approval of study		✓	✓	✓	✓	✓		✓			0	1	2021	N/A
Asset Management	Maintain Band 3 status	Annual self-assessment questionnaire				✓			✓		✓		Band 3	Maint - ain Band 3 status	Ongoing	N/A
Asset Management	Reduction in % of roads that should be considered for maintenance	DfT data				✓			✓		✓		2% in 2018/19	1%	2024	N/A

Policy Area	Performance Indicator	Methodology	Warrington will be a thriving, attractive, accessible, and well-connected place with popular, high-quality walking, cycling, and public transport networks supporting our carbon-neutral future										Baseline	Target	Target Year	Interim Target(s)
			LTP4 Objectives (Summarised)													
			Provide travel choice	Reduces the need to travel by car	Sustain-able access to town centre	Resilient & efficient network	Reduce traffic congestion	Reduce emissions	Maintain & improve infra-structure	Healthier lifestyles /activity	Improve safety for all	Disabled friendly place				
Freight Management	Production of freight routing strategy	Approval of strategy			✓	✓	✓	✓					0	1	2023	N/A
Freight Management	Study of lorry parking facilities	Approval of study				✓	✓	✓					0	1	2023	N/A

Table 2 - what we will monitor during LTP4

4 Data sources

Performance indicators in Table 2 are derived from a number of data sources, these are summarised below.

Annual traffic counter data
Annual traffic counters (ATC) will be utilised to calculate changes in traffic flows. WBC already have a network of ATC installed across the local highways network. ATC traffic flow data will be obtained before LTP4 is implemented and annually during LTP4s operation. The data will help evaluate changes to highways traffic, congestion, journey times and delay.

Cycle and pedestrian counter
WBC already have its own network of cycle and pedestrian counters; the network will be expanded along key corridors as part of the LCWIP programme. The data will help evaluate: changes to cycle travel patterns; pedestrian flow; cycle accessibility; and changes to day-to-day physical activity.

Census data
ONS census data will be important in monitoring changes over longer periods of time (10years). The 2011-year census will be used as the baseline, and 2021, 2031 and 2041 utilised for monitoring changes over the course of LTP4. Car ownership and travel to work data will help evaluate the following: cultural change in terms of car travel; active travel patterns; and daily physical activity.

DfT data
A number of DfT travel data sources will be used, the datasets below will be utilised for monitoring a number of LTP4 objectives and key policies:

- Average speed and delay data on A roads;
- Proportion of residents who do any walking or cycling, for any purpose, at least once per month;
- Proportion of how often and how long adults walk for (at least 10 minutes) by local authority;
- Reported KSI casualties by region and local authority;
- Road causalities report;
- Ultra-low emission vehicles (ULEVs), Vehicle Licensing Statistics; and
- Principal and non-principal classified roads where maintenance should be considered.

Air quality monitoring
Warrington Borough Council already has designated sites where air quality is monitored. This is conducted through a mix of diffusion tubes and real-time monitoring. Monitoring sites at Selby St, Parker St and Chester Rd roadside will be used to monitor air quality impacts of LTP4 for NO/NOx/NO2. There is also the proposal for a Particulate matter monitoring site at Latchford to monitor PM10 and PM2.5. The proposed monitoring station will be used if approved.

National Highways & Transport (NHT) public travel survey
The NHT public travel survey collects public perspectives on, and satisfaction with, Highway and Transport Services in Local Authority areas. The survey will be utilised to acquire an understanding of the quality of walking and cycling facilities, satisfaction of active travel services and accessibility.

Swing bridge movements
The council records the number of swing bridge movements on the Manchester Ship Canal. This data will continued to be monitored quarterly and used as a proxy for the reliability of the highways network.

Cleaner fuels
A data collection exercise will be required to collate information on the current number of public transport and WBC fleet ULEVs. This database will need to be updated and monitored over the course

of the LTP4 to evaluate the uptake of ULEVs.

Individual LTP4 reporting
A number of performance indicators are derived following the implementation of LTP4 schemes. This will be a relatively simple exercise and likely require transport officer time.

5 Reporting

Reporting of monitoring and evaluation will be conducted in three stages:

1. **Pre-LTP4 implementation** - a report will be undertaken outlining the baseline conditions prior LTP4 implementation.
2. **LTP4 implementation short term** - reporting will be undertaken annually to understand short term trends.
3. **LTP4 implementation long-term – reporting will take place over 5-year periods to capture the longer term impacts of the LTP4 policies and schemes.**

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WARRINGTON FOURTH LOCAL TRANSPORT PLAN

APPENDIX D: IMPLEMENTATION PLAN

1 Introduction

In order to maintain and improve Warrington's networks for all modes and to incentivise the increased use of sustainable travel, a range of physical improvements will be required over the course of the fourth Local Transport Plan. The scale and cost of these measures will be broadly divided into the following categories:

Minor Improvements

These will be measures which will support a range of transport objectives, such as:

- Pedestrian and Cycling Accessibility Improvements
- Road Safety and Traffic Management schemes
- Junction upgrades
- Bus stop improvements and small scale priority measures
- Highway maintenance programmes

Typically these will be schemes under the value of around £2m and be funded from a combination of the annual DfT Integrated Transport and Maintenance Blocks and in some cases 3rd party contributions.

Whilst lower in value than major schemes (set out below) they are large in number and have a significant contribution to make in delivering the vision and policies set out in the LTP. As a package they can help to transform the transport network in Warrington.

Major Improvements

These will typically be large scheme infrastructure projects over £2m and be funded from specific bids to agencies such as Department for Transport, Homes England, Highways England, Network Rail and Cheshire and Warrington Local Enterprise Partnership.

Significant match funding is also likely to be required from the council's own capital programme and developer contributions.

These schemes will have a transformational effect in themselves, such as giving a step change in sustainable transport provision, addressing a major congestion problem on existing networks or unlocking a development site.

The funding for minor and major improvements is discussed in sections 2.0 and 3.0 below.

Minor Improvements

Funding to deliver the local transport improvements is received from Government on an annual basis. The funding is split between the Integrated Transport Block (ITB) and Highways Maintenance Block (HMB). Indicative funding has been allocated for 2019/20 and 2020/21 by the DfT, beyond these years the amount of funding is unknown. The indicative allocations for 2019/20 and 2020/21 and anticipated allocations to 2023/24 are presented in Table 1.

	Year				
	Indicative		Anticipated		
Block	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**
Integrated Transport Block	£1,494,000	£1,494,000	£1,494,000	£1,494,000	£1,494,000
Highways Maintenance Block (needs based)	£2,571,000	£2,571,000	£2,571,000	£2,571,000	£2,571,000
Highways Maintenance Block (incentive based)	£535,000	£535,000	£535,000	£535,000	£535,000
Total	£4,065,000	£4,065,000	£4,065,000	£4,065,000	£4,065,000

Table 1 – Indicative ITB and HMB Government Funding Allocations

Each of the funding blocks is discussed in more detail in Sections 2.1 and 2.2 below. Other sources of funding for minor improvements are discussed in 2.3.

2.1 Integrated Transport Block

The Integrated Transport Block for LTP4 is split into 8 transport themes covering a diverse programme of transportation works as set out in Part B of the LTP4 document. These themes have been devised based on:

- LTP Stakeholder Consultation
- Local Plan Preferred Development Option Feedback
- Air Quality Strategy
- LTP 4 Vision

The themes reflect the objectives set within the draft LTP4, which subsequently received support during the draft LTP4 consultation.
The proposed allocations for each theme for the next 5 years are presented in Table 2.

LTP INTEGRATED TRANPORT BLOCK THEMES	**Budget £millions**				
	2019/20	**2020/21**	**2021/22**	**2022/23**	**2023/24**
Active Travel	**0.350**	**0.350**	**0.350**	**0.350**	**0.350**
LTP Studies	**0.129**	**0.129**	**0.129**	**0.129**	**0.129**
Network Management	**0.315**	**0.315**	**0.315**	**0.315**	**0.315**
Public Transport	**0.060**	**0.060**	**0.060**	**0.060**	**0.060**
Safety & Security	**0.575**	**0.575**	**0.575**	**0.575**	**0.575**
Smarter Choices	**0.040**	**0.040**	**0.040**	**0.040**	**0.040**
Freight	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**
Cleaner Fuels	**0.015**	**0.015**	**0.015**	**0.015**	**0.015**
Grand Total	**1.494**	**1.494**	**1.494**	**1.494**	**1.494**

Table 2 – Proposed ITB 2019/20 – 2023/24 Allocations

The allocations above may change based on the level of funding available from the DfT and

emerging priorities within the remit of the LTP4 objectives. However, this is a starting point for the next 5 years. Within each annual budget, funding is allocated for transport studies to identify and inform future schemes and funding decisions within and outside of the ITB. Although the theme allocations are presented individually above, the majority of schemes delivered will complement multiple themes. For example, the management of existing bus lane enforcement is classified within the Network Management theme which provides multi-theme benefits, including improving reliability of bus journeys, removing obstructions from the carriageway and providing a more conducive environment for walking and cycling.

2.2 Highways Maintenance Block

In December 2014, the Government announced that £6 billion was being made available between 2015/16 and 2020/21 for local highways maintenance capital funding. From that funding, £4.7 million has been set aside for Highways 'Needs' based funding and £578 million has been set aside for 'Incentive' funding.

Needs based funding is allocated based on the length/number of highway assets the council need to maintain such as length of roads and number of structures. Indicative funding of £2.571 million is allocated by the DfT in 2019/20 and 2020/21.

Incentive funding aims to reward councils who demonstrate they are delivering value for money in carrying out cost effective improvements when looking after their highway assets. Councils are banded 1 to 3 where band 3 receives the highest award. Warrington is a Band 3 authority. Indicative funding of £0.535 million is allocated in 2019/20 and 2020/21 and anticipated allocations to 2023/24.

The Highways Maintenance Block for LTP4 is split into 6 highways maintenance themes covering a range of works as described in Part B of the LTP4 document. The proposed allocations for each theme for 2019/20 to 20203/24 are presented in Table 3 below.

	Budget £millions				
MAINTENANCE BLOCK	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**
Bridge maintenance	0.438	0.438	0.438	0.438	0.438
Street lighting	0.398	0.398	0.398	0.398	0.398
Roads maintenance	1.368	1.368	1.368	1.368	1.368
Traffic signals	0.121	0.121	0.121	0.121	0.121
Bus stop maintenance	0.015	0.015	0.015	0.015	0.015
Cycleway & footway maintenance	0.231	0.231	0.231	0.231	0.231
Grand Total	**2.571**	**2.571**	**2.571**	**2.571**	**2.571**

Table 3 - Proposed HMB 2019/20 Allocations

Incentive based funding will be allocated in year based on emerging priorities.

2.3 Other Sources of Funding (Minor Improvements)

2.3.1 Local Highways Maintenance Funding

In October 2018, the Government announced it was allocating a further £420 million of new money for local highways maintenance nationally. This additional resource is to be used for the repair of roads (including potholes), bridges and local highways infrastructure generally. Warrington received £1.416m of this funding for expenditure in 2018/19 and 2019/20.

2 Major Improvements

Major Improvements are typically funded by a mixture of:

- Council Borrowing
- Funding Competitions
- Developer Funding

In the five year period up to 2020/21 the council has been successful in securing funding for a number of major schemes, producing a package of schemes costing approximately £100m. Figure 1 below provides a breakdown of how this funding has been split, with each funding source described in more detail in 3.1 to 3.3 below. It can be seen how successful the authority has been in securing external funding, with almost two thirds of funding for major schemes coming from Government Grants (54%) and developer contributions (7%).

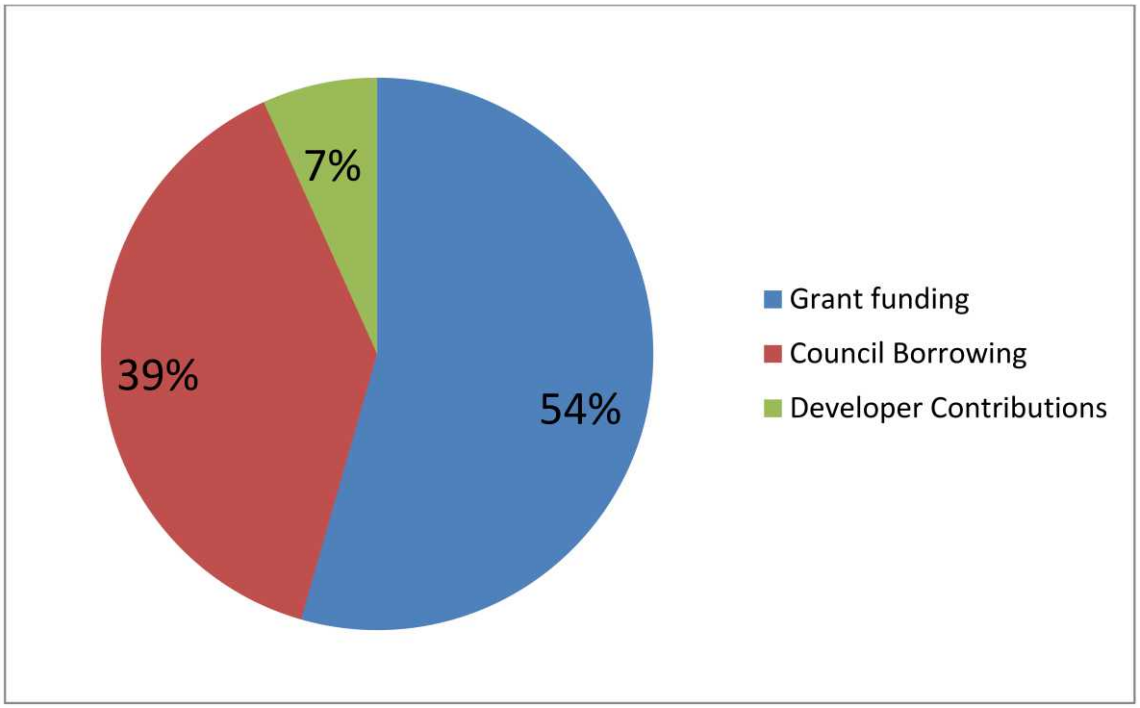

Figure 1 – Major Improvements Funding Split

2.1 Council Borrowing

Aside from local transport grants and funding competitions, the Council has also been required to find its own capital resource for transport measures in order to support the council's wider priorities. The various packages of borrowing approved by the Councils Executive Board are discussed below.

2.1.1 Top-up allocations

In 2012, the authority was awarded £2.93m from the Local Sustainable Transport Fund over a 3 year period to deliver projects that improved and encouraged walking and cycling. This equated to £0.98m per year. This DfT funding was not renewed in 2015/16. However, the economic case for investment in walking and cycling infrastructure remains strong and high quality investment in schemes for sustainable modes can also release highway capacity, help avoid congestion and have positive benefits for health and quality of life. Therefore, the councils Executive Board approved capital borrowing of £2.93m in October 2014 to enable the continuation of the Local Sustainable Transport Fund.

In July 2014 the DfT confirmed that the council's ITB Allocations for 2015-2021 would be £1.494m per year between 2015/16 and 2017/18 with an indicative allocation of £1.494m per year between 2018/19 and 2020/21. This was an annual reduction of £0.597m (30%) compared to the 2014/15 allocation of £2.091m. In response to this reduction, in October 2014 the Councils executive Board approved capital borrowing of £3.6m to 'top-up' the reduced LTP allocation from DfT. This was broadly based on a £600k per annum shortfall for 6 years of ITB budgets compared to previous levels.

Both of these top-up funds are capital borrowing and not part of the LTP grant allocation. Table 4 below describes examples of schemes funded through these allocations to date.

Fund	Scheme	Status
LST Top-up	Sankey Valley Cycleway Improvements	Complete
	Birchwood Station Accessibility Improvements	Complete
	Warrington West station	Under Construction
	A57/Lingley Green Ave. Junction Improvements	In Detailed Design
	Omega to Burtonwood Accessibility Improvements	In Detailed Design
	M62 Junction 9 – Signals Renewal	Complete
ITB Top-up	Great Sankey Hub	Complete
	Burtonwood Road Southbound widening	Complete
	A57/Lingley Green Ave. Junction Improvements	In Detailed Design
	Warrington East Phase 3	Under Construction

Table 4 – ITB and LST Top-up Funding allocations

2.1.2 Additional Council Borrowing

In addition to the above, the Council has borrowed over £35m to enable delivery of major improvements. Table 5 below provides a breakdown of schemes supported through additional borrowing from the coucnisl'capital programme.

Scheme	Status
Centre Park Link	Under Construction
M62 J8	Complete
Warrington West station	Under Construction

Scheme	Status
Omega to Burtonwood Accessibility Improvements	In Detailed Design
Omega Boulevard/Lingley Green Ave Junction Improvements	In Detailed Design
Burtonwood Road Southbound widening	Complete
A57/Lingley Green Ave. Junction Improvements	In Detailed Design
Chester Road Cycling Improvements	In Development
Trans Pennine Trail Improvements	In Development
M62 Junction 9 – Signals Renewal	Complete
Birchwood Pinchpoint	Complete
Warrington East Phase 2	Under Construction
Warrington East Phase 3	Under Construction

Table 5 – Major Schemes funded through Council Borrowing (including Top-up)

2.2 Funding Competitions

In addition the Council has succesfully bid for over £50m funding from Government via various funding competitions to support individual and packages of schemes since 2015. A brief summary of the types of funding awarded is given in Table 6 below.

Local Growth Funding (round 1) - In June 2013 the government announced that Local Enterprise Partnerships were to enter into negotiations for funding from a new pot of devolved government funds namely the Local Growth Fund (LGF). The Council entered successful bids for part-funding (£18.670m) of the following schemes:

- Centre Park Link, £5m – In Construction
- M62 J8, £5m - Complete
- Birchwood Pinchpoint, £2.140m - Complete
- Warrington West Rail Station, £6.530 - In Construction

Local Growth Funding (round 3) - In December 2016, the council submitted a number of potential major transport schemes to the Local Enterprise Partnership (LEP) to request funding from a further round of Local Growth funding. From this submission, the council was successful in securing funding (£12.85m) for three packages of schemes, namely:

- Warrington East Phase 2, £6.900m – In Construction
- Omega Local Highways Phase 1, £4.300 – In Development
- Warrington Sustainable Travel (Access Fund), £1.650m – In Development

Growth and Housing Fund – Funding announced by Highways England for schemes on the Strategic Road Network that unlock homes and jobs. Up to £3 m was secured from highways England to part-fund improvements to M62 Junction 8.

New Stations Fund - A £20m fund from Network Rail towards the cost of building new stations to help give local communities improved access to rail services in England and Wales. The Council submitted a successful bid to this fund and received £4.23m towards Warrington West Rail Station.

National Productivity Investment Funding (NPIF)- On 13th January 2017 the government announced a new fund for schemes which boost national productivity. The funding is specifically intended for local transport improvements which aim to reduce congestion at key locations, upgrade or improve the maintenance of local highway assets and therefore help to improve access to employment and housing, and to develop economic and job creation opportunities. The Council successfully bid for funding in 2017/18 (£0.769m) and 2018/19 (£7.363m) to contribute to the following schemes: • B5356 Stretton Road Maintenance scheme, £0.344 - Complete • A57 Liverpool Road/Whittle Ave Junction Improvement, £0.175 - Complete • M62 J9 and Delph Lane Junction Improvement, £0.250 - Complete • Warrington East Phase 3, £4.000m – In Construction • Burtonwood Southbound Widening, £2.093 - Complete • A57 Liverpool Road/Lingley Green Ave, £1.270m - In Detailed Design
Housing Infrastructure Fund (HIF)- The HIF is a government capital grant programme of up to £2.3 billion, for new physical infrastructure which will unlock sites in the areas of greatest housing demand and help to deliver up to 100,000 new homes in England. £3.686m was awarded to the Council to support Centre Park Link following submission of a successful bid in 2017.

Table 6 – Summary of Successful funding bids (2015 onwards)

2.3 Developer Contributions

Contributions from developers also support major transport improvements, £6.227m has been secured from developers via the planning process to aid the delivery of the major schemes listed in Table 5. In addition over £8m has been secured from the developers of Omega to fully fund improvements at:

- Burtonwood Road/Westbrook Way;
- Whittle Avenue/Lingley Green Avenue; and
- Widening of Burtonwood Road Southbound south of Kingswood Road.

3 Future delivery

The implementation of LTP4 will require funding to be obtained from a range of sources to deliver the transformational change set out in the vision. Warrington's recent track record is very good however in securing funding from external agencies as evidenced by the programme of major schemes described above.

The council will continue to seek funding opportunities from government agencies and departments, private sector contributions, planning obligations as well as prudent use of its own capital borrowing.

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APPENDIX E:
SUSTAINABLE MODES OF TRAVEL TO SCHOOL

Sustainable Modes of Travel to School Strategy

January 2019

1. Introduction

1.1. The Education and Inspections Act 2006 extended the statutory duties of local authorities to support parental choice of school through the consideration of travel and transport arrangements. The new section placed a general duty on local authorities to promote the use of sustainable travel to school, and publish a Sustainable Modes of Travel to School Strategy, to be updated annually.

1.2. The duty relates to journeys to and from institutions where education or training is delivered and applies to children and young people of compulsory school age who travel to receive education or training in a local authority's area.

1.3. Warrington's original 2006 strategy was adopted as part of Local Transport Plan 2 (LTP2) and although updated regularly, this refreshed strategy is offered for public consultation as part of LTP4 development. This update identifies the issues that have arisen since the original was approved, and provides solutions in view of the current economic climate of reduced local authority financial support.

1.4. There are five main elements to the duty that all local authorities must satisfy:

- an **assessment** of the travel and transport needs of children, and young people within the authority's area;
- an **audit** of the sustainable travel and transport infrastructure within the authority's area that may be used when travelling to and from, or between schools/institutions;
- a **strategy** to develop the sustainable travel and transport infrastructure within the authority so that the travel and transport needs of children and young people are best catered for;
- the **promotion** of sustainable travel and transport modes on the journey to, from, and between schools and other institutions; and
- the **publication** of the current Sustainable Modes of Travel Strategy.

1.5. This document details how we propose to continue to meet these five elements in the light of current financial restrictions and staffing reductions, and how this can best be achieved within the context of local and national issues.

2. Setting the Context

2.1. Warrington's resident population now stands at 209,700, an increase of 16,000 since 2006. There are 36,500 children and young people attending in excess of 90 schools and colleges, both within and outside the borough.

2.2. There are approximately 86,000 households in Warrington, with almost 36,000 of them owning one car, 33,000 of them owning two or more cars, and 80% of all journeys are made by car.

2.3. The Travel Choices team within the Transport for Warrington service already works with a wide range of council departments, schools and other organisations to enable and promote sustainable travel to school. This document sets out how that work can be sustained, albeit in diminished capacity under continuously reducing government funding.

2.4. Central funding for regional and local school travel advisers (STAs) was provided until March 2011, with the aim of ensuring every school had an effective School Travel Plan. Although this funding was continued at a reduced amount after the change of government in 2010, it was unringfenced which allowed local education authorities to determine how it was used. In Warrington the funding has remained within the general education budget and has not been used to sustain a full-time STA post.

2.5. Additionally, a considerable number of schools have or are planning to become academies which distances them from local authority financial control. This presents new challenges in communication and co-operation, but also opportunities to seek funding for services ranging from travel planning and parking management to road safety education and training.

2.6. At the local level, there are a number of relevant policy aims that this plan supports and feeds into, including the Local Plan, the Council's Corporate Strategy and the Active Warrington strategy.

3. An assessment of the travel and transport needs of children, and young people within the authority's area

3.1. The guidance advises that local authorities should base their assessment of children and young people's travel and transport needs on the data provided by schools or colleges, often contained within school travel plans.

3.2. Effective school travel plans, updated regularly, deliver a package of measures to reduce car use and improve safety. The best are backed by a partnership involving the school, police, families, and health and transport officers from the local authority.

3.3. Although at the time Warrington met the government target of all schools having a travel plan by 2011, many have not been updated since then and are now inadequate and out of date. The intention that schools would update their own travel plans has not materialised, and the resource that the council can currently devote to this results in school travel plans only being developed or updated as a result of planning conditions placed on new or expanding schools, or when the schools themselves request assistance.

3.4. A part-time School Travel Adviser is available to support schools that require help to produce and implement their travel plans. This function also offers a

programme of support that schools can choose to include in their travel plans. This includes classroom and assembly awareness raising lessons, walking bus and scooter training, programmes to support transition from primary to high school, junior PCSO schemes to help with parking enforcement, etc. These measures are jointly run with colleagues from Road Safety and the Police.

3.5. New government-approved software is being promoted through the sustainable travel organisation Modeshift. STARS, (Sustainable Travel Accreditation and Recognition Scheme), is an online tool created to support local authorities and schools with their travel planning development and measures.

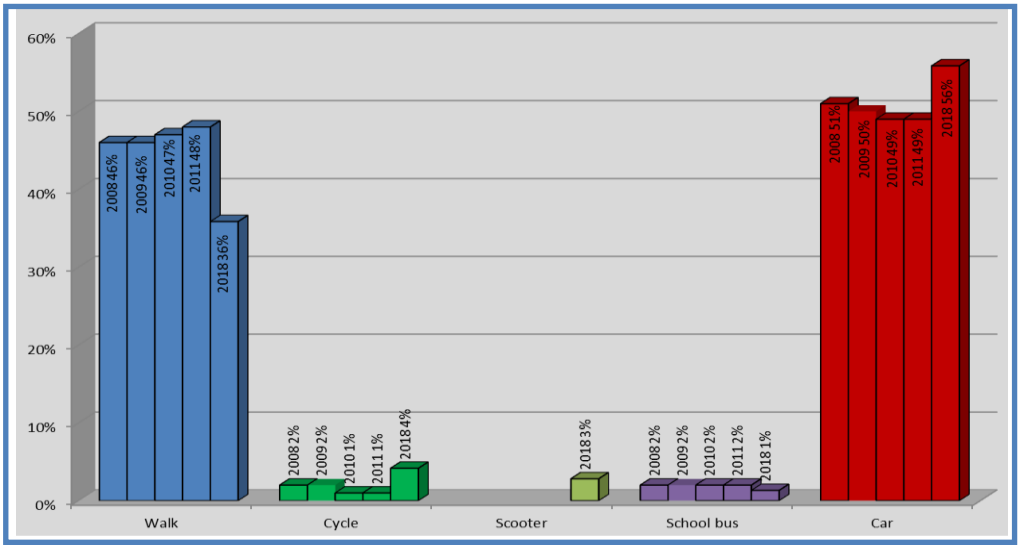
3.6. STARS is a commercial tool which will require exploration of alternative funding streams to ensure continuation, specifically from those council departments, schools and organisations which depend on the delivery of the duty and sustainable travel promotion to support their own objectives.

3.7. The benefit of this facility is that it provides an online, user-friendly template which once introduced to a school can be easily accessed and updated by school or council staff. It provides all the sections required in a travel plan and a facility to record, analyse and present travel survey data.

3.8. The data on how children currently travel to school and how they would prefer to make this journey is key to assessing their needs. Until 2011 this data was collected from each school within the national school census, but the government's direction to reduce pressure on data collection from schools resulted in these travel questions being withdrawn. This data has not been routinely collected since then, except on an ad-hoc basis when travel plans are updated.

3.9. To give a full current picture, a borough-wide primary classroom hands-up survey was undertaken in the autumn term of 2018. This involved class teachers, when willing, and council staff attending schools and surveying the children in a classroom hands-up.

3.10. The results of the primary school survey are shown below together with the data previously collected in 2011 and the previous 3 years. It shows a marked reduction in walking to school, with an increase in being driven. Cycle and scooter training appear to have had a positive effect with an increase in both modes.



3.11. There are several possible reasons for the increase in driving to school, including the high employment rate of Warrington residents (parents dropping off children on the way to work) and the ability to choose a school which is not necessarily the nearest to home.

3.12. We propose to repeat this every two years, a similar high school survey is proposed for spring 2019, and together with the information gathered during travel plan updates we will use this to support this first element. Although challenging to collect, this continued process will help to assess the specific travel needs of pupils through the school travel plan and survey data.

3.13. Actions to fulfil this element:

- Continued development and update of school travel plans when required by planning applications and requested by schools.
- Investigate funding opportunities to continue to use Modeshift STARS to help deliver the programme
- Continue to press schools for travel-to-school surveys to collect data to support the assessment of need.

4. An audit of the sustainable travel and transport infrastructure within the authority's area that may be used when travelling to and from, or between schools/institutions

4.1. Much of the information required for the audit of the infrastructure supporting sustainable school travel is already collected as part of the consideration of accessibility to key services like education as an integral part of the Local Transport Plan.

4.2. Annual catchment area maps linked to pupil postcode data are produced by the Education Service. These are useful to identify the relative distance pupils are travelling to school and evaluate the potential numbers likely to walk, cycle or are located on a bus route. The council also offers an online mapping system with various layers available to inform users of the available routes and infrastructure in local areas.

4.3. Any rebuilding or expansion of schools and colleges is also an opportunity to look at travel and transport provision. Travel planning is a standard requirement of planning consent which brings collaboration between several council departments, working together to provide highway infrastructure and identifying where additional links to schools and colleges will be required.

4.4. The council also has a Home to School Transport Policy which outlines which pupils are eligible for subsidised transport to school, often by school bus or taxi. This relates to distance from home to nearest school rather than following specific mapped routes. It also provides for children with special educational needs or disabilities. The policy and eligibility guidance can be found on the council's website.

4.5. Commercial bus services also provide for the journey to school and most bus companies offer discounted travel for under 19s in full-time education. Certain routes are provided by smaller independent operators, whilst the majority of the network is covered by the larger operators, such as Warrington's Own Buses and Arriva. The larger operators offer season tickets which further subsidise use of public transport and enable additional

journeys to be made during the evenings, at weekends and in the school holidays, further promoting sustainable and independent travel. Maps of routes and services are available online at the respective websites.

4.6. In addition all the borough's schools are identified on the Warrington Cycle Map. This not only features cycle routes but maps the entire highway network, colour-coded to highlight where more advanced cycling skills are required. The majority of schools are surrounded by streets identified as quieter, low risk routes where families could consider walking and cycling to school as an option. The map has recently been updated to include crossing points and new infrastructure, giving additional support for routes to school. The map colour-coding is also used to identify barriers to cycling and walking and to help prioritise new infrastructure locations to reduce these obstacles.

4.7. Government funded cycle training, Bikeability, is offered to every 9 year old in the borough through their school. This free instruction provides the skill and confidence to cycle on quieter roads and is ideal to enable cycling from home to school. Other age groups are also catered for, building on the basic knowledge to enable safe cycling to secondary school and eventually to the workplace. Over £400k has been secured to continue this training until 2020.

4.8. Actions to fulfil this element:

- Continue to use the cycle map to identify safer routes to school and to target available funds to reduce any barriers.
- Continue to work together on new developments and through the planning process to identify where new infrastructure is needed.
- Ensure schools are aware of mapping and timetable websites and encourage them to add to their own websites to allow them to promote routes to school and help to identify missing links.

5. A strategy to develop the sustainable travel and transport infrastructure within the authority so that the travel and transport needs of children and young people are best catered for

5.1. The ongoing financial restrictions placed upon the authority's resources and capacity to implement these principles necessitates an adjustment of how the actions are delivered.

5.2. The Travel Planning programme will continue but will prioritise schools that are required to implement a travel plan as a condition of planning consent. It will also strive to work with those schools willing to take a pro-active approach and show interest and enthusiasm.

5.3. Due to the current lack of resource to deal with the number of requests for highway infrastructure or enforcement emanating from the school community and local ward councillors, a procedure known as the 'Schools Programme' has been devised. This limits the number of schools receiving intervention and support to 10 per year, but enables a holistic package of 'engineering, education and enforcement' to take place.

5.4. This programme is jointly led by officers from Traffic Management, Road Safety, and Travel Planning to combine several specialist resources. The concept of the programme is based on the '3 Es' which are Engineering, Education and Enforcement.

5.5. The process ensures the engineering measures, such as physical changes in the highway to influence behaviour and manage access, or traffic regulation orders that restrict parking, are correct in the area. There then follows enforcement by the council's parking attendants and Police who focus on obstructive and dangerous parking behaviour. The education activity at the school gates and in assemblies and classroom lessons takes place simultaneously and describes what is being implemented and why it is important to enable all modes of travel to school.

5.6. The most successful schemes are at those schools that have embraced the importance of the education efforts and even nominated a champion within the school to promote changes in travel patterns for pupils. This includes setting up a group where the school, parents and local residents are represented to agree the engineering measures to be progressed.

5.7. Actions to fulfil this element:

- Continue to deliver a reduced travel planning programme
- Continue to deliver the Schools Programme

6. The promotion of sustainable travel and transport modes on the journey to, from, and between schools and other institutions

6.1. The sustainable school travel strategy has a broad impact, including providing health benefits for children and families through active journeys such as walking and cycling. It can also bring significant environmental improvements, through reduced levels of congestion and improvements in poor air quality to which children are particularly vulnerable.

6.2. Promotion will continue through the implementation of school travel plans and the delivery of specific schemes identified in them, including the classroom and assembly awareness raising lessons, walking bus and scooter training, transition from primary to high school programmes, junior PCSO schemes, etc.

6.3. Communications using social media and borough-wide news stories will be utilised to more effectively promote national campaigns such as Walk to School weeks, Cycle to School day, the Giant Walking Bus sponsored by road safety charity Brakes, etc.

6.4. Central grant funding has been secured until 2020 to allow the Bikeability cycle training to continue to promote safe cycling to school. It also allows for additional modules to be built-in which include the promotion to parents and teachers, starter programmes for younger children, and advanced training for teenagers in the first years of secondary school.

6.5. Actions to fulfil this element:

- Continue to deliver a reduced travel planning programme including awareness raising assemblies and lessons.
- Continue to deliver the Transition and Schools Parking programme.
- Explore ways of borough-wide promotion through social media outlets.

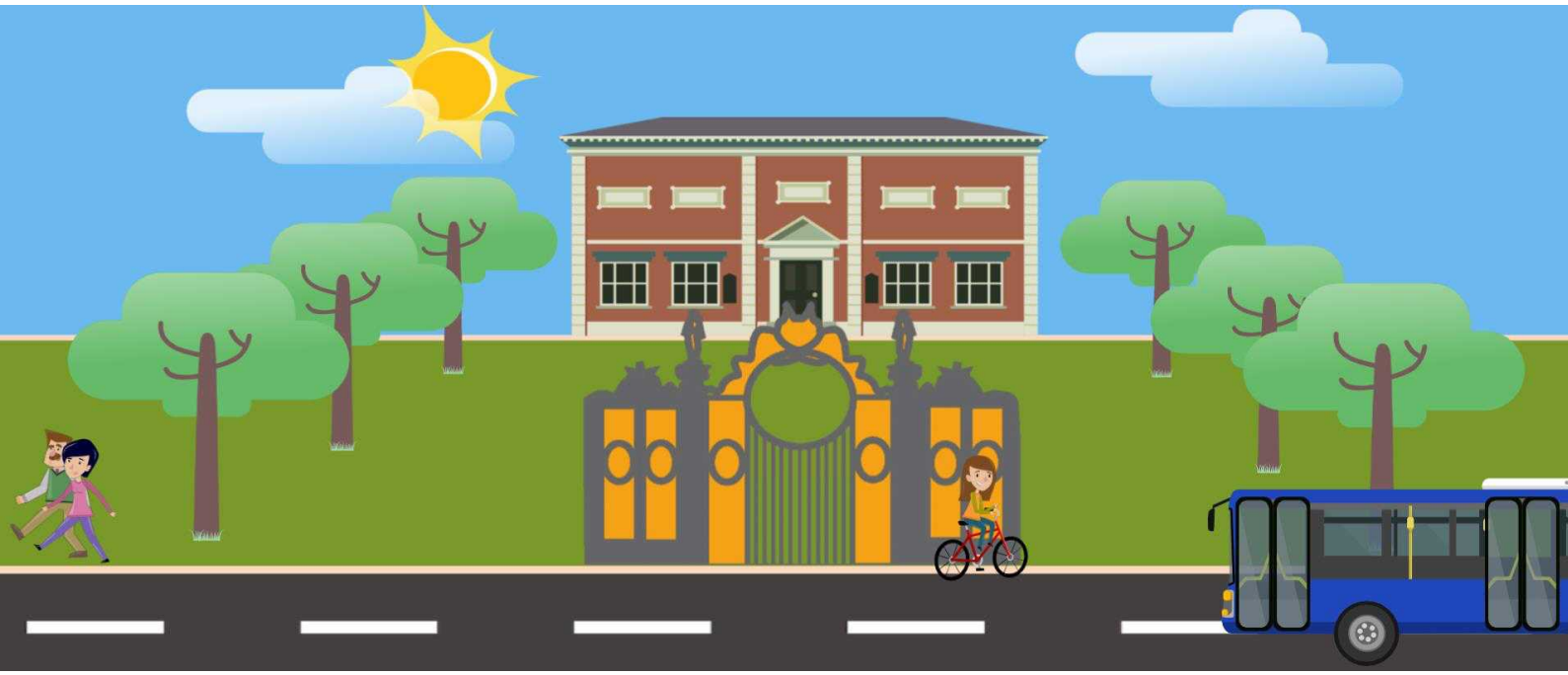
7. The publication of Sustainable Modes of Travel Strategy

7.1. The original Sustainable Modes of Travel to School Strategy was consulted upon and approved as part of the wider LTP2 development. Once complete it was published on the council's website with the other documents making up the council's transport strategy. It is proposed to follow that procedure for this refreshed strategy during LTP4 development.

WARRINGTON
Borough Council

WARRINGTON FOURTH LOCAL TRANSPORT PLAN

APPENDIX E:
CONSULTATION REPORT



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1 Introduction

This report is a summary of the consultation that was undertaken on Warrington Borough Council's draft fourth Local Transport Plan (LTP). Public and stakeholder consultation on the draft fourth Local Transport Plan took place for nine weeks, starting on 15th April 2019, and closing on 17th June 2019.

Documents that were consulted on

The consultation took place on the draft fourth Local Transport Plan and its associated documents. The full list of documents comprised:

- Draft Local Transport Plan 4 Executive Summary
- Draft Fourth Local Transport Plan
    - Part A - Defining Our Vision
    - Part B - Setting Out Our Policies
    - Part C - Appendices
- Draft Local Cycling and Walking Infrastructure Plan (included as Appendix A)
- Draft Monitoring and Evaluation Plan (included as Appendix C)
- Draft Implementation Plan (included as Appendix D)
- Sustainable Modes of Travel to School (included as Appendix E)
- Strategic Environmental Assessment Report
- Strategic Environmental Assessment Non-Technical Summary

Appendix B of the document was the Transformational Projects Study that informed some of the key ideas in the vision set out in the LTP.

An Evidence Base Review that helped to inform the LTP was publically available as a supporting document during the consultation period.

Consultation alongside the Local Plan

Consultation on Draft LTP4 was run concurrently with the consultation on the Draft Local Plan. This provided stakeholders and the public with the opportunity to view and comment on these two key documents at the same time. The two documents were also developed concurrently, providing a rare opportunity for the Borough Council to ensure that the LTP fully considered the opportunities and challenges raised by the growth proposals set out in the Local Plan.

Earlier Stages of Consultation

The Consultation Draft of LTP4 had been informed by a number of earlier consultation stages, including a series of Transport Summits, the feedback from the Local Plan Preferred Development consultation, and the Central Area Masterplan engagement work. This feedback is summarised in Appendix 1.

2 Consultation Information Events

Public Events

A series of six events where members of the public could find out more information about both the draft LTP4 and Local Plan were held in May and June 2019. The first five of these were held at the Halliwell Jones Stadium on:

- Wednesday 8th May (2pm - 8pm)
- Tuesday 14th May (2pm - 8pm)
- Thursday 16th May (2pm - 8pm)
- Monday 20th May (2pm - 8pm)
- Wednesday 22nd May (2pm - 8pm)

The sixth and final event was also scheduled to be held at the stadium, but the venue had to be changed due to a clash with a televised rugby league match. This event was therefore re-publicised and held at Parr Hall on:

- Saturday 8th June (11am - 4pm)

An example display board is shown in Figure 1.

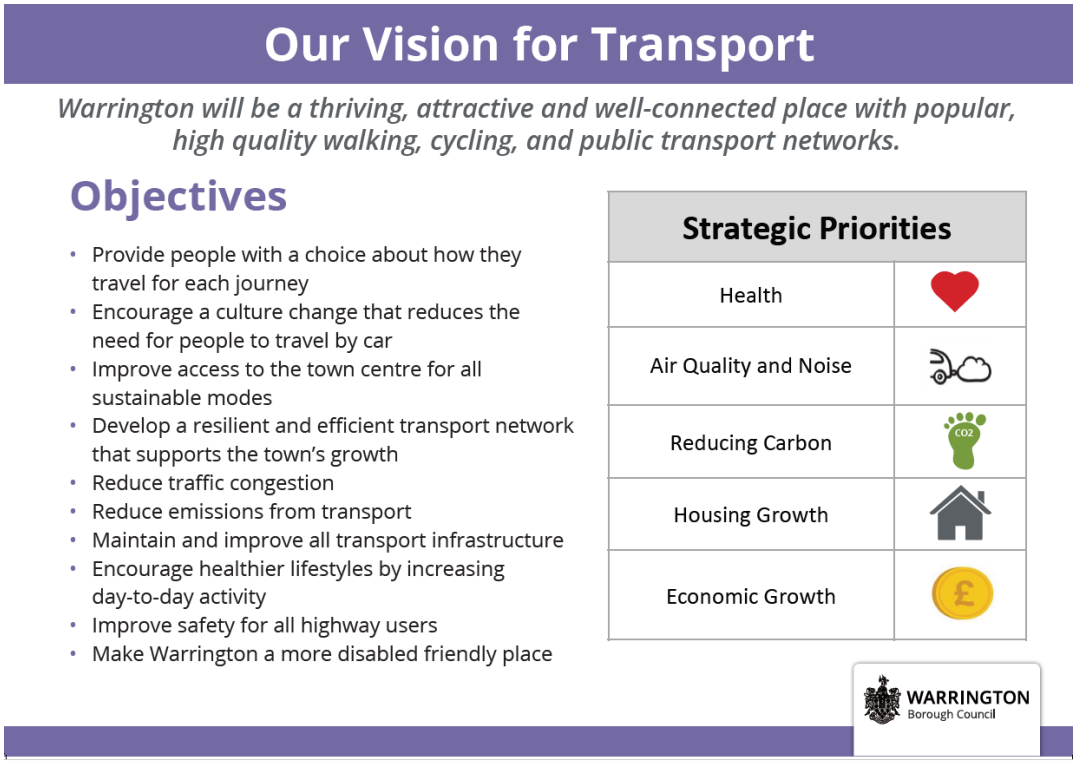

Figure 1: Example Display Board

Stakeholder Events

As well as the public events outlined above, presentations were given to a number of specialist stakeholder meetings. These were:

- Disability Partnership Staying Connected Meeting, 8th April
- Central 6 Community Forum, 14th May
- Birchwood Forum, 21st May
- Health and Wellbeing Board, 30th May

A further two events were scheduled for businesses in the borough, and promoted through Warrington&Co and the Chamber of Commerce. Despite this promotion, a very small number of registered participants led to the cancellation of these events.

3 Raising Awareness of the Consultation

A number of measures were taken to inform residents of the borough about the consultation.

In early April, ahead of the formal start of the consultation, a letter was sent to every household in the borough explain that the LTP and Local Plan consultations were starting, and promoting the dates of the public information events listed in section 2.1.

A press release was issued regarding the Local Plan and LTP that was picked up in the local press. The consultations themselves and the public consultation events were heavily promoted on the Council's social media channels, as shown in Figures 2, 3, and 4.

Figure 2: Tweet promoting consultation events

Figure 3: Twee 22nd May

A promotional video was developed to promote the LTP and the consultation. This was designed to be social media-friendly, and was played on loop at the consultation events. A screenshot of the video is shown in Figure 5.

Figure 5: Screenshot from promotional video

4 Responding to the Consultation

The public and stakeholders were encouraged to respond to the consultation using an online questionnaire hosted by Smart Survey. Screenshots of the questionnaire are shown in Figures 6, and 7. A paper copy of the questionnaire was available, and email responses could be sent to ltp@warrington.gov.uk. Two letters were submitted directly at consultation events.

The paper questionnaire is included as Appendix 2.

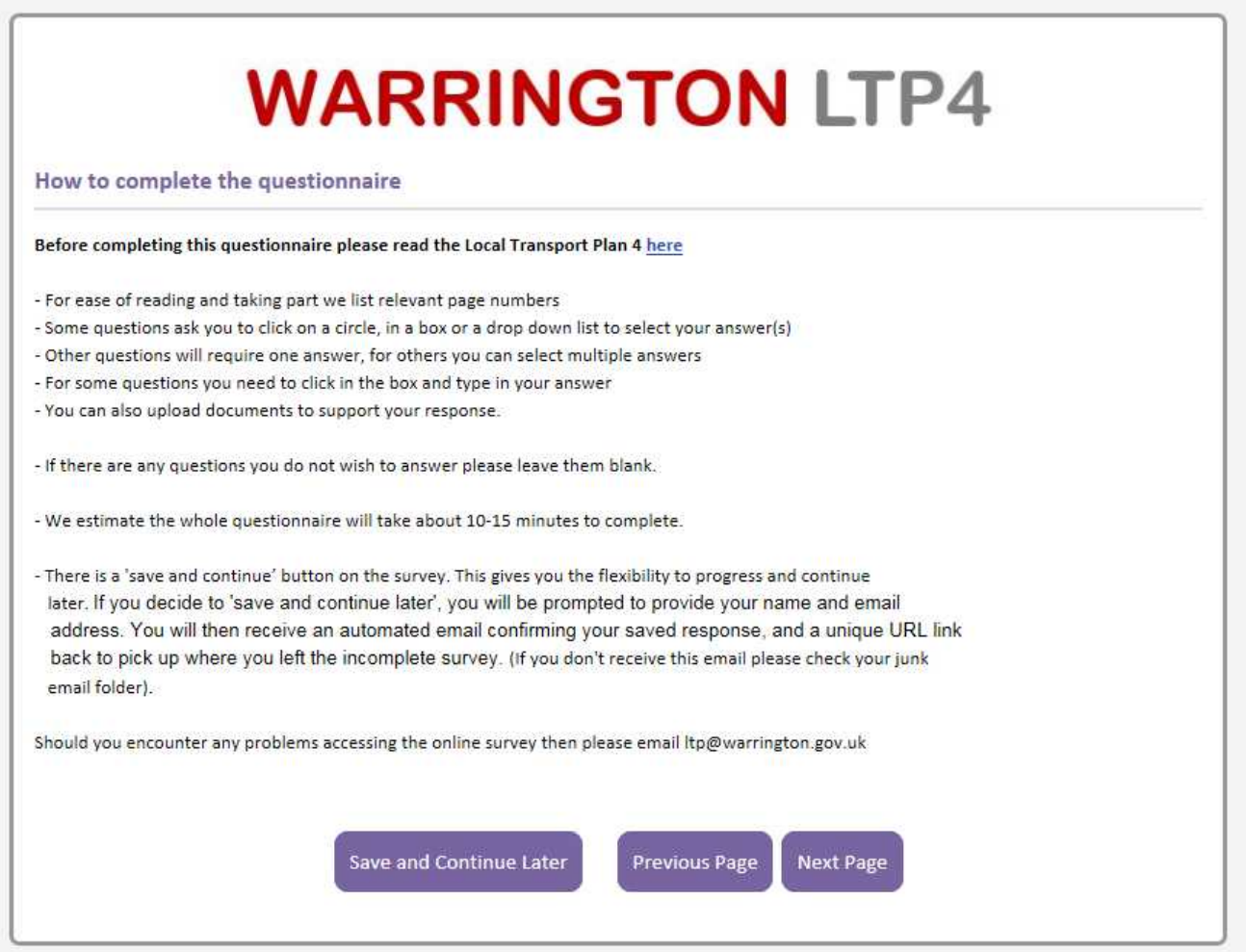

Figure 6: Guide to completing the online questionnaire

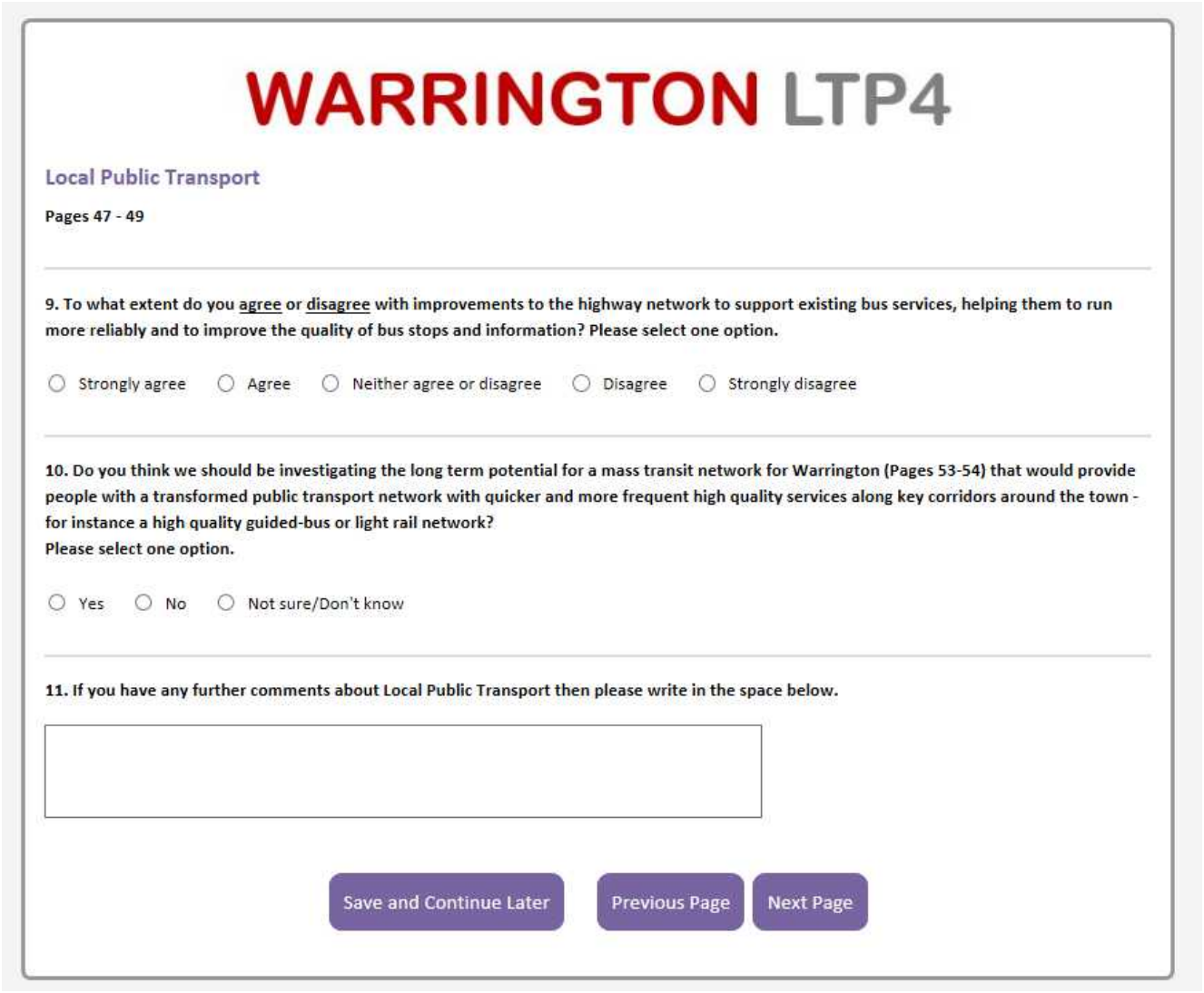

Figure 7: Example page from online questionnaire

5 Responses to the Consultation - Part A

Number of Responses

Exactly 400 responses were received to the consultation, via the online questionnaire, email and post.

Respondents were not required to answer all questions in the questionnaire. Those responses that were submitted via email were input into the questionnaire database to ensure consistency and completeness.

181 (45%) of respondents did not directly address any questions asked by the questionnaire. Comments received in this way have been recorded in the 'Additional Comment' section of the questionnaire.

Types of Respondent

The vast majority of responses were from individuals who live in Warrington, as shown in Table 1.

What type of respondent are you?			
		Response Percent	Response Total
1	A local resident who lives in Warrington	86.92%	319
2	A person who works in Warrington	6.54%	24
3	Local Borough, Town or Parish Councillor	2.72%	10
4	Local Business owner/Manager	2.18%	8
5	An agent responding on behalf of an individual, group or organisation	1.09%	4
6	A group or organisation	6.27%	23
7	Visitor to Warrington	1.09%	4
8	Other (please specify):	2.72%	10

Table 1 - Types of Respondent

Organisations and groups that responded to the consultation include:

- Warrington Disability Partnership
- Warrington's Own Buses
- Parish Councils
- Community Groups
- Action Groups
- Transport User Groups
- Adjacent Local Authorities and City Regions
- Natural England
- Environment Agency
- Network Rail
- Sport England
- Historic England
- Highways England
- Private Developers

Vision

The consultation feedback questionnaire then asked respondents about their support for the LTP4 vision.

*The Draft LTP4 sets out our vision for transport, to help make Warrington '**a thriving, attractive and well-connected place with popular, high quality walking, cycling and public transport networks**' and explains how changes to how we travel can help transform Warrington as a place. To what extent do you agree or disagree with Warrington's vision for Transport?*

The results are shown in Table 2.

To what extent do you agree or disagree with Warrington's vision for Transport?				
			Response Percent	**Response Total**
1	Strongly agree		6.15%	11
2	Agree		24.58%	44
3	Neither agree or disagree		11.73%	21
4	Disagree		16.76%	30
5	Strongly disagree		40.78%	73

Table 2 - Support for Transport Vision

These results do not appear to show support for the vision set out in LTP4. However, the vast majority of additional comments received in relation to this question refer to concerns over the proposals for growth set out in the Local Plan, and the role of LTP4 in supporting that growth.

This suggested that some respondents to the consultation may have voiced their opposition to the LTP4 vision as a way of reinforcing their opposition to the Local Plan proposals. Two sensitivity tests was undertaken to consider this further:

- **Sensitivity Test 1 (Postcode)** – to understand if there was a correlation between location and response to the vision, particularly in areas where opposition to the Local Plan was known to be strong. Results were filtered to exclude those who have included a WA4 postcode.

A further sensitivity test has been undertaken to consider the impact that age has on support for the vision:

- **Sensitivity Test 2 (Younger People)** – to understand if there was a correlation between age and response to the vision. Results include those from respondents stating their age as under 35.

The results of these sensitivity tests are shown in Table 3.

To what extent do you agree or disagree with Warrington's vision for Transport?			
	All responses (400)	Sensitivity Test	
		Excl. WA4 (154)	Under 35 (19)
Strongly agree or Agree	30%	44%	67%
Neither agree or disagree	11.73%	25%	0
Disagree or Strongly disagree	58%	31%	33%

Table 3 - Support for Vision Sensitivity Testing

This analysis indicates that there is more support within large parts of the borough and (whilst the proportion of respondents under 35 is comparatively low) amongst younger residents.

Suggested changes to the Vision

The two suggested changes to the Vision statement were:

- "**It would be good to see the word accessible used to ensure access for all is a priority**"
- "**Could include specific reference to reducing emissions"**

Objectives

In contrast to the responses to the question on the Vision, there is strong support for all of the objectives in LTP4, as shown in Table 4.

The Draft LTP4 proposes 10 objectives to support the vision. To what extent do you agree **or** disagree **with the following objectives?**					
	Strongly agree	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**
1. Provide people with a choice about how they travel for each journey	23.0% (40)	46.6% (81)	10.3% (18)	8.6% (15)	11.5% (20)
2. Encourage a culture change that reduces the need for people to travel by car	27.6% (48)	33.9% (59)	10.3% (18)	12.6% (22)	15.5% (27)
3. Improve access to the town centre for all sustainable modes	29.3% (51)	34.5% (60)	12.1% (21)	8.0% (14)	16.1% (28)
4. Develop a resilient and efficient transport network that supports the town's growth	27.6% (48)	31.6% (55)	9.2% (16)	10.3% (18)	21.3% (37)
5. Reduce traffic congestion	45.5% (80)	23.3% (41)	5.7% (10)	3.4% (6)	22.2% (39)

The Draft LTP4 proposes 10 objectives to support the vision. To what extent do you agree or disagree with the following objectives?					
	Strongly agree	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**
6. Reduce emissions from transport	47.4% (82)	23.1% (40)	3.5% (6)	4.0% (7)	22.0% (38)
7. Maintain and improve all transport infrastructure	39.7% (69)	27.0% (47)	9.2% (16)	4.0% (7)	20.1% (35)
8. Encourage healthier lifestyles by increasing day-to-day activity	37.6% (65)	27.7% (48)	11.0% (19)	5.8% (10)	17.9% (31)
9. Improve safety for all highway users	41.0% (71)	29.5% (51)	10.4% (18)	4.6% (8)	14.5% (25)
10. Make Warrington a more disabled friendly place	32.6% (56)	32.6% (56)	18.6% (32)	4.1% (7)	12.2% (21)

Table 4 - Support for LTP4 Objectives

Suggested Changes to the Objectives

93 respondees answered 'Yes' to the question '*Do you think there are any changes needed to the objectives?*' However, there were no comments that proposed any alteration to the wording of the objectives. One alteration was suggested in response to the previous question on the Vision statement. This was:

- **"It is disappointing to see that "Reducing the need to travel" is omitted from this list."**

Walking and Cycling Vision

There is a strong level of support for walking and cycling improvements. Over 70 % of respondents were supportive of the Go Dutch proposals to improve walking and cycling infrastructure that were outlined in LTP4. The results are shown in Table 5.

To what extent do you agree or disagree with our proposal to 'Go Dutch' and develop a high quality walking and cycling network to help benefit people's health, improve our local environment, and reduce congestion?				
			Response Percent	**Response Total**
1	Strongly agree		36.8%	64
2	Agree		35.6%	62
3	Neither agree or disagree		12.1%	21
4	Disagree		6.3%	11
5	Strongly disagree		9.2%	16

Table 5 - Support for Walking and Cycling Improvements

Local Public Transport Vision

Over 50% of respondents were supportive of highway improvements to support existing bus services, helping them to run more reliably and of improving the quality of bus stops and information. This is shown in Table 6.

To what extent do you agree or disagree with improvements to the highway network to support existing bus services, helping them to run more reliably and to improve the quality of bus stops and information?			Response Percent	Response Total
1	Strongly agree		21.9%	37
2	Agree		32.6%	55
3	Neither agree or disagree		18.3%	31
4	Disagree		14.2%	24
5	Strongly disagree		13.0%	22

Table 6 - Support for Improving Bus Services

The largest proportion of respondents are in favour of investigating a mass transit network as shown in Table 7.

Do you think we should be investigating the long term potential for a mass transit network for Warrington that would provide people with a transformed public transport network with quicker and more frequent high quality services along key corridors around the town - for instance a high quality guided-bus or light rail network?			Response Percent	Response Total
1	Yes		46.1%	77
2	No		28.1%	47
3	Not sure/Don't know		25.8%	43

Table 7 - Support for investigating a Mass Transit Network

However, if 'Not sure/Don't know' is discounted as a response, 62% of respondents who stated a preference, support the proposal to investigate a mass transit network.

A sensitivity test has been undertaken to understand the differences in levels of support for mass transit proposals between age groups. This demonstrates a stronger level of amongst younger people (under 35) and older people (over 64). This is shown in Table 8.

Do you think we should be investigating the long term potential for a mass transit network for Warrington that would provide people with a transformed public transport network with quicker and more frequent high quality services along key corridors around the town - for instance a high quality guided-bus or light rail network?

Response	Age under 35	Age over 64
Yes	60%	58%
No	20%	26%
Not sure/Don't know	20%	16%

Table 8 - Support for Mass Transit Amongst Younger and Older People

Revenue and Workplace Parking Levy

Less than 30% of respondents to the question on Workplace Parking Levy expressed support for the proposal, as shown in Table 9.

Do you think a Workplace Parking Levy (WPL) such as in that used in Nottingham, is an option that should be investigated further?				
			Response Percent	Response Total
1	Yes		28.4%	48
2	No		46.7%	79
3	Not sure / Don't know		24.9%	42

Table 9 - Support for investigating Workplace Parking Levy

A sensitivity test undertaken that considers the difference in support for Workplace Parking Levy amongst age groups shows that, whilst the proportion of respondents under 35 is comparatively low, there is strong support for Workplace Parking Levy amongst younger respondents to the survey. This is shown in Table 10.

Do you think a Workplace Parking Levy (WPL) such as in that used in Nottingham, is an option that should be investigated further?				
			Response Percent	Response Total
1	Yes		60.0%	9
2	No		20.0%	3
3	Not sure / Don't know		20.0%	3

Table 10 - Support Workplace Parking Levy amongst People Aged Under 35

Comments on Workplace Parking Levy

These results in isolation do not appear to demonstrate support for Workplace Parking Levy (WPL). However, the comments that were provided regarding WPL through the consultation feedback provide a broader understanding of the concerns that people have about the proposal. Comments that were non-supportive of WPL have been categorised into themes and ranked in Table 11.

Ranking	Comment Theme	Number of comments
1	Impact on Businesses	24
2	Requirement for high quality alternative to private car use	19
3	Cost to public	13
4	Alternatives to WPL (e.g. CIL, CAZ, LEZ, Council Tax)	5
5=	Impact on carers	4
5=	Out of town employment sites	4
7=	Insufficient revenue from WPL	3
7=	Shift working	3
7=	Impact on car-sharing	3
10=	Sustainable travel contributions made by employers	2
10=	WBC Staff parking	2
12=	Impact on Disabled people	1
12=	Impact of parking on neighbouring streets	1
12=	Ringfencing of revenue	1
12=	Impact on traffic	1

Table 11 - Themes for Non-Supportive Comments on Workplace Parking Levy

The topics raised through the comments in response to these questions identify some of the work that is needed to investigate these concerns through any future study work into the WPL in Warrington.

Accessing Key Centres

The next section of the feedback questionnaires asked people their views on improving access for sustainable transport modes to the town centre and to other key destinations. The results are shown in Table 12.

To what extent do you agree or disagree that there is a need to improve...						
	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree	Response Total
...access to the town centre for people to walk, cycle, and use public transport, particularly for the last mile of their journey	35.3% (60)	34.7% (59)	17.6% (30)	7.6% (13)	4.7% (8)	170
...access for people to walk, cycle and use public transport to other destinations such as	44.0% (73)	37.3% (62)	10.2% (17)	4.8% (8)	3.6% (6)	166

To what extent do you agree or disagree that there is a need to improve...						
	Strongly agree	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**	**Response Total**
business parks, district centres and villages						

Table 12 - Support for Improving Access for Sustainable Modes to Key Destinations

70% of respondents to this question are supportive of improving access to the town centre. Over 80% of respondents to the question are supportive of improving access to other destinations.

Comments on Accessing Key Centres

Destinations that were mentioned in the comments for this question include:

- Birchwood Park
- Stockton Heath
- Schools and colleges (all)
- South Warrington (unspecified location)
- District Centres (review all)

Improving the transport infrastructure in Culcheth was referred to in a number of examples in response to other questions.

Additional Comments

The questionnaire was structured in a way that captured feedback on the proposed vision and policies set out in the Plan. A section at the end of the questionnaire asking for any additional comments was included to allow for comments not directly linked to the LTP vision and policies.

Many of the comments sent in via email were included in this section as they did not directly address the questions asked in the questionnaire. A total of 268 responses included comments logged as Additional Comments. These have been categorised into themes and ranked in Table 13.

Ranking	Comment Theme	Number of comments
1	Expectation that LTP should be a delivery plan for Local Plan (lack of detail/scheme proposal/funding/timescales etc.)	157
2	Oppose Local Plan growth proposals	38
3	Air Quality and Carbon emissions	28
4	Western Link	16
5=	Garden Suburb Strategic Infrastructure	12

Ranking	Comment Theme	Number of comments
5=	General comment	12
7	General - unsupportive	10
8	General - supportive	9
9	Network Management	7
10	Passenger transport	5
11	Freight Management	4
12	Operational issues	3
13=	Disabled people and older people	2
13=	Cost of public transport vs parking	2
13=	Pavement parking	2
13=	Motorway Network	2
13=	Active Travel	2
18=	Workplace Parking Levy	1
18=	Response proposing a scheme	1
18=	Electric Vehicles	1
18=	SEA	1
18=	Future Transport	1

Table 13 - Themes of Additional Comments Submitted

It can be seen that the focus of many of these comments was objection to the Local Plan, or a sense that the LTP should be a delivery plan for the Local Plan infrastructure rather than its intended role as a high-level strategy document.

6 Responses to the Consultation - Part B

Allocating Our Resources

The next set of questions in the questionnaire considered the more detailed theme chapters that include the draft policies for that outline how we will deliver the vision and carry out our day to day activities.

The first of these was intended to inform our allocation of the LTP Integrated Transport Block, by seeking feedback on how important each of the themes in LTP4 were considered to be. The results are shown in Table 14. All themes were considered to be important, with over 60% of respondents considering each one 'Important' or 'Very Important'.

How do you think we should be allocating our resources to deliver LTP4? Please let us know by telling us how important you think each of the themes below is. Please select one option in each row.					
	Very Important	**Important**	**Not Important**	**Don't know**	**Response Total**
Active Travel	34.4% (53)	44.8% (69)	11.0% (17)	9.7% (15)	154
Sustainable Travel Choices	41.0% (64)	44.2% (69)	7.7% (12)	7.1% (11)	156
Passenger Transport	36.8% (57)	52.9% (82)	4.5% (7)	5.8% (9)	155
Safer Travel	43.6% (68)	48.7% (76)	3.8% (6)	3.8% (6)	156
Cleaner Fuels	50.0% (78)	41.7% (65)	5.8% (9)	2.6% (4)	156
Asset Management	17.8% (27)	48.0% (73)	10.5% (16)	23.7% (36)	152
Network Management	31.2% (49)	47.8% (75)	5.7% (9)	15.3% (24)	157
Freight Management	40.9% (65)	33.3% (53)	16.4% (26)	9.4% (15)	159

Table 14 - The Importance of LTP Themes

Comments on Policy Chapters

Respondents were then asked to comment on the policies included in Part B of the Draft LTP4. Fewer comments were received in response to these questions.

Active Travel Policies

Respondents were asked to comment on the Active Travel Policies and the Draft Local Cycling and Walking Infrastructure Plan that was included as an Appendix of LTP. Active Travel was the policy theme that was most commented on, with 28 comments. These included comments on:

- general support for the policies
- specific locations where it was felt improvements to infrastructure is required
- suggested amendments to policies
- pavement parking

Smarter Travel Choices Policies

Ten respondents submitted comments on the Smarter Travel Choices Policies. These included:

- agreement that that behaviour change is key to improving our transport system
- suggested amendments to policy wording
- comments on school run mode share
- impact on female travellers

Passenger Transport Policies

Comments on the Passenger Transport Policies were captured in the responses to the earlier Local Public Transport Vision question (see section 5.5). Comments covered:

- Mass Transit proposals
- the cost of public transport
- operational bus service issues
- specific rail issues
- HS2 and Northern Powerhouse Rail

Safer Travel Policies

Eleven comments were made on the Safer Travel policies. These considered:

- wording of specific policies
- 20mph
- use of speed cameras
- Safety of, and conflict between, Active Travel users

Cleaner Fuels Policies

Thirteen respondents submitted comments on the Cleaner Fuels policies. These considered:

- the urgency in progressing the work to support uptake of Cleaner Fuels
- EV charging point locations
- particulate emissions

Asset Management Policies

Eight respondents submitted comments on the Asset Management policies. A number of these were related to the Local Plan proposed growth and the impact that this would have on highway maintenance budgets. The comments related to the policies in the LTP considered:

- condition of highway
- drainage
- maintenance and management of vegetation

Network Management Policies

17 respondents submitted comments on the draft Network Management policies. The comments were related to:

- Manchester Ship Canal crossings
- current congestion

Freight Management Policies

There were 25 comments submitted in response to the Freight management policies, many of which were expressing concern about the proposed growth in logistics in the south of the borough. Other comments considered:

- impact of HGVs on communities
- comment on specific policies
- opportunities for cross-boundary working
- use of rail and water

Comments on Supporting Documents

Only Highways England and Historic England explicitly commented on the Strategic Environmental Assessment. Neither suggested any changes to the document.

7 Summary of Comments

Some Comments Received

It would be good to see the word accessible used to ensure access for all is a priority.

Better bus services are certainly part of the solution

Car parking charges should go up and free parking should stop. Any bus fare compares unfavourably to a free or cheap car park and this is having a detrimental effect.

It's going to be a wonderful transport utopia for our town over the coming years but only if every generation is included in the benefits and everything is for all the boroughs not just the elite

Please continue to lobby against the HS2 Golborne Link

Support the Plan's vision and objectives to reduce the dominance of the car in Warrington and to promote more sustainable movements by walking, cycling and public transport.

Road building is necessary at times, but without behavioural change, the new capacity will fill up again

Warrington should not be seen as a shortcut and the whole network needs updating.

Need better public transport for those at the edge of Warrington

When the motorways are down the town is absolutely gridlocked

This is thrilling! I had no idea that light rapid transit was being seriously considered for Warrington, and it is very good to see that quite a lot of "optioneering, feasibility, and design work" has already been done

Growing bus patronage is a key issue. The aspiration is good - need to deliver quickly and working in partnership together.

I feel very passionate about sustainable and public transport. I use my car as little as possible when carriage load, distance, time are important. My default mode of travel about town is pedal bicycle. I even have an electric bike (brilliant !)

For people living on the edge of Warrington there isn't much practical alternative to travelling by car

Welcome the Draft Local Transport Plan's approach towards encouraging modal shift, which is being promoted through improving the walking and cycling infrastructure within Warrington

Important to reduce congestion and pollution

The congestion has a negative impact on the reliability of bus services, which creates a further incentive for car travel

Car drivers should pay, unpopular but necessary as it may encourage them out of cars. But not yet - until public transport is improved.

Generally Warrington is traditionally car centric by design. An example is Bridge Foot Island

Prioritise cycling over cars

I'm generally supportive of the idea of improving the cycling network however where this is to the detriment of other forms of travel it needs to be subjected to careful cost/benefit analysis.

Any public transports must be cheaper and or more convenient than using a car to have any chance of success

We need to go Carbon free by 2030 at the very latest, that's what the climate change science is telling us! Electric mass-transit is essential to reach this

We would urge WBC and its consultants to commence work on the Mass Transit route network immediately

The number of car journeys to schools and colleges is far too high. A campaign is needed to educate children to change the mentality that it is “not cool” to walk, cycle or use public transport.

To increase "Final Mile" cycling a real improvement in infrastructure is required

The villages just need a cheap and easy connection to town centres

WBC needs to have an ITA covering our area

If a family of 4 can drive in for less than using public transport then you are unlikely to choose the more expensive option.

It is almost certainly the case that any viable tram network would exclusively comprise routes radiating from the town centre. This places a tram network in an excellent position in terms of revitalising the town centre

People will only stop using cars if a far more frequent and cheaper public transport service is provided, running across areas as well as into town.

With over 10,000 of Warrington's residents having a Blue Badge, which means they are seriously mobility impaired, it would be good to see the inclusion of people who use a mobility scooter and/or powered wheelchair

We need to focus on value for money transportation and connections

Modal change will only happen when congestion becomes intolerable

Improving walking, cycling and public transport connections to employment destinations such as Birchwood Park will be key to reducing single occupancy vehicle trips to and from these types of locations.

Warrington's size makes active transport an extremely practical and healthier option

Very careful analysis is needed to identify whether a workplace parking levy is a good idea

The biggest barrier to cycling in Warrington is the Bridge Foot roundabout

A lot of the time cycle lanes just stop when it becomes too difficult to put them in, just at the places they are most needed!

HGV movements are a major concern for our communities, particularly where these use local roads

I favour more frequent public transport ideally a tram system or very frequent hop on hop off buses - that's the only way to encourage people to ditch their cars for short/ in town journeys

Social change has to be targeted at the full age range of the population

What you Told Us and How We Responded

You told us that …	And this is how we responded
… 'Accessible' should be added to the vision statement to reflect the importance of access for all	We have amended the vision statement to say that we want Warrington to be an accessible place
… you felt that LTP4 should include a more detailed delivery plan over the full plan period for the infrastructure improvements required to support proposed growth	The LTP is primarily a policy document and sets the strategic direction for transport for the next 20 years. An LTP is not required to have fully defined or funded measures in place for the whole plan period. LTP4 does include an ongoing programme of committed work for the next five years including major schemes such as the Western Link. This confirmed programme will be delivered alongside a parallel commitment to undertake the next stage of study and feasibility work required for projects such as Mass Transit, Ship Canal crossing, Workplace Parking Levy and Infrastructure in South Warrington.
… you felt our existing infrastructure, particularly waterway crossings, is insufficient to accommodate proposed growth	We have committed to undertaking study work to assess the need for, location, and nature of additional crossings of the Manchester Ship Canal over the first 5 years of the plan
…you felt that not enough consideration was given to smaller towns and villages in the borough in draft LTP4	We have added in a section looking at "Access to Other Key Centres" which includes smaller towns, villages, and business parks
…there was no identified funding sources for schemes such as mass transit	We have committed to investigating a Workplace Parking Levy that could create a new funding source for investment in sustainable transport.
… you are concerned about the impact of traffic on air quality	We have set out a vision for transport that includes the provision and promotion of high quality alternatives to private car travel and the uptake of cleaner fuels.
…there are not currently enough attractive alternatives to using the car for journeys to/from suburban and rural areas of the borough	We have committed to undertaking the next stage of study and feasibility work required for Mass Transit scheme, and also set out our policies for improving active travel and public transport links to all areas of the borough.

You told us that …	And this is how we responded
… there are mixed views about our modal shift target that includes reducing car use for journeys to work to 60%. Some considered this unrealistic whilst others felt it was unambitious	We have looked at these targets again and consider them to be both ambitious and also realistic in view of the resources that government is making available to local authorities. The targets will be reviewed at the next update of the plan or if there are significant changes to national policy or resources available.
… low car park charges in the town centre encourage car use and dis-incentivises use of public transport	LTP4 includes a policy to consider the role of charges to manage demand for car parking and discourage unnecessary car use.
…there is a need to encourage more people to use buses	We have committed to a set of policies aimed at improving the experience for passengers and increasing bus use
… you had concerns about the impact that existing crossings of the Manchester Ship Canal have on our highway network	LTP4 contains a policy that we will continue to work with the operator of the Manchester Ship Canal to reduce this impact
… Warrington wold benefit from a Low Emission Zone (LEZ)	We considered a LEZ as one of the options in the Transformational Projects Study, and it hasn't been ruled out for the future as we continue to seek to improve air quality.
… congestion is a problem in Warrington when there is an incident on the motorway network	An action has been included in the Network Management section of LTP4 to 'Maintain and develop highway strategies for motorway closures and major diversions'
... you oppose the Golborne Link that is included in proposals for HS2	We have confirmed our aspirations for HS2 to serve central Warrington, which would make the Golborne Link unnecessary
…accessing the town centre is difficult for pedestrians and cyclists	Our Local Cycling and Walking Infrastructure Plan identifies a network of routes that we want to improve for active travel. Alongside this, we have committed to progressing our 'last mile' theme that will improve access to the town centre for all sustainable modes.
… too many children are driven to school	The Smarter Travel Choices section of LTP4 outlines the work we do to change this. Our Sustainable Modes of Travel to School document is one of the appendices of LTP4
… more frequent public transport services that operate earlier and later in the day are needed	We have committed to a set of policies aimed at improving the experience for passengers and increasing bus use

You told us that …	And this is how we responded
…there are health and safety implications of Electric Vehicle (EV) charging points being located on footways	The provision and location of charging points will be considered as part of the detailed work we will be doing on EVs and the infrastructure they require.
… active travel infrastructure should be accessible for users with mobility impairments	We have committed to design infrastructure in line with equalities legislation. The revised vision reaffirms our commitment to making the transport network accessible.
… the reasons that people choose not to cycle can include the weather, terrain, distance and an ageing population	As part of the post-consultation review of the LCWIP we have included a section that sets out to de-bunk some of the myths about cycling.
… concerns about a Workplace Parking Levy include: • impacts on blue badge holders • provision of alternatives to car use • impact on Warrington as a place to do business • impact on parents dropping children to school on the way to work • parking on streets close to employment areas • contributions made by employers to sustainable travel • geographical extent of charging	These comments and concerns will be used to inform the next stage of work looking at Workplace Parking Levy in Warrington.
… charging electric vehicles is difficult for people that live in terraced houses	Terraced houses will be considered as part of the detailed work we will be doing on EVs and the infrastructure they require.
… particulate emissions from e.g. tyres and braking can impact on people's health	We have set out a vision for transport that includes the provision and promotion of high quality alternatives to private car travel that will reduce the number of vehicles on our roads
… you would like to reduce the impact of HGV movements on the local environment	LTP4 includes our policies to improve the management and routeing of freight traffic, and encouraging modal shift for freight.

You told us that …	And this is how we responded
… things we need to consider regarding mass transit in Warrington include: • the routes and geographical area covered • the relative merits of trams, bus rapid transit and other modes • cost of travel • frequency of service • construction and operational cost • passenger demand	These comments and concerns will be used to inform the next stage of work looking at a Mass Transit network in Warrington.

8 Protected Characteristics

Gender

Of the respondents that answered the equalities questions, an even split was recorded between responses from males (47.47%) and females (48.73%).

95.24% of respondents stated that their gender identity was the same as assigned at birth. The remaining 4.76% preferred not to say.

Notable issues raised through the consultation comments regarding gender related to the aspiration to reduce the number of trips made by car. These included:

- a sense that females would feel more vulnerable walking, cycling, or using public transport, particularly at night
- the impact that discouraging car use can have on mothers doing the school run and then travelling to work.

There is less support for the LTP vision and proposals amongst females than there is amongst males, as shown in Table 15.

Question	Female	Male
Vision (% agree or strongly agree)	25%	40%
WPL (% support)	22%	39%
Walking and Cycling Vision (% agree or strongly agree)	70%	77%
Mass Transit (support)	37%	62%

Table 15 - Difference in Support for Proposals between Males and Females

Age

The vast majority of responses came from people in three age groups: 35-44 (20%), 45-54 (28%) and 55-64 (25.47%). There is variation in support for the proposals amongst age groups, as shown in Table 16.No responses were received from anyone stating that their age was over 85.

	Age Group							
	< 16	16-24	25-34	35-44	45-54	55-64	65-74	75-84
Total Number of responses	4	1	14	32	45	41	14	6
Vision (% agree or strongly agree)	0	100	70	25	27	41	21	0
WPL (% support)	0	100	62	22	28	27	29	50
Walking and Cycling Vision (% agree or strongly agree)	100	0	85	69	74	72	79	83
Mass Transit (support)	0	100	62	56	43	43	54	67

Table 16 - Difference in Support for Proposals Between Age Groups

Ethnic Origin

Of the 150 respondents that answered the question on ethnic origin, 91.33% of respondents identified as 'WHITE - English / Welsh / Scottish / Northern Irish / British.

Two respondents identified as 'WHITE - Irish' and two as 'WHITE - Other'. One respondent identified as 'MIXED / MULTIPLE ETHNIC GROUPS - Other'. No other options were selected by respondents to this question.

Sexuality

Of the 124 respondents who opted to identify their sexuality, 120 identified as 'Heterosexual/straight', one as 'Lesbian/Gay woman', and three as 'Gay man'.

Religion

144 respondents answered the question on their religion or belief. Of these, 57 declared no religion or belief, 69 were Christian, and 18 preferred not to say.

Health and Disability

Thirteen respondents to the questionnaire stated that their day to day activities are limited because of a health problem or disability that has lasted, or is expected to last, at least twelve months.

Specific comments made relating to disability include:

- adding 'accessible' to the vision statement
- more consideration to users of electric wheelchairs and mobility scooters
- impact of WPL on disabled people who need to drive to access employment

How support for the LTP4 proposals varies for people with disability, compared to the overall result is shown in Table 17.

Question	People with a Disability	Overall
Vision (% agree or strongly agree)	39%	31%
WPL (% support)	15%	28%
Walking and Cycling Vision (% agree or strongly agree)	84%	73%
Mass Transit (support)	50%	46%

Table 17 - Support for the LTP4 proposals varies for people with disability, compared to the overall result

9 Conclusions and Next Steps

The consultation on the Draft LTP4 has provided invaluable information about the views of the public and stakeholders on current and future transport issues in Warrington. It is vital that this information is used to inform decisions on transport policy.

- Draft LTP4 policies will be reviewed and amended in light of feedback received
- An Equalities Impact Assessment will be undertaken on LTP4, informed by the Protected Characteristics questions
- Study work to develop a detailed Workplace Parking Levy proposal will consider all of the issues raised through the consultation
- Study work on developing proposals for a Mass Transit offer for Warrington will be informed by the feedback received.

Appendix 1

Early Stages of Consultation

Feedback from the public and stakeholders played an important part in shaping the draft LTP4 that was consulted on. Responses from the July 2017 Local Plan Preferred Development Option Consultation and a series of Warrington Transport Summits, provided an understanding of what the current transport issues and priorities for transport investment are for the general public and stakeholders. These shaped the early stages of LTP4 development.

Some of the comments received during these consultations are shown in Figure 8.

Figure 8 - Comments received during consultation

Local Plan Preferred Development Option Consultation

The Local Plan Preferred Development Option consultation enabled public and stakeholder feedback on Warrington's existing transport system. The process enabled us to capture what transport issues were affecting Warrington residents and workers, as well as what people's priorities were for future transport intervention. A summary of the feedback regarding transport that was received during the consultation is shown in Table 18.

Theme	Summary Of Stakeholder Views

Existing Transport Issues	
Congestion	• 64% of transport comments mentioned congestion • Many saw the town centre as hot spot for traffic • Stockton Heath; Knutsford road; Thelwall; Grappenhall; A50; Chester Road; Lymm; and the A49
Car Dominance	• Creates a poor environment for living and working • Gives a poor impression to visitors • Makes walking and cycling difficult
Public Transport	• Felt to be a poor public transport offer, encouraging car usage, particularly from rural areas • Service levels, fares and frequency considered to be issues • Interchange between bus and rail considered difficult
Active Travel	• Walking and cycling links to town centre considered poor • Car dominance and air quality deterrents to walking and cycling
Air Quality and Noise	• 34% of respondents cited transport impact on air quality, noise, and light pollution • Concerns over impact on health
Parking	• Parking considered to be expensive • Limited parking in Lymm and Stockton Heath • Parking on roads and footways was considered to be an issue
Priorities for Transport Investment	
Dealing with Congestion	• Increasing highway capacity • Improving connectivity to the town centre • Additional ship canal/river crossing • Conversely, other responses considered the need to improving alternatives to car use
Highways	• Reducing the impact of issues on the motorway network • A new ship canal crossing was identified as a need but using disused railway lines for cars was discouraged
Public Transport	• A modern, high quality public transport offer • Putting sustainable transport at the heart of development • Protecting corridors for HS2 and Northern Powerhouse Rail
Active Travel	• Improving links to the town centre • Promotion of active lifestyles • Increase in cycling infrastructure

Table 18 - Summary of Transport Feedback from Local Plan Preferred Development Option Consultation

Warrington Transport Summits

Warrington Borough Council hosted a series of Transport Stakeholder Summits. These events sought the views of stakeholders to help inform the development of LTP4. The summits focused on the following topics:

- Travel issues within Warrington
- Active travel
- Passenger transport
- Highways management

The workshops provided an opportunity to capture what stakeholder's priorities were for future transport intervention. The key solutions put forward by transport summit stakeholders are summarised in Table 19.

Theme	Summary Of Stakeholder Views
Highways Management	• There were mixed views on increasing road capacity - with some delegates suggesting that road building encourages more car use, and others of the view that roads could be widened to reduce congestion • Re-routing of HGVs away from the A49 and A56 south of the Ship Canal • Improved maintenance of the swing bridges to reduce incidents • Better enforcement against anti-social driving and parking
Bus	• Buses should operate later into the evening • Improved facilities on buses (Wi-Fi) • Improved routing that is not dominated by radial routes • Better integration of bus and rail services • More buses and bus stops should be equipped for step-free access • Improved marketing to change perceptions of bus travel
Rail	• Protect Liverpool/Manchester services to/from smaller stations
New Passenger Transport Modes	• The introduction of new passenger transport modes to increase the quality of public transport. Guided buses, bus rapid transit, and trams were all suggested • Demand Responsive transport options should be considered
Suggested Funding Mechanisms for Transport Improvements	• A Workplace Parking Levy was identified as a potential funding mechanism • A Council Tax precept that is ring fenced for transport improvements • Funding from Public Health to deliver benefits to air quality and physical activity • Funding from central Government • Use parking revenue and fines from traffic infringements
Active Travel	• Active travel routes should run alongside new passenger transport corridors • Improved surfaces for cycle paths • Instalment of cycle paths at difficult/bus junctions • Bridges that are accessible for mobility scooters
Behaviour Change	• Use technology to target younger people when influencing travel choices • Target campaigns at specific groups such as travel to school • Work with businesses to encourage car sharing
Parking	• The location of parking sites is vital to the success of any park and ride facility • Reducing town centre parking availability could discourage car use

Theme	Summary Of Stakeholder Views
Changes to Transport Policy	• Cultural change is needed to put active travel at top of the agenda rather than fitting around an environment of driving • Sustainable travel should be more widely embedded into developments • Improved working partnership between Council and key transport stakeholders • Town centre regeneration should create a space that is attractive and accessible for all users and accommodates various transport modes • Clean air areas should be considered to improve health
Asset Management	• Town centre public realm should be a priority for maintenance to enhance the image of the town • Consider improvements to road safety as part of maintenance schemes • Vegetation should be managed to ensure it does not block walking routes

Table 19 - Summary of Comments at Stakeholder Events

Central 6 Regeneration Masterplan Feedback

The Warrington Central 6 Regeneration Masterplan has been commissioned by the Warrington Central Neighbourhood Renewal Board as a way to guide development and regeneration in the Central 6 Wards of the borough (Bewsey and Whitecross; Fairfield and Howley; Latchford East; Latchford West; Orford; and Poplars and Hume) over the course of the next 20 – 25 years.

Feedback from the stakeholder engagement process confirmed the importance of transport to the communities living in Central Warrington. Headline priorities relevant to LTP4 included:

- **Priority across all wards** was a better, cleaner environment – the feeling being that without creating this baseline quality of place, other improvements would be undermined.
- **Bewsey and Whitecross** – improved accessibility.
- **Fairfield and Howley** – localised parking issues caused by commuter parking or those looking to avoid town centre charges.
- **Latchford East** –desire for cycle ways and more footpath connectivity; tackling air pollution.
- **Latchford West** – creating better connections to town centre and community facilities through improved transport connections
- **Orford** – improving public transport through an improvement in quality, frequency and cost.
- **Poplars and Hulme** – quality of environment

The transport issues raised in response to the Central Area Masterplan consultation are shown in Table 20.

Theme	Issues

Theme	Issues

Transport and movement	• Congestion is a primary issue
	• Pedestrian first approach
	• Bus service improvements
	  ○ Improved reliability and frequency
	  ○ Some routes should start earlier and finish later to match shift patterns/facilitate access to employment
	  ○ Routes all run to centre, meaning for many places two buses are necessary to get places
	  ○ More unified bus payment system – such as a single card for all buses.
	• Speed enforcement and traffic calming in residential areas
	• Create additional Dallam junction to give this community more access
	• More and better cycle paths:
	• Improved footpaths and walking routes
	• Safe crossings
	• Resident only parking schemes
	• Hospital parking needs to be improved

Health	• Atmospheric pollution monitoring • Health benefits of access to green space
Housing	• Concern that putting more housing into the area will put additional pressure onto roads that are congested
Maintenance	• Road and path maintenance • Footpath upkeep including keeping foliage cut back for access and safety
Open and Green Space	• Connect all the green spaces around Warrington town centre via linear parks/green routes. Use these routes for active travel.
Safety	• Pedestrian and cycle safety including -road speed and crossing points need to be addressed • Improved lighting in street, alleys, public places and parks

Table 20 - Transport Issues from Central Area Masterplan Feedback

Appendix 2
Paper Questionnaire

WARRINGTON
Borough Council

Warrington Draft Local Transport Plan 4 Feedback Questionnaire

What type of respondent are you? Please select all that apply.		
1	A local resident who lives in Warrington	
2	A person who works in Warrington	
3	Local Borough, Town or Parish Councillor	
4	Local Business owner/Manager	
5	An agent responding on behalf of an individual, group or organisation	
6	A group or organisation	
7	Visitor to Warrington	
8	Other (please specify):	

Please tell us your postcode: For example WA1 2NH, WA13 TGH. We are asking you this as this will enable us to analyse the data by geographical areas to see if views differ.We comply with all legislation governing the protection of personal information, including the Data Protection Act 2018 and the General Data Protection Regulation (GDPR).We will only use your postcode for the purpose for which it has been given. You cannot be identified by proving your postcode.Please write in the space below.

LTP Part A - Vision

To what extent do you agree or disagree with Warrington's vision for Transport? Please select one option.		
1	Strongly agree	
2	Agree	
3	Neither agree or disagree	
4	Disagree	
5	Strongly disagree	
If you have any additional comments about the vision then please write in the space below		

The Draft LTP4 proposes 10 objectives to support the vision. To what extent do you agree or disagree with the following objectives? Please select one option in each row.					
	Strongly agree	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**
1. Provide people with a choice about how they travel for each journey					
2. Encourage a culture change that reduces the need for people to travel by car					
3. Improve access to the town centre for all sustainable modes					
4. Develop a resilient and efficient transport network that supports the town's growth					
5. Reduce traffic congestion					
6. Reduce emissions from transport					
7. Maintain and improve all transport infrastructure					
8. Encourage healthier lifestyles by increasing day-to-day activity					
9. Improve safety for all highway users					
10. Make Warrington a more disabled friendly place					

Do you think there are any changes needed to the objectives? Please select one option.		
1	Yes	
2	No	

If yes please let us know what these changes are. Please be specific as to which objective (s) your comment (s) refers to.

If you have any further comments about the objectives then please write in the space below.

To what extent do you agree or disagree with our proposal to 'Go Dutch' and develop a high quality walking and cycling network to help benefit people's health, improve our local environment, and reduce congestion? Please select one option.		
1	Strongly agree	
2	Agree	
3	Neither agree or disagree	
4	Disagree	
5	Strongly disagree	

If you have any additional comments about Active Travel then please write in the space below.

To what extent do you agree or disagree with improvements to the highway network to support existing bus services, helping them to run more reliably and to improve the quality of bus stops and information? Please select one option.		
1	Strongly agree	
2	Agree	
3	Neither agree or disagree	
4	Disagree	
5	Strongly disagree	

Do you think we should be investigating the long term potential for a mass transit network for Warrington (Pages 53-54) that would provide people with a transformed public transport network with quicker and more frequent high quality services along key corridors around the town - for instance a high quality guided-bus or light rail network?Please select one option.		
1	Yes	

Do you think we should be investigating the long term potential for a mass transit network for Warrington (Pages 53-54) that would provide people with a transformed public transport network with quicker and more frequent high quality services along key corridors around the town - for instance a high quality guided-bus or light rail network?Please select one option.		
2	No	
3	Not sure/Don't know	

If you have any further comments about Local Public Transport then please write in the space below.

Do you think a Workplace Parking Levy (WPL) such as in that used in Nottingham (pages 53-54), is an option that should be investigated further? Please select one option.		
1	Yes	
2	No	
3	Not sure / Don’t know	

If you have any further comments about Revenue Funding then please write in the space below:

To what extent do you agree or disagree that there is a need to improve...Please select one option in each row.					
	Strongly agree	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**
...access to the town centre for people to walk, cycle, and use public transport, particularly for the last mile of					

To what extent do you agree or disagree that there is a need to improve...Please select one option in each row.					
	Strongly agree	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**
their journey					
...access for people to walk, cycle and use public transport to other destinations such as business parks, district centres and villages					
If you have any further comments about Access to Key Centres then please write in the space below					

LTP4 Part B - Policies

How do you think we should be allocating our resources to deliver LTP4? Please let us know by telling us how important you think each of the themes below is. Please select one option in each row.				
	Very Important	**Important**	**Not Important**	**Don't know**
Active Travel				
Sustainable Travel Choices				
Passenger Transport				
Safer Travel				
Cleaner Fuels				
Asset Management				
Network Management				
Freight Management				

Please write in the space below to comment on Active Travel policies (Pages 64 - 75) or the Draft Local Cycling and Walking Infrastructure Plan (Appendix A).

Please write in the space below to comment on Sustainable Travel Choices policies? (Pages 76 - 91)

Please write in the space below to comment on Safer Travel policies? (Pages 112 - 131)

Please write in the space below to comment on Cleaner Fuels policies? (Pages 132 - 137)

Please write in the space below to comment on Asset Management policies? (Pages 138 - 147)

Please write in the space below to comment on Network Management policies? (Pages 148)

Please write in the space below to comment on Freight Management policies? (Pages 164 - 176)
If you have any additional comments on our transport proposals for making Warrington a better place then please write in the space below.

Please return completed questionnaires to:

LTP4 Consultation, Transport Planning, Transport for Warrington, Third Floor, New Town House, Buttermarket Street, Warrington, WA1 2NH

Customer 'About You' Questionnaire

Age		
1	Below 16	
2	16-24	
3	25-34	
4	35-44	
5	45-54	
6	55-64	
7	65-74	
8	75-84	
9	85 or over	
10	Prefer not to say	

Gender		
1	Male	
2	Female	
3	Other	
4	Prefer not to say	

Is your gender identity the same as you were assigned at birth? Please select one option.		
1	Yes	
2	No	
3	Prefer not to say	

What is your relationship status? Please select one option.		
7	In a same sex marriage	
8	In a same sex civil partnership	
9	Prefer not to say	

How would you describe your ethnic origin? Please select one option			
WHITE - English / Welsh / Scottish / Northern Irish / British		BLACK/AFRICAN/CARIBBEAN – Other	
WHITE - Irish		ASIAN / ASIAN BRITISH – Indian	
WHITE - Gypsy or Irish Traveller		ASIAN / ASIAN BRITISH - Pakistani	
WHITE – Other		ASIAN / ASIAN BRITISH - Bangladeshi	
MIXED / MULTIPLE ETHNIC GROUPS - White and Black Caribbean		ASIAN / ASIAN BRITISH - Chinese	
MIXED / MULTIPLE ETHNIC GROUPS -White and Black African		ASIAN / ASIAN BRITISH – Other	
MIXED / MULTIPLE ETHNIC GROUPS - White and Asian		OTHER ETHNIC GROUP – Arab	
MIXED / MULTIPLE ETHNIC GROUPS – Other		OTHER ETHNIC GROUP – Other	
BLACK/AFRICAN/CARIBBEAN - Caribbean African		PREFER NOT TO SAY	

How would you describe yourself? Please select one option.		
1	Heterosexual/straight	
2	Lesbian/Gay woman	
3	Gay man	

4	Bisexual	
5	Other	
6	Prefer not to say	

Your religion or belief. Which group below do you most identify with? Please select one option.		
1	No religion or belief	
2	Christian	
3	Buddhist	
4	Muslim	
5	Hindu	
6	Sikh	
7	Jewish	
8	Prefer not to say	

Are your day-to-day activities limited because of a health problem or disability which has lasted, or is expected to last, at least 12 months? Please select one option.		
1	Yes a little	
2	Yes a lot	

Are you currently pregnant or have you been pregnant in the last year? Please select one option.		
1	Yes	
2	No	
3	Prefer not to say	

3	No (do not answer the next question)	
4	Prefer not to say (do not answer the next question)	

33. If you answered 'yes' to the question above, please state the type of impairment. If you have more than one please tick all that apply.		
1	Physical Impairment	
2	Sensory Impairment	
3	Learning Disability/Difficulty	
4	Long-standing illness	

33. If you answered 'yes' to the question above, please state the type of impairment. If you have more than one please tick all that apply.		
5	Mental Health condition	
6	Autistic Spectrum	
7	Other Developmental Condition	
8	Other (please state):	

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WARRINGTON
Borough Council

WARRINGTON
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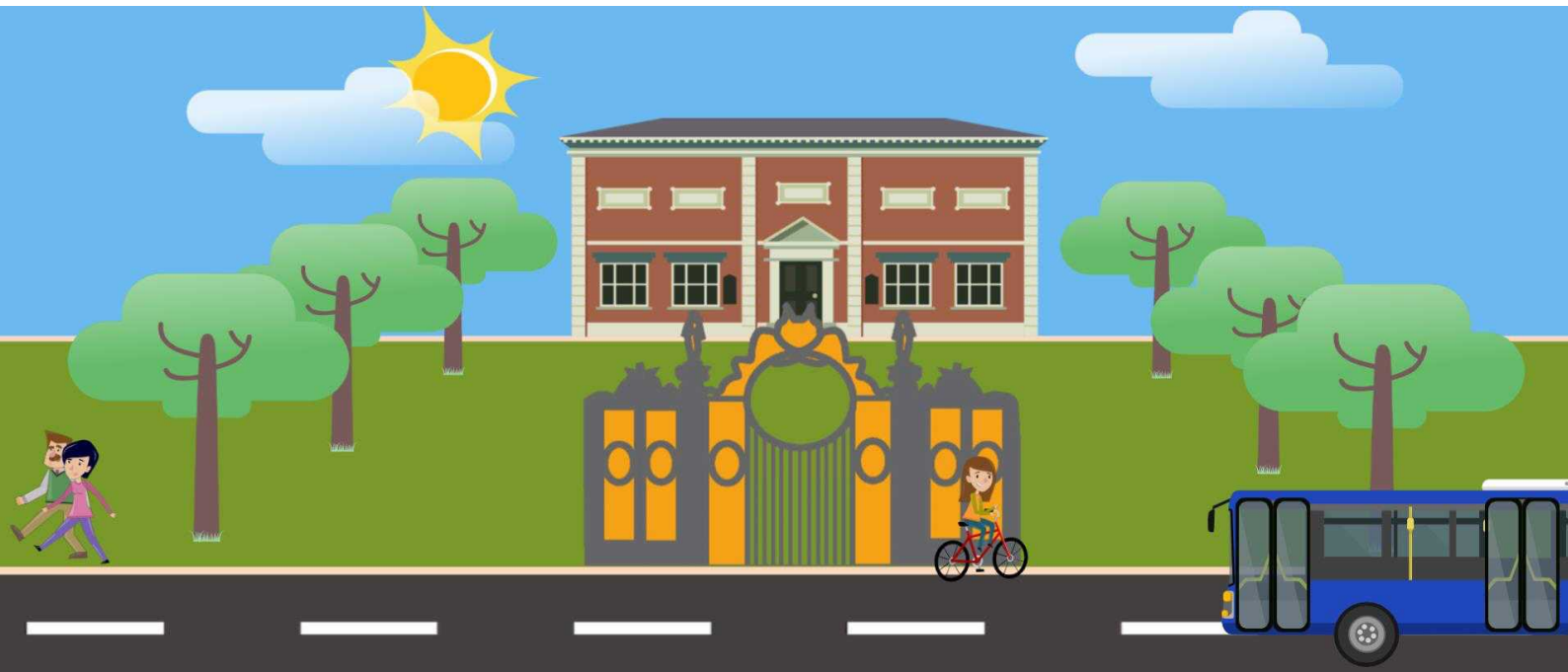
WARRINGTON FOURTH LOCAL TRANSPORT PLAN

EVIDENCE BASE REVIEW



1 Introduction

This document provides the evidence base for Warrington's Local Transport Plan Four (LTP4). The evidence base was reviewed prior to the development of LTP4, providing an overview of the transport networks in Warrington and how we use them. This has supported the production of the Draft LTP4.

The Local Transport Plan helps address local transport issues by providing a framework for decisions on future investment, the strategy will:

- set objectives for transport to support our wider goals and ambitions;
- establish policies to help us achieve these objectives; and
- Contain plans for implementing these policies.

1.1 Purpose of this document

The evidence review is an important part of the LTP4 development process. It provides an opportunity to understand existing travel patterns and the reasons why people travel within Warrington. A structured and thorough evidence review ultimately enables identification of existing and future problems with Warrington's transport system.

The findings of the evidence base have helped to inform the development of LTP4 policies. Therefore, the review enabled evidenced based objective setting; a process which enables the production of applicable transport policy that more effectively addresses residents, workers, businesses and visitors travel needs.

1.2 Document structure

The document reviews a variety of statistics and studies from local, regional and national sources. To enable a structured and comprehensive review of the available datasets, the document is structured in the following way:

Section number	Section	Description
2	Key findings	A summary of the key findings of the individual evidence chapters.
3	Socio-economic review	A review of socio-economic trends and activity, such as population, the economy, health and leisure.
4	Transport and travel	A review of travel patterns, behaviour and use within Warrington.
5	The future	A review of future growth forecasts, regeneration and development proposals.
6.2	Environment and well-being	A review of environmental issues, considerations and the natural environment.

2 Key findings

2.1 Socio Economic

2.1.1 Population

- Warrington is growing at a substantial rate - the town has grown at an average annual growth rate of 0.58% during the last 15 years and has exceeded the North West's average growth rate 0.39%.
- According to ONS 2014 population growth projections, Warrington's population is projected to grow at an average annual growth rate of 0.51%, this is greater than the North West average of 0.32%.

2.1.2 Employment activity

- Employment levels in the town have grown faster than the national average. Between 1998-2014, Warrington's workforce grew 21% whereas the England and North West average were 14% and 10%.
- Warrington has a very strong labour market with 105,000 economically active residents (2015). This represents 81.5% of the workforce, this is higher than the LEP and national average (78.0%).
- The average Warrington resident earns more at £28,241 than the average Warrington worker who earns £25,911. One apparent trend driving this being the commuting of the most senior people in Warrington into highly paid jobs in Manchester.

2.1.3 Labour market participation

- There are comparatively low levels of home working in Warrington (9.3%). This is lower than the LEP (11.4%) and national average (10.4%). This indicates that a large proportion of Warrington's population will likely travel to access employment.
- There are above average concentrations of mangers, directors and senior officials to the south of the Ship Canal.

2.1.4 Employment distribution

- A 'T' shaped distribution of employment is observed in Warrington; employment is concentrated in the town centre, and along the M62 corridor to the north of the town centre at Omega, Gemini and Birchwood.
- The majority of the town's population are located to the west, east and south of the town centre, with fewer residents located north. This sparse development pattern vastly influences the way Warrington residents and workers travel, with most favouring the car.

2.1.5 Sectoral composition change

- The industries which are represented in Warrington to a greater extent than England, and have also generated growth, are business services, utilities, professional scientific and technical as well as transport. These industries are mostly located outside the town

centre and demonstrate the significance of Warrington's out of town employment locations.

- For Business Administration and Support Services (the largest sector with 16% of jobs in the Borough), a high concentration of these jobs (28%) were concentrated in the town centre.
- Transport is a sector that has demonstrated consistent growth over the period 1998-2014. Transport employment has risen by over 2,000 jobs. The productivity of this industry heavily relies on a functioning and efficient highways network.

2.1.6 Productivity

- Warrington's economy has performed strongly over the last 15 years. GVA performance has outstripped the national average.
- The Warrington economy also generates more GVA per head than the average for England.
- Warrington has £49,695 of GVA per filled job. This is higher than the North West average of £45,519, but lower than the England figure of £51,803. This suggests the need for Warrington to grow its GVA per filled job by encouraging the growth of higher value businesses.
- Warrington records lower levels total stock of businesses per 1,000 working age people than across England as a whole – but in the last five years the number of new businesses in Warrington has grown faster than the national average.

2.1.7 Deprivation

- Parts of the Borough are within the 10% most deprived nationally, particularly the town centre, Orford and Padgate.
- The proportion of claimant counts (aged 16-64) has fallen in Warrington between 2013 and 2017.

2.1.8 Health

- Areas with the greatest health deprivation are located in central and northern Warrington, such as the town centre, Orford and Padgate.
- In Warrington, admissions where obesity was a factor is increasing at health clinics.
- In Warrington in 2016/17, the prevalence of children overweight and obese in reception and Year 6 were 21.9% and 30.8% respectively.

2.2 Transport and travel

2.2.1 Travel patterns and trip behaviour

- In Warrington, car travel accounted for three quarters (75.1%) of vehicle miles in 2015.
- There are higher traffic flows to the north-west of the town centre around Westbrook, and north-east along Birchwood Way compared with A roads in the south of the Borough.
- Shopping is the most popular type of journey undertaken in Warrington (24%) followed by commuting (18%) and visiting friends at private home (11%). These trips are

dominated by use of the car, either as a driver or passenger, and account for 80% of journeys.

2.2.2 Journey times and congestion

Serious congestion problems are observed in Warrington during peak time periods. Slow journey times exist in the following locations:

- *The town centre* - A57/A5061 roundabout; A49 Cockhedge Green Roundabout; and Sankey Way/Liverpool Road roundabout.
- *Waterway crossings* - A49 Wilderspool Causeway Canal crossing; Bridgefoot Gyratory; Brian Bevan Island; and the A50/A5031 gyratory.
- *Approach to the town centre* - the A5060, Midland Way, A49 and Knutsford Road.
- *Motorways access* - along Birchwood Way accessing the M6; along the A50 accessing the M6; and where the A49 joins the M62.

2.2.3 Travel to work

- Warrington sees greater inflows of workers than outflows.
- Greater worker inflows are concentrated in selected MSOA: Warrington Town centre; Birchwood; Westbrook; and Woolston.
- Most use the car for commuting and this has increased from 72.1% in 2001 to 73.9% in 2011
- Car commuting is higher than the North West, National averages and other UK New Town's.
- 10.5% of Warrington's residents use active travel to get to work. This is lower than the national average and other New Town developments, Peterborough (15%) and Northampton (14%).
- Commuting to the town centre is dominated by car travel (73%) despite being served by a variety of public transport modes.
- Above average proportions cycled to work from Orford, Hulme and to the east of Victoria Park, near Latchford

2.2.4 Car ownership

- 81% of Warrington residents own a car. This is above the 74% national average.
- Areas of central Warrington had the highest proportion of households without access to a car/van; perhaps owing to the proximity and availability of public transport.

2.2.5 Rail travel

- The number of rail users in Warrington is growing, with a 37% increase observed between 2010-11 and 2016-17.
- Warrington Central is the busiest station with 1,729,877 entries and exits in 2016/17.
- The greatest increases in rail passengers occurred on the CLC line at Padgate and Sankey for Penketh (88% and 73% respectively).
- Warrington is a key trip origin and there is evidence of greater rail outflow compared with inflow on the line.

2.2.6 Bus travel

- Bus services in Warrington are centred on Warrington Bus Interchange. This often requires passengers to change services in the centre for cross town journeys.
- Between 2010/11 to 2015/16, there has been a decline in bus patronage from 11.5million to 6.6 million per year. This has declined at a greater rate than the North West average.
- The majority of bus services finish at 23.00 and have limited services on most routes on Sundays.
- Bus fares have also increased in recent years. As a result, taxis are becoming increasing more competitive to local bus services
- There has been a significant reduction in local bus spend in Warrington, with a reduction of -48% between 2009/10 and 2014/15.

2.2.7 Public transport satisfaction

- Bus passenger satisfaction levels in Warrington are below the national average. The routing of services and congestion in the town was identified to reduce the quality of bus services.
- Stakeholders at the local transport summit suggested that implementing bus priority measures, better routing and improved journey reliability could raise quality of service.
- Price was identified as a key issue on both local bus and rail services and was a key factor in low public transport patronage and high car use. Stakeholders also voiced preference for implementing smart ticketing to help improve the attractiveness of services.
- There was broad agreement between transport summit delegates that a project to transform and improve the passenger transport offer in Warrington is necessary in order to reduce congestion, improve health, and accommodate housing and jobs growth.
- Stakeholders expressed mixed views about the type of mode that any transformative mass transit scheme should use. Trams, Guided Bus, and Bus Rapid Transit were amongst the options discussed.

2.2.8 Active travel

- Compared with national figures, the proportion cycling in Warrington was below the national average. However, Cycle count data shows cycling to be increasing in Warrington; a 21% increase in the level of cycling was observed within Warrington between 2006 and 2015.
- The town centre can be considered less permeable for cyclists. It requires good cycling experience to cycle on routes to the town centre.
- The proportion of Warrington residents doing any walking in 2014/15 was consistent with the national average. However, the proportion of walking 3 or more times a week was notably lower in Warrington compared with the national average.

2.2.9 Active travel user satisfaction

- Satisfaction with walking and cycling infrastructure in Warrington has increased between 2014 -2017. However, inconsistent infrastructure across the town, particularly penetration into the town centre and at the end of the journey, were identified as key barriers.

- At the Warrington transport summit, the dominance of the car and hostility of Warrington's roads were identified to make active travel uncomfortable in areas of the town, with this it brought concerns over safety and reduced the appeal to travel cycling and walking.

2.2.10 On demand travel

- Patronage on community dial-a-ride services remained steady around 1,700 journeys per month between 2016 and 2018.
- From 2011 to 2016, the number of licensed private hire vehicles has increased 13% to a total 421 vehicles. Whereas due to WBC control of numbers of Hackney carriage, the number of taxis has remained stagnant around 150.

2.2.11 Highways accessibility

- Warrington's employment destinations positioned further outside the town centre (Gemini, Omega, Sci tech Daresbury, Lingley Mere and Birchwood Park) have poorer public transport accessibility. Less than 25% of residents were able to access these employment locations within 30 minutes using public transport.
- Woolston Grange has limited public transport accessibility with only 5% of residents within 25-30 minute public transport accessibility.

2.2.12 Freight

- The number of LGV's on Warrington's highways network is increasing; 10.3% of vehicle miles were completed by LGV in 2000 and this has risen to 14.0% in 2015.
- The number of HGV's on Warrington's highway network has slightly decreased, with 11.7% of vehicle miles completed by HGV in 2000 and this has fallen to 9.9% in 2005.
- Excluding the SRN, higher freight flows were observed to the north-west of the town centre around Westbrook and along Birchwood Way between the town centre and Birchwood Business Park;
- Between 2013-2017, there has been a decrease in the number of total swing bridge movements on the Manchester Ship Canal.

2.2.13 Highways safety

- Warrington's roads can be viewed as being increasingly safer for highways users. KSIs in Warrington fell between 2011 and 2015.
- The casualty rate per billion vehicle miles was also lower in Warrington compared with the whole of the North West.
- Warrington town centre is identified as an accident hotspot.
- Active travel users are more at risk from highways accidents. 42.6% of KSIs that occurred in Warrington 2015 were active travel users.

2.2.14 Car parking

- There is significant demand to access parking for Warrington's rail stations, indicating multi-modal trips to be taking place for longer distanced journeys.
- There is significant demand to use the town's car parking facilities; Cobden, Town Hall and Cockhedge car parks are seen to be at or nearing full capacity.

2.2.15 Asset condition

- Warrington has in excess of 1200km of publicly maintained highways, 221 highway bridges and approximately 13,000 street lights.

2.3 The Future

2.3.1 Future growth

- Identified within the Preferred Development Option, Warrington will be home to vast numbers of new residents and workers with the plans for 24,200 houses and 381ha of employment land over the next 20 years.
- Within the existing Urban Area and Warrington Waterfront there will be approximately 15,000 new homes and 129 hectares employment land
- Within the green belt there will be approximately 9,000 new homes and 220 hectares of employment land, including:
  - Garden City Suburb: 6,300 new homes and 117 hectares employment land
  - South West Extension: 1,800 new homes
  - Outlying settlements: 1,190 new homes across the 7 green belt areas of the Borough

2.3.2 Locations of growth within Warrington

- Various transport packages were identified to be needed to help support Warrington's new residents and workforce:
  - Public realm and accessibility improvements in the centre.
  - Highways packages at Cockhedge and Dial Street roundabouts on the A49 to support development in the centre.
  - A transport package to improve east-west connections between Birchwood, the A49 and through to Omega.
  - A transport package of new distributer roads, walking and cycling network and public transport linkages will be required to support the mass movement of people from the Garden City Suburb.

2.3.3 Cheshire and Warrington

- There may be increased demand to reach important employment destinations identified within the Atlantic Gateway and Cheshire Science Corridor, this includes: Birchwood Park; Warrington Waterfront; Omega; Lingley Mere; and Sci-Tech Daresbury.
- Port Warrington has the potential to become an intra modal freight facility with connections on sea, rail and road integrated at one site.

2.3.4 Future transport within The North

- NPR would see the development of a new line between Liverpool and the HS2 Manchester Spur via Warrington. The services which use the line from Liverpool to Manchester Piccadilly, via Warrington and Manchester Airport, could take around 28 minutes.
- Warrington could capitalise on high speed rail and NPR with the rail services meeting at an integrated Warrington Bank Quay rail hub.

- TfN strategic Road study seeks to provide substantial upgrades to improve journey times, east-west connectivity, safety, and user experience on Warrington's surrounding motorways (M6, M62 and M56).
- TfN integrate smart travel programme is developing smart ticketing, payment and information technologies to transform passenger transport across the North.

2.3.5 Future transport

- Autonomous vehicles could be on UK roads as early as 2021 and form an essential part of the future UK economy, with market worth £28 billion to the UK by 2035. The vehicles have the potential to reduce accidents, improve network resilience and cut congestion.
- Mobility as a Service is a new technological innovation disrupting the transport industry. The widespread use of smartphones have generated new opportunities to engage with travellers and the way they influence the demand on the network.
- A total of 1121 ULEVs were licensed within Warrington in 2017. This encompasses 1.04% of all cars licensed within Warrington.
- The number ULEVs licensed has also grown at a faster rate within Warrington compared with the North West.
- Lithium ion battery densities are increasing and prices are falling, thus raising the attraction to purchase ULEVs. It will be important for Warrington to investigate current use of ULEVs and consider changing the policy environment to help support the growing use of the vehicles.

2.4 Environment and well-being

2.4.1 Carbon dioxide

- In 2006, road transport contributed to 37% of Warrington's CO2 emissions, Industry and commerce accounted for 40% and Domestic activity accounted for 23% of emissions.

2.4.2 Climate change

- In Warrington, daily mean, maximum and minimum temperatures and total precipitation have all increased since 1961 to 2006.
- The history of extreme weather events has shown Warrington is most vulnerable to high winds and heavy rain/surface water flooding.
- Past extreme weather events have disrupted public transport services and the highways network.
- Scientific research indicates that extreme precipitation and high wind events with a 1 in 100 year will see an increase in the likelihood of 40% if climate change continues to occur at its current rate.

2.4.3 Air quality

- National standards for NOx are being exceeded on the motorway surrounding Warrington, the town centre and roads the lead into the centre. The Air Quality Action Plan highlights that a 43% and 41% reduction is required in the motorway and town AQMA.

- Within the AQMA, petrol cars contribute approximately 11% and diesel cars 50% of NOx.
- HGVs and LGV contribute 20% of NOx, yet account for only 9% of distance travelled.
- Buses contribute approximately 11% of NOx yet account for only 1% of distance travelled

2.4.4 Flood risk

- Up to 1032 properties (890 residents, 117 business and 25 critical services) could be at risk from surface water flooding in a 1% (1 in a 100) annual probability rainfall event.
- Warrington is at greatest risk from flooding in the south in Stockton Heath, Grappenhall and parts of Walton around the River Mersey and Manchester Ship Canal.

2.4.5 Noise

- First priority locations for noise action planning are found:
  - Junction 9 and 11 of the M62
  - Winwick Lane Road north of Junction 9 M62
  - A49 on the approach to the Junction 9 M62
  - A56 Chester Road near Higher Walton Knutsford Road near Latchford East
- Noise action planning areas that are considered 'important areas' are also found on:
  - A57 Sankey Way
  - Within the town centre at Wilson Pattern Street and Mersey Street
  - Knutsford Road
  - A50 Kingsway street
  - M62 Junction 10 /Junction 21A

3 Socio-Economic Review

3.1 Socio-economic Key Findings

Continued population growth

- Warrington is growing at a substantial rate and is projected to continue growing. The transport system will have to cater for many more movements in and around the town.
- Warrington's highways network already suffers from chronic congestion. Without critical transport intervention, an increase in transport movements could cause severe network degradation and peak hours to substantially increase. This could further reduce the attraction of living and working in Warrington and choke development plans.

Warrington's strong and positive economic performance

- Warrington's economy has performed strongly and the town is a desirable place to work and do business. The Borough sees large volumes of people travel to employment during concentrated AM and PM periods. This results in congestion, poor journey times and commuting which vastly affects productivity levels.
- Parts of the Borough are within the 10% most deprived nationally

Development pattern

- When comparing population density and employment density, there is an inverse relationship between residential and employee densities.
- The town's sprawl of employment destinations and residential areas, has added to the difficulty of providing good public transport accessibility and led to favouring car travel.

Warrington's labour market

- Residents in Warrington are comparatively highly qualified and the average Warrington resident earns more than the average Warrington worker.
- Those employed in higher paid jobs and skilled activities, commonly leads to increased commuting distances and complex trip patterns. Warrington needs a more diverse transport offer to attract those who travel cross town and longer distances to consider multi-modal transport and modes other than the car.

Sectoral composition

- Industries which are represented in Warrington to a greater extent than England, and are growing, are business services, utilities, professional scientific and transport.
- The productivity of Warrington's growing transport industry will be dependent on a functioning highways network –this is under threat from congestion
- Providing good accessibility to the town centre is important to support the Boroughs largest sector (Business Administration and Support Services).

Health and well-being

- Similar to the rest of the UK, obesity is becoming an increasing health problem for Warrington residents. Raising levels of active travel presents an opportunity to make exercise a regular part of the daily routine.

3.2 Socio-economic review

The purpose of this section is to assess socio-economic trends in Warrington. This concerns the investigation of population trends, employment, productivity and health statistics within the Borough. The section identifies societal and economic implications that may affect the way Warrington residents and workforce travel. The section examines data sources from the Office of National Statistics (ONS), NOMIS, health statistics and indices of deprivation.

3.3 Warrington's population

Warrington was given New Town status in 1968 and has since grown in size. The latest count in 2015 found Warrington's population to stand at 207,700. The town continues to grow at a substantial rate, experiencing an average annual growth of 0.58% which exceeds the North West average by 0.19% (Table 1).

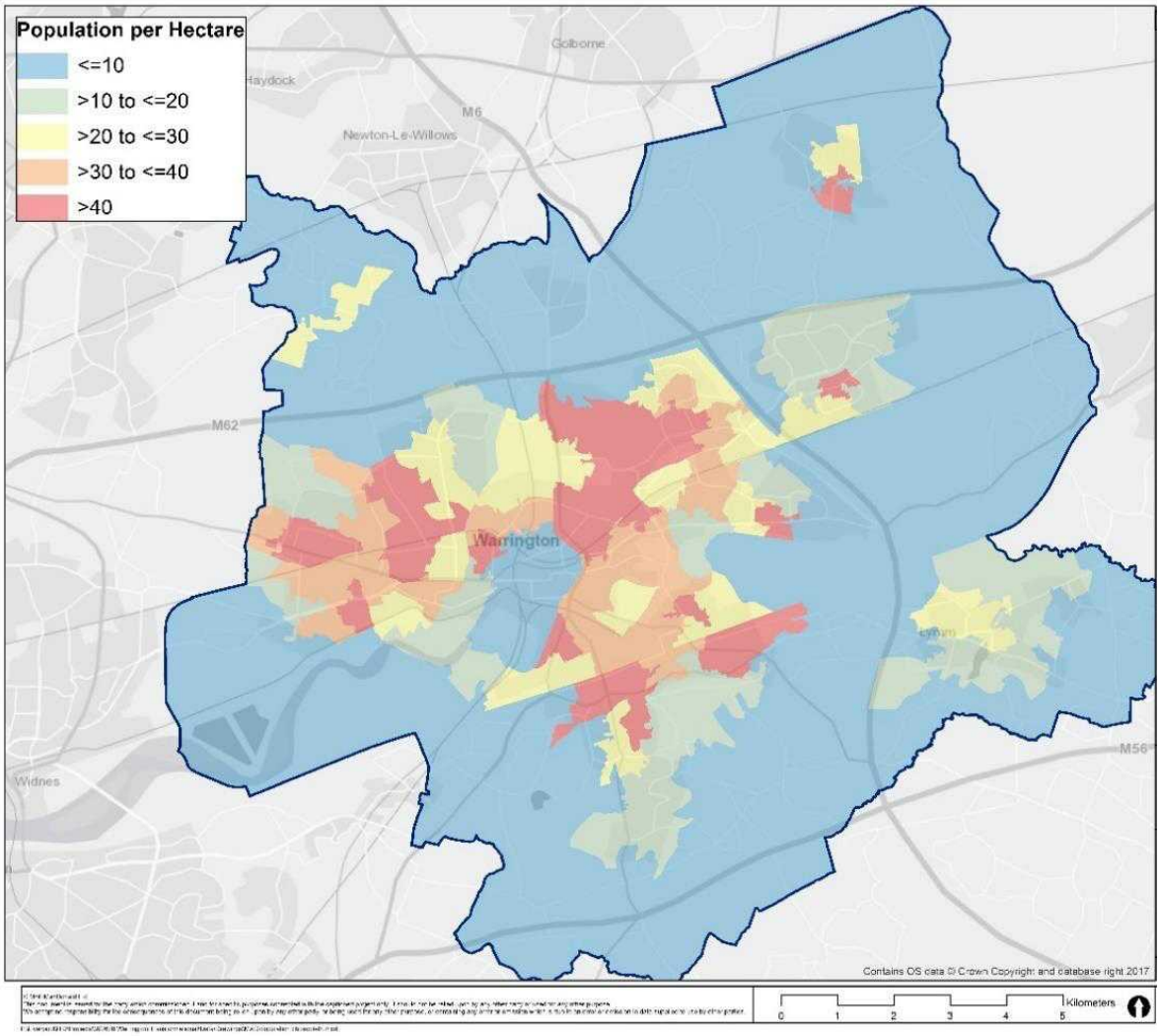
Table 1: Mid-year population estimates

Area	Population				Population growth	
	2001	2006	2010	2015	Absolute Growth	Average Annual Growth
Warrington	191,200	194,600	202,700	207,700	8.63%	0.58%
North West	6,773,000	6,901,600	7,056,000	7,173,800	5.92%	0.39%
Great Britain	57,424,200	59,084,000	61,470,800	63,258,400	10.16%	0.68%

Source: ONS Mid-year population estimates

The population has been mapped, Figure 1 shows the current population per hectare for each LSOA in the Borough. Warrington is a multi-centric Borough in terms of population; the urban area of Warrington covers a large expanse, with the majority of the Borough's population located to the west, east and south of the town centre, with fewer residents to the north of the town. There is also a sizeable number of outlying settlements in the Borough, such as at Lymn, Cachet and Birchwood.

Figure 1: Population density in Warrington

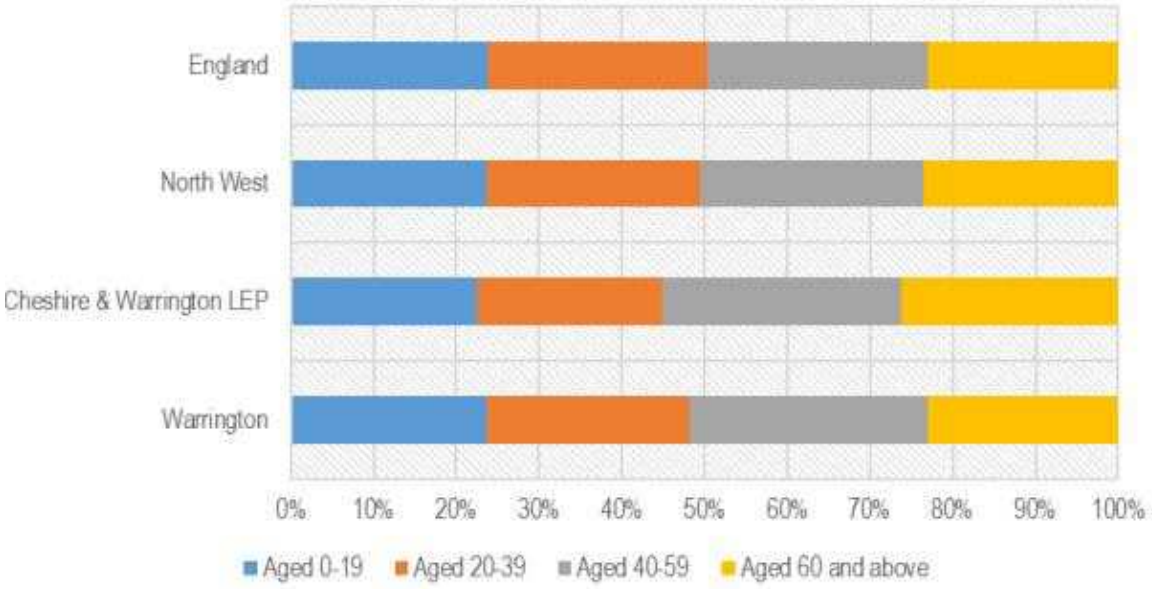


Source: Mott MacDonald

3.3.1 Age profile

The age profile of Warrington residents is shown in Figure 2. The Borough's profile broadly reflects wider trends, but is also consistent with Warrington town gaining New Town status in the late 1960s. The greatest proportion of the local population is now aged 40-59, reflecting population influx into the New Town in the 1970s and 1980s of young families. The proportion of the population in this category in Warrington is slightly higher than the regional or national average.

Figure 2: Age profile



Source: ONS Population estimates, 2014

It was estimated in 2013 that 6% of the Borough's population were born outside the UK which equated to 12,000 residents. In the North West 8%, and across England 14%, of the population as a whole was estimated to have been born outside the UK in that year. In recent years Warrington has also been the net recipient of internal UK migration, as shown in Table 2.

Table 2: Internal UK migration, to/from Warrington

	Inflow	Outflow	Net
2012	6,935	6,800	+135
2013	6,962	6,301	+661
2014	7,195	6,699	+496

Source: ONS migration statistics, 2014

3.3.2 Future population

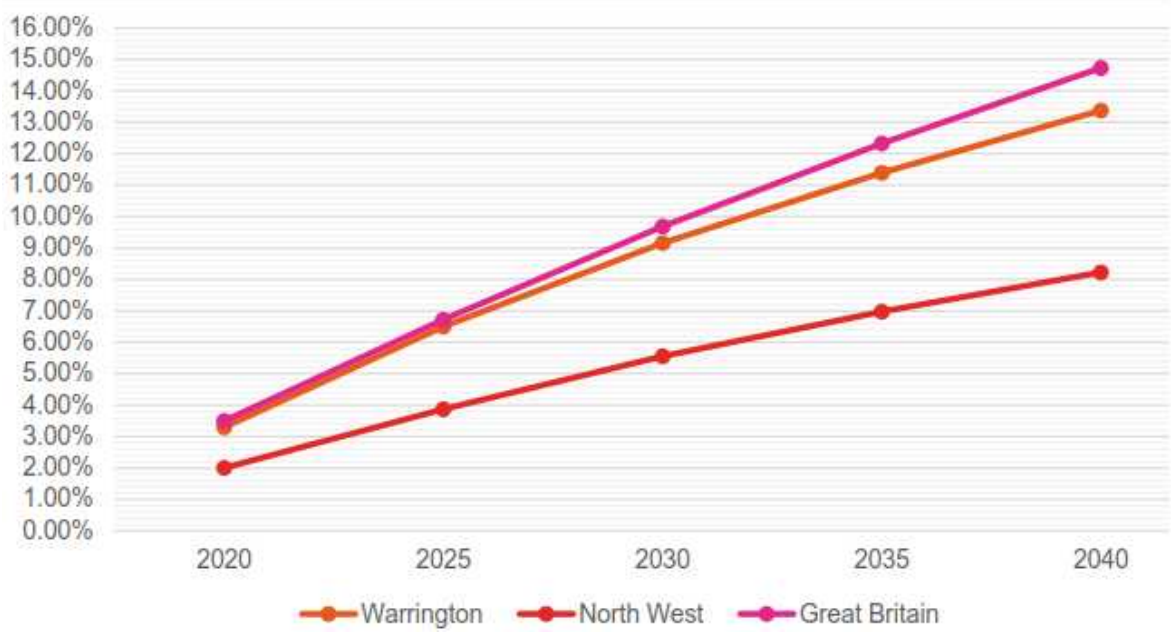
ONS provide 2014 based population projections. In Table 3, the town's population growth has been projected for 2020, 2025, 2030, 2035 and 2040 horizons. Warrington's population is estimated to grow to 213,000 by 2020 and continue to grow through to 2040. The town is seen to grow at a considerable rate, with its growth rate larger than the North West average and nearing the Great Britain average (Figure 3).

Table 3: 2014 based population projection (% change)

	2020	2025	2030	2035	2040	Average annual growth
Warrington	3.29%	6.49%	9.16%	11.39%	13.37%	0.51%
North West	2.00%	3.87%	5.55%	6.97%	8.23%	0.32%
Great Britain	3.49%	6.72%	9.69%	12.32%	14.73%	0.57%

Source: ONS Mid-year population estimates

Figure 3: 2014 Based population projection (% change)



Source: ONS 2014 based population projection

3.3.3 Population key findings

The key findings of Warrington's current population base and future population predictions are:

- Warrington has grown at a substantial rate through New Town development. The town has grown at an average annual growth rate of 0.58% during the last 15 years and has exceeded the North West's average growth rate 0.39%.
- The town is also projected to continue growing. According to ONS 2014 population growth projections, Warrington's population is projected to grow at an average annual growth rate of 0.51%, this is greater than the North West average of 0.32%.
- The town has a smaller proportion of people aged over 60 than the national average but it does demonstrate a 'New Town demographic' where many of the original residents attracted to Warrington in the 1970s are now approaching retirement age.
- Warrington has a sparse development pattern with the majority of the Borough's population located to the west, east and south of the town centre, with fewer residents to the north of the town. There is also a sizeable number of outlying settlements in the Borough, such as at Lymm, Cachet and Birchwood.

What does this mean for LTP4?

Warrington will be home to a larger number of residents and this will increase the demand to travel. The town's previous travel patterns show a history of extreme car travel and congestion issues. A rising population, and a continuation of previous travel patterns, pose severe risk to the operation of the highways network and people's mobility.

3.4 Employment

Warrington has a strong labour market with 105,000 economically active residents. This represents 81.5 % of the workforce and as such economic activity rates in Warrington are higher than LEP area, regional or national averages (see Table 4).

Table 4: Economic activity 2015

	Warrington		LEP	NW	England
	No.	Percent	Percent	Percent	Percent
Economically Active	105,000	81.5	78.2	75.3	78.0
Employment	100,400	78.0	75.2	71.2	73.9
Self-employment	11,200	8.7	9.5	8.8	10.4
Unemployment	4500	4.3	3.9	5.4	5.3
Inactive	23,800	18.5	21.8	24.7	22.0

Source: ONS Annual population survey 2015

The unemployment rate for Warrington exceeds that of the LEP area, although this is lower than the regional or national average. At December 2015 there were 4500 people registered as unemployed and this represented 4.3% of the economically active labour force.

3.4.1 Annual pay

Resident based earnings are significantly higher than workplace earnings in Warrington, with an average resident wage which is £2,300 above the average workplace wage (Table 5). While wages for Warrington residents and workers are below the average for the LEP, Warrington residents do earn more than the average for England.

Table 5: Annual pay (£)

	Resident	Workers
Warrington	28,241	25,911
LEP	28,281	26,355
North West	25,721	25,681
England	27,869	27,872

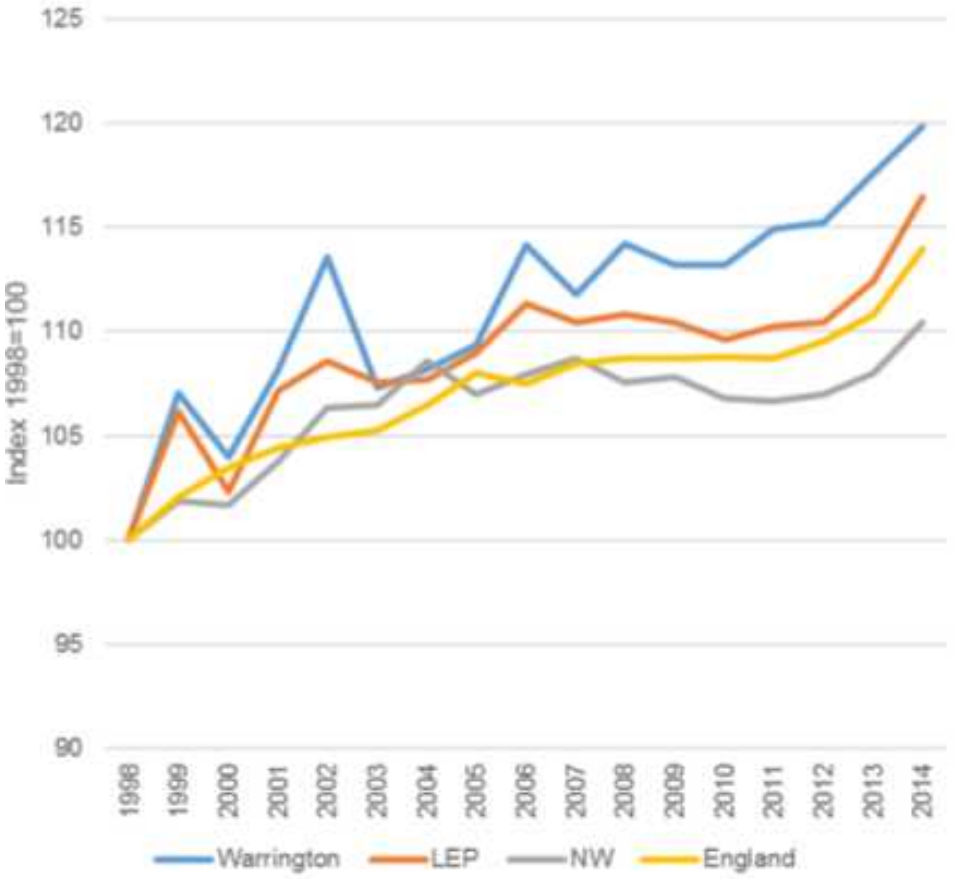
Source: Annual survey of hours and earnings, 2015

3.4.2 Employment change

Warrington has generated significant employment growth in the period 1998-2014 (the period over which employment data is readily available). During this period its employment generation rate has outstripped that of the LEP area, the region or the national average (England).

The workforce in Warrington grew from 101,000 to 122,000, a rise of 21% (see Figure 4). In the same period Employment growth in England was 14% and the North West grew by 10%.

Figure 4: Employment change 1998-2004



Source: ONS Annual population survey 2015

The graph shows that employment levels were volatile in the period pre 2008 recession. Such volatility is also likely to reflect survey/data issues over the smaller geographic area. Despite the variability, the growth since 2010 has been steady.

3.4.3 Employment key findings

The key trends of employment in Warrington are:

- Employment levels in the town have also grown faster than the national average.
- Warrington has a very strong labour market with 105,000 economically active residents (2015). This represents 81.5% of the workforce and as such economic activity rates in Warrington are higher than LEP area, regional or national averages (78.0%).
- The average Warrington resident earns more at £28,241 than the average Warrington worker who earns £25,911. One apparent trend driving this being the commuting of the most senior people in Warrington into highly paid jobs in Manchester.

What does this mean for LTP4?

Improving access to employment and commuting journey times could help raise productivity. LTP4 should look to enhance journey time reliability and relieve existing pinch-points along the highways network to boost the economic performance of the town.

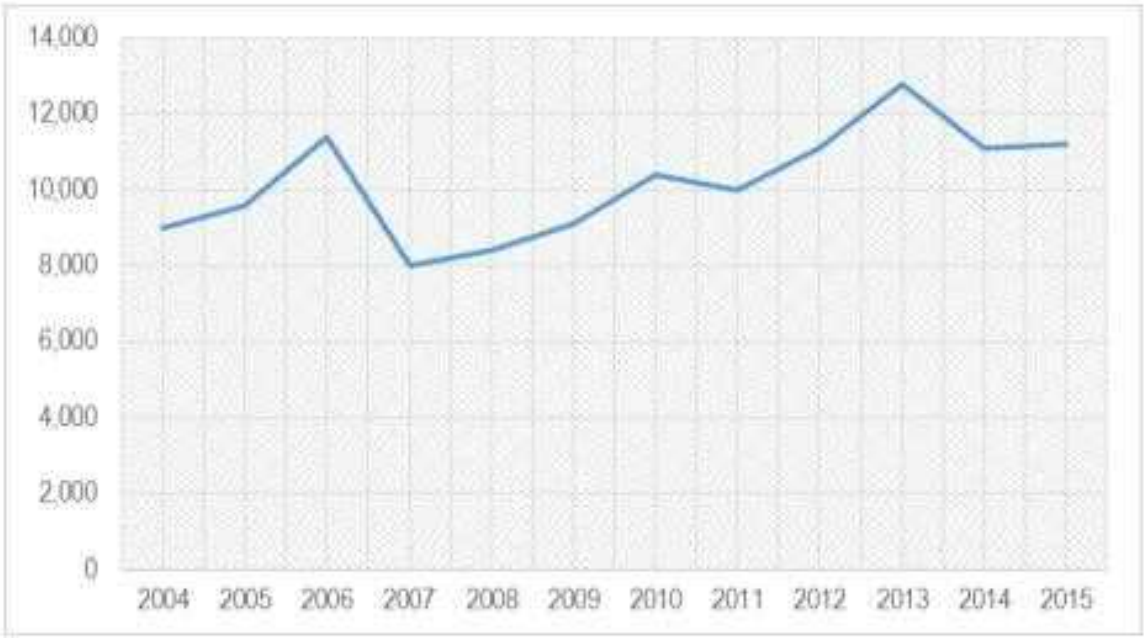
LTP4 should implement schemes that can provide quick and affordable transportation to the most economically deprived areas of Warrington to help reduce the unemployment rate. The strategy should also look at schemes that can develop new strategic connections which can unlock new land for employment opportunities, particularly for high value business premises.

3.5 Labour market participation

Warrington has a lower proportion of self-employment than the LEP area, the North West Region or national averages. However, locally, self-employment does appear to be on an upward trend and grew rapidly between 2011-2013 before reducing slightly (see Figure 5).

The number of people working for themselves in Warrington was 11,200 in 2015 and this represented 8.7% of the working age population. 9.3 % of Warrington residents work from home which is less than for the LEP as a whole (11.4%) or compared to the national average (10.4%). The figure is likely to under-represent the full scale of homeworking as further people will work from home some days in a week.

Figure 5: Self-employment in Warrington 2004-2015



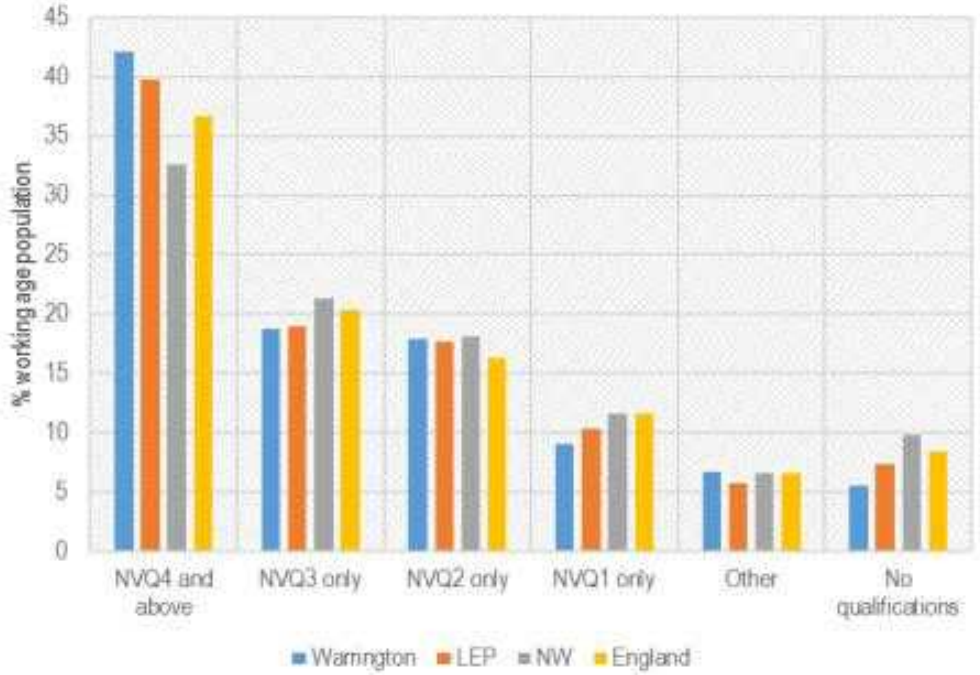
Source: ONS Annual population survey 2015

Warrington appears to be unusual insofar as homeworking dropped considerably between the 2001 census, when home working was recorded as 7,541, and the 2011 census when the figure had dropped to 4,648 – a decrease of 38%.

3.5.1 Skills and qualifications

The residents of Warrington are highly qualified in comparison to that of the wider LEP area, the North West and England as a whole (see Figure 6).
In Warrington 42% of residents are qualified to NVQ level 4 or above (equivalent to degree level) and the equivalent figure is 40% for the LEP and 37% for England as a whole.
Warrington also has a lower proportion of the working age population with no qualifications than the comparator areas. Just 6% of the working age population have no qualifications in the Borough, whereas 8% have no qualifications across England.

Figure 6: Level of qualifications of residents, 2015



Source: ONS Annual population survey 2015

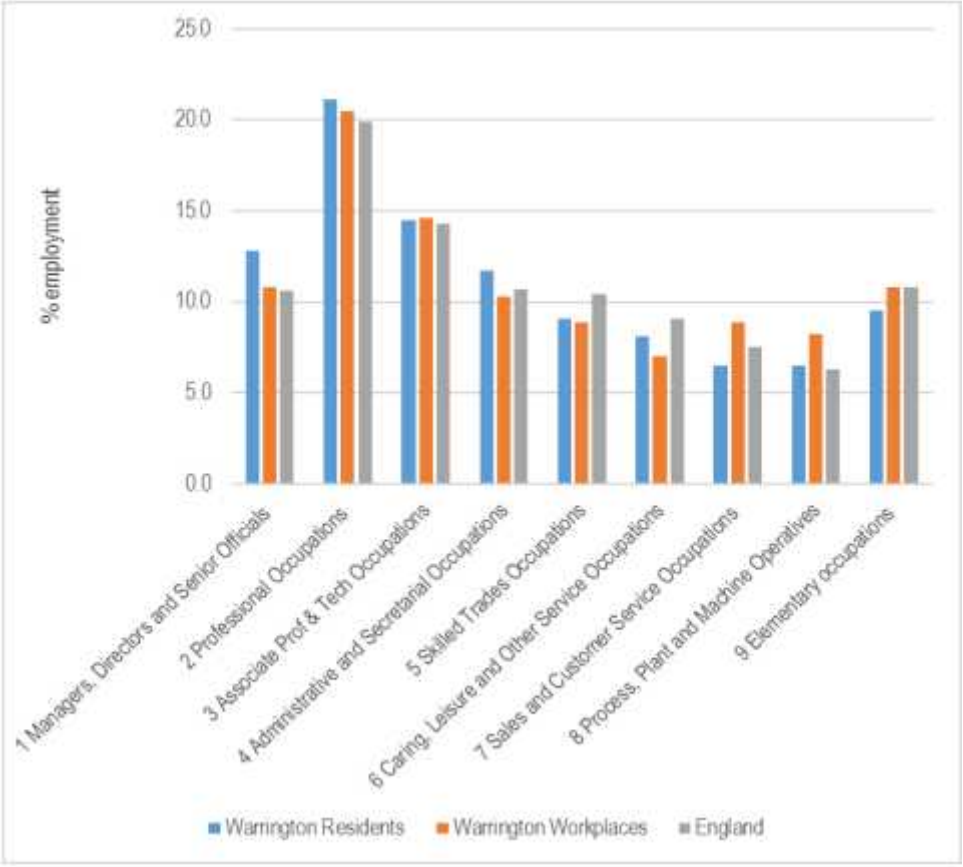
3.5.2 Occupation

The occupational profiles of the Warrington employment base (based on those who work in the area) and resident base (based on those who live in the area) have some significant differences (see Figure 7):

- There is a higher proportion of managers, directors and senior officials in Warrington residents than in Warrington workplaces and this is also (marginally) the case for professional occupations;
- There is a higher proportion of Warrington residents involved in administrative activities than in Warrington workplaces and this is also the case for caring professions; and

- Conversely the Warrington workforce contains a higher proportion of sales / customer service occupations; machine operatives; and those involved in elementary occupations than is the case amongst Warrington residents.

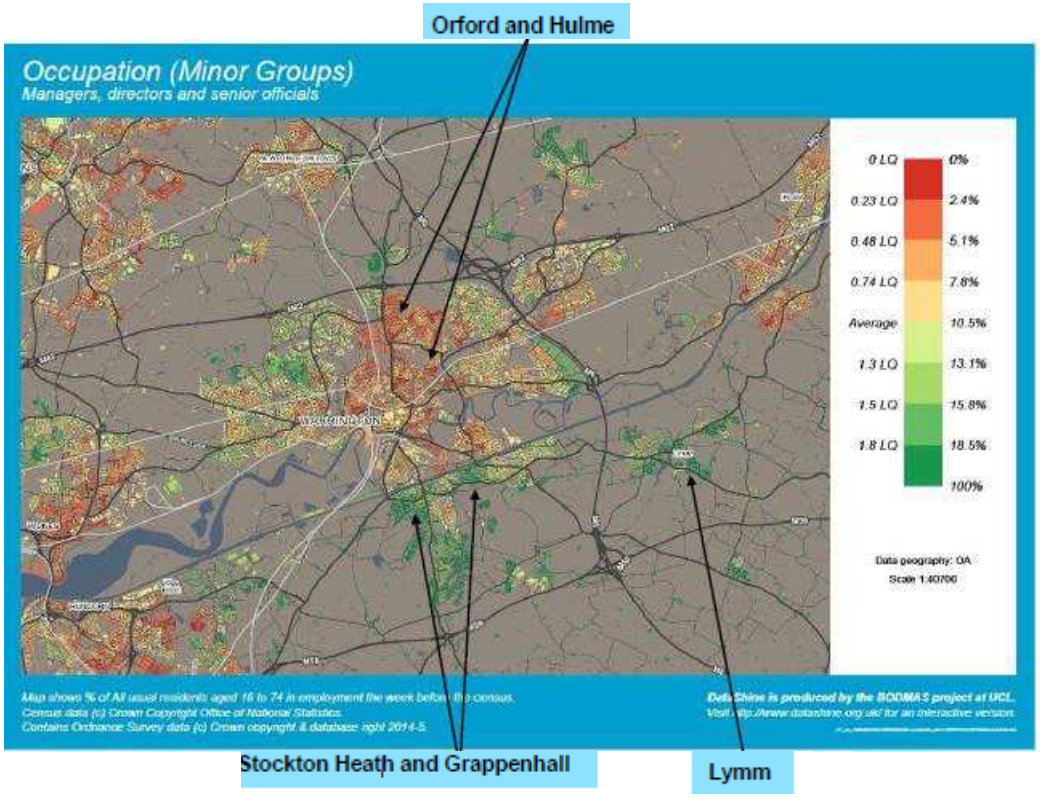
Figure 7: Occupations for Warrington Employees/ residents, 2015



Source: ONS Annual population survey 2015

Figure 8 presents the proportion of residents employed as a manager, director or senior official. The results show above average concentrations to the south of the Ship Canal, around Grappenhall and Stockton Heath, whilst much of the town centre has below average concentrations.

Figure 8: Warrington residents employed as a manager, director or senior official



Source: Datashine

3.5.3 Labour market participation key findings

A summary of the key trends for labour market participation is given below:

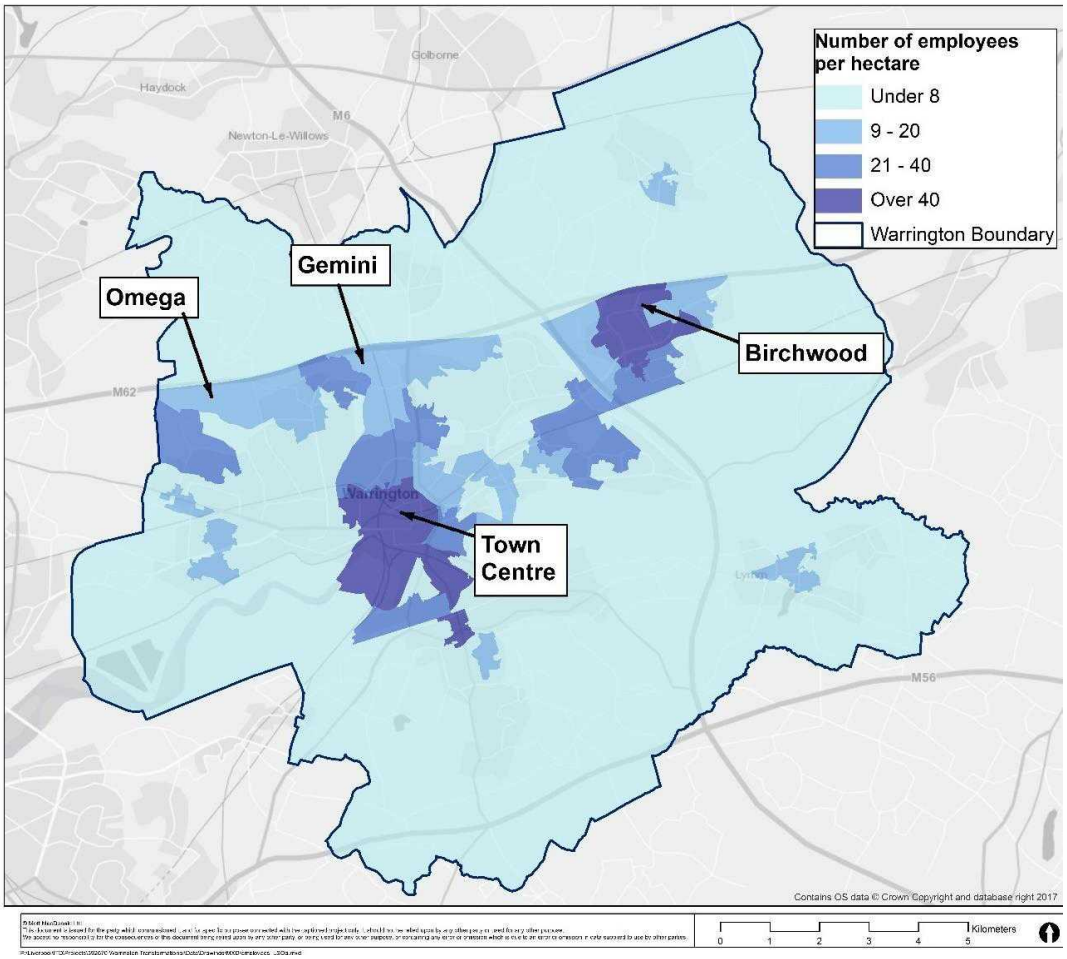
- There are comparatively low levels of home working in Warrington; 9.3% of Warrington residents work from home which is less than for the LEP as a whole (11.4%) or compared to the national average (10.4%). This indicates that a large proportion of Warrington's population will likely travel to access employment.
- In Warrington, 42% of residents are qualified to NVQ level 4 or above (equivalent to degree level) and this is higher than the LEP (40%) and England average (37%). Therefore, Warrington residents are more likely to have a degree than across England and perhaps as a consequence are also more likely to be employed in the higher Standard Occupational Classifications.
- There are above average concentrations of mangers, directors and senior officials to the south of the Ship Canal, around Grappenhall and Stockton Heath.

What does this mean for LTP4?
A large proportion of Warrington's population will likely travel to access employment. LTP4 may need to explore travel demand management measures to help manage the high volumes of workers accessing employment. This could explore ways to: reduce the number of people who travel; re time and re-route movements; and re-mode trips to help manage flows on the network.

3.6 Employment distribution

Employment density in Warrington was plotted for each LSOA within Warrington using 2014 Business Register and Employment Survey (BRES) data (Figure 9).Employment density is shown to be quite spread out. As in the case of the distribution of the Borough's population, a 'T' shaped distribution can be seen, with employees concentrated in the town centre, and along the M62 corridor to the north of the town centre.

Figure 9: Employees per hectare



Source: BRES 2016

When comparing population density in Figure 1 and employment density, there is an inverse relationship between residential and employee densities. The urban area of Warrington covers a large expanse, with the majority of the population located to the west, east and south of the town centre, with fewer residents located north of the town. There is also a sizeable number of outlying settlements in the Borough, such as at Lymm, Cachet and Birchwood. In tandem, many of Warrington's employer areas are concentrated in the town centre and along the M62 Corridor to the north of the town centre.

This sparse development pattern vastly influences the way Warrington residents and workers travel. With residents and workers favouring the private car to access these sparsely located employment sites.

3.6.1 Employment distribution key findings

The key findings of the employment distribution in Warrington are:

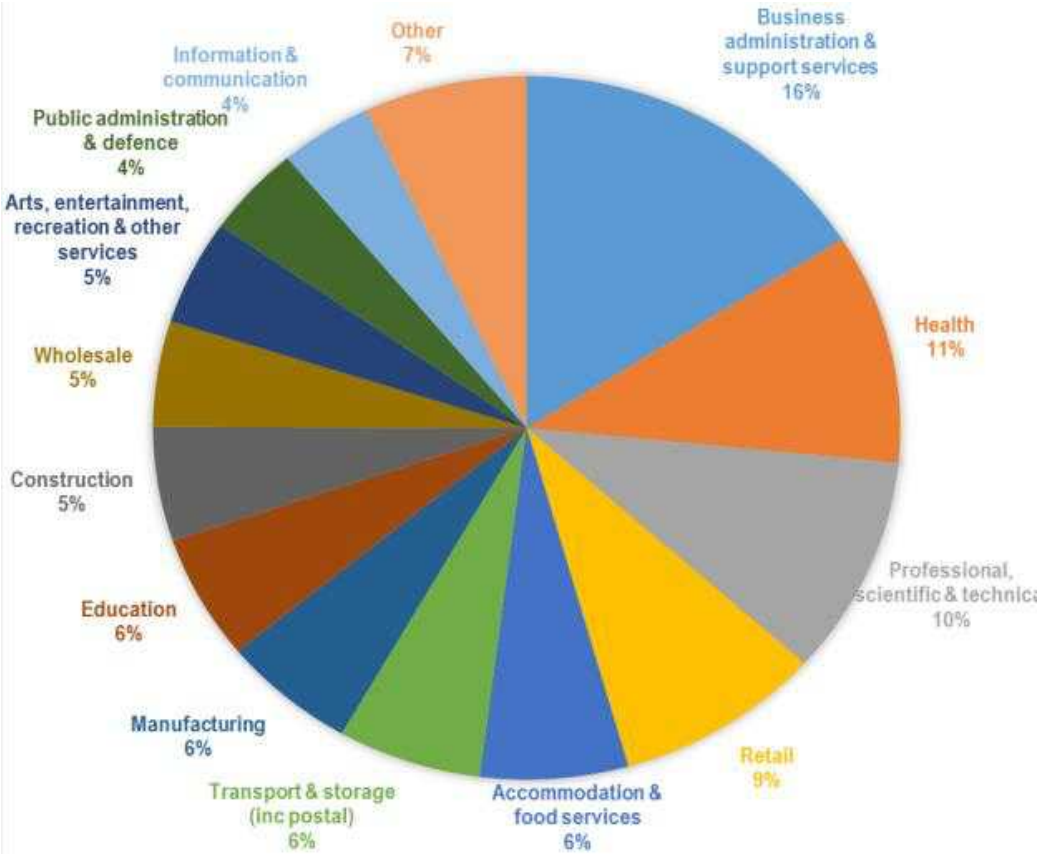
- A 'T' shaped distribution of employment can be seen in Warrington, with employees concentrated in the town centre, and along the M62 corridor to the north of the town centre at Omega, Gemini and Birchwood.
- When comparing population density and employment density, there is an inverse relationship between residential and employee densities. The majority of the population are located to the west, east and south of the town centre, with fewer residents located north of the town.
- This sparse development pattern vastly influences the way Warrington residents and workers travel, with most favouring the private car to access the sparse located employment sites.

What does this mean for LTP4?
LTP4 should target improving journey reliability to the town's key employment areas (the town centre, Birchwood, Omega, Lingley Mere and Woolston). The strategy should also seek to provide a more sustainable workplace and commuter transport strategy. It should look at schemes that can improve the public transport and active travel offer when travelling to the towns out of town employment areas. To do so, a step change in the quality of public transport and active travel may be needed. LTP4 will need to increase the quality of cross town services, introduce more competitive journey times, increase accessibility and the reliability of these transport modes.

3.7 Sectoral composition change

In 2014, BRES data indicated that there were 122,400 in employment in Warrington (see Figure 10). Unlike many other local authority areas in England, the largest employment sector is not health, education or retail but business administration with 16% of the total.

Figure 10: Growth in business stock (index)

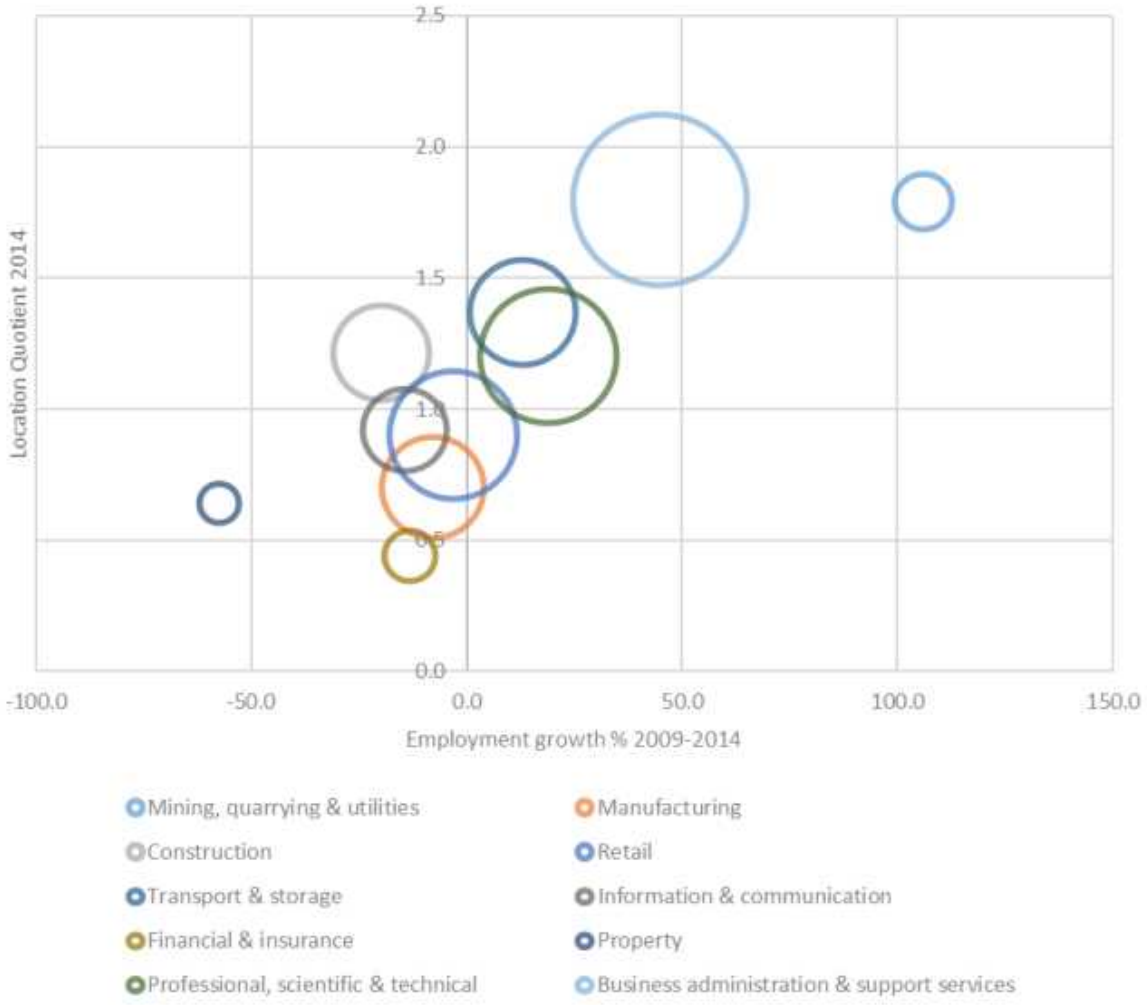


Source: UK business count, 2013

Figure 11 and Figure 12 use Location Quotients (LQs) to consider how sectoral employment in Warrington differs from the English average. A LQ of one indicates that the proportion of employment is the same as the English average and a LQ of two shows a proportion double the national average.

The graph maps the LQ against the growth of employment in the sector whilst the size of the circle indicates the total size of employment. The two Figures are the same graph, but shown as two figures to prevent the number of sectors cluttering the chart.

Figure 11: Location Quotients vs Growth One

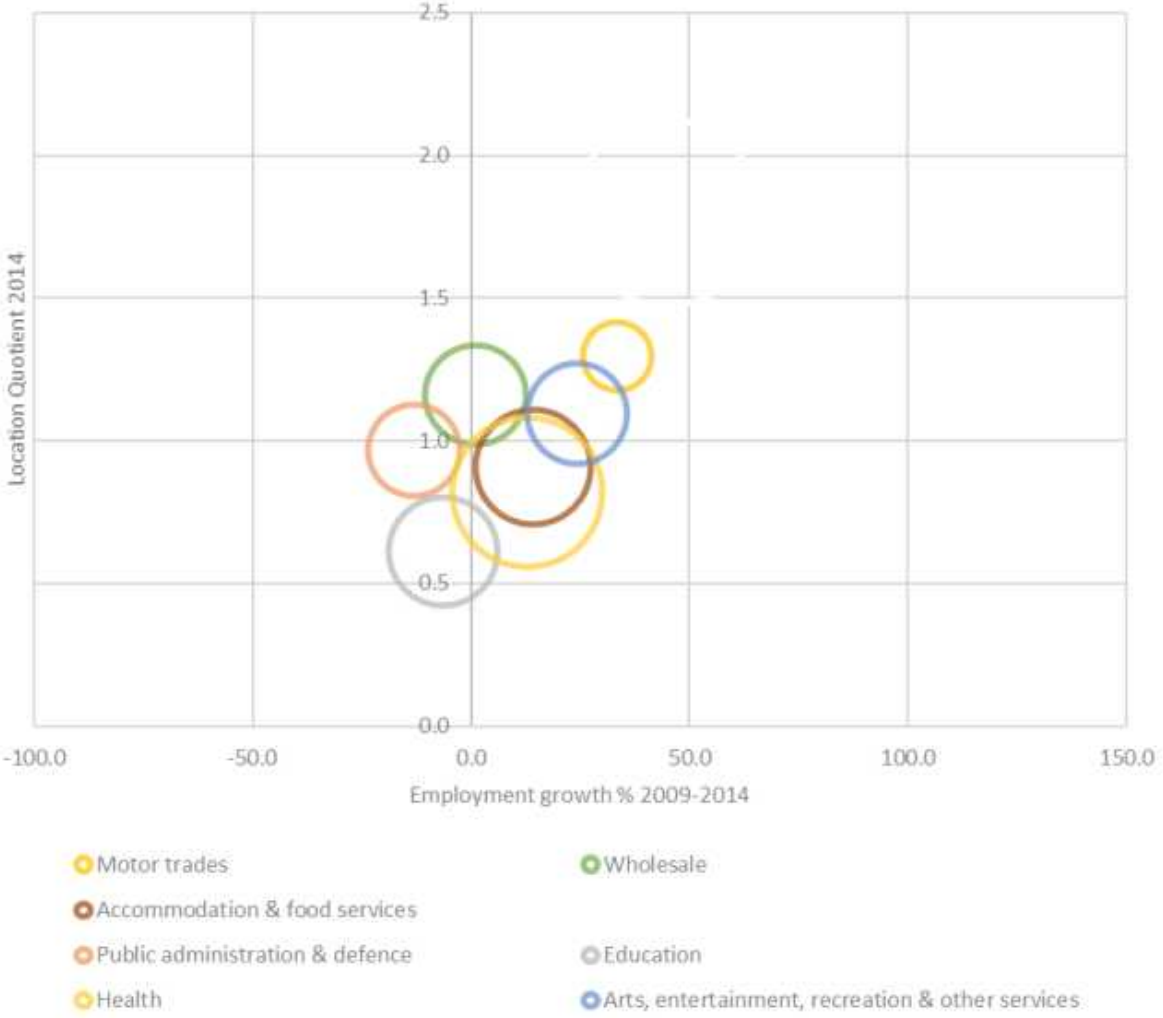


Source: BRES, 2014

The graph clearly shows the importance of utilities, business services, professional and technical and transport. Each have grown in the last five years and each are 'over-represented' in Warrington. Business administration and support services is also the largest absolute employer. Warrington has also a strong motor trade sector.

The declining sectors are also picked up by the data. Construction has a LQ above one, is a reasonably large employer but is in decline, manufacturing has a LQ below one and is declining and property has declined the most rapidly but is a relatively small employer.

Figure 12: Location Quotients vs Growth Two



Source: BRES, 2014

3.7.1 Spatial employment characteristics

3.7.2

Table 6 presents the number and proportion of jobs within each industry sector across the Borough and within the town centre. Business Administration and Support Services was the largest sector with 16% of jobs in the Borough and 28% of jobs within the town centre.

Across the Borough, almost half (47%) of the jobs were within the Business Administration and Support Service (16%), Health (11%), Professional, Scientific and Technical (10%) and Retail (9%) sectors. In comparison, within the town centre, just 6% were employed in the Health sector (compared with 11% in the Borough), whilst 11% worked in Public Administration and Defence (compared with 4% across the Borough).

Table 6: Employment by sector – Warrington Borough Council area and Warrington town centre

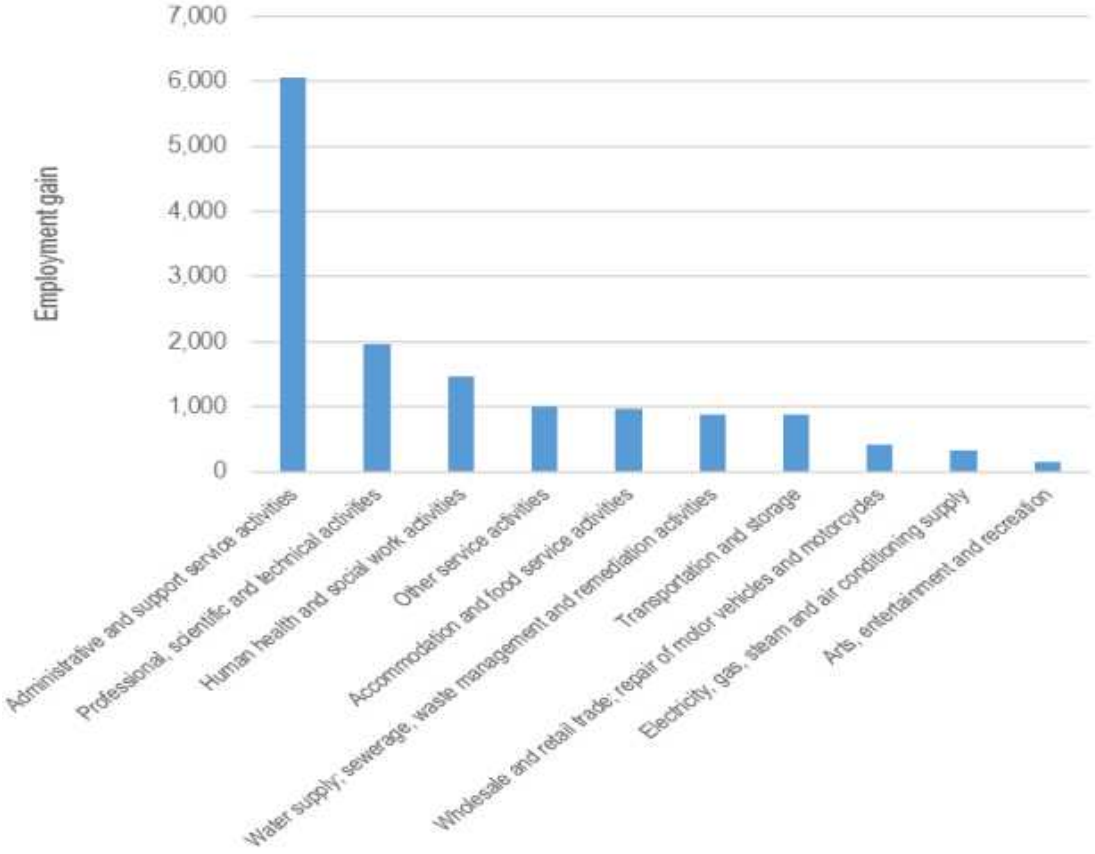
Industry Sector	Warrington Borough Council		Warrington Town Centre		% Difference
	N	%	N	%	
Business administration and support services	19,519	16	8,097	28	12
Health	12,921	11	1,872	6	-4
Professional, scientific and technical	12,337	10	3,176	11	1
Retail	10,939	9	3,428	12	3
Accommodation and food services	7,810	6	1,242	4	-2
Transport and storage (including postal)	7,623	6	1,016	3	-3
Manufacturing	7,119	6	1,326	5	-1
Education	6,950	6	356	1	-4
Construction	6,420	5	463	2	-4
Wholesale	5,949	5	458	2	-3
Arts, entertainment, recreation and other services	5,941	5	1,365	5	*
Public administration and defence	5,109	4	3,336	11	7
Other	13,442	11	3,220	11	*
Total	**122,079**	**100**	**29,355**	**100**	-

Source: BRES, 2014

3.7.3 Detailed sector analysis

When measured at a more detailed level, consideration of BRES data shows that by far the largest growth was in administrative and support services (see Figure 13). This data captures those firms who provide agency staff across a variety of sectors and does not tell us which sectors are actually seeking local labour through agencies. However, it does demonstrate the changing nature of the local workplace with more companies out-sourcing recruitment and using agencies to manage the terms and conditions of staff.

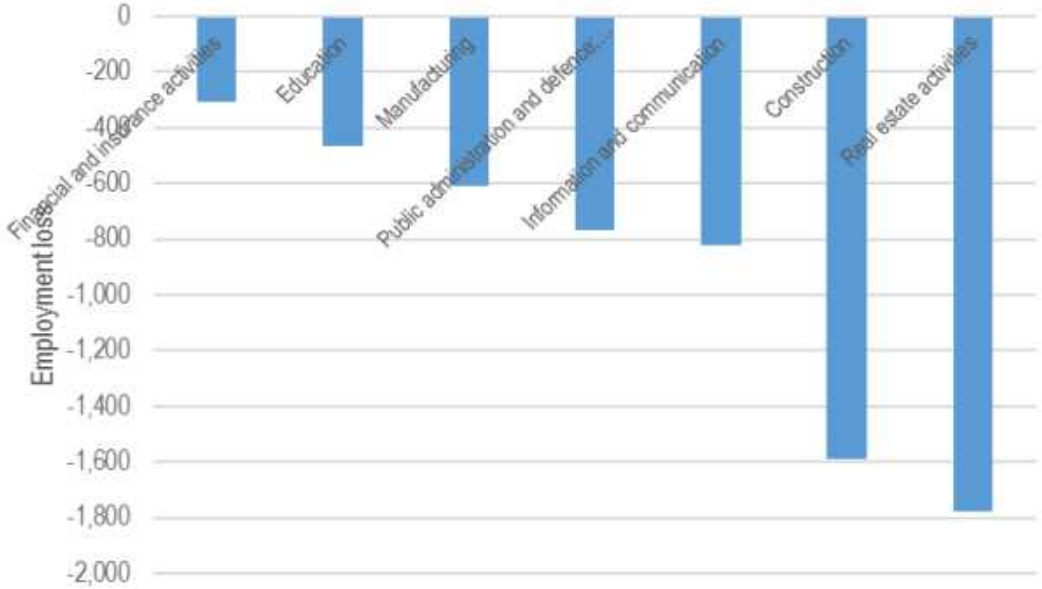
Figure 13: Detailed Sector Change 2009-2014 – Sectors which saw Employment Increase



Source: BRES, 2014

Figure 14 sets out those sectors which have declined using the more detailed definitions. This shows a strong decline in real estate but also a decline in information and communication, specialist construction as well as the public sector, excluding health.

Figure 14: Detailed Sector Change 2009-2014



Source: BRES, 2014

Data on the ten largest and ten highest represented sub-sectors reinforces the points made above (Table 10).

Table 7: Sub-Sector Analysis

10 Largest Sub Sectors			10 Highest Represented Sectors		
	No.	LQ		No.	LQ
Retail	11,000	0.9	Computer repair	900	4.1
Employment and Agency	8,600	2.1	Postal and courier	2,700	2.7
Health	7,100	0.8	Waste collection	1,300	2.6
Food and drink service	7,000	1.0	Gambling and betting	1,000	2.5
Education	7,000	0.6	Architecture and Engineering	4,500	2.2
Wholesale	5,900	1.2	Electricity and gas supply	900	2.1
Building services	5,700	2.0	Employment and Agency	8,600	2.1
Public admin	5,100	1.0	Installation and repair of machinery	900	2.0
Architecture and Engineering	4,500	2.2	Building services	5,700	2.0
Specialist construction	3,800	1.4	Manufacture of chemicals	800	1.8

Source: BRES, 2014

3.7.4 Key findings of sectoral compositional change

The key findings of Warrington's sectoral composition are noted below:

- The industries which are represented in Warrington to a greater extent than England, and have also generated growth, are business services, utilities, professional scientific and technical as well as transport. These industries are mostly located outside the town centre and demonstrate the significance of Warrington's out of town employment locations.
- However, for Business Administration and Support Services (the largest sector with 16% of jobs in the Borough), a high concentration of these jobs (28%) were concentrated in the town centre.
- Transport is a sector that has demonstrated consistent growth and over 1998-2014 transport employment has risen by over 2,000 jobs. This shows that Warrington has a strong dependency on transport and logistics industries. The productivity of these industries heavily relies on a functioning and efficient highways network
- Manufacturing has been consistent in its declining levels of employment and has lost more than 4,000 jobs during 1998-2004.
- The largest decline in employment according to quotient were in real estate, information and communication, specialist construction as well as the public sector, excluding health.

What does this mean for LTP4?
LTP4 should seek to implement schemes that can help improve network resilience and journey time reliability to support the growth and performance of the transport and logistics industry. The strategy should also develop a freight strategy to coordinate and mange logistics movements.

The town centre is congested and suffers from poor air quality. These transport issues need to be addressed to help make the centre a more attractive place to work and support the growth of the town's key employment sector.

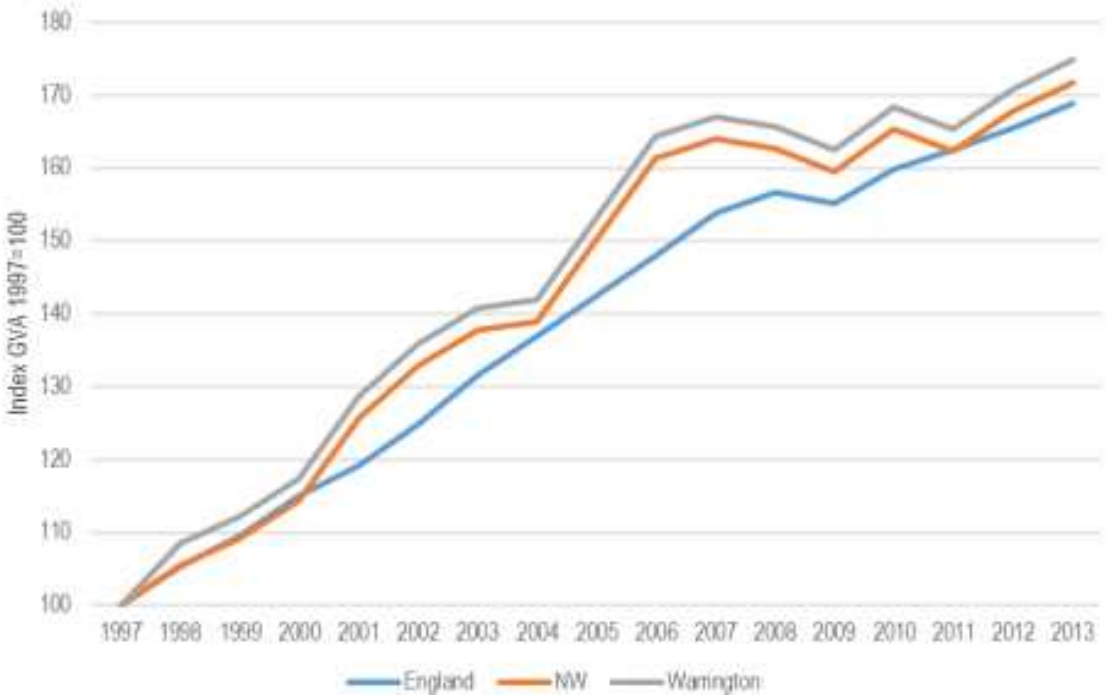
3.8 Productivity implications

The headline statistics on Warrington's economy are set out in the previous section and show a relatively positive profile in terms of employment and economic activity levels. This section investigates productivity within Warrington and highlights the performance of businesses and the economy of Warrington relative to both the North West and Great Britain.

3.8.1 GVA

In 2013, Warrington generated £5.9 billion of GVA and the performance of the area since 1997 is set out in Figure 14. During this period both the North West and Warrington have outperformed England in terms of GVA growth. The Warrington economy was three quarters larger, in terms of GVA, in 2013 than it was in 1997. By GVA, Warrington makes up a quarter of the LEP economy. GVA per filled job GVA per head Business start-ups Gross weekly pay.

Figure 15: GVA growth indicies (1997 = 100)

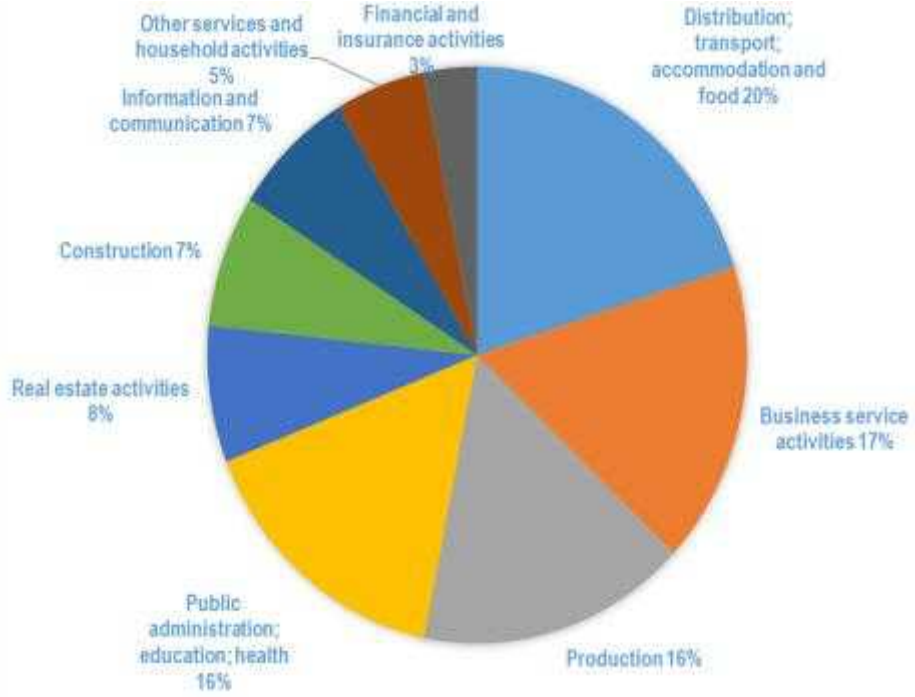


Source: ONS Annual Regional Accounts, 2013

The breakdown of the sectors which make up the total GVA for Warrington is shown in Figure 16. Key points to note are that:

- Warrington generated the largest proportion of its economy from distribution, transport, accommodation and food (20 %). This is the second largest sector for England as a whole in terms of GVA, marginally behind public administration education and health, at 18 %.
- Public administration education and health in Warrington accounted for 16 % of the economy compared to nearly 19 % in England.
- The Warrington economy is slightly more polarised in its activities than England – the largest four sectors in Warrington accounted for 69 % of GVA whilst across England the figure is 62 %.
- It follows that the remaining 5 sectors generate a relatively low level of GVA. Warrington has a notably small financial and insurance sector. This generated just 3% of the local economy compared to 8 % across England.
-

Figure 16: Breakdown of Warrington GVA by broad sector 2013

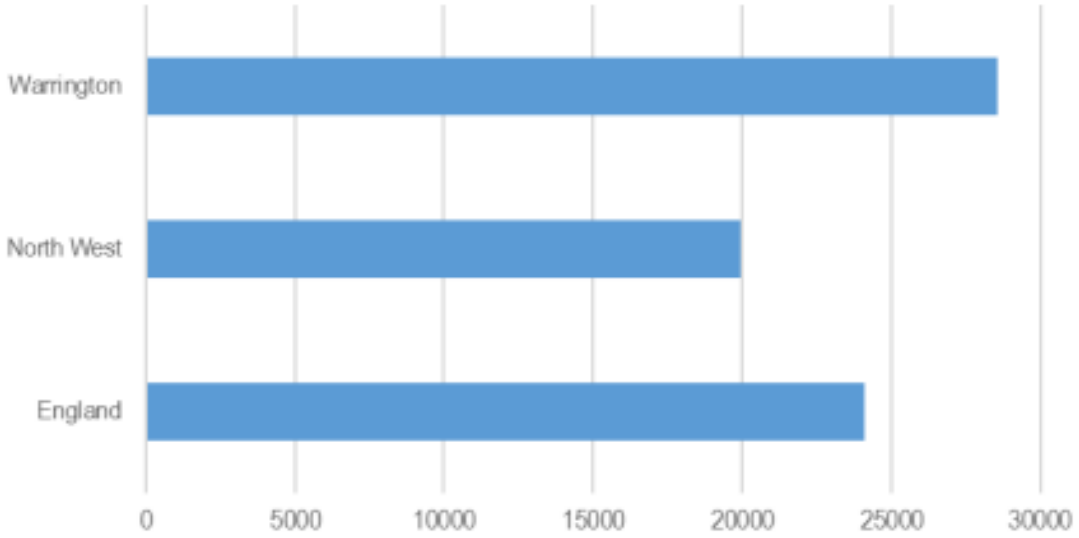


Source: ONS Annual Regional Accounts, 2013

3.8.2 GVA per head

When GVA generated is examined on a per worker basis, some measure of productivity can be estimated. In Figure 17, the figures are compared for 2013 and demonstrate that Warrington generates more economic output per worker than the regional or the national averages. Therefore, it provides some indication that productivity levels are considerably high in Warrington.

Figure 17: GVA per head 2013



Source: ONS Annual Regional Accounts, 2013

3.8.3 GVA per filled job

GVA per filled job data sets out the total GVA of Warrington and its comparator areas, divided by the number of jobs that are currently taken in the area. This data shows:

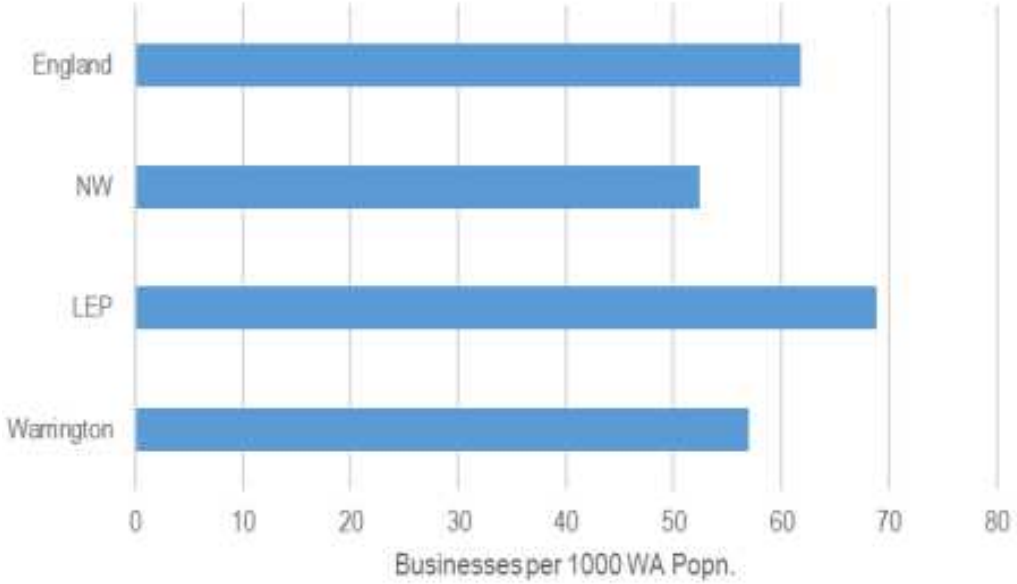
- Warrington has £49,695 of GVA per filled job;
- This is higher than the North West average of £45,519; but lower than the England figure of £51,803; and
- Within the Cheshire and Warrington LEP area, Warrington has the lowest GVA per filled job of all three unitary authorities:
  - Cheshire East: £59,471
  - Cheshire West and Chester: £51,127
  - Cheshire and Warrington: £54,093.

This suggests the need for Warrington to grow its GVA per filled job by further encouraging the growth of higher value businesses in the town.

3.8.4 Business Base

In 2015 there were approximately 7,340 businesses operating in Warrington equating to a business density of 57 per 1,000 working age residents. Whilst out-performing the North West average, this lags the national average of 62 businesses per 1,000 working age residents and the LEP average of 69 (see Figure 18).

Figure 18: Businesses per 1,000 people – working age population 2015



Source: ONS Annual Regional Accounts, 2013

The overall local stock of businesses has been increasing over time and in Warrington the recorded growth was 20 % over the last five years **(**Figure 19). This growth in the number of businesses has outperformed the England rate of 17 % growth over the same period.

Figure 19: Growth in business stock (index)

Source: UK business count, 2013

88.8 % of businesses in England employ less than ten people (micro businesses), and overall 98.0 % of all businesses are classified as small (up to 49 employees). Warrington, generally follows this broader trend. As Table 8 shows, 97.6 % of businesses in Warrington employ less than 50 employees, while the proportion employing less than ten is 87.7 %. 40 local businesses are identified as having more than 100 employees.

Table 8: Business by size band 2015

Employees	Warrington		North West	England
	Count	Percent	Percent	Percent
Micro (1-10)	6,440	87.7	87.8	88.8
Small (11-49)	725	9.9	10.1	9.2
Medium (50-99)	135	1.8	1.7	1.6
Large (100+)	40	0.5	0.4	0.4
Total	**7,340**			

Source: UK business count, 2015

3.8.5 Key findings of productivity implications

A summary of the key findings for productivity implications for Warrington are:

- Productivity can be viewed positively within Warrington and the economy has performed strongly when a 15-year perspective is taken and GVA performance have outstripped the national average.
- The Warrington economy also generates more GVA per head than the average for England
- Warrington generates more economic output per worker than the regional or the national averages.
- Warrington generated the largest proportion of its economy from distribution, transport, accommodation and food (20%).
- Warrington has £49,695 of GVA per filled job. This is higher than the North West average of £45,519, but lower than the England figure of £51,803. This suggests the need for Warrington to grow its GVA per filled job by further encouraging the growth of higher value businesses in the town.
- Warrington records lower levels total stock of businesses per 1,000 working age people than across England as a whole – but in the last five years the number of new businesses in Warrington has grown faster than the national average.

What does this mean for LTP4?

Warrington has displayed a strong economic performance in recent years and is recognised as a great place to work. However, increasing strain on the highways network could cause productivity levels to decrease.

Productivity levels are highly influenced by the quality of the commute and how easily workforce can access employment. LTP4 should consider schemes that can help improve journey time reliability, relieve existing pinch points and reduce congestion. It may also be important for the strategy to develop new strategic connections which can unlock new land for employment opportunities, particularly for high value business premises.

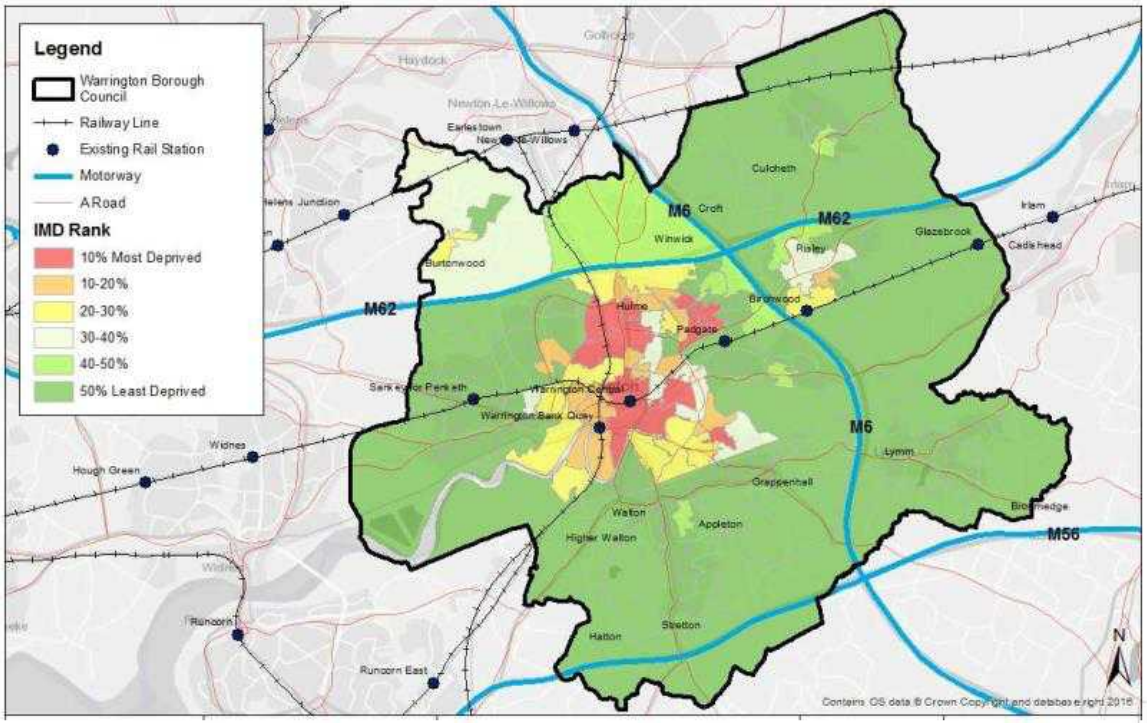
3.9 Level of deprivation

The Index of Multiple Deprivation (IMD) considers several domains of deprivation to determine a level of deprivation for Lower-layer Super Outputs Areas (LSOAs) across England.

At local authority level, Warrington is ranked 147th out of 326 local authorities using an average LSOA score.

Figure 20 highlights parts of Warrington are amongst some of the most deprived nationally with parts of the town centre, Orford and Padgate within the most deprived 10%. These areas correlate with those areas identified later in Section 4.7 with high proportions of households without access to a car / van. A pocket of deprivation is also evident at Birchwood though this is not to the extent of the other areas identified.

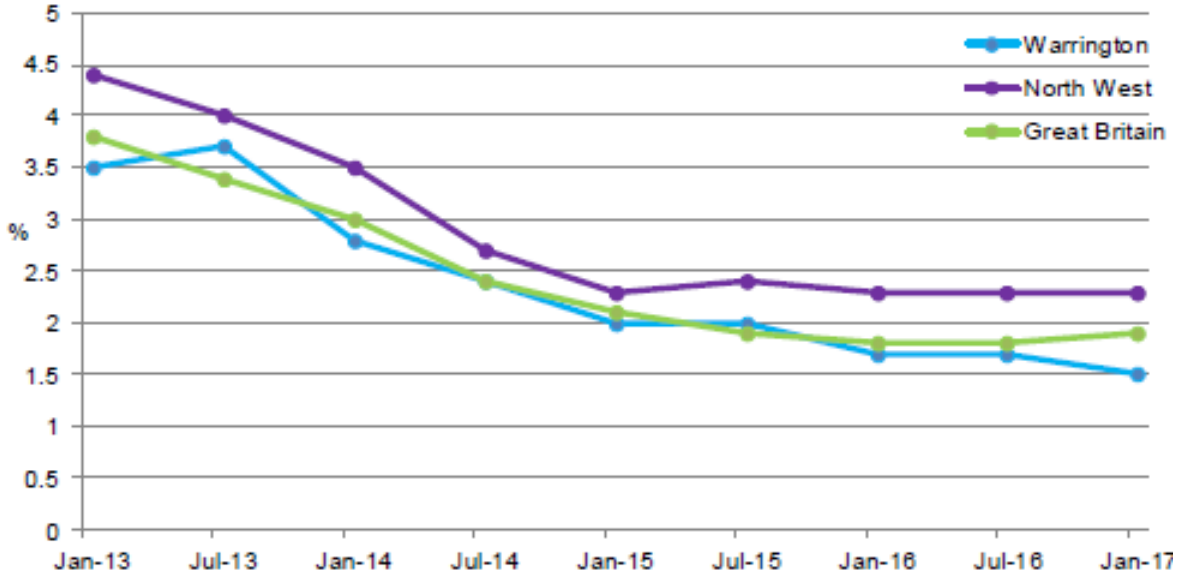
Figure 20: Index of Multiple Deprivation



Source: Department Communities and Local Government (2015)

The percentage of claimants as a proportion of residents aged 16-64 is shown in Figure 2.8. In January 2017, this figure was 1.5% for Warrington which was lower than the North West and Great Britain figures (2.3% and 1.9% respectively). The results show a falling trend between January 2013 and January 2015. Since then, the national proportion has been reasonably consistent whereas in Warrington, the proportion continued to decrease, though less steeply compared with the period between January 2013 and January 2015.

Figure 21: Claimant count (aged 16-64)



Source: NOMIS

3.9.1 Key findings of deprivation levels

The key findings of deprivation levels in Warrington are:

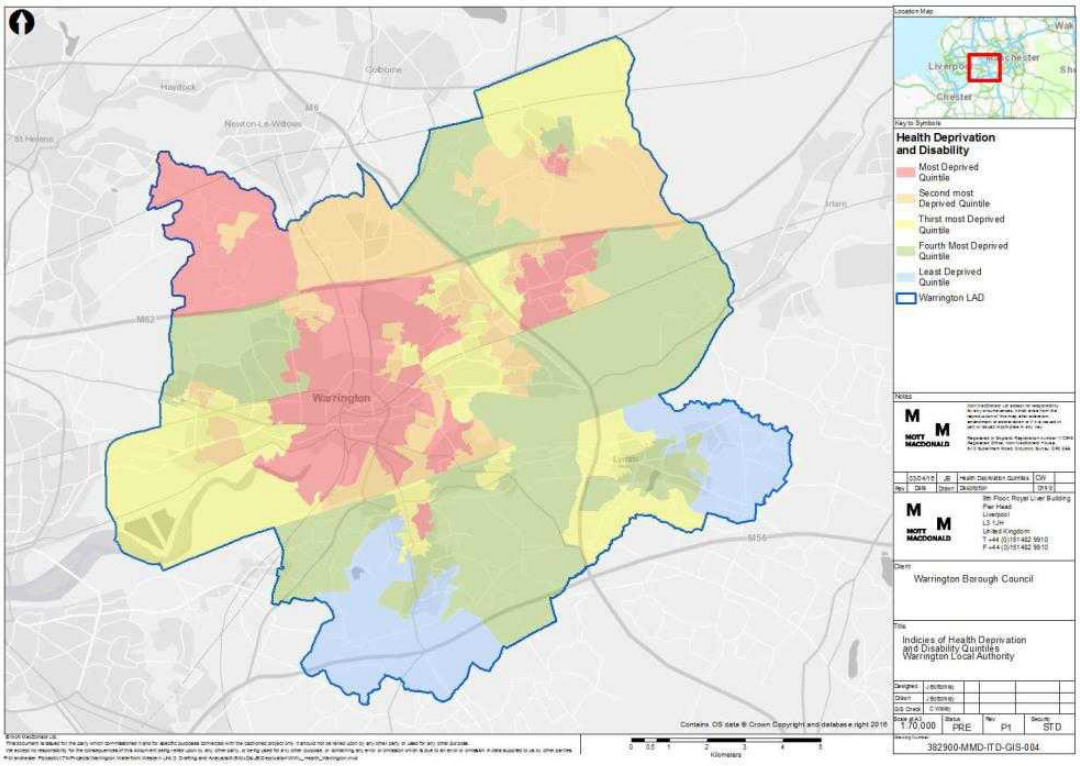
- Warrington ranked 147th out of 326 local authorities with regards to the IMD.
- Parts of the Borough are within the 10% most deprived nationally, particularly the town centre, Orford and Padgate.
- Proportion of claimant counts (aged 16-64) has fallen in Warrington between 2013 and 2017.

What does this mean for LTP4?
LTP4 should implement schemes that can provide quick, accessible and affordable transportation from the most deprived areas of Warrington to the Borough's key employment and service destinations.

3.10 Health

Health deprivation and disability indices were mapped for Warrington (Figure 22). Comparable to other deprivation assessments, the areas with most poor health are located in central Warrington, north Warrington and residential areas near to the A49, and the A57 as well as south-west Warrington near the A56, north-west near Burtonwood, and the north-east near Birchwood and Culcheth.

Figure 22: Index of Multiple Deprivation

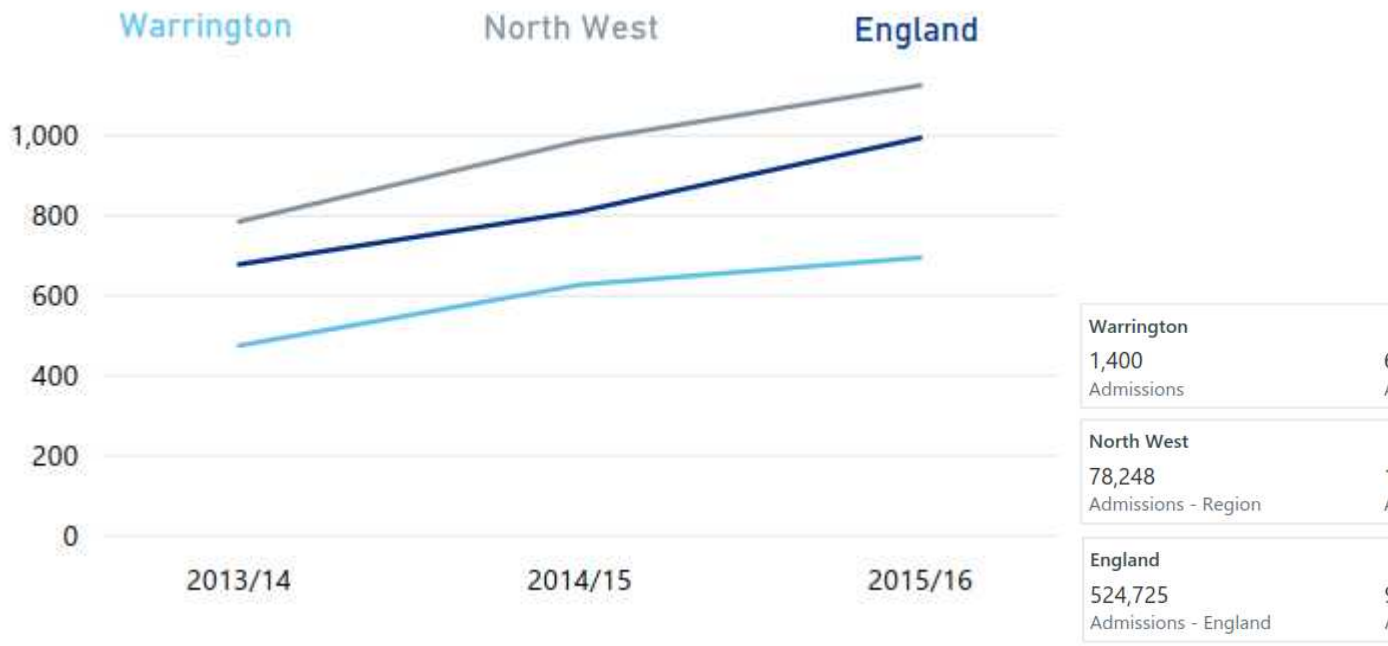


Source: Department Communities and Local Government (2015)

The health of Warrington's population was further explored by looking at admissions where obesity was a factor in Warrington using hospital episode statistics from the NHS. The results are set out below in Figure 23.

The analysis shows that Warrington has 696 admissions per 100,000 and this is less than the North West (1,126) and England average (995). Warrington has seen a lower admissions between 2013 -2016; however, similar to the rest of the country, the number of admissions are increasing.

Figure 23: Admissions where obesity was a factor



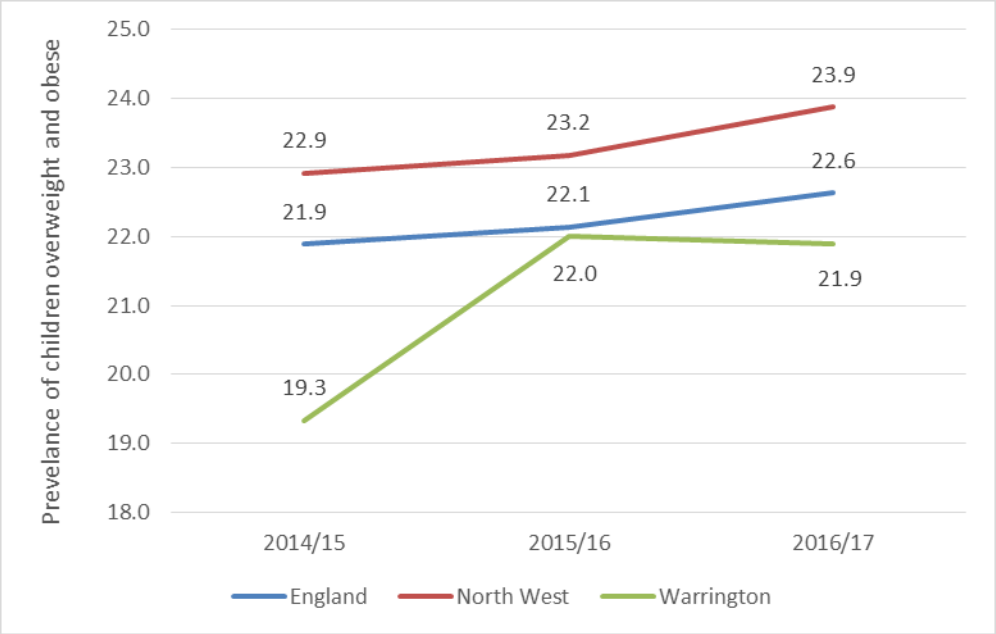
Source: Hospital Episode Statistics (HES), NHS Digital.

Data was obtained from the national child measurement programme; it measures the height and weight of children in reception class (aged 4 to 5) and year 6 (aged 10 to 11), to assess overweight and obesity levels in children within primary schools.

The prevalence of children who were overweight and obese in Warrington, North West and England average are shown for reception in Figure 23 and in Year 6 in Figure 24 .

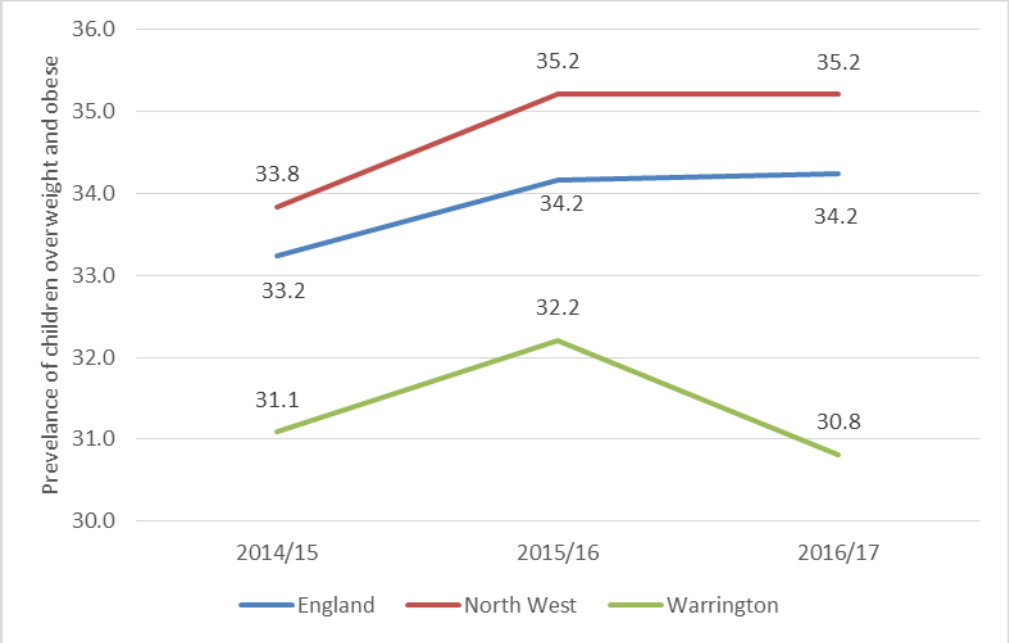
The prevalence of obese and overweight children in reception and year 6 is growing across the country. Warrington is observed to have a lower prevalence of children obese and overweight than the North West and England average. There has been a very small decrease in recent years. Furthermore, there is greater prevalence of overweight and obese children in Year 6 than reception, suggesting the risk of obesity and overweight to increase with age for children.

Figure 24: Prevalence of children overweight and obese in reception children



Source: NHS National child measurement programme

Figure 25: Prevalence of children overweight and obese in Year 6 children



Source: NHS National child measurement programme

3.10.1 Key findings of health

The key findings of the health analysis in Warrington are:

- The areas with the greatest health deprivation are located in central and northern Warrington, such as near the town centre, Orford and Padgate.

- In Warrington, admissions at health clinics where obesity was a factor is increasing. This is a trend being experienced in the North West and England at a larger rate than in Warrington.
- In Warrington in 2016/17, the prevalence of children overweight and obese in reception was 21.9% and Year 6 30.8%). This is below the North West and national average.
- The prevalence of obese and overweight children in reception and year 6 is growing in Warrington and across the country.
- There is greater prevalence of overweight and obese children in Year 6 compared with reception, suggesting the risk of obesity and overweight to increase with age.

What does this mean for LTP4?
LTP4 should seek to increase levels of active travel in Warrington to help encourage healthier lifestyles across the Borough. There may be merit in targeting active travel at an early age to help embed walking and cycling as part of the daily routine.

3.11 Leisure

Warrington has a strong cultural and leisure offer. The key leisure activities and tourist attractions in Warrington are found below:

- LA Bowl – bowling situated on Winwick Quay
- Odeon cinema complex located at the Westbrook centre
- Gulliver's World theme park
- Pyramid & ParrHall theatre arts centre
- Speedkarting Warrington is the largest indoor go karting circuit in the UK
- Warrington Museum and Art Gallery
- Walton Hall and Gardens
- Jellybeans Play Centre
- Grappenhall Heys Walled Garden
- The Museum of Policing in Cheshire
- Warrington Wolves Halliwell Jones Stadium
- Bluebell Cottage Gardens
- Sankey Valley Park
- Woolston Park

4 Transport and Travel

4.1 Transport and travel key findings and implications

Car dominance

- Warrington has above average car ownership. The car is the travel mode of choice and dominates highways transportation.
- The volume of cars attempting to use the supply of network is too great during peak periods and often results in severe congestion problems.

Poor journey times and congestion

- Warrington suffers from serious congestion. Slow journey times exist on the approach and within the town centre and within proximity to motorway access points.
- Travel during peak periods has become a burden for Warrington residents and workers.
- Continuing congestion could reduce productivity and stifle Warrington's growth plans
- Although Warrington holds good transport connectivity with the wider region through its links with the SRN and the rail network, the poor performance of the Borough's local highways network is impeding accessibility to these gateways.

Travel to work patterns

- There is high dependency on the car for commuting and this proportion has increased.
- Despite being served by public transport modes, the commute to the town centre is dominated by the private car. This suggests the offer and quality of public transport services and active travel modes are less convenient.
- Rail use is increasing - maintaining good rail accessibility is important for existing travel to work patterns and helping to grow rail commuting within Warrington.
- Cycling as a commuter mode is more popular in the town's inner areas.

Public transport use

- The number of rail users is growing, with a 37% increase observed in the last 7 years.
- Bus patronage has declined and satisfaction levels are below the national standard. Town centre congestion and lack of cross town routes reduce the quality of the service.
- Warrington requires a step change in the quality of its public transport services, and possibly the introduction of a mass transit system to help encourage a modal shift away from the car, reduce congestion and accommodate housing and job growth.

Active travel

- Cycle count data shows cycling to be increasing in Warrington.
- The dominance of the car and hostility of roads hinder levels of active travel. Improving the pedestrian environment across the Borough could help raise levels of walking

Freight

- The number of freight vehicles on Warrington's roads is increasing and adds to the town's congestion and air quality issues. A freight strategy is required to coordinate freight movements and to help the important industry grow in a sustainable way.

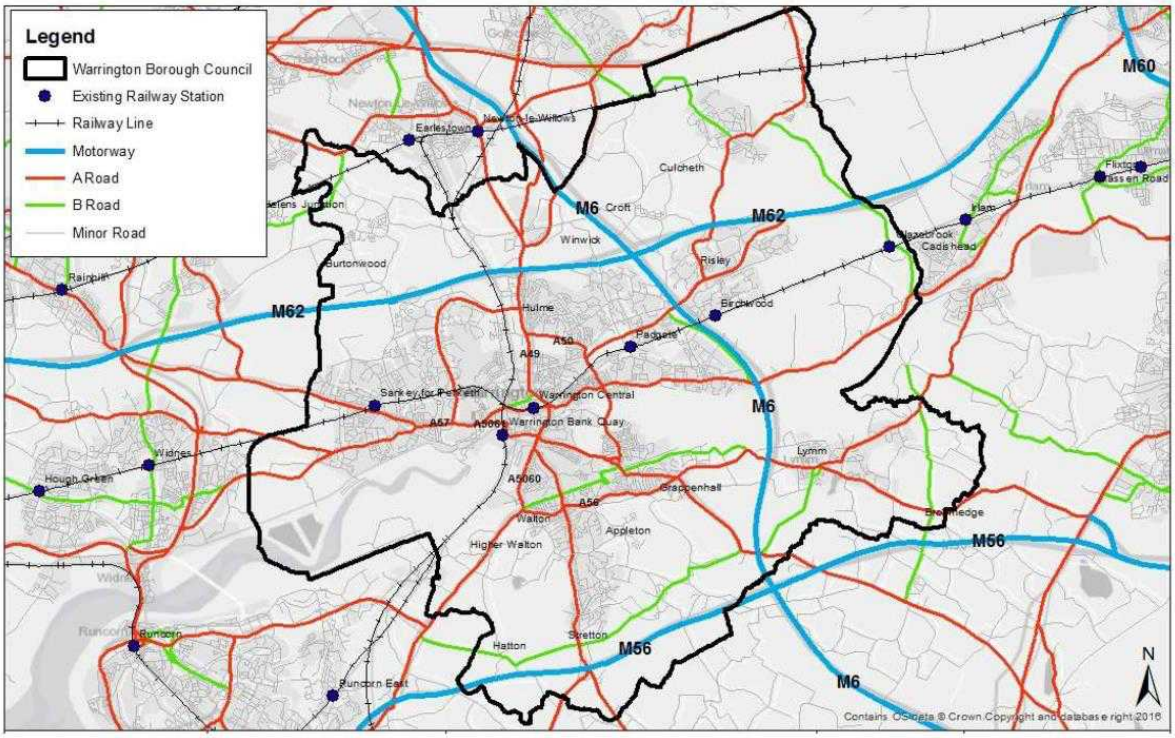
4.2 Transport and travel

The purpose of this section is to review the past and existing transport and travel patterns within Warrington Borough. The section examines data sources from Office for National Statistics, NOMIS, DfT travel statistics and local travel surveys.

4.3 Warrington transport network

Warrington's existing transport network is shown in Figure 26. This shows motorways, A roads and B roads in Warrington, as well as rail lines and stations. Three motorways run through the Borough.
The M6 provides a connection from Birmingham in the south to Carlisle in the north, whilst the M62 is an east-west link between Manchester and Liverpool. The M56 also runs east-west, but is through the south of the Borough and provides a connection between South Manchester and Chester.

Figure 26: Warrington transport network



Source: Warrington transport summary: Part II

The A roads that run through the Borough are:

- The A49 which runs north-south from the M62 to M56;
- The A57 which provides a connection to the west of Warrington Town Centre through Great Sankey and joins the M62 at Junction 7;
- The A5061 connects with the A49 at the River Mersey and joins the A50 after travelling through Latchford;
- The A50 which links the A49 in Orford with the M6 at Junction 20;

- The A5060 is between Lower Walton and Brian Bevan Roundabout, providing a connection to Warrington Town Centre from the A56; and
- The A56 which runs east-west through the south of the Borough, parallel to the Manchester Ship Canal.

Warrington has an extensive highways network. However, there is a gap in the town's inner arterial network, west of the town centre. There is limited highways infrastructure that facilitates crossing between south-west and north-west Warrington over the Manchester Ship Canal and the River Mersey. As a result, this causes substantial amounts of traffic to pass through the town centre when travelling north-south across west Warrington.

4.3.1 Key findings of Warrington's transport network

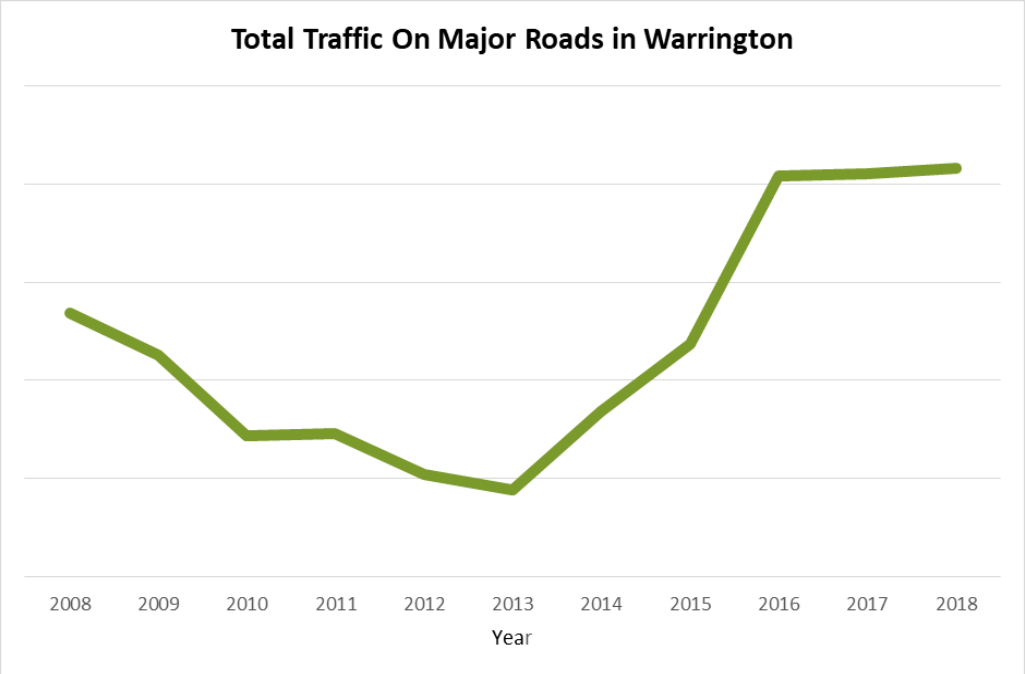
The key findings of Warrington's transport network are:

- Warrington is strategically located and has convenient access to the motorway network.
- Warrington has good access to rail services; the CLC line provides good east-west connections to Manchester and Liverpool. The West Coast Mainline provides extensive north-south connections to key English and Scottish cities.
- There is a gap in the town's inner arterial highways network in west Warrington.

4.4 Travel patterns and trip behaviour

The total traffic on major roads, in thousand vehicle miles, is presented in Figure 27 for Warrington. The 'major roads' includes motorways and all class 'A' roads and there are 72 markers around the Borough.

Figure 27: Total traffic on major roads, in thousand vehicle miles (2000-2016)



Source: DfT (https://roadtraffic.dft.gov.uk/local-authorities/74)

The car dominates traffic on major roads. Between 2000 and 2016, car traffic has fluctuated over time but overall it has increased by approximately 15%. Moreover, the total car traffic on major roads reached its greatest levels in 2016 at 1,020,208 thousand vehicle miles.

For goods vehicles, Figure 27 shows a 62% increase from 2000 to 2016 for LGVs, whilst the number of HGVs has remained reasonably consistent over the time period.

The information presented in Figure 27 was expressed as a proportion of different travel modes and can be found in Table 9. The results show:

- Three quarters (75.4%) of vehicle miles were made by car in 2016 and this proportion has fallen slightly from 77.1% in 2009.
- 10.3% of vehicle miles were by LGV in 2000 and this has risen to 14.1% in 2016.
- The proportion of pedal cycles and motorcycles has been consistent over the time period.

Table 9: Total traffic on major roads, in thousand vehicle miles (2000-2015) – modal split proportions

Mode	Year																
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pedal Cycles	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%
Motorcycles	0.5%	0.5%	0.5%	0.6%	0.5%	0.4%	0.4%	0.4%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
Cars	76.8%	77.0%	77.4%	77.1%	77.4%	76.7%	76.4%	75.7%	76.1%	77.2%	77.0%	76.6%	76.1%	76.1%	75.8%	75.2%	75.4%
Buses & Coaches	0.7%	0.6%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.3%
LGVs	10.3%	10.5%	10.2%	10.6%	10.5%	11.1%	11.7%	11.8%	11.5%	11.1%	11.0%	12.6%	13.2%	13.5%	13.7%	14.1%	14.1%
HGVs	11.7%	11.4%	11.4%	11.2%	11.2%	11.3%	11.0%	11.6%	11.4%	10.8%	11.1%	10.0%	9.9%	9.7%	9.7%	9.9%	9.8%

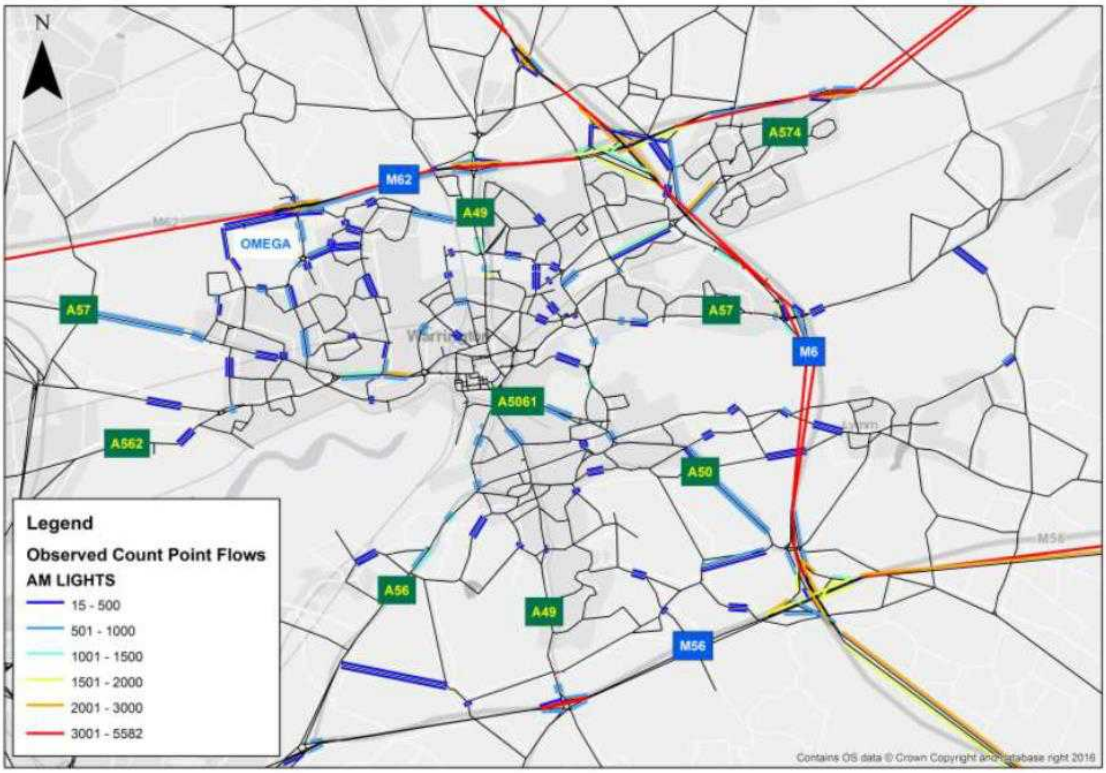
Source: DfT (www.dft.gov.uk/traffic-counts/area.php?region=North+West&la=Warrington)

4.4.1 Traffic flow

Data collection in 2016 for the upgrade of the Warrington Multi-Modal Model was analysed to understand flows on the highway network. Figure 28 to Figure 30 present these results and the key findings were:

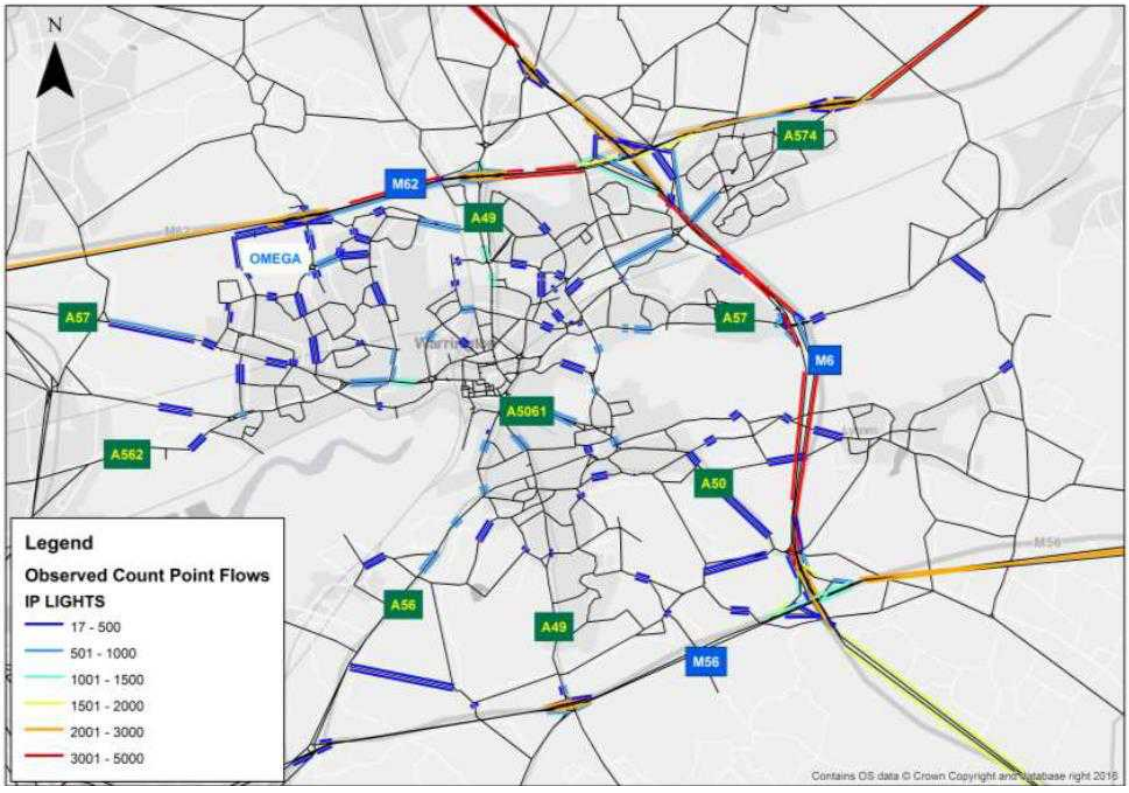
- Flows was generally greater along the M6 with consistently high flows during the AM peak, inter-peak and PM peak compared with all other roads in the study area.
- There were also high flows along the M62, but these were less prominent during the inter-peak compared with those flows along the M6.
- Although the M6 experienced high flows during the AM peak, inter-peak and PM peak; the exception to this is south of Junction 20 on the M6 where flows were lower compared with north of this junction.
- South of Warrington Town Centre, flows were generally consistent across the AM peak, inter-peak and PM peak; except for the approach to / from the M6 Junction 20 where flows were slightly higher.
- Higher flows are observed to the north west of Warrington Town Centre around Westbrook and along Birchwood Way to the north east compared with A roads in the south of the Borough.

Figure 28: Flows AM Peak (07:45-09:15)



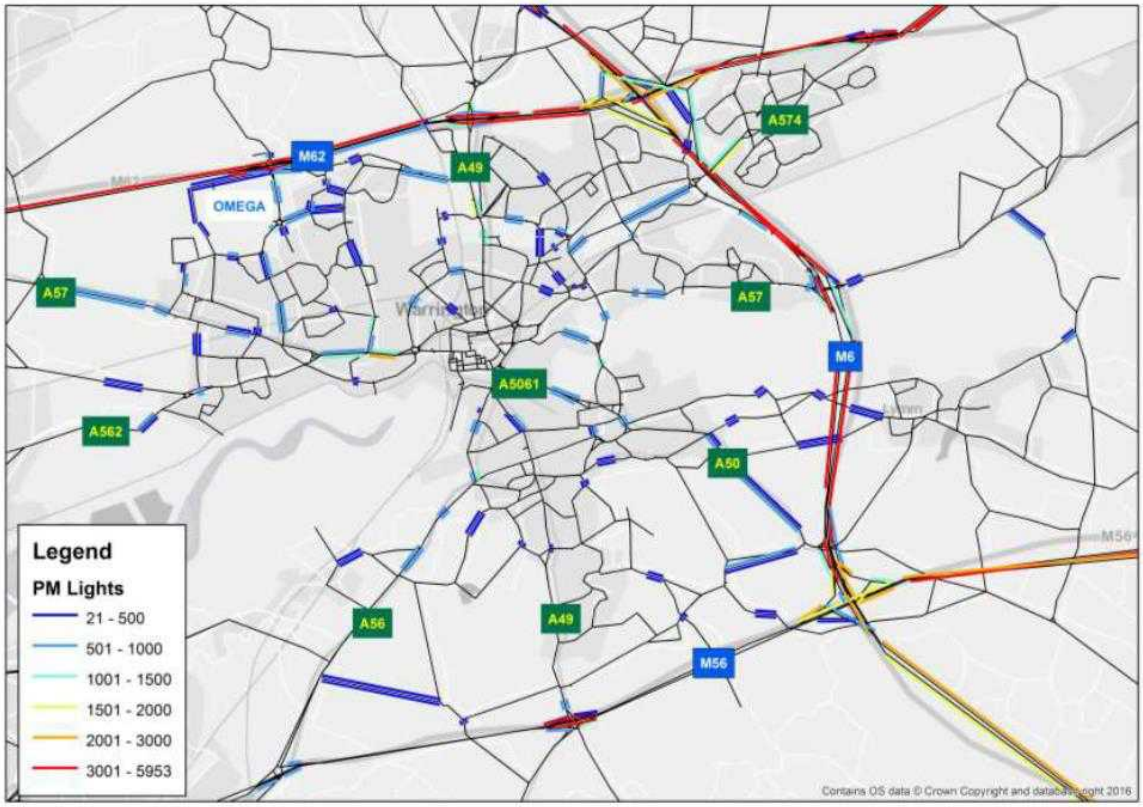
Source: 2016 data collection for Warrington Multi-Modal Model

Figure 29: Flows Inter-Peak (10:00-16:00)



Source: 2016 data collection for Warrington Multi-Modal Model

Figure 30: Flows PM Peak (16:30-18:00)



Source: 2016 data collection for Warrington Multi-Modal Model

4.4.2 Key findings of travel patterns and trip behaviour

The key findings of travel patterns in Warrington are summarised below:

- Car travel dominates the highways work and accounted for three quarters (75.1%) of vehicle miles in 2015.
- LGV traffic is increasing; 10.3% of vehicle miles were made by LGVs in 2000 and this has risen to 14.0% in 2015
- Traffic flow is greatest along the M6, with consistently higher flows during the AM peak, inter-peak and PM peak compared with all other roads in the study area.
- South of Warrington Town Centre, flows are generally consistent across the AM peak, inter-peak and PM peak; except for the approach to / from the M6 Junction 20 where flows were slightly higher.
- There are higher traffic flows to the north west of Warrington Town Centre around Westbrook, and north-east along Birchwood Way compared with A roads in the south of the Borough.
- Some of the highest high traffic flows occur in the location of some of Warrington's most deprived areas.

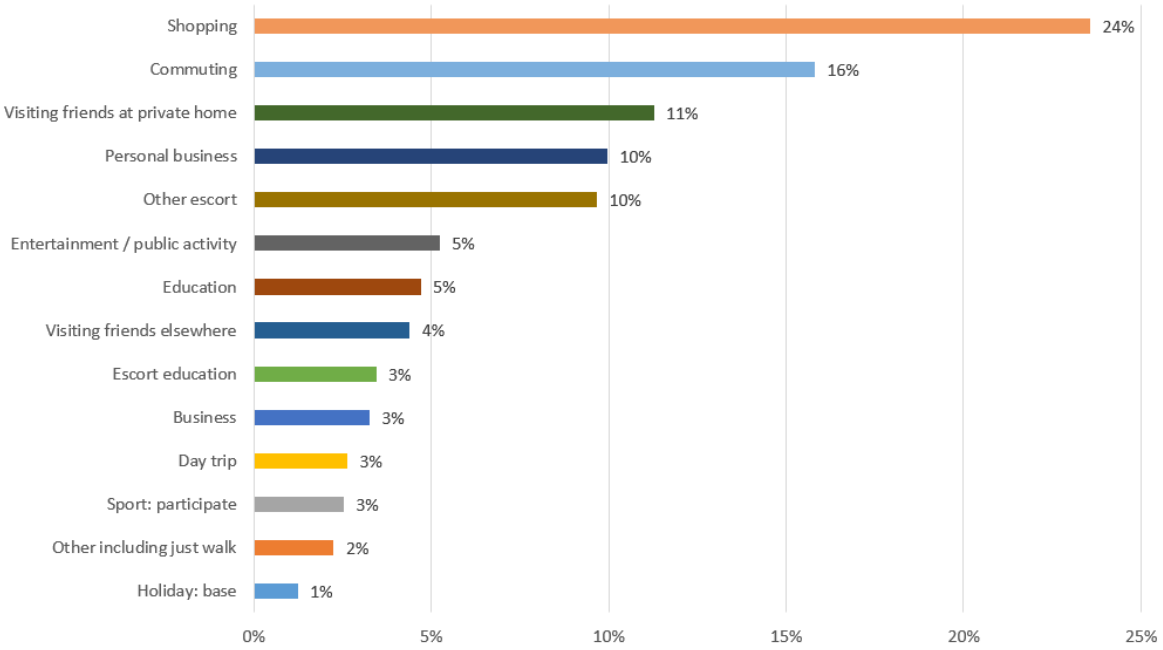
What does this mean for LTP4?
Warrington is strategically located to the motorway network. The SRN acts as a key gateway to the rest of the UK. LTP4 should ensure this gateway can continued to be accessed by residents, workers and business movements.
The private car is the favoured travel mode within Warrington. At times, the demand of cars attempting to use the existing supply of network is too great. This results in periodic and severe congestion problems in the town. Continued use and growth of the car runs the risk of choking economic growth in the town and making Warrington an unpleasant place to live, work and visit.

LTP4 should look to implement schemes that can help manage private car travel movements and reduce congestion at peak times. The strategy needs to effectively discourage car travel, without severely limiting access to services and employment.

4.5 Journey purpose

Journey purpose for trips within Warrington were obtained from the National Travel Survey for years 2007 to 2012. The types of journey undertaken by residents who took part in the survey has been expressed as a percentage of the overall trips (Figure 31). It can be seen that shopping is the most popular type of journey undertaken in Warrington (24%) followed by commuting (18%) and visiting friends at private home (11%).

Figure 31 Journey purpose of trips made by Warrington residents 2007-2012

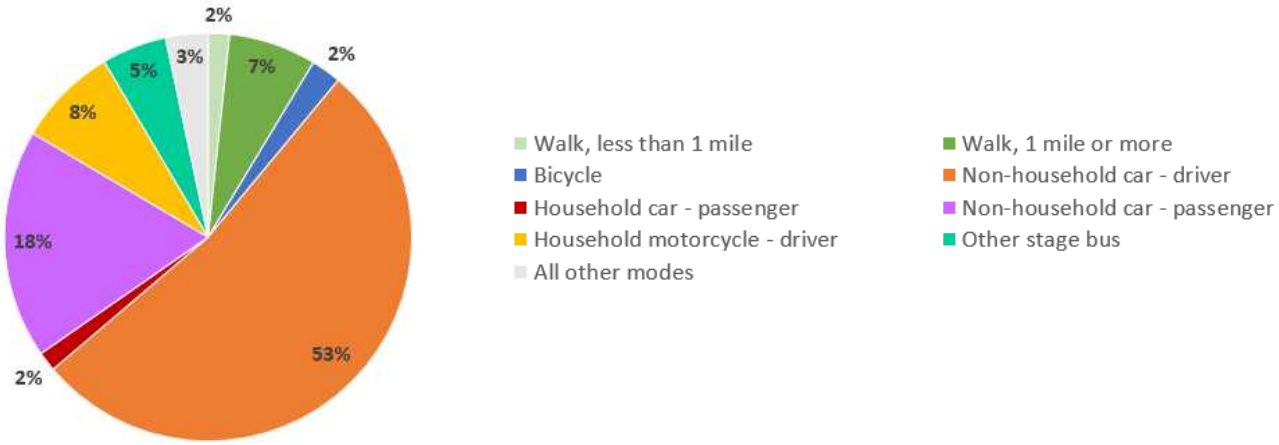


Source: National travel survey for Warrington journeys 2007-2012

The type of mode used to undertake all these journeys can also be seen in Figure 32. It shows that trips are dominated by use of the car, either as a driver or passenger, and account for 80% of journeys.

Active travel used to undertake journeys was fairly low with walking accounting for a total of 9% of journeys and use of a bicycle accounting for 2% of journeys.

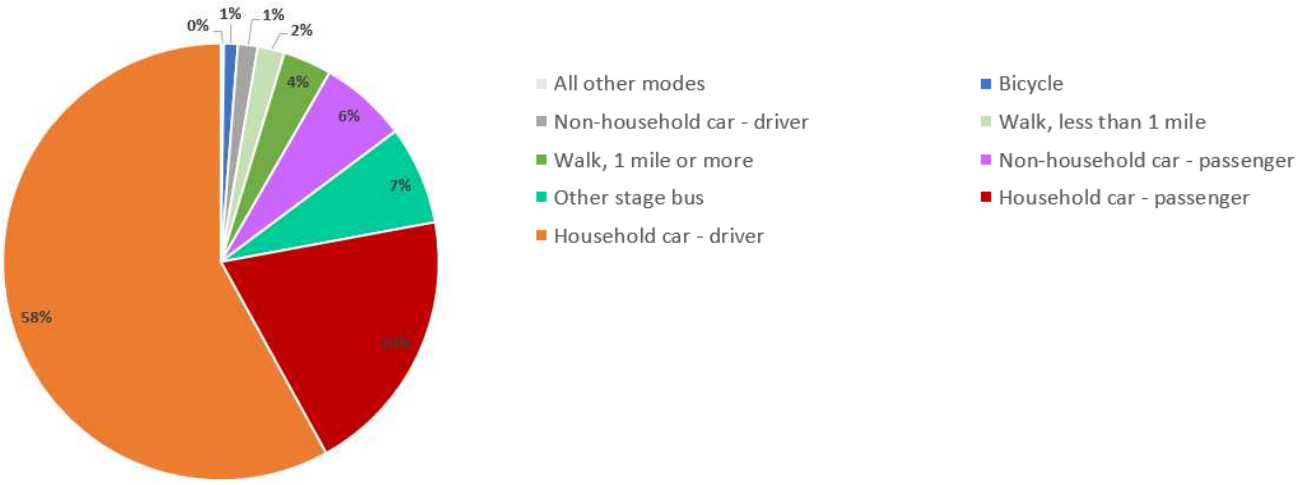
Figure 32 Type of mode used for all trips made by Warrington residents 2007-2012



Source: National travel survey for Warrington journeys 2007-2012

Trip behaviour was also explored for the most popular type of journey – Shopping trips (Figure 33). Again use of the car dominates trips and accounts for 85% of journeys. Subsequently, use of public transport and active travel modes remains low with bus accounting for 7% and walking accounting for 6% and use of a bicycle 1% respectively.

Figure 33 Type of mode used for shopping trips made by Warrington residents 2007-2012



Source: National travel survey for Warrington journeys 2007-2012

4.5.1 Key findings of journey purpose

The key findings of journey purpose of trips made by Warrington residents are:

- Shopping is the most popular type of journey undertaken in Warrington (24%) followed by commuting (18%) and visiting friends at private home (11%).
- Trips are dominated by use of the car, either as a driver or passenger, and account for 80% of journeys.
- Active travel used to undertake all types of journeys was fairly low with walking accounting for a total of 9% of journeys and use of a bicycle accounting for 2% of journeys.
- Use of the car dominates shopping trips and accounts for 85% of journeys. Subsequently, use of public transport and active travel modes remains low with bus accounting for 7% and walking accounting for 6% and use of a bicycle 1% respectively.

What does this mean for LTP4?
A large number of trips are undertaken using the highways network. LTP4 should continue to raise network performance by relieving existing network pinch points and introducing highways schemes that can help improve journey reliability.

A large number of shopping trips are undertaken in Warrington. LTP4 should help improve journey times to key shopping areas across the Borough such as Golden Square Birchwood Shopping Centre, with particular emphasis on improving accessibility to the centre to help encourage the use of the town's main shopping facilities.

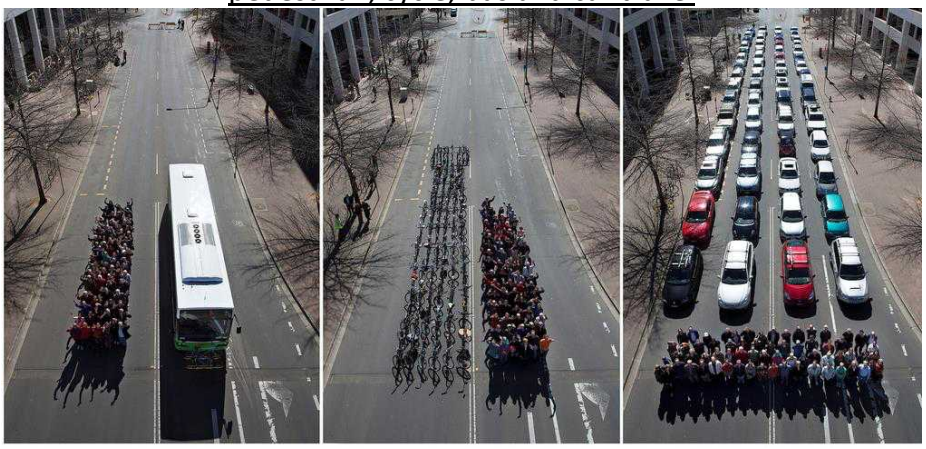
4.6 Transport efficiency

It is useful to consider the efficiency of different transport modes.
Figure *34* shows the road space that 60 people require when traveling by bus, bicycle and car. The findings show that substantial amount of highway is required to accommodate the car. Conversely, bus and cycles use significantly less road space to accommodate 60 people.

It can be inferred from cars demanding use of highways space that the more cars that use the network, the quicker the capacity of the highways is filled up. Therefore, increasing car travel will more likely result in congestion as more drivers have to compete for limited road space.

Whereas the use of buses, cycles and walking offer a more efficient use of road space. Therefore, greater increases in the proportion of people travelling by these modes pose less risk of congestion when compared with the car.

Figure 34 Use of available highways capacity for the transportation of 60 people for pedestrian, cycle, bus and car travel

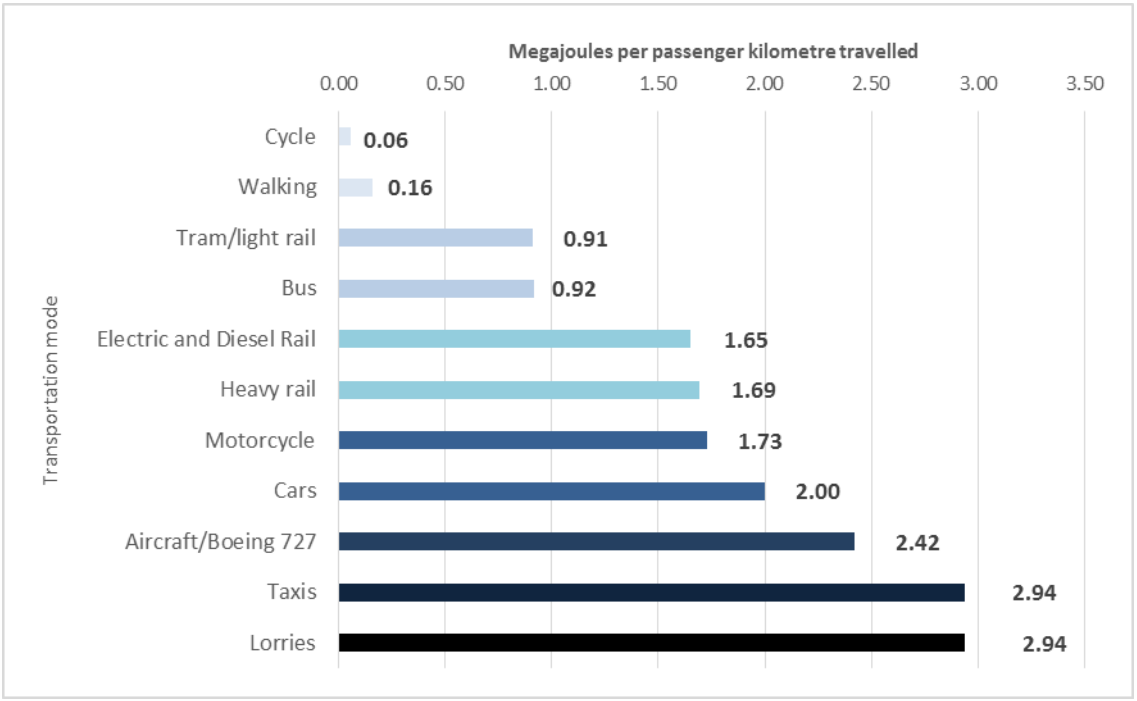


Source: Warrignton Borough Council

The University College London also produced a hierarchy of sustainable modes (Figure 35). This research saw different transport modes ranked according to their energy consumption, maintenance per transport kilometre and per passenger loading.

The analysis demonstrates that active travel modes and public transportation require less energy to transport a greater number of people than the private car. Therefore, these modes offer far greater transport energy efficiency and offer a much more sustainable and environmentally friendly way of travelling compared with the car.

Figure 35 Transport energy efficiency for 11 different modes of transport



Source: Adapted from Banister, D (2009) Sustainable Transport and Public Policy.

4.7 Car Ownership

2011 census data was obtained to acquire an understanding of car ownership in Warrington. For Warrington Borough, household car ownership is displayed in Table 10 81% of Warrington households had access to at least one car / van with 39% having access to two or more cars/ vans.

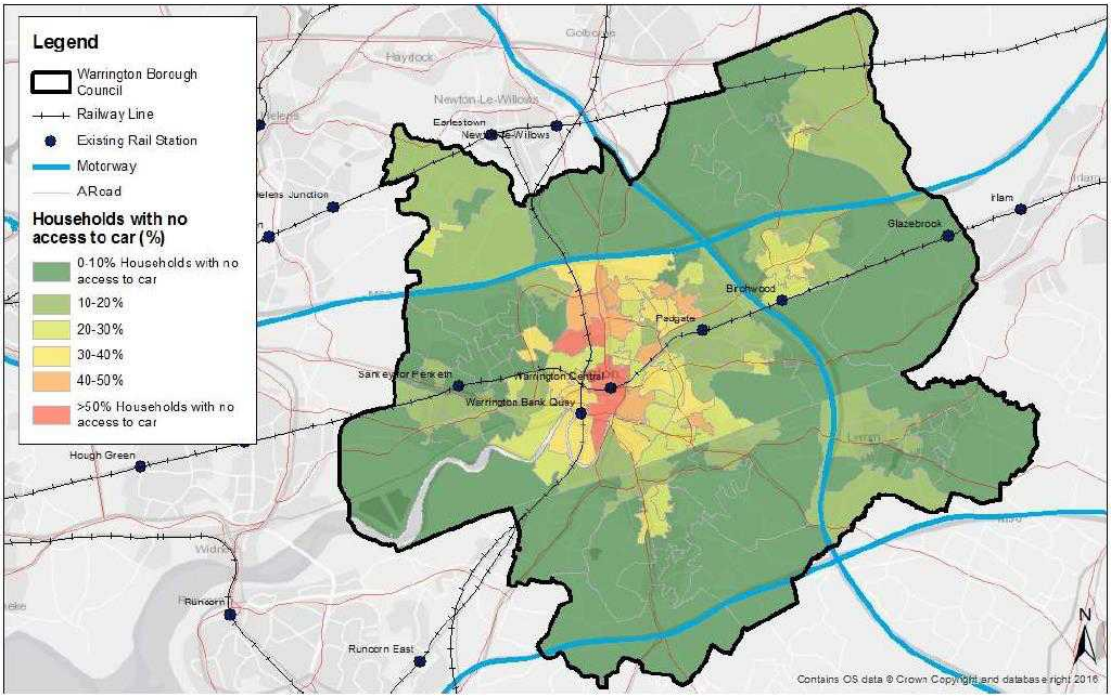
Table 10: Household car ownership in Warrington (2011)

No. of cars or vans in household	Warrington (%)	Cheshire and Warrington LEP (%)	England (%)
None	19	18	26
One	42	41	42
Two	31	32	25
Three	6	7	5
Four or more	2	2	2

Source: Census 2011

Nationally, just over a quarter (26%) of households had no access to a car / van. Warrington sees fewer residents with no access to a car than the national average. Figure 36 maps the proportion of households without access to car and demonstrates high proportions with access to a car / van across the Borough.

Figure 36: Access to a car in Warrington (2011)



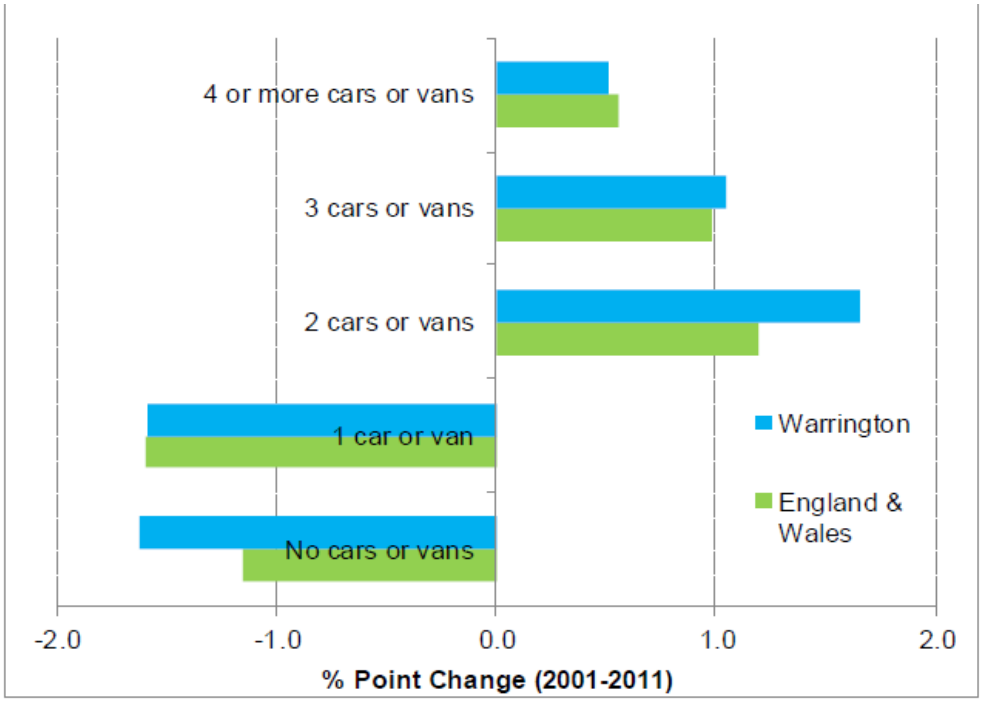
Source: Census 2011

It can be seen from Figure 36 that the highest proportion of households without a car was in central parts of Warrington. To some extent, this reflects the socioeconomic profile of these residents; for example, Figure 8 indicated lower proportions of residents employed as managers, directors or senior officials. It may also reflect the proximity to the town centre and the public / active transport network available.

A comparison of percentage change in car ownership between 2001 and 2011 for Warrington and nationally across England and Wales was undertaken and is show in Figure 37. A summary of the findings can be found below:

- There are decreases in the proportion noting they have no or one car / van in their household nationally and also within Warrington. However, there has been a greater decrease in the proportion without a car / van in Warrington compared with the national change.
- Across Warrington and nationally, there has been an increase in the proportion of households with two or more cars.
- The proportions with three or more cars / vans were consistent between Warrington and the national figure.

Figure 37: Modal share comparison for Warrington, neighbouring cities and New Towns



Census 2011 – travel to work

4.7.1 Key findings of car ownership

A summary of the key findings of car ownership in Warrington is given below:

- Above average levels of car ownership are displayed in Warrington compared with the national average.
- Areas of central Warrington had the highest proportion of households without access to a car / van; perhaps owing to the proximity to Warrington Interchange and the availability of public transport.

What does this mean for LTP4?

For many Warrington residents, car travel is likely to be the norm for travelling in and out of the Borough. The large dependency on the car drives the towns travel problems with many residents and workers competing for road space during peak periods across the borough. This was highlighted in the previous sub-section 4.6, where congestion and journey reliability were identified as a serious travel problem within Warrington.

LTP4 should look to implement schemes that encourage a modal shift away from the private car towards more sustainable travel modes. This would help enable more efficient travel around the Borough and offer cleaner and less polluting ways of travelling. The transport strategy will need to improve the competitiveness and quality of public transport and active travel modes to help encourage this modal shift.

4.8 Journey times and congestion

Figure 38 to Figure 40 present the average speeds during the AM peak, inter-peak and PM peak using Trafficmaster data for June 2015. The results present the weekday average speeds for all vehicles and all road types in the Borough.

To mitigate against any potential biases in the calculations, data was extracted for roads with a minimum of ten observations recorded and 'extreme' fast and slow journey time outliers observed on the network were removed.

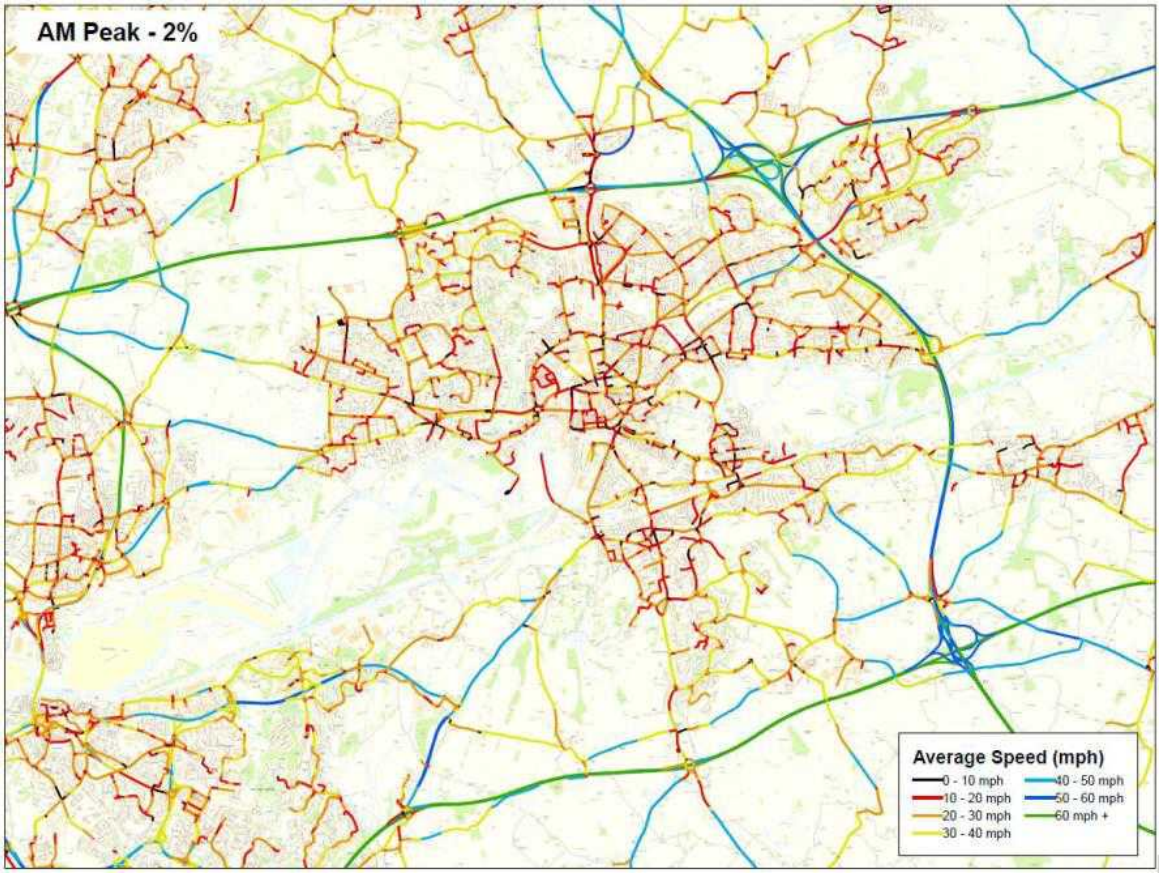
The key findings of the speed data are given below:

- Results showed traffic travelled at higher speeds along motorways with higher speeds along the M56 and M62 compared with M6 during the AM peak.
- There were congestion hotspots on the network where the A50 joins the M6 and where the A49 joins the M62.
- During the PM peak, speeds were slower on the motorway network, particularly between Junctions 9 and 10 on the M56 and along the M6 between Junctions 20 and 21.
- During the inter-peak, traffic along the majority of the motorway network had an average speed of +60mph highlighting clear traffic flows.

For the rest of the highways network local road network, average speeds were broadly similar across the AM, inter-peak and PM peak. The additional following conclusions can be drawn:

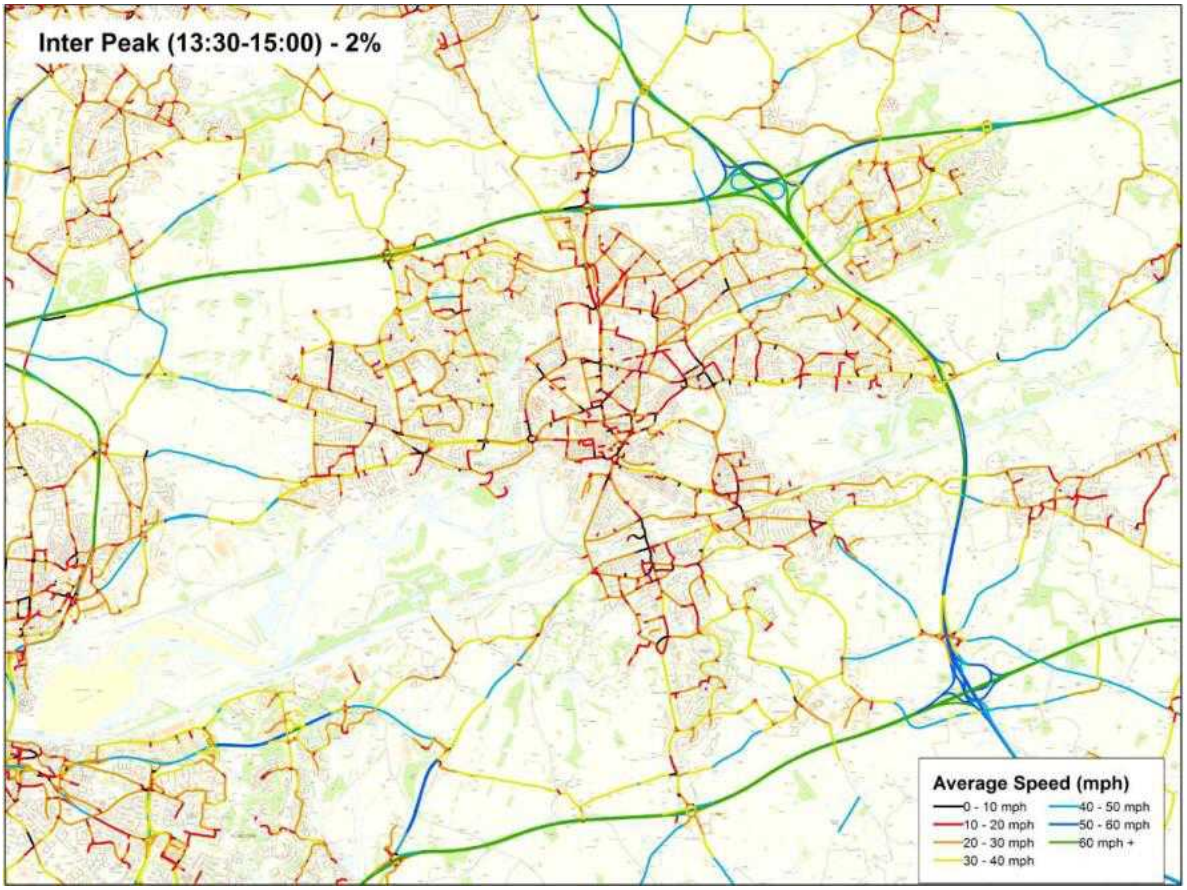
- Slower speeds in Warrington Town Centre and Stockton
- Wilson Patten Street (A5061) had an average speed of less than 10mph during the PM peak.
- To the north of the M62 and east of the M6, average traffic speeds highlighted limited evidence of congestion within the Borough boundary
- Slow traffic speeds from the M6 towards Birchwood during the AM peak with an average speed of 10-20mph compared with 40mph during the inter-peak and PM peak.
- During the inter-peak, traffic speeds on routes into Warrington were generally free-flowing; however, the A49 north of Warrington Town Centre appears to be more prone to slower speeds.

Figure 38: 2015 June Trafficmaster average speeds – AM-peak (07:45-09:15)



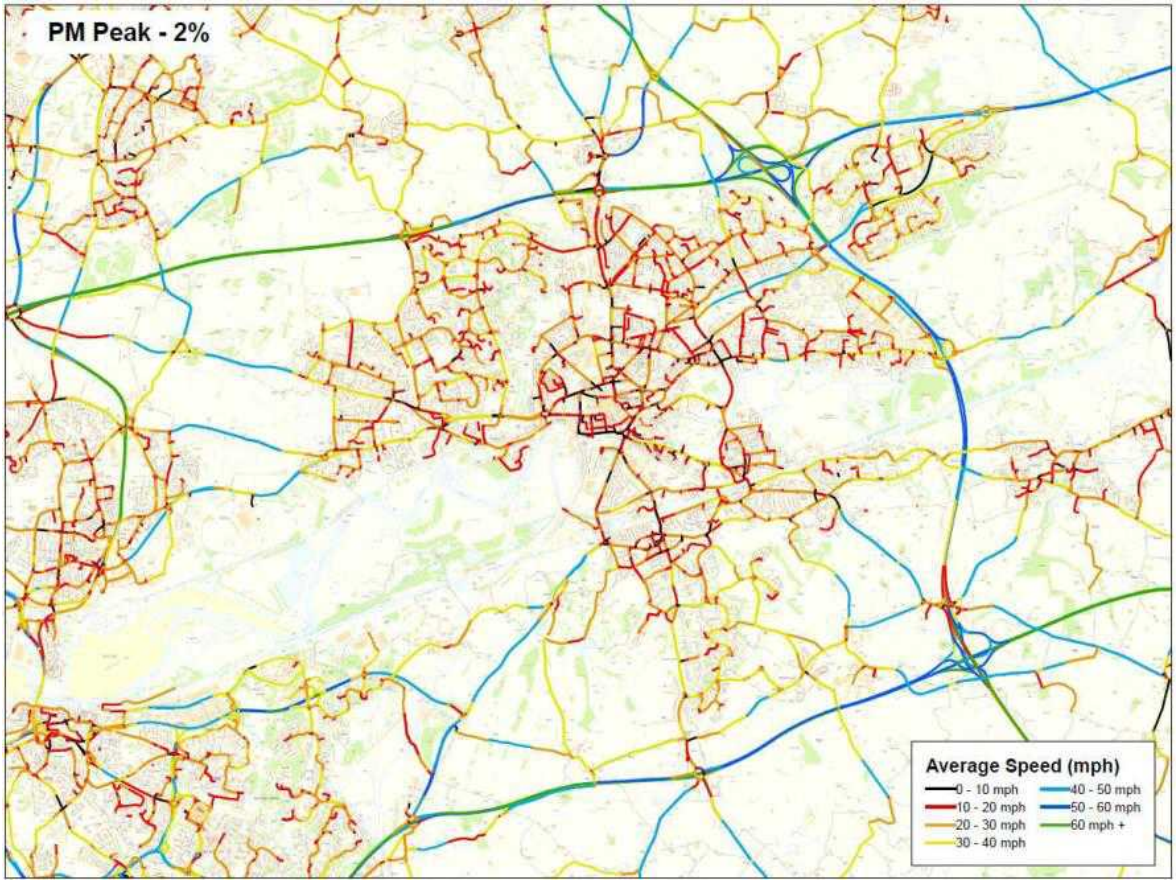
Source: Trafficmaster 2015 - Mon-Fri, second percentile

Figure 39: 2015 June Trafficmaster average speeds – inter-peak (13:30-15:00)



Source: Trafficmaster 2015 - Mon-Fri, second percentile

Figure 40: 2015 June Trafficmaster average speeds – PM Peak (16:30-18:00)



Source: Trafficmaster 2015 - Mon-Fri, second percentile

4.8.1 Congestion hot spots

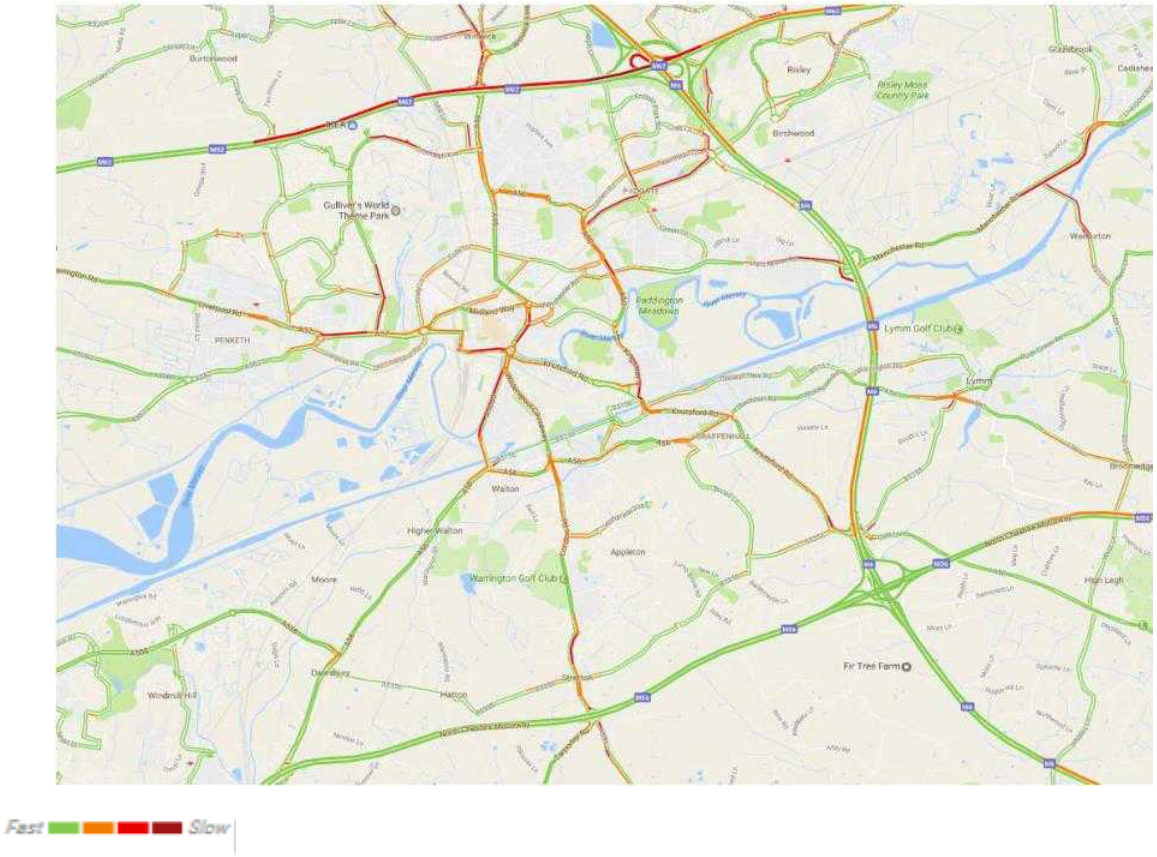
Trafficmaster data helps identify congestion hotspots and stress points on the highway network by highlighting areas on the network where average speeds are slower. To support this, Googlemaps was utilised to take snapshots of live traffic throughout a typical weekday (Figure 41 – Figure 43). This provided another data source to help identify roads where traffic is flowing slowly. The results are summarised in the table below:

Table 11 Summary of typical Tuesday traffic on google maps

Period	Findings
AM peak 08:00	• Slow speeds along the M62 towards Manchester, particularly on the approach to the M6. • Slower speeds were also identified on the A5060 towards Warrington Town Centre from Walton. • Several other approaches to Warrington town centre also had slow speeds.
Inter-peak 12:00	• Speeds were considerably faster compared with the AM peak across the network. • There were slower speeds in Warrington Town Centre, particularly along Midland Way and the A49, north of the town centre. • Wilderspool Causeway and Knutsford Road cross the Manchester Ship Canal and traffic on both routes had slower speeds over the canal.
PM peak 17:30	• Congestion had returned by 17:30 • Congestion in the town centre was more severe than it had been at 08:00 • During the AM peak, speeds along the M62 were notably lower west of the M6 but during the PM peak, slower speeds were evident to the east of the M6. • Towards the south of the Borough, the M6 experienced particularly slow speeds either side of the M56.
All peak periods	• Slower speeds along the M62 and M6 during peak periods compared with the inter-peak. • Warrington Town Centre experiences congestion throughout the day

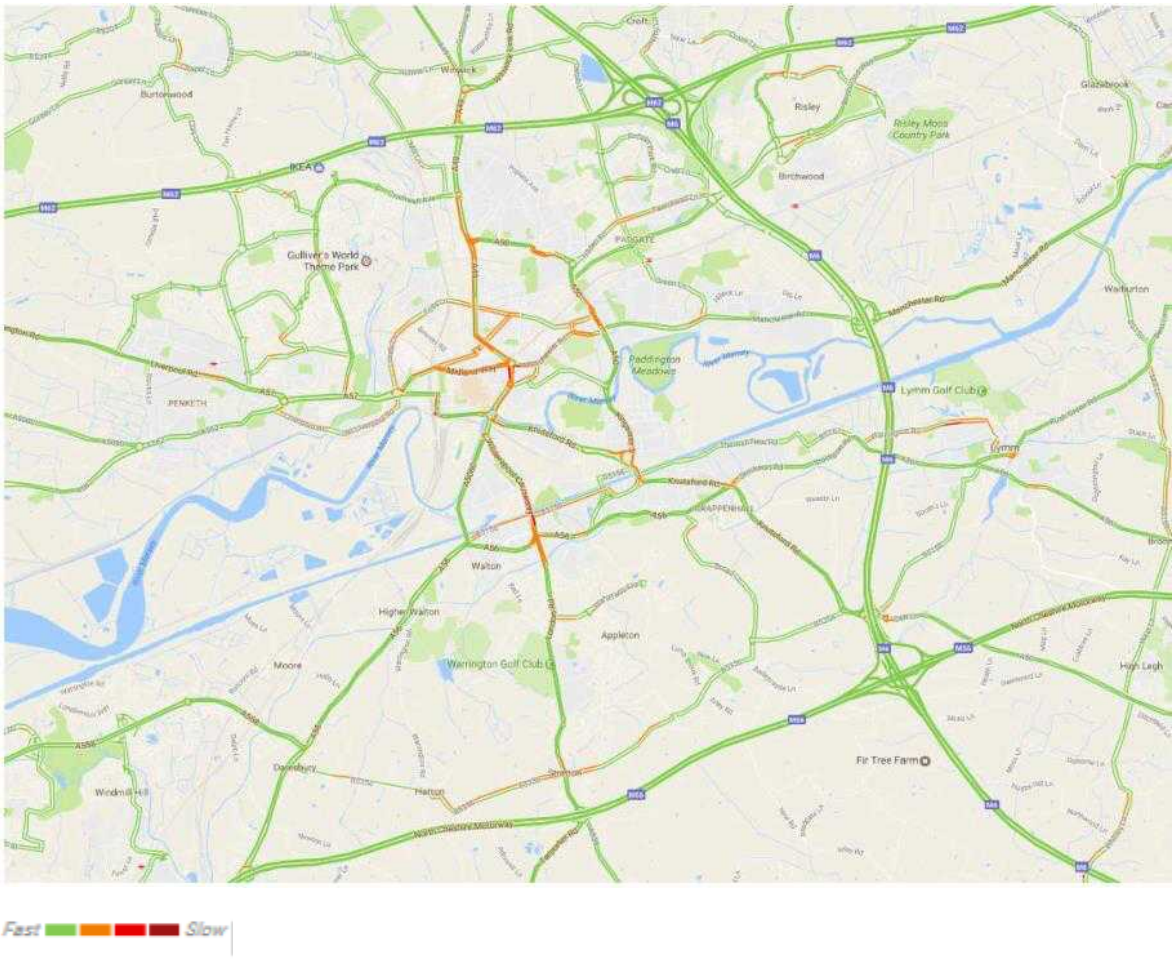
Source: Google maps, typical Tuesday traffic

Figure 41: Warrington highway network at 08:00



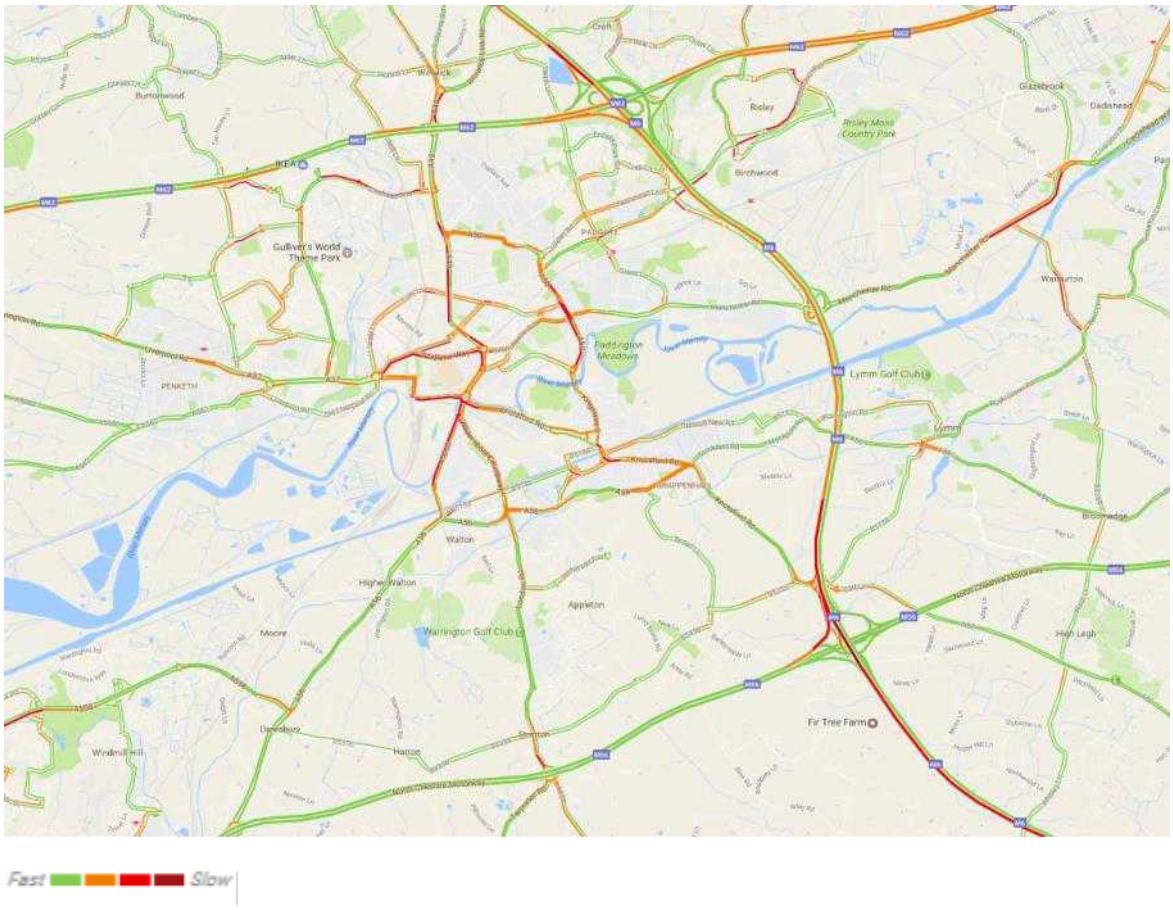
Source: Google Maps, typical Tuesday traffic (2015)

Figure 42: Warrington highway network at 12:00



Source: Google Maps, typical Tuesday traffic (2015)

Figure 43: Warrington highway network at 17:30



Source: Google Maps, typical Tuesday traffic (2015)

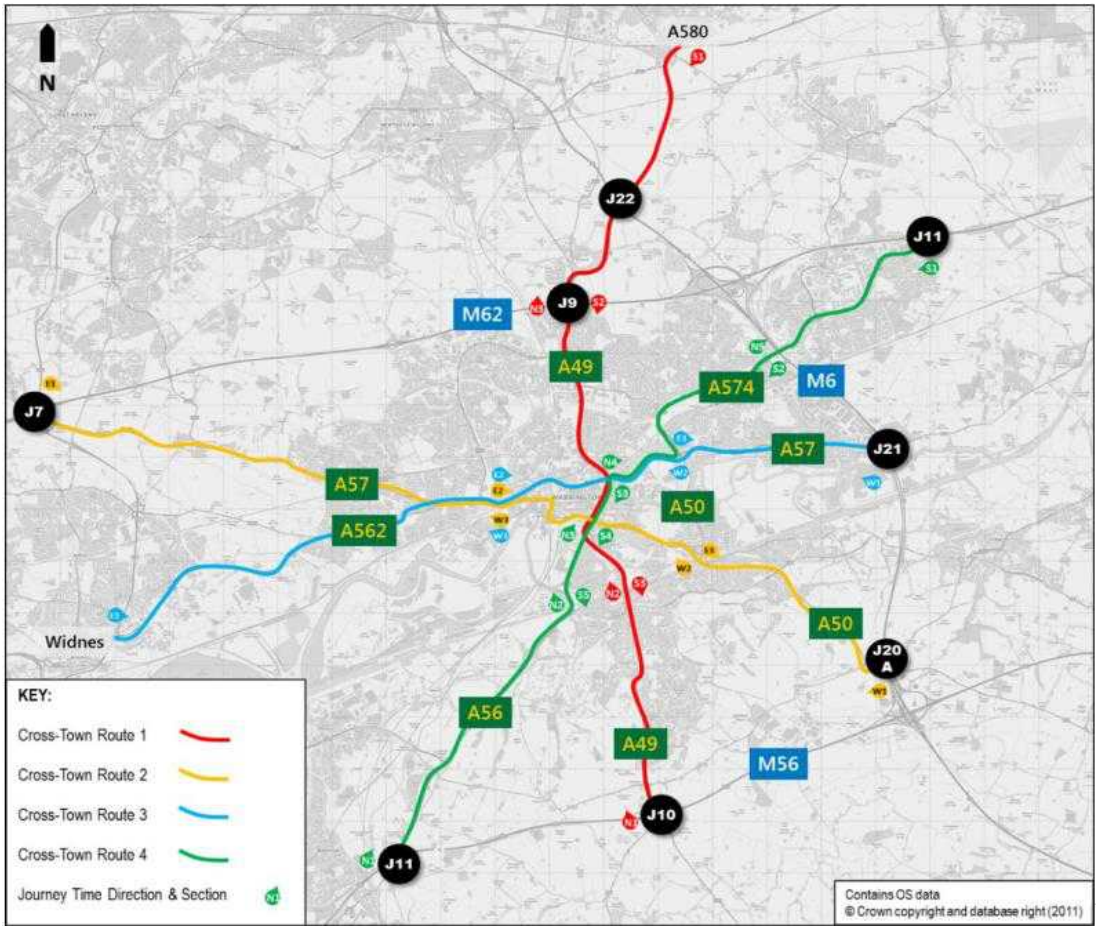
4.8.2 Network journey times

As part of the AECOM data collection study undertaken to inform the Warrington Multi-Modal Transport Model, a number of travel time surveys were undertaken around Warrington to gage traffic conditions around the study area. These included four cross-town surveys:

- **Cross-Town Route 1:** A49/A579/A572 between Lowton (A580 East Lancashire Road) and M56 Junction 10
- **Cross-Town Route 2:** A57/A5060/A5061/A50 between M62 Junction 7 and M6 Junction 20A
- **Cross-Town Route 3:** A562/A57 between Widnes (A557 Watkinson Way) and M6 Junction 21
- **Cross-Town Route 4:** A56/A5060/A49/A57/A50/A574 between M56 Junction 11 and M52 Junction 11

Each of these routes were timed in both directions during peak hour and interpeak conditions, and divided into sections to illustrate where changes in traffic conditions may take place. The path of each route and locations of sections are shown in Figure 44.

Figure 44: Warrington highway network at 17:30

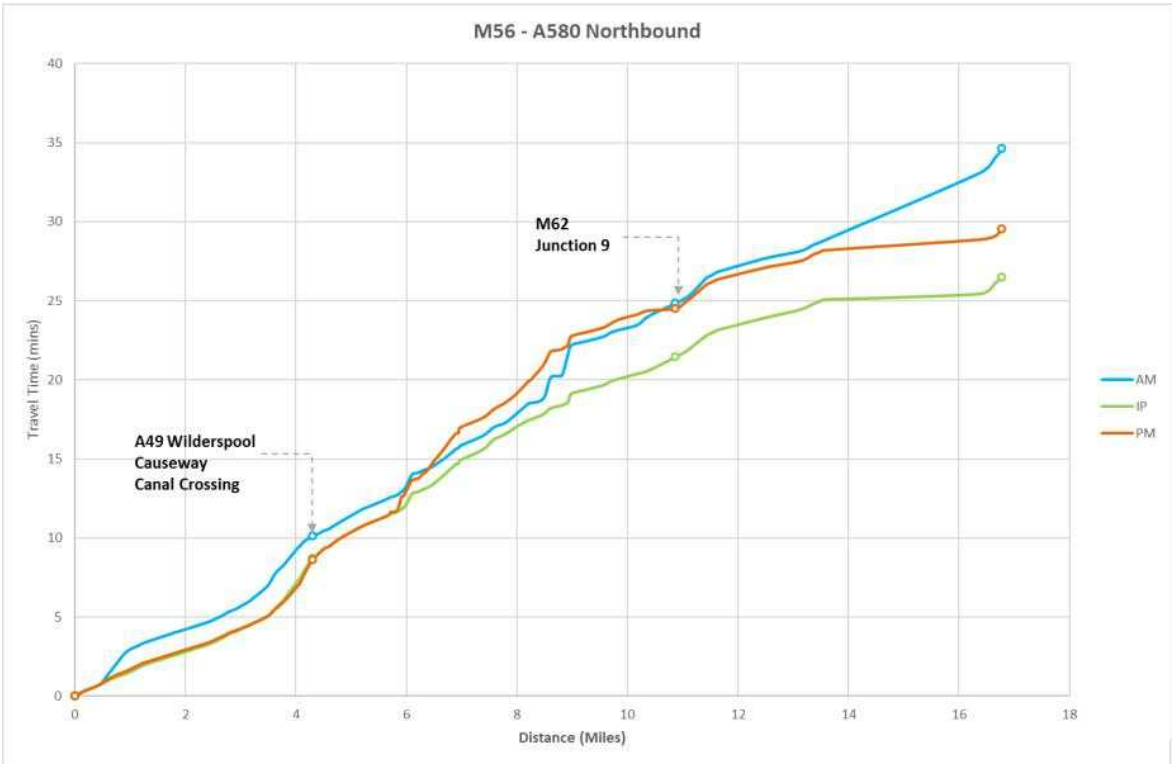


Source: Mott MacDonald, AECOM Warrington Transport Model – Data collection report

A summary of the key findings of the journey time routes is provided below in Figure 45 to Figure 52. The journey time routes highlight network pinch points to exist in the following locations:

- Motorway access points: Congestion is observed in north-east Warrington; slow traffic speeds were observed from the M6 towards Birchwood during the AM peak with an average speed of 10-20mph compared with 40mph during the inter-peak and PM peak.
- On approach to the town centre: Slower speeds were identified on the A5060, Midland Way, A49 and Knutsford Road.
- The town centre: pinch points exist at the A57/A5061 roundabout, A49 Cockhedge Green Roundabout and Sankey Way/Liverpool Road roundabout.

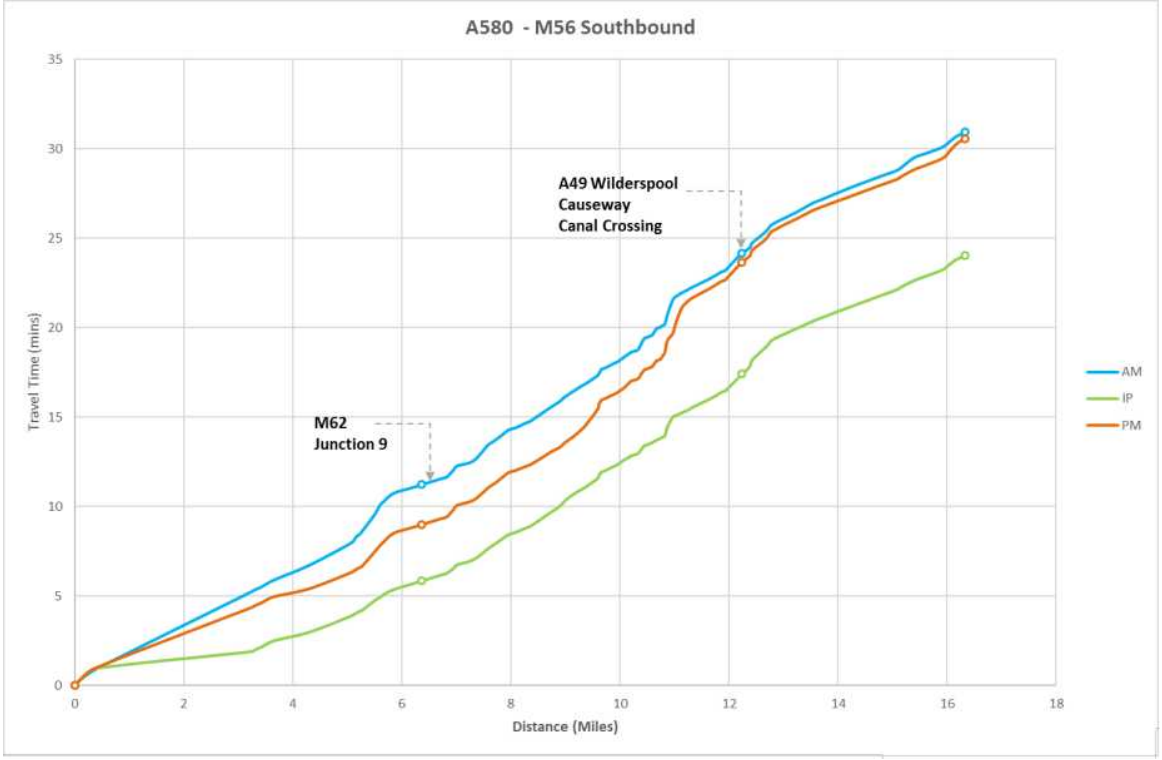
Figure 45: Cross-Town Route 1: Northbound



Source: Mott MacDonald, AECOM Warrington Transport Model – Data collection report

- From the M56 northbound, the journey time profiles are relatively stable, with both IP and PM traffic experiencing similar travel times towards the canal crossing.
- AM traffic appears to experience some congestion as soon as it leaves the motorway, indicating some delays caused by inbound traffic towards the town centre.
- Beyond the canal crossing, travel times become more variable, with steeper profiles taking place in all time periods approximately 2 miles north of the canal crossing.
- Traffic in the morning peak then experiences a large delay approximately 2 miles south of the M62 motorway junction, which corresponds to the A49 as it travels along Lythgoes Lane and the southern section on Winwick Road.
- Beyond the M62 Junction 9, northbound profiles become more uniform, although morning peak traffic continues to experience slower travel times.

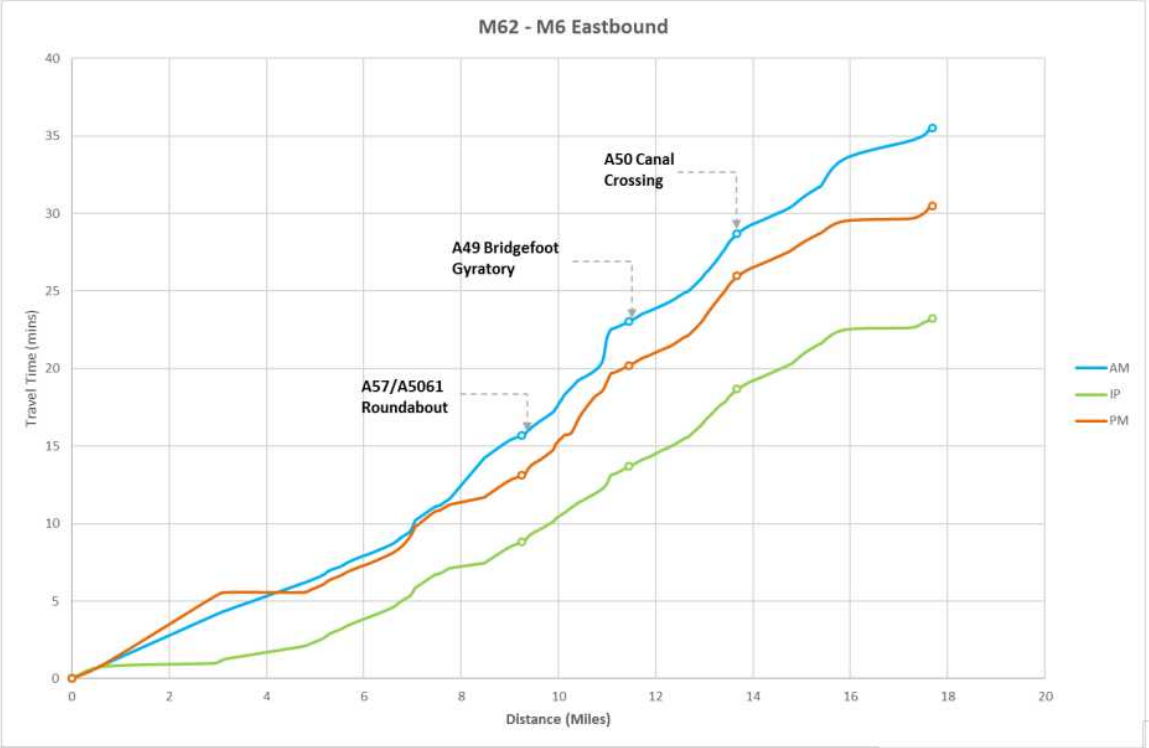
Figure 46: Cross-Town Route 1: Southbound Travel Time Profile



Source: Mott MacDonald, AECOM Warrington Transport Model – Data collection report

- Early travel time profiles remain relatively flat until the approach to the M62.
- All time periods experience a level of delay as they enter the M62 junction.
- Beyond the M62, there is another notable delay affecting all time periods approximately 1 mile north of the A49 canal crossing. This corresponds to the Bridgefoot Gyratory and Brian Bevan Island.
- South of the canal crossing, all travel times retain a similar profile, although both the AM and
- PM peaks have taken longer than the Interpeak

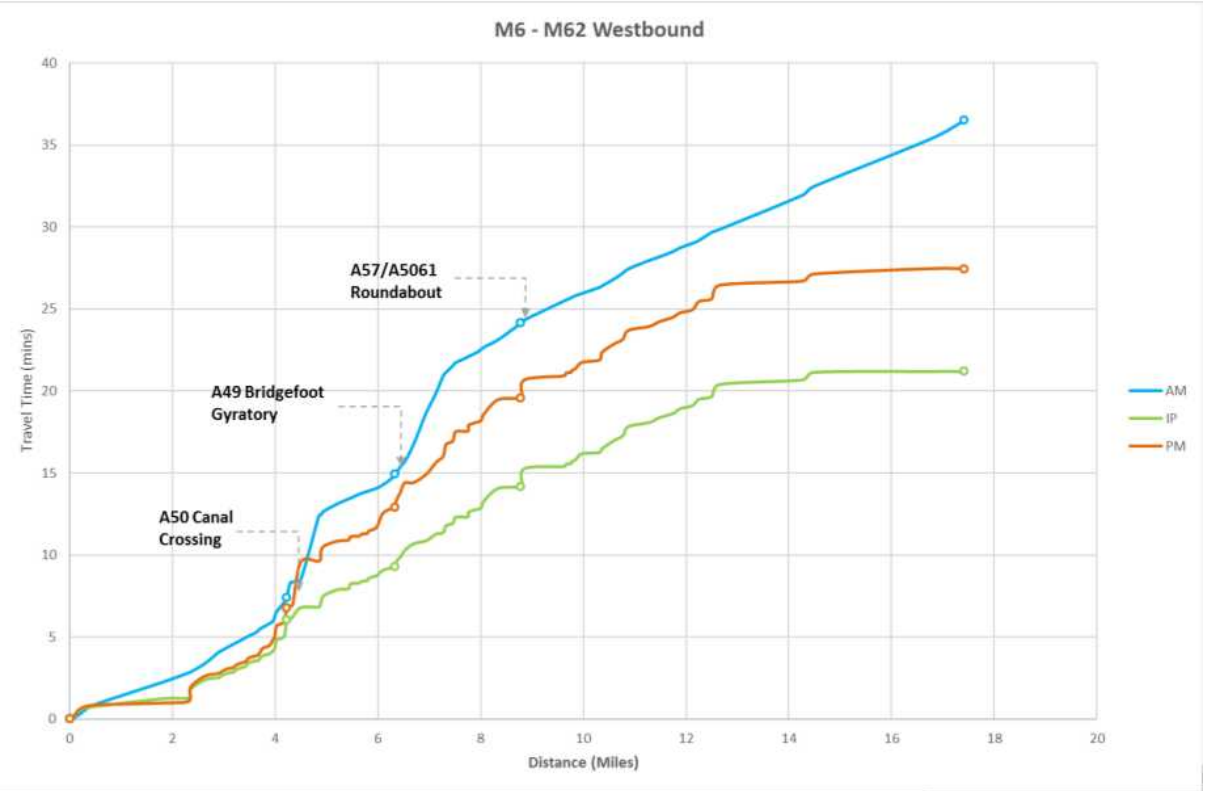
Figure 47: Cross-town Route 2: Eastbound travel time profile



Source: Mott MacDonald, AECOM Warrington Transport Model – Data collection report

- On the eastbound approach to Warrington, delays are infrequent. Although in the PM peak there is a build-up in delay followed by a period of relatively free-flowing traffic.
- As traffic approaches the A57/A5061 roundabout, there is a slight increase in delay, which is more pronounced in the AM peak.
- A further noticeable increase in delay takes place on the eastbound approach to the Bridgefoot Gyratory, which affects both the AM and PM peak.
- Beyond the town centre, there are small increases in delay on the approach to the canal crossing and approximately 2 miles west of the motorway junction, which could relate to delays at the A50/A56 junction in Grappenhall.

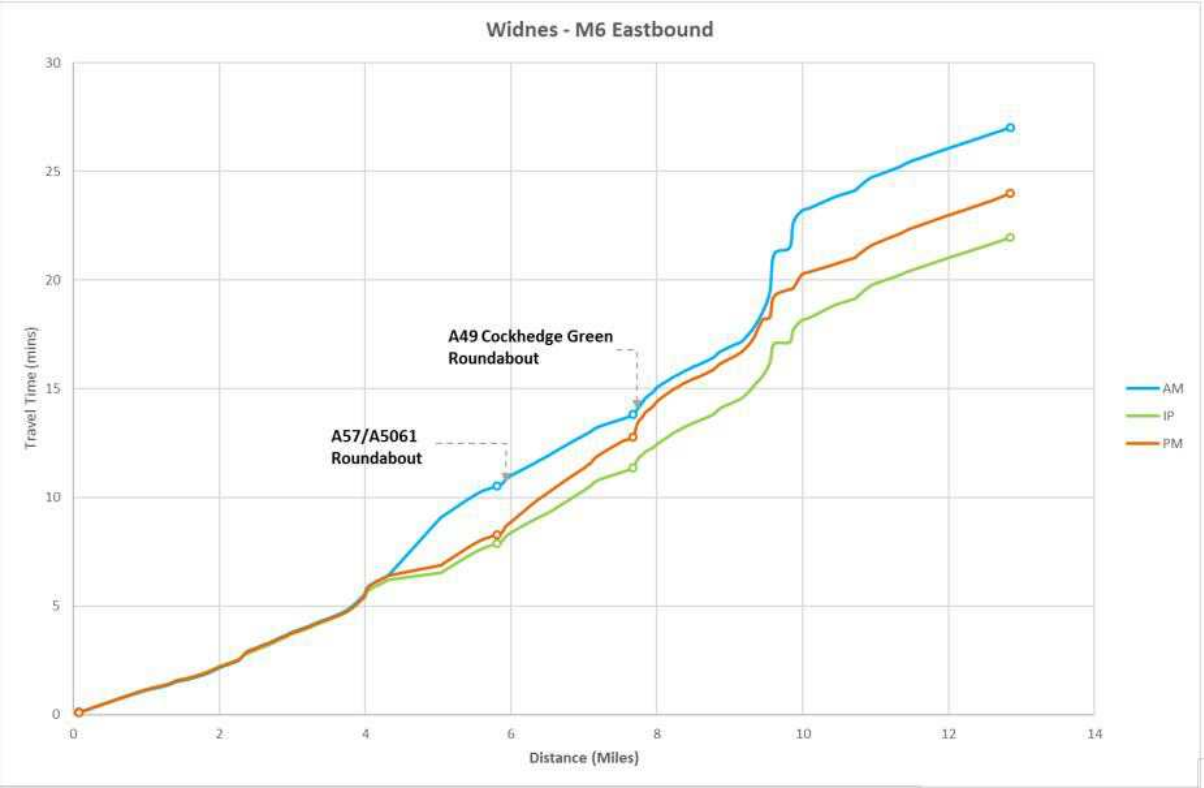
Figure 48: Cross-Town Route 2: Westbound Travel Time Profile



Source: Mott MacDonald, AECOM Warrington Transport Model – Data collection report

- Travelling westbound, there is a sharp increase in delay immediately after the A50 canal crossing in the AM peak, indicating potential delays around the A50/A5031 gyratory.
- Delays into the Bridgefoot gyratory appear to affect PM peak traffic the most.
- The AM peak is more affected by delays experienced after Bridgefoot Gyratory, along Wilson Patten Street and Parker Street.
- Beyond the A57/A5061 roundabout, journey times stabilise across all peak periods.

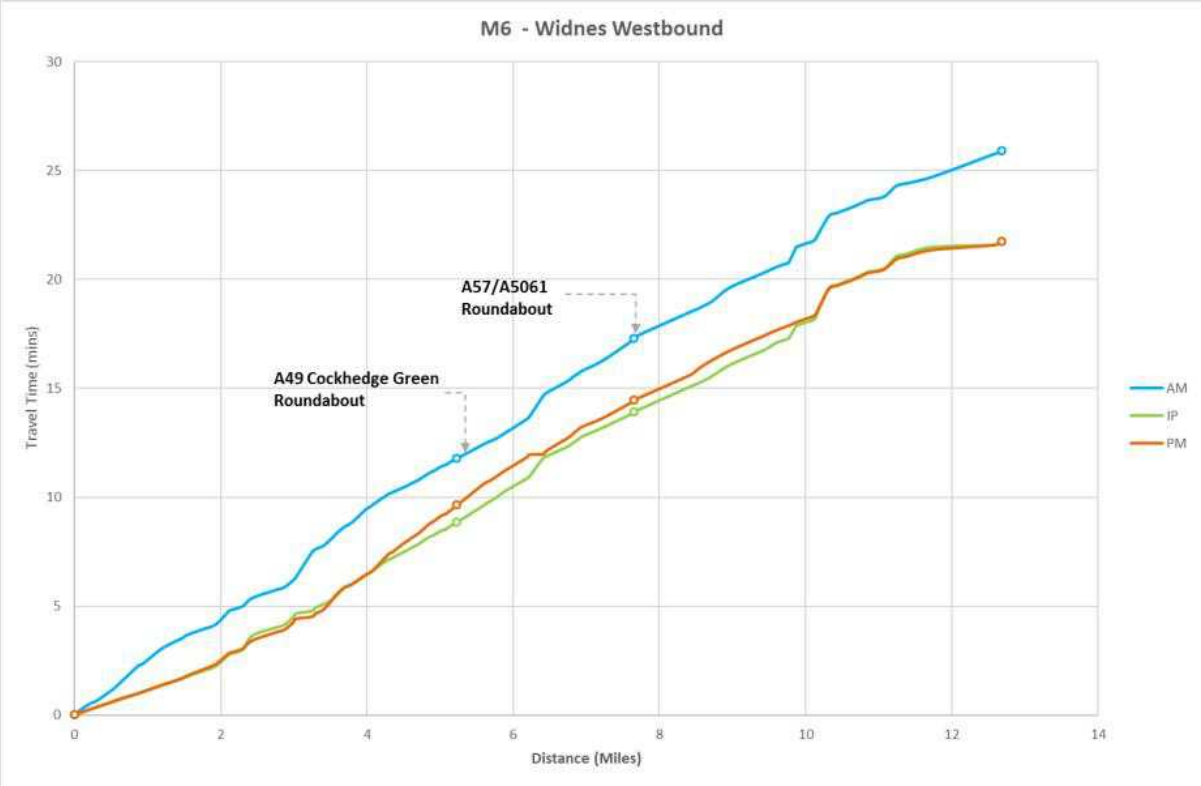
Figure 49: Cross-Town Route 3: Eastbound Travel Time Profile



Source: Mott MacDonald, AECOM Warrington Transport Model – Data collection report

- Heading eastbound into Warrington from Widnes, there is little to differentiate the travel times of all three peak periods until the approach to the A57/A5061 roundabout, where delays slowly start to increase in the AM peak.
- Following the A57 north of the town centre, no noticeable increases in delay take place until approximately 2 miles from the Cockhedge Green roundabout, which could relate to delays along the A57 in the western suburbs.

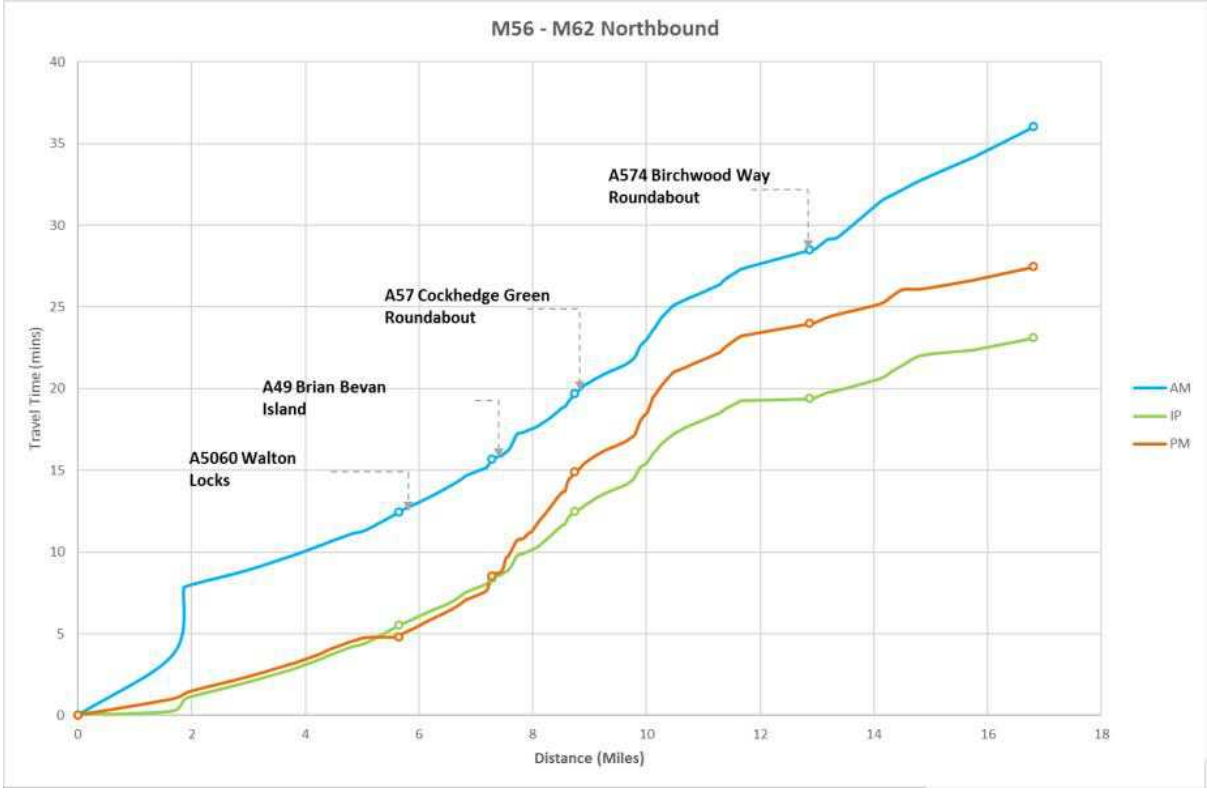
Figure 50: Cross-Town Route 3: Westbound Travel Time Profile



Source: Mott MacDonald, AECOM Warrington Transport Model – Data collection report

- Travelling from the M6 towards Widnes, travel times are relatively stable across all peaks. Incremental delays along the route cause AM travel times to be higher overall whilst IP and PM travel times remain comparable to one another.

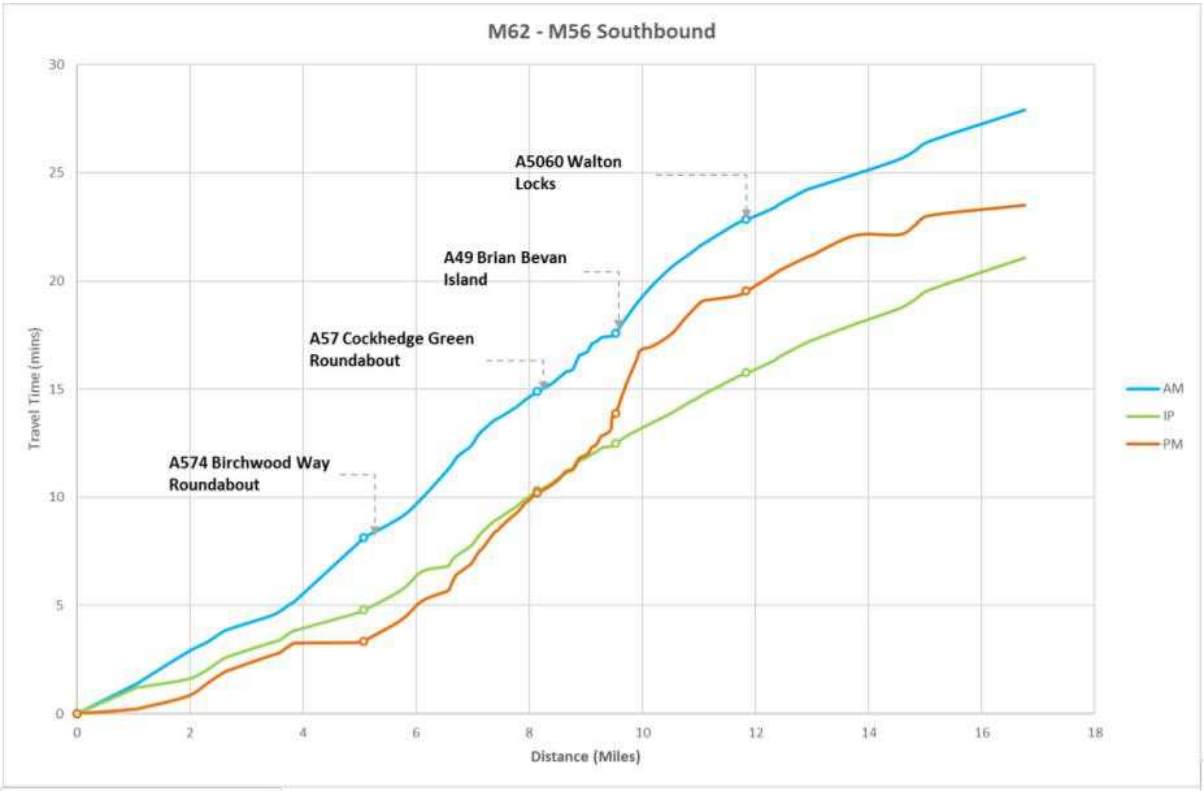
Figure 51: Cross-Town Route 4: Northbound Travel Time Profile



Source: Mott MacDonald, AECOM Warrington Transport Model – Data collection report

- The northbound profiles illustrate a sudden increase in delays for traffic in the AM peak, approximately 2 miles from the M56, which could indicate congestion on the A56 heading into Warrington
- Delays begin to affect northbound traffic in the PM peak between Brian Bevan Island and Cockhedge Green, indicating that the Bridgefoot Gyratory and A49 are congested to the south and east of Warrington Town centre.
- There is another increase in delay approximately 1 mile from Cockhedge Green which could correspond to queues on the A574/A50 junction.
- Travel through Birchwood towards the M62 is relatively unaffected by delay.

Figure 52: Cross-Town Route 4: Southbound Travel Time Profile



Source: Mott MacDonald, AECOM Warrington Transport Model – Data collection report

- Southbound traffic also travels slower in the AM peak compared to other peak periods. Again, delays tend to take place on the A49 southbound between Cockhedge Green and Brian Bevan Island.
- There is a steep increase in delay around Brian Bevan Island in the PM peak for traffic travelling southwards out of Warrington, although these tend to stabilise across all peaks as traffic reaches the M56.

4.8.3 Warrington intelligent transport system

WBC Urban Traffic Management and Control system (UTMC) combines the urban traffic control (UTC), remote monitoring system (RMS), fault monitoring, variable message signs (VMS) and car park systems all in one place to ensure the efficient operation of the highways network.

To enhance this system further, WBC look to develop journey time monitoring devices and software to distribute the information in a user friendly format. This led to the Warrington Intelligent Transport Systems (WITS) project.

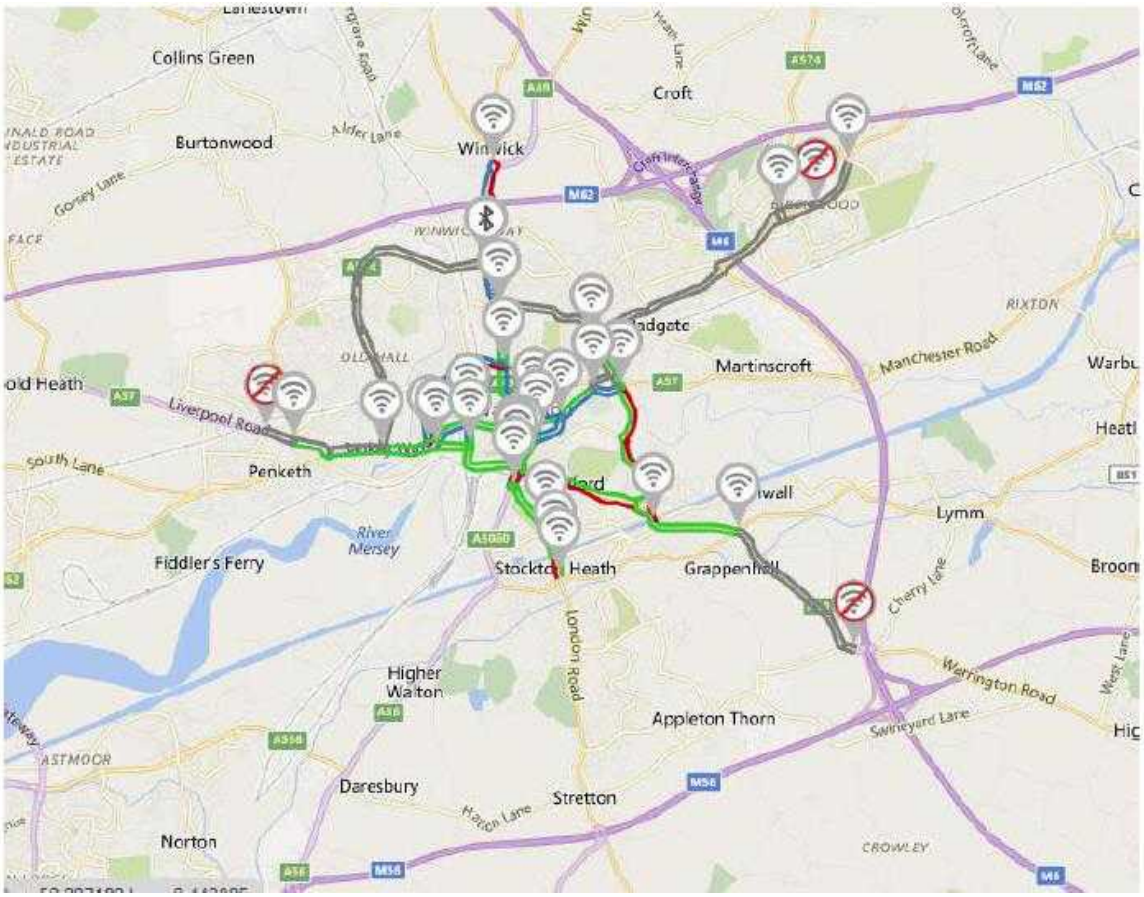
The WITS project combined real-time journey information with the latest Wi-Fi and 'smart devices' – such as mobile phones and modern vehicles with integrated wireless communications - to develop network strategies to allow them to manage traffic flows using the UTMC.

The WITS project took place from April 2017 until March 2018 and was delivered by WBC UTMC team with support from WSP and suppliers, including Siemens and IDT. The project covered the key highways corridors within the Borough of Warrington namely the A49, A57, A574 (Birchwood Way) and A50.

The system

In order to collect and monitor journey time information, Wifi journey time monitoring units were installed to allow Warrington to utilise existing equipment, expand their current network coverage and reduce on-street equipment to maintain.
A map of the existing and new sensors are found below:

Figure 53: Location of WIFI and Bluetooth monitoring sensors



Source: Warrington Intelligent Transport System (WITS) 2018

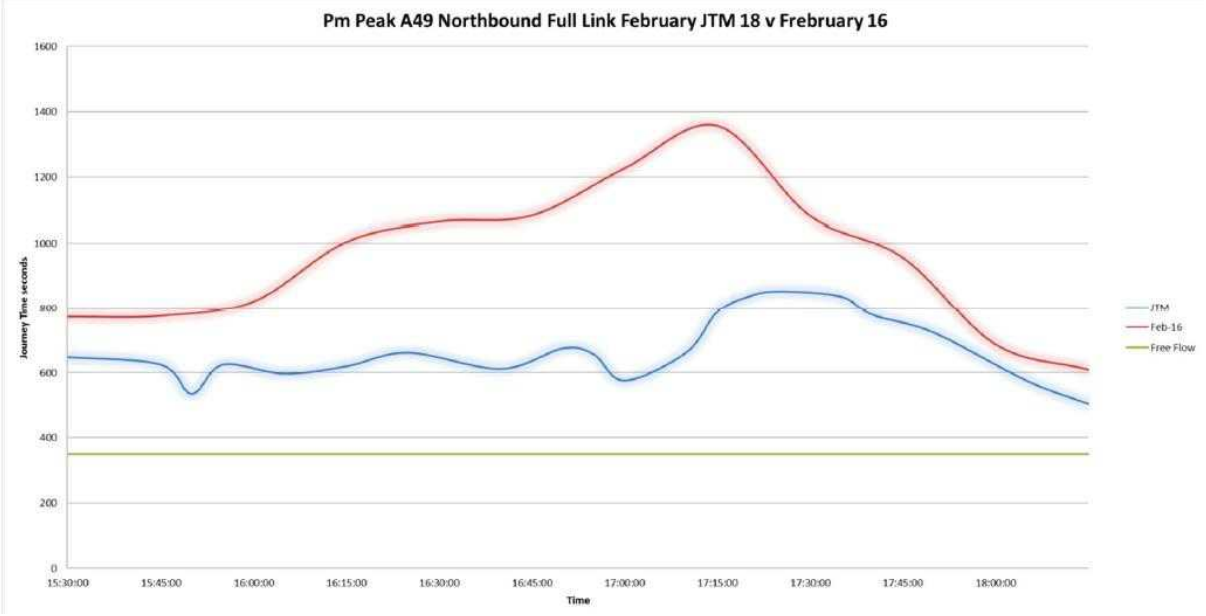
The fully developed system intends to provide real-time information to the general public and businesses via on-street information displays, interactive web pages, social media and an innovative local mobile phone app for the general public available to access free on the internet or via iOS or Android mobile friendly operating systems.

Results

A comparison of journey Comparing journey information from Basemap and current Wifi JTM data used for the WITS on the A49, the results suggest there has been an average

journey saving of 30% during the evening peak on the A49 northbound route out of Warrington (Figure 54).

Figure 54: PM Peak A49 Northbound Journey time comparison between JTM data used form the WITS system 2018 and information form Basemap 2016



Source: Warrington Intelligent Transport System (WITS) 2018

The system was also capable of identifying critical pinch points on each of the key corridors using the journey time data collected from JTM data. This has enabled WBC to target critical junctions for improvement, to increase reliability and reduce journey time across the corridors.

The Journey Time Monitoring (JTM) capabilities now allow WBC to quantify these improvements via the various detectors installed around the borough.

Future system

Warrington intends to continue to develop WITS to ensure their system is constantly update with new technology and functioning as efficiently as possible. WBC hope to expand on the current system through the following developments:

- Expand the Imesh network including Wifi JTM units across the Borough to ensure full coverage.
- Introduce more units on current corridors specifically between junctions in order to highlight problems on the network in more detail.
- Transfer all RMS sites on UTC
- Purchase Bluetooth JTM units for rural areas with no ADSL and run off 4G
- Purchase the disruption module within Stratos (common database) to allow a direct feed from Highways England and push out additional information.
- Roll out air quality detectors and use the information to aid traffic flow and in return reduce NOx gas.

- Combine the Road work system into the common database to automatically in form Stratos of journey time disruptions.
- Look at network optimisation and strategies on all corridors and route across Warrington. This will require a full audit of the UTC system, each junction and stored documentation.
- Combine different modes of control, utilising MOVA during off peak situation and only allow SCOOT to take over when large platoons are on the network.
- Develop strategies for motorway closures and major diversions

4.8.4 Key findings of journey times and congestion

The key findings of journey time and congestion analysis are:

- Substantial congestion occurs on the network where the A50 joins the M6 and where the A49 joins the M62.
- Congestion is frequently observed in the town centre during peak periods. Wilson Patten Street (A5061) had an average speed of less than 10mph during the PM peak and Parker Street also suffers from slow speeds.
- There are a number of town centre pinch points were traffic is considerably slower: A57/A5061 roundabout, A49 Cockhedge Green Roundabout and Sankey Way/Liverpool Road roundabout.
- There are congestion hotspots at or near waterway crossings: A49 Wilderspool Causeway Canal crossing, Bridgefoot Gyratory, Brian Bevan Island and the A50/A5031 gyratory.
- There are substantial congestion problems on the approach to Warrington town centre. Slower speeds were identified on the A5060, Midland Way, A49 and Knutsford Road.
- Congestion is observed in north-east Warrington; slow traffic speeds were observed from the M6 towards Birchwood during the AM peak with an average speed of 10-20mph compared with 40mph during the inter-peak and PM peak.
- During the inter-peak, traffic speeds on routes into Warrington were generally free-flowing; however, the A49 north of Warrington Town Centre appears to be more prone to slower speeds.

What does this mean for LTP4?

The town centre can be categorised as a place of severe congestion and poor journey quality. Delays are frequently observed at waterway crossing points, motorway access points, on the approach to the town centre and in the centre.

LTP4 should seek to raise journey time reliability, network performance and reduce congestion by implementing policies that can:

- Reduce the dependency on the private car and encourage a modal shift towards more efficient transportation modes such as public transport and active travel;
- Support Western Link and the introduction of an extra crossing point over Warrington's key watercourse to help relieve pressure on the existing congested crossing points;
- Tackle network pinch points and mitigate congestion hotspots along the highways network;
- Introduce schemes that can help relieve the pressure of existing water crossing points; and
- Explore demand management strategies that can remove, reduce, route and retime private car movements.

4.9 Travel to work

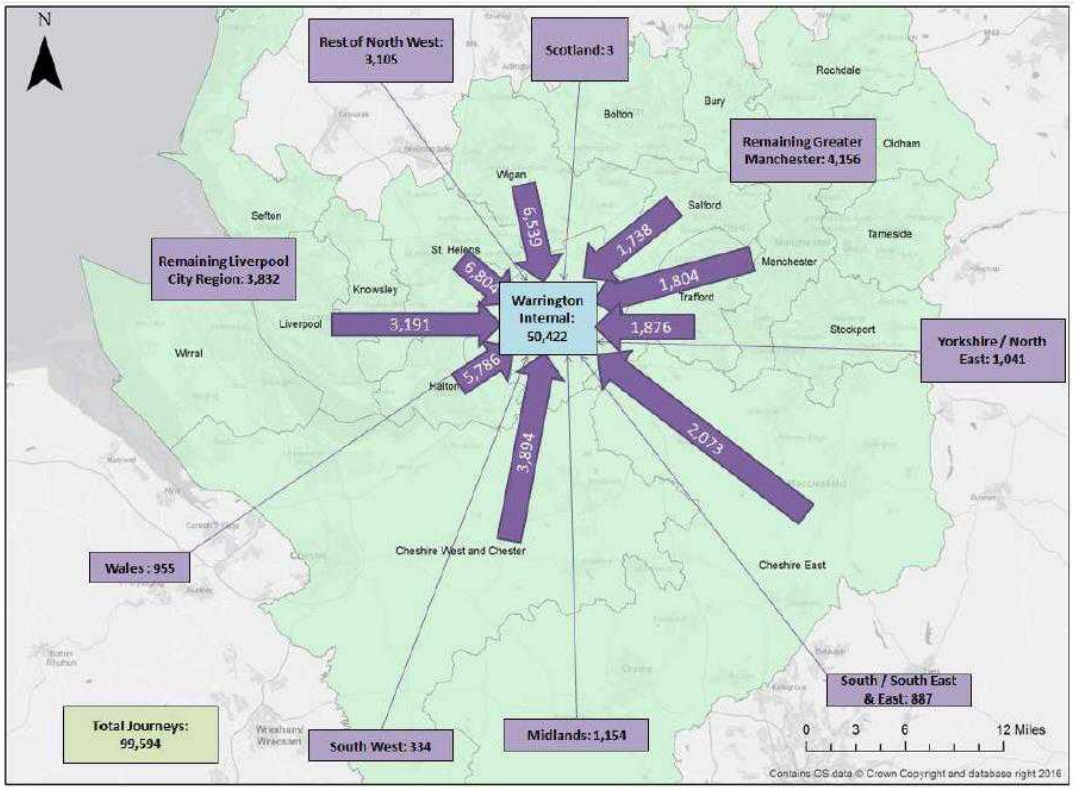
A productive economy relies requires a functioning transport system; one that enables quick and easy connections for its population with its places of work. Therefore, it is crucial to assess work travel patterns.

4.9.1 Travel to work flows

Analysis of 2011 Census travel to work movements was completed. Travel to work flows to, from and within Warrington are presented in Figure 55 to Figure 57. Figure 55 shows flows into Warrington, Figure 56 illustrates outflows from Warrington, whilst Figure 57 summarises the largest overall flows.

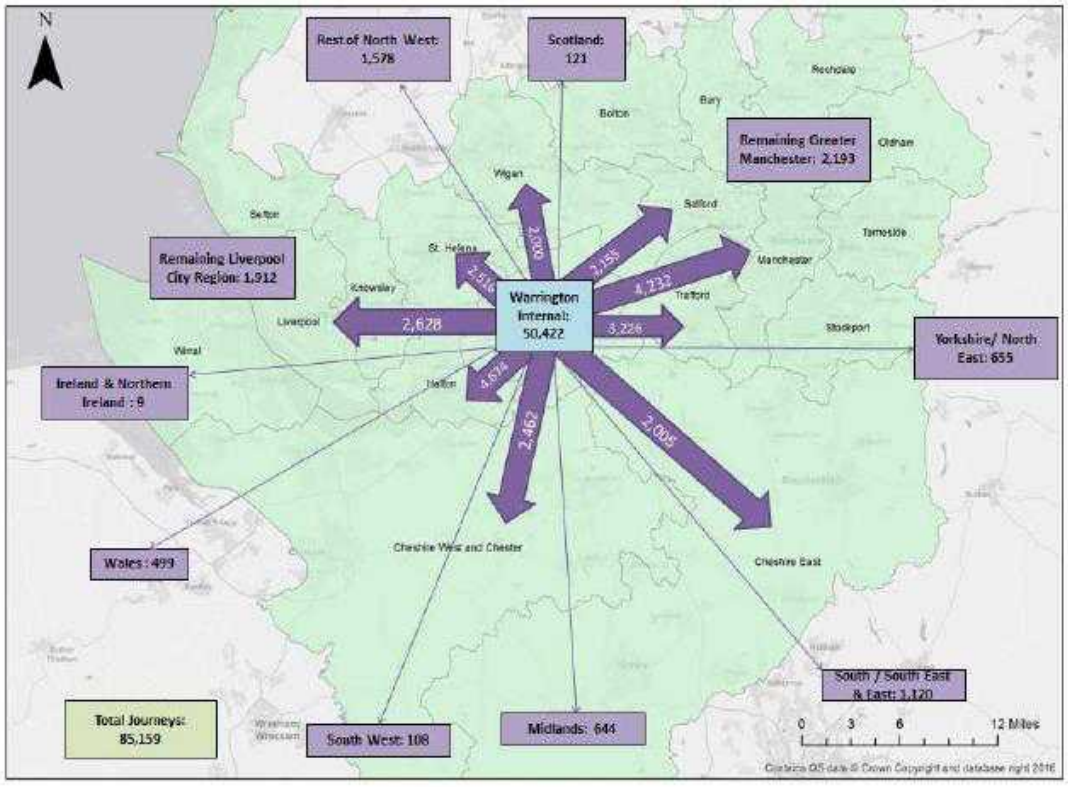
The results highlight greater numbers of people travelled into Warrington to work compared with the number of residents that left Warrington, whilst a significant proportion travelled within Warrington for work.

Figure 55: Travel to work inflows to Warrington



Source: 2011 Census

Figure 56: Travel to work outflows from Warrington



Source: 2011 Census

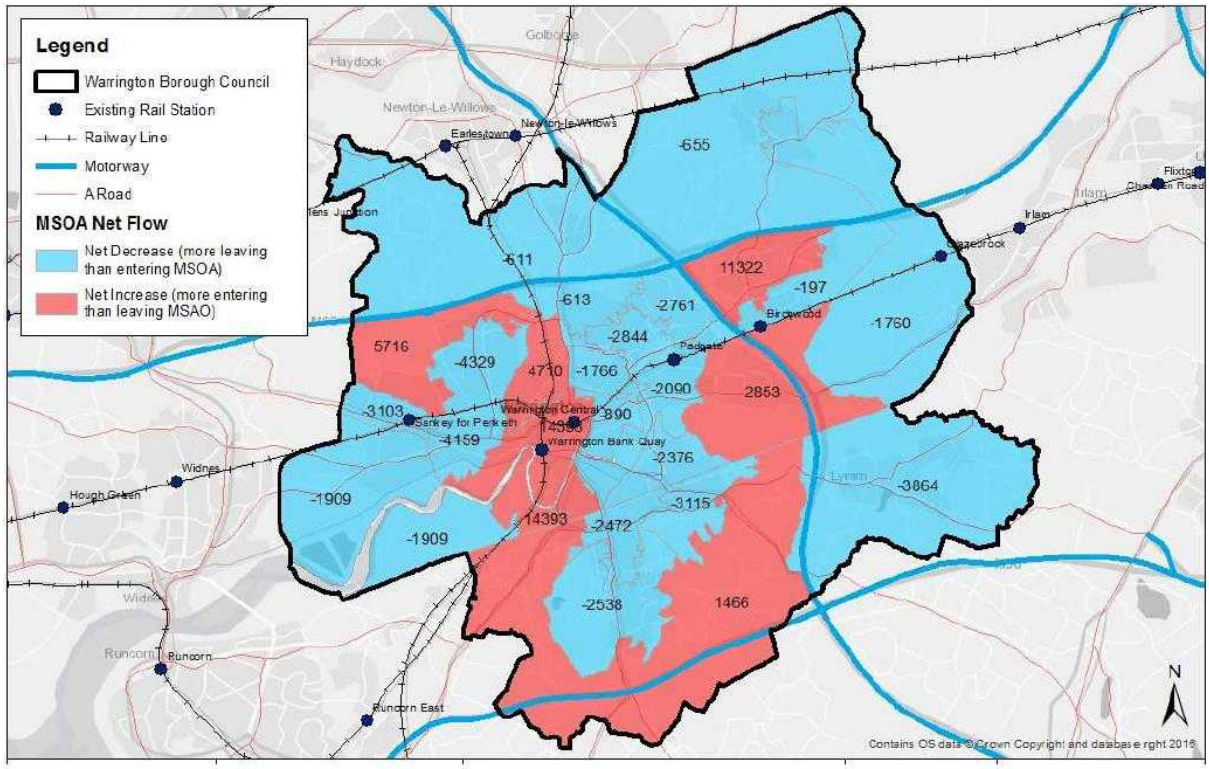
Figure 57: Largest inflow and outflow travel to work movements

Source: 2011 Census

It was possible to assess travel to work flows at a more detailed level by assessing net flows between MSOAs in Warrington (Figure 58). The results show six MSOAs had a net increase; these were located in Warrington Town Centre, Birchwood, Westbrook and Woolston.

These areas are the key employment locations in Warrington. The rest of the MSOAs in the Borough experienced a net decrease, reflecting their predominately residential characteristics. Due to the dispersal of these inflows and outflows, the town is prone to a range of cross-town movements.

Figure 58: Warrington MSOA Net Flows (2011)



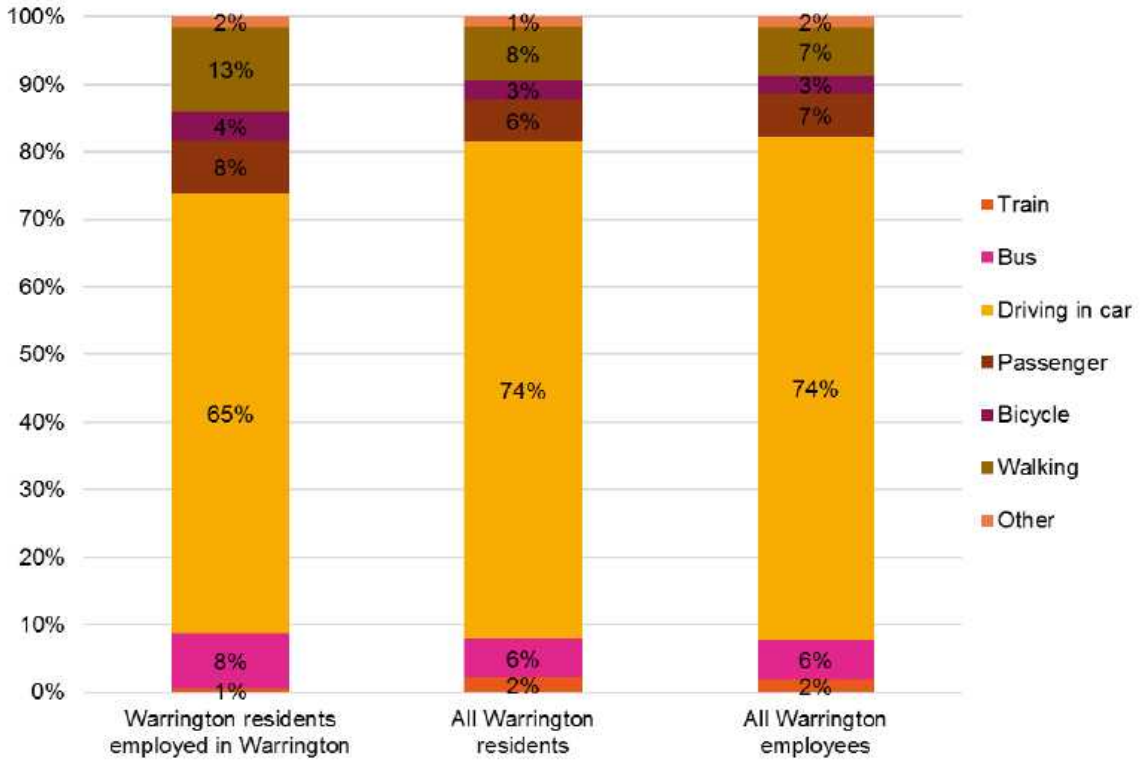
Source: Census 2011

4.9.2 Method of travel to work

Analysis of the modal share in 2011 Census travel to work data provides an understanding of how Warrington residents and workforce travels to work. Usual method of travel to work by Warrington residents and employees is summarised in Figure 59, the key findings are:

- Travel within and into Warrington Borough is dominated by the use of the private car;
- Census data indicates that the private car or van is used by 80% of Warrington residents to get to work (anywhere); and
- 73% of Warrington residents who also work within the Borough travel by car to work – 65% as a driver, 8% as a passenger.

Figure 59: Usual method of travel to work by Warrington residents and employees

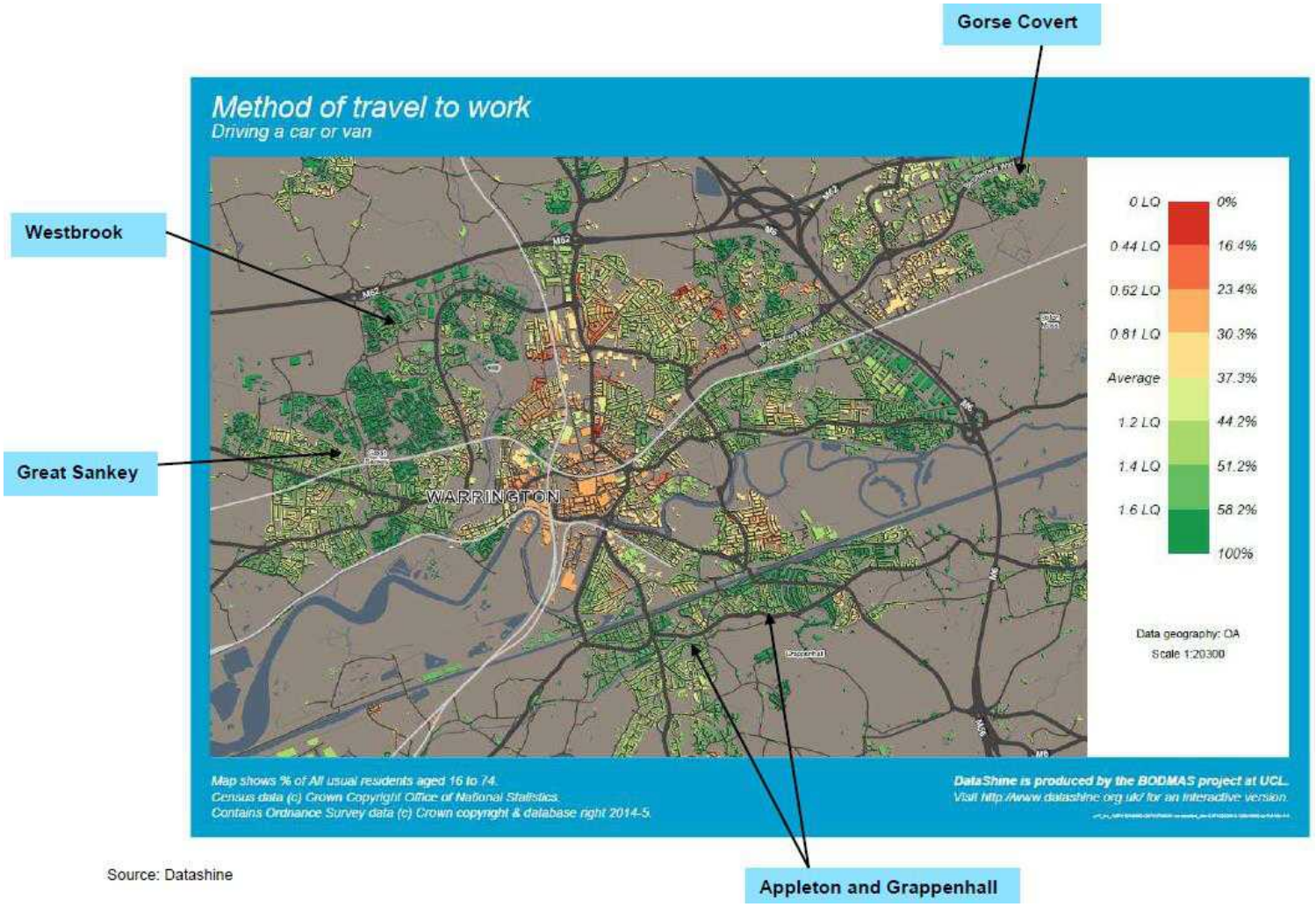


Source: Census 2011 Travel to work

Usual method of travel to work for Warrington residents was mapped using Datashine which uses 2011 Census, this is mapped in Figure 60 – Figure 65. This provides a spatial interpretation of how Warrington residents are travelling to work. The key findings are:

- Higher proportions travel to work as a car / van driver on the outskirts of the Borough, particularly around Great Sankey and Westbrook, as well as along the A56 and west of the M6.
- Higher proportions of residents travel as a car passenger, bus and active travel modes from the town centre.
- Lower proportions commute as a car / van driver around Birchwood, particularly the area between Birchwood Way and the CLC Line.
- Slightly higher proportions commuting by train in the town centre compared with the rest of the Borough.
- Within Warrington, use of the bus for travel to work was highest in the town centre and around Orford and Hulme to the north of the town centre.
- In general, as could be expected, active travel use was lowest at the extremities of the Borough particularly to the west of Sankey Brook.
- Above average proportions cycled to work from Orford, Hulme and to the east of Victoria Park, near Latchford.
- Greater proportions walked to work from Warrington Town Centre, whilst above average proportions were also recorded in Birchwood.

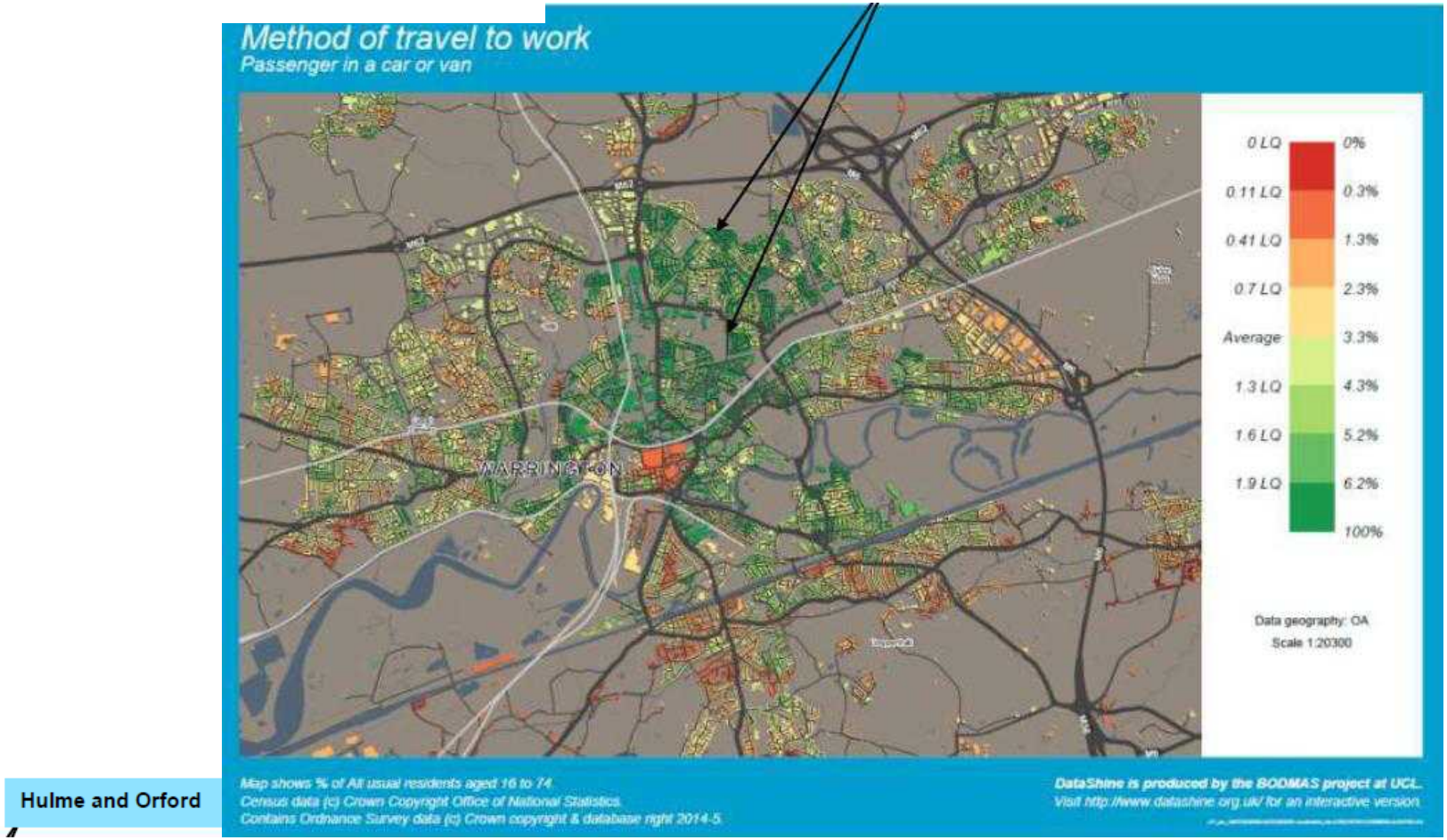
Figure 60: Method of travel to work for Warrington



Source: Datashine

Source: Datashine

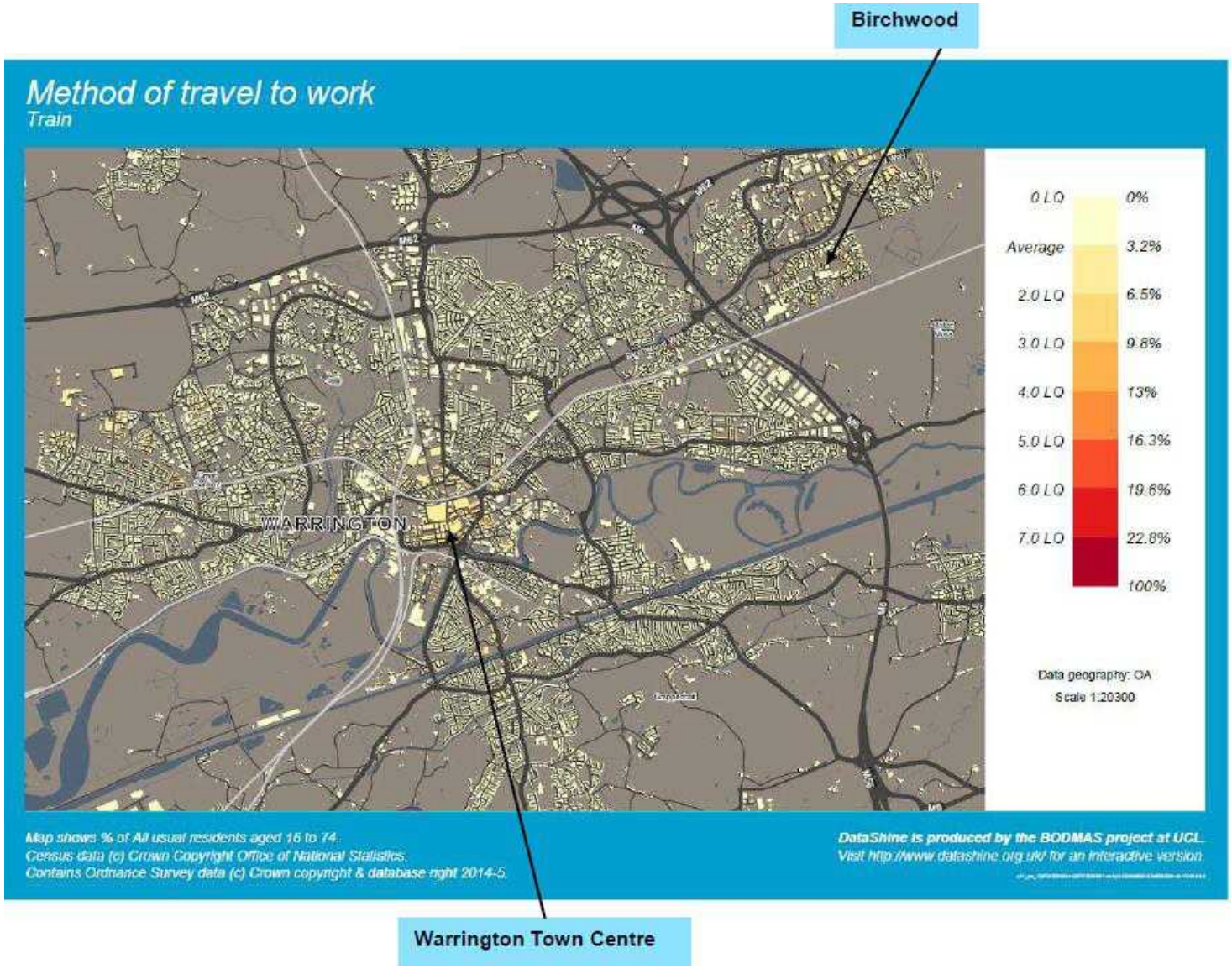
Figure 61: Method of travel to work – Passenger in a car or van



Hulme and Orford

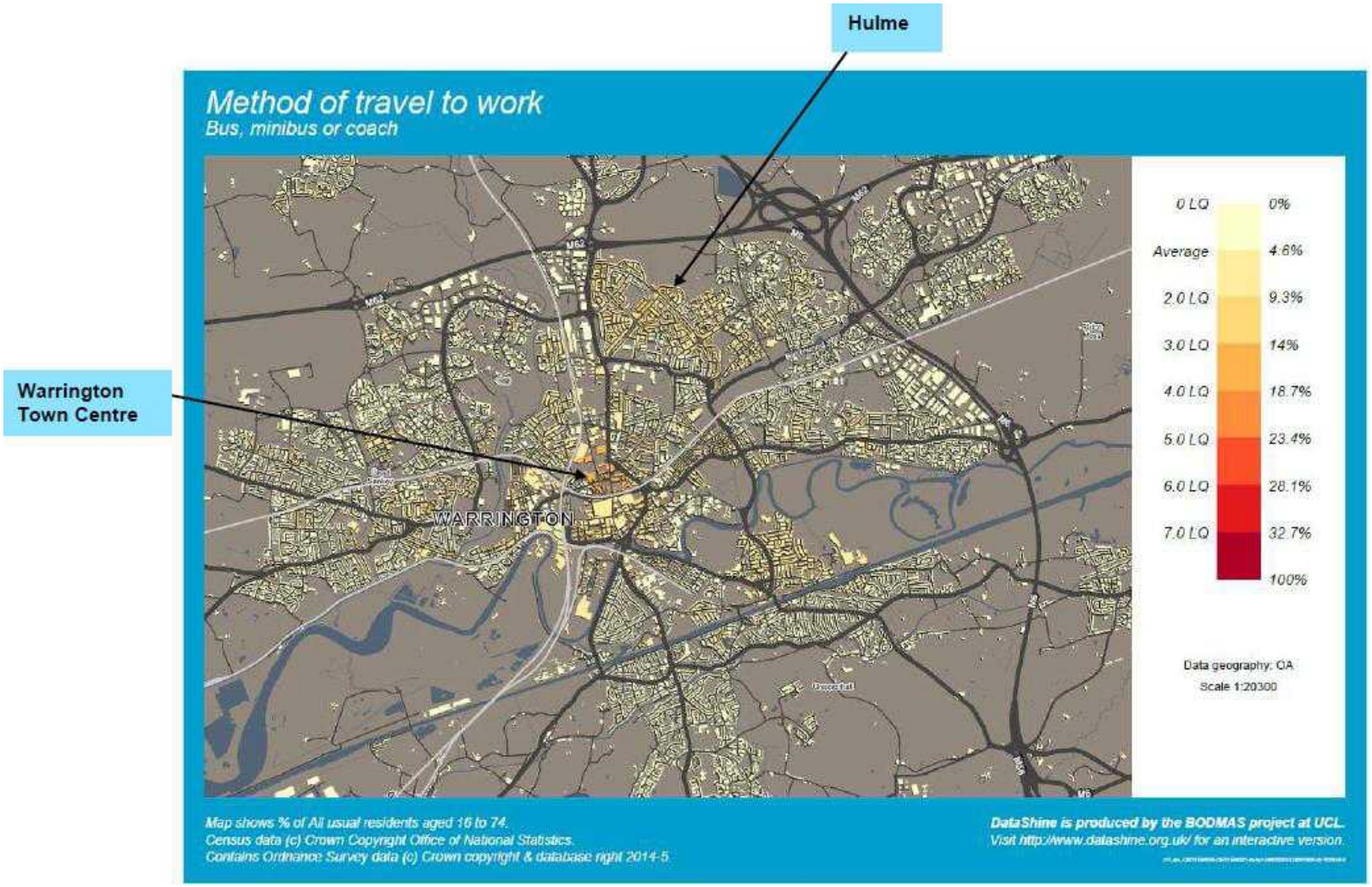
Source: Datashine

Figure 62: Method of travel to work - Train



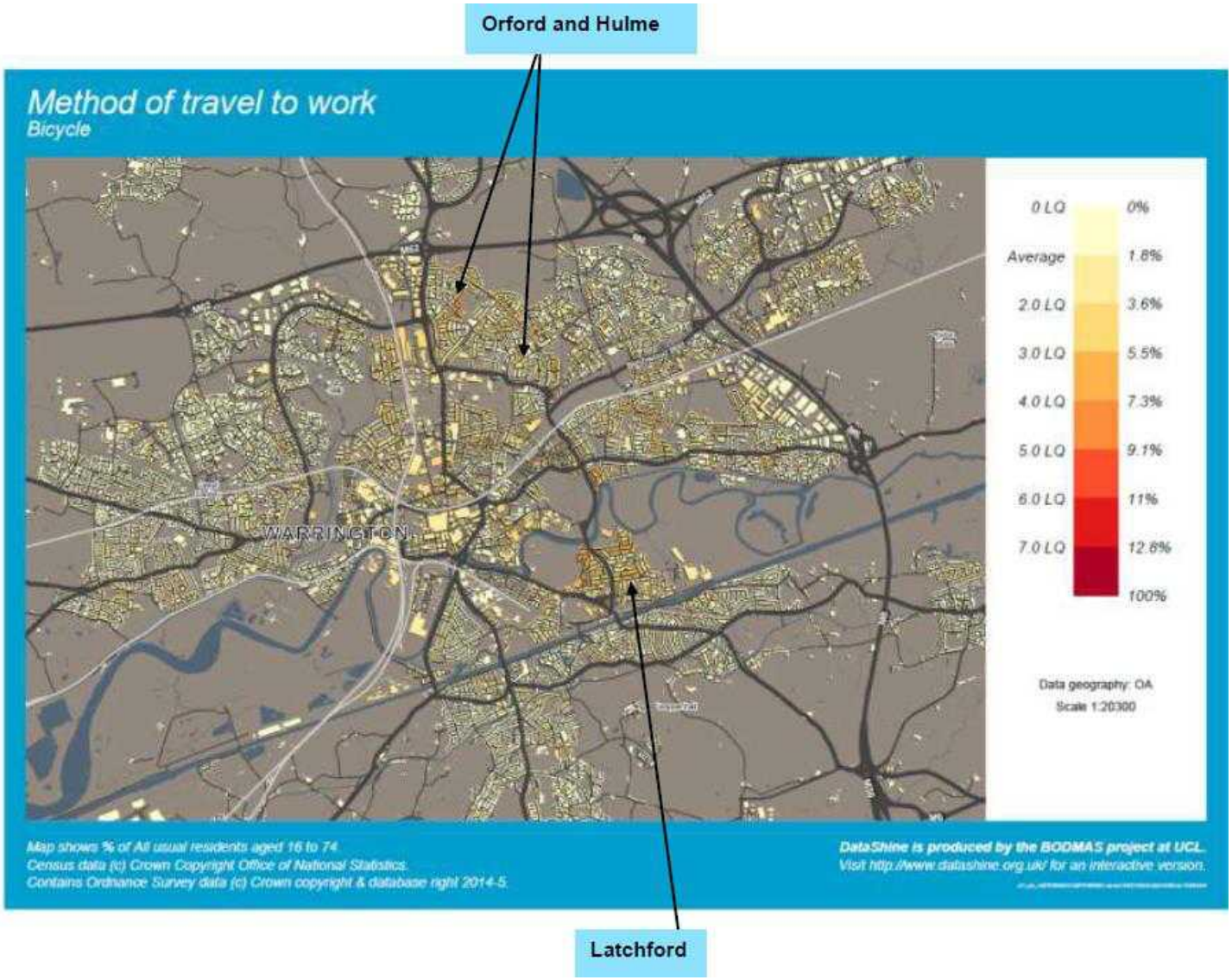
Source: Datashine

Figure 63: Method of travel to work – bus, minibus or coach



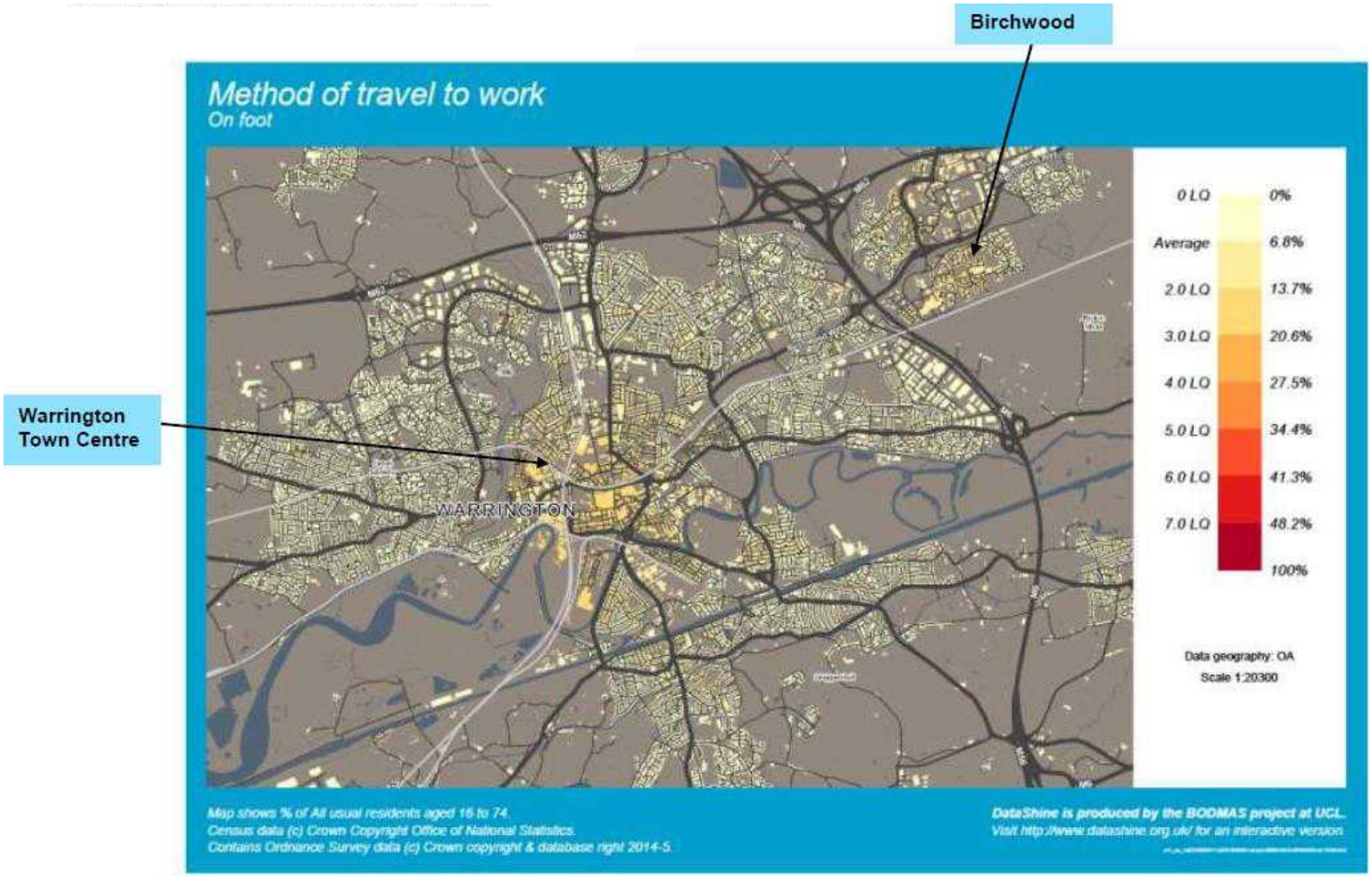
Source: Datashine

Figure 64: Method of travel to work – bicycle



Source: Datashine

Figure 65: Flows PM Peak (16:30-18:00)



Source: Datashine

The town centre is a key destination for employment (Section 3.6). Therefore, it is useful to understand usual method of travel to work for this area. Table 12 highlights of all those commuting to Warrington Town Centre, almost three-quarters (73%) travelled by car (as a driver or passenger). A higher proportion travelled by bus / coach (11%) compared with train (4%), whilst 11% used active travel modes. Again, travel patterns in Warrington indicate the dependency on the private car.

Table 12: Journey to work mode share to Warrington town centre

All Trips to Warrington Town Centre (E02002607)	Journey to Work Mode Share (%)
Car (Driver / Passenger)	73
Bus / Coach	11
Walk / Cycle	11
Train	4
Other	1

Source: Census 2011 travel to work

4.9.3 Modal share comparison

Table 13 compares the modal share for the journey to work in 2001 and 2011, excluding those who work mainly at or from home and not in employment. The results show an increase in the proportion stating they drive to work and travel by train.

The number of residents aged 16-74 travelling to work increased by 9.3% between 2001 and 2011 and it is also useful to consider the proportional increase of trips made by each mode. For example, the number of rail trips increased by 83.3% over this period from 1,128 trips in 2001 to 2,068 in 2011.

Although the modal shift proportion showed a greater increase in the proportion driving by car / van to work, the proportional increase in car trips was smaller than rail at 12.0%. Whilst the results showed a decrease in the proportion travelling by bus, there was a 3.6% increase in the absolute number of bus (minibus, coach) trips over the period.

Table 13: Warrington travel to work modal share (2001-2011)

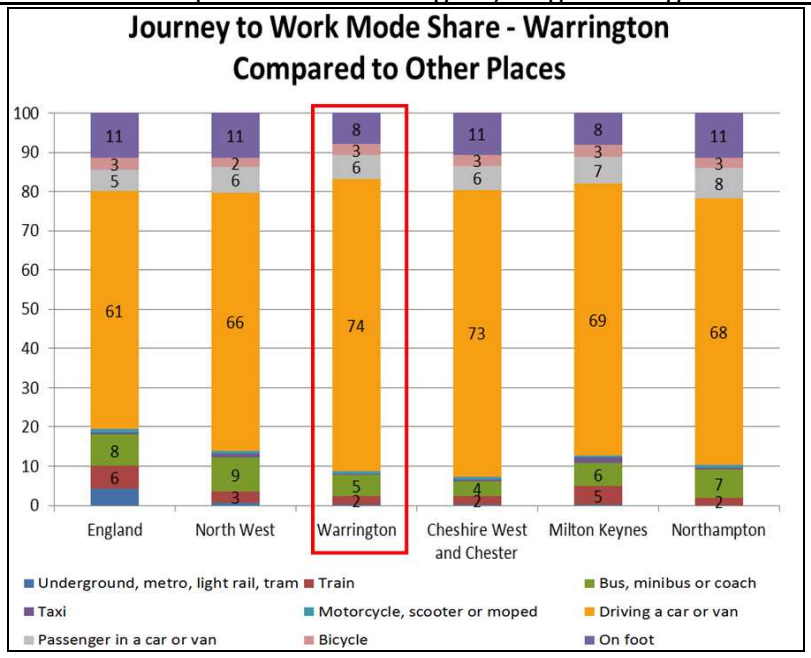
	2001		2011		Mode Share Change	Change in Absolute No. of Trips
	N	%	N	%	%	%
Underground, metro, light rail, tram	157	0.2	142	0.2	*	-9.6
Train	1,128	1.3	2,068	2.3	1.0	83.3
Bus, minibus, coach	4,775	5.7	4,946	5.4	-0.3	3.6
Taxi	414	0.5	368	0.4	-0.1	-11.1
Motorcycle, scooter or moped	1,028	1.2	677	0.7	-0.5	-34.1
Driving a car or van	60,413	72.1	67,670	73.9	1.8	12.0
Passenger in a car or van	5,972	7.1	5,650	6.2	-0.9	-5.4
Bicycle	2,936	3.5	2,577	2.8	-0.7	-12.2
On foot	6,599	7.9	7,038	7.7	-0.2	6.7
Other	323	0.4	384	0.4	*	18.9
All Residents (aged 16-74)	**83,745**	**100**	**91,520**	**100**		

Source: Census 2001 and 2001 Travel to work

A comparison of the modal split for Warrington with neighbouring cities and districts and other designated New Towns was undertaken. Figure 66 presents the modal split results for all residents in employment who travel to work.

The results show almost three quarters (74%) of Warrington residents commute by car (alone) to work compared with 65% of North West residents and 60% nationally. Overall, it shows that there is a greater reliance on the car for commuting in Warrington than compared with other cities identified and the national average.

Figure 66 Modal share comparison for Warrington, neighbouring cities and New Towns



Source: Census 2011 – travel to work

Warrington is situated within close proximity of to three large regions Greater Manchester Merseyside and Cheshire West and Chester. Figure 66 shows Warrington has a very similar modal share compared with Cheshire West and Chester. Meanwhile, solo car driving was notably lower in Greater Manchester (63%) and Merseyside (60%). Bus use was much greater in these areas (12% Merseyside, 11% Greater Manchester) and the proportion walking was also higher compared with Warrington.

Warrington was designated a New Town in 1968 and other New Towns in this wave were Milton Keynes (1967), Peterborough (1967) and Northampton (1968). Figure 66 also presents the modal share for Milton Keynes, Peterborough and Northampton. Of these three towns, the modal share in Milton Keynes was most similar to Warrington though the proportion of solo car drivers was still greater in Warrington.

Active travel use was higher in Peterborough (15%) and Northampton (14%) compared with 11% in Warrington and Milton Keynes.

4.9.4 Distance travelled to work

Table 14 presents the distance travelled to work in 2001 and 2011 for Warrington. 16% of journeys were less than 2km whilst 25% travelled 2-5km. Almost a third (31%) were of 5-20km, whilst 11% were 20-30km. The remaining 7% of journeys were over 30km.

A comparison to the 2001 Census highlights there has been very little change in the distances travelled; there has been a small decrease in those travelling 30-60km (7% 2001, 4% 2011) and an increase in the proportion travelling 20-30km (8% 2001, 11% 2011).

Table 14: Warrington distance travelled to work (2001-2011)

	2001		2011		Change in %
	N	%	N	%	
Works mainly at or from home	10,262	10	9,336	10	*
Less than 2km	16,217	16	15,292	16	*
2km to less than 5km	24,527	24	24,014	25	1
5km to less than 10km	17,993	18	16,340	17	-1
10km to less than 20km	15,658	15	12,844	14	-1
20km to less than 30km	8,237	8	9,933	11	3
30km to less than 40km	4,845	5	2,767	3	-2
40km to less than 60km	2,093	2	998	1	-1
60km and over	2,677	3	2,737	3	*
All	**102,509**	**100**	**94,261**	**100**	

Source: Census 2001 & 2011

4.9.5 Key findings of travel to work movements

The key findings of travel to work movements are summarised below:

- Inflows compared with outflows were concentrated in selected MSOAs - Warrington Town Centre, Birchwood, Westbrook and Woolston. This provides of the town's most important employment destinations.
- There is a high dependency on the car for commuting and this proportion has increased between the 2001 (72.1%) and 2011 Census (73.9%). The high proportion of commuters that use the car to travel to work drives the congestion problem during peak periods.
- Use of the private car to travel to work is higher than the North West (65%) and national average (60%). The use of the private car in Warrington is also higher than other UK New Town Developments.
- The number of rail trips increased by 83.3% from 1,128 trips in 2001 to 2,068 in 2011;
- Active travel as a commuter mode in Warrington stood at (10.5%). This is lower than the national average and other New Town developments, Peterborough (15%) and Northampton (14%).
- For employment in the town centre, where a variety of public transport connections connect to, car travel still dominates the commute (73%);
- Within Warrington, use of the bus for travel to work was highest in the town centre and around Orford and Hulme to the north of the town centre;
- Higher proportions travel to work as a car / van driver on the outskirts of the Borough, particularly around Great Sankey and Westbrook, as well as along the A56 and west of the M6.

- Above average proportions cycled to work from Orford, Hulme and to the east of Victoria Park, near Latchford
- East-west connectivity from Warrington is particularly important given the demand for travel to Greater Manchester and Liverpool City Region.

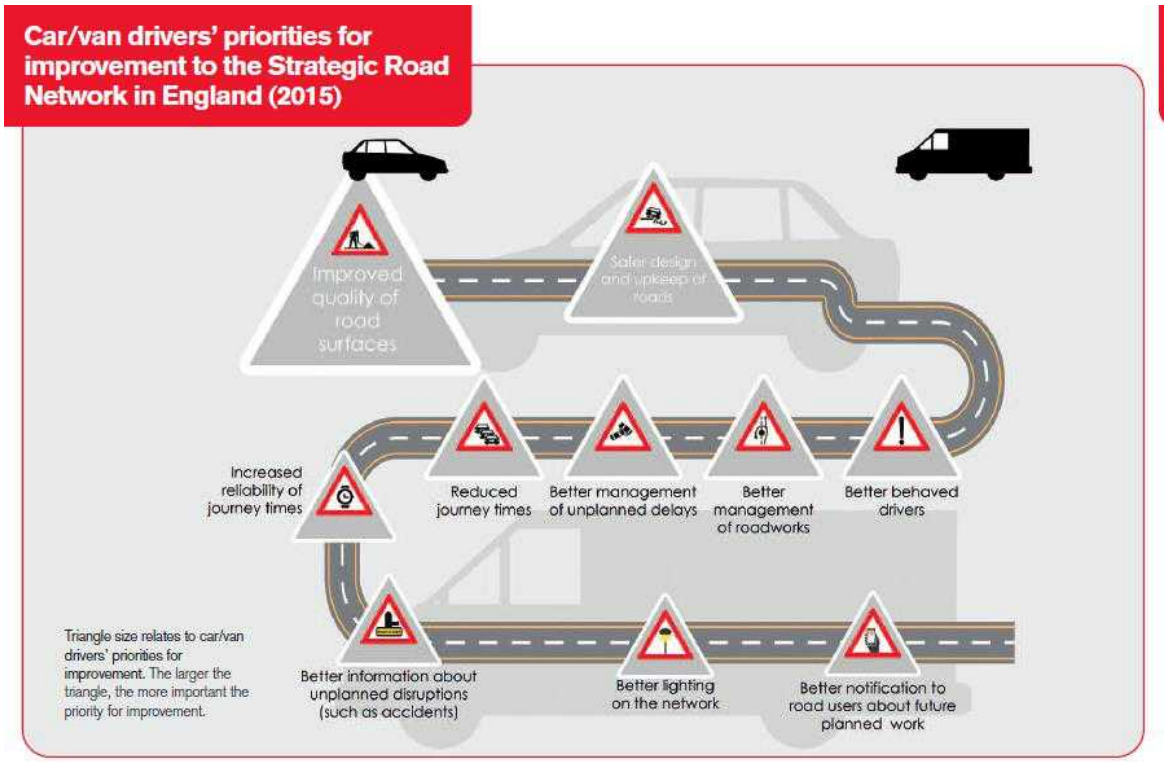
What does this mean for LTP4?
Large amounts of car based commuting contributes to the borough's traffic problems. LTP4 should look to improve the quality and attraction of using other travel modes for the daily commute. It may also be important to consider the use of travel demand management strategies to help support a modal shift away from the car.

4.10 What do highways users want

Warrington is captured by a 'motorway box' with many residents and workforce using the SRN to commute to and from Warrington. Therefore, it is useful to consider road use priorities of highways users to inform future transport policy.

Transport focus, the independent transport watchdog, published research looking at national road users' needs and experience using the Strategic Road Network (SRN). The research also explored users' views on safety, journey planning, congestion and disruption. It showed that road users tend to focus on the negative experiences and overlook typical journeys.
The research provides a useful indication of what car users priorities are for improvement of the SRN in England. This is summarised in the figure below:

Figure 67: Modal share comparison for Warrington



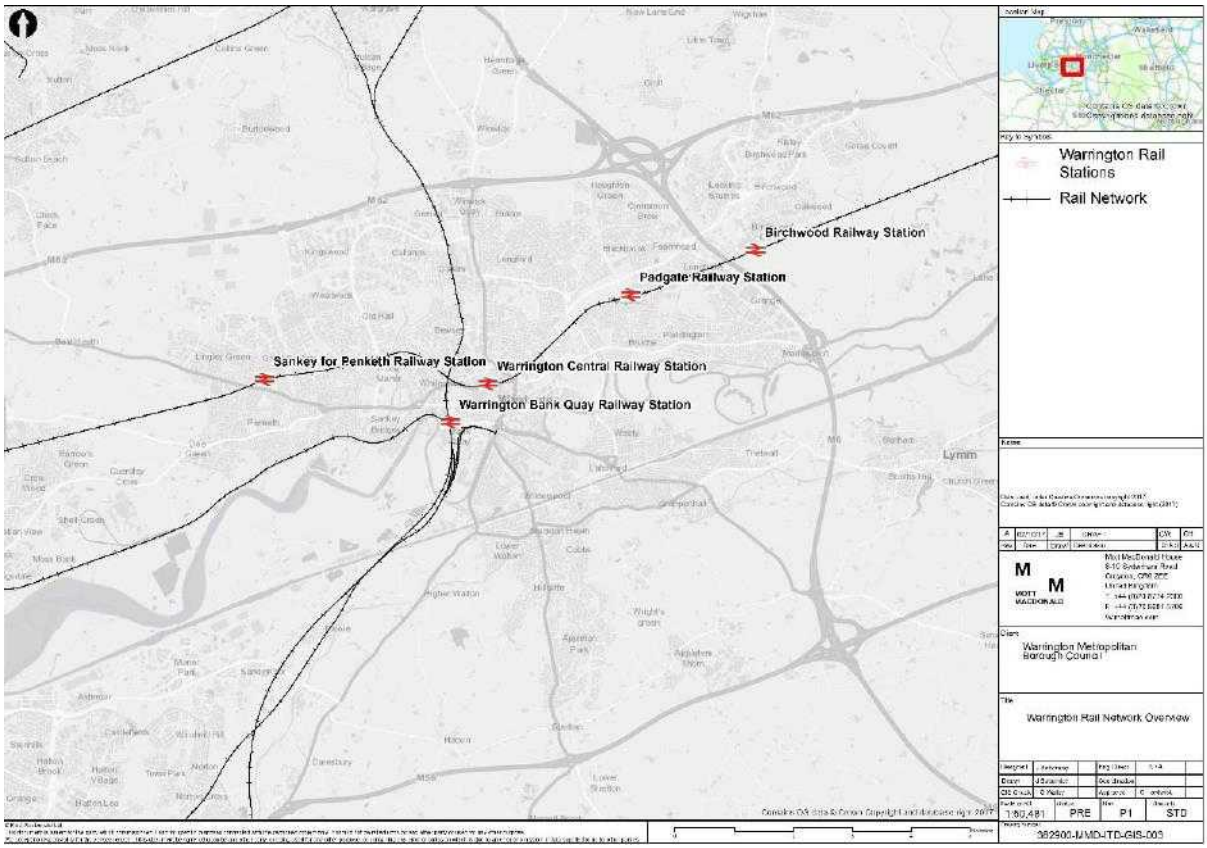
Source: Transport focus - Road users priorities for imporvement: Car, van and motorcycles

What does this mean for LTP4?
The responsibility to maintain and improve the SRN rests with Highways England. However, within Warrington, drivers use the town's local highways network to connect to the SRN. LTP4 should therefore look to improve journey time reliability and journey times when connecting to the SRN to help enhance the overall experience of travelling from home to using the SRN.

4.11 Rail travel

There are six rail stations in Warrington. A map of Warrington's rail network is shown in Figure 3.12. The Cheshire Lines Committee (CLC) Line runs east to west through Warrington, the West Coast Main Line (WCML) runs north to south through the Borough, and the Ellesmere Port – Warrington Line provides a service from Warrington Bank Quay to Ellesmere Port.

Figure 68: Rail network



Source: Mott MacDonald

Five of the six stations in Warrington are along the CLC Line and the services on this line are summarised in Table 15 with stations in Warrington highlighted. The table shows varying levels of rail provision at Warrington stations on the CLC Line from Glazebrook with a Northern service every two hours to Warrington Central which is served by all four services.

Table 15: Warrington rail services (CLC line)

Operator	Manchester Piccadilly	Manchester Oxford Road	Deansgate	Trafford Park	Humphrey Park	Urmston	Chassen Road	Flixton	Irlam	Glazebrook	Birchwood	Padgate	Warrington Central	Sankey for Penketh	Widnes	Hough Green	Halewood	Hunts Cross	Liverpool South Parkway	West Allerton	Mossley Hill	Edge Hill	Liverpool Lime Street
Transpennine Express	●	●									●		●						●				●
Northern		●	●			●		●	●		●		●		●	●			●	●	●	●	●
East Midlands Trains	●	●											●		●				●				●
Northern		●	●	□	□	●	□		●	□	●	●	●	●	●	●	●	●	●	●	●	●	●

Source: CLC Part 1 Market Analysis Report, AECOM (2017). The table resperesnets Mon-Fri passenger services. Black circles represent the service stops at this staton. The square outlines symbolise the service stops every two hours. Warrington stations highlighted in blue.

The WCML provides connectivity to stations between London Euston and Glasgow Central, whilst the Ellesmere Port to Warrington Line operates just four services per day

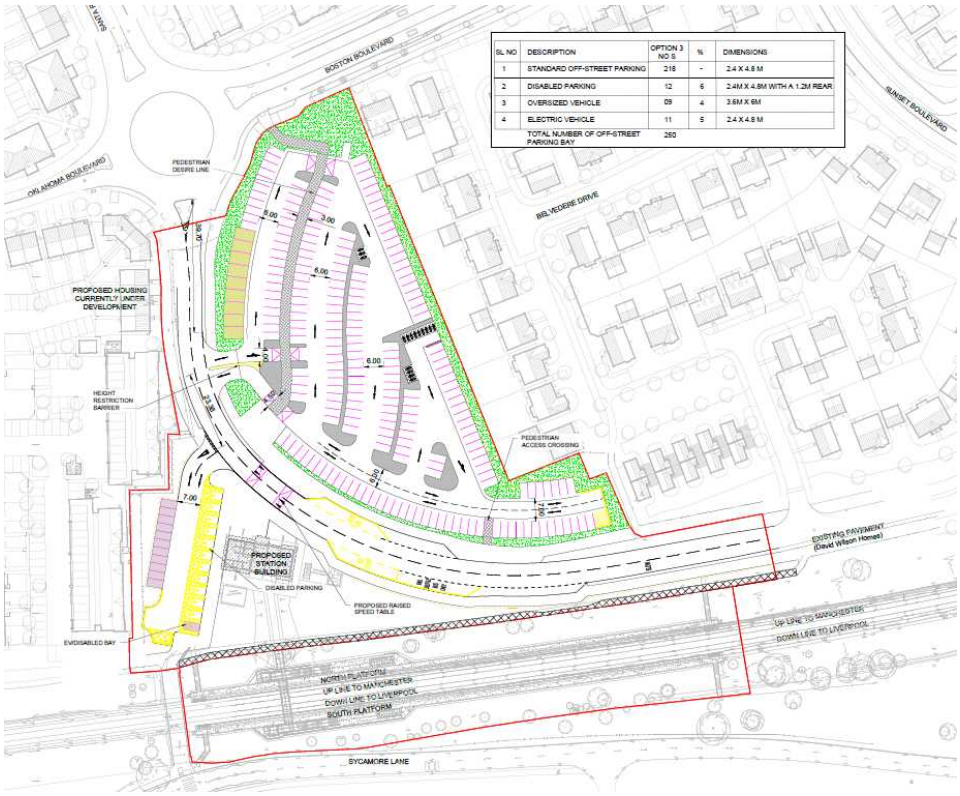
4.11.1 Warrington West Station

The new Warrington West rail station was approved in late 2017 where it received full funding, and opening is expected in 2019/20. The station will be positioned on the CLC line between Central station and Sankey for Penketh.

Warrington West station, adjacent to Sycamore Lane, would provide enhanced accessibility for the southern end of the Chapelford Urban Village residential development. The intention is that this will act as a key interchange node, improving accessibility throughout Warrington's northern sector and servicing the Chapelford, Lingley Mere and Omega development zones.

The concept design of the station is shown in Figure 69. The new station will provide three services per hour (as per the franchise agreement), enhancing the opportunity to serve the local area, and regional centres of Liverpool and Manchester with an improved service frequency. The station will also provide 268 car parking spaces, secure parking for 50 bicycles, bus stops and layover facilities and a taxi rank / drop-off area. The station is due to be completed in Spring 2019.

Figure 69: Concept design of Warrington



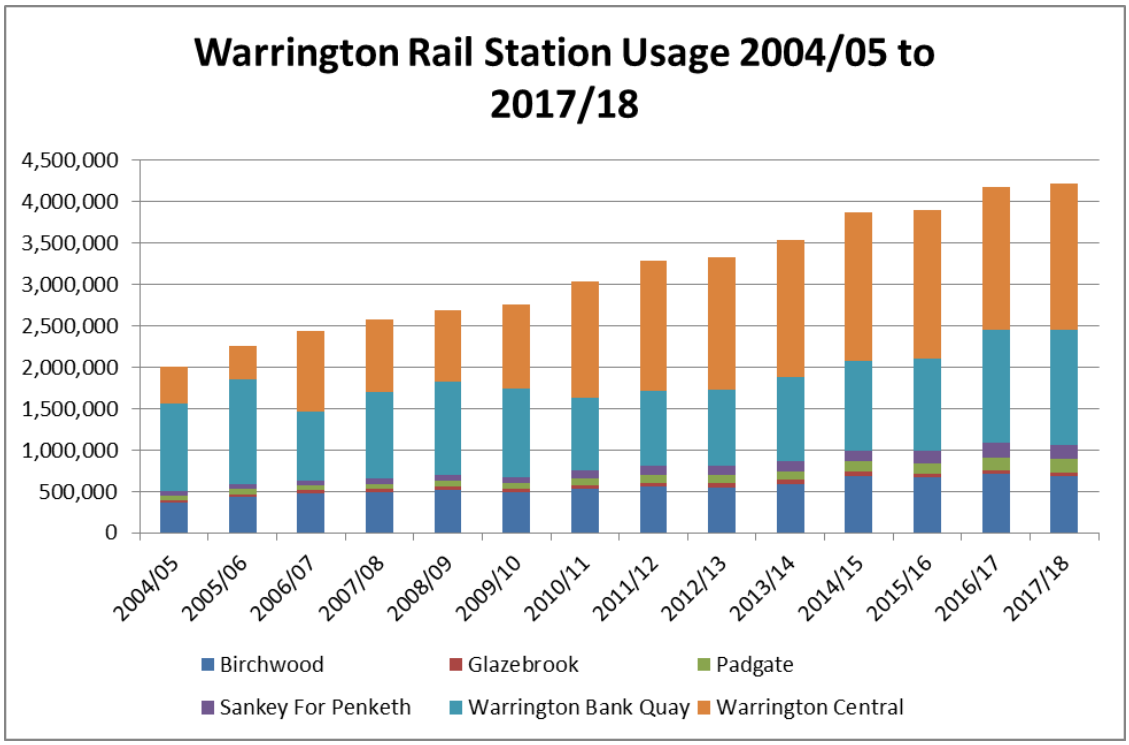
Source: Warrington Borough Council

4.11.2 Rail patronage

Nationally, rail use is growing[1]. This trend is evident in Warrington (Figure 70). Between 2004/05 and 2017/18, patronage across the six rail stations more than doubled. Table 16 presents the number of entries / exits at each station.

[1] DfT Rail Factsheet November 2017

Figure 70: All Warrington stations – rail entries and exits (2004/05 to 2016-17)



Source: Office of Rail Regulation

Table 16: Warrington rail station entries and exists rail

Station Name	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Birchwood	366,301	434,306	481,594	493,027	512,042	489,242	526,880	555,138	549,578	583,454	686,668	670,450	712,562	687,758
Glazebrook	28,462	30,750	33,378	34,593	42,598	41,226	47,360	47,592	49,524	54,548	49,442	48,380	47,032	45,432
Padgate	54,685	62,768	59,992	61,288	68,656	67,868	80,224	91,668	94,002	107,166	127,552	124,232	150,728	155,582
Sankey For Penketh	56,905	62,980	59,780	69,285	78,730	75,468	99,652	120,118	111,822	118,460	134,156	144,868	172,346	171,648
Warrington Bank Quay	1,054,508	1,261,505	830,481	1,042,754	1,120,926	1,073,842	879,322	894,710	923,214	1,011,584	1,081,176	1,110,400	1,363,569	1,390,484
Warrington Central	443,650	398,620	968,743	869,321	868,835	1,007,372	1,406,445	1,568,006	1,592,958	1,661,954	1,785,378	1,801,788	1,729,877	1,764,022

Source: Office of Rail Regulation

The key findings of entries and exist at Warrington stations are summarised below:

- Between 2010-11 and 2016-17, Rail trips have increased across the Borough by 37%;
- Warrington Central is the busiest station in the Borough with 1,729,877 entries and exits in 2016/17 and accounts for 41% of the total rail trips for the Borough;
- Warrington Bank Quay and Birchwood are the next busiest stations with 33% and 17% respectively for the Borough;
- The greatest increases in passengers occurred on the CLC line east and west of the town centre; at Padgate and Sankey for Penketh (88% and 73% respectively); and
- Glazebrook has witnessed a small decline of -1%.

Data along the CLC Line was analysed to understand current operations and usage during the preparation of a Market Analysis Report for the CLC Line. Table 17 presents the station origin and destinations along the CLC Line for 2015/16.

Table 17: Origin-destination CLC annual demand (2015/16, '000s)

		Destination								
		Liverpool Lime Street / Edge Hill	Mossley Hill to Sankey	Warrington	Padgate to Trafford Park	Manchester stations	East External	West External	North / South External	Total
Origin	Liverpool Lime Street / Edge Hill	-	101.6	**122.9**	54.5	261.4	228.0	-	-	**768.4**
	Mossley Hill to Sankey	497.4	72.0	**117.7**	48.9	347.2	78.6	51.6	22.2	**1,235.6**
	Warrington	**276.5**	**44.9**	**-**	**111.3**	**513.6**	**101.2**	**18.9**	**7.3**	**1,073.7**
	Padgate to Trafford Park	69.6	13.4	**104.2**	65.7	778.6	36.4	9.1	9.8	**1,086.8**
	Manchester stations	216.7	54.0	**148.8**	217.2	-	-	34.5	-	**671.2**
	East External	318.3	51.5	**88.3**	36.3	-	-	46.0	-	**540.4**
	West External	-	21.4	**30.1**	19.7	137.2	56.3	-	-	**264.7**
	North / South External	-	11.7	**9.2**	20.2	-	-	-	-	**41.1**
	Total	**1,378.5**	**370.5**	**621.3**	**573.8**	**2,037.9**	**500.4**	**160.1**	**39.3**	**5,681.3**

Source: CLC Part 1 Market Analysis Report, AECOM (2017)

A summary of the origin and destination trips along the CLC is given below:

- Warrington stands out as a key origin of trips along the line with Manchester and Liverpool the most frequent destinations;
- Of all origins along the line, 19% originated at Warrington with the only greater origins being Mossley Hill to Sankey and Padgate to Trafford Park (22% and 19% respectively);
- Of the journeys originating at Warrington, almost half (48%) were alighting at Manchester stations, over a quarter at Liverpool/Edge Hill (26%), 10% at a station between Padgate and Trafford park, and 9% travelling at a station east of Manchester;
- The most common destinations to the east of Manchester, from Warrington, are Leeds, Sheffield, Stockport and York; and
- 19% of return journeys originated at Warrington, whereas 11% just alighted at Warrington. Therefore, indicating greater out-flow by rail compared with in-flow.

Station ambience was also rated as part of the Market Analysis Report and this was on a four point scale (Very Good, Good, Poor, Very Poor). Stations ratings are shown below:

- Warrington Central - 'Very Good'
- Birchwood - 'Good'
- Sankey for Penketh – 'Poor'
- Padgate – 'Poor'
- Glazebrook - 'Poor'.

4.11.3 Rail journey times

A summary of rail journeys time to and from Warrington Central and Warrington Bank Quay are shown in Table 18.

Table 18: Fastest rail journey times to / from Warrington (minutes)

	From Warrington Central	From Warrington Bank Quay	To Warrington Central	To Warrington Bank Quay
Manchester Piccadilly	28	45	20	35
Liverpool Lime Street	29	-	22	-
Birchwood	5	-	5	-
Newton-le-Willows	-	13	-	13

Source: CLC Part 1 Market Analysis Report, AECOM (2017). Rail journey times departing between 08:00 and 09:00, direct services only.

The CLC Market analysis report also undertook a journey time comparison between bus/coach, private car and the fastest rail journey for travel between Warrington and Manchester/Liverpool (Table 19). The results highlight the fastest rail journey is the quickest mode of travel, compared with car and bus / coach, during the AM peak and interpeak.

Table 19: Journey time comparison for bus/coach, private car and the fastest rail journey for travel between Warrington and Manchester/Liverpool (minutes)

	Bus / Coach (AM Peak)	Bus / Coach (inter-peak)	Car (AM Peak)	Car (inter-peak)	Rail (fastest)
Warrington to Manchester	131	100	47	40	20
Manchester to Warrington	113	113	45	43	16
Warrington to Liverpool	93	45	47	41	29
Liverpool to Warrington	92	89	41	40	22

Source: CLC Part 1 Market Analysis Report, AECOM (2017). N.B. table presents Mon-Fri passenger service.

4.11.4 Key findings of rail travel

The key findings of the rail network within Warrington are summarised below:

- The number of rail users in Warrington is growing, with a 37% increase observed between 2010-11 and 2016-17.
- Warrington Central is the busiest station in the Borough with 1,729,877 entries and exits in 2016/17 and accounts for 41% of the total for the Borough.
- The greatest increases in rail passengers occurred on the CLC line east and west of the town centre; at Padgate and Sankey for Penketh (88% and 73% respectively).
- Along the CLC Line, Warrington is a key trip origin and there is evidence of greater rail outflow compared with inflow on the line.

- Of the journeys originating at Warrington, almost half (48%) were alighting at Manchester stations, over a quarter at Liverpool/Edge Hill (26%), 10% at a station between Padgate and Trafford park, and 9% travelling at a station east of Manchester.
- Anticipated service changes and a new station at Warrington West would have a positive impact on the rail network.

What does this mean for LTP4?
The rail network provides fast connection within and out of Warrington. Rail patronage is shown to be increasing within the Borough. LTP4 should consider how more residents and workers can benefit from Warrington's rail network. Future policy should consider the following:

- Encourage more residents and workers to undertake a modal shift away from the car and use rail services for short and long-distance commuting;
- Deliver rail services that can help provide an increasing 'metro' function within the town, where residents and workers use rail services to access the different parts of the Borough;
- Continue to speak with Rail stakeholders and operators over improving the reliability and quality of services on Warrington's rail lines;
- Promote the use of park and ride facilities at stations to reduce the number of vehicles entering the town centre; and
- Ensure there are adequate active travel connections between existing and new stations to promote sustainable multi-modal travel.

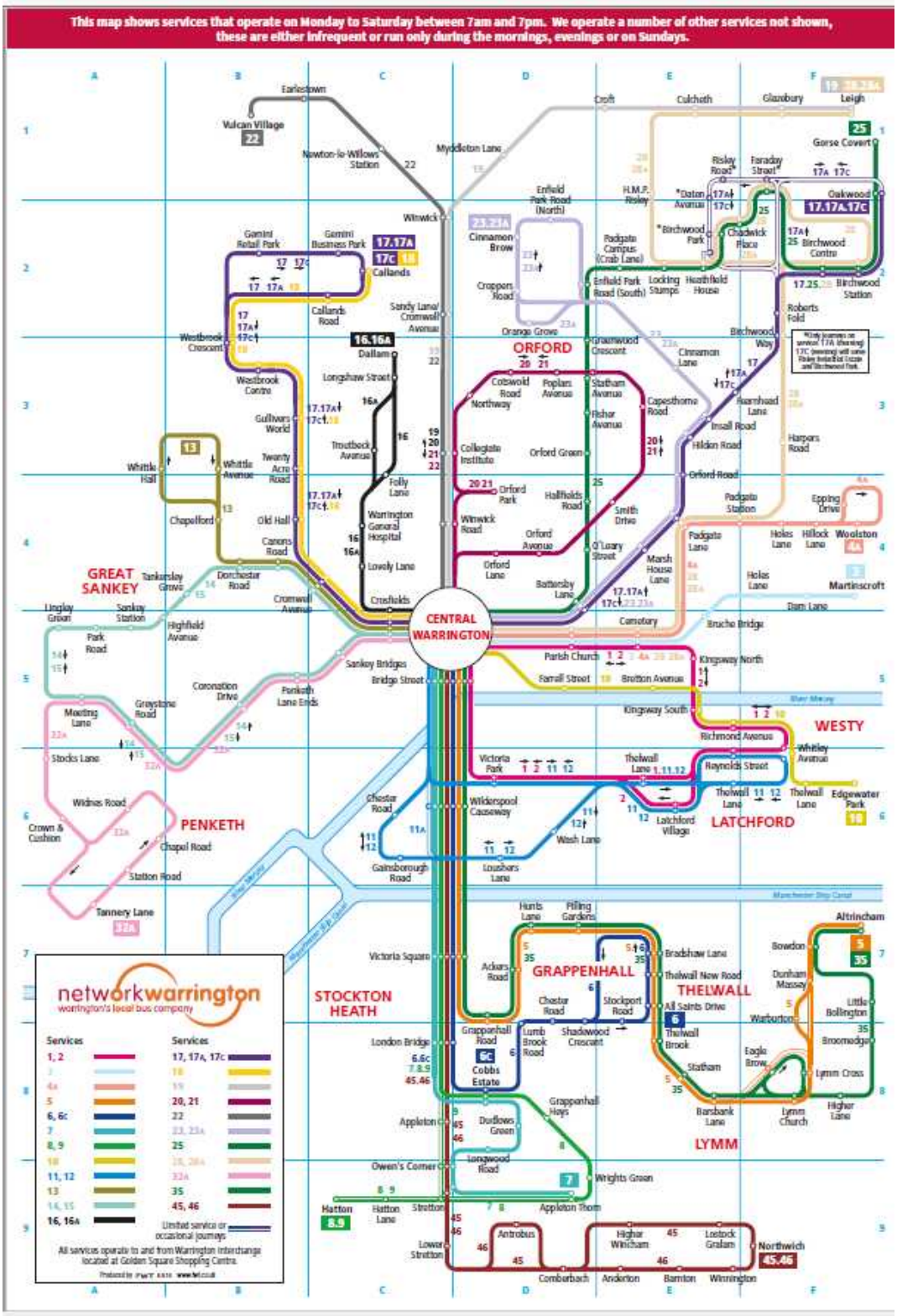
4.12 Bus travel

Network Warrington is the main bus provider within Warrington and Figure 71 illustrates this network. The bus network shows services are centred on Warrington Interchange with most services providing a circular route from the town centre. This provides effective access to the town centre.

There are very few cross-city routes or routes between outlying parts of the Borough, leading to passengers often requiring two services to get to destinations beside the town centre.

A new regular bus service calling at Bank Quay rail station was introduced in 2018. Subsequently, there is now a bus every ten minutes into the town centre and to Stockton Heath and beyond.

Figure 71: Network Warrington bus network



Source: https://www.warringtonsownbuses.co.uk/assets/images/content/Network-Map-Final.pdf

Arriva also operate several bus services within Warrington and Table 20 identifies these services and the locations served. Arriva services extend the available bus network,

particularly to the south west and west of Warrington with services to Runcorn, Chester and Liverpool. In addition, there are several bus services operated by smaller companies, as well as private sector funded commuter services within the Borough.

Whilst route coverage and frequencies of the bus network have fallen in Warrington in recent years, no more than 10% of services are publicly subsidised and WBC have also stopped funding evening services. Furthermore, there has been some increase in evening bus services across the Borough in recent years, implying that some of these routes are now considered commercially viable by operators.

Table 20: Arriva bus services operating within Warrington

Arriva Bus Service	Locations Served
21 / X30	Chester to Runcorn and Warrington via Frodsham and Daresbury
110	Murdishaw to Warrington via Runcorn, Widnes and Penketh
329	St Helens to Warrington via Winwick
7 / 7A	Warrington / Huyton to Liverpool
360	Warrington to Wigan via Winwick, Newton, Golborne and Platt Bridge

Source: Arriva website

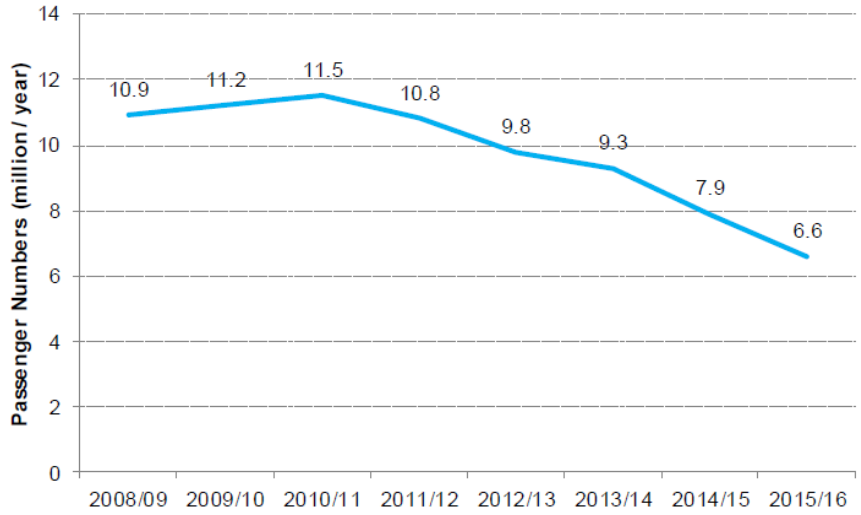
The majority of bus services finish at 23.00 and have limited services on most routes on Sundays.

4.12.1 Bus patronage

Bus patronage in Warrington between 2008/09 and 2015/16 is presented in Figure 72. The chart shows bus patronage was relatively stable between 2008/09 and 2011/12, fluctuating between 10.8 and 11.5 million passengers / year. However, since 2010/11, bus patronage has fallen from 11.5 to 6.6 million passengers / year. This is nearly a 43% drop in patronage and vastly exceeds the 10% decrease in patronage observed across the North West region over the same time period [2].

[2] Department for Transport Passenger journeys

Figure 72: Bus patronage (boarders in Warrington Borough Council area)



Source: Introduction to Public Transport Presentation WBC June 2016

Figure 72 shows bus patronage fell by 39% in Warrington between 2008/09 and 2015/16. Similarly, national trends have also shown declining bus patronage with the 2015 National Travel Survey demonstrating a 19% decrease since 1995/97.

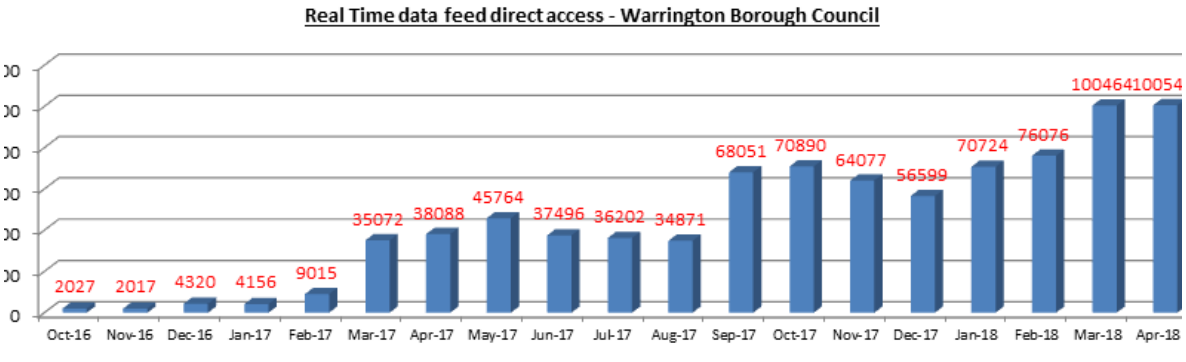
4.12.2 Bus Real time passenger information

In October 2016, Warrington launched real time bus passenger information system (RTPI). The system monitors the real time position of the majority of buses operating scheduled bus services across the borough and sends countdown information of bus arrivals to 55 digital displays located at many of the most popular bus stops.

Passengers with internet enabled devices get reliable, live information for any of the 1,300+ bus stops across the borough. The service is helping to improve the quality of bus travel and make journeys easier.

Warrington Borough Council monitors how many hits the RTPI website receives. Figure 73 shows the number of monthly downloads for the website between October 2016 and April 2018. The graph shows that the use of RTPI is growing and there is continuing use of the service.

Figure 73: Real time bus passenger information monthly downloads



Source: Warrington Borough Council

4.12.3 Fare price

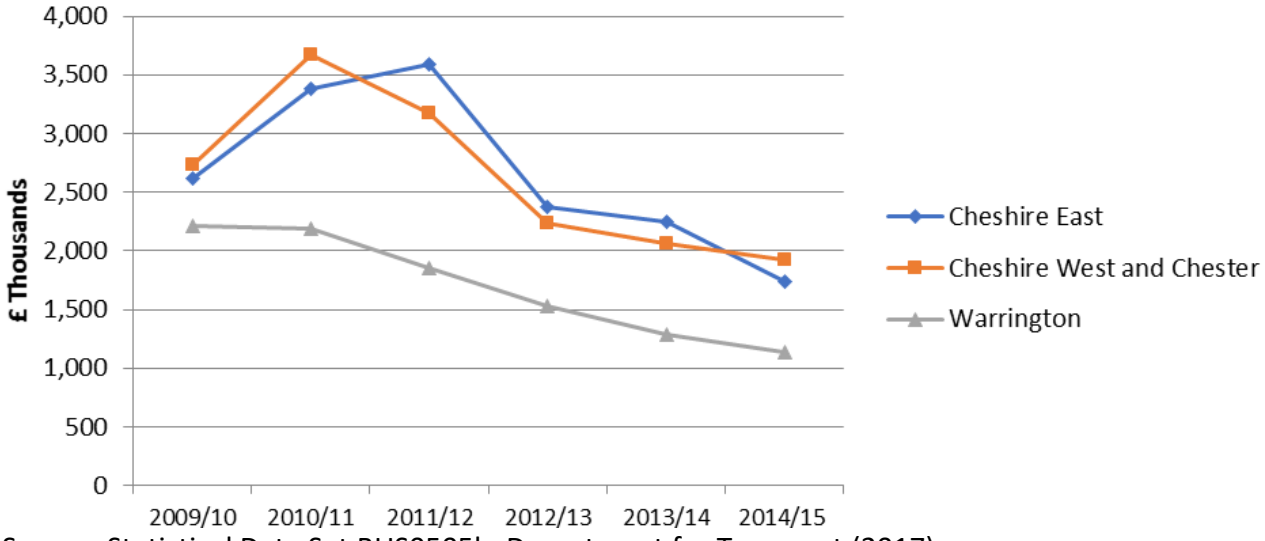
One of the influencing factors behind declines in bus patronage is an overall trend for increases in bus fares. Between 1995 and 2016 the average bus fare in England (in real terms) rose by 45.3%. There are significant regional differences within this figure with fares in London rising by 36% against a 60% increase in other Metropolitan areas outside of London. In English non-metropolitan areas the increase in fares was 34%. If passengers do not feel that fares provide value for money they are likely to look at alternatives.

This has become a problem in Warrington; feedback from the Warrington Transport Summit indicated that the high cost of public transport was a key factor in why residents choose the car to travel. Furthermore, the price of a bus fare for two adults to take a taxi for a return journey across many areas of Warrington is cheaper than it is to use the bus for two persons. Subsequently, taxis have been noted to provide an increasingly competitive offer to the bus.

4.12.4 Funding

In a climate of public spending restraint and devolved responsibility transport funding, there has been a significant reduction in expenditure in subsidised bus services. Figure 3.3 and Table 3.2 highlight the reduction in local bus spend in the Sub Region and identify the overall decline in spend between 2009/10 and 2014/15. The most significant reduction was in Warrington (-48%).

Figure 74: Estimated net support paid by central and local government for Local Bus Services



Source: Statistical Data Set BUS0505b, Department for Transport (2017)

[3] DfT, Costs, fares and revenue (BUS0405B), 14 June 2016

Table 21 Spend on Local Bus Services between 2009/10 and 2014/15

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	% change 09/10-14/15
CEC	2,618	3,380	3,593	2,379	2,246	1,742	-33%
CWaC	2,734	3,667	3,172	2,231	2,056	1,925	-30%
Warrington	2,215	2,192	1,849	1,527	1,282	1,141	**-48%**
TfGM	36,487	37,855	41,564	37,631	37,742	35,523	-3%
Merseytravel	18,277	17,438	17,599	19,023	18,536	16,596	-9%

Source: Statistical Data Set BUS0505b, Department for Transport (2017)

4.12.5 Congestion

Congestion and poor journey time reliability has been noted to be a serious problem along Warrington's highways network. The impact of congestion can result in a downward trajectory in service quality and passenger numbers.

In Professor David Begg's report on the impact of congestion on bus passengers, highlighted the following patterns associated with increased congestion on bus routes [4]

1. Slower speeds leading to higher costs, higher fares, fewer passengers, service decline, fewer passengers;
2. Slower speeds leading to increased journey time, fewer passengers, service decline, fewer passengers; and
3. Slower speeds, punctuality and reliability decline, fewer passengers, service decline, fewer passengers.

For operators, the response to congestion is either to increase frequency (with increased costs and therefore fares) or decrease frequency. Either option is likely to result in reduced patronage.

This correlation between journey times and patronage outlines the importance of addressing congestion for the future vitality of the bus network. Not only is this important from an accessibility perspective but it is also important for the health of the local economy and from an environmental perspective with fuel efficiency declining when driving in congested areas.

4.12.6 Key findings of bus travel

The key findings of bus travel within Warrington are presented below:

- Bus services in Warrington are centred on Warrington Bus Interchange with the majority of services providing a circular route from the interchange. This often requires passengers to change services in the centre for cross town journeys.
- Between 2010/11 to 2015/16, there has been a decline in bus patronage from 11.5million to 6.6 million per year.

[4] The impact of Congestion on Bus Passengers, (2016), Professor David Begg

- Bus patronage in Warrington has declined at a greater rate than the North West average.
- Use of Warrington's Real Time Bus passenger information is increasing
- The majority of bus services finish at 23.00 and have limited services on most routes on Sundays.
- Bus fares have also increased in recent years. As a result, taxis are becoming an increasing competitor to local bus services
- There has been a significant reduction in local bus spend in Warrington, with a reduction of -48% between 2009/10 and 2014/15.

What does this mean for LTP4?
Buses provide a crucial transport mode; they present an efficient means of travelling short to medium distances, and present good connections to the town centre and across the Borough. Bus travel also presents an affordable means of travel and the services are important in providing for residents with low incomes and those who do not have access to a car.

LTP4 provides the opportunity to consider the development of a more comprehensive bus strategy and to consider bus priority measures, bus rapid transport, and provide better access to the town's key employment destinations.
The introduction of the Buses Bill and devolved powers to combined authorities could also have the opportunity to increase the governance of bus service provision within Warrington.

4.13 Passenger transport satisfaction

This section reviews public transport satisfaction with services that operate within Warrington. The analysis draws upon passenger surveys within Warrington and across the UK.

4.14 Rail passenger satisfaction

Transport Focus are an independent transport user watchdog. They undertake annual surveys into rail passenger satisfaction. The 2017 National Rail Passenger Survey provides the overall satisfaction of rail services that operate within Warrington. The operators and routes of interest are:

- Northern: West
- East Midlands Trains: Liverpool – Norwich
- TransPennine Express: North West
- Virgin Trains London – Scotland

Figure 75 shows no significant change in passenger satisfaction on the above named routes. There were variations in satisfaction between services, but generally reasonably high levels

were exhibited: Northern (82%); East Midlands (77%); TransPennine Express (77%); and Virgin (90%).

Figure 75: Overall satisfaction for operators for routes

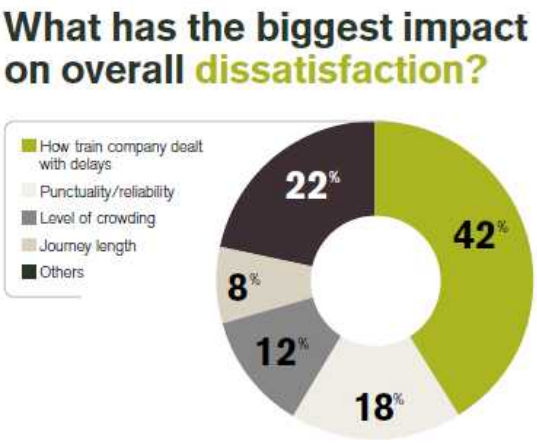
Route	sample size	% satisfied or good	significant change
Arriva Trains Wales: Cardiff and Valleys	231	79	=
Arriva Trains Wales: interurban	249	86	=
Arriva Trains Wales: Mid Wales and Borders	320	88	=
Arriva Trains Wales: North Wales and Borders	101	87	=
Arriva Trains Wales: South Wales and Borders/West Wales	76	61	↓
c2c: Southend Line	615	91	=
c2c: Tilbury Line	359	87	=
Chiltern Railways: commuter	258	88	=
Chiltern Railways: Metro	249	85	=
Chiltern Railways: Oxford	174	82	=
Chiltern Railways: West Midlands	284	94	=
CrossCountry: East - West	349	83	=
CrossCountry: North - South Manchester	295	79	=
CrossCountry: North - South Scotland and North East	579	86	=
East Midlands Trains: Liverpool - Norwich	223	77	=
East Midlands Trains: local	209	90	↑
East Midlands Trains: London	558	86	=
Gatwick Express*	451	81	=
Grand Central: London - Bradford	72	95	=
Grand Central: London - Sunderland	585	96	↑
Great Northern*	592	77	=
Great Western Railway: Long-distance	769	82	=
Great Western Railway: London Thames Valley	418	78	=
Great Western Railway: West	400	78	=
Greater Anglia: Intercity	257	91	↑
Greater Anglia: Mainline	487	80	=
Greater Anglia: rural	128	81	=
Greater Anglia: Stansted Express	110	93	=
Greater Anglia: West Anglia	313	76	↓
Heathrow Connect	474	83	=
Heathrow Express	442	91	↓
Hull Trains	568	95	=
London Midland: London commuter	262	84	=
London Midland: West Coast	190	88	=
London Midland: West Midlands	611	83	=
London Overground: Gospel Oak - Barking	84	84	-
London Overground: Highbury and Islington - Croydon/Clapham	470	90	=
London Overground: Richmond/ Clapham - Stratford	469	84	↓
London Overground: Watford - Euston	159	90	=
London Overground: West Anglia	387	86	=
Merseyrail: Northern	530	87	↓
Merseyrail: Wirral	241	92	=
Northern: Central	410	79	=
Northern: East	648	81	=
Northern: North East	306	90	=
Northern: West	293	82	=
ScotRail: Interurban	499	84	=
ScotRail: rural	93	86	=
ScotRail: Strathclyde	477	84	=
ScotRail: urban	297	87	=
South Western Railway: Island Line**	123	88	=
South Western Railway: Longer-distance**	728	74	↓
South Western Railway: Metro**	728	74	=
South Western Railway: outer suburban and local**	542	77	=
Southeastern: High Speed	271	91	=
Southeastern: Mainline	492	79	=
Southeastern: Metro	748	79	=
Southern: Metro*	555	71	=
Southern: Sussex Coast*	733	74	↑
TfL Rail	215	75	=
Thameslink: Loop*	306	84	=
Thameslink: Kent*	211	81	↑
Thameslink: North/South*	567	84	↑
TransPennine Express: North	719	84	=
TransPennine Express: North West	170	77	=
TransPennine Express: South	110	68	=
Virgin: London/Birmingham - Scotland	246	87	=
Virgin: London - Liverpool	121	93	=
Virgin: London - Manchester	294	92	=
Virgin: London - North Wales	74	91	=
Virgin: London - Scotland	173	90	=
Virgin: London - Wolverhampton	273	94	=
Virgin Trains East Coast: London - Leeds and West Yorkshire	342	93	=
Virgin Trains East Coast: London - Newcastle/Sunderland and East Yorkshire	189	92	=
Virgin Trains East Coast: London - Scotland	524	91	=

Source: Introduction to Public Transport Presentation WBC June 2016

The report also summaries the biggest drivers for customer satisfaction and these are summarised in Figure 76 . Punctuality and reliability is the biggest factor in providing affecting satisfaction levels for train services followed by other factors and cleanliness of the train inside.

The largest factors affecting overall dissatisfaction with rail services are how the operator deals with delays, other factors and the punctuality and reliability of services.

Figure 76: Key drivers for customer satisfaction and



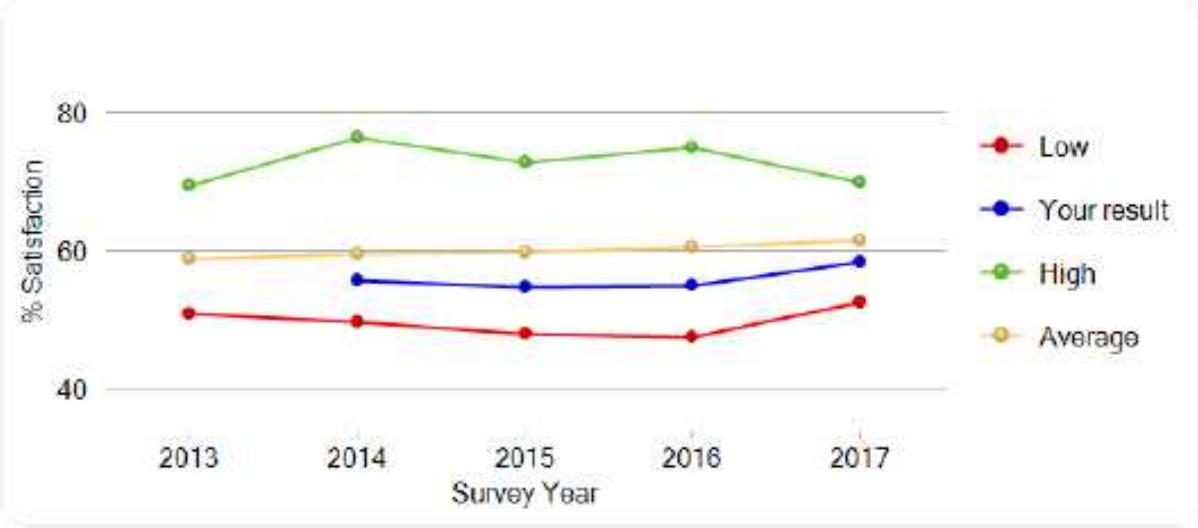
Source: Introduction to Public Transport Presentation WBC June 2016

4.14.1 Bus passenger satisfaction

The national Highways and Transport network (NHT) undertake surveys of public transport satisfaction for bus services at a local authority level. Therefore, an interpretation of satisfaction with bus services in Warrington can be obtained.

Figure 77 shows that passenger satisfaction in 2017 with local bus services within Warrington (57%), fall below the national average (60%) and rank 83rd out of all the 112 authorities who responded to the survey.

Figure 77: Satisfaction with local bus services in Warrington compared with the national average



Source: NHT Survey Report 2017: Warrington BC Public Transport Theme Report

Figure 78 shows how passenger satisfaction with bus services in Warrington has changed over time between 2014 and 2017. The analysis shows satisfaction with local services to improve. Whereas the information available on public transport, the satisfaction with taxi/mini cab services and community transport to decline.

Figure 78: Satisfaction results with local bus services in Warrington (2014-2017)

Question	2014	2015	2016	2017
KBI 06 - Local bus services	55	54	56	57
KBI 07 - Local bus services (BVPI 104)	54	57	60	
KBI 08 - Public transport info (BVPI 103)	47	45	43	
KBI 09 - Taxi/mini cab services	64	61	60	61
KBI 10 - Community Transport	59	55	56	57

Source: NHT Survey Report 2017: Warrington BC Public Transport Theme Report

4.14.2 Warrington transport summit – public transport

Warrington Borough Council has hosted a series of Transport Stakeholder Summits that were intended to obtain view from stakeholders over Warrington's transport system. The third transport summit focused on passenger transport.

The event took place 15th November 2017 and was well-attended, with 36 delegates present. The findings of the summit are split into two parts:

- Current passenger transport in Warrington
- Methods for transforming passenger transport in Warrington

Current passenger transport

Delegates were first asked about what they consider to be the most important issues regarding bus and rail services in Warrington. These are summarised below in Table 22. Responses were wide ranging and took in the cost of travel, the times and routes of services that are available, the impact of congestion, accessibility issues, mode integration, and communication with passengers.

Table 22: What are the key issues for current passenger services in Warrington

Issue Type	Comments Summary
Bus	• Radial bus routes often mean needing more than one bus for journeys, changing in the town centre • Congestion leads to buses being late or unreliable • Improving facilities on buses (e.g. Wi-Fi) would make bus travel more attractive • Bus services should operate later into the evening
Rail	• There is insufficient capacity on Liverpool - Manchester services • More space is needed for pushchairs and bikes • The direct connection to Manchester (and beyond) is important
Integration of Bus and Rail	• There should be better communication to bus passengers about rail services and vice versa • Bus access to Warrington Bank Quay is poor • Buses to stations should be timed to meet rail services
Price	• Both bus and rail fares are too expensive • Price of travel prohibits people (particularly young people) accessing key services • Price of travel encourages people to drive
Groups with Protected Characteristics	• Disabled facilities at Birchwood, Padgate and Sankey for Penketh stations should be improved • More buses and bus stops should be equipped for step- free access • Cost and service levels risk isolation for elderly and young people
Large Employment Sites	• The shuttle bus to Lingley Mere has been very successful but improvements are needed on services to Birchwood Park • Buses should better serve shift workers

Source: Warrington Borough Council Passenger Transport Stakeholder summit

Delegates were asked what Warrington Borough Council should be doing to improve passenger transport in the next five years. Responses were wide-ranging and included consideration of bus, rail, ticketing, and accessibility, integration of different modes, improved partnership working, and communication with passengers. The responses are summarised in the table below.

Table 23: What should we be doing to improve passenger transport in the next five years

Issue Type	Comments Summary
Bus	• Reduce prices • Improve journey times • Seek more influence over bus service routeing • Improved fleet - better facilities and emissions standards • More bus priority measures
Rail	• Seek reduced cost of travel • Protect Liverpool/Manchester services to/from smaller stations
Integration of Transport Modes	• Improve Active Travel links to and facilities at stations • Better integration of bus/rail timetables • 'Travel hubs' outside of town centre • Allow large mobility scooters to use cycle lanes
Communication with Passengers	• Improved marketing to change perceptions of bus travel • Further improvement and promotion of RTPI • Improved timetable information at stops, and bus stop directional signage to key destinations
Groups with Protected Characteristics	• Improve services to key youth facilities such as the Peace Centre • Improve booking system for rail passengers in wheelchairs
Policy Changes	• Plan new developments to encourage sustainable travel • Increase Council influence over passenger transport services • Seek new funding sources • Roll out smart ticketing across all modes • Improved partnership working between Council and key stakeholders

Source: Warrington Borough Council Passenger Transport Stakeholder summit

Transforming passenger transport in Warrington

The second part of the summit focussed on methods of transforming the passenger transport offer in Warrington in the long term. The majority of responses expressed support for new transport modes such as trams and Bus Rapid Transit, but there was less agreement on the specific mode that should be introduced.

Other responses considered methods of influencing behaviour change, park and ride, and changes to land use planning. The responses are summarised in Table 24.

Table 24: How should we transform passenger transport in Warrington?

Issue Type	Comments Summary
New Passenger Transport Modes	• Need for new passenger transport modes was identified but views on what that mode should be varied between Guided Buses, Bus Rapid Transit, and trams • Lack of flexibility of a tram network was identified as an issue should this mode be introduced • Demand Responsive transport options should be considered • Active travel routes should run alongside new passenger transport corridors
Behaviour Change	• Use technology to target younger people when influencing travel choices • The way people work will change in the future, possibly reducing the demand for travel • Offer incentives to businesses that encourage use of sustainable modes for commuting
Park and Ride	• The location of parking sites is vital to the success of any park and ride facility • Park and stride should be considered
Land Use Planning	• The location of employment sites, and the nature of the employment they offer will affect how people travel to work • Plan spaces to accommodate mobility scooters

Source: Warrington Borough Council Passenger Transport Stakeholder summit

The second question in this section of the summit asked delegates to consider what the Council and other stakeholders should be doing now as we work towards transforming passenger transport. The responses, summarised in Table 25, considered researching and identifying a preferred option for a transformative passenger transport system, changes to council policy, influencing use of the highway, and improving the current passenger transport offer.

Table 25: How should WBC transform passenger transport in Warrington?

Issue Type	Comments Summary
Policy Changes	• Town centre regeneration should create a space that is attractive and accessible for all users and accommodates various transport modes • Future planning should be flexible and able to react to market/technology changes • Planning policy should encourage employers to consider sustainable commuting
Research and Evidence Base	• Look at best practice from other locations to identify the preferred mode and routes • Identify design and costs of preferred scheme
Highway Infrastructure	• Seek ways of discouraging rat-running and preventing motorway traffic using the town centre • Acceptance that road building is not a long term solution to town centre congestion
Improving Current Offer	• Improve bus fleet to increase the number of lower emission vehicles • Improve facilities and reduce costs for public transport users

Source: Warrington Borough Council Passenger Transport Stakeholder summit

For the next question delegates were asked to think about how transformational passenger transport changes could be funded. Suggestions included a Workplace Parking Levy, increasing Council Tax and Business Rates, and exploring wider funding sources. These are summarised in Table 25.

Table 26: How should WBC transform passenger transport in Warrington?

Issue Type	Comments Summary
Workplace Parking Levy	• A Workplace Parking Levy was identified as a potential funding mechanism which has been successful in other locations
Council Tax and Business Rates	• Local retention of business rates • A Council Tax precept that is ring fenced for transport improvements. The benefits of this would need to be clearly outlined to residents
Wider Funding Sources	• Seek funding from Public Health to deliver these benefits to air quality and increasing physical activity • Seek funding from central Government • Tolling could be considered if this does not deter visitors • Use parking revenue and fines from traffic infringements • Partnership working with the transport operators, particularly those that would benefit from increased use of public transport

Source: Warrington Borough Council Passenger Transport Stakeholder summit

4.14.3 Key findings of public transport satisfaction

The key findings of public transport satisfaction are summarised below, this is categorised according to rail and bus travel:

- Bus passenger satisfaction levels in Warrington are below the national average. However, satisfaction levels have increased over the last 2 years.
- The routing of services and congestion in the town was identified to reduce the quality of bus services.
- Stakeholders suggested implementing bus priority measures, modern technology, services to operate later in the evening, better routing and improving journey reliability to help improve the quality of service.
- A key theme of the feedback from the transport summit was a requirement for improved communication. This includes communication amongst the key stakeholders to improve integration of services at transport hubs and create a more consistent service for multi-mode journeys.
- Passenger satisfaction with rail operators for Warrington stations has remained quite stagnant. Satisfaction is reasonably high with the following satisfaction levels exhibited: Northern (82%); East Midlands (77%); TransPennine Express (77%); and Virgin (90%).
- There was a preference for increasing the capacity of the Manchester-Liverpool rail service and safeguarding it from delays and the addition of extra stops.
- Reliability of rail services were the biggest factor in providing good satisfaction levels.
- Price was identified as a key issue on both local bus and rail services and was a key factor in low public transport patronage and high car use.
- Accessibility and the facilities for disabled users and those who use pushchairs needs to be improved for public transport services.

- There was broad agreement between transport summit delegates that a project to transform and improve the passenger transport offer in Warrington is necessary in order to reduce congestion, improve health, and accommodate housing and jobs growth.
- Views were mixed about the mode that any transformative mass transit scheme should use. Trams, Guided Bus, and Bus Rapid Transit were amongst the options discussed. It was considered important that any mode introduced should offer sufficient flexibility to accommodate future land use changes.
- The steer provided by stakeholders regarding funding for a transformative change was less clear. A Workplace Parking Levy and Council Tax precept were amongst the options considered for locally funding mass transit improvements.

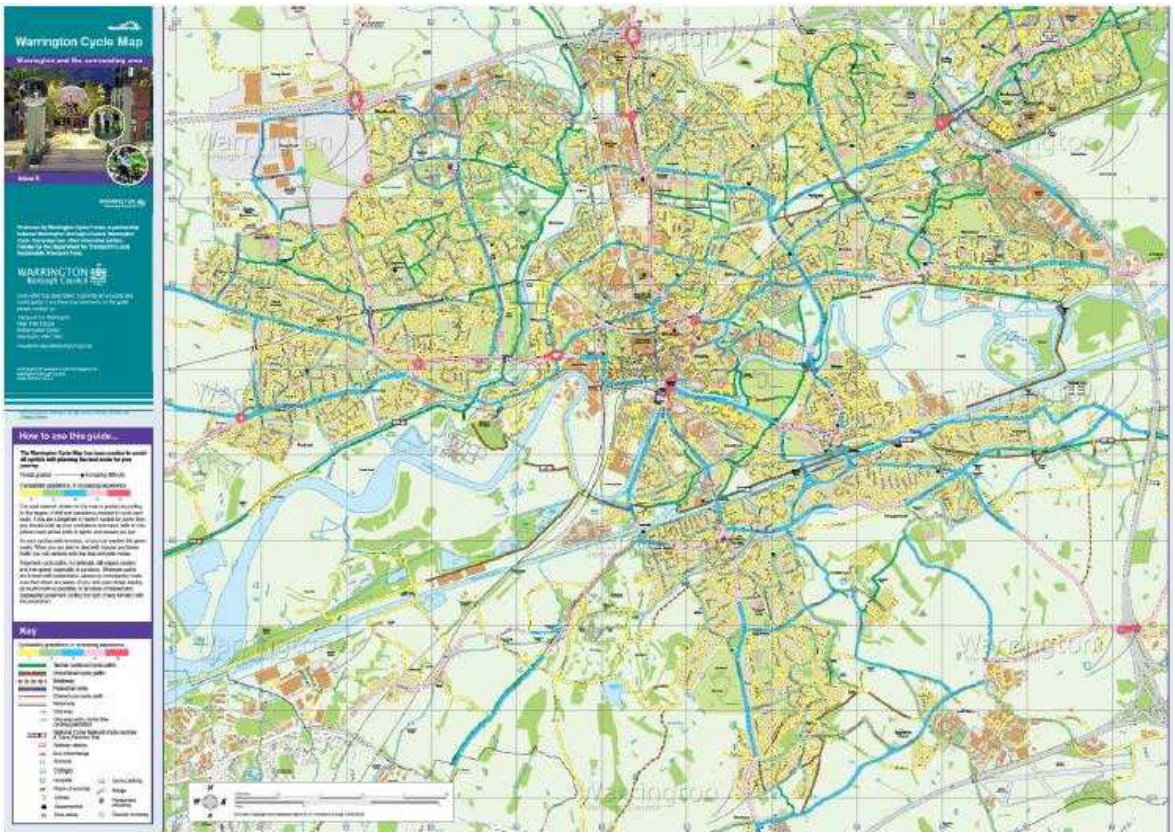
What does this mean for LTP4?
Feedback from the national rail passenger survey, NHT and Warrington Transport Summit, suggests the following policy actions could be useful in addressing public transport and stakeholder concerns:

- A bus strategy which improves the routing of services, timing and integration with rail services and bus priority measures that can reduce journey times;
- Enhance the quality of public transport hubs by improving routing to them from sustainable modes;
- Improve the quality and reliability of rail services on the CLC line;
- Actions that can help take advantage of TfN's smart ticketing programme;
- Introduce a transformational public transport system that can best serve Warrington residents and businesses. This could consider a tram, guided bus or bus rapid transit system; and
- Investigate a funding mechanisms which could support a new transformational public transit system.

4.15 Cycling

Warrington's cycle network is shown in Figure 79. The road network has been assessed on a five point scale to show the 'cycleability' as well as identifying cycle paths, shared-use cycle paths and pedestrian links. National Cycle Network (NCN) routes are labelled as well as cycle parking, crossings and key destinations.

Figure 79: Warrington cycle network



Source: NHT Survey Report 2017: Warrington BC Public Transport Theme Report

National Cycle Route 62 runs through the south of the Borough and forms the west and central sections of The Transpennine Trail which is a long-distance path running from coast to coast across northern England. From Warrington, the route provides a connection to Widnes in the west and through Lymm and onwards towards Altrincham in the east.

The cycle map displays the designated cycle routes within the town. Tarmac surfaced cycle paths are represented by a green line and unsurfaced cycle paths by a brown line. The map also indicates which roads are suitable for cyclists according to cycle skill level. Paths in yellow are most suitable for beginners, roads are then graded with increasing difficulty (2 Green, 3 Blue, 4 Pink, and 5 Red). Pedestrian links are coloured purple.

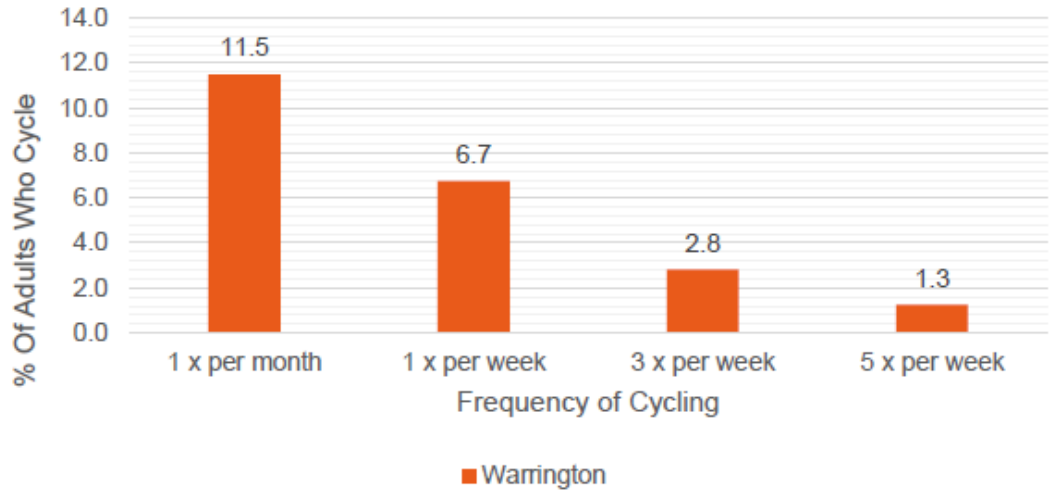
Surfaced cycle paths are generally found outside of the town centre between connecting residential areas. Nearer the town centre it appears cyclists would have to ride on the road in a shared environment, mostly on blue assigned roads (medium level difficulty) in order to reach Warrington town centre.

4.15.1 Cycling levels

DfT prepare walking and cycling statistics based on results from the Active People Survey which is an annual household survey administered by Sport England. Figure 80 shows that in

2015, 11.5% of the adults in Warrington cycled once a month and 6.7% cycled once a week. Even fewer adults cycle more than once a week.

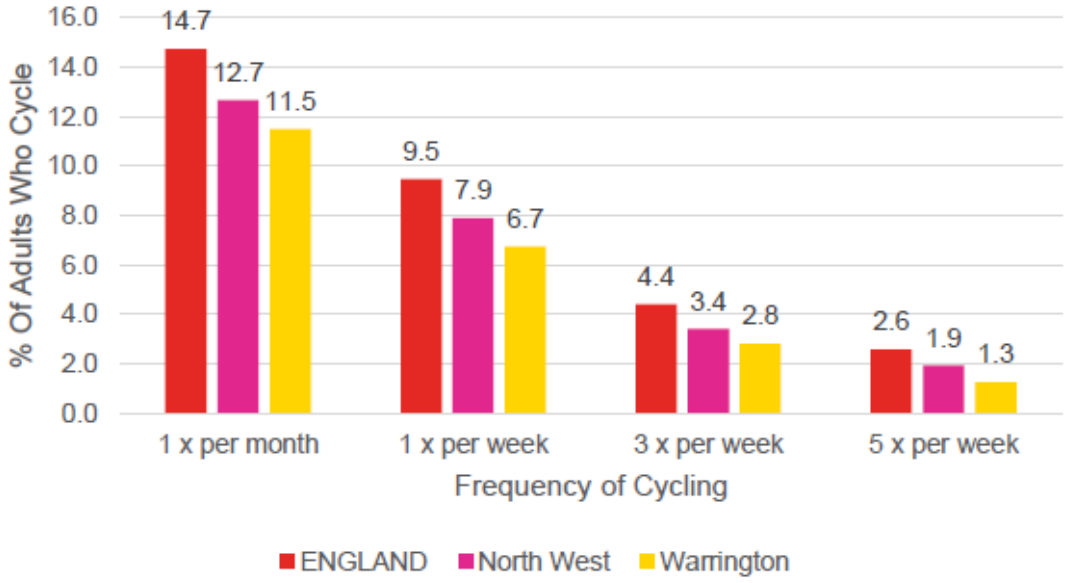
Figure 80: 2015 Cycling levels within Warrington



Source: Department for Transport Cycling and Walking Statistics

The percentage of adults who cycle in Warrington was compared with the North West and England average in 2014/2015 (Figure 81). For all cycling frequencies, the average percentage of Adults who cycle for England and the North West is greater than the Warrington average. On this basis, Warrington sees a lower percentage of adults who cycle compared with the regional and national averages.

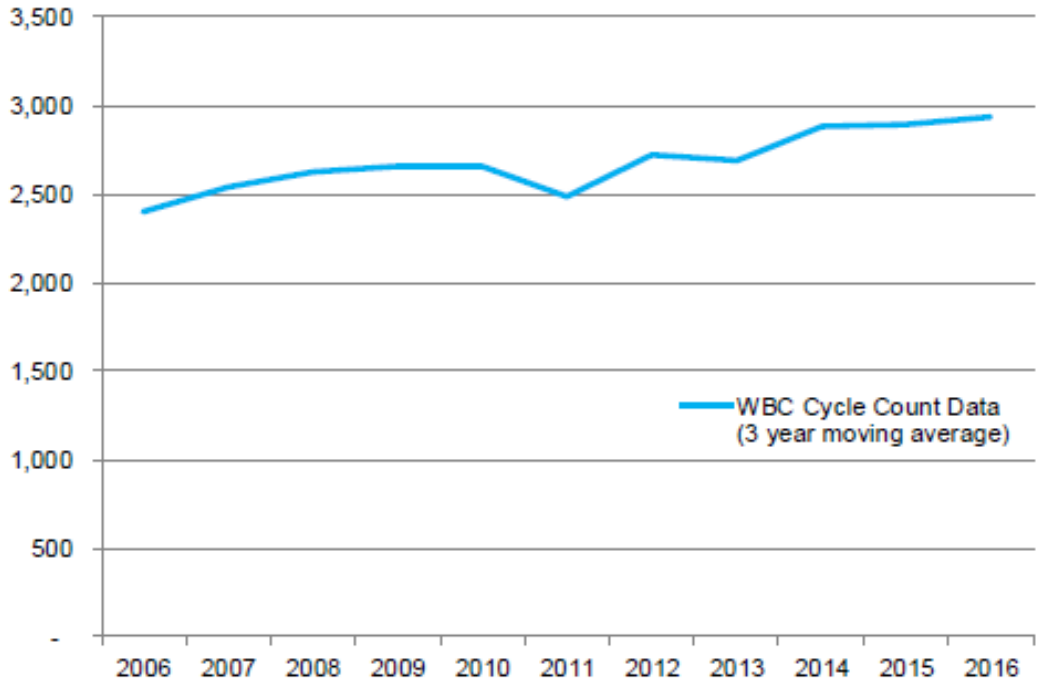
Figure 81: percentage of adults who cycle according to area 2014/15



Source: Department for Transport Cycling and Walking Statistics 2015

WBC has collected pedestrian and cycle count data at various sites. Between 2006 and 2015, Figure 82 shows there has been a 21% increase in the number of cyclists on the Warrington network, according to WBC cycle count data.

Figure 82: Cycling counts in Warrington (2006-2016)



Source: Walking and cycling count data provided by Warrington Borough Council

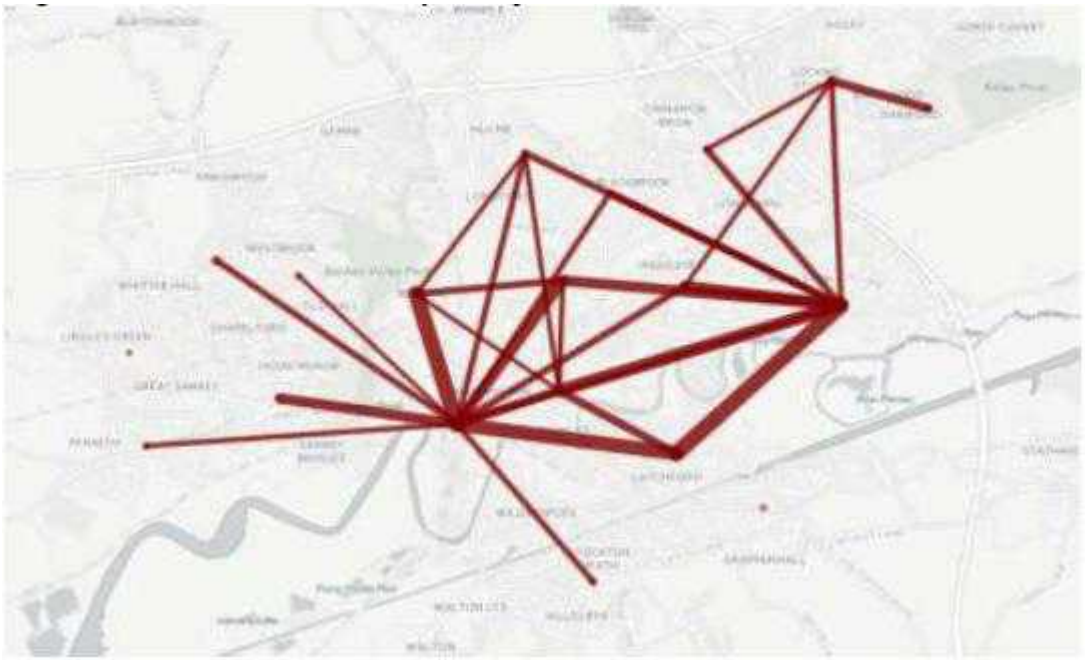
4.15.2 Future cycling levels

The Propensity to Cycle Tool (PCT) is a useful tool to estimate future mode share for cycling along particular corridors if differing barriers are removed (for example infrastructure and culture). This can be used to identify opportunities for cycle investments and interventions to encourage uptake of cycling. The tool allows various scenarios to be presented; the top 30 flows are shown for the following:

- Census 2011: Main mode of travel to work;
- Government Target: Doubling of cycling nationally (between 2013 and 2025) as per DfT draft Cycling Delivery Plan;
- Go Dutch: The level of cycling if English people were as likely as Dutch people to cycle a trip of a given distance and level of hilliness.

Figure 83 shows the predominant flows within the 2011 Census were between central Warrington and Woolston, Bewsey, Latchford and Orford. The results show greater flows to the northeast of Warrington Town Centre compared with other directions.

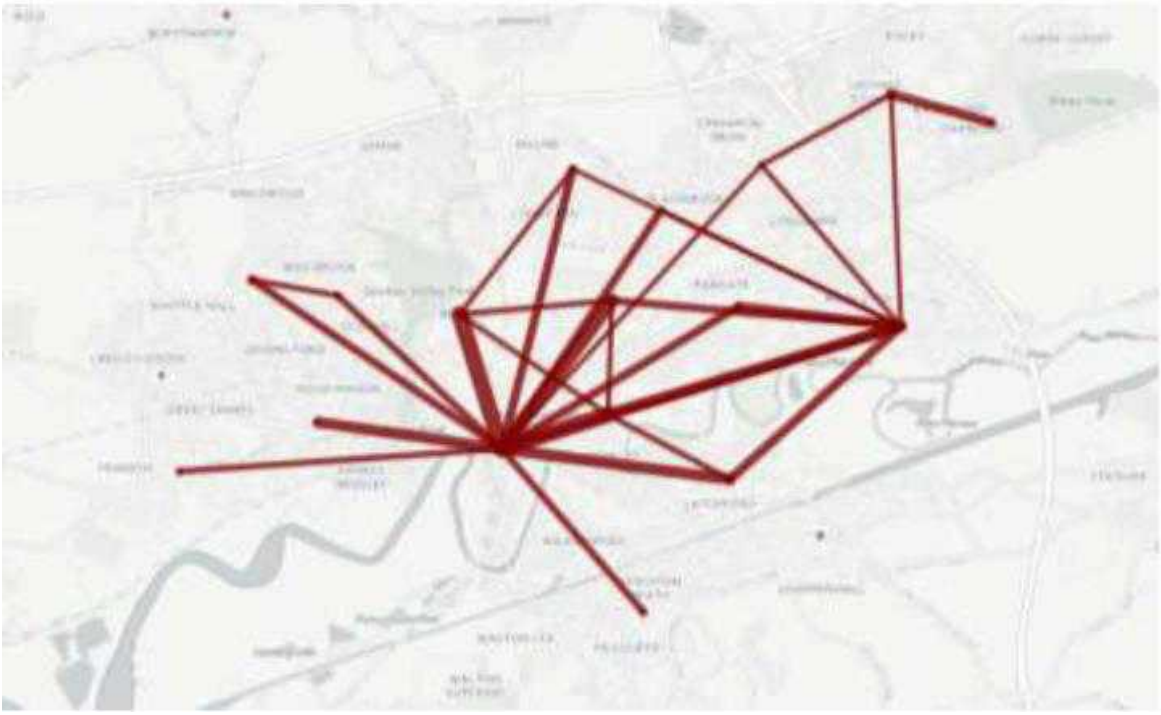
Figure 83: Census 2011 top



Source: DfT Propensity to Cycle Tool

When the Government target is considered (Figure 84) the results show a similar pattern to Figure 83. However, the cycle flow from Bewsey and Orford is stronger than the flow from Woolston and Latchford with the government target.

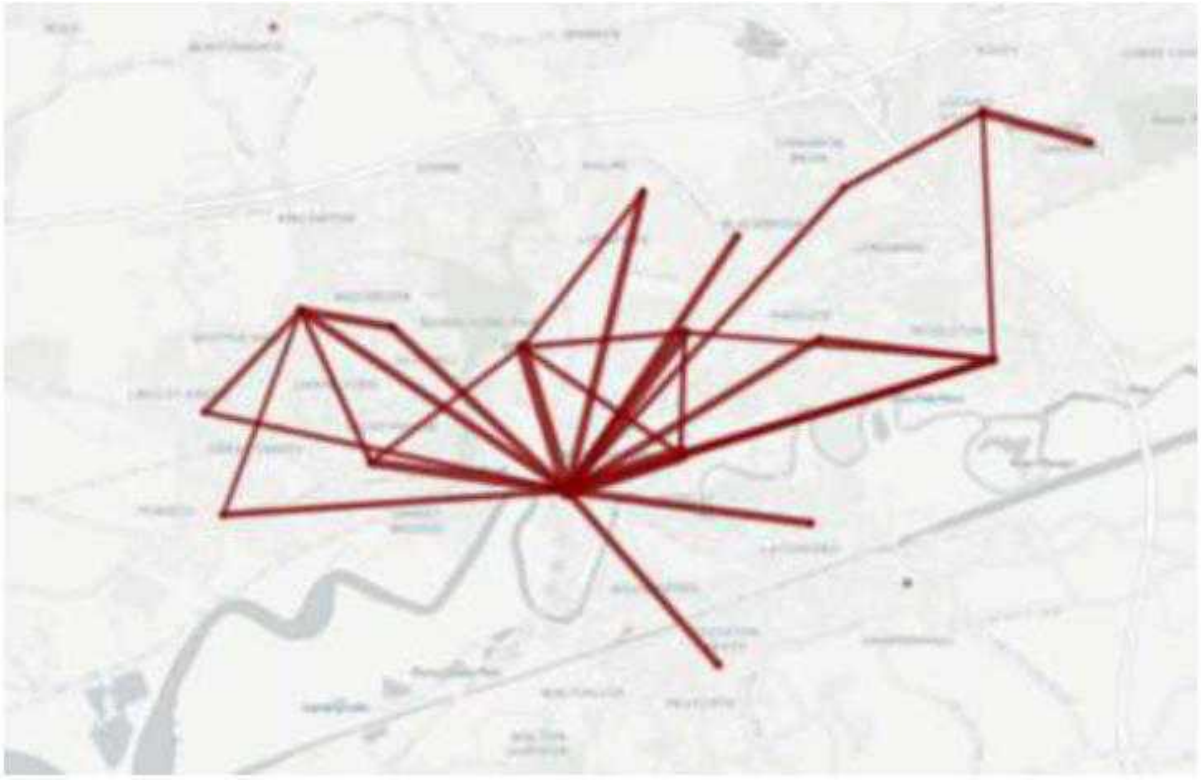
Figure 84: Government cycling target scenario, top 30 cycle flows



Source: DfT Propensity to Cycle Tool

Figure 85 presents the Go Dutch cycle flows; the results show greater cycle flows around Westbrook and Great Sankey compared with Figure 83 and Figure 84. Whereas the 2011 Census showed strong flows between Latchford and Woolston, this did not feature within the top 30 flows under the Go Dutch scenario.

Figure 85: 'Go Dutch' cycling scenario, top 30 cycle flows

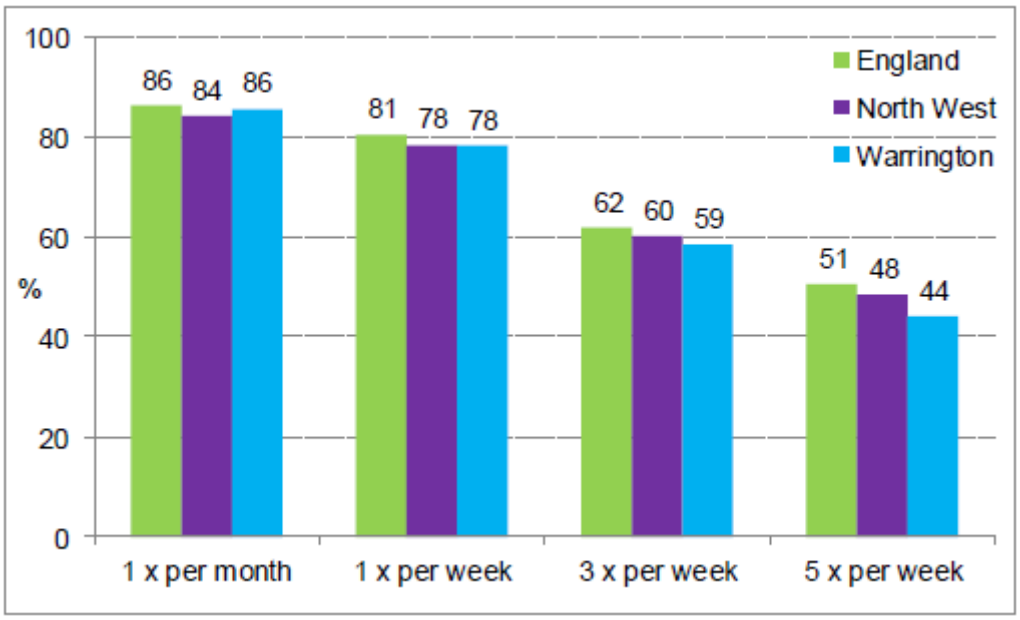


Source: DfT Propensity to Cycle Tool

4.16 Walking

DfT prepare walking statistics based on results from the Active People Survey which is an annual household survey administered by Sport England. The survey samples at least 500 people for each local authority over four weeks in October every year.
Figure 86 presents how frequently adults walk for at least 10 minutes. The proportion walking at least once per month in Warrington is consistent with the national figure. However, nationally 51% of adults walk for at least 10 minutes five times per week, but in Warrington this proportion is notably lower at 44%. Although the proportion across the North West (48%) is lower than the national figure, it is greater than the proportion in Warrington.

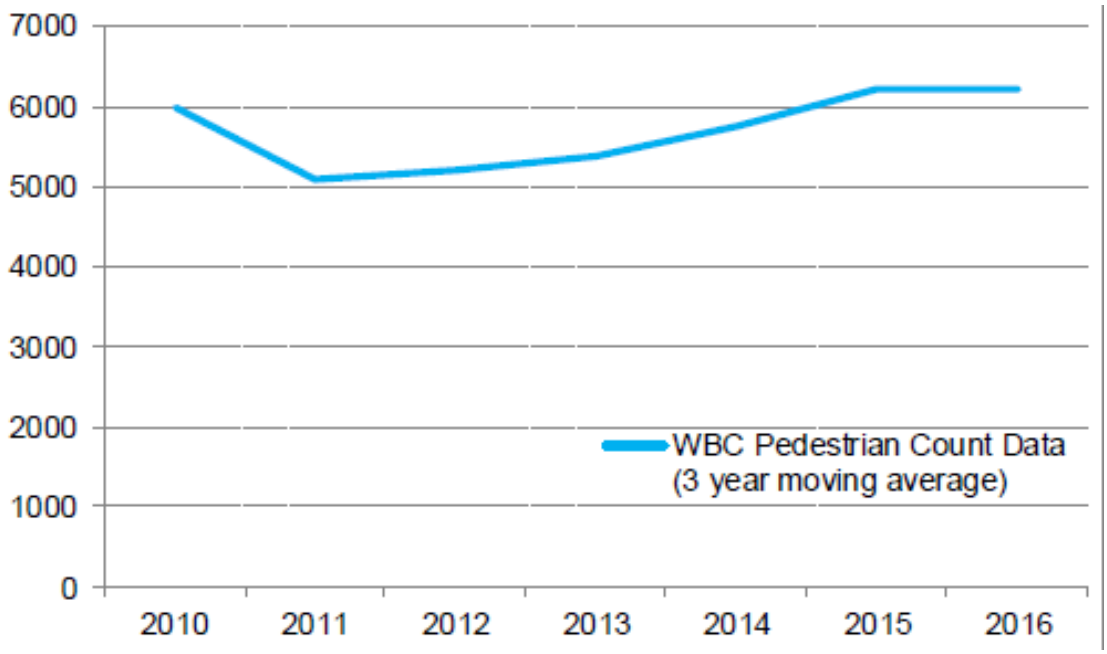
Figure 86: Proportion of adults that walk for at least 10 minutes (2014-2015)



Source: DfT Local area walking and cycling statisitcs

Warrington Borough Council has collected pedestrian and cycle count data at various sites in Warrington. Figure 87 shows a decrease in pedestrians between 2010 and 2011, but a steady increase between 2011 and 2015 to surpass the 2010 value.

Figure 87: 2015 Cycling levels within Warrington



Source: DfT Propensity to Cycle Tool

4.16.1 Key findings of cycling and walking

The key findings of active travel within Warrington are presented below:

- Compared with national figures, the proportion cycling in Warrington was below the national average. However, local cycle count data shows cycling to be increasing in Warrington; a 21% increase in the level of cycling was observed within Warrington between 2006 and 2015.
- The town centre can be considered less permeable for all cyclists. It requires good cycling experience to cycle on the routes that penetrate the town centre.
- The greatest cycling flows occur between central Warrington and Woolston, Bewsey, Latchford and Orford. The results show greater flows to the northeast of Warrington Town Centre compared with other directions.
- For the government growth cycle target, the flows show a similar pattern to existing cycling patterns. However, there are greater flows occurring in Bewsey and Ordford, when compared with Woolston and Latchford.
- The proportion of Warrington residents doing any walking in 2014/15 was consistent with the national average. However, the proportion walking 3 or more times a week was notably lower in Warrington compared with the national average.

What does this mean for LTP4?
LTP4 should seek to improve cycling and walking in Warrington with the development of a comprehensive active travel strategy. In light of the findings above, the strategy could look to address the following:

- Increase cycling penetration into Warrington town centre;
- Increase the attraction of walking and cycling for short distanced journeys and commuter trips; and
- Enhance the quality of cycle infrastructure across the town; and
- Promote cycling on corridors which see larger cycling flows and those that have been identified for future growth.

4.17 Active travel user satisfaction

This section concerns the satisfaction of active travel within Warrington and looks at the issues and opportunities for active travel use according to residents and businesses feedback. The section utilises research undertaken by national surveys and stakeholder summits in Warrington.

4.17.1 Active travel survey

National highways & Transport network undertake an annual survey of satisfaction for walking and cycling. The NHT Survey report 2017 was used to identify Warrington resident's

opinions of active travel infrastructure. Residents were asked how satisfied or dissatisfied they were with the following:

- Pavements of footpaths
- Cycle routes/lanes & facilities
- Rights of way

The results are shown in Table 27. The survey results indicate satisfaction with pavements and footpaths, cycle routes/lanes and facilities and rights of way to have increased between 2014 and 2017.

Table 27: 2015 Cycling levels within Warrington

Question	2014	2015	2016	2017
KBI 11 - Pavements & Footpaths	50	56	51	55
KBI 12 - Pavements & Footpaths (aspects)	52	59	57	59
KBI 13 - Cycle routes and facilities	52	51	52	55
KBI 14 - Cycle routes and facilities (aspects)	51	55	56	54
KBI 15 - Rights of Way	58	59	57	58
KBI 16 - Rights of Way (aspects)	52	54	54	

Source: DfT Propensity to Cycle Tool

4.17.2 Active travel summit feedback

Warrington Borough Council has hosted a series of Transport Stakeholder Summits that were intended to obtain view from stakeholders over Warrington's transport system. The first transport summit focused on active travel.

Stakeholders were first asked a series of questions relating to the barriers behind active travel in Warrington. A summary of the responses can be found in Table 28.

The dominance of the car was identified to make active travel uncomfortable in areas of the town, with this it brought concerns over safety and reduced the appeal to travel cycling and walking. Inconsistent infrastructure across the town, particularly penetration into the town centre and at the end of the journey were also identified as key barriers to active travel.

Table 28: What are the barriers to active travel in Warrington

Theme	What are the barriers
Commuting	• Perception of lots of bad weather and unsafe environment for cycling • People don't know alternative cycle routes • Commuting is difficult if you need to carry equipment and your workplace has no facilities
Infrastructure	• Infrastructure peters out in the town centre for cyclists making it unsafe in some areas • There is inconsistent infrastructure for active travel – although stakeholders were pleased that this is improving • Lack of facilities at end of journey – suggestion central cycle hub in town centre
Location and planning	• Not everyone received a cycle map through the post
Travel behaviours	• Concerns over safety when cycling or walking • Dominance of the car makes cycling and walking uncomfortable in some areas. • Warrington has been built around access by car and free and plentiful parking.

Source: DfT Propensity to Cycle Tool

Stakeholders were then asked how Warrington Borough Council and stakeholders can help address the barriers to active travel and increase levels of cycling and walking.

Enhancing the quality of active travel journeys through infrastructure improvements was expressed frequently at the summit; there should be more designated cycle lanes and the roads should be made more cycleable. In tandem, the council should work to reduce highways demand and help make more hospitable cycling and walking environments.

Improvements to interchange and end user facilities were also a common response; it was suggested that enhancements to cycle parking, security and changing facilities both at transport interchanges and end destinations could help increase the quality of active travel in Warrington.

Another key area of focus was providing adequate provision of active travel infrastructure in future housing and employment developments to help support active travel as a common and frequent travel mode.

Table 29: How can Warrington Borough council and stakeholders help improve active travel in Warrington?

Theme	What are the barriers
Commuting	• Integrate buses with cyclists by building secure cycle parking near key bus stops and interchanges, or by adding bike carriers on buses • Ensure destination facilities are high quality • Ensure secure town centre cycle parking
Infrastructure	• Provide and promote a map with bike parking on the council's website • Make space for bikes on buses and have cycle lockers at certain bus stops • Provide more cycle lockers and showers • Encouraging people to cycle by making more designated cycle lanes • Finding more space for cyclists – would enable trikes, people with carers, wheelchair and mobility scooter users, etc., to be more active
Location and planning	• Building wider pavements with dedicated cycle lanes. • Making the roads more cycleable, not segregating cyclists to parks etc. • Ensuring permeability by sustainable travel in new developments, with cut-through for pedestrians and cyclists, and less car favoured development. This was identified as being very important to stakeholders. • Incorporate active travel provision around new housing and employment developments
Journey to school	• Ensure access for all to cycling. Provide better access to adapted bikes e.g. hand bikes to ensure all children have opportunity/access to cycling
Travel behaviours	• Reduce the demand of highways traffic to help promote active travel. • Address confusion over the rights of pedestrians and cyclists on pavements and in town centre – address bylaw issue

Source: DfT Propensity to Cycle Tool

4.17.3 Key findings of active travel user satisfaction

Key findings of satisfaction of active travel within Warrington are set out below:

- The dominance of the car was identified to make active travel uncomfortable in areas of the town, with this it brought concerns over safety and reduced the appeal to travel cycling and walking.

- Satisfaction with walking and cycling infrastructure in Warrington has increased between 2014-2017. However, inconsistent infrastructure across the town, particularly penetration into the town centre and at the end of the journey were identified as key barriers to active travel.
- Enhancing the quality of active travel infrastructure in the form of new segregated cycle lanes, making the road more cycle able, interchange and end user facilities was suggested as a good way to help improve the quality of active travel.
- Incorporating active travel into new developments was also seen as a priority.
- Ensuring access for all to cycling, and providing better access to adapted bikes e.g. hand bikes to ensure all children have opportunity/access to cycling

What does this mean for LTP4?
The feedback from national surveys and the local transport summit has identified a key number of measures that could help increase active travel in Warrington .The findings suggest LTP4 should look to do the following:

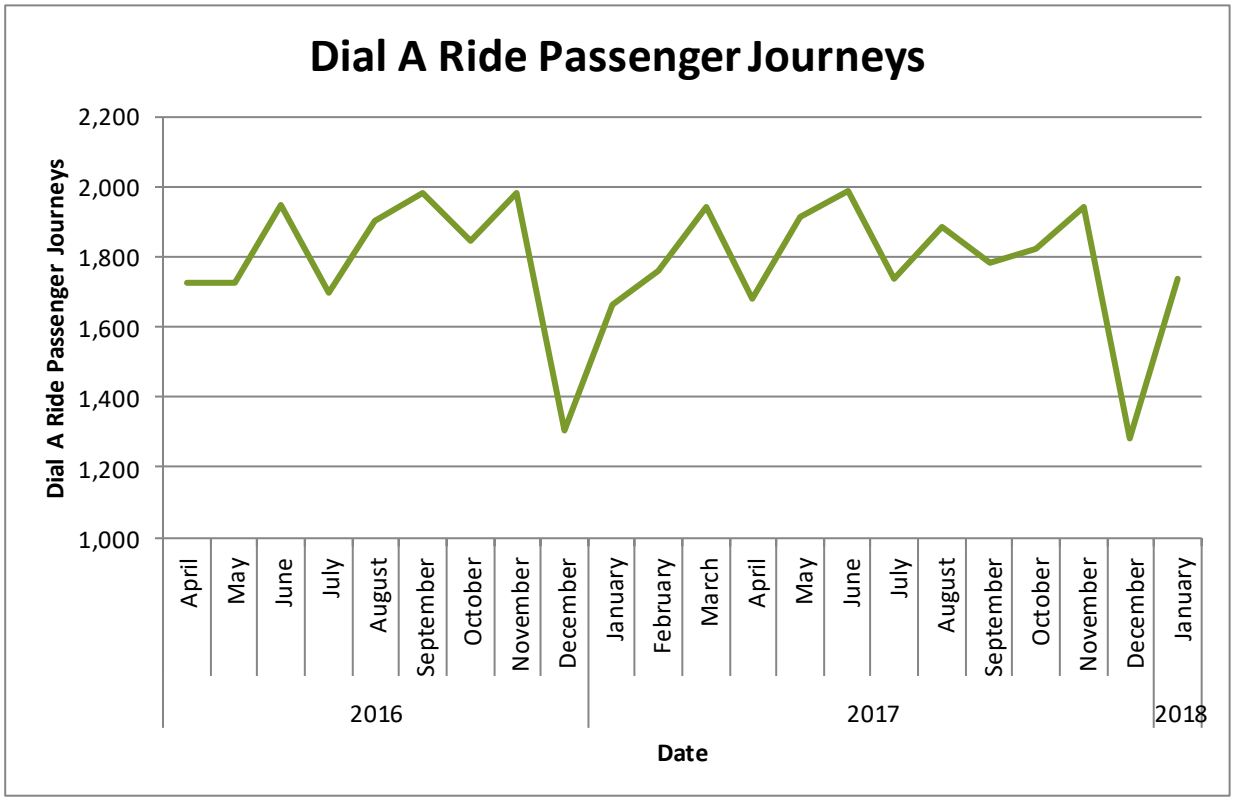
- Deliver more consistent and enhanced cycle infrastructure across the town;
- Improved and more widespread cycleable routes and better interchange and end user facilities;
- Help reduce the dominance of the private car and make more hospitable active travel environments;
- Ensure new housing and employment developments are provided with adequate and high quality active travel infrastructure and that supports a transition away from development prioritise the private car; and
- Provision of cycles and infrastructure that supports adapted cycles.

4.18 On demand travel

Warrington Dial-a-ride service provides a door-to-door accessible minibus transport service in Warrington for people aged 5+ with registered disabilities/mobility difficulties. Journeys catered for include shopping trips, healthcare appointments, social, community and leisure activities, church services and functions, education, employment, and direct access to Shopmobility.

Passenger journeys completed on the Dial-a-ride service between April 2016 – January 2018 were obtained from Warrington Borough Council and are shown below in Figure 88. Patronage is shown to fluctuate around 1,700 journeys per month. Both in 2016 and 2017 a fall in patronage is observed in winter months and subsequent increase into spring.

Figure 88: Passenger journeys completed on Dial-a-ride community bus services April 2016 – January 2018



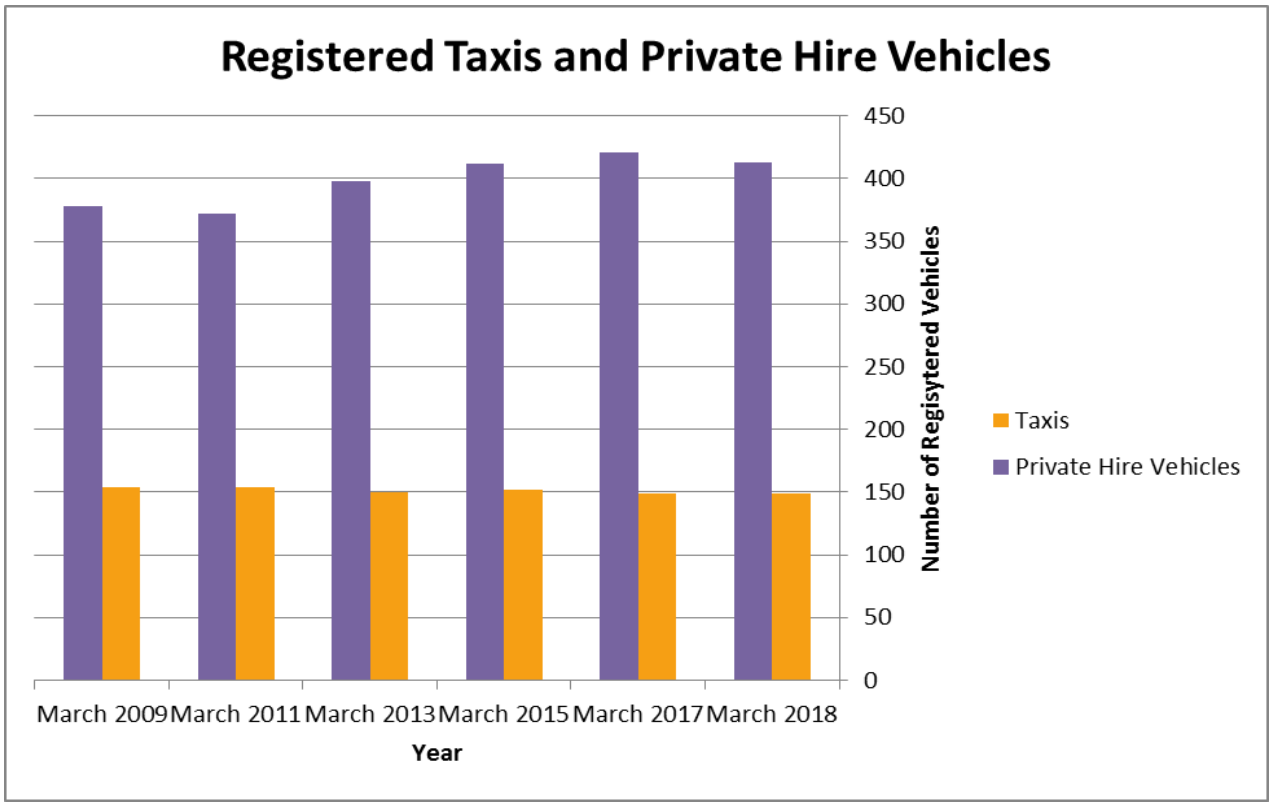
Source: NHT Survey Report 2017: Warrington BC Public Transport Theme Report

4.18.1 Taxi and private vehicle

Taxis and private hire vehicle registrations are recorded by the DfT every two years. Warrington Borough Council presently restricts the number of Hackney Carriage vehicles to 150. Therefore, the number of taxis has remained relatively constant over the 6 year period. Included in the 150 taxis, are wheelchair accessible taxis. From 2011, there has been a slight decline of these vehicles from 57 registered in 2011 to a total of 48 I registered in 2017.

There is no restriction on private hire vehicles or (joint) drivers licences' issued. The number of licensed private hire vehicles has increased 13% over the six year period to a total of 421 in 2017 (Figure 89).

Figure 89: Total number of registered Private hire vehicles in Warrington 2007-2018 (PHVs)



Source: DfT Taxis, Private Hire Vehicles (PHVs) and their drivers

There are taxi ranks at key points within the town centre and Warrington's central train stations. New local development, such as Times Square, requires some temporary operational adjustment to ranks.

All taxis are able to use most bus priority measures, except bus gates at Faraday Street and Winwick Street / Winwick Road. There was some indication that taxi drivers were apprehensive about taking passengers to Central station as there were long waits on the ranks for quite often minimum fairs.

4.18.2 Key findings of on demand travel

Key findings of on demand travel in Warrington:

- Patronage on dial-a-ride services has fluctuated around 1,700 journeys per month. Both in 2016 and 2017 a fall in patronage is observed in December and increases in January
- From 2011 to 2016, the number of licensed private hire vehicles has increased 13% to a total 421 vehicles. Whereas due to WBC control of numbers of Hackney carriage, the number of taxis has remained around 150.
- From 2011, there has been a slight decline in wheelchair accessible taxis from 57 registered in 2011 to a total of 48 registered in 2017.
- New local development, such as Times Square, requires some temporary operational adjustment to ranks.

What does this mean for LTP4?
LTP4 should continue the use of the dial-a-ride bus service as it provides crucial community transport. The strategy should also ensure taxis' are available at key interchange points and points of interest. A taxi strategy should be put in place to promote low emission vehicles and review of anti-idling enforcement at taxi ranks.

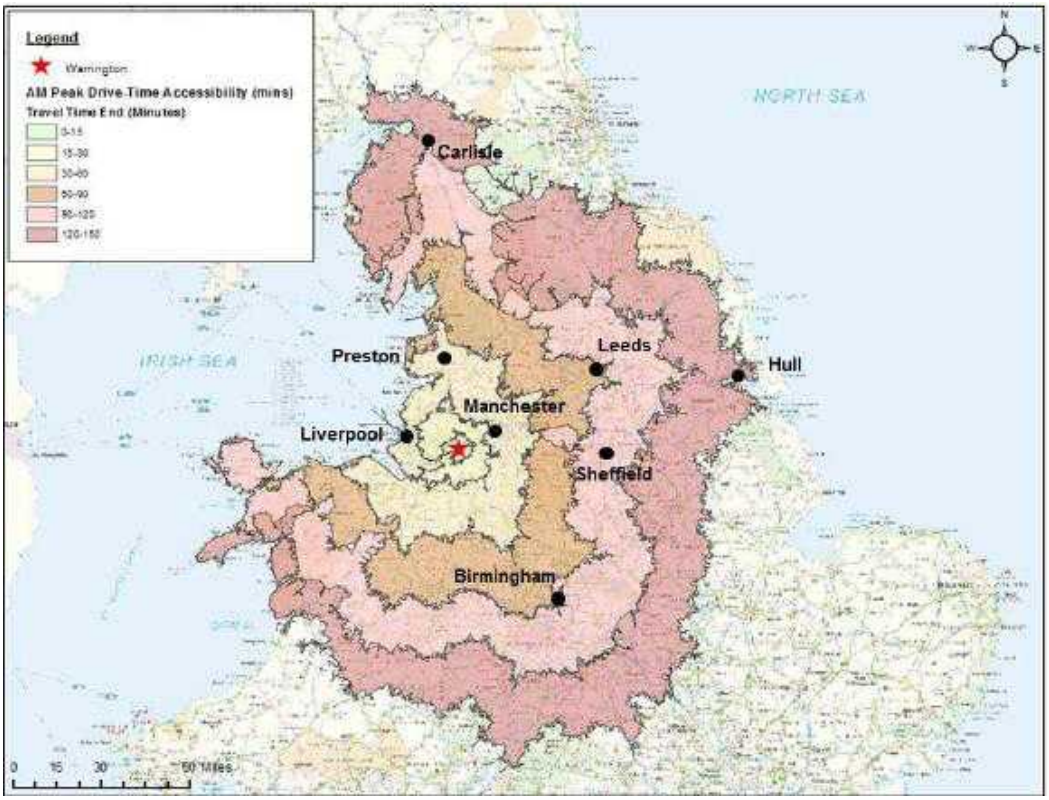
4.19 Highways accessibility

Drive time highway accessibility analysis has been undertaken for Warrington Town Centre using ArcOnline, a web GIS utilising Esri's transport network data source.

Figures 4.12 and 4.13 illustrate the drive time journey time in isochrones up to 2.5 hours. The analysis has been conducted for the AM peak [08:15-09:15] and off peak [10:15-11:15]. Key findings from the analysis are:

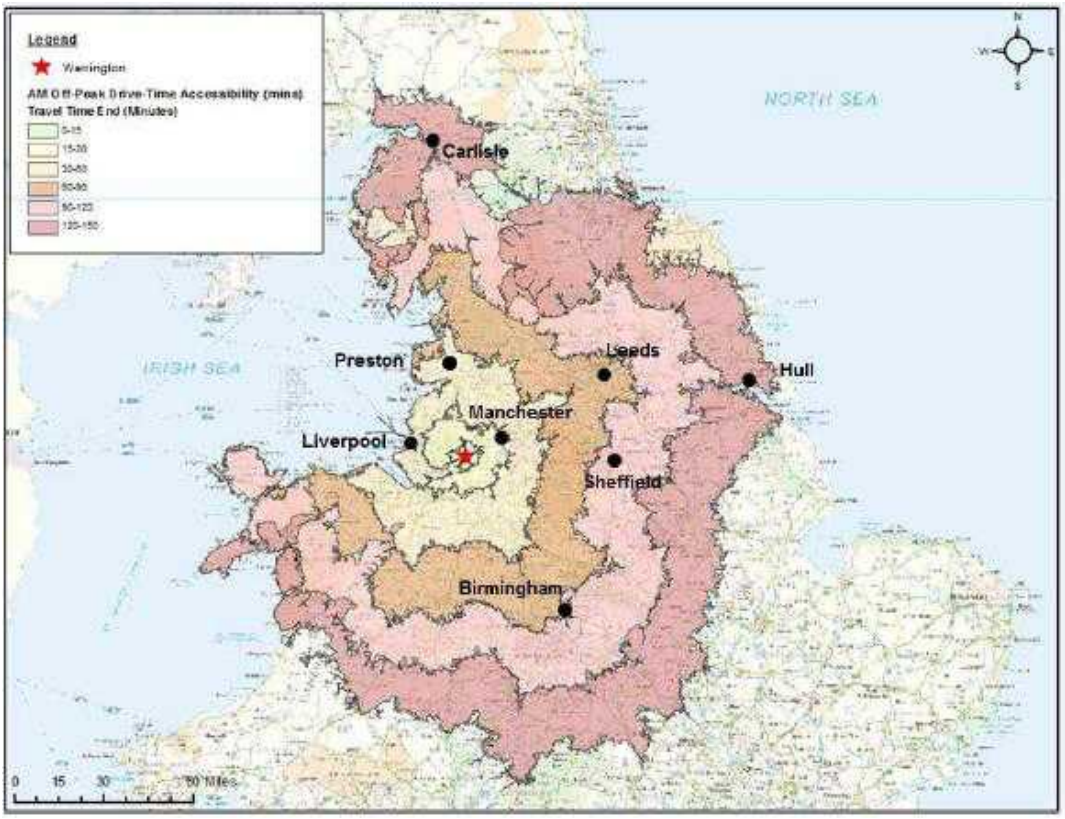
- The catchment within 30 minutes of Warrington town centre highlighted greater accessibility to the north west of Warrington compared with the east towards Manchester.
- A comparison between the AM peak and AM off peak 30 minute catchment showed this area extended over a greater area to the east towards Manchester though was reasonably similar in size in all other directions.
- The drive time catchment within 60 minutes included much of Merseyside and west and central Greater Manchester, as well as Chester, Preston and Stoke-on-Trent. The 60-minute drive time catchment was consistent between the AM peak and AM off peak.

Figure 90: Drive time accessibility to Warrington Town Centre AM Peak



Source: ArcOnline

Figure 91: Drive time accessibility to Warrington Town Centre AM Off Peak



Source: ArcOnline

4.19.1 Public transport accessibility

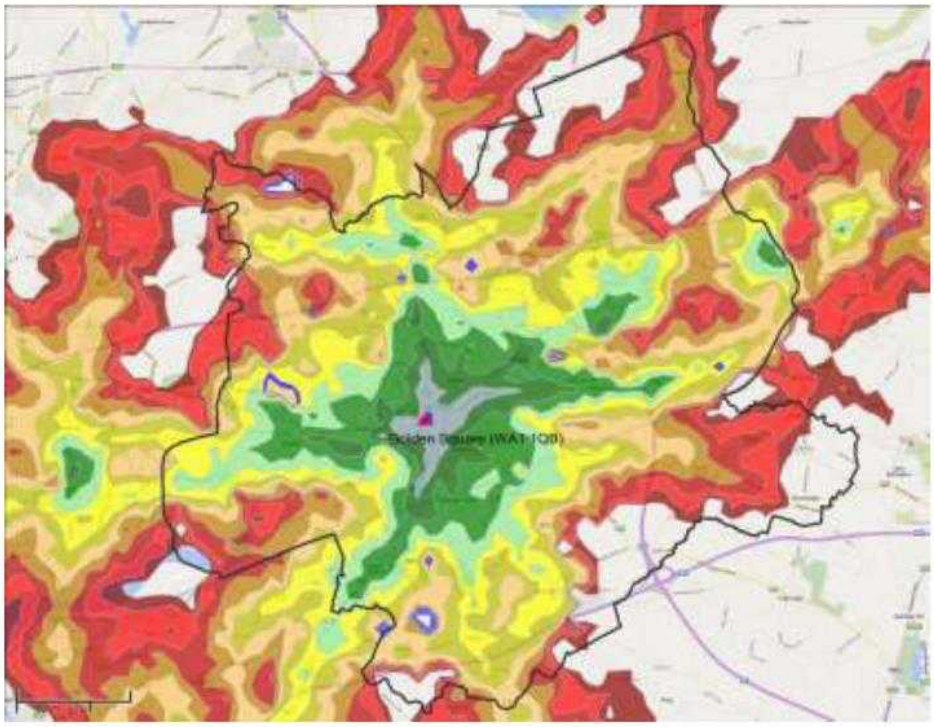
Public transport accessibility analysis has been undertaken for key destinations within Warrington using TRACC. Up-to-date public transport data (October 2016) using Meridian2 road network data was used to complete this analysis. Figure 92 to Figure 100 illustrate the journey time by public transport in five minute isochrones up to one hour. The analysis includes passenger walk time to bus stops, rail stations and also considers restrictions on pedestrian movements, such as along and across motorways and any physical barriers. Analysis has been conducted for Tuesday during the AM peak period (07:00-09:00) for the following locations:

1. Warrington Town Centre
2. Warrington Hospital
3. Centre Park
4. Birchwood Business Park
5. Woolston Grange
6. Daresbury Science Park (Halton)
7. Lingley Mere, Gemini Retail Park and Omega.

Warrington town centre

Figure 92 shows almost the entire Borough was able to access Golden Square, Warrington Town Centre by public transport within one hour. A large area was within 15 minutes reflecting bus and rail services from Warrington Interchange and this area extended reasonably consistently outwards from the town centre. In addition, public transport accessibility extends beyond the Borough in all directions.

Figure 92: AM Peak public transport accessibility to Warrington town centre

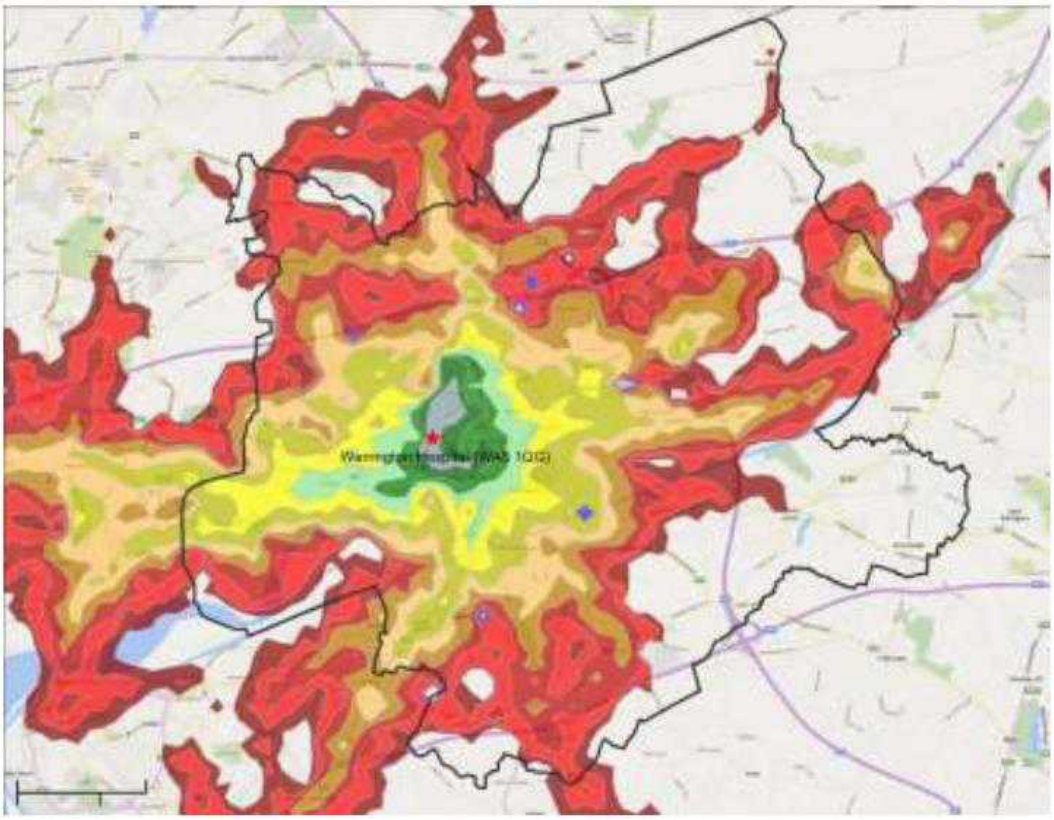


Source: TRACC

Warrington Hospital

Despite the central location for Warrington Hospital (Figure 93), the catchment within 15 minutes public transport journey time was notably smaller compared with Warrington Town Centre. Also, as the hospital is situated towards the west of the town centre, this is reflected in enhanced accessibility towards the west compared with the east of the Borough. Despite this, much of the Borough is accessible within one hour by public transport.

Figure 93: AM Peak public transport accessibility to Warrington Hospital

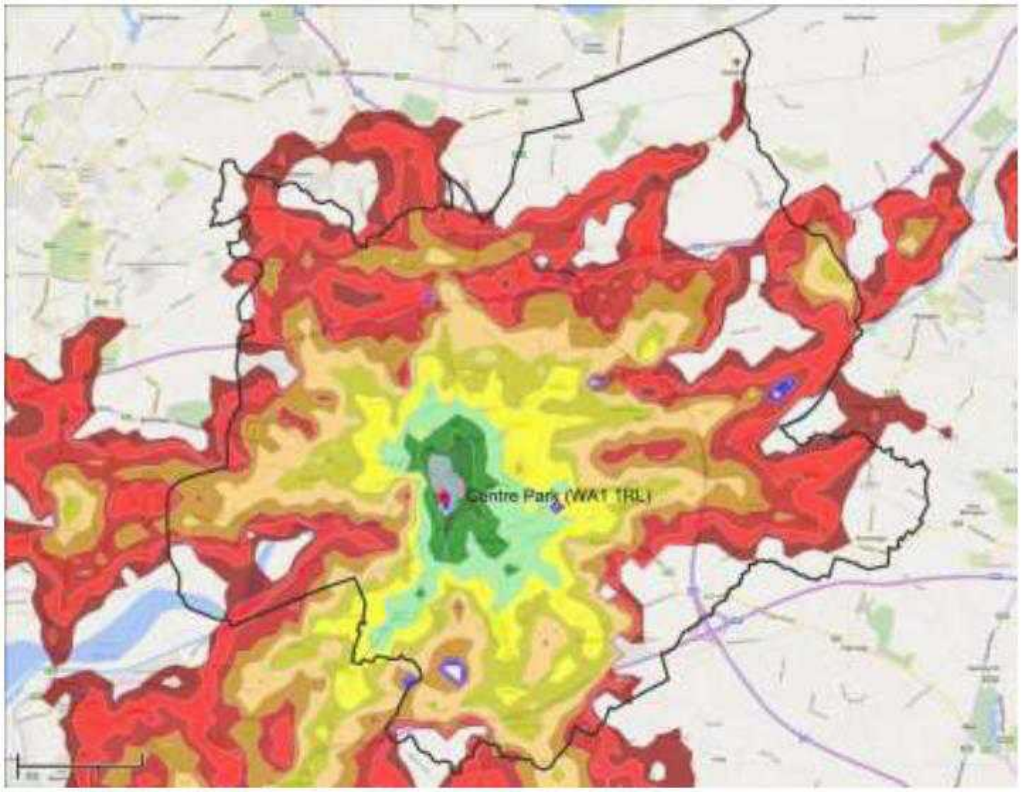


Source: TRACC

Centre Park

Accessibility from Centre Park was similar to Figure 93; much of the Borough was accessible within one hour by public transport reflecting the proximity of the site to Warrington Interchange. The catchment of accessibility within 30 minutes was greater to the east due to the WCML forming a barrier to the west of the site.

Figure 94: AM Peak public transport accessibility to Centre Park

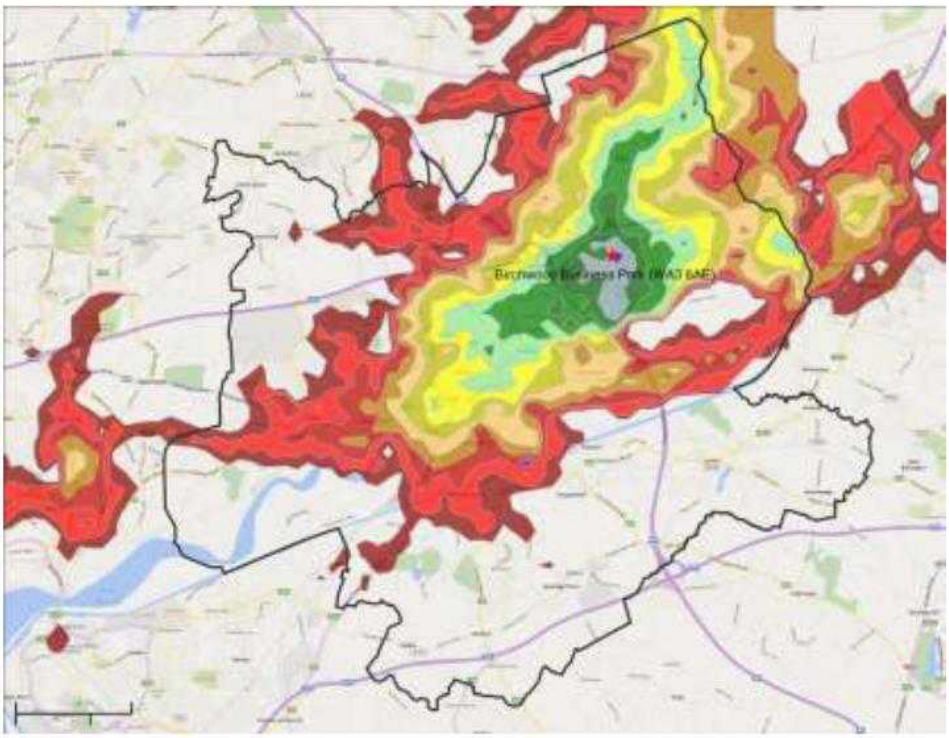


Source: TRACC

Birchwood Business Park

Birchwood Business Park public transport accessibility is shown in Figure 95 and the catchment reflects the CLC Line and bus network from Warrington Interchange. Public transport accessibility within one hour is concentrated to the north-east of the Borough and the town centre. The Manchester Ship Canal forms a barrier with limited public transport accessibility within one hour south of this boundary.

Figure 95: AM Peak public transport accessibility to Birchwood Business Park



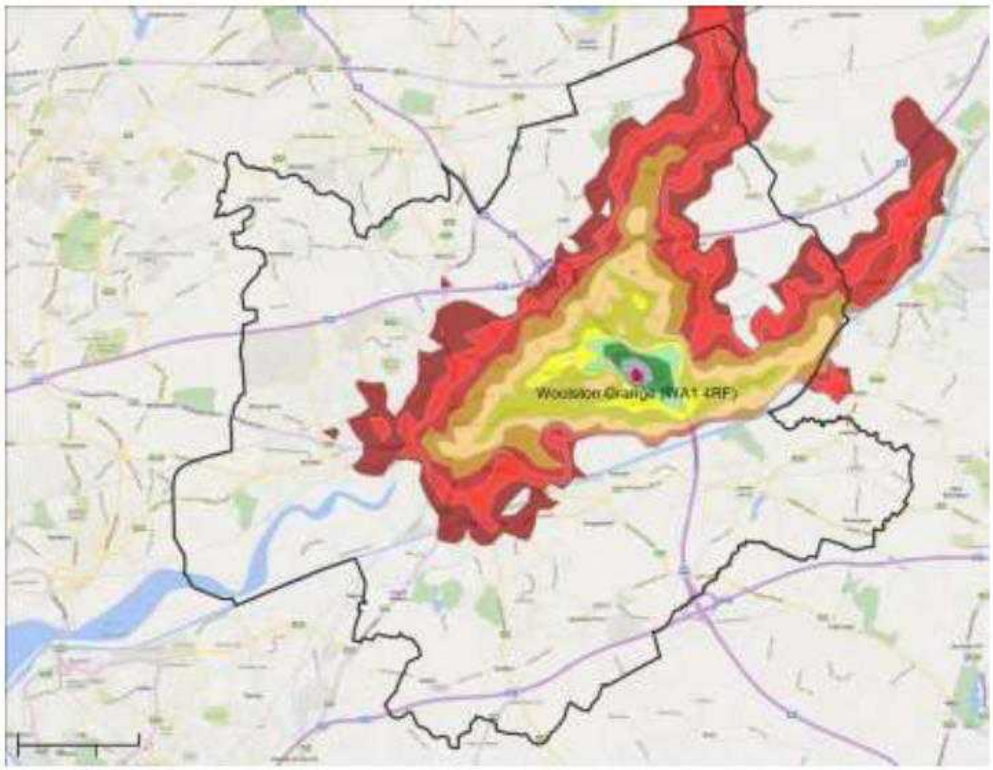
Source: TRACC

Woolston Grange

Woolston Grange is situated adjacent to the M6 and Figure 96 presents the public transport accessibility to the site. In comparison with the other sites identified, public transport accessibility was more limited to this site.

The catchment within 30 minutes was constrained to the immediate vicinity around Woolston and does not reach Warrington Town Centre. The Manchester Ship Canal forms a public transport barrier to the south, whilst the M62 is a barrier to the north; the exception to this is Culcheth.

Figure 96: AM Peak public transport accessibility to Woolston Grange

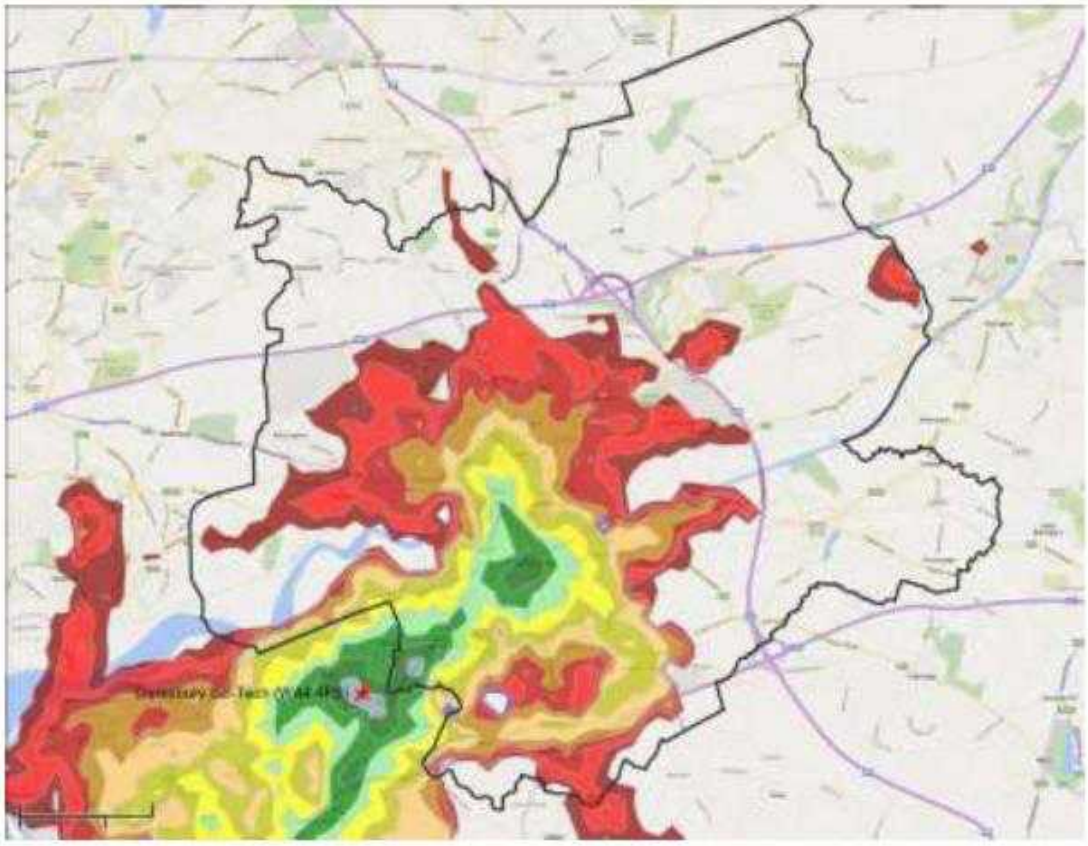


Source: TRACC

Daresbury Science Park

For Daresbury Science Park (Figure 97) public transport accessibility was generally constrained by the M6 and M62 motorways. There was a reasonably sized area within 20 minutes of the site, including Greenbank and Walton, whilst Warrington Town Centre was within 30 minutes. Accessibility extended to the south west of the site towards Halton.

Figure 97: AM Peak public transport accessibility to Daresbury Science Park

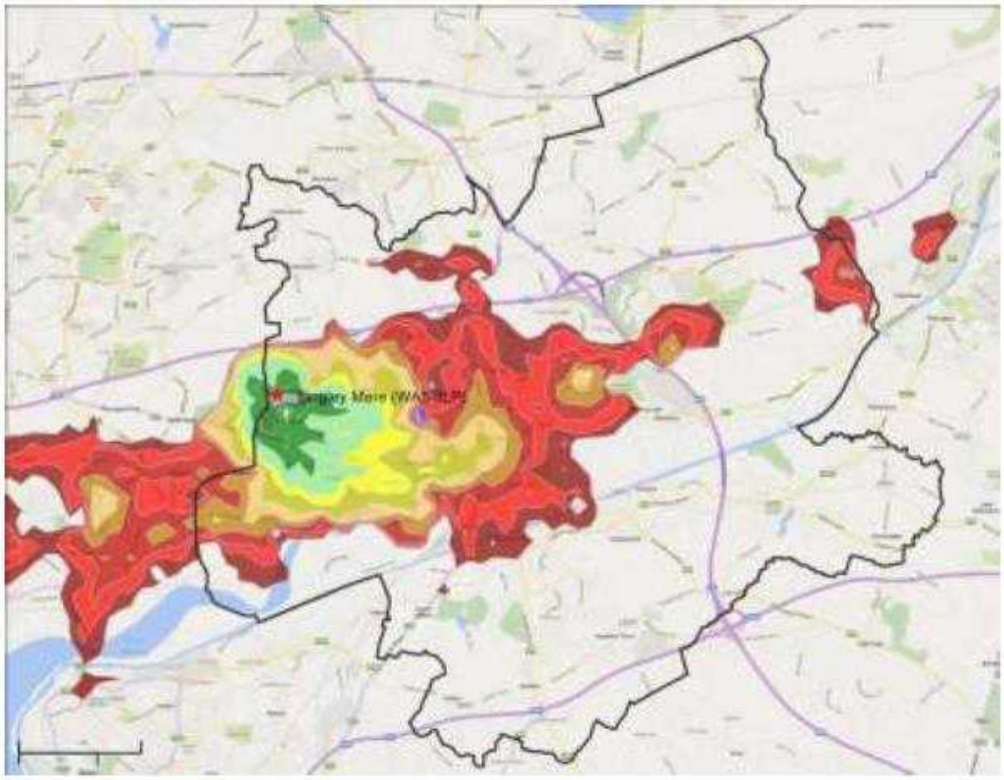


Source: TRACC

Lingley Mere

Accessibility to Lingley Mere (Figure 99) was greater east-west with the M62 and River Mersey forming barriers to the north and south. Public transport journey times were shorter to the east of the site, towards Warrington Town Centre, reflecting the circular bus routes in Figure 71 from Warrington Town Centre to the outskirts of the Borough.

Figure 98: AM Peak public transport accessibility to Lingley Mere

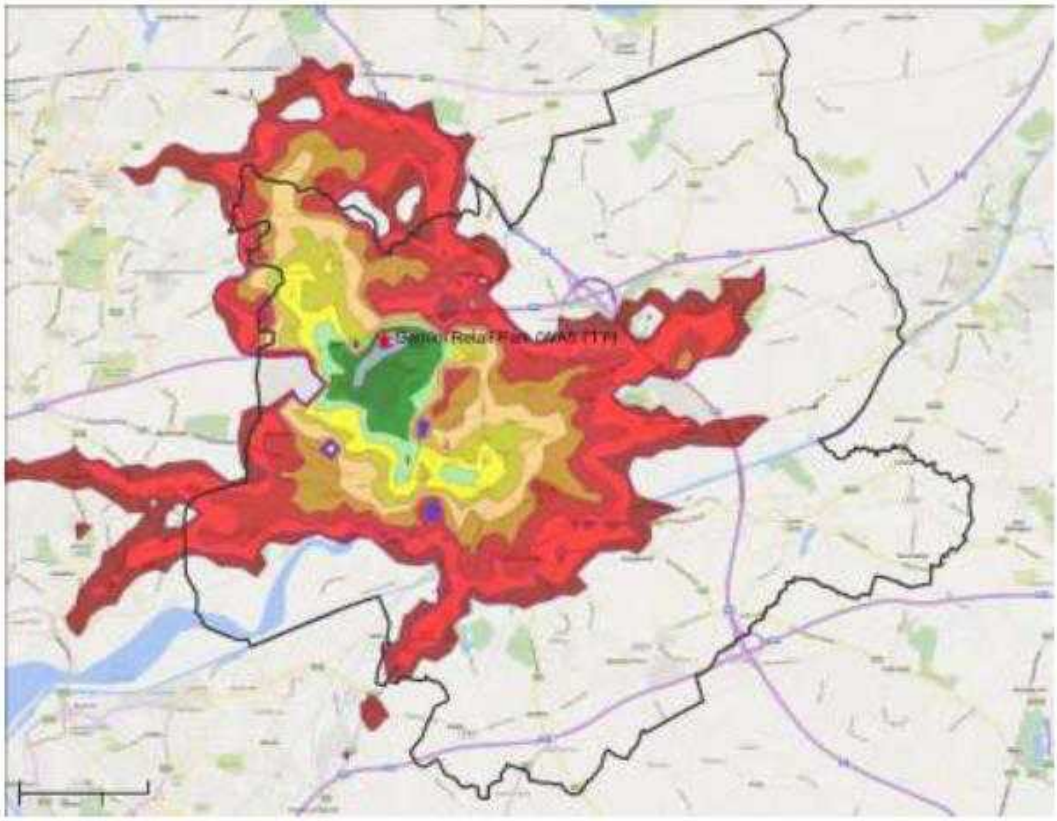


Source: TRACC

Gemini Retail Park

Figure 98 presents accessibility to Gemini Retail Park. The map shows accessibility within 15 minutes was an area south of the M62 and generally followed the bus routes identified earlier. Warrington Town Centre is approximately 30 minutes away by bus and Figure 4.21 highlights the 'hub and spoke' nature of bus travel in Warrington. The M6 and Manchester Ship Canal form barriers to public transport travel within one hour.

Figure 99: AM Peak public transport accessibility to Gemini Retail Park

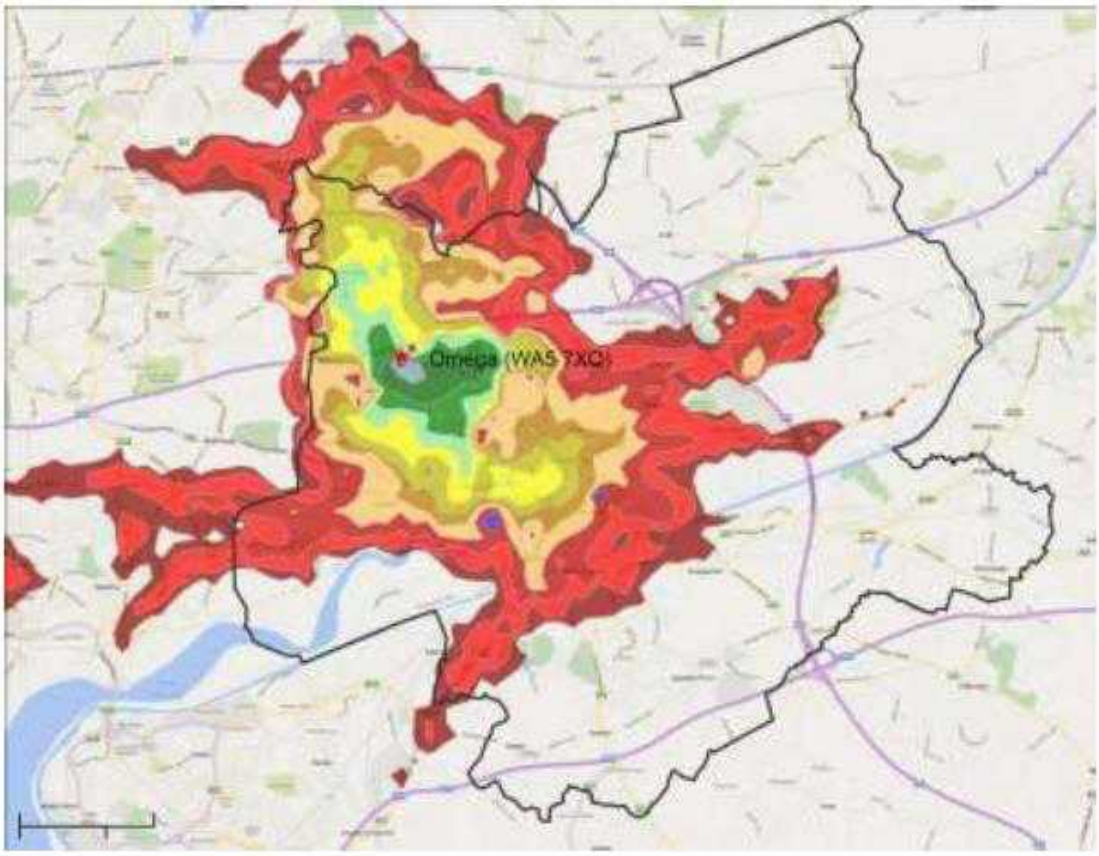


Source: TRACC

Omega

Similarly to Gemini Retail Park, Omega is located adjacent to the M62 motorway and Figure 4.22 presents accessibility to the site by public transport. The results show accessibility within 30 minutes was stronger north-south, which differed from the greater east-west connectivity to many of the other sites identified. Although the M62 did not appear to be a barrier to public transport connectivity, the M62 did form a boundary to the catchment within 15 minutes, with this area extending to the south over a greater area.

Figure 100: AM Peak public transport accessibility to Omega



Source: TRACC

Table 30 presents the number of residents within 60 minutes, by public transport, of each location. The findings are summarised below; The results show a greater catchment to Golden Square compared with the other locations which was expected given the public transport coverage to the town centre and limited cross town services.

A breakdown of the proportion of residents able to access each location for each five minute band is also presented in Table 30. The results show 40% of residents within 60 minutes public transport journey time of Golden Square are able to access the location in 30 minutes or less reflecting public transport availability into the town centre.

Outside the town centre, public transport accessibility comparatively remains poorer. Woolston Grange had the smallest catchment, with just 5% of residents within 60 minutes journey time were able to access this location within 30 minutes. Therefore, reflecting the limited public transport accessibility to the site.

Table 30: Proportion of residents within 60 minutes by public transport, by five minute bands, for each location

Location	Residents within specified public transport minutes of each location (%)												
	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	All Residents
Golden Square	*	2	8	19	29	40	48	60	74	87	95	100	471,406
Warrington Hospital	*	2	3	5	11	20	34	48	60	70	84	100	327,733
Centre Park Link	*	*	1	4	11	21	31	44	58	74	88	100	340,979
Birchwood Business Park	*	1	3	8	16	24	30	37	47	62	80	100	255,018
Woolston Grange	*	*	*	*	1	5	17	27	40	54	72	100	130,183
Daresbury Sci-Tech	*	*	2	4	9	16	25	37	50	66	84	100	228,116
Lingley Mere	*	*	1	5	12	18	21	26	37	56	79	100	183,988
Gemini Retail Park	*	*	2	5	7	11	18	27	40	58	79	100	211,510
Omega	*	*	2	4	7	10	17	26	38	58	81	100	229,475

Source: CENSUS 2011 – All usual residents

Public transport accessibility could also be viewed less favourable at Gemini Retail Park and Omega. Approximately 10% residents within 60 minutes public transport journey time were able to access the location within 30 minutes. These sites were two of the furthest from Warrington Town Centre and this may explain the smaller catchment.

A fifth (20%) of those within 60 minutes of Birchwood Business Park needed to travel for 55-60 minutes to access the site. It is likely the proximity to the rail network allows the residential catchment to extend towards Greater Manchester. Consequently, this results in a large residential population being within 55-60 minutes of the site.

It can be seen that the employment destinations which are found further afield from the town centre generally have poorer transport accessibility. This can be attributed to several factors:

Warrington has been subject to a dispersed development pattern with employment being focused in out of town locations and urban sprawl taking place for residential development. This makes it increasingly harder for the servicing of public transport services.

Conversely, public transport services have been focused and route to the town centre. There are also limited cross town services with residents often having to change in the town centre. This has led to longer distances being covered and added interchange time when wanting to travel across town to Warrington's employment and leisure destinations. Consequently, the towns out of town employment destinations, which are major employers in Warrington, have become in adequately serviced by public transport.

4.19.2 Key findings of highways accessibility

The key findings of highways and public transport accessibility are:

- Highways accessibility in Warrington is generally good, with the drive time catchment within 60 minutes included much of Merseyside and west and central Greater Manchester, as well as Chester, Preston and Stoke-on-Trent.
- In general, public transport access to key sites in Warrington is generally quicker according to the proximity of the site to the town centre or CLC Line.

- As the bus network in Warrington is centred on the Bus Interchange in the town centre, has had a notable impact on public transport accessibility. This has led to the centre of Warrington having highest accessibility with 40% of residents within 25-30 minute public transport accessibility.
- Warrington's employment destinations positioned further outside the town centre (Gemini, Omega, Sci tech Daresbury, Lingley Mere and Birchwood Park) have poorer public transport accessibility. They see less than 25% of residents able to access the employment locations within 30 minutes using public transport.
- Woolston Grange in particular has limited public transport accessibility with only 5% of residents within 25-30 minute public transport accessibility.
- The motorway and Manchester Ship Canal provide challenges to resident's accessibility to key destinations within Warrington.
- The town's dispersed development patterns, sprawl of employment destinations and residential areas, has added to the difficulty of providing good public transport accessibility under 30minutes with greater distances having to be covered.

What does this mean for LTP4?

LTP4 should look to increase public transport accessibility to make a more competitive offer against the private car. The strategy should continue to improve journey times and reliability to the town centre to help reinforce the town centre as the hub of activity within Warrington.

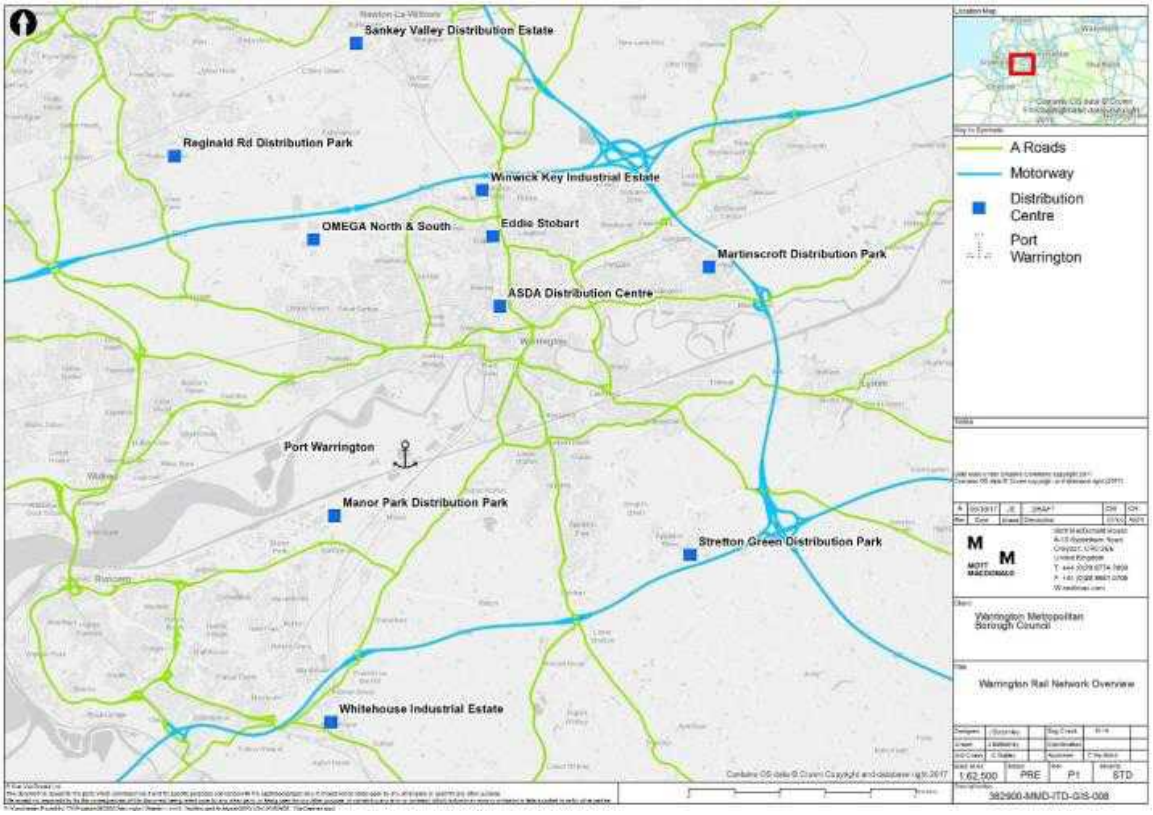
The strategy should also seek to improve public transport accessibility to the town's major employment destinations which lie in the outer reaches of the town. These locations currently suffer from poorer transport accessibility. Therefore, the strategy should seek to improve accessibility by:

- Delivery of a bus strategy that can make better use of the current network and introduce a higher standard of service;
- Consider reallocation of road space and bus priority schemes to improve journey times and reliability;
- Consider mass transit concepts that can produce faster journey times and can connect key residential and employment areas; and
- Better integrate public transport services with seamless travel between rail, bus and park and ride services.

4.20 Freight

The location of key distribution centres that generate local freight movement as opposed to through freight traffic in Warrington have been mapped in Figure 101. These centres are located in close proximity to the Strategic Route Network.

Figure 101 : Location of Warrington distribution centres



Source: Mott MacDonald Western Link Strategic Case

The Atlantic Gateway Business Plan ascribes to the investment and introduction of a new port in Warrington, the Port Warrington development. It will likely be located on the Manchester Ship Canal with transhipment facilities for both rail and highways present. Therefore, its approximate location has been provisionally mapped next to the Manchester Ship Canal at Birchwood Lane.

4.20.1 Highways freight activity

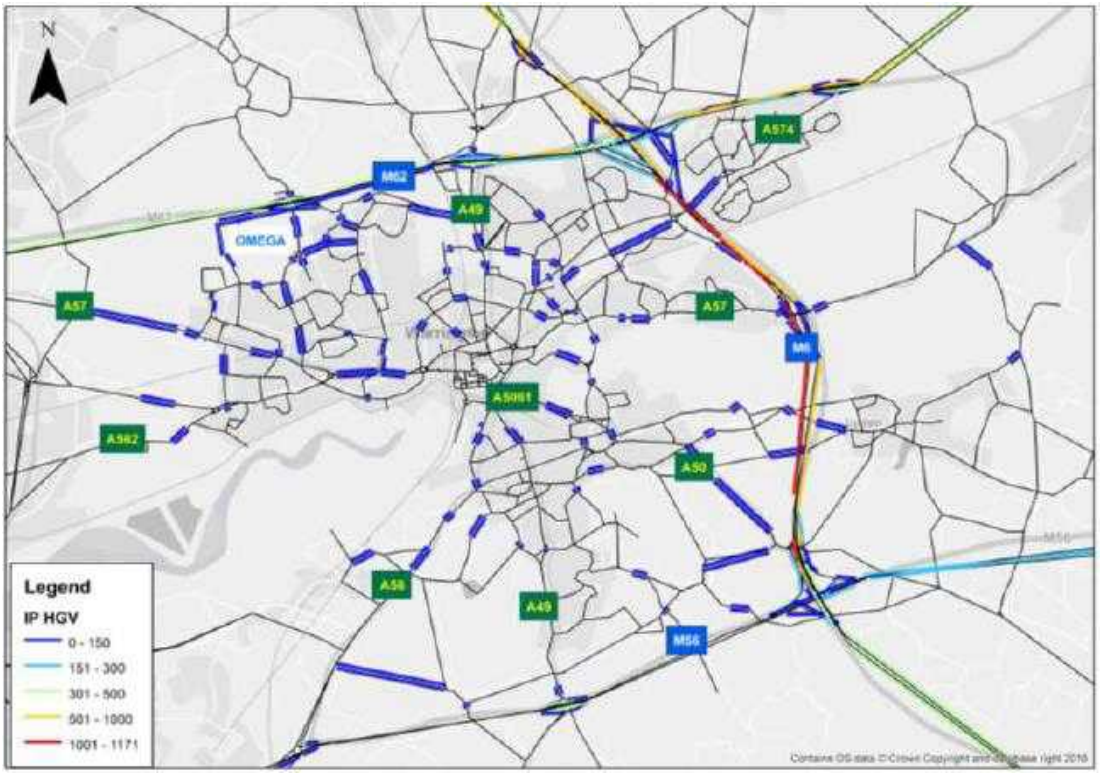
Freight flows have been produced for the AM peak, inter-peak and PM peak for heavy good vehicles (HGVs) based on the 2016 data collection for the Warrington Multi-Modal Model. Figures 3.26 to 3.28 present the flows.

The greatest flows were observed along the M6, followed by the M62 and then the M56. Elsewhere in the Borough, higher flows were observed to the north west of the town centre around Westbrook and along Birchwood Way between the town centre and Birchwood Business Park.

Figure 102 : HGV flows AM Peak (07:45 – 09:15)

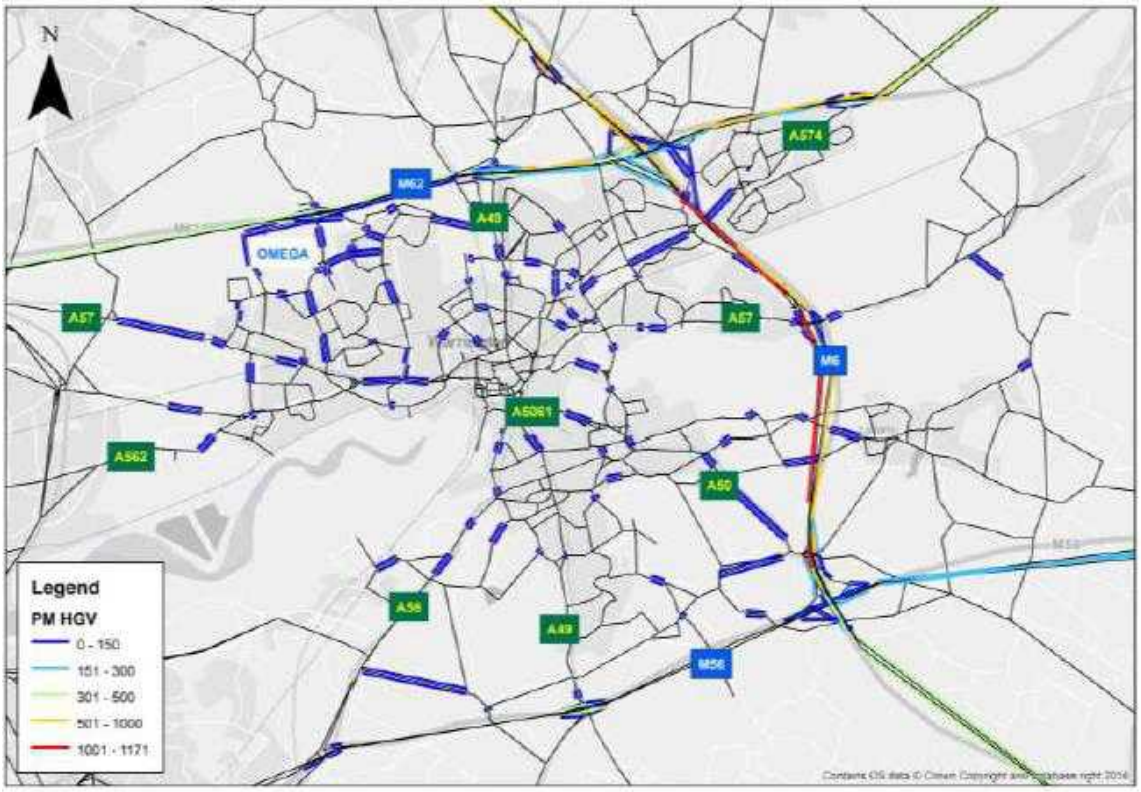
Source: 2016 data collection for Warrington Multi-Modal Model

Figure 103 : HGV flows inter-peak (10:00 – 16:00)



Source: 2016 data collection for Warrington Multi-Modal Model

Figure 104 : HGV flows PM peak (16:30-18:00)



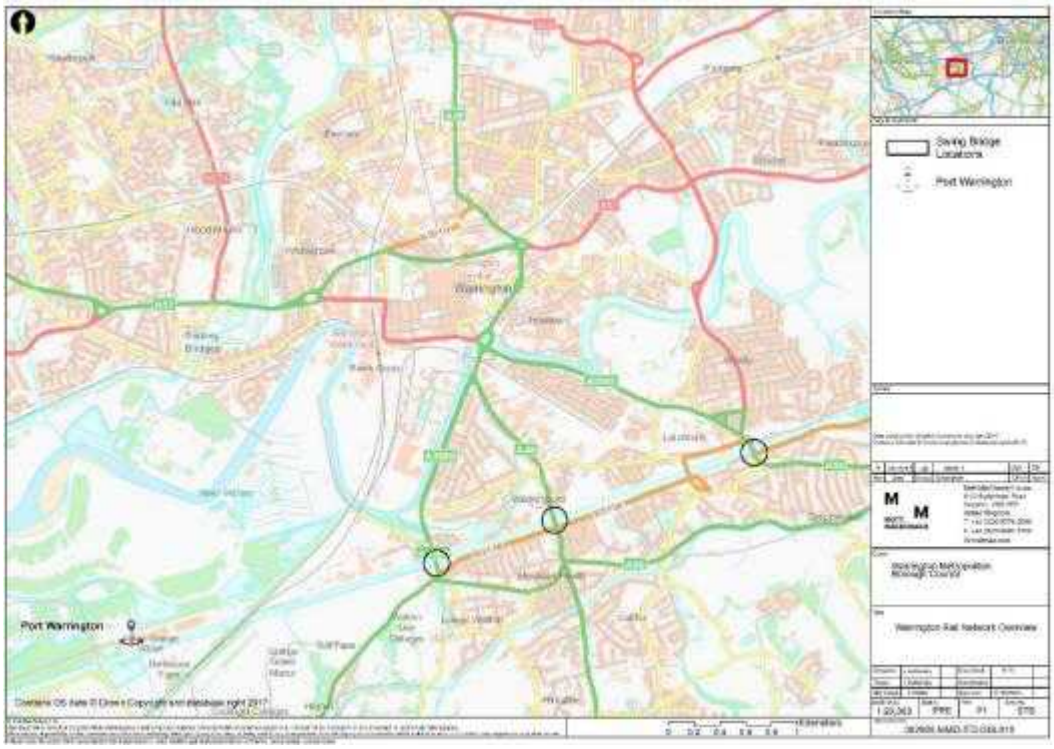
Source: 2016 data collection for Warrington Multi-Modal Model

4.20.2 Waterborne freight activity

Several swing bridges exist in Warrington town centre and provide crossing points over the Manchester Ship Canal. They are owned by Peel Ports and are found in the following locations (Figure 105):

- A5060 Chester Road;
- A49 London Road; and
- A50 Knutsford Road.

Figure 105 : Location of swing bridges along Manchester Ship canal in Warrington town centre



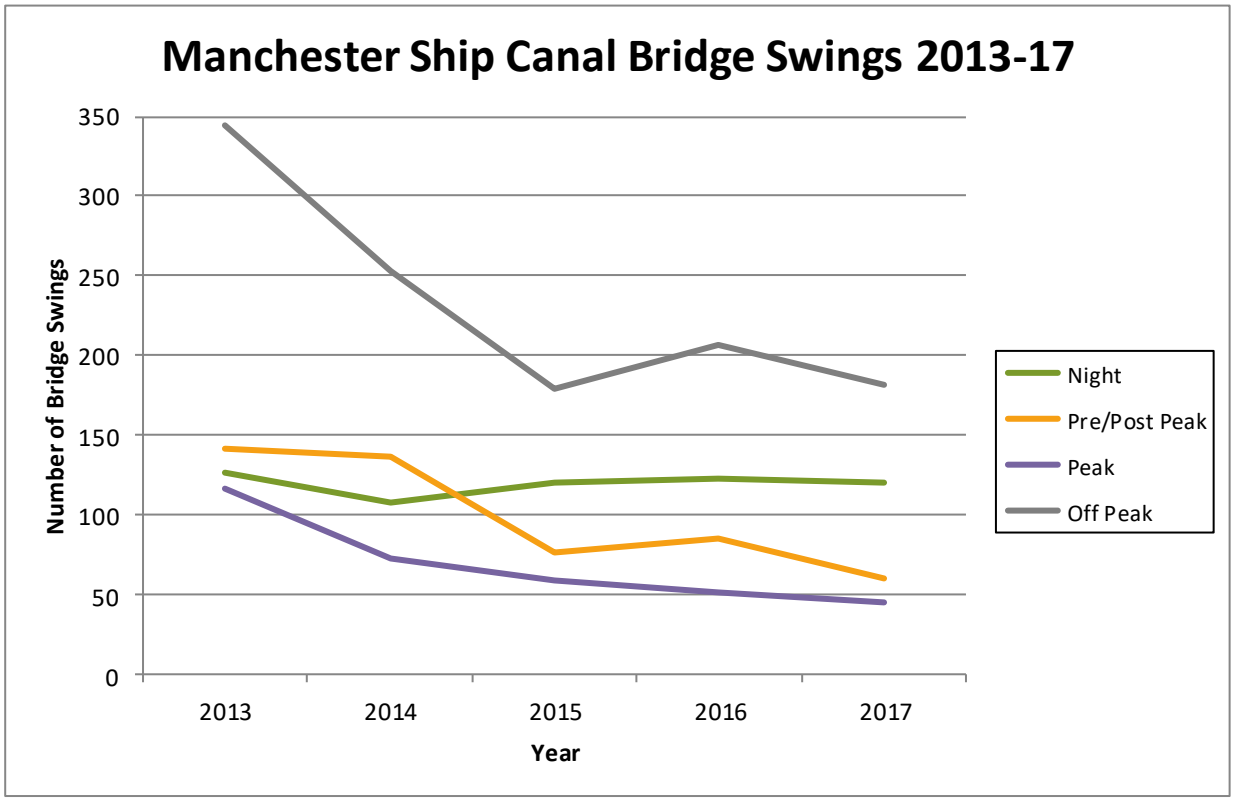
Source: Mott MacDonald

Whilst the swing bridges enable traffic to cross the ship canal, they also rotate to enable ships to pass, temporarily closing key highway routes into the town centre. This can cause substantial queues at the crossing points in both directions as well as causing delays to traffic travelling between the town centre and other parts of Warrington.

Peel's ownership of the bridges limits Warrington Borough Council's control over the swing bridge movements. This, coupled with freight movements being limited to operating during high tide, severely hampers highways network resilience.

Warrington Borough Council has been working with Peel to reduce the number of peak time bridge swings. Figure 106 shows that the number of pre/post peak and peak swings has reduced over the last four years.

Figure 106: Manchester Ship Canal total swing bridge movements 2013-2017



Year Jan - Dec	2013		2014		2015		2016		2017	
Night	126	17.31%	107	18.84%	120	27.65%	122	26.29%	120	29.48%
Pre/Post Peak	142	19.51%	136	23.94%	76	17.51%	85	18.32%	60	14.74%
Peak	116	**15.93%**	72	**12.68%**	59	**13.59%**	51	**10.99%**	45	**11.06%**
Off Peak	344	47.25%	253	44.54%	179	41.24%	206	44.40%	182	44.72%
Total	**728**	**100.00%**	**568**	**100.00%**	**434**	**100.00%**	**464**	100.00%	**407**	100.00%

Source: Warrington Borough Council

4.20.3 Key findings of freight

Key findings of the analysis of freight were:

- The number of LGV's on Warrington's highways network is increasing. With Of 10.3% of vehicle miles were by LGV in 2000 and this has risen to 14.0% in 2015.
- The number of HGV's on Warrington's highway network has slightly decreased. With 11.7% vehicle miles were by HGV in 2000 and this has fallen to 9.9% in 2005.
- The greatest flows were observed along the M6, followed by the M62 and then the M56;
- For the rest of the Borough, Higher flows were observed to the north west of the town centre around Westbrook and along Birchwood Way between the town centre and Birchwood Business Park; and
- There has been a decrease in the number of total swing bridge movements between 2013-2017 on the Manchester Ship Canal. However, they still cause substantial queues at crossing points in both directions and delay.

What does this mean for LTP4?
LTP4 should implement a freight strategy to help manage freight movements and limit the effects of congestion and air quality issues. It should look to more effectively route freight movements and promote the use of alternative fuels.

The strategy should consider the transformation and coordination of freight operations with the introduction of Western Link. This could help bring forward the Port Warrington development and consolidate Warrington's freight operations in one location with water and rail connections to the rest of the country.

4.21 Highways safety

Traffic accidents are generally associated with roads that include higher traffic speeds, heavier traffic flows, roads utilised by more commercial vehicles such as HGVs, and where merging and/or queueing is common.

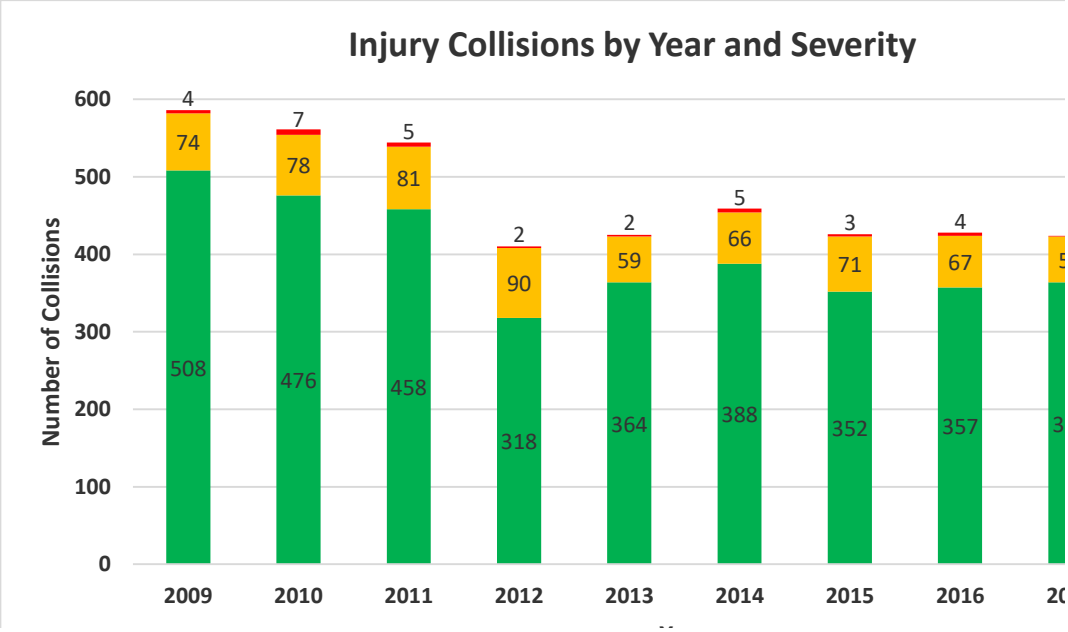
DfT produce an annual Reported Road Casualties Report, the latest report2 was released in September 2016 for 2015 data. The report states there were 505 accidents in Warrington in 2015; 83% (n=420) were categorised as slight, 16% (n=81) were defined as serious and 1% (n=4) were fatal. These severity proportions were consistent with the figures for the whole of the North West; 1% categorised as fatal, 18% classified as serious and 80% classed as slight.

Of the 505 accidents, the road surface condition was dry for 68% (n=345), the surface was wet or flooded for 30% (n=153) and there was snow or ice for 1% (n=7) of accidents.
With regards to casualties, there were 687 in Warrington in 2015. The majority were slightly injured (87%, n=598), whilst 12% (n=85) were seriously injured and four people were killed.
Of the 89 people that were killed or seriously injured (KSI), the road users were:

- Car (n=26);
- Cyclist (n=20);
- Motorcycle (n=19);
- Pedestrian (n=18);
- LGV (n=3);
- HGV (n=2); and
- Bus (n=1).

The number of KSI casualties in Warrington between 2011 and 2015 is presented in Figure 107. The results show peaks in 2011 and 2012, before a fall in 2013 and 2014 and a slight rise in 2015. Similarly, across the North West the number of KSI casualties fell between 2011 and 2013 but increased in 2014 and 2015.

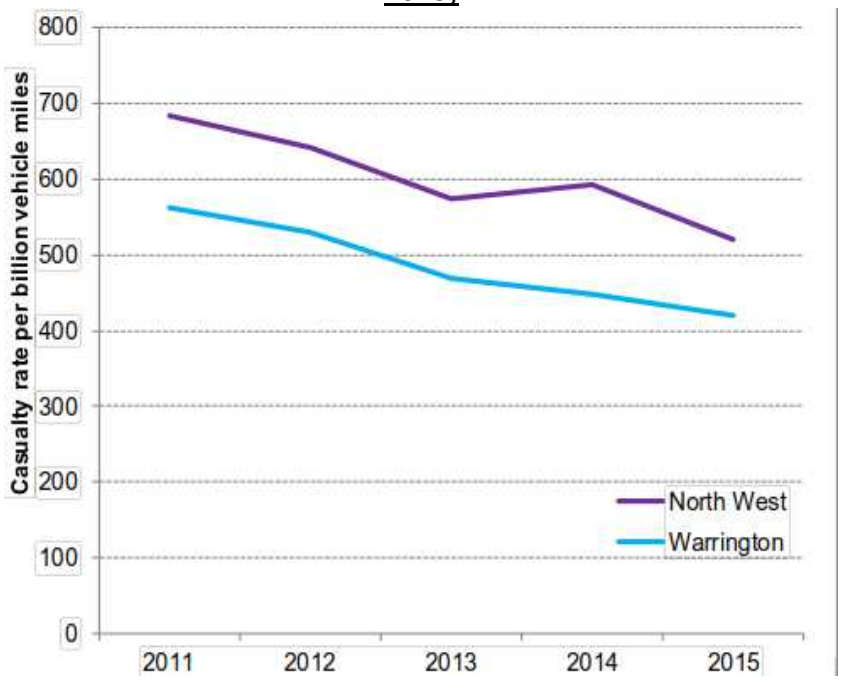
Figure 107 Killed or seriously injured casualties in Warrington (2011-2015)



Source: DfT Report Road Casualities Report (2016)

Finally, the report also provides the reported casualty rate per billion vehicle miles by local authority. Figure 3.30 shows this rate was lower in Warrington compared with the whole of the North West. Furthermore, the rate has fallen in Warrington and the North West between 2011 and 2015.

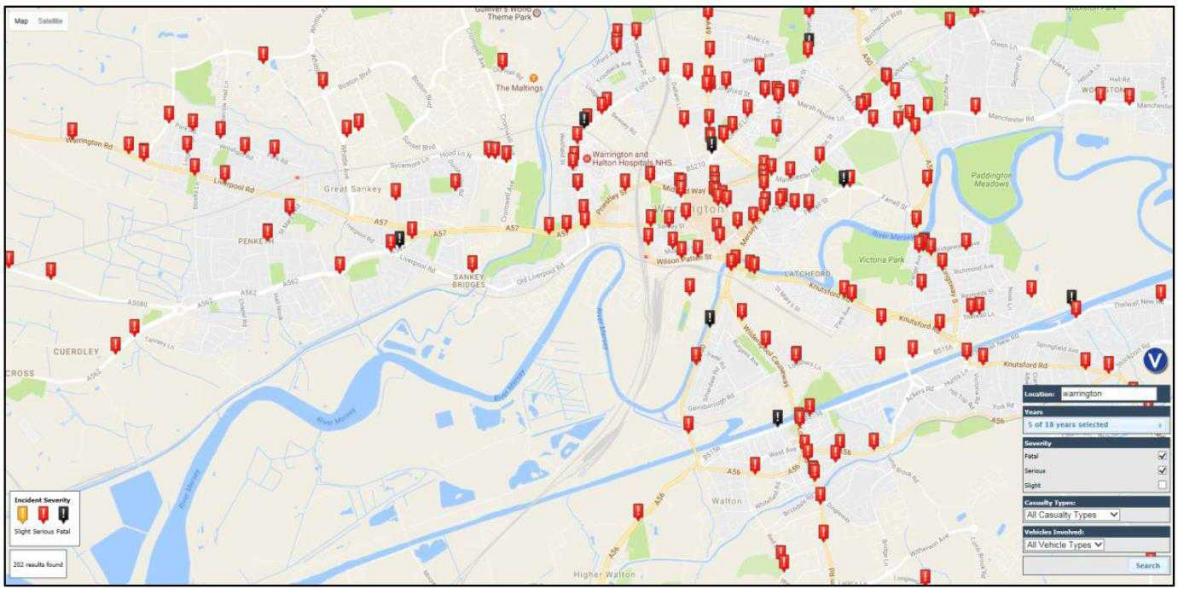
Figure 108 Casualty rate per billion vehicle miles in North West and Warrington (2011-2015)



Source: DfT Report Road Casualities Report (2016)

The location of fatal and serious road traffic accidents in inner Warrington for the period 2011-2016 were mapped. As Figure 107 shows, Warrington town centre is a significant 'hotspot' for road traffic accidents, particularly in locations such as Winwick Street, Cockhedge Green roundabout and Lovely Lane. To some extent, this pattern is to be expected given the high volumes of traffic that are present within the town centre.

Figure 109 Fatal and serious road traffic accidents in inner Warrington 2011-2016



Source: CrashMap

4.21.1 Key findings of highways safety

The key findings of highways safety are:

- Warrington's roads can be viewed as being increasingly safer for highways users.
- The number of KSIs in Warrington has fallen between 2011and 2015;
- 42.6% of KSIs that occurred in Warrington 2015 were active travel users;
- The casualty rate per billion vehicle miles was lower in Warrington compared with the whole of the North West. This trend is also showing to be falling.
- Warrington town centre is identified as accident hotspot.

What does this mean for LTP4?
Warrington's roads become increasingly safer. LTP4 should continue to improve highways safety, with particularly emphasis on active travel safety. Focus should be given to reducing the level of conflict between active travel users and vehicles. Segregation of cyclists on high volume or speed roads could help reduce the likelihood of accidents. Traffic calming measures and improved junction design in high pedestrianised areas could also help increase highways safety.

4.22 Car parking

The data collection for the Warrington Multi-Modal Traffic Model included parking data. Car park occupancy surveys were conducted between 07:00 and 19:00 at 10 sites:

1. Town Hall (public)
2. Warrington Market / Time Square (public) 3: Warrington Bank Quay (Slutchers Lane)
3. Dallam Lane
4. Winwick Street
5. Cockhedge
6. Old Road
7. Cobden
8. Museum Street
9. Orford Lane
10. Church Street

Sites 1 to 7 were off-street car parks whilst sites 8 - 10 were on-street. Appendix A presents the car park occupancy profile for each site. The findings of the car park occupancy data are summarised below:

- Significant early morning demand at Warrington Bank Quay car park with 52% of spaces full at 07:00. The car park remained more than half full (55%) at 18:45. This reflects the use primarily by rail users which includes those making longer trips and greater likelihood of overnight parked vehicles compared with the other sites.
- The car park at Cobden was just over a third (34%) occupied at 07:00 and by 09:15 was fully occupied. It remained full throughout the survey period with some evidence of additional vehicles parking in the car park with 116% occupancy at 18:45. It is likely the popularity of this car park reflects the free parking available.
- The Town Hall and Cockhedge car parks were busiest during the inter-peak; with the Town Hall car park 50% utilised at 09:15 but fully occupied by 10:45 though this fell to 77% by 12:15. Similarly, the Cockhedge car park was at least 80% utilised from 10:15 to 15:00.
- Occupancy at the Old Road car park peaked at 26% and therefore was considerably lower than the other sites. Although the cost of parking is reasonably low, the site is near Riverside Retail Park (which has 3 hours free parking), is not at a convenient location for accessing the town centre and has a similar cost to alternative more central parking.
- Greater occupancy of on-street parking during the interpeak between 10:00 and 16:30 compared with peak periods.

4.22.1 Car parking proposals

Warrington Means Business 2017, the town's regeneration framework, outlines several new parking proposals for the town. These are intended to be position at key gateways into the centre of the town. The parking proposals are outlined below in Table 31:

Table 31: Car parking proposals for Warrington town centre

Location	Description
Time Square	Now open, the car park has a capacity of 1,200 spaces.
Stadium Quarter (phase1)	Intended 1000 space capacity development
Bank Quay	As part of the redevelopment of Bank Quay Gateway. Capacity to be confirmed.
Southern Gateway	As part of the redevelopment of this area. Capacity to be confirmed.
School Brow/Cockhedge	As part of the redevelopment of this area. Capacity to be confirmed.
Centre Park	As part of the redevelopment of this area. Capacity to be confirmed.

Source: Mott MacDonald Western Link Strategic Case

4.22.2 Key findings of car parking

The key findings of the car parking evidence are set out below:

- There is significant demand to access parking for Warrington's rail stations, indicating multi-modal trips are taking place for longer distanced journeys;
- There is significant demand to use the towns car parking facilities; Cobden, Town Hall and Cockhedge car parks are seen to be at or nearing full capacity;
- On street car parking is more widely used during the inter peak periods; and
- Various new car parking developments are being planned for the Town Centre. This will add to the preference to use the private car to access the town centre.

What does this mean for LTP4?
LTP4 should consider revising parking standards to better coordinate parking around the Borough and ensure it fits with the Vision for LTP4.

4.23 Asset condition

Highways asset conditions were obtained from the Highways Asset Management Strategy. The strategy focuses on the following principles: a safe network; a serviceable network; a sustainable network; and informed and satisfied customers.

The highway network is by far the single most valuable asset in the control of the Council, with an estimated replacement value of at least £980 Million. Currently, Warrington has in excess of 1200km of publicly maintained highways, 221 highway bridges and approximately 13,000 street lights.

The Council also maintains some 220 km of Public Rights of Way, consisting of 210 Km of footpaths, 6.2 Km of bridleway and 3.4 Km restricted byway. Warrington's outstanding

highways assets are presented below in Table 32.

Table 32: Warrington highways assets

Highway Network	Length	Footway Network	Length
A Class Roads	198Km	Bituminous Footway	983 Km
B Class Roads	68Km	Flagged Footway	38 Km
C Class Roads	159Km	Concrete Footway	1.6 Km
U Class Roads	639Km	Paved Footway	15.4Km
Dual Carriageways	37Km		
Passageways	37Km		
Roundabouts approx.	6Km		
Total Highway Network	**1137Km**	**Total Footway Length**	**1038 Km**

Source: Warrington Borough Council Highway asset management strategy 2015

What does this mean for LTP4?
LTP4 should continue to support an asset management strategy for Warrington's extensive highways network.

4.24 Local Plan consultation responses

The responses from the July 2017 Local Plan Preferred Development Option Consultation were reviewed to provide an understanding of what transport issues are affecting Warrington residents and stakeholders. This section summarises the key transport issues and problems which were commonly cited in the consultation process, as well as transport solutions which participants suggested.

4.24.1 Key transport issues

A summary of the current transport issues expressed by members of the public and key stakeholders is given below.

Congestion

Congestion and traffic were identified as a major issue. Of the public consultees who referenced current transport issues, 64% referred to the town's congestion and traffic problem, 17% also referred to the traffic problems caused by motorway closures and 8% referred to the inconvenience caused by the swing bridges and river crossings.
Many saw the town centre as a hot spot for traffic, other areas which were frequently cited included: Stockton Heath; Knutsford road; Thellwall; Grappenhall; A50; Chester Road; Lymm; and the A49.

Car dominance

Warrington's car dominant culture and preference to use the car was suggested to create a poor environment to live and work in, as well as setting a poor impression for visitors; 10% of public consultees referred to these issues. Many also referred to the effect that the large number of cars has on other travel options; some stated it was harder to walk and cycle within Warrington, with further concerns over road safety and impacts from pollution.

Public transport

Many expressed the view that the public transport offer in Warrington was poor and was a key reason for choosing to travel by car. The bus system was described as having limited services, being infrequent and expensive. This was particularly evident for those who live or work in Warrington's outlying areas, such as Rixton, Glazebrook and Lymm.
Some said it was difficult to travel to train stations by bus. Others said there was poor signage to existing stations and the lack of rail connectivity in south Warrington was a key barrier to travel.

Active travel

Many referenced the poor walking and cycle links within the town centre, as well as the poor rights of way for active travel users, this included horse riders. Many described the car intensive environment and poor air quality to be barriers to walking. The lack of cycle routes and protection from traffic were also referenced as a major problem.

Air, noise and light pollution

There were large concerns over transport pollution; 34% of respondents cited transport's impact on air quality, irritable noise and light pollution. This came with worries over health and the increased likelihood of developing long-term disease and ill health. Many stated Warrington was an unhealthy place to live with problems of lung and heart disease.

Parking

Some saw parking to be too expensive within the town centre. Others referred to the limited parking in Lymm and Stockton Heath. Car parking on the road and pavement was also mentioned to be a problem and barrier to those who use the footway.

4.24.2 Priorities for transport investment

The responses from both the public and stakeholder Local Plan Preferred Development Option consultation process, who referred to how Warrington's transport system could be improved are summarised below.

Dealing with congestion and traffic

18% of the public who referred to specific transport improvements, referenced the need for additional highway capacity to address the congestion problem. Some stakeholders suggested that a serious programme of public transport and highways works is required to increase connectivity between the centre and the wider Warrington region. An additional river crossing was described as being essential to Warrington's future transport system. However, many of the public responses felt the past approach of road building was inadequate in addressing the towns transport problems and does not offer a viable and worthy transport solution for the town. More road building was often expressed as only to

incite congestion and not the answer to limiting transport pollution. Rather, many referenced the need for pursing greener modes of transport.

Highways

Some felt the surrounding motorways needed to be improved as well as the management of diversions through Warrington in times of incidents and closures. Others felt that Warrington was in desperate need of another Manchester Ship Canal crossing. However, the use of the disused rail line over the ship canal remained a contentious issue. A new MSC crossing designed for cars was heavily discouraged, others were more accepting of a crossing which would only support greener travel options.

Public transport

Many believed it would be more effective to focus on improving public transport rather than road building. Some stated that public transport investment is needed to the centre, in order to make the area a more welcoming and clean environment. Of the public responses who suggested priorities for transport investment, 60% referred to improvements to public transport.

Stakeholders expressed the need for sustainable transport to be at the heart of Warrington's development plans, as well as the protection of corridors for future rail improvements such as HS2 and Northern Powerhouse Rail.

Mass transit

Stakeholders referred to the need for Warrington to consider major investment in a new mass transit network. Of the public responses who suggested priorities for transport investment, 23% referenced the need to introduce mass transit services and low-carbon modes of transport such as trams or guided bus way. It was thought that introducing a more modern and higher quality mass transit system, would provide a more attractive travel option to the car than the current public transport system can provide.

Parking

Some ascribed to the need for cheaper and greater availability of short stay visitor parking within the town centre to make it easier to visit and support town centre retailers. Others referenced the need for more parking at crucial services and amenities, such as the hospital. Some thought it would be better to have out of town carparks with shuttle buses and trams providing connection to Warrington's main areas.

Walking and cycling

Waking and cycling was a high priority for transport improvements; 24% referenced the need for improved walking environment and 31% referenced the need for improved cycling. Many referred to the need for improved walkways in the centre and investment in walking trails.

Many felt that there needs to be greater investment in the cycle network to help encourage more people to do exercise. This included the introduction of more cycle lanes and measures to reduce traffic within the town centre to create safer cycling conditions.

5 The Future

5.1 'The future' key findings and implications

Future growth in Warrington

- The growth proposed in the Draft Local Plan will see Warrington become home to substantial numbers of new residents and workers.
- Pinch point improvements and congestion relief alone will not be enough to support the planned growth of houses and employment land.

Locations for growth

- The Waterfront area will require new access arrangements.
- New transport infrastructure will be required to support development in Warrington's green belt such as the Garden City Suburb and the South West Extension.

Cheshire and Warrington growth plans

- There will be increased demand to reach employment destinations in the Atlantic Gateway and Cheshire Science Corridor: Birchwood Park; Warrington Waterfront; Omega; Lingley Mere; and Sci-Tech Daresbury. Large levels of car commuting already occur to some of these locations, a more sustainable transport strategy will need to be in place to ensure sustainable growth.

The future of the North

- New Northern Powerhouse rail services could see the development of a line between Liverpool and the HS2 Manchester Spur via Warrington. There will be greater demand to reach Warrington's stations, particularly Warrington Bank rail hub.
- The TfN Strategic road study plans to upgrade and improve journey times, east-west connectivity, safety, and user experience on the M6, M62 and M56.
- There will be greater number of people travelling to and from motorways access points in north, south and east Warrington.

Future transportation

- A total of 1121 ULEVs were licensed within Warrington in 2017. This encompasses 1.04% of all cars licensed within Warrington. The number of ULEVs licensed has also grown at a faster rate within Warrington compared with the North West.
- Lithium ion battery densities are increasing and prices are falling, thus raising the attraction to purchase ULEVs. It will be important for Warrington to investigate current use of ULEVs and consider changing the policy environment to help support the growing use of the vehicles.
- Autonomous vehicles could be on UK roads as early as 2021 and form an essential part of the future UK economy, with market worth £28 billion to the UK by 2035.
- Mobility as a Service is a new technological innovation disrupting the transport industry. The widespread use of smartphones have generated new opportunities to engage with travellers and the way they influence the demand on the network.

5.2 The future

This section investigates Warrington and the wider regions future growth plans. It is important to consider how Warrington's population, workforce and urban form could be influenced by growth agendas set out for the town and the North.

There are several new transport technologies which are causing uncertainty within the sector over how people will travel in the future. This section also explores emerging transport technologies that may need to be considered for Warrington's future transport system.

This section reviews the following data sources: growth forecasts and projections; statutory planning documentation; regeneration programmes; proposals; research papers; and scientific journal articles.

5.2.1 Future growth

In the time of undertaking the LTP4 evidence review, Warrington Preferred Development Option 2017 (PDO) was the most up to date planning document concerning Warrington's Local Plan. It was anticipated that the PDO would not be too dissimilar to the final Local Plan in terms of locations for growth and housing and employment targets. Therefore, the PDO was used as a proxy for determining how new housing and employment space across Warrington may impact the future transport system.

Once the Local Plan has been formulated it will become available on Warrington Borough Council's website: https://www.warrington.gov.uk/info/200564/planning-policy
It is also worth noting that through the LTP4 development process, more detailed transport modelling will be undertaken to test the Local Plan's impact on the transport network. This will be achieved through the use of Warrington's Multi Modal Transport Model. For now, the PDO provides a good proxy for analysing future growth of Warrington.

5.2.2 Housing growth

The Housing Growth proposed in the Draft Local Plan between 2017 and 2037 is shown in Table 33.

Table 33: Housing Growth Proposed in Draft Local Plan

Annual Target	945
2017-2037	18,900
Flexibility at 10%	1,890
Total Requirement	20,790
Urban Capacity	13,726
Green Belt Requirement	7,067

The council is proposing a stepped housing trajectory to allow for major infrastructure investment to facilitate green belt release. There will be a relatively lower level of housing delivery for the first 5 years of the Plan Period given that land will remain in Green Belt until the Plan is adopted and to allow for key enabling infrastructure to be delivered.

5.2.3 Employment growth

The employment land growth proposed in the Draft Local Plan is: Over the 20 year Plan period from 2017 to 2037 provision will be made for a minimum of 362 hectares of land for B1, B2 and B8 uses to support both local and wider employment needs

What does this mean for LTP4?
The growth proposals for new residential and employment developments for Warrington Borough will place added pressure on to an already congested highways network. With many of the proposed new residential developments being on the south-eastern and south-western edges of the urban area, the propensity to default to car-dominant travel is high unless viable, high-quality alternatives are provided.

Therefore, LTP4 must explore a range of high-quality transport alternatives to the car to help encourage the sustainable movement of Warrington's existing and future population. Appropriate demand management strategies may also need to be explored to help effectively aid a modal shift to a prospective transformed public transport and active travel network.

5.3 Autonomous vehicles

Autonomous and connected vehicles (CAV) concern vehicles which can communicate live information with one another and which can drive themselves through an 'autopilot mode'. These vehicles use on board sensors to detect their immediate environment. Networking systems are then used to speak between vehicles and relay information on their position, highways, and traffic and weather conditions. This information sharing is thought to help increase the efficiency of the highways network, deliver more effective routing, increase safety and make better use of available road space[5].

The Centre for Connected and Autonomous vehicles was established in 2015 to help ensure the UK remains a world leader in developing and testing CAVs. A range of projects are being funded across the UK, as well as four city driverless car projects taking place in Bristol, Coventry, Greenwich and Milton Keynes. It is anticipated that autonomous vehicles could be on UK roads as early as 2021 and form an essential part of the future UK economy, with market worth £28 billion to the UK by 2035.[6]

Below is a list of some of the major international companies currently developing self-driving car technology:

[5] Atkins (2016) research on the impacts of Connected and Autonomous Vehicles on Traffic flow
[6] Centre for Connected and Autonomous Vehicles (2017) Market forecast for connected autonomous vehicles

- Toyota AImotive
- BMW Aptive
- Ford Argo
- Aurora
- Hitatchi - Clarion
- Audi – Delphi
- Audi – Nvidia
- Google – Waymo
- Linux
- Intel
- NuTonomy
- Lexus - Torc

The vehicles have huge potential in generating a number of transport and safety benefits[7]

- Offer those who might be less mobile or unable to use private vehicles greater opportunity to travel;
- 90% of accidents involve driver error, CAV have the potential to reduce the number of highways accidents and road casualties through automation, with maximum during full automation;
- Reduce congestion by enabling cars to drive closer together and make more use of available road capacity;
- Improve emissions by enabling vehicle platooning which reduces air resistance following vehicles, and sharing information with traffic signals to help optimise speeds; and
- Improved road safety could reduce the need for crash barriers and signage, this could help highways become less cluttered and improve overall road design; and
- Release of space through reduced ownership of private vehicles and parking.

What does this mean for LTP4?

Autonomous vehicles could help increase the opportunity to travel in Warrington and help raise network efficiency. The emerging technology has the potential to reduce the number of incidents along the network and raise network resilience. Vehicles could also be connected and provide real time data that could be used to streamline traffic and manage movements across the network.

Autonomous vehicles could significantly change the way the town travels in the future, particularly as Warrington's existing transport system is dominated by car movements. Therefore, it will be important for Warrington to monitor developments in the CAV industry and investigate how the technology could be best used in the town.
CAVs also pose an opportunity to be developed for other modes; they could help improve a better quality of service for public transport, as well as being used for freight to help improve the efficiency and coordination of logistics operations.

[7] Atkins (2016) Connected & Autonomous Vehicles Introducing the future of mobility

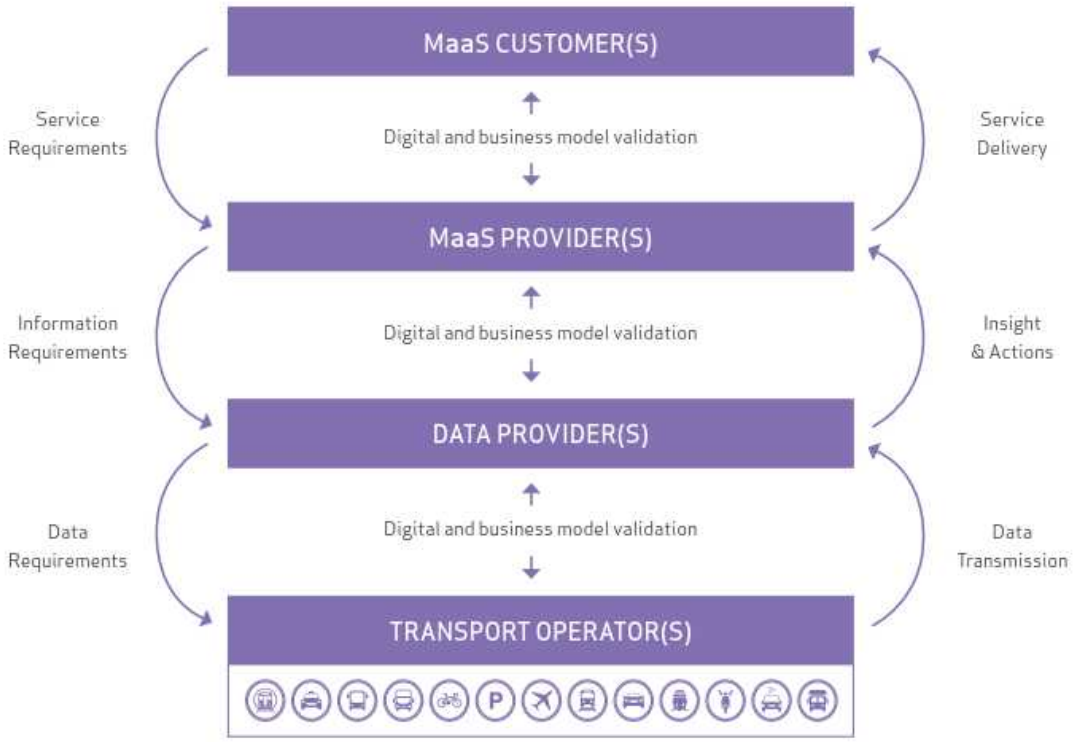
5.4 Mobility as a service

Mobility as a service (Maas) can be defined as the full integration of private and public mobility services in a seamless manner that meets the objectives and requirements of a variety of stakeholders including[8]:

- Customers;
- Mobility services, providers and operators; and
- And local city transport authorities.

There is rising global interest in Maas both in public and private sectors as it offers an opportunity to improve how people and goods move, as well as providing crucial real-time information that can further support transport authorities policy and decision making.
The service is mostly thought as a digital interface that would enable any type of travel using and type of transport service both public and private. It changes the conceptual model of transport towards one which is focused on the customer.

Figure 110 Mobility as a service (MaaS) value chain



Source: Transport Systems Catapult, The Transport Data Revolution: Investigation into the data required to support and drive intelligent mobility

[8] KPMG (2017) Reimagine Places: Mobility as a Service

There are two core strengths to the MaaS business model: servitisation, whereby the MaaS Provider creates a value proposition that comprises a 'bundle' of different mobility services; and Data Sharing, whereby the MaaS Provider shares data on the mobility needs of customers, to help Transport Operators improve their service[9].

Evidence that MaaS growth requires policy intervention, may be found in the 'narrow' set of features available in current MaaS offerings. For example, although taxi service apps have gained customers by offering some MaaS features e.g. easier transactions, they have not significantly improved multi-modal journeys. There are several reasons for this and barriers have been identified which may prevent the MaaS ecosystem from reaching its potential in the short-term. One outcome is the scenario where MaaS Providers offer consumers a service focussed on car vehicle transport e.g. taxi, car share and rideshare services. The other outcome is a scenario where consumers are offered a fully multi-modal service. A key question for policy makers is therefore 'what type of MaaS do they want to see grow.

The UK Government's Transport Systems Catapult have identified key findings that should be consider by policy makers when examining the MaaS opportunity[9]:

MasS could change travel behaviour:

- The impact of MaaS is unknown. MaaS could result in more journeys and distances travelled by car or potentially less; it could support national and local transport policy or challenge it but further research is needed.
- MaaS offers the potential to address many of the transport challenges facing society by engaging new business models and technology – it offers policy makers an opportunity for achieving travel behaviour change and managing travel demand.

MasS could change the transport sector:

- Existing transport operators face significant opportunities but also threats from MaaS growth. Transport operators may move away from a business to consumer model, to focussing on supplying transport capacity directly to MaaS Providers.
- MaaS has the potential to provide transport authorities with rich data to help them manage their transport systems and networks.

MasS growth could benefit from policy intervention:

- There are significant barriers that are preventing MaaS growth and policy interventions may be required to address them.
- The benefits of MaaS success are compelling and there are many potential pathways for policy makers to engage the private sector to achieve desired MaaS outcomes.
- MaaS value propositions can be developed to suit a range of target customers, however the private sector may develop business models that do not align with existing policy goals.

[9] Transport Systems Catapult (2015), The Transport Data Revolution: Investigation into the data required to support and drive intelligent mobility

What does this mean for LTP4?
The transport technology available to local authorities is rapidly changing. Recent innovations in technology and the widespread use of smartphones have generated new opportunities to engage with travellers and the way they influence the demand on the network.

Warrington will need to engage with both private and public sector to consider how on demand services can be used and benefit Warrington. The quality and level of service could vary for different areas of the town, for example the MaaS would be different within the urban core and centre compared with Warrington's out of town more suburban and rural areas. Warrington will have to closely monitor developments in the industry to ensure they control and influence a MaaS system that could best suit the town.

5.5 Alternative fuels

Vehicles powered by alternative fuels are becoming increasingly more popular in the industry. The vehicles pollute less and offer a 'greener' way of travelling.

The motivation to increase their use has come from a range of environmental and health pressures; the Committee on the Medical Effects of Air Pollutants (COMEAP) estimated that long term exposure to air pollution had an effect equivalent to 29,000 deaths a year in the UK in 2008. Increasing the use of ultra-low emission vehicles (ULEVs) has been identified as key way to help address local air quality issues.

The government has also pledged to end the sale of non-hybrid petrol and diesel cars by 2040 and for almost all cars and vans on the roads to be zero emission by 2050[10]. Therefore, it will be key for the country to look to support the use of these vehicles by influencing market conditions and delivering infrastructure that can help make them a viable alternative to petrol and diesel powered vehicles.

A list of common alternative fuel powered vehicles can be found below:

- **Hybrid vehicles** – Self charging hybrid (charge sustaining) - these vehicles use a conventional internal combustion engine (ICE), an electric motor, and a small battery that provides less than 1 mile of pure electric range. They can't be plugged in to recharge; the small battery is charged via regenerative braking and / or the ICE. They are found to achieve better fuel efficiency by blending conventional and electric power and typically pollute less than ICE petrol/diesel powered vehicles.
  Plug-in hybrid (charge depleting) - a plugin hybrid fundamentally works in the same way as a charge sustaining hybrid. The key difference is that a larger battery is used which can typically provide between 15 – 30 miles of electric running before the system switches to charge sustaining mode. Due to the larger battery capacity these vehicles need to be plugged in to recharge the battery and typical recharge at a maximum rate of 3.6 kW.

[10] https://www.gov.uk/government/news/uk-government-pledges-bold-ambition-for-electric-cars

- **Electric vehicles** – vehicles powered by batteries. Pure electric cars use larger capacity batteries than plug-in hybrids and typical provide ranges of 100 – 390 miles between charges. Due to the larger battery sizes they require faster recharging equipment and will commonly recharge at 7 kW at home through a dedicated home charge point and up to 50 kW – 150 kW at dedicated public charge points depending on the model of car. Pure electric vehicles require dedicated recharging infrastructure to recharge in an acceptable amount of time and to ensure safe recharging at high loads.
  Range Extended Electric Vehicles (series hybrid) – These vehicles are electric vehicles but additionally contain a small generator which is typically petrol powered. There is no mechanical connection between the generator and the wheels, the generator is used to make electricity which is fed into the batteries to maintain the state of charge to provide additional driving range when the batteries are depleted. The generator is only intended to be used infrequently when recharging isn't possible. The vehicle is always electrically driven but will produce regulated and CO_2 emissions when the generator is running.

- **Hydrogen powered vehicles** – **Hydrogen Fuel Cell** – a fuel cell vehicle stores hydrogen in high pressure tanks which is fed into a fuel cell which combines hydrogen with oxygen from the atmosphere to produce electricity. Fuel cell vehicles typically also contain an energy storage device (a battery or a super capacitor) to cope with transient loads. Fuel cell vehicles are electric vehicles but rather than storing electrical energy in a battery, energy is converted into hydrogen which is then converted to electricity in the fuel cell. Because of this, a fuel cell electric vehicle has more components than a battery electric vehicle. Whilst battery electric vehicles produce no exhaust emissions, a fuel cell electric vehicle does produce water vapour, but doesn't produce any other exhaust emissions.
  Hydrogen ICE - these vehicles use an internal combustion engine which burns hydrogen. Unlike a fuel cell vehicle this does produce engine out NOx emissions which need controlling. An ICE powered vehicle retains the hydrogen tanks, but doesn't have a fuel cell and also doesn't need any form of energy storage.

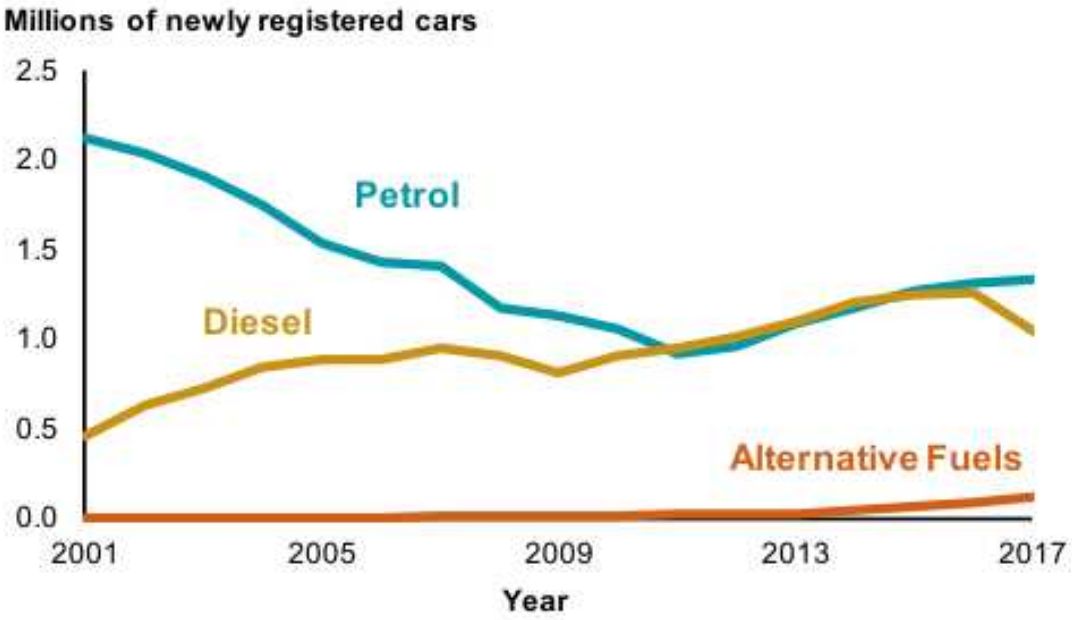
At the moment, alternative fuel vehicles encompass a small percentage of the vehicles on the road. However, they are rising; the number of newly registered vehicles by year for the UK is shown in Figure 111 and the number of ultra-low emission vehicles as a percentage of new registrations is show in Figure 112. The analysis shows a rapid increase in the number of registered ULEVs in recent years.

During 2017, over 53,000 new ULEVs were registered in the UK, showing an increase of 27% on 2016. New registrations of ULEVs have been rapidly increasing since 2013[11]. ULEV licensed in Warrington and the North West are explored in Figure 113.

A total of 1121 ULEVs were licensed within Warrington in 2017. This encompasses 1.04% of all cars licensed within Warrington. The number ULEVs licensed has also grown at a faster rate within Warrington compared with the North West.

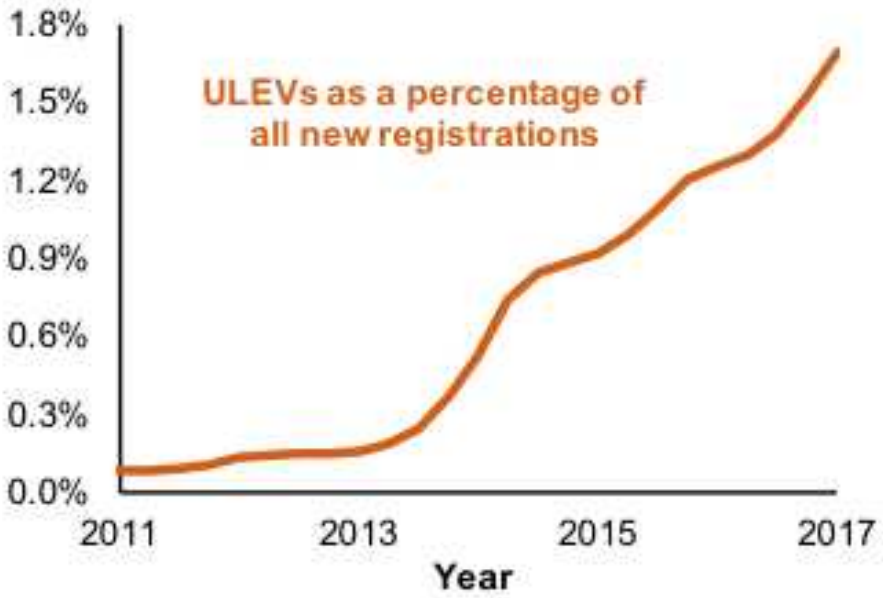
[11] DfT Vehicle Licensing Statistics Annual 2017

Figure 111 Millions of newly registered cars in the UK



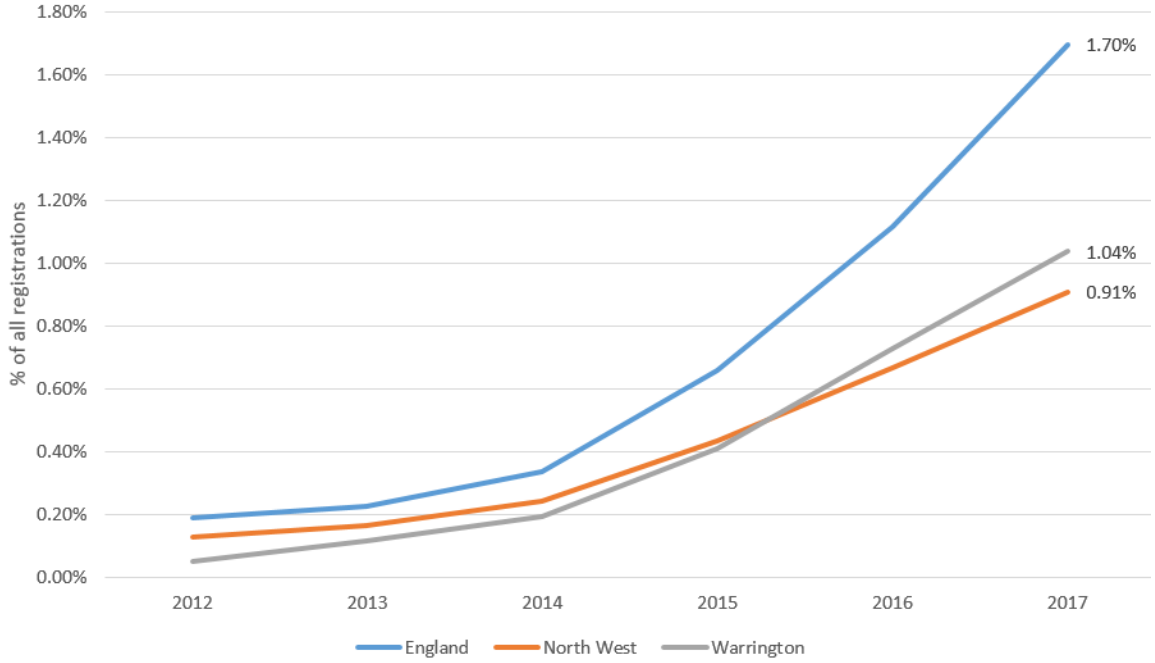
Source: DfT Vehicle Licensing Statistics Annual 2017

Figure 112 Ultra-low emission vehicles as a percentage of all new registration



Source: DfT Vehicle Licensing Statistics Annual 2017

Figure 113 Ultra-low emission vehicles as a percentage of all new registration



Source: DfT Vehicle Licensing Statistics Annual 2017

Alternative fuel powered vehicles offer serious environmental benefits. The vehicles are typically associated with less CO_2 emissions and emission of harmful air pollutants. Currently, the capital costs of ULEVs are typically higher than the conventional car. However, the running costs are typically lower due to more efficient engines, tax breaks on alternative fuels and even lower costs charging using the national gird.
Electric Vehicles and Hydrogen powered vehicles are explored in greater detail in the sections below.

5.5.1 Electric vehicles

Electric cars

Electric cars are becoming increasingly more popular within the transport industry. Nissan, Tesla, BMW, Renault, Jaguar and Audi are just some of the major car manufacturers that have developed electric vehicles (EVs) in the past few years. Furthermore, the competitive and fast-pace motorsport Formula-E has helped bring EVs into the public eye. Nissan's popular electric car, the Nissan Leaf is shown below.

Figure 114 Nissan's popular electric car – The Nissan Leaf

Source:Nissan https://www.nissan.co.uk/vehicles/new-vehicles

Electric vehicles offer a much more energy efficient way of travelling and pollute less emissions than conventional petrol/diesel cars[12]. Emissions associated with transport can be split into direct and life cycle emissions.

Direct emissions are those that are emitted through the tail pipe and are associated with greenhouse gases such as CO_2 and CO, as well as those emissions that affect local air quality such as NOx and particulate matter (PM). Electric vehicles produce zero direct emissions, which specifically helps improve air quality in urban areas and offer a less environmentally intrusive way of travelling[12].

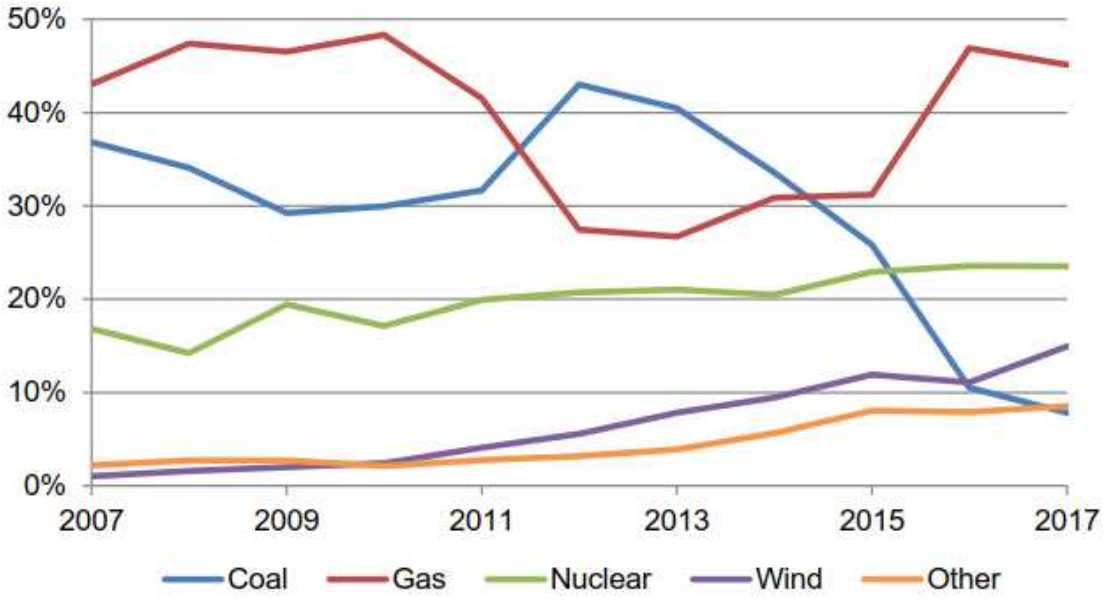
Life cycle emissions include all emissions related to fuel and vehicle production, processing, use, and recycling/disposal. For example, for a conventional petrol/diesel vehicle, emissions are produced when petroleum is extracted from the ground, refined, distributed to stations, and burned in vehicles.

EVs typically produce fewer life cycle emissions than conventional vehicles because most emissions are lower for electricity generation rather than burning petrol or diesel[13]. The exact amount of EV life cycle emissions are dependent on the UK's generation of electricity (Figure 115).

It can be seen that the UK's energy mix has become increasingly decarbonised during the past 10 years, with the rise of renewable generated electricity and the reduction of coal generated electricity. Therefore, the lifecycle emissions associated with electric vehicles have been reducing during the last 10years. A continuation of the previous trends would see lifecycle emissions associated with EVs become increasingly decarbonised.

[12] Energy Saving Trust - http://www.energysavingtrust.org.uk/transport-travel/electric-vehicles
[13] Energy Saving Trust - http://www.energysavingtrust.org.uk/transport-travel/electric-vehicles

Figure 115 The UK's share of electricity generation from major power producers



Source: Department for Business, Energy & Industrial Strategy 2017

It is useful to note at this point, that like all other highways vehicles, electric vehicles contribute to some non-exhaust emissions. Non-exhaust emissions include emissions caused by brake, tyre, clutch, road surface wear and resuspension[14]. These are largely associated with particulate matter.

EVs contribute to the resuspension of PM like other vehicles; as they travel of the road surface, they kick-up PM which has settled on the road surface back into the air. However, EV's impact in producing non-exhaust emissions is substantially less than diesel/petrol powered vehicles. This is for several reasons:

- Particulates produced from braking are greatly reduced in EVs as much of the deceleration of the vehicle is achieved through regenerative braking rather than the mechanical brakes (which do produce PM)[15];
- And then combined on a front wheel drive car with rear drum brakes (which capture the vast majority of PM within the drum stopping it from being emitted to the air) it can significantly reduce PM emissions in urban environments;
- EVs have no clutch, which eliminates PM's caused by this source; and
- Low rolling resistance tyres are common on electric cars, these wear more slowly further reducing non-exhaust emissions.

Therefore, it is still widely acknowledged that whilst EVs offer real benefits in limiting PM emissions compared to conventional diesel/petrol vehicles they don't eliminate PM. The

[14] Timmer.V, Achten.P (2016) Non-exhaust PM Emissions from electric vehicles, Atmospheric Enviornment, Vol 134, Pg10-17
[15] Thorpe, A., Harrison, R., 2008. Sources and properties of non-exhaust particulate matter from road traffic: a review. Sci. Total Environ. 400 (1-3), 270-282.

best way to reduce PM emissions is by reducing the number of motorised vehicles on the road and pursuing active travel modes.
The lithium ion battery packs in electric cars remain a significant part of the cost of electric vehicles. Nevertheless, the price of these have fallen by about 80% since 2010 and are also expected to continue to fall [16]. This could offer further financial benefits for users and help increase the attraction of owning an electric car.

Energy densities of batteries are also increasing, thus cars are capable of travelling greater distances[17]. A list of EV cars and their driving range can be found in Table 34. The battery technology within current EV models are capable of providing driving distances between 115 to 393 miles. Thus, some EVs can match the driving range of their petrol/diesel competitors which typically run for 300-400miles on a tank of fuel.

The global outlook for EVs indicates that the costs of battery technology will continue to decrease and the performance increase[18]. Therefore, a positive view can be taken – advances in battery technology over the next few years may soon enable EVs to travel distances comparable, possibly further, than the conventional petrol/diesel car.

Table 34: Electric Car driving range

Car model	**Range**	**Approximate Price (Before UK plug-in grant)**
Tesla Model S	393 miles	£65,000+
Tesla Model 3 (Available 2019)	310 miles	£27,000 (expected)
Jaguar I-Pace	298 miles	£64,000
Tesla Model X	295 miles	£70,000
Nissan Leaf	150 miles	£27,235
Volkswagen e-Golf	125 miles	£32,075
Hyundai Ioniq Electric	124 miles	£28,995
BMW i3	114 miles	£33,340
Ford Focus Electric	115 miles	£33,500

Source: Carbuyer

Whilst the initial upfront purchase price of an electric or plug-in hybrid vehicle can be higher - the cheapest four door electric cars are priced between £16,000 and £26,000 - the initial price is offset by lower running costs over the lifetime of the vehicle. There are also several grants available in the UK to assist with the initial purchase[19]:

- Plug-in vehicle grant;
- Electric Vehicle Home charge scheme;
- Workplace Charging scheme; and
- On-street residential charging scheme.

[16] McKinsey & Company 2017: Electrifying insights: How automakers can drive electrified vehicle sales and profitability
[17] International Energy Agency: Global EV Outlook 2017
[18] International Energy Agency: Global EV Outlook 2017
[19] https://www.gov.uk/plug-in-car-van-grants

Plug-in cars also offer a number of potential savings compared to conventional vehicles including:

- Driving 100 miles in an EV will cost £2 to £4. Driving 100 miles in a petrol or diesel car will cost around £13 to £16 in fuel, which is around four times the cost of the electric car[20].
- There are fewer mechanical components in an electric vehicle when compared with conventional vehicles, which often results in lower servicing and maintenance costs[14].
- The lower or zero emissions of plug-in vehicles means that they will attract lower charges from Clean Air Zones being implemented around the UK and the Ultra-Low Emission Zone in London[21]

Electric vehicles also have good performance with the vehicles being able to react quickly, generating very good torque and being very responsive in acceleration and breaking. Moreover, compared with their other ULEV comparators, they are far more practical, with there being a variety of options available for charging: at home, at work or on the road. The performance of electric cars are expected to increase and the cost of batteries to fall[22]. Policy support for electric vehicles is indispensable to the uptake of EVs, and perhaps will become of even greater importance in the mid to long term when subsidies for electric cars will not be economically sustainable with large sale volumes[22].

Therefore, it will be important for central government, local government, planners and developers to deploy preferential planning measures for EV's to help drive the incentive of purchasing and owning a vehicle. To match the advances in battery technology, it will be crucial to supply the necessary charging infrastructure to support the growth of EVs.
As electric vehicles become more common and their share of the car market grows, it will also place increasing pressure on the grid to supply electricity. It may be important for regions to consider diversifying their energy mix and identifying additional renewable electricity sources to provide for the additional electricity demand.

Electric buses

Air pollution has risen up the political agenda in the UK, it is a major public health hazard and has been proven to increase deaths and ill-health[23]. Air pollution has been a major driver for transitioning to electric buses, as they produce zero tailpipe emissions and offer a promising alternative to conventional diesel buses which are a major source of air pollution[24].

There are several types of electric bus available: battery electric bus; plug-in hybrid electric bus; and hybrid electric bus[25]. Among these, battery electric buses are the dominant type. In

[20] Energy Saving Trust - http://www.energysavingtrust.org.uk/transport-travel/electric-vehicles
[21] DfT Ultra Low Emission Zone - https://tfl.gov.uk/modes/driving/ultra-low-emission-zone
[22] International Energy Agency: Global EV Outlook 2017
[23] Department for Health http://www.publications.parliment.uk/p/cm2,00910/cmselect/cmenvaud/229/229ii.pdf
[24] Low Carbon Vehicle Partnership: A green bus for every journey. Case studies showing the range of low emission bus technologies in use throughout the UK
[25] ZeEUS eBus Report: An overview of electric buses in Europe

2017, the UK had the largest number of battery electric buses in Europe, with operational and ordered numbers standing at 234[26].
The UK electric bus market is dominated by the British automotive manufacturer Optare which produces a range of single-deck electric buses. Other electric bus manufacturers include Wrightbus, Volvo and Irizar[24].

Figure 116 An electric bus being used for services in London

Source: Low Carbon Vehicle Partnership: A green bus for every journey. Case studies showing the range of low emission bus technologies in use throughout the UK

The current electric buses operate using a lithium battery for propulsion. The buses have been deployed in various locations around the country, this includes London; Manchester; Birmingham; Glasgow; Nottingham; Milton Keynes; Inverness; and York.

Through the use of battery technology, it enables a cleaner and quieter way of travelling. In Nottingham electric buses have reduced carbon dioxide emissions by over 1,000 tonnes compared to the conventional diesel buses[24]. The buses have also received positive reviews from passengers, with the vehicles providing quieter and smoother transportation. Running costs are also significantly cheaper - around one-third of the cost of a diesel bus - and servicing costs are also lower[24].

However, the current battery technology does not cater for long driving ranges[24]. The industry standard Optare electric bus has a maximum range of 95miles. Resultantly, the limited range of the vehicles has operational implications. The buses often require a combination of 'top-ups' throughout the day using rapid charging infrastructure, and then slow charging overnight. This subsequently means more capital to purchase charging infrastructure. Milton Keynes have even deployed wireless (inductive) charging at bus stops to help provide for services.

The lack of EV charging infrastructure and cost of the buses are hindering the penetration of electric buses across the UK[27]. Charging infrastructure can be costly to install. Similarly,

[26] Transport Network - https://www.transport-network.co.uk/UK-leading-Europe-in-electric-bus-deployment/13663
[27] P&S Market Research -

electric buses remain more expensive upfront than those fuelled by diesel or compressed natural gas[27]. This means the purchasing and use of the vehicles is largely dependent on receiving grants or funding from central government[24].
Electric buses also require a significant quantity of electricity to charge their batteries, and significant upgrades to the local electricity network – along with the associated time and cost – are often required to cope with charging a depot of electric buses[24]. To implement the technology, it requires early consultation with Distribution Network Operator who require an understanding of when large change in power demand are likely to occur through the charging of vehicles.

In summary, the current battery powered electric buses available can provide an enhanced, cleaner and greener means of bus travel. Yet, they are often only viable when they are supported by grants and subsidies to assist with the up-front costs of vehicles. This means at present there is some restriction to the uptake of the vehicles. It is expected that electric buses will become more competitive in price with diesel buses by 2026, when battery prices fall and in tandem the upfront vehicle costs decline too[28].

Electric goods vehicles

Diesel powered goods vehicles are a major source of pollution and there is potential for EV good vehicles to help minimise the environmental impact of freight and logistics movements. Advances with the EV passenger sector has led to progression with electric goods vehicles. There are several types of electric goods vehicles:

- Catenary mains power plus battery– these are powered by overhead wires and have been used for several years in mining. They typically have slow speeds and operate on a limited circuit.
- Plug-in hybrid electric vehicle and pure hybrid – a number of models already in use, these are typically used for short haul trips with a large number of start-stop actions which facilitate regenerative charging
- All electric drive (battery or fuel cell) - most battery electric vehicles (BEVs) available today are intended for urban distribution, with a daily range of less than 180miles. An example of a BEV goods vehicle can be found below in Figure 117.

[28] Bloomberg New Energy Finance: Electric Buses in Cities: Driving Towards Cleaner Air and Lower CO2

Figure 117 Electric Van – Renault Kangoo Z.E. 33 Van

Source: Renault - https://www.renault.co.uk/vehicles/new-vehicles/kangoo-ze.html

Electric vans present a small proportion of electric vehicles[29], but their share is expected to grow as environmental and air quality issues are continuing to move up the political agenda. UK cities and towns are starting to consider and implement low emissions zones to help tackle harmful air pollutants arising from transport.

There are five low emission zones currently in place (with these only affecting local buses, London being the exception) and there are in total 16 cities considering setting up clean air zones[30]. The zones are a designated area which sees tolls imposed on vehicles which enter that do not meet the specified emission standard.

As a result, business and private buyers will come under increasing pressure to adopt e-mobility solutions to help qualify travelling within the low-emission zones. Electric goods vehicles will henceforth become an increasing more sought solution.

Several big car brands are developing their own electric systems for commercial vehicles including Nissan, Renault, Citoren and Peugeot. EV technology is rapidly growing and so is the driving range of vans. The table below displays the different type of EV vans available and their related driving range.

[29] Parkers Electric Van Guide - https://www.parkers.co.uk/vans-pickups/advice/2018/electric-van-guide/
[30] RAC - https://www.rac.co.uk/drive/advice/emissions/low-emission-zones-what-you-need-to-know

Table35: Electric Van driving range

Electric Van	Type/size	Official driving range
Renault Kangoo ZE 33	Small van	170 miles
Nissan e-NV200 40kWh	Small van	174 miles
Citroen Berlingo Electric	Small van	106 miles
Peugeot Partner Electric	Small van	106 miles
Renault Master ZE	Large van	120 miles
LDV EV80	Large van	127 miles
Iveco Daily Electric	Large van	Varies with batteries

Source: Parkers Electric Van Guide - https://www.parkers.co.uk/vans-pickups/advice/2018/electric-van-guide

With their operation, the electric van holds the advantage of producing zero CO_2 and NOx tailpipe emissions. The battery technology also means the vehicles operate much more quietly, this lends the opportunity for deliveries to be made during 'unsocial' hours without causing disruption. The vehicles also qualify for tax breaks and grants are available for purchasing electric vans.

The benefits associated with the vehicles are further summarised in the table below.

Table 36: Benefits of EVs

Category	Benefit
Environmental	• Produce zero CO2 or NOx tailpipe emissions • Quieter vehicles which opens up the opportunity for unsocial-hours delivery
Cost	• Lower cost per mile for fuel (electricity) • Lower maintenance costs due to fewer moving parts and less strain on the breaks • Government van plug in grant which can help discount vehicles up to 20% of asking price, with the potential saving of £8,000 • Exempt from congestion charge in London
Practicality and performance	• Preferential parking in some locations • Electric motors deliver instant torque they get shifting smoothly and quickly • Able to set air-conditioning to preferred temperature whilst charging

Electric vans are currently limited to short to medium ranges, with battery capacity capable of supporting distances between 100-170 miles (Table). Subsequently, careful planning would be needed when undertaking longer distance deliveries to coordinate charging. Rapid charging could help increase the resilience of business operations, as the process is capable of charging the vehicles up to 80% within 40minutes[31].

[31] Parkers Electric Van Guide - https://www.parkers.co.uk/vans-pickups/advice/2018/electric-van-guide

In light of the above, electric vans may be better positioned for town and city deliveries as the vehicles are more likely to be closer to rapid charging infrastructure. The electric vans could assist with the distribution of goods from freight consolidation centres as well as inter-city freight transport. Therefore, the vehicles could help support the growth of the logistics sectors without vehicles causing detriment to local air quality and noise levels within densely populated regions.

The market for large electric good vehicles is still in early development. There are only a few electric HGV's available on the market. Compared to a diesel HGV, the current electric goods vehicles would have to stop more often and spend time longer refuelling on longer distance journeys. Therefore, there are operational concerns over current electric goods vehicles.

BMW Group have three electric trucks operating between their Home plant in Munich. The vehicles have a range of 100km and top speed of 64km[32]. Their operation display strong environmental benefits as they are estimated to save 48tons of CO_2 annually. However, they are not in commercial production.
Instead, more promising opportunities could be on the horizon. Tesla are due to unveil their new electric HGV, 'Semi', in 2019. The company have claimed that the vehicles will be able to travel far greater distances in the range of 500miles. Similarly, Daimler and Volkswagen also look to unveil their own long-distance electric HGV in 2019[33].

Figure 118 Tesla Semi Electric HGV

Source: Tesla - https://www.tesla.com/en_GB/semi?redirect=no

Consequently, electric HGVs are still in early infancy. The opportunity for electric HGVs to be exploited in the logistics industry for long distance freight haulage are perhaps more likely to come to fruition over the next decade, with the advent of new goods vehicles shortly to be introduced into the market.

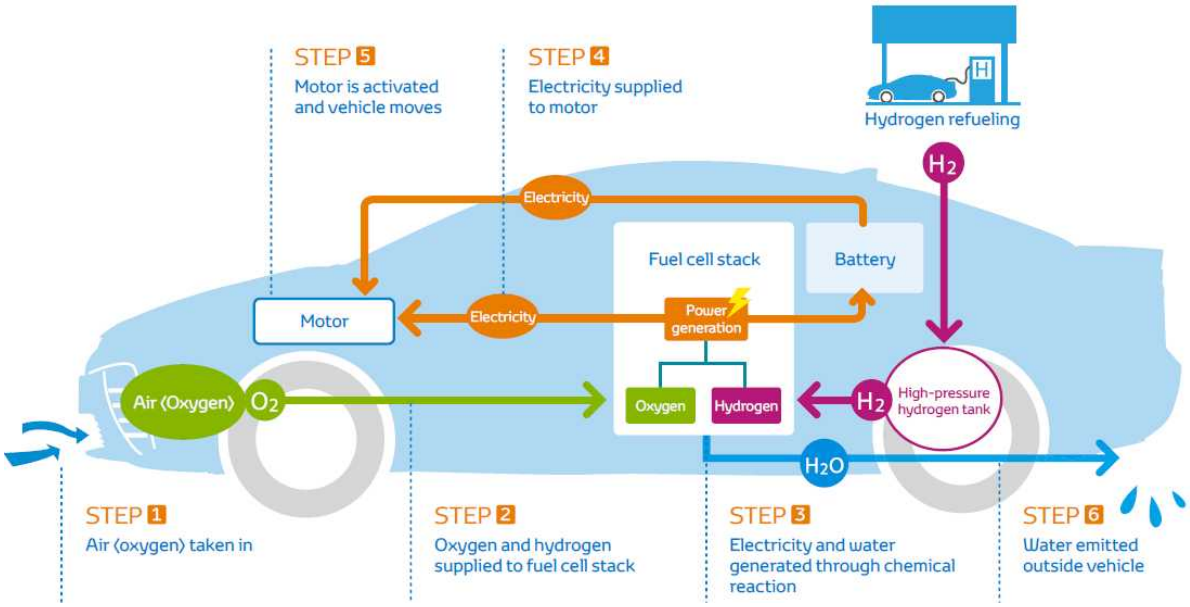
[32] BMW Group - https://www.press.bmwgroup.com/global/article/detail/T0276762EN/electric-trucks-for-bmw-group-plant-munich
[33] Wired

5.5.2 Hydrogen powered vehicles

Hydrogen fuel cell cars

Hydrogen fuel cell vehicles form another type of ULEV. The vehicles see a high-power fuel cell and motor combination provide propulsion in place of an internal combustion engine. The hydrogen fuel cell converts chemical energy (in this case hydrogen) directly into electrical energy, water and heat. A simplified diagram of the process is shown below.

Figure 119 Hydrogen powered fuel cell vehicle



Source: Toyata - https://www.toyota.co.uk/world-of-toyota/environment/fuel-cell-vehicle

The hydrogen-fuel cell vehicles are capable of travelling relatively long distances, with a full tank providing a range of 300miles[34]. Vehicle owners are also exempt from vehicle exercise duty.

This said, there is a distinct lack of hydrogen refuelling infrastructure for cars outside of the M25 and hydrogen fuel is currently quite expensive compared to its ULEV competitors; refuelling a full tank costs between £50 and £75[35]. The initial cost of the cars are also considerable, with the Toyota Mirai costing £60,000. Resultantly, in light of these factors, EVs still dominate the ULEV car market.

Hydrogen fuel cell buses

Currently, the hydrogen fuel cell powered vehicles offer a more viable option for public transport instead of the private car. A hydrogen fuel cell electric bus is an electric bus that includes both a hydrogen fuel cell and batteries/capacitors. In such hybrid architecture, the

[34] Hyundai - https://www.hyundai.co.uk/about-us/environment/hydrogen-fuel-cell?utm_source=google
[35] Car buyer - http://www.carbuyer.co.uk/tips-and-advice/144957/what-are-hydrogen-fuel-cell-cars

fuel cell provides all of the energy for the vehicle operation, whilst the batteries/capacitors are able to provide peak power to the motors to meet rapid acceleration and gradients. The by-product heat is stored on the brake resistors and is used to maintain heating passenger comfort and considerably increase energy efficiency.

There are currently two type of buses available on the market[26]:

- Standard buses (12 or 13 metre)
    1) buses with a small battery and a large fuel cell (for instance 120 kW)
    2) buses with a supercapacitor (instead of a battery) and a fuel cell (for instance 75kW)
    3) buses with a large battery and a fuel cell as range extender
- Articulated buses (18 metre buses)
    4) buses with a large battery and a fuel cell as range extender

The hydrogen tanks are usually stored on the roof of the bus, while the fuel cell and electric engine are located at the back of the bus (Figure 120).

Figure 120 Hydrogen powered fuel cell Bus

Source: Fuel Cell Electric Buses - https://www.fuelcellbuses.eu/category/concepts-0

The hydrogen fuel cells longer range of 300miles, regenerative braking system and responsive drive, means the vehicles are capable of meeting demanding urban bus service operation. They are also noted to provide an improved passengers experience through a quieter and smoother drive[36]. As a result, the vehicles ability to travel greater ranges stands them as a better competitor to the diesel bus than current EV buses.

The hybrid technology is also capable of almost completely reducing NOx and particulate emissions[31]. This is a major asset in helping local authorities address challenging environmental pressures and local air quality issues. The benefits of hydrogen-fuel cell buses have been summarised in the table below:

[36] Fuel Cell Electric Buses - https://www.fuelcellbuses.eu/category/concepts-0

Table 37: Benefits associated with Hydrogen fuel cell electric buses

Category	Benefit
Environmental	• They have zero toxic tailpipe emissions, only water vapour • Hydrogen can be produced from a range of ultra-low carbon routes, including renewable electricity, biomass and other hydrocarbons including carbon capture and storage. When fuelled by hydrogen produced via any of these routes, the fuel cell bus offers a completely zero carbon solution to public transport. • Hydrogen fuel cell technology is quiet and offers a noise reduction
Operational	• Fuel cell electric buses comply with demanding urban bus service operation • Amongst ULEV technology, they offer the longest range (> 300 km) with there being no need to return to the depot during daily service • Amongst ULEV technology, they have the shortest refuelling times (<10mins) • They have a performance comparable to conventional buses in terms of speed and acceleration • They have a regenerative braking system that allows for a better efficiency • There is also less vehicle vibration and subsequently offer a smoother driving experience
Geo-political	• They are a long-term solution for a sustainable technology, which does not limit productivity and quality of service • They serve as a tool to comply with EU, national and local regulations on low-carbon mobility and air quality • Serve as a long-term strategy focussed on reducing vulnerability to fossil fuel imports

Source: Fuel Cell Electric Buses - https://www.fuelcellbuses.eu/category/concepts-0

Within the UK, a number of locations are starting to introduce hydrogen fuel-cell buses. London has started to trial double decker hydrogen powered buses. Dundee and Aberdeen have also started to roll out the environmentally friendly buses. This has been part funded by a €25 million grant from the Fuel Cells and Hydrogen Joint Undertaking. Aberdeen currently has 10 hydrogen buses already, they are also to receive an additional 10 buses, making it one of the largest fleets in Europe[37].

The technology is also being used as an opportunity to attract investment and diversify the country's energy mix. Dundee plans to create a 'state of the art' integrated energy park deploying hydrogen fuel cell buses, fleet vehicles and hydrogen and alternative fuels

[37] Scottish Cities Alliance - https://www.scottishcities.org.uk/media/blog/dundee-successful-in-european-hydrogen-bus-funding

refuelling infrastructure, with energy being derived from renewable technologies[38]. This project will be one of a kind, the first in Scotland to combine heat, power and transport.

Hydrogen fuel cell goods vehicles

Hydrogen fuel cell technology has the potential to benefit the logistics sector; the driving range is competitive with premium electric vehicles and refuelling time is even faster. The technology could be particularly advantageous for heavy goods and other highly-utilised vehicles

Fuel cell companies have had the difficult task of designing a fuel engine that can withstand the severe shock and vibration from a heavy-duty application such as a drayage truck[39]. The vehicles also have to deal with limited fuelling infrastructure across delivery routes and are hence confined within their operation. However, Toyota have entered the market with its Project Portal, a class 8 truck powered by two fuel cell stacks (Figure 121).

The prototype has the capability of generating 670bph and 1,325 pound-feet of torque, and has a driving range of more than 200miles[39]. The vehicle is being trialled in America between the Port of Los Angeles and Long Beach terminal to surrounding rail facilities and warehouses.

Figure 121 Toyota Project Portal Class 8 truck

Source: WIRED - https://www.wired.com/2017/04/toyotas-still-serious-hydrogen-built-semi-prove

The current lack of hydrogen infrastructure available across the UK poses a serious barrier to the instant uptake and application of the alternative fuel in long-distance freight transfer. Instead, The Committee on Climate Change envisage that hydrogen fuel is the most likely

[38] http://www.governmentbusiness.co.uk/news/04042018/zero-emission-buses-dundee-and-aberdeen
[39] WIRED - https://www.wired.com/2017/04/toyotas-still-serious-hydrogen-built-semi-prove

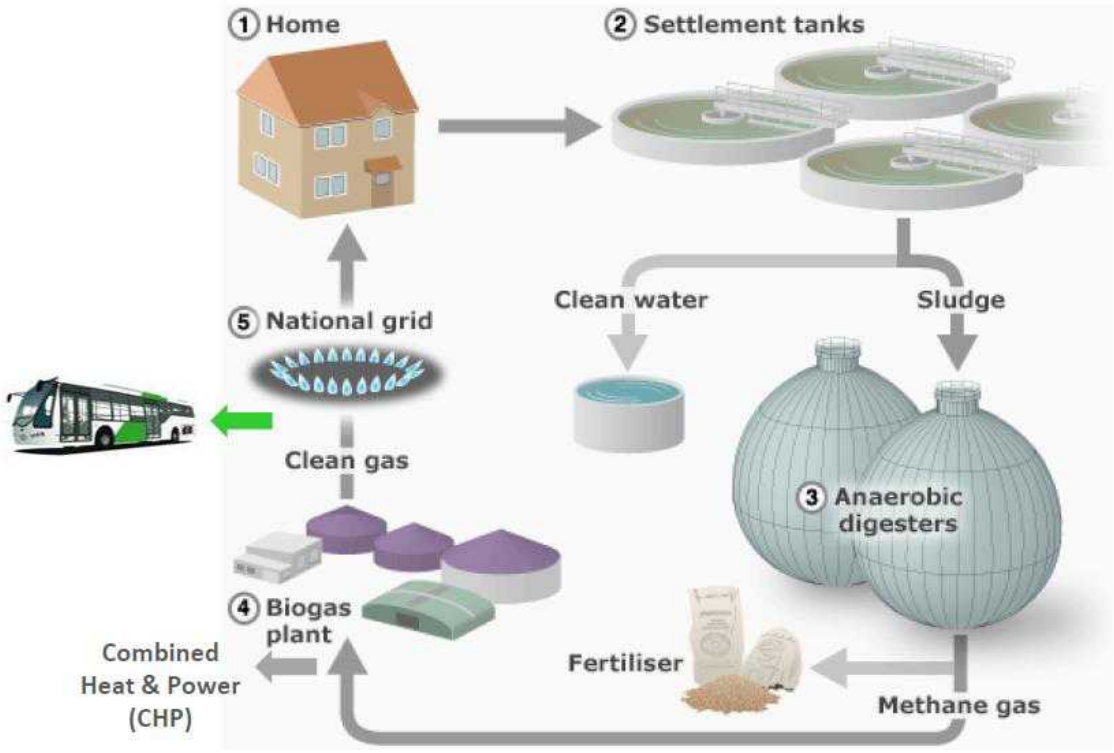
and effective option for reducing HGV emissions in the longer term from around 2030[40]. The Committee expect that advances in technology and investment in the required infrastructure will mean that by that time, hydrogen fuelled HGVs will be a realistic and competitive option for fleet operators.

Compressed natural gas buses

Vehicles can operate using hydrogen compressed natural gas (CNG) as an alternative to petrol/diesel fuel. CNG vehicles mainly compose of methane (CH_4) and use the fuel in a combustion engine. Contrary to fossil fuel derived methane, is biomethane.

Biogas is primarily made up of 60% methane and 40% CO_2[41]. Biogas is produced from organic matter in landfills, biogas plants and anaerobic digestion of organic waste[42]. These processes see organic matter broken down in an oxygen free environment to produce the gas. The gas can then be treated through scrubbing carried out at Biogas pants to remove impurities and upgrade the gas to over 96% methane at which point the product becomes known as biomethane[41]. This process then enables biomethane to be used as a fuel within vehicles, or to be pumped back into the national grid. This process is outlined in Figure 122.

Figure 122 Biomethane production and use within transport



Source: Arriva North West & Wales – Experience of operating Man EcoCity CNG Buses presentation

[40] Committee on Climate Change: Meeting carbon budgets – 2013 Progress Report to Parliament
[41] Molino et.al., (2013) Biomethane production by anaerobic digestion of organic waste, Fuel, Vol 103, Pg 1003-1009
[42] National Renewable energy laboratory – renewable hydrogen potential in the United States

Using Biomethane as a fuel within transport can offer a number of environmental benefits[42]:

- Biomethane production prevents the release of methane which is one the most potent greenhouse gasses;
- It reduces the amount of greenhouses gases that are released into the atmosphere when organic matter is left to decompose; and
- Use of biomethane reduces the need for fossil fuel burning.

Therefore, use of biomethane within transport offers a 'greener way' of travelling compared with the petrol/diesel vehicles.

Biomethane technology is being typically explored in larger vehicles which have the ability to carry and fit hydrogen CNG tanks. Arriva have deployed a number of biomethane buses across the North West & Wales. The services operate across Runcorn, Widnes and also travel into Warrington (Figure 123). Arriva currently have 10 biomethane CNG buses with a further 9 ordered[43].

The buses refuel at Runcorn gas station which was designed and built by gas bus alliance in 2014. The fuelling station has the capacity for 20 buses and runs on 100% biomethane. Thus, the public transport services have been fully decarbonised.

CNG buses are not too different to conventional diesel powered buses; they still use a combustion engine. This enables the buses to not be too dissimilar in price and makes it much easier for engineers to transition to working on the vehicles. This is a factor which electric and hydrogen-fuel cell buses do not possess, as the vehicle cost is typically higher due to battery costs[4427].

For Arriva specification, the buses are priced at £220,000, whereas the standard single deck bus is costed at £165,000[34]. Thus, the CNG buses are not priced too far away from the conventional bus.

Elsewhere with other operators, CNG buses are priced approximately 20% more than a conventional bus[45], which is slightly cheaper than the Arriva specification. It is also worth noting that over a 10 year lifetime, the extra purchasing cost is compensated by lower fuel costs, even when new infrastructure investments are required[45.] Therefore, at present, the vehicles offer a more viable alternative to diesel buses than EV and hydrogen-fuel cell can provide.

[43] Arriva North West & Wales – Experience of operating Man EcoCity CNG Buses presentation
[44] P&S Market Research -
[45] www.clean-fleets.eu A fleet of Biomethane Buses in Reading, UK

Figure 123 Arriva Hydrogen fuel cell bus - 70 passenger capacity

Source: Arriva North West & Wales – Experience of operating Man EcoCity CNG Buses presentation

The outcomes of the Biomethane Arriva operated buses are outlined in Table. Since Arriva deployed the vehicles, they have managed to produce operational savings of 24%, save 3.6million Kgs of CO_2 and enhance the passenger experience [29]. The CNG buses are also easier to maintain. Compared with diesel buses: there are longer intervals between engine oil changes; there are no messy fuel filters to replace; and there is no complex exhaust gas recirculation system to maintain. These factors all save on running costs and could be influential in improving the competitiveness of bus services against the private car.

Table 38: Benefits associated with CNG buses

Category	Outcome
Environmental	• 3.6million Kgs CO2 saved • Replaced Euro 3 & 4 buses which has helped reduce NOx and particulate matter by 95%
Cost	• There are longer intervals between engine oil changes, there are no messy fuel filters to replace, no EGR system to maintain, this all saves on running costs. • The running costs of Diesel buses is estimated at £0.48/mile whereas gas runs at £0.38mile. This is an initial saving of 22%. Arriva actually report savings of 24%.
Passenger experience	• The buses are notably quieter than a diesel bus by 2 DB • Less vibration • There is no diesel smell • Good heating and ventilation • Higher quality interior lighting
Driver experience	• Good cab ergonomics • Good driveability with the vehicles being responsive • An ‘effortless’ drive

Source: Arriva North West & Wales – Experience of operating Man EcoCity CNG Buses presentation

In summary, the CNG bus presents a practical alternative to diesel buses. They have the range, performance and minimal maintenance to provide an improved bus service. For now, whilst electric buses are at slight disadvantage by their high battery prices, shorter driving ranges and need to 'refuel' more frequently, the CNG buses provide a more practical and viable alternative to the conventional diesel bus.

What does this mean for LTP4?
The use of ULEV are rising. Warrington will need to cater for the growing market and ensure there is adequate infrastructure provision to support the use of the vehicles across the borough. It will be important for Warrington to investigate current usage and consider how changing the policy environment could help support their use.

6 Environment and well-being

6.1 Environment and well-being key findings and implications

Carbon dioxide emissions

- Transport is a major contributor of CO_2 emissions in Warrington.
- Cars, taxis and Lorries modes have poor transport energy efficiency. These modes are likely to be the main sources to the large CO_2 emissions arising from transport.

Climate change

- Climate change is taking place in Warrington. The daily mean temperatures, days of rain, total precipitation and extreme weather events have all increased since 1961 to 2006.
- Climate change events have been noted to affect the operation of transport in Warrington. In the past, climate change has disrupted public transport and highways movements, impacted emergency services and in doing so, disrupted the local economy.

Air quality

- National standards for NO_x are being exceeded on the motorway surrounding Warrington, the town centre and roads that lead into the centre.
- There are several transport behaviours that drive NO_x emissions, these are: Large traffic flows; congestion and idling behaviour; the private car is a key contributor, with diesel cars seeing the worst levels of NO_x emissions; and HGVs, LGVs and buses
- Increasing use of active travel modes, public transport, cleaner fuels and travel demand management strategies are required to tackle the town's air quality problems.

Flood risk

- Up to 1032 properties (890 residents, 117 business and 25 critical services) could be at risk from surface water flooding in a 1% (1 in a 100) annual probability rainfall event.
- Development and expansion of highways uses impermeable materials which increases the likelihood of flooding. SUDS should be increasingly sought in transport solutions.

Noise

- First priority locations for noise action planning on the approach and at motorway junctions, roads on approach the town centre and within the town centre.
- These are roads that typically see high flows of traffic, suffer from congestion and witness substantial HGV flows.
- These locations also exist within proximity to residential areas with high population density such as Great Sankey; Latchford; Callands; Hulme; and the town centre.

6.2 Environment and well-being

The purpose of this section is to investigate environmental issues being experienced across the Borough. Transport has the potential to cause detrimental effects to the local environment. Transport is the largest emitting sector greenhouse gas emissions within the UK economy accounting for 26% of UK greenhouse gas emissions in 2016[46]. Moreover, transport affects air quality at the roadside and has the potential to cause serious health implications.

Therefore, it is important to investigate the impact of transport in Warrington and how LTP4 could be used to mitigate the impacts of transport and protect the environment.

6.3 Carbon dioxide

The earth absorbs incoming visible light from the sun and this is named short-wave radiation. The earth then reradiates this energy as long-wave radiation. Greenhouse gases trap long-wave radiation and cause subsequent warming of the earth. This natural process is named the greenhouse effect.

Through the industrial revolution to the 21st century, human activity has increased the concentration of greenhouse gases, particularly CO_2 in the earth's atmosphere; CO_2 concentrations are now at a higher level than ever over the last 400,000 years[47]. CO_2 is emitted through the burning of fossil fuels (oil, gas and coal). Humans burning of fossil fuels has subsequently caused the continued thickening of the earth's protective layer of greenhouse gases.

As a result, Human activity has accelerated the greenhouse effect and has caused global surface temperature to increase. The planet's average surface temperature has risen about 0.9°C since the late 19th Century and this has been driven largely by increased CO_2 and other human-made emissions[48].

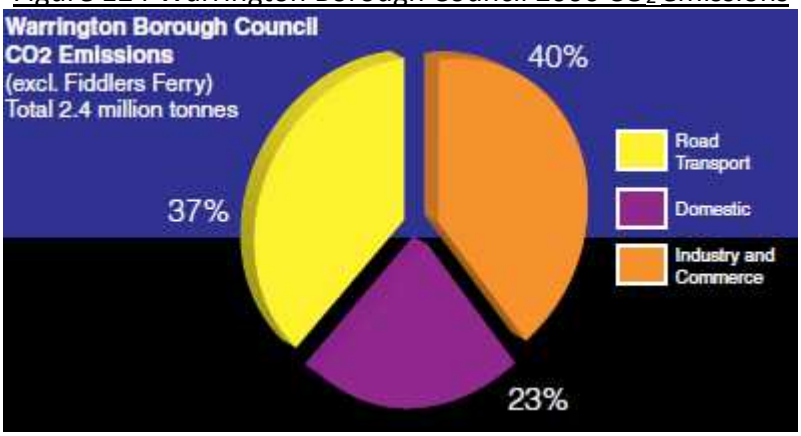
It is therefore useful to assess CO_2 emissions in Warrington and how transport may contribute to the Borough's overall emissions.

Warrington Borough Council's Climate Change Strategy for Warrington was used to extract information on CO_2 emissions within the Borough. Emissions in the wider Borough are dominated by Fiddlers Ferry Power Station (FFPS) which in 2006 emitted 8.7 million tonnes of CO_2 [49]. Of this, some 330,000 tonnes were from burning biomass fuels which has a neutral CO_2 impact, so the net emissions from FFPS was around 8.4 million tonnes. However, it is clear that most of the emissions do not 'belong' to Warrington since the electricity generated is mainly being used outside of the Borough.

[46] Committee on Climate Change (2017) Meeting Carbon Budgets: Closing the Gap
[47] https://climate.nasa.gov/climate_resources/24/
[48] NASA https://climate.nasa.gov/evidence/
[49] Warrington Borough Council (2006) A climate change strategy for Warrington

If FFPS emissions are excluded (except for electricity used within the Borough), the CO_2 emissions are as shown below.

Figure 124 Warrington Borough Council 2006 CO_2 emissions



Source: DEFRA and WBC emissions inventory

Total CO_2 emissions in the Borough (excluding FFPS) in 2006 were 2.4 million tonnes per year. 40% of this comes from the business sector, reflecting the presence of several intensive energy users (mainly the chemicals industry) in the town.

Road transport accounts for 37%, a figure which is almost certainly boosted by motorway traffic passing through the Borough, with the domestic sector making up the remaining 23%. Action is clearly needed in all three sectors if CO_2 emissions in Warrington are to be reduced.

6.3.1 Key findings of Carbon emissions in Warrington

The key findings of the review of carbon dioxide emissions in Warrington are:

- In 2006, road transport contributed to 37% of Warrington's CO_2 emissions, Industry and commerce accounted for 40% and Domestic activity accounted for 23% of emissions.

What does this mean for LTP4?
Making Warrington's transport increasingly energy efficient could help cut CO_2 emissions in the Borough. LTP4 should seek to:

- Increase energy efficient transport (active travel, bus, light rail, heavy rail and higher car occupancy);
- Reduce the demand to travel in Warrington;
- Remove network pinch points and associate idling behaviour;
- Support and advocate the use of electric vehicles and intelligent mobility; and
- Support development that reduces the need to travel.

1.1 Climate change

Warrington Borough Council completed a Local Climate Impact Profile in 2016. The study sought to acquire a more comprehensive understanding of past and projected climate change and what effects it would have on Warrington.

The study compiled and analysed past, present and projected data collected by the UK Meteorological Office for mean, maximum and minimum temperatures, sunshine hours, average rainfall, air frost, wind and snow days from 1910/1961 to 2016.

6.3.2 Warrington's climate

From observing past weather activity and high impacting events, the study was able to gain a comprehensive understanding of Warrington's vulnerabilities to climate change. Annual average change data for the NW of England from 1961 to 2006, based on a linear trend, were used to display how Warrington's climate had changed. Table 39 shows that as a whole, daily mean, maximum and minimum temperatures, days of rain and total precipitation have all increased since 1961 to present day.

Table 39: Annual average change data for the North West of England from 1961 – 2006 on a linear trend

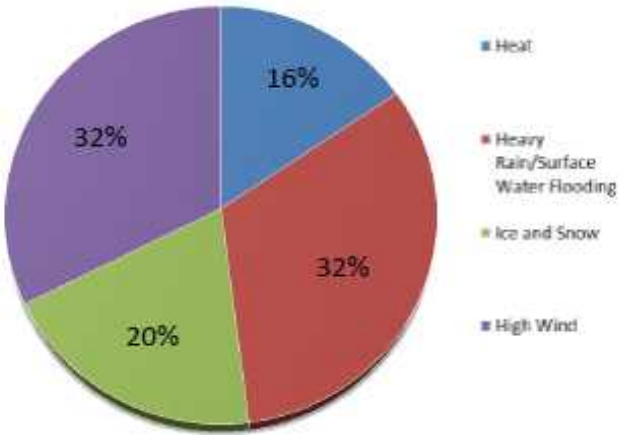
Daily Mean Temp (ºC)	Daily Min Temp (ºC)	Daily Max Temp (ºC)	Air Frost Days	Days of Rain ≥ 1mm	Total Precipitation (mm)
1.4	1.55	1.29	-24.4	7.5	8.8

Source: Warrignton Borough Council -A local climate change impact report 2016 ttp://ukclimateprojections.metoffice.gov.uk/23846?emission=low

6.3.3 Extreme weather events

Extreme weather events were also examined in the study. Warrington has been most vulnerable to the occurrence of heavy rain/flooding and high winds. These weather types compose of 32% each of total weather events, which is an increase in 1% of high wind events and 3% increases in heavy rain/flooding events. These two types of extreme weather events are summarised in greater detail below.

Figure 125 percentage number of weather related events for Warrington 2003-2016

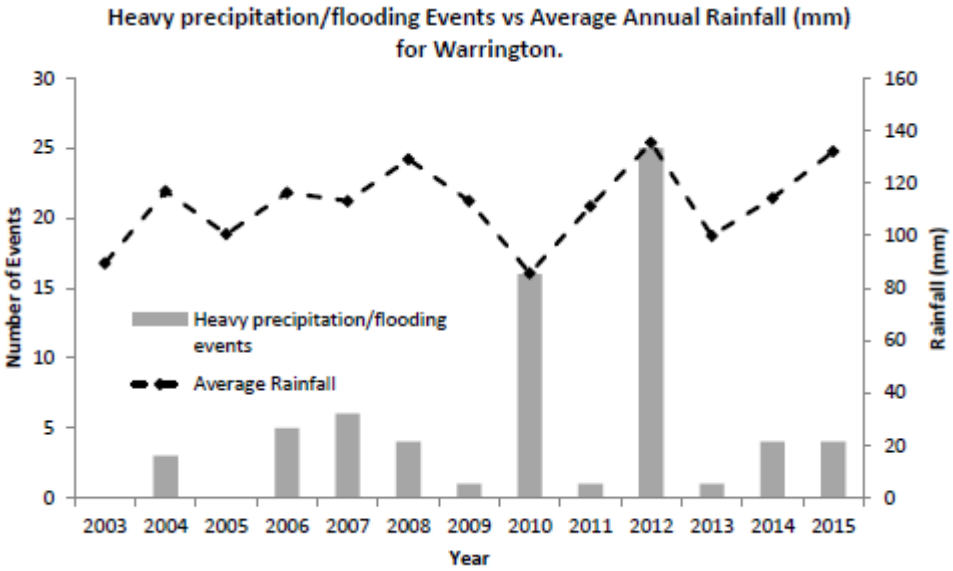


Source: Warrignton Borough Council - A local climate change impact report 2016

Flooding/Heavy precipitation

The Engineering and Flood Risk department at Warrington Borough Council, reported 55 flood & drainage issues to occur in 2013, 29 in 2014 and 24 in 2015. The survey revealed the unpredictable nature of the occurrence of flooding and heavy precipitation events, portrayed by the dramatic variability seen across the period analysed in Figure 12525.

Figure 126 Heavy precipitation/flooding events vs average annual rainfall (mm) for Warrington



Source: Warrignton Borough Council - A local climate change impact report 2016

The frequency of flood events are seen to decrease in the long-term (with the exception of 2010 and 2012) as a result of the new flood defences in Warrington. However, the study

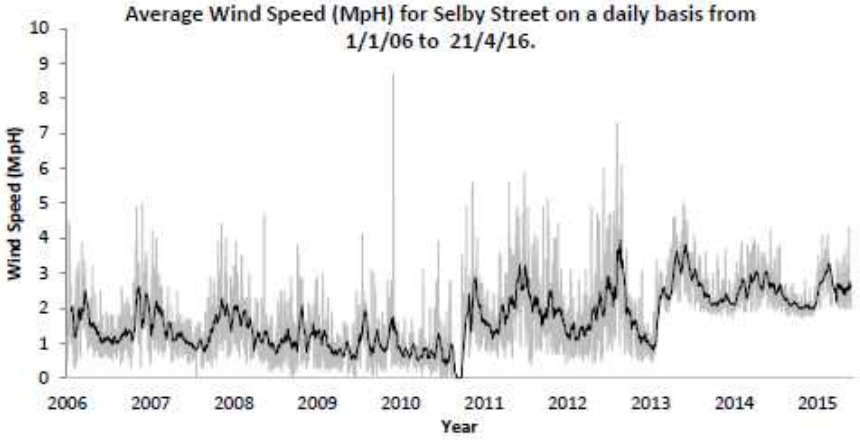
revealed that the vulnerability of the local population and infrastructure to the future occurrence of an extreme, high intensity event is increased without the implementation of further resilience based strategies.

High wind events

Linked to the occurrence of heavy precipitation, Warrington and the services provided by the Borough Council are severely vulnerable to high wind, specifically the public transport and infrastructure.

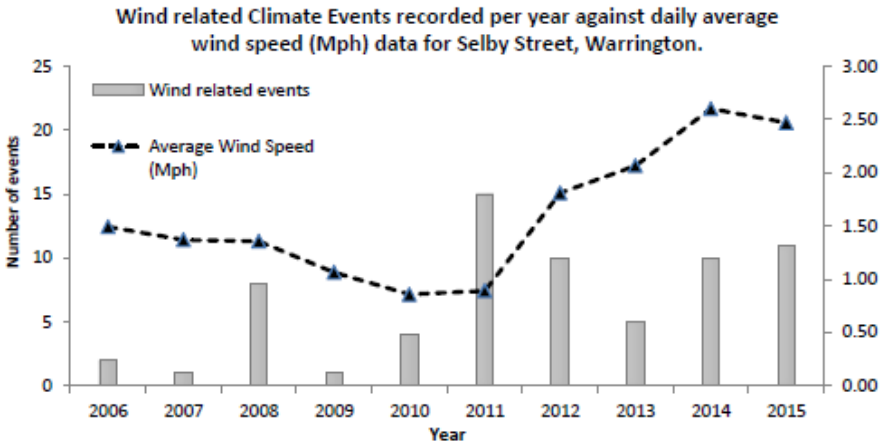
As seen in
Figure *127*, as in
Figure *128*, the occurrence of wind related weather events is variable across the period displayed. An increase can be seen since the composition of the last LCLIP In 2013, with 2014 and 2015 showing 10 and 11 events respectively. Since 2006, it can be observed that Warrington is experiencing a higher frequency of events per year with time. This is reflected in the fact that in this LCLIP, wind events see a 1% increase in the overall total number of events in comparison to 2013.

Figure 127 Average wind speed (Mph) 2006 – 2016 at Selby Street, Warrington



Source: Warrignton Borough Council - A local climate change impact report 2016

Figure 128 Wind related climate events recorded per year against daily average wind speed (Mph) Selby Street, Warrington



Source: Warrignton Borough Council - A local climate change impact report 2016

Impact of extreme weather events

The impact of extreme weather events were analysed in the 2016 Local Climate Change Impact Report. The occurrence of the events were identified to have varying impacts on different people, businesses and services. The impacts of weather events are summarised below in Table40:

Table 40: Impacts of weather events on services, local populations and businesses in Warrington

Weather Type	Effect on services	Effect on population and businesses
High Winds	• Road closures, specifically the Thelwall Viaduct, affecting the ability to limit congestion in the town. • Falling trees also cause congestion and damage to buildings and infrastructure. • Can impact power/ telephone lines. • Impact emergency service response times.	• Heavily impacted travelling time. • Damage to homes and businesses. • Risk to personal safety.
Heavy rain and flooding	• High pressure on drainage, sewage pipes and water quality. • Affects bin collection and waste management. • Damage to council property, open parklands and leisure facilities. • School closures. • Land-use planning. • Impacted emergency service response.	• Damage to homes, personal belongings and businesses. • Destruction of crops and risk to live stock. • Cancellation of events. • Disruption to travel. • Risk to personal safety. • Economic impact from closures.
Ice and Snow	• Impacted public transport services. • Inability for staff to reach social care clients. • School closures. • Disruption to infrastructure.	• Restricts the ability to travel. • Risk to personal safety. • Customers cannot access businesses. • Effects business logistics e.g. deliveries
Cold Spells	• Risk of burst pipes. • Effects to roads and infrastructure.	• Risk of burst pipes. • Risk to personal safety specifically the most vulnerable: elderly, disabled, young.
Heat	• Can cause fires in public spaces, putting pressure on emergency services. • Impacting water quality and supply services. • Waste collection and management. • Swing Bridges	• Risk to public health, specifically the most vulnerable: elderly, disabled, young. • Impact levels of comfort.

Source: Warrington Borough Council - A local climate change impact report 2016

The history of extreme weather events has revealed that Warrington is most vulnerable to both high winds and heavy rain/surface water flooding equally. By observing these events, the study was able to decipher their impacts on services and communities, these are summarised below:

- Disruption of public transport and highways
- Damage to council and private property
- Risk to public safety
- Disruption of businesses and local economy
- School closures

- Impacting emergency services response time
- Hindering council services
- Impacting water quality and supply services

With the additional pressure of projected climate change, these impacts are virtually certain to become more severe in the future. An example of this is that recent scientific research states 1 in 100 events, such as Storm Desmond in 2015, are 40% more likely to occur with climate change. The study states the only way to combat this change and prevent further impacts is through the application of more advanced adaptation and resilience strategies.

6.3.4 Future, projected climate change

According to the government's UK climate change risk assessment (2012) [50], since the 1970s the UK as a whole has experienced a one degree rise in average temperature and an increase in rainfall between 3-73% (location depending). If this rise continues to occur creating an increased amount of water vapour within a warmer atmosphere, it will result in the more frequent occurrence of heavy precipitation and high wind events in the future. Recent scientific research supports this by stating extreme precipitation and high wind events with a 1 in 100 year return (such as Storm Desmond in December 2015), will see an increase in the likelihood of 40% if climate change continues to occur at its current rate[51]. The Met Office future climate predictions as seen in Table *39*41, portrays the range of expected change for temperature and precipitation at 2020, 2050 and 2080.

Although the range displayed in Table *39*41 is broad, it can be stated that temperature and precipitation will change across the North West of England and Wales within the projected parameters with a 95% confidence.

The majority of scientific research for projected climate change in the UK focuses heavily on flood risk and precipitation, making adaptation plans a vital component of current and future disaster risk reduction strategies[52]. With Warrington already vulnerable to such events, understanding the implications of climate change is crucial.

Table *39*41 portrays an increase in winter rainfall of up to 50mm by 2080 for the North West, in correlation with temperature, alongside a decrease in summer precipitation by up to 51mm in correlation with rising temperatures. Not only does this cause an increase in precipitation events during winter months, but it will also impact evapotranspiration leading to changes in flow regimes and effecting water quality and availability during the summer months [53].

[50] https://www.gov.uk/government/publications/uk-climate-change-risk-assessment-government-report
[51] Van Oldenborgh, G.J., Otto, F.E.L., Haustein, J., Cullen, H. Climate Change increases the probability of heavy rains like those of Storm Desmond in the UK – an event attribution study in near-real time. Hydrol. Earth Syst. Sci. Discuss., 12, 13197 – 13216.
[52] Alfieri, L., Feyen, L., Dottori, F., Bianchi A. (2015). Ensemble flood risk assessment in Europe under high end climate scenarios. Glob Environ Chang. 35: 199 – 212.
[53] Watts *et al.,* (2015). Climate Change and water in the UK – past changes and future projects. Progress in Physical Geography. Vol. 39 (1). 6 – 28.

Table 41*:* The range of expected change with a 95% confidence for mean summer and winter temperature (°C) and precipitation (mm) for the 2020s, 2050s and 2080s for the North West of England

		Range of Expected Change (°C)	
	Decade	Lowest	Highest
Mean Winter Temperature (°C)	2020s	0.3	2.0
	2050s	0.8	3.3
	2080s	1.3	4.8
Mean Summer Temperature (°C)	2020s	0.6	2.5
	2050s	1.1	4.7
	2080s	1.3	7.3
Mean Winter Precipitation (mm)	2020s	–4	14
	2050s	–1	27
	2080s	3	50
Mean Summer Precipitation (mm)	2020s	–23	10
	2050s	–37	8
	2080s	–51	4

Source: http://ukclimateprojections.metoffice.gov.uk/23846?emission=low
Watts et al., (2015). Climate Change and water in the UK – past changes and future projects. Progress in Physical Geography. Vol. 39 (1). 6 – 28.

From this the rising occurrence of high precipitation/ wind events for winter months, and the risk of drought and open grassland fire during the summer months in Warrington can be confidently predicted. Therefore, Warrington will likely see an enhancement of the impacts caused by these events as outlined in Table.

6.3.5 Key findings of Climate change in Warrington

The key findings of climate change in Warrington are:

- In Warrington, daily mean, maximum and minimum temperatures, days of rain and total precipitation have all increased since 1961 to 2006.
- The history of extreme weather events has revealed that Warrington is most vulnerable to both high winds and heavy rain/surface water flooding.
- Past extreme weather events have impacted Warrington in the following way:
  - Disruption of public transport and highways
  - Damage to council and private property
  - Risk to public safety
  - Disruption of businesses and local economy
  - School closures
  - Impacting emergency services response time
  - Hindering council services
  - Impacting water quality and supply services
- Scientific research indicates that extreme precipitation and high wind events with a 1 in 100 year will see an increase in the likelihood of 40% if climate change continues to occur at its current rate. Warrington's existing vulnerability to high wind and precipitation events will therefore likely increase.

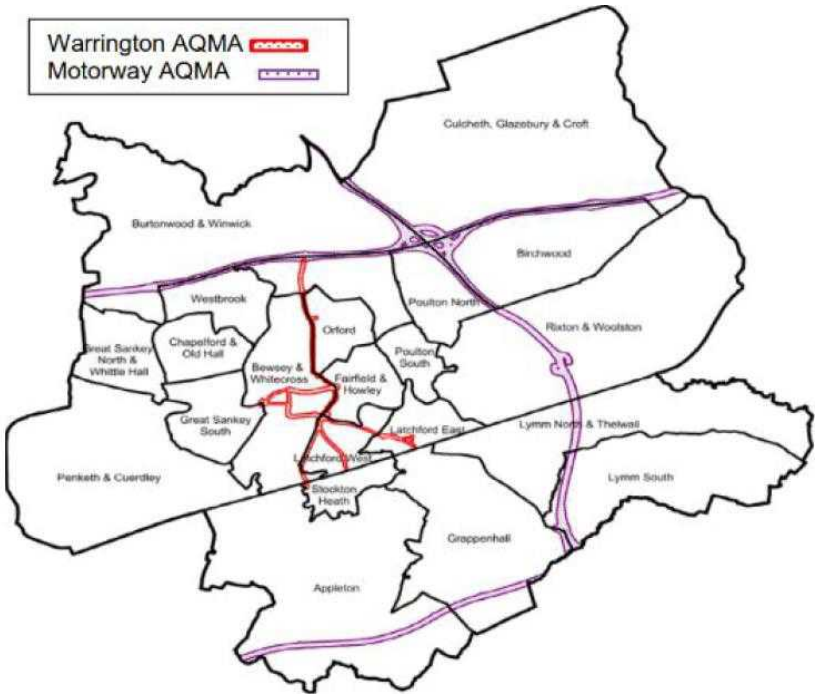
- Met Office future climate predictions see an increase in winter rainfall of up to 50mm by 2080 for the North West, alongside a decrease in summer precipitation by up to 51mm in correlation with rising temperatures

What does this mean for LTP4?
LTP4 should seek to reduce the contribution of the transport system by targeting a reduction in CO_2. The strategy should also look to include sustainable urban drainage systems in transport solutions to help mitigate the effects of extreme weather events.

6.4 Air quality

The Warrington Air Quality Action Plan (Draft - 2017) has been produced to outline how air quality in Warrington will be improved between 2017 and 2022, focusing on reducing nitrogen dioxide (NO2) levels within Warrington.
Whilst the majority of Warrington benefits from good air quality, two Air Quality Management Areas (AQMAs) are currently in place. The motorway related AQMA was designated in 2002, whilst there are areas close to the main arterial roads that lead into and around the town centre where national standards for NO2 are also being exceeded. This led to the creation of the Warrington AQMA in November 2016 (Figure 129).

Figure 129 Map of Warrington's Air Quality Management Area



Source: Warrignton Borough Council

A detailed source appointment exercise was undertaken by Warrington Borough Council this identified that within the Motorway AQMA, the percentage source contributions for nitrogen oxides (NOx) were as follows:

- Road traffic contributed to approximately 70% of annual mean concentrations
- HGVs and LGV were the dominant road traffic mode source estimated to contribute 49% of concentrations

The source apportionment also assessed primary roads within the Borough in 2002 as follows:

- Road traffic contributed to approximately 40% to 50% of annual mean concentrations
- HGVs and LGVs contribute approximately 30% of annual mean concentrations
- Buses contributed approximately 3% of concentrations

The road transport component was further refined in 2013 as part of a Low Emissions Feasibility Study and used to inform the Detailed Assessment looking at the town centre and the main arterial roads. The data shows that whilst diesel cars are the predominant source, HGV and buses contribute a disproportionate amount of NOx compared to the distance driven. This showed that within the new Warrington AQMA, traffic mode sources could be apportioned for contribution above the background as follows:

- Petrol cars contribute approximately 11% and diesel cars 50% of NOx, and account for 90% of distance driven
- HGVs and LGV contribute 20% of NOx, yet account for only 9% of distance travelled.
- Buses contribute approximately 11% of NOx yet account for only 1% of distance travelled

The Air Quality Action Plan highlights that the motorway AQMA requires a 43% reduction in NO_2, with a 41% reduction for the Warrington AQMA. To help reduce concentrations of nitrogen dioxide within the AQMAs and across the wider Borough, a three-strand approach is highlighted within the Action Plan. This incorporates:

- **Policy actions:** A review of policies and procedures used by WBC is necessary to ensure that the effect on air quality is considered in all decisions. This includes the need to review and update Sustainable Transport Strategies and Programmes to further support low carbon travel, as well as ensuring that council procurement policies encourage and prioritise the use of Low Emission Vehicles.

- **Infrastructure improvements:** A range of infrastructure improvements have been identified to promote enhanced air quality including delivery of the Burtonwood to Omega cycling/walking link and development of the Warrington Intelligent Transport System which will monitor journey times and inform road users of traffic conditions to enhance route choice and help reduce congestion. These infrastructure improvements have also been allocated targets for overall pollution reduction.

- **Additional measures:** The Air Quality Action Plan also highlights a number of additional measures which will help support improvements to Borough wide air quality including publishing an air quality webpage to provide public information including advice for individuals and schools to reduce their emissions. Most significantly, this element of the Action Plan also includes the commitment to explore the introduction of a Workplace Parking Levy and Clean Air Zone. Whilst it is recognised within the Action Plan that these two concepts should be explored through dedicated studies, this Warrington

Transformational commission will provide an early assessment of both concepts in the demand management element of the report.

6.4.1 Key findings of air quality in Warrington

- The Air Quality Action Plan highlights that the motorway AQMA requires a 43% reduction in NO2, with a 41% reduction for the Warrington AQMA.
- The Air Quality Action Plan includes the commitment to explore the introduction of a Workplace Parking Levy and Clean Air Zone.

What does this mean for LTP4?
Warrington air quality action plan looks to improve air quality. The LTP4 should support the plan by:

- Implementing transport solutions that are increasingly sustainable such as public transport, cycling and walking.
- Develop sustainable transport strategies that look to: Increase cycling and walking close to schools and colleges; and improve the quality of junctions for pedestrians and cyclists.
- Develop a public transport strategy and programme. This should: make public transport a more attractive choice for people in Warrington; improve the current fleet of buses; review legislation that can help reduce idling behaviour at the central bus station; and increases the attractiveness of rail journeys.
- Develop a cleaner fuels strategy that promotes buying and use of electric vehicles, delivers supporting infrastructure and can promotes the use of EV car clubs.
- Smarter choices strategy and programme that looks to increase participation in the above strategies by undertaking: workplace and school travel plans; use of website and social media; bus real time passenger information; and implementation of car clubs.
- Taxi strategy and programme that seeks to reduce emissions, promotes low emission vehicles and reviews anti-idling enforcement at taxi ranks.

6.5 Flood risk

Warrington Borough council carried out a Preliminary Flood Risk Assessment (PFRA) in 2016 to manage local flood risk. The PFRA provides a high level overview of flood risk from local flood sources through a review of historic flooding incidents and the predicted future extents of flooding, based on the outputs of computer models from both Warrington Borough Council and the Environment Agency.

The PFRA assess flooding in regards to surface water, ground water and ordinary watercourses. LLFAs do not need to consider the risk of flooding from the sea, main rivers or reservoirs, except where these may affect flooding from another source.
Warrington Borough Council has decided that a flood of 'significant harmful consequences' would have one or more of the following characteristics:

Table 42: Flood event in Warrington of significant harmful consequences

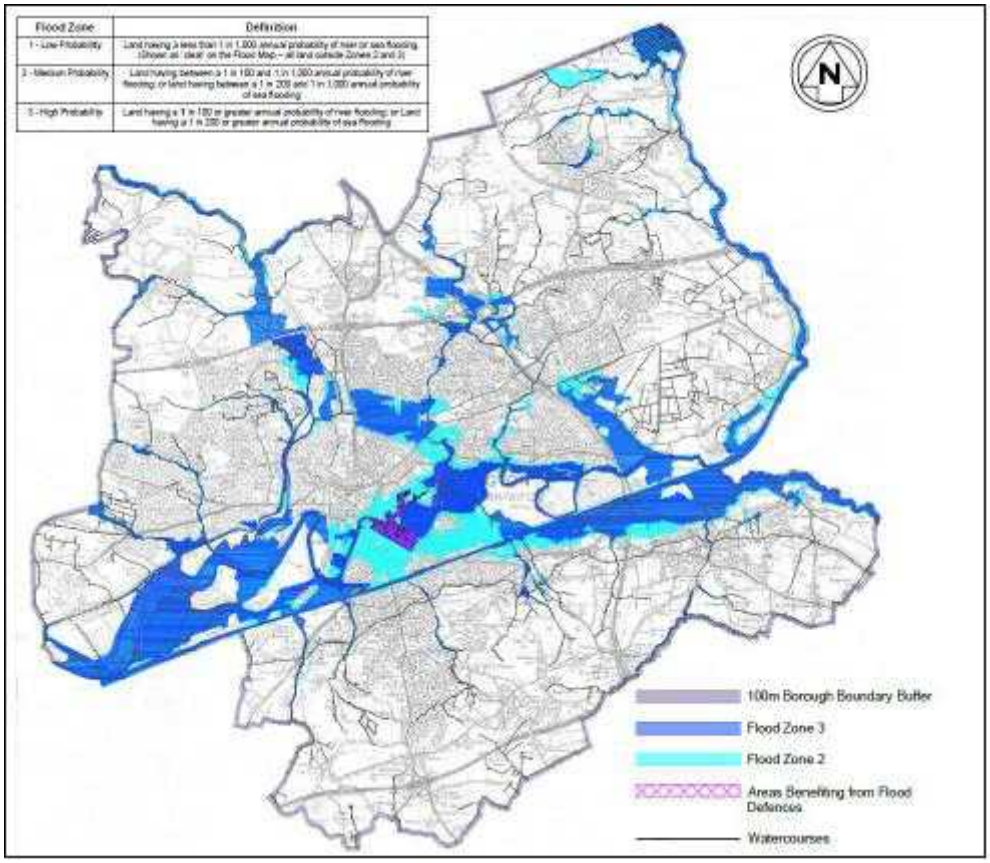
Impact of flooding on:	Category	Consequence
Human Health	Number of individuals	≥ 200
Economic Activity	Number of critical services	≥ 2
	Number of residential properties	≥ 83
	Number of non-residential properties	≥ 20

Source: Warrington Preliminary Flood Risk Assessment 2017-2023

An analysis of data available on future flood risk found that there could be flooding with adverse consequences as a result of surface water flooding. Modelling outputs provided by the environment agency indicated that up to 1032 properties (890 residents, 117 business and 25 critical services) could be at risk from surface water flooding in a 1% (1 in a 100) annual probability rainfall event.

The Environment Agency is responsible for the management of major rivers in the UK. Figure 130 shows the flood risk map for Warrington with identified Flood zones 2 and 3, with Flood Zone 3 showing the highest possibility of flooding. Warrington is at greatest risk from flooding in the south in Stockton Heath, Grappenhall and parts of Walton around the River Mersey and Manchester Ship Canal.

Figure 130 Environment Agency Flood Map of Warrington



Source: Warrington Borough Council

6.5.1 Key findings of flood risk in Warrington

The key findings of flood risk in Warrington are:

- Up to 1032 properties (890 residents, 117 business and 25 critical services) could be at risk from surface water flooding in a 1% (1 in a 100) annual probability rainfall event.
- Warrington is at greatest risk from flooding in the south in Stockton Heath, Grappenhall and parts of Walton around the River Mersey and Manchester Ship Canal.

What does this mean for LTP4?
Any future transport schemes that involve infrastructure changes should consider their proximity to flood zones identified by the Environment Agency.

LTP4 should seek to include green solutions and use of SUDS where possible. This is of particular relevance for existing and new transport infrastructure that may be introduced south of the town and in west Warrington.

6.6 Noise

Noise pollution can have a number of health implications included sleep disturbance, cardiovascular disease, elevated hormone levels and physiological problems
Potential Noise Impacts and Mitigation has been considered by Environmental Protection. A map of noise action planning areas can be seen below in Figure 131.

Typically in Warrington, first priority locations for noise action planning are located on roads with high flows, the locations are:

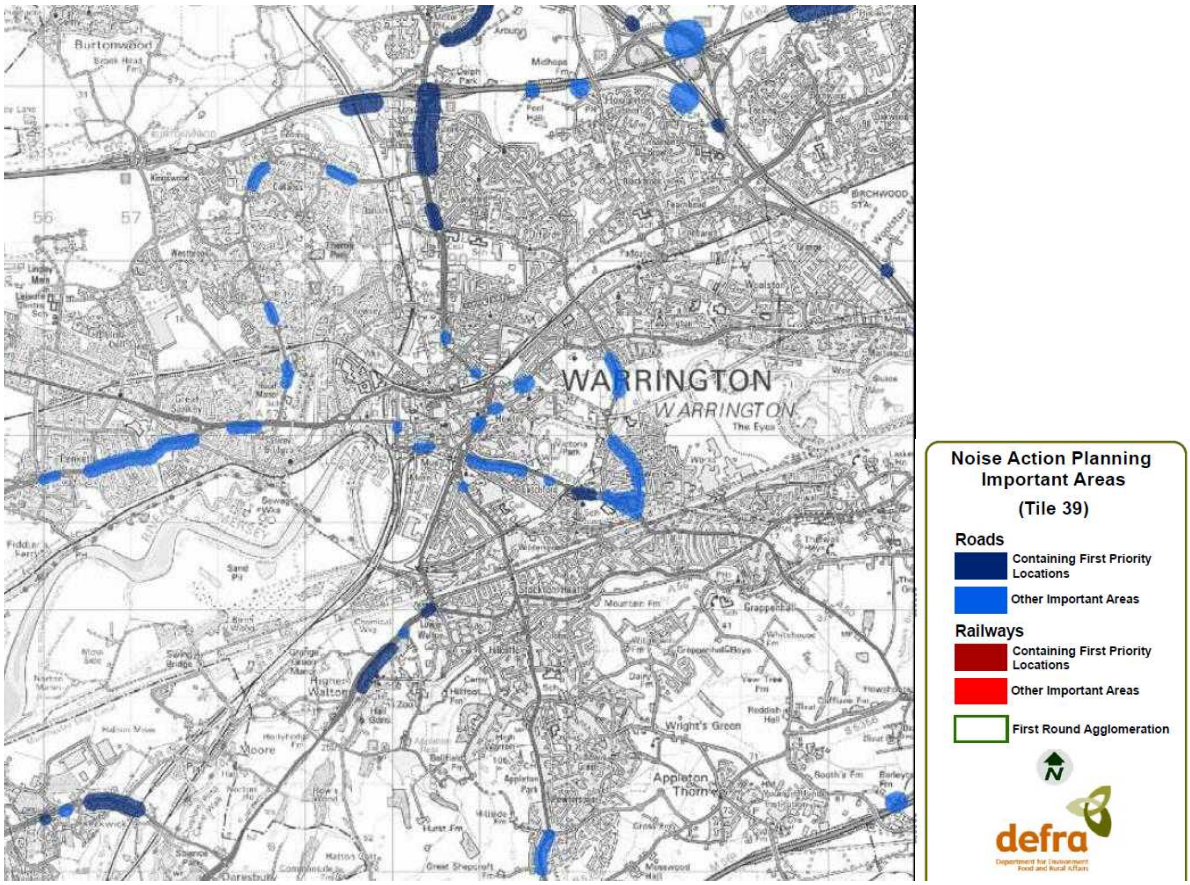
- Junction 9 and 11 of the M62
- Winwick Lane Road north of Junction 9 M62
- A49 on the approach to the Junction 9 M62
- A56 Chester Road near Higher Walton
- Knutsford Road near Latchford East

Noise action planning areas that are considered 'important areas' are also found on roads with substantial traffic flow. These are located:

- A57 Sankey Way
- Cromwell Avenue
- Within the town centre at Wilson Pattern Street and Mersey Street
- Knutsford Road
- A50 Kingsway street
- M62 Junction 10 /Junction 21A

Locations for noise action planning are located on roads with high flows that suffer from congestion and also see substantial HGV flows. These locations also occur in residential areas with high population density such as Great Sankey; Latchford; Callands; Hulme; and the town centre. Therefore, a reasonably large proportion are within close proximity to noise action planning areas.

Figure 131 Warrington Noise Action Planning Areas



Source: DEFRA Noise Action Planning Important Areas (Tile 39)

What does this mean for LTP4?

LTP4 should look to manage and reduce the effects of noise pollution arising from transport by introducing policy that can:

- Reduce traffic volumes and congestion;
- Redirect freight movements to low populous areas;
- Improvements to infrastructure that can dampen the impact of noise e.g. low noise road surfaces, noise barriers and soundproofing;
- Where appropriate, traffic calming and management; and
- A cleaner fuels strategy that advocates the use of EV technology.

Transport Planning and Development Control
Warrington Borough Council
New Town House
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WARRINGTON
Borough Council

WARRINGTON Borough Council

Equality Impact Assessment Form

PART 1 – Description

Directorate: Environment and Transport **Department**: Transport for Warrington

Assessment Lead Officer: Adam Graham **Email**: adam.graham@warrington.gov.uk **Telephone Number**: x2205

Name of the Service/Policy/Service Change: Fourth Local Transport Plan (LTP4)

Date of Assessment:- December 2019

Background Information and Context:
Transport is an essential part of our lives as it connects us with jobs, education, healthcare, shopping and leisure. It is a key component of the economy as it links businesses with their workers, customers and clients, whilst providing for the delivery of goods. Transport shapes our neighbourhoods and influences our lifestyles. Our choice of transport impacts on us as individuals and on our wider environment.
The Local Transport Plan helps us to address current and future local transport issues by providing a framework for decisions on future investment, it:

1. sets objectives for transport to support our wider goals and ambitions
2. establishes policies to help us achieve these objectives
3. contains plans for implementing these policies

2. Details of the Service/Policy/Service Change?
As a transport authority, Warrington Borough Council has a statutory duty under the Transport Act 2000, as amended by the Local Transport Act 2008, to produce a Local Transport Plan (LTP) and to keep the plan under review. LTP4 will replace the third Local Transport Plan that was adopted in April 2011. National, Regional, and Local policies and priorities have changed significantly in the time since LTP3 was adopted. To ensure that the LTP remains a relevant useful document it is vital that the objectives and policies that we have adopted are reflective of the wider policy environment.
The Local Transport Plan is not assessed by or reported on to Central Government. We are accountable to our local community for its quality and delivery. It is therefore vital that this plan reflects the aspirations and priorities of the residents and businesses of Warrington.

3 Links to General Equality Duty
The commissioning of this service will help the council have due regard to the general equality duty by providing equal opportunities for all residents and communities to access a wide range of travel opportunities to enable them to travel easily and safely around the borough. In addition the Local Transport Plan aims to eliminate unlawful discrimination by providing accessible travel options.

PART 2 - Equality Impact Assessment

Equality Group or Protected Characteristic	People Profile	Consultation Statistics & comments. Identify gaps in feedback, have all relevant equality and geographical groups responded?	Type of Impact Positive, negative or no impact.	Action/s Required. To include additional consultation activities if gaps have been identified.
Age (children, young people, working age and older people)	Warrington's population and projected population trends based on Office for National Statistics Mid-Year 2017 estimates:- • The resident population estimate was 209,700. • The 0-15 population is 39,800 (19% of the total); 16-64 population is 131,600 (63% of the total), 65 and over population is 38,300 (18% of the total). • Whilst Warrington's 0-15 population is projected to grow at a slower rate than England and Wales (3.0% compared to 4.9%), Warrington's 65 and over population is projected to grow at a higher rate (20.7% compared to 19.4%). Warrington's working age population (aged 16 to 64) is estimated to increase by 0.5. The population of children aged 0-15 in Warrington is estimated at 39,800 (19% of Warrington's population). The median age is 41, and the largest age group, by 5-year band, is the 50-54 age group (16,600) accounting for 7.9% of the total Warrington population.	**Children & Young People** Only five consultation responses were received from people identifying their ages as 'Below 16' (4 responses) and '16-24' (1 response). All five of these respondents submitted comments outlining that they do not support the LTP as it is not a detailed delivery plan for the infrastructure that is required to support growth proposed in the Local Plan. This was common amongst all age groups and is considered in more detail in the consultation report.	**Children & Young People** LTP 4 is intended to have positive impact on children and young people today but, more significantly, children and young people in the future. The vision includes proposals to transform transport across Warrington over the next twenty years. This will encourage the use of new and healthier ways of travelling. The vision will reduce the emissions from vehicles and the harmful affect that these can have on the health of young children. In the shorter term, the Plan sets out our policies on improving walking and cycling in the borough, and encouraging healthier ways of traveling to school. These policies will encourage healthier lifestyles amongst children and young people.	**Children & Young People** Whilst the response rate from young people is low, it is not proposed that any further consultation with them is required on this strategy document. Future consultation on more detailed proposals from the Vision, and on specific schemes, should consider views from people of all ages.
		Working age adults 132 responses to the consultation were received from people stating their age as being between 25 and 64. Amongst this age group there is a low level of support for the overall vision. This is reflective of the general view and is considered in more detail in the Consultation Report. There is a stronger level of support amongst working age adults for more	**Working age adults** The LTP4 is intended to have a positive impact on working age adults. As part of its overall vision to transform transport in Warrington, LTP4 sets a target to change the way that Warrington residents travel to work. This target will only be met through a package of transformative measures that will provide people with more choice for their journey to work, and all other journeys.	**Working age adults** There is an expectation set out in LTP4 that behaviour change is key to successfully delivering our vision. This will not always be popular at the outset. We will consult with, and consider the needs of, people of all

Equality Group or Protected Characteristic	People Profile	Consultation Statistics & comments. Identify gaps in feedback, have all relevant equality and geographical groups responded?	Type of Impact Positive, negative or no impact.	Action/s Required. To include additional consultation activities if gaps have been identified.
		specific aspects of the vision, notably Walking and Cycling, and Local Public Transport improvements.	This will address the current challenges relating to congestion and air quality; and support a more pleasant, less car-dominated local environment that can be enjoyed by people of all ages.	ages as work is done to develop the ideas proposed in LTP4.
		Older People 20 consultation responses were completed by people stating that they were aged 65 or over. Amongst this age group there is a low level of support for the overall vision, reflecting the general findings of the consultation. There is a strong level of support amongst older people for the Plan's objectives. There is a strong level of support for improvements to walking and cycling amongst this age group and the majority are supportive of bus infrastructure improvements and proposals to investigate a mass transit network.	**Older People** The proposals set out in LTP are intended to have a positive impact on people of all ages who use the transport systems in Warrington. This includes today's older people but also, because many of the outlined proposals are long term, those residents and visitors who will be in this age category in the future. The vision includes proposals to transform transport across Warrington over the next twenty years. This will encourage the use of new and healthier ways of travelling. The vision will reduce the emissions from vehicles and the harmful affect that these can have on the health of older people. As Warrington's older population is projected to grow at a higher rate than the England and Wales average, ensuring that our transport network is accessible for older people will be increasingly important. LTP 4 includes a policy that We will ensure that all new public transport infrastructure complies with	**Older People** Future consultation on more detailed proposals from the Vision, and on specific schemes, should consider views from people of all ages.

Equality Group or Protected Characteristic	People Profile	Consultation Statistics & comments. Identify gaps in feedback, have all relevant equality and geographical groups responded?	Type of Impact Positive, negative or no impact.	Action/s Required. To include additional consultation activities if gaps have been identified.
			Equalities legislation, and seek to upgrade existing infrastructure where necessary. Prevention of trips and falls amongst pedestrians also becomes increasingly important with and ageing population. The Asset Management section of LTP4 sets out our policies for maintaining all of our transport assets	
Disability (physical or sensory impairments, and mental health) **Learning Disability and Autism**	**Adults** In 2017-18 the council provided long term support for 1351 (38.5%) men and 2159 (61.5%) women making a total of 3510. 67.1% (2354) were aged 65+ and 32.9% (1156) were aged 18-64. Long term support provided comprised of; • Physical Support 2025 (57.7%) • Learning Disability 509 (14.5%) • Mental Health 615 (17.5%) • Sensory Support 53 (1.5%) • Memory & Cognition 222 (6.3%) • Other 86 (2.5%) <u>Personal Independence Payments</u> - In April 2018 11,613 people comprising of 5,508 men and 6,105 women were registered to receive personal independence payments. <u>Carers –</u> For the period 1/4/17 to 31/3/18 the total number of carers	During the consultation period 13 responses were received from people who stated that they have a disability. These included • 8 with a physical impairment, • 4 with a sensory impairment • 2 with a long standing illness • 2 with a mental health condition No responses were received from people identifying as being on the Autistic Spectrum, or having a learning disability/difficulty. As part of the consultation process, a presentation was given at the Staying Connected meeting that is hosted by the Disability Partnership. This provided a particularly useful insight into the unique problems that people with a disability have in travelling around Warrington and the wider area. There is a stronger level of support for the LTP4 vision amongst disabled respondents than amongst the wider population.	The proposals set out in LTP4 are intended to have a positive impact on all people who travel around Warrington. Making Warrington a more disabled friendly place is one of the objectives of the Plan. The vision of the plan is to provide people with more choice about how they travel around Warrington. It is, however, important, that the needs of disabled people for whom these choices may be more limited are considered in the future. A report released by Scope revealed that 47% of Disabled people have suffered some form of discrimination or abuse whilst using public transport. LTP4 contains a Passenger Transport Policy that we will seek to ensure that that the environment at public transport stops is designed to minimise opportunities for anti-social behaviour and increase passengers' sense of security. The Safer Travel chapter of LTP4 outlines	The LTP Vision statement has been amended to include the word 'accessible' as a response to a consultation comment regarding the importance of access for all. It is important that we continue to engage with disabled people, particularly through the Disability Partnership, to ensure that the unique challenges that people can face is considered in future projects. There was a low level of support for Workplace Parking Levy amongst disabled respondents.

Equality Group or Protected Characteristic	People Profile	Consultation Statistics & comments. Identify gaps in feedback, have all relevant equality and geographical groups responded?	Type of Impact Positive, negative or no impact.	Action/s Required. To include additional consultation activities if gaps have been identified.
	receiving direct payment was 3313. 821 carers received respite or another form of carer support **Children and Young People** As of January 2018, there were 3,901 pupils with special educational needs and/or disabilities– 12% of the school population. 8.3% (2,698) of pupils received SEN Support in school. There are 1,562 children and young people (0-25 years) with an Education and Health Care Plan. The most commonly primary needs recorded on the plans were; moderate learning difficulty (378 pupils, 24%) and Autistic Spectrum Disorder (356 pupils, 23%). As at March 2018 there were 284 young carers registered for the contracted carer support service, WIRED		our commitment to increasing security for all road users. This aims to create an environment in which all people travelling in Warrington feel safe doing so.	Any future work on Workplace Parking Levy must consider the needs of disabled people who rely on a car to access employment
Gender Reassignment (person proposing to undergo, is undergoing or has undergone	Local information on the number of transgender people living in Warrington is not available. There are no official statistics nationally or regionally regarding transgender populations. In 2018 the Government Equalities Office estimated that there were approximately 200,000 to 500,000 transgender people in the UK. Government statistics show that	No respondents to the consultation identified as having a gender identity that was not the same as they were assigned at birth**.**	The proposals set out in LTP4 are intended to have a positive impact on all people who travel around Warrington. LTP4 contains a Passenger Transport Policy that we will seek to ensure that that the environment at public transport stops is designed to minimise opportunities for anti-social behaviour and increase passengers'	All households in the borough were sent a letter inviting them to comment on LTP4 as part of the consultation process. Therefore no further engagement specific to any individuals or groups that identify as

Equality Group or Protected Characteristic	People Profile	Consultation Statistics & comments. Identify gaps in feedback, have all relevant equality and geographical groups responded?	Type of Impact Positive, negative or no impact.	Action/s Required. To include additional consultation activities if gaps have been identified.
reassigning their sex)	4,910 transgender people have been issued with a gender recognition certificate.		sense of security. The Safer Travel chapter of LTP outlines our commitment to increasing security for all road users. This aims to create an environment in which all people travelling in Warrington feel safe doing so.	having a different gender to that assigned at birth is considered necessary
Marriage and Civil Partnership	The latest local information is contained within the 2011 Census. 31.4% of the population were single, 49.7% were married, 0.1% in same sex civil partnership, 2.4% were separated, 9.4% were divorced and 7.0% were widowed. In 2017-18 the Council's registrar's team conducted 468 civil marriages in the register office or approved civil venues, of those 455 were marriages of opposite sex couples and 13 same sex couples. There were a small number of civil partnerships and a small number of civil partnerships were converted into marriages	Of all of the respondents that completed the consultation questionnaire question on relationship status: • 69 % were married • 8% were single • 9% were co-habiting • 3% were divorced • 2% were widowed No respondents described themselves as being separated, in a same sex marriage, or in a same sex civil partnership.	The proposals set out in LTP4 are intended to have a positive impact on all people who travel around Warrington, regardless of their relationship status.	All households in the borough were sent a letter inviting them to comment on LTP4 as part of the consultation process. Therefore no further engagement specific to any group or individual based on their relationship status is considered necessary.
Pregnancy and maternity (the rights of a woman and her maternity leave)	According to the Office for National Statistics in 2017 the birth rate in Warrington was 10.2% which is slightly below the North West at 11.5% and England and Wales at 11.6%. The figure for Live births to non-UK born mothers in Warrington in 2017 counts for 15.4% of births, while the UK figure stands at 27.	Only two consultation responses were received from people who described themselves as being pregnant or having been in the last year. From this small sample size it is difficult to identify any trends in responses that relate to pregnancy	The proposals set out in LTP4 are intended to have a positive impact on all people who travel around Warrington	All households in the borough were sent a letter inviting them to comment on LTP4 as part of the consultation process. Therefore no further engagement specific to any group or individual based on recent pregnancy is considered necessary

Equality Group or Protected Characteristic	People Profile	Consultation Statistics & comments. Identify gaps in feedback, have all relevant equality and geographical groups responded?	Type of Impact Positive, negative or no impact.	Action/s Required. To include additional consultation activities if gaps have been identified.
Race (include nationality, ethnicity inc. Gypsy and Travellers)	Adults - Current detailed local information on race and ethnicity is not available (the last Census was published in 2011). A summary of Warrington's migration trends in 2017 follows:- • Warrington's long-term international net migration1 is -0.3 per 1,000 residents compared to 3.5 in the UK as a whole. • In 2017 the rate for the number of Non-UK born residents per 1,000 local people in Warrington was 62.8 just below the North West rate at 65.7 and below the UK rate at 101.5 per 1,000 local people. • New migrant GP registrations in Warrington is 6.9 people per 1,000 residents compared to 11 people in the UK as a whole. • National Insurance numbers registrations to non-UK nationals equates to 11.6 people in Warrington per 1,000 residents compared to the UK figure of 16 people per 1,000 residents.	Of the 150 respondents that answered the question on ethnic origin, 91.33% of respondents identified as 'WHITE - English / Welsh / Scottish / Northern Irish / British.	The proposals set out in LTP4 are intended to have a positive impact on all people who travel around Warrington, regardless of race or ethnic origin. Nationally, the number of race hate crimes recorded by British Transport Police increased from 1,453 to 2,566 between 2013 and 2017[2]. The Safer Travel chapter of LTP outlines our commitment to increasing security for all road users. This aims to create an environment in which all people travelling in Warrington feel safe doing so.	All households in the borough were sent a letter inviting them to comment on LTP4 as part of the consultation process. Therefore no further engagement specific to any group or individual based on their race or ethnic origin is considered necessary. Bewsey and Whitecross is Warrington's most ethnically diverse ward. Engagement from the Central Area Masterplan identified "improved accessibility" as the priority for transport amongst residents of this ward.

[1] Net migration is the balance between immigration (those entering the UK for a year or more) and emigration (those leaving the UK for a year or more).
[2] https://www.independent.co.uk/news/uk/crime/hate-crimes-public-transport-homophobic-religion-racist-uk-attacks-tube-train-bus-a8291761.html

Equality Group or Protected Characteristic	People Profile	Consultation Statistics & comments. Identify gaps in feedback, have all relevant equality and geographical groups responded?	Type of Impact Positive, negative or no impact.	Action/s Required. To include additional consultation activities if gaps have been identified.
	• The 2018 Traveller caravan count showed that there were 40 caravans in Warrington <u>Children and Young People</u> According to the January 2018 School Census, 8% of the school population do not have English as their first language. The ward with the highest proportion of BME pupils is Bewsey and Whitecross at 26.8%, a quarter of all pupils do not have English as their first language. Other wards with relatively high proportions include Fairfield and Howley, Orford and Latchford East. In Warrington, Polish Urdu and Chinese are the main languages spoken as a first language other than English, Latvian, Kurdish Hungarian and Romanian also featured with 80 or more pupils having these as a first language other than English			
Religious / Faith Groups (specify group)	At the time of the 2011 Census there was a larger proportion of Christians living in Warrington than in the North West and England and Wales. People with no religion account for the next highest group locally, regionally and nationally. In 2011 1% (2,100 residents) of the population were Muslim, 0.6% (1,100 residents) of the population were Hindu	144 respondents answered the question on their religion or belief. Of these, 57 declared no religion or belief, 69 were Christian, and 18 preferred not to say.	The proposals set out in LTP4 are intended to have a positive impact on all people who travel around Warrington, regardless of their religion or faith.	All households in the borough were sent a letter inviting them to comment on LTP4 as part of the consultation process. Therefore no further engagement specific to any group or individual based on their religion or faith is considered necessary

<table>
<tr><th>Equality Group or Protected Characteristic</th><th>People Profile</th><th>Consultation Statistics & comments. Identify gaps in feedback, have all relevant equality and geographical groups responded?</th><th>Type of Impact
Positive, negative or no impact.</th><th>Action/s Required. To include additional consultation activities if gaps have been identified.</th></tr>
<tr>
<td>Sex
(men, women and gender non-conforming)</td>
<td>49.6% (104,100) of the population are men. 50.4% (105,600) of the population are women. The male population is larger than the female up to the age band of 20 – 24 (29.9% of males compared to 27.4% of females). The female population is larger in the older age bands. In the age band 65 – 69 there are more females than males (19.8% compared to 16.7% respectively).</td>
<td>Of the respondents that answered the equalities questions, an even split was recorded between responses from males (47.47%) and females (48.73%).

Notable issues raised through the consultation comments regarding gender related to the aspiration to reduce the number of trips made by car. These included:

• a sense that females would feel more vulnerable walking, cycling, or using public transport, particularly at night
• the impact that discouraging car use can have on mothers doing the school run and then travelling to work.

There is less support for the LTP vision and proposals amongst females than there is amongst males, as shown below:

<table>
<tr><th>Question</th><th>Female</th><th>Male</th></tr>
<tr><td>Vision (% agree or strongly agree)</td><td>25%</td><td>40%</td></tr>
<tr><td>WPL (% support)</td><td>22%</td><td>39%</td></tr>
<tr><td>Walking and Cycling Vision (% agree or strongly agree)</td><td>70%</td><td>77%</td></tr>
<tr><td>Mass Transit (support)</td><td>37%</td><td>62%</td></tr>
</table>
</td>
<td>The proposals set out in LTP4 are intended to have a positive impact on all people who travel around Warrington, regardless of gender.

The Safer Travel chapter of LTP outlines our commitment to increasing security for all road users. This aims to create an environment in which all people travelling in Warrington feel safe doing so.</td>
<td>Consultation feedback suggests that the way that people use our transport network can vary according to gender, with the suggestion that mothers in particular undertake more linked trips (e.g. home to school to work). As a result of this it is felt that behaviour change and reducing car use could have a detrimental effect on women.

Future work, particularly on the Workplace Parking Levy, should consider this impact further.

This issue is addressed in the LTP Smarter Travel Choices chapter, where we set out our commitment to develop programmes to support all sections of the community to become more physically active by using active travel and public transport.</td>
</tr>
</table>

Equality Group or Protected Characteristic	People Profile	Consultation Statistics & comments. Identify gaps in feedback, have all relevant equality and geographical groups responded?	Type of Impact Positive, negative or no impact.	Action/s Required. To include additional consultation activities if gaps have been identified.
Sexual Orientation	Local population data is not available for sexual orientation. The Office for National Statistics estimates for sexual orientation in the UK in 2017 are as follows:- • The proportion of the UK population aged 16 years and over identifying as heterosexual or straight has decreased from 94.4% in 2012 to 93.2% in 2017. • Over the last five years, the proportion of the UK population identifying as lesbian, gay or bisexual (LGB) has increased from 1.5% in 2012 to 2.0% in 2017. • In 2017, there were an estimated 1.1 million people aged 16 years and over identifying as LGB out of a UK population aged 16 years and over of 52.8 million. • Males (2.3%) were more likely to identify as LGB than females (1.8%) in 2017. • People aged 16 to 24 years were most likely to identify as LGB in 2017 (4.2%), a higher proportion than for other older age groups.	Of the 124 consultation respondents who opted to identify their sexuality, 120 identified as 'Heterosexual/straight', one as 'Lesbian/Gay woman', and three as 'Gay man'	The proposals set out in LTP4 are intended to have a positive impact on all people who travel around Warrington, regardless of sexual orientation. Nationally, the number of gay, lesbian or bisexual people attached on the road and rail network trebled from 139 in 2013 to 416 in 2017[3]. Commons Library[4] documents reveal that the Cheshire Police force area was in the top 10 areas for offence rates of hate crime incidents targeting people because of their sexual orientation in 2017/18. The Safer Travel chapter of LTP outlines our commitment to increasing security for all road users. This aims to create an environment in which all people travelling in Warrington feel safe doing so.	All households in the borough were sent a letter inviting them to comment on LTP4 as part of the consultation process. Therefore no further engagement specific to any group or individual based on their sexual orientation is considered necessary

[3] https://www.independent.co.uk/news/uk/crime/hate-crimes-public-transport-homophobic-religion-racist-uk-attacks-tube-train-bus-a8291761.html
[4] https://commonslibrary.parliament.uk/home-affairs/crime/hate-crimes-what-do-the-stats-show/

Equality Group or Protected Characteristic	People Profile	Consultation Statistics & comments. Identify gaps in feedback, have all relevant equality and geographical groups responded?	Type of Impact Positive, negative or no impact.	Action/s Required. To include additional consultation activities if gaps have been identified.
	69.4% of people who identified themselves as LGB had a marital status of single (never married or in a civil partnership).			

SECTION 3: Monitoring and Review

Who will be responsible for monitoring and reviewing the service, policy, service change (please delete as appropriate)?

Responsible Officer:……Adam Graham…….…… Job Title: …Principal Transport Planner……...

Directorate:…Environment and Transport…….. Department:…Transport Planning and Development Control

Telephone Number: x2205…… Email: …adam.graham@warrington.gov.uk……

Date to be reviewed: …Annually…….

Authorisation

Service Manager Signature: ……..… Date: ……

Assistant Directors Signature: …….. Date: ……..…

AECOM

Strategic Environmental Assessment (SEA) of the Warrington Draft Local Transport Plan 4 (LTP4)

Environmental Report

March 2018

Updated September 2019

WARRINGTON
Borough Council

Quality information

Prepared by	Checked by	Approved by
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Prepared for:

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CONTENTS

1. Background

1.1 Introduction to the Environmental Report

This document is a Strategic Environmental Assessment (SEA) Environmental Report. It has been prepared to document the SEA process which has been undertaken to support the preparation of the Warrington Local Transport Plan 4 (LTP4).

The Local Transport Plan 4 (LTP4) sets out Warrington Borough Council's vision and strategy for the long term development of transport solutions in the borough. It will provide the framework for how transport will support the economic, social and environmental development of Warrington over the plan period and will replace the existing local transport plan (LTP3).

The new plan will draw on the wider policies of the council, national transport strategy / policy, and potential sources of funding streams.

The LTP4 will be made available for consultation, accompanied by this Environmental Report which documents the SEA process.

1.2 SEA explained

SEA is a mechanism for considering and communicating the likely significant effects of an emerging plan, and reasonable alternatives in terms of key environmental issues. The aim of SEA is to inform and influence the plan-making process with a view to avoiding or mitigating negative environmental effects and maximising positive effects.

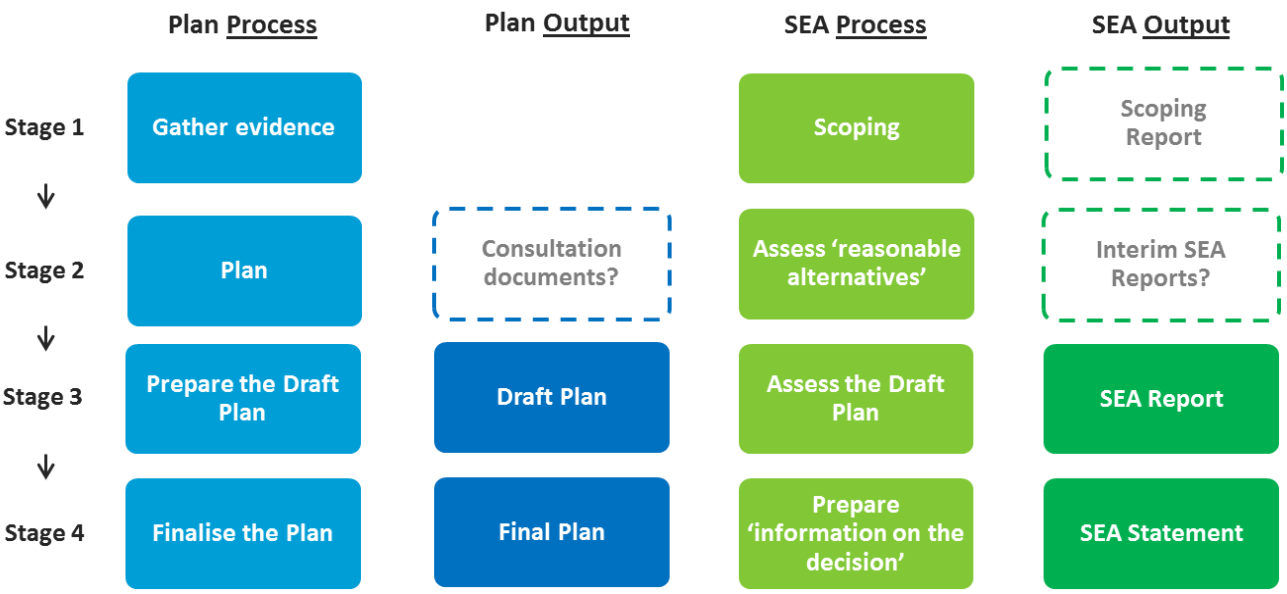
The European Directive 2001/42/EC1 requires certain plans to be subject to a Strategic Environmental Assessment (SEA). This Directive is realised in the UK through Statutory Instrument 2004 No. 1633: The Environmental Assessment of Plans and Programmes Regulations 2004 (otherwise known as the SEA Regulations).

These Regulations require an environmental assessment to be carried out on certain plans and programmes prepared by public authorities that are likely to have a significant effect upon the environment. Certain plans, including LTP's, have been deemed by the Government to automatically require an SEA. Warrington's LTP4 is therefore subject to a full SEA in line with the requirements of the SEA Regulations.

As illustrated in Figure 1.1 below, SEA can be viewed as a four-stage process that produces a number of statutory and non-statutory outputs.

[1] Directive 2001/42/EC: http://ec.europa.eu/environment/eia/sea-legalcontext.htm

Figure 1.1 – SEA as a four step process

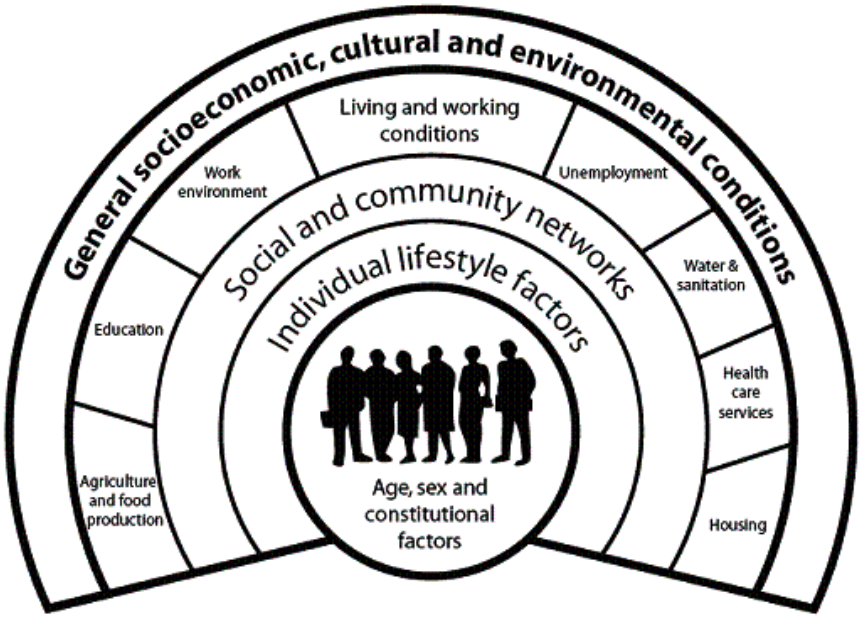


1.3 Assessing the impact on health and wellbeing

Health and wellbeing is one of the sustainability themes and is therefore included within the sustainability appraisal. Whilst undertaking a full Health Impact Assessment (HIA) is not a mandatory requirement, given the potential for the LTP4 to influence health and wellbeing, building in the principles and methods of HIA can help support the rigorous assessment of the health and social implications of the plan and related policies.

HIA can be a valuable tool for helping to develop policy and to provide recommendations as to how the health benefits can be enhanced and how negative consequences on health can be minimised. The HIA will consider the impact on all determinants of health as illustrated in Figure 1.2

Figure 1.2 Health Determinants



2. Introduction to Scoping

2.1 Background

In essence, scoping is the process of gathering information about the area and factors likely to be affected by the Plan. This information helps to identify what the key issues are and which of these should be the focus of the SEA process.

The scope of the SEA must be set out in an environmental report, with several key requirements emanating from the SEA Regulations. To ensure that these requirements are met, a Scoping Report was prepared and consulted upon from July - August, 2018.

The scoping report addressed the following elements, which are requirements of the SEA process.

Providing an outline of the Plan

There is a need to set out the aims and objectives of the Plan to provide the context within which the SEA is being undertaken.

Establishing the current and projected baseline

An important step when seeking to establish the appropriate 'scope' of an SEA involves reviewing the situation now for a range of environmental issues.

Doing so helps to enable identification of those key environmental issues that should be a particular focus of the appraisal, and also helps to provide 'benchmarks' for the appraisal of significant effects.

Just as it is important for the scope of SEA to be informed by an understanding of the current baseline conditions, it is also important to ensure that thought is given to how baseline conditions might 'evolve' in the future under the no plan / business as usual scenario. Doing so helps to enable identification of those key sustainability issues that should be a particular focus of the appraisal, and also helps to provide 'benchmarks' for appraising significant effects.

Undertaking a contextual review

Another key element of the scoping process is to undertake a review of national, regional and local policies, plans and programmes. The aim of this exercise is to draw out any key issues and environmental protection objectives that ought to be a focus of the SEA.

Establishing key issues

Key issues are drawn from the contextual review and baseline analysis, helping to inform the development of an SEA Framework of objectives and criteria. This provides the methodology for undertaking the environmental assessments.

3. Establishing the scope of the SEA

3.1 Introduction to the scope

This chapter sets out the scope of the SEA, establishing the key messages for a range of environmental factors that should be considered in the appraisal of the LTP4.

The scope of the SEA has been drawn upon from the SA Scoping Report published in 2017 to support the emerging Warrington Local Plan Review. Although this information was gathered in the context of the Local Plan review, much of the information is relevant to the LTP4 and it is therefore an appropriate and useful starting point when establishing the scope.

It is important to refresh the scope of the SEA over time to reflect new policies and programmes that emerge and to make updates to the baseline position. Given that the scoping information has been gathered from the Local Plan SA Scoping Report (as a starting point); it was necessary to undertake a more focused scoping exercise that reflects the aims of the LTP4.

To provide a structure to the scoping process and avoid duplication of evidence, the scope of the SEA has been presented within one of eight themes (listed below).

These themes and topics have been identified by grouping similar environmental factors together. How these themes link with the proposed issues identified in Schedule 2(6) has also been identified *(in brackets*).

Environmental themes and topics covered							
Economy & regeneration *(material assets)*	**Health and Wellbeing** *(human health, population)*	**Accessibility** *(Climatic factors)*	**Housing** *(material assets)*	**Natural Resources** *(soil ,water, air)*	**Cultural Heritage** *(cultural heritage, landscape)*	**Biodiversity and Geodiversity** *(biodiversity , flora , fauna, landscape)*	**Climate Change and resource use** *(climatic factors, material assets)*
- Employment	- Health and wellbeing	- Accessibility	- Housing	- Water	- Cultural heritage	- Biodiversity	- Energy
- Education	- Community safety			- Soil and land	- Landscape character	- Geodiversity	- Climate change
- Regeneration	- Population			- Air quality	- Townscape		- Waste
	- Green infrastructure						- Resilience

NB: it should be noted that there are links between different 'topics' and that some information could cut across (or be relevant to) several themes.

3.2 Introduction to the Plan

Five strategic priorities have been established which have informed the vision for the LTP4. These are as follows:

Health - Transport improvements in Warrington will contribute to improved health and wellbeing of residents.

Air quality and noise - Transport improvements in Warrington should improve Air Quality and reduce noise in the borough.

Reducing carbon - Transport choices in Warrington will be further developed to reduce the emission of Carbon Dioxide and other Greenhouse Gases.

Housing growth - Transport improvements in Warrington will be developed and delivered to support housing growth and development.

Economic growth - Warrington's transport and highway networks will continue to support the creation and retention of jobs in the borough.

The vision set out in the draft LTP4 is as follows:

''Warrington will be a thriving, attractive and well-connected place with popular, high quality walking, cycling, and public transport networks''

Following Consultation on the draft LTP4 the vision was amended as follows:

''Warrington will be a thriving, attractive, accessible and well-connected place with popular, high quality walking, cycling, and public transport networks; supporting our carbon-neutral future''

These changes bring the importance of climate change mitigation to the forefront, which is a positive change in relation to a range of SEA objectives.

3.3 Economy and regeneration

Contextual review

The ***NPPF*** outlines that the planning system should contribute to building a strong, responsive economy by 'ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure' [2]. This has links to the new transport plan as there will be a need for transport infrastructure to support new development.

The **Northern Powerhouse strategy**[3] sets out how the government will work with local stakeholders to increase productivity and economic growth across the North of England. It outlines a commitment by the government to invest in transport infrastructure, support the growth of skills, innovation and businesses and to establish a strong 'Northern Powerhouse' brand that is well recognised around the world.

In 2013 the Council published '*Warrington Means Business'*, its programme to promote economic growth and regeneration, updating the earlier 2009 Warrington Regeneration Framework. The Warrington Means Business programme identifies major development and regeneration schemes and complements this with wider plans to upgrade local and strategic infrastructure, to enhance the quality of Warrington's residential and natural environment and a package of softer measures to support new and existing businesses.

The Warrington Means Business programme is being delivered by Warrington & Co (Warrington's urban regeneration partnership). Warrington & Co brings together the private and public sector to promote economic development and physical regeneration under the guidance of a private sector led board.

Employment: the current and projec ted baseline

As of March 2016, 80.7 % of economically active people in Warrington were in employment. This represents an increase of 2.8% since December 2014 (77.9%).

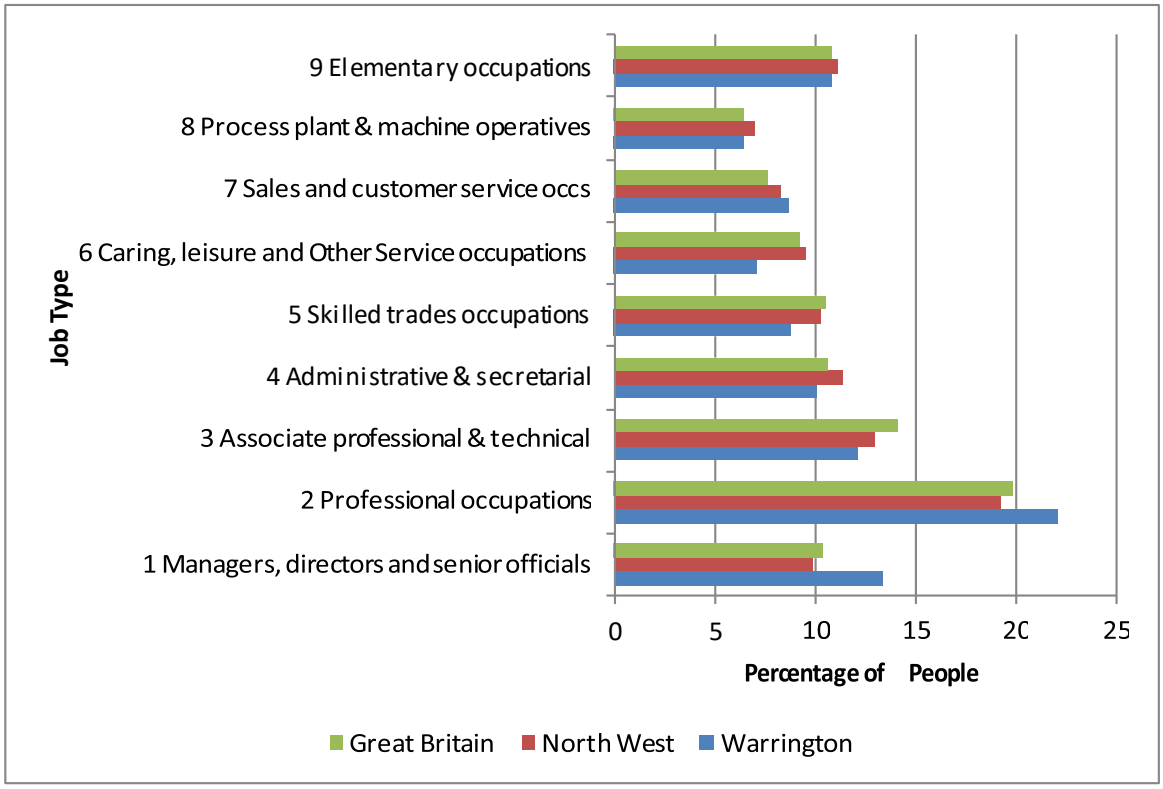
The rate of economically active people in Warrington compares well with the rest of the North West (75.5%) and Great Britain as a whole (77.8%). Unemployment levels (4%) were also lower than in the North West (5.3%) and Great Britain (5.1%)[4].

The types of occupation taken in Warrington are shown in **Figure 3.1**. The job types are divided into Standard Occupational Classification (Soc) groups. Warrington has a lower percentage of lower classification jobs, except elementary occupations, than both the North West and Britain. It has considerably more people in professional occupations than the North West and is on a similar level with Britain and the North West for managers, directors and senior officials.

Warrington has 47.8% of its jobs classified as 'Managers, directors and senior officials', 'professional occupations' and 'associate, professional and technical'. This is up 1.8% compared to December 2014 (46%). It does have a lower proportion of jobs in service industries and skilled trades however when compared to both the North West and Great Britain[5].

[2] DCLG (2012) National Planning Policy Framew ork [online] available at: http://ww w .communities .gov .uk/doc umen ts/pla nni ngan dbu ild ing /pdf /2116 950.p df [3]
HM Treasury (2016) Northern Pow erhouse strategy [online] available at: https://w ww.gov.uk/government/publications/northern-powerhouse-strategy
[4] ONS annual population survey (March, 2016) via nomis
[5] ONS annual population survey (March, 2016) via nomis

Figure 3.1: Percentage of people in employment type, March 2016



Source: ONS (2016) via nomis

Table 3.1 below shows the gross weekly pay. The average weekly pay for Warrington is higher than that of the North West and for Great Britain. The difference in pay between men and women on average in Warrington is significant but the gap is around 20% less than that of Great Britain.

Table 3.1: Gross weekly pay (2017)

Gross weekly pay (£)	Warrington	North West	Great Britain
Full time workers	577.6	514.5	552.7
Male full time workers	601.9	550.9	594.2
Female full-time workers	517.7	464.6	494.4

Source: ONS annual survey of hours and earnings – resident analysis

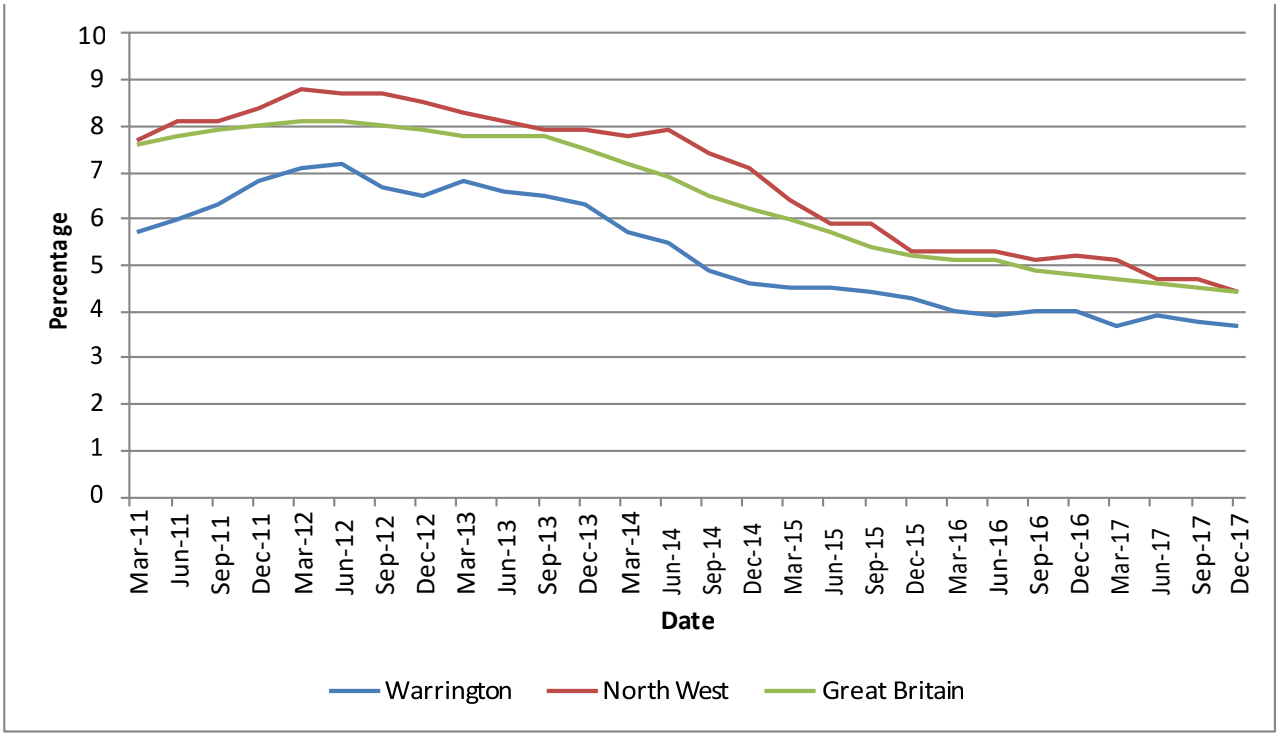
Unemployment in Warrington has consistently remained lower than the North West and British average over the last ten years (see **Figure 3.2**). It is expected that this trend will continue, as it is supported by aspirations for economic growth by the Local Enterprise Partnership and is also reflected in Objective E2 of the Adopted Local Plan Core Strategy.

2013/14 saw the completion of 19.28 ha of employment land. This was due to large scheme completions at Omega.

The average annual take up rate of land for development for employment uses in Warrington between 2006 and 2014 was 10.7 ha per annum [6].

[6] Warrington Borough Council (2014) Employment Land Availability Statement [online] available at: https://www.warrington.gov.uk/download/downloads/id/8628/employ ment_land_availability_statement_2014. pdf

Figure 3.2: Unemployment level time series (2011-2018)



Source: ONS (2018) via nomis

Education: The current and projec ted baseline

In December 2017, 41.4% of people in Warrington had an NVQ level 4 or above. This is more than the North West average (34.5%) and the Great Britain average (38.6%). 5.8% of people in Warrington have no qualifications compared to the North West which has 9% of people and Great Britain which has 7.7% of people without qualifications.

In the last ten years, Warrington's NVQ4 qualifications and above has risen by almost 30%, from 31.9% of the population in December 2007 to the 41.4% in December 2017. Warrington has in fact seen a rising trend across all qualification types, NVQ1, 2, 3 and 4 with the number of people without qualifications decreasing from 12.1% in December 2007 to 5.8 % in December 2017[7].

The positive trends in terms of improved education levels in Warrington are considered likely to continue as educational facilities are upgraded, apprenticeship schemes are promoted and job opportunities are created.

Regeneration: The current and projec ted bas eline

The Index of Multiple Deprivation 2015[8] provides indicators of deprivation at local authority and lower super output area level (LSOA). (Lower super output areas are a statistical geography and are smaller in size than wards. There are 127 LSOAs in Warrington each with a population of approximately 1,500 people).

Based on latest data for Warrington, as summarized in the Warrington Joint Strategic Needs Assessment (JSNA) (2015), it appears deprivation levels in Warrington compared to other Local Authorities has increased slightly since 2010.

With an average score of 19.3 compared with 18.5 in 2010, Warrington now ranks 147th out of 326 local authorities on the rank of 'Average SOA score' measure compared with 153rd in 2010. This places Warrington within the 45th centile, meaning 55% of local authorities within England are less deprived than Warrington;

[7] Nomis ONS - Annual Population Survey (2018)

[8] Department f or Communities and Local Government, The English Indices of Deprivation 2015, © Crow n Copyright

- Analysis of the 'Local Concentration' and 'Extent' measures confirms that extreme deprivation affects a concentrated section of the population in Warrington and levels are not evenly spread across the borough;

- The absolute numbers of people in Warrington experiencing Income and Employment deprivation has increased; but there has been a small relative improvement in national ranking on the Employment measure since 2010;

- Warrington is ranked 90th worst (out of 326 local authorities) on the percentage of LSOAs falling into the most deprived 10% nationally. This means that Warrington falls within the worst 28% of local authorities nationally[9].

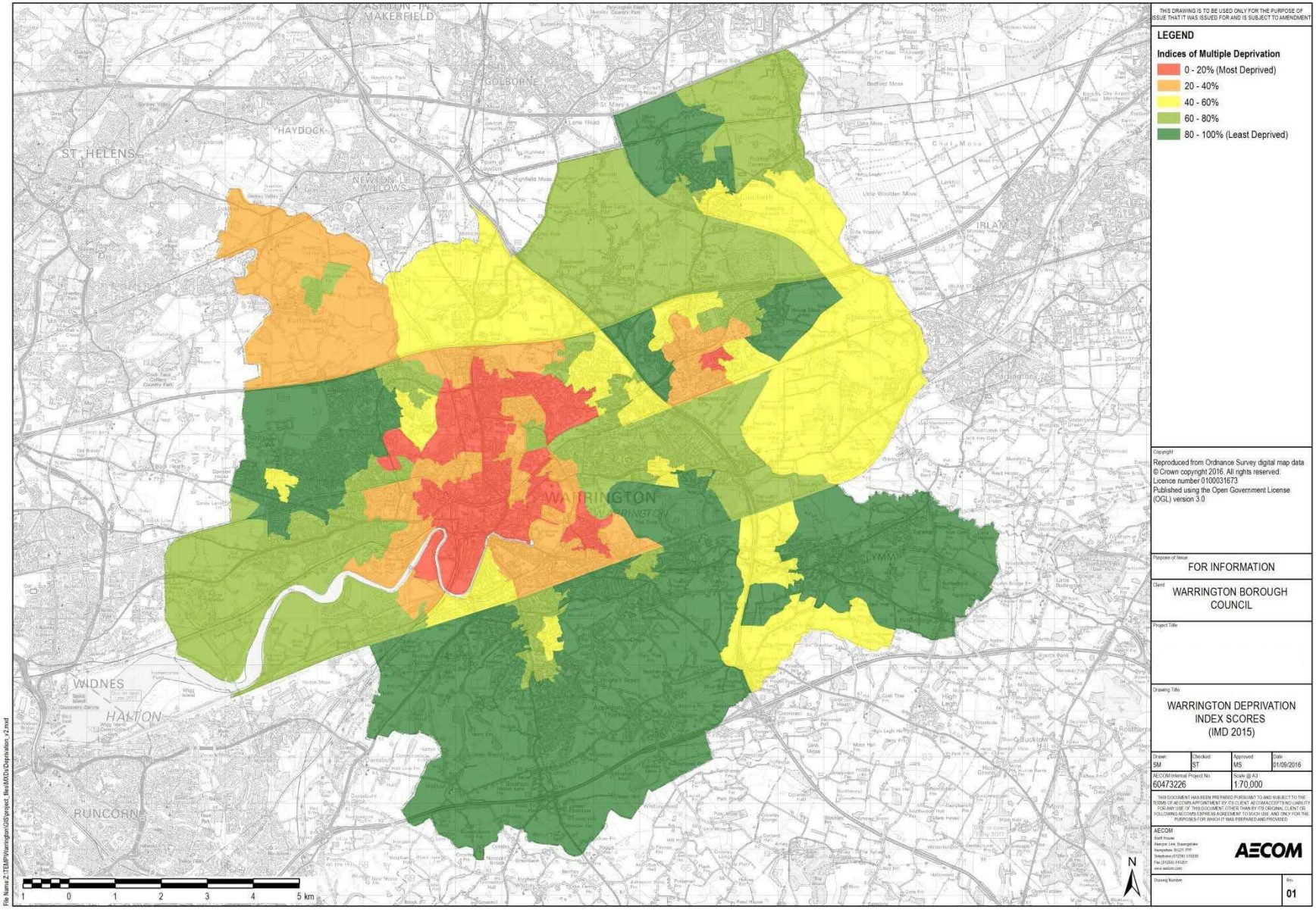
It is difficult to project the baseline, as deprivation is a complex interaction between multiple factors. Despite efforts to tackle deprivation through regeneration and community development initiatives, there has been little change in Warrington's position in the last 10 years; with a slight decline between 2010 and 2015. This trend may therefore be expected to continue. However, the Adopted and emerging Local Plan are predicated on a strategy of regeneration and renewal that should help to tackle deprivation and support communities in the areas of greatest need. This could help to reduce deprivation in Warrington in the longer term.

Good transport connectivity is essential to the efficient working of the economy as it enables the efficient movement of goods and people which subsequently reduces business costs and constraints that undermine productivity, output and access to markets.

Transport improvements can influence the location of economic activity in an area by making places into more productive locations for businesses, facilitating economic activity and regeneration. This can have an effect on employment and regeneration in Warrington.

[9] Warrington Joint Strategic Needs Assessment (JSNA) (2015) The English Indices of Deprivation [online] available at https://w ww.warrington.gov.uk/dow nload/dow nloads/id/9153/jsna_2015_-_deprivation_profile_imd_2015pdf .pdf

Figure 3.3: *Indices of Multiple Deprivation (2015)*



3.4 Health and Wellbeing

Contextual review

The ***NPPF*** identifies the importance of the social role of the planning system, which is defined as ''*supporting vibrant and healthy communities"*, with a core planning principle being to '*'take account of and support local strategies to improve health, social and cultural wellbeing for all"*. The *NPPF* further promotes the retention and development of local services and community facilities such as local shops, meeting places, sports venues, cultural buildings, public houses and places of worship. It states how the planning system can play an important role in facilitating social interactions and creating healthy, inclusive communities and sets out strategic policies to deliver the provision of health facilities. The location of facilities and services can have an influence upon transport and travel patterns.

Fair Society, Healthy Lives ('The Marmot Review')[10] investigated health inequalities in England and the actions needed in order to tackle them. Subsequently, a supplementary report was prepared providing additional evidence relating to spatial planning and health on the basis that that there is: '*'overwhelming evidence that health and environmental inequalities are inexorably linked and that poor environments contribute significantly to poor health and health inequalities"*.

To ensure that the built environment promotes health and reduces inequalities for all local populations there is a need to:

- Fully integrate the planning, transport, housing, environmental and health systems to address the social determinants of health in each locality;
- Prioritise policies and interventions that both reduce health inequalities and mitigate climate change by improving active travel; good quality open and green spaces; the quality of food in local areas; and the energy efficiency of housing; and
- Support developments which provides high quality social infrastructure, including education, skills and sports facilities.

The NHS National Institute of Health and Clinical Excellence (NICE) have published guidance on **Local measures to promote walking and cycling**[11]. The evidence presented in this report suggests that 'effective support' from local councils plays a key role in increasing rates of walking and cycling. It further suggests that increasing the numbers and frequency of people who walk and cycle can reduce the health costs associated with air pollution and inactivity. Relevant recommendations made in the report include:

- Ensure local, high-level strategic policies and plans support and encourage both walking and cycling;
- Develop coordinated, cross-sector programmes to promote walking and cycling for recreation as well as for transport, based on a long-term vision of what can be achieved, taking account of the needs of the whole population; and
- Address infrastructure issues that may prevent people from wanting to walk.

The Transport for the North **Draft Strategic Transport Plan** outlines the links between the transport network and health[12]. It suggests how the network can have negative implications on health such as through air pollution, noise and safety.

[10] The Marmot Review (2011) The Marmot Review : Implications for Spatial Planning [online] available at: http://www.nice.org.uk/nicemedia/live/12111/53895/53895.pdf

[11] National Institute for Health and Care Excellence (2012) Walking and cycling: local measures to promote walking and cycling as forms of travel or recreation [online] available at: https://www.nice.org.uk/guidance/ph41/chapter/1-recommendations.

[12] Transport for the North (2018) Draft Strategic Transport Plan [online] available at: https://transportforthenorth.com/wp-content/uploads/TfN-Strategic-Plan_draft_lr.pdf

However, the plan also recognises the opportunities for transport to enhance health and wellbeing through improved access to jobs, services and facilities, recreation and green space and sustainable transport modes/infrastructure.

The Warrington Partnership and the Warrington Health and Wellbeing Board have updated *The Warrington Health and Wellbeing Strategy* for the years 2015-2018. The Strategy, adopted in July 2015, is the overarching document for wellbeing in the borough. There are a series of priority outcomes, including the following which are particularly relevant to the Local Transport Plan:

- A strong economy which maximises opportunities for everyone, continuing to attract investment into key regeneration and infrastructure initiatives;
- Increase the numbers of people using sustainable travel; and
- Develop highway infrastructure so that congestion is reduced and it is fit for future growth and regeneration[13].

The Council has been working closely with its NHS Partners in preparing the *NHS Strategic Estates Plan for Warrington.* The Estates Plan provides an overview of existing NHS facilities, details committed improvements and provides an overview of capacity of health facilities against planned future housing development across the borough. Through this work it has been identified that there are parts of the borough which already have insufficient capacity to provide primary care for new residents and further areas will become progressively more constrained in the period to 2030 with new development.

The vision for Warrington is to develop new, and where practical, co-locate existing, health; social, cultural and community facilities in order to improve access to services, promote wellbeing and maximize opportunities for healthy living. Having sustainable modes of travel to such facilities is important to support healthy lifestyles.

Population: The current and projected baseline

Warrington's resident population is currently 209,000 (mid-year estimate 2016, rounded to the nearest hundred) which represents an increase of 2,300 (1.1%) from 2014. By 2036 the population of Warrington is projected to increase to 225,100 people, a percentage change of 7.7% on 2016 estimates.

Of particular significance is the projected increase in the population aged 65+. By 2036 it is projected that there will be approximately 56,200 people aged over 65 living in the borough: a rise of almost 50% on current figures. Increasing life expectancy and population ageing have a number of implications.

An important issue is that there are proportionally less individuals to pay taxes, work and provide care for those who need it. The old age dependency ratio is a method used to measure the proportion of people of working age compared with those aged over 65[14]. An increase in the number of older people may also have implications with regards to mobility and accessibility.

The old age dependency ratio in Warrington has been decreasing over recent years and this is projected to continue. In 2013, there were 3.6 people of working age for every person aged over 65 years. By 2037, based on current projections, this is estimated to decrease to 2.3 working age people for every person aged 65+. Furthermore, if increases in life expectancy are not matched with improvements in heath, the implications for health and wellbeing will be significant.

[13] Warrington Partnership (2015) Warrington Partnership (2015) Warrington Health and Wellbeing Strategy 2015 -18 [online] available at www.warringtontogether.co.uk/media/.../health-and- wellbeing-2015-18-low-res.pdf

[14] ONS Sub-national population projections (2016 base) OADR projections based on population aged 65+. Local crude analysis is based on persons aged 65+. Changes to state pension age (SPA) will help to mitigate the impact. However, national projections suggest that the OADR will still decrease substantially despite the current known changes to SPA. Further, local analysis is underway to refine these estimates.

Without increases in healthy life expectancy there will be significantly more people with age-related health and care needs; placing growing demand on health and social care services in the future. Interventions which seek promote healthy ageing and retain independence are crucial in order to mitigate the impact on health and social care resources. This includes ensuring that people have good access to health and social care resources.

The right quantity and distribution of appropriate, quality housing which is accessible, adaptable and which supports care in the community and independent living is needed to accommodate the ageing population.

Homes that are constructed to minimise energy waste and fuel poverty will help reduce the excess burden of ill-health and mortality known to be attributable to poor quality housing. Whilst this is pertinent population-wide, a recent report published by the Government Office for Science about the future of ageing population highlighted that older people are more at risk of poor quality housing[15]. Unsuitable housing (for example cold and damp homes) is associated to an excess of winter deaths[16] and within Warrington excess winter mortality is substantially higher amongst older age-groups. Unsuitable housing is also associated with falls in the elderly; with 25% of them occurring at home[17].

Health and wellbeing – the current and projected baseline

Health Outcomes

Overall, health outcomes in Warrington are improving, but there is still a gap with England for overarching measures of population health and wellbeing.

Life expectancy for males in Warrington is currently 78.9 years.[18] Although this has increased by 2.6 years over the last 10 years, it remains significantly lower than England (79.5 years). For women, life expectancy has increased by 1.2 years, from 80.7 years to 81.9 years. As for men, this is significantly lower than the England average 83.1 years.

Substantial progress has been made in tackling some of the major causes of premature death in Warrington over recent years, but as with life expectancy, there is further scope for improvement in some areas to reduce rates so that they are in-keeping with the average for England.

Premature deaths from all cancers: Longer term trends show that death rates have been reducing. However, latest data shows an increase in rates locally; against a sustained decline nationally which means the rate in Warrington is now significantly above the England average.

Premature deaths from cardiovascular diseases (CVD): Much progress has been made in reducing premature deaths from CVD over previous years and there has been a steady year-on-year decrease in the rates [19], which means the rate in Warrington is now in-keeping with the average for England.

[15] Future of ageing population. Government Office for Science 2016. [online] available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/535187/gs-16-10-future-of-an-ageing-population.pdf

[16] ONS (2016) Excess winter mortality in England and Wales, 2015/16 (provisional) and 2014/15 (final). Statistical Bulletin. 23 November 2016 [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/excesswintermortalityinenglandandwales/previousReleases

[17] Ed Harding – International Longevity Centre UK. (2008). Sustainable planning for housing in an ageing population: A guide for regional-level strategies

[18] Office for National Statistics: Life Expectancy Trends. Latest time period 2014-2016

[19] Note that there has been a slight increase in the latest figures for the year 2014-16 following a long period of year-on-year decrease. This may be a single variation and thus insignificant or the start of a change in pattern. It is currently too early to assess.

Health Related Behaviour and Self-Reported Wellbeing

Many deaths and illnesses could be avoided by adopting healthier lifestyles: It is estimated that a substantial proportion of cancers, around 30% of circulatory diseases and a large proportion vascular dementia could be avoided by reducing smoking rates, improving diet and increasing physical activity.[20]

There is substantial evidence on the impact of the built environment on levels of obesity and physical activity. The briefings developed by Public Health England and the Local Government Association summarise the evidence base, [21, 22] and the NICE Public Health guidelines PH8[23] and PH41[24] provide evidence-based recommendations on physical activity (walking and cycling) as well as how to improve the physical environment to encourage physical activity.

Obesity: Prevalence of excess weight amongst adults in Warrington has increased over recent years. Latest estimates suggest that over two-thirds (65.7%) of adults are overweight or obese[25]. This is significantly higher than the average for England (61.3%), and above the regional average (63.3%). There is variation within Warrington and amongst different population sub-groups: prevalence is highest amongst middle aged men, and people living in more deprived areas [26]. Tackling obesity effectively needs a multi-faceted approach combining changes at policy level and work to change social norms, in addition to individual lifestyle interventions. Although prevalence of excess weight in children is in-keeping with the average for England, based on the latest data 22% of 4/5 year olds and 32% of 10/11 year olds in Warrington are overweight or obese[27].

Poor diet: Approximately half of Warrington adults (49.5%) report not eating the recommended 5 portions of fruit and veg per day. This is slightly worse than the average for England. Almost 30% of residents report eating takeaways or fast food at least once a week. People living in the more deprived areas of the borough are significantly more likely to have a poor diet. Access to local shops selling quality produce, and proximity to, and density of fast-food outlets are factors which have been linked to obesity[23].

Physical activity: Around 30% of Warrington adults are inactive; slightly higher than the average for England[28]. As with many other lifestyle factors, people living in the most deprived areas of the borough are much less likely to be physically active. Evidence shows regular physical activity can help to prevent and manage over 20 chronic conditions, including: Type 2 diabetes by up to 40%, cardiovascular disease by up to 35%, dementia by up to 30%, depression by up to 30% and risk of hip fracture by over 60%. Furthermore, there is strong evidence to suggest that green spaces have a beneficial impact on both physical health and mental wellbeing through both physical access and usage. This is particularly relevant in older people, in which physical activity has been associated with an improvement in their cognitive performance [29] (including people with dementia[30]), reducing the morbidity and mortality and improving their wellbeing [29]. NICE public health guideline PH16 also makes evidence-based recommendations on physical activities programs (including walking schemes, dancing, and swimming) in people over 65 years old to improve their mental wellbeing[31].Approximately 18% of Warrington residents report using outdoor space for physical activity or health reasons [32].

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20 Department of Health – Our Health and Wellbeing Today, 2010

21 Public Health England (2013) Obesity and the environment: increasing physical activity and active travel

22 Public Health England (2014) Obesity and the environment: regulating the growth of fast-food outlets

23 Physical Activity and the Environment (2008) public health guideline (PH8)

24 Physical activity: walking and cycling (2012) NICE public health guideline PH41

25 Public Health Outcomes Framework: Sport England Active People Survey (2016-17)

26 Warrington Borough Council: Health and Wellbeing Survey 2013

27 National Child Measurement Programme 2015/16

28 Public Health Outcomes Framework: Sport England Active People Survey (2016-17)

29 Future of ageing population. Government Office for Science 2016. [online] available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/535187/gs-16-10-future-of-an-ageing-population.pdf

30 Forbes D, Forbes SC, Blake CM, Thiessen EJ, Forbes S. Exercise programs for people with dementia. Cochrane Database Syst Rev. 2015 Apr 15;(4):CD006489.

31 Mental wellbeing in over 65s: occupational therapy and physical activity interventions (2008) NICE public health guideline PH16

32 Public Health Outcomes Framework: Natural England MENE survey. N.B figure based on small sample

Emotional wellbeing: At the time of the last population-wide survey[25], one-quarter of all adults in Warrington had low levels of emotional wellbeing. There was a strong association with socio-economic deprivation, and low emotional wellbeing was more common in the most disadvantaged areas. Emotional wellbeing is influenced by many factors, including genetic inheritance, childhood experiences, life events, individual ability to cope and levels of social support. Factors such as adequate housing, feelings of safety, employment, financial security and access to appropriate health care also contribute to overall feelings of wellbeing.

Loneliness and social isolation is linked to emotional wellbeing and personal resilience. Within Warrington there is a strong association between loneliness and deprivation; 13% in the most deprived areas said they felt lonely compared to 6% in the least deprived. Furthermore, residents of more socially disadvantaged areas reported feeling less connected to their local area.

Financial management/fuel poverty: Hardship and financial worries are also known to cause stress and impact on emotional wellbeing. At the time of the last local survey[28] 8% of residents reported that they were finding it difficult to manage financially, and although official measures of fuel poverty suggest that rates are lower in Warrington than nationally, 10% of residents reported going without heating to manage financially.

Health inequalities: Local analysis[33] shows that the burden of disease is greater amongst residents of Warrington's more deprived areas: Over 80% of the excess mortality from heart disease and stroke within Warrington is amongst people living in the most deprived 40% LSOAs. There is a gradient apparent between most health outcomes and deprivation, and prevalence of most health-harming behaviours is higher in more deprived areas.

Community Safety – The current and projected baseline

In the long-term, the crime rate in Warrington has experienced a steady decline. However, recent trends indicate a sharp increase in crime. Figure 3.4 below shows the total recorded crimes between 2011 and 201834.

The natures of the crimes are shown in Figure 3.5, along with a comparison of the 12 months to December 2016 and December 2017. In 2016, the crime type with the highest rate in Warrington was 'criminal damage and arson'. This has increased by 481 offences in 2017; however, the crime type falls short of the 3,552 offences of 'Public order' recorded during the year[35].

It is reasonable to assume that in the short-term the crime rates will continue to increase steadily within the Borough, in keeping with recent trends. However, in the long-term, the crime rate may fall, reflecting long-term trends in the Borough. Ultimately, crime rates are influenced by a range of factors, which could lead to unpredictable variations in trends. Particularly important factors would be a reduction in public spending on policing and rehabilitation, an increase in unemployment, a shortage of affordable housing, or a lack of community and youth facilities. It is difficult to predict trends in these factors, but the Adopted Local Plan does seek to address these issues, which could help to revive a downward trend.

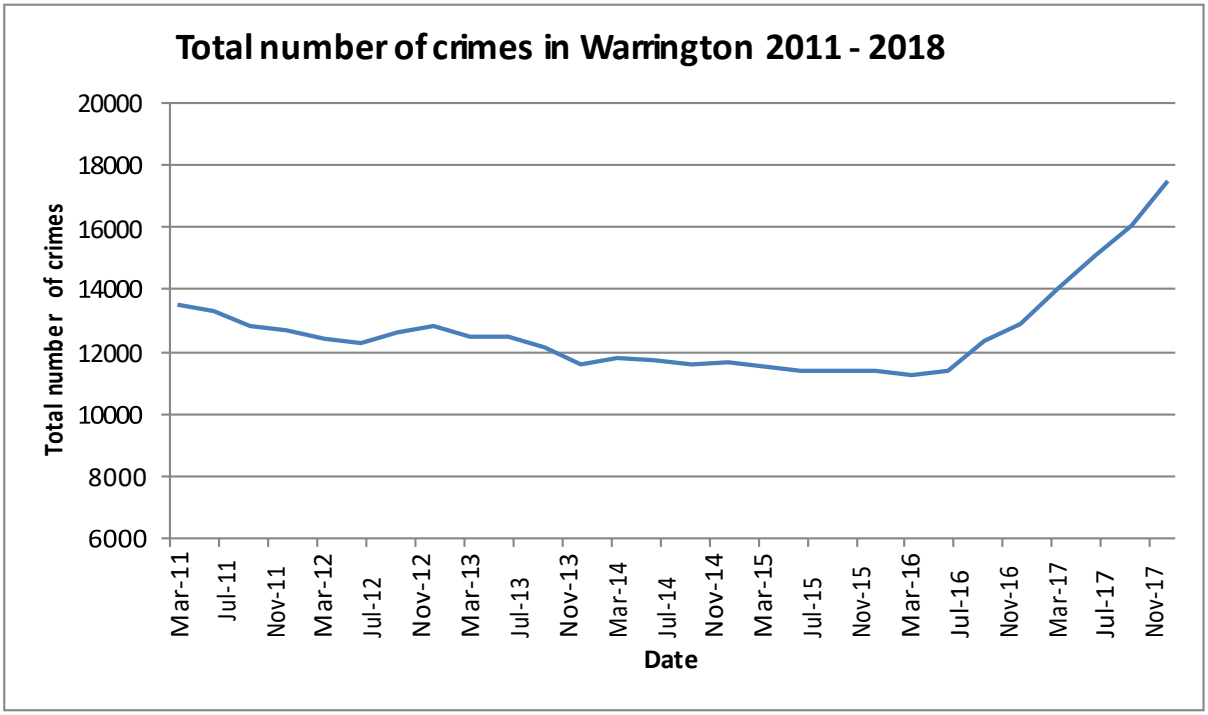
Urban areas and deprived areas have traditionally experienced higher rates of crime, and these trends are also expected to continue.

[33] Warrington Borough Council Public Health Intelligence Reports

[34] Crime Survey England and Wales(2018) https://www.ons.gov.uk/file?uri=/peoplepopulationandcommunity/crimeandjustice/datasets/recordedcrimedataatcommunitysafetypartnershiplocalauthoritylevel/current/prclocalauthoritytables.zip (accessed June 2018)

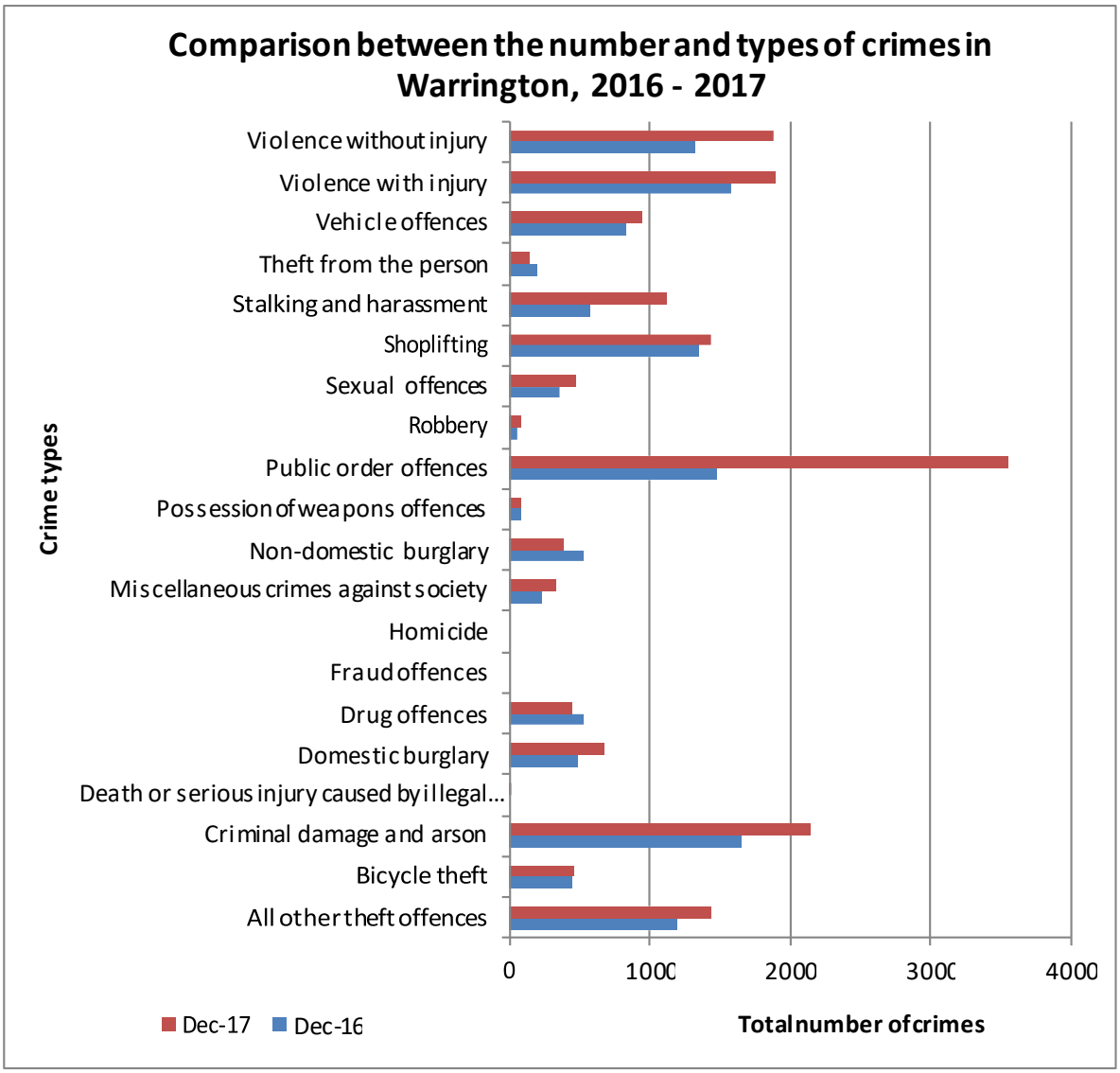
[35] Ibid.

Figure 3.4: Crime in Warrington 2011-2018



Source: ONS – Crime Survey England and Wales (2018)

Figure 3.5: Comparison in crime in Warrington from 2016-2017



Source: ONS – Crime Survey England and Wales (2018)

Open space and recreation – Current and projected baseline

The total number of formal open space sites across the borough increased between 2012 and 2015; however variations have been experienced across the typology of sites.

Most of the types of open space sites have increased in number since 2012. The largest increases were experienced with regards to Green Corridors (+62 sites), Parks & Gardens (+40 sites), and Natural/ Semi Natural Green Space and Incidental Space, both of which increased by 30 sites. Equipped Play Sites have experienced a decrease in number, but have countered this by combining the remaining sites, enabling larger facilities. On balance, there was a positive change across the borough which resulted in +145 extra open space sites being made available, equating to 260 hectares[36].

Each ward across the Borough has varying access to the types of open space. The largest provisions of allotment space are located in Latchford West (3.91 ha), Lymm (3.68 ha), and Fairfield & Howley (2.66 ha), compared to 14 of the 22 wards which do not have access to any allotment spaces.

[36] Open Space Audit 2015, Warrington Borough Council (2016), Available: https://www.warrington.gov.uk/info/200564/planning_policy/1905/evidence_base/3,

Bewsey & Whitecross has the greatest provision of Equipped Play spaces, with 1.38ha, whilst Stockton Heath has the lowest provision at just 0.08ha. With regards to Green Corridors, Westbrook is recorded as the ward with considerably the highest provision (22.28ha), Whittle Hall has the largest amount of Incidental Space (7.70ha), and Burtonwood & Winwick has the largest provision of Informal Play sites (12.35ha).

Predominantly, the overall distribution of all open space sites shows a tendency to be concentrated towards the higher density populations within the center of the Borough, with varying spread depending on the typology of the site.

3.5 Accessibility

Contextual Review

The ***NPPF*** states that the transport system should be '*"balanced in favour of sustainable transport"*, with developments to be located and designed to facilitate these modes of travel, in order to minimise journey lengths for employment, shopping, leisure and other activities. Planning policies should also aim for *'a balance of land uses'* and wherever practical, key facilities should be located within walking distance of most properties.

Higher levels of walking and cycling could reduce congestion, improve local environmental quality, improve personal health and reduce transport-related CO_2 emissions[37]. Plans should therefore ensure that strategic policies support and encourage both walking and cycling[38].

The ***Transport for the North Strategic Transport Plan***[39] sets out a plan for transport infrastructure investment in the North of England with an aim of supporting economic growth through enhanced connectivity and higher productivity.

The ***One Warrington: One Future - Local Transport Plan (LTP3)***[40] sets out the Local Transport Plan Strategy for the period 2011-2030. The objectives of LTP3 are to build and manage a transport network that:

- Is integrated and customer focused and reduces the need to travel by car;
- Enables the regeneration of the Borough and supports economic growth;
- Maintains the highway, minimises congestion for all modes of travel and enables Warrington's 'smart growth';
- Improves everyone's access to health, employment, education, culture, leisure and the natural environment;
- Improves everyone's access to the town centre by all modes of travel;
- Enhances accessibility for those in disadvantaged communities or groups;
- Improves neighbourhoods and residential areas;
- Improves safety and security for all modes of travel;
- Enhances the image and profile of the place;
- Improves the quality of public space making Warrington more welcoming;
- Protects and enhances the natural environment;
- Reduces the impact of traffic on air quality in Warrington and helps to reduce carbon emissions and tackle climate change;
- Makes Warrington safer, sustainable and healthier; and
- Integrates with transport networks outside Warrington to enhance the sustainability of cross boundary travel.

[37] Lancaster University, University of Leeds& Oxford Brookes University (2011) Understanding Walking and Cycling: Summary of Key Findings and Recommendations[online] available at: http://www.itsleeds.ac.uk/fileadmin/user_upload/UWCReportSept2011.pdf (accessed 08/2012)

[38] National Institute for Health and Care Excellence (2012) Walking and cycling: local measures to promote walking and cycling as forms of travel or recreation, Public Health Guidance PH41[online] available at: http://guidance.nice.org.uk/PH41

[39] Transport for the North (2018) Strategic Transport Plan [online] available at: https://transportforthenorth.com/stp/

[40] Warrington Borough Council Local Transport Plan 3 2011-2030

Though these objectives will be replaced / updated by the LTP4, it is useful to understand the context within which the new plan is being prepared.

Accessibility: The current and projected baseline

Warrington lies at the hub of the region's communications network. The M6, M56 and M62 motorways intersect within the borough, providing excellent access to all parts of the region and beyond. Warrington also lies on the region's main North-South (West Coast Main Line) and East-West (Trans-Pennine) rail routes.

In the longer term, there will be access to the HS2 lines, which should improve access to employment opportunities in particular.

Taken from the 2011 Census and Annual Monitoring Report (2017[41]), the following list identifies some key statistics relating to travel in Warrington:

- The percentage of households with no car is lower in Warrington (19.3%) than regionally (28.0%) and nationally (25.6%) (Census 2011);
- The percentage of households with one car is similar in Warrington to the regional and national situation at approximately 41.8% (Census 2011);
- There is a higher percentage of households in Warrington with two or more cars/vans (38.9%) than both regionally (29.5%) or nationally (32.1%) (Census 2011);
- Travel to work data for Warrington shows 59.2% of commuters into Warrington come from within the Warrington Area, followed by St Helens (13.8%), Wigan (13.3%) and Halton (11.8%) (AMR 2017);
- The most popular areas for commuting out of the borough are Halton (13.4%), Manchester (12.1%) and Trafford (9.2%) (AMR 2017);
- Car ownership in Warrington is higher than regional and national levels with higher percentages of households (38.9% compared to 29.5% regionally and 32.1% nationally) owning two or more vehicles and lower percentages owning no car at all (AMR 2017); and
- A lower percentage of residents aged 16 to 74 in employment in Warrington cycle or walk (6.4%) than is the case regionally (7.6%) or nationally (8.2%) (AMR 2014[42]).

Figure 3.6 illustrates the location of key services and facilities throughout the Borough. As would be expected, the town centre of Warrington is served by the widest range of services and facilities. There is also a good range of essential facilities and good access links from other settlements outside the Warrington urban area including areas such as Lingley Mere, Birchwood and Padgate, which have good train and public transport links.

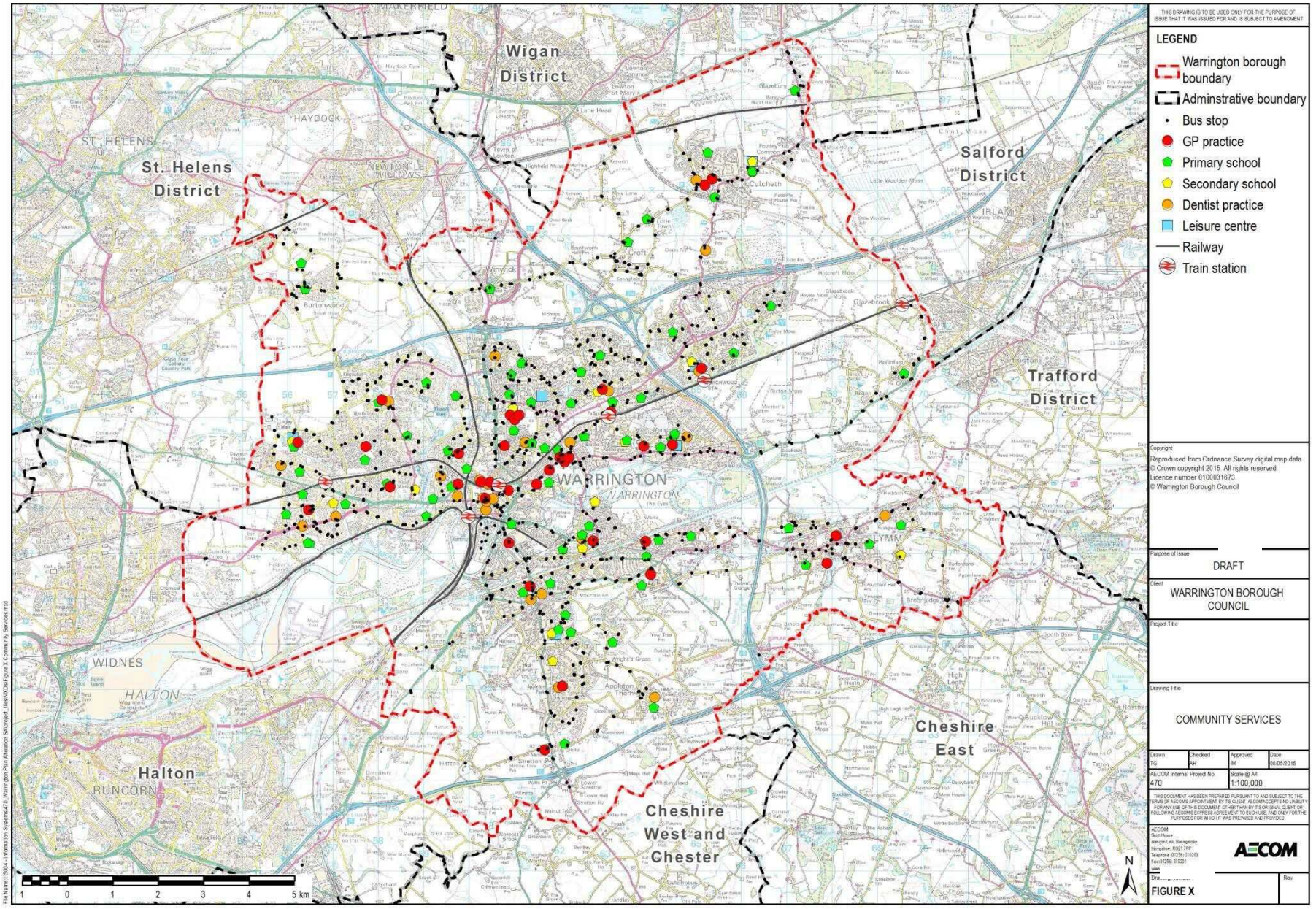
Other larger settlements such as Lymm and Culceth are served by a range of facilities, but are more likely to be reliant on private car use to access higher order services and employment. Smaller settlements in 'rural' areas such as Appleton Thorn, Burtonwood, Winwick and Croft are served by a lower number of essential services, and rely upon larger service centres to access GPs, secondary schools and other services.

As well as establishing how accessible essential services are in terms of proximity, it is also important to understand whether services are capable of accommodating further growth. This will help to identify where development would need to fund expansions to facilities such as schools and GPs, where this may not be possible (due to site constraints for example) or where a surplus exists and development would actually make facilities more viable.

[41] Warrington Borough Council (2017) Annual Monitoring Report [online] available: https://www.warrington.gov.uk/downloads/file/11831/annual_monitoring_report_-_1_april_2016_-_31_march_2017

[42] Warrington Borough Council (2014) Annual Monitoring Report.

Figure 3.6: Community facilities and services



3.6 Housing

Contextual Review

The ***NPPF*** seeks to significantly boost the supply of new homes. To achieve this it states that local planning authorities should have a clear understanding of housing needs in their area. They should prepare a Strategic Housing Market Assessment (SHMA) to assess their full housing needs, working with neighbouring authorities where housing market areas cross administrative boundaries. The Strategic Housing Market Assessment should identify the scale and mix of housing and the range of tenures that the local population is likely to need over the plan period.

The ***NPPF*** states that in order to create '*'sustainable, inclusive and mixed communities"* authorities should ensure affordable housing is provided. It is important to ensure that new housing is located in accessible locations and is supported by appropriate transport infrastructure.

DCLG Planning Policy for Traveller Sites (2015) sets the policy context for traveller sites, stating that planning authorities use robust evidence to identify needs; set appropriate targets or criteria based policies; and ensure that traveler sites are sustainable economically, socially and environmentally (which means that sites should be accessible, safe, well integrated with communities and limit effects on the environment).

Housing: The current and projected baseline

In 2016/17, Warrington saw the completion of 492 net additional new dwellings (taken from 521 gross completions minus 29 losses). This compares to 595 net new additional dwellings reported in the last monitoring period (2015/16) and 687 in 2014/15.

Of the 521 gross new dwellings in this period, 509 (98%) were on previously developed land (PDL). 72 of these were affordable housing completions. This percentage is a small increase (4%) on that reported in the previous monitoring period (2015/16).

Warrington Borough Council released their latest SHMA (in conjunction with Halton and St Helens) in January 2016. It provides the information to understand the housing need for Warrington and the 'Mid Mersey' HMA as a whole. The 2012 projections estimate that there were 87,981 households in Warrington in 2014, which is anticipated to rise to 106,682 2037. This is an average increase of 840 households per year between 2014 and 2037.

There are currently 20 authorised gypsy & traveler pitches within the Borough. This is a return to the number of pitches in 2013/2014, following a drop in 2014/15 with the expiration of the temporary permission at Two Acre Caravan Park in Walton. There are currently 6 unauthorised pitches at Grappenhall Lodge[43].

Over the last 5 years, overall average house prices in Warrington increased by 20% (from £177,990 in 2012 to £213,917 in 2017), there was also an increase of 22% in the North West (from £154,967 in 2012 to £189,103 in 2017) and a 23% increase in England and Wales as a whole (£238,192-£292,889).

***Table 3.2**: Average House Prices 2017*

	Detached (£)	Semi-Detached (£)	Terraced (£)	Maisonette/flat (£)	All (£)
Warrington	335,462	194,911	141,554	117,968	213,917
North West	318,566	181,100	126,323	144,018	189,103
England and Wales	395,717	249,182	237,219	301,057	292,889

Source: Land Registry (2017)

[43] Warrington Borough Council (2017) Annual Monitoring Report [online] available: https://www.warrington.gov.uk/downloads/file/11831/annual_monitoring_report_-_1_april_2016_-_31_march_2017

Warrington Borough Council's latest Strategic Housing Land Availability Assessment (SHLAA) findings are contained in the 2017 AMR.

The detailed assessment findings stated that a total of 323 sites, covering approximately 2,474 Hectares, were identified for and subsequently included within the 2017 SHLAA. Of the 323 sites, 245 (76%) were rolled forward from the 2016 study and hence 78 sites are new sites.

Of the 323 sites identified, 45 (14%) had a planning approval on the 1st April 2017. One hundred and twenty eight (40%) of the 323 sites identified constituted previously developed land, 176 (54%) were on greenfield land and 19 (6%) were considered to be part previously developed / part greenfield.

3.7 Natural Resources

Contextual Review

Water

The ***NPPF*** states that local planning authorities should produce strategic policies to deliver the provision of a variety of infrastructure, including that necessary for water supply.

The ***White Paper, Water for Life*** says that authorities should encourage and incentivise water efficiency measures at the demand side[44].

In most cases, and for most of the time, in North West England, there is adequate water available for abstraction. The regional priorities as set out in the ***Water Resources Management Strategy*** are to reduce the contribution to climate change and to protect sensitive environmental habitats, predominately in Cumbria[45].

The Environment Agency guidance ***Groundwater Protection: Principles and Practice (GP3)***[46] describes the Environment Agency's approach to the management and protection of groundwater in England and Wales. It provides a framework to manage and protect groundwater. This framework takes account of the government's sustainable development strategy and the water strategies of Defra.

Air quality

The ***NPPF*** identifies that 'Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan'.

The ***UK Air Quality Strategy***[47] sets out air quality objectives and policy options to further improve air quality in the UK. This is supplemented by more recent guidance on how air pollution and climate objectives can be realised together through an integrated policy approach.

The Defra report ***Action for air quality in a changing climate***[48] focuses on the synergies between the two issues of air quality and climate change. In particular, it notes the potential for additional health benefits through the closer integration of climate and air pollution policy. It is suggested that co-benefits can be realised through a variety of means, including promoting low carbon vehicles and renewable energy.

The ***Warrington Air Quality Action Plan***[49] sets out how the council will tackle air quality issues within its control. This includes a series of actions with those relevant to the LTP including working with Highways England to improve air quality along the local motorway, sustainable transport strategies covering walking, cycling and other less emitting forms of transport and improvements to road and rail infrastructures.

Soil and land

In ***safeguarding our Soils: A strategy for England***[50], a vision is set out for the future of soils in the country.

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[44] Defra (2011) Water for life (The Water White Paper)

[45] United Utilities, Final Water Resources Management Plan, 2015

[46] Environment Agency (2013) Groundwater Protection: Principles And Practice (GP3) [online] available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/297347/LIT_7660_9a3742.pdf

[47] Defra (2007) Air Quality Strategy for England, Scotland, Wales and Northern Ireland [online] available at: http://www.defra.gov.uk/environment/quality/air/air-quality/approach/

[48] Defra (2010) Air Pollution: Action in a Changing Climate [online] available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69340/pb13378-air-pollution.pdf

[49] Warrington Borough Council (2018) Air Quality Action Plan.

[50] Defra (2009) Safeguarding our soils: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69261/pb13297-soil-strategy-090910.pdf

An element of this vision is the condition of soils in urban areas, which are to be ''sufficiently valued for the ecosystem services they provide and given appropriate weight in the planning system''.

Good quality soils in urban areas are recognised as being ''*vital in supporting ecosystems, facilitating drainage and providing urban green spaces for communities"*. It is also important to protect areas of the best and most versatile agricultural land from development.

Preventing the pollution of soils and addressing the historic legacy of contaminated land is another element of the reports vision.

The current and projected baseline

Water

The majority of Warrington is built on the floodplain of the River Mersey, with about three quarters of the urban area lying between 5 and 12 metres above sea level (AOD). The main source of fluvial flooding is the River Mersey and its five key tributaries, which flow through the centre of the borough.

The Manchester Ship Canal plays a vital role in managing fluvial flood risk along the Mersey. Although principally a navigation canal, the canal provides a floodwater bypass channel for Warrington, which significantly reduces the incidence of flooding from fluvial flows.

As a requirement of the Water Framework Directive (WFD) the water quality of rivers and lakes in England must be established in terms of their ecological and chemical quality. Measures must then be put in place to protect and improve water quality. Ecological quality is categorised as; bad, poor, moderate, good or high and chemical quality is assessed as either 'good' or 'fail' (or does not require assessment). Water quality in Warrington was assessed in 2015 as part of the River Basin Management Plan process. The findings at that time were that:

- The River Mersey's ecological quality was classed as 'moderate', with its' chemical quality classed as 'good';
- The Sankey Canal was classed as having 'moderate' ecological quality and a 'good' chemical quality;
- Sankey Brook was classed as having poor ecological quality, although the chemical quality was classed as good.

The Water Framework Directive should ensure that there will be no deterioration in the ecological status of Warrington's rivers from 2009 baseline conditions.

The Water Framework Directive seeks to ensure that the hydromorphology *(the physical form and flow)* of rivers is protected and restored where damage has occurred. The ecology of Warrington's rivers has suffered greatly due to physical modification, and this is one of the reasons for failure to meet WFD requirements. Channels have been straightened, deepened and over-widened, culverts installed and weirs constructed and this has negatively impacted the ecological status of several rivers in Warrington. By 2027, Warrington's rivers must either reach "*good ecological status*" or "*good ecological potential*" (the latter for "*heavily modified*" waterbodies).

Good ecological status is defined as conditions slightly lower than those seen in a natural pristine river. Good ecological potential is the best a river can be for ecology whilst still fulfilling a flood risk management, water resource or navigation purpose. There can be no deterioration in the ecological status of Warrington's rivers from 2009 baseline conditions. Measures have been identified in the River Basin Management Plan to enhance hydromorphology and, therefore, improve river habitats for wildlife and overall ecological status. Some of these enhancement measures may also reduce flood risk in Warrington through increased flood water storage.

Warrington is at risk from many different sources of flooding including; main rivers, ordinary watercourses, surface water runoff, sewer flooding and the residual risks associated with artificial water bodies such as the Bridgewater Canal, the Manchester Ship Canal and reservoirs.

As a result of climate change, flood risk in Warrington is likely to become more of an issue, with an increase in the frequency and depth of flooding of floodplains expected. In addition, more intense storm events as a result of climate change could lead to an increase in surface water flooding and flash flooding across the Borough.

These risks have the potential to be alleviated through Sustainable Urban Drainage Systems. The Adopted Local Plan (Policy QE4) also states that the Council will only support development proposals where the risk of flooding has been fully assessed and justified by an agreed Flood Risk Assessment.

Flood risk has the potential to cause disruption to transport routes as well as affecting accessibility to services.

Air Quality

Warrington Borough Council is responsible for the review and assessment of air quality in the Borough. There are two AQMA designations in Warrington;

- AQMA 1 - A 50m continuous strip on both sides of the M6, M62 and M56 motorway corridors.
- AQMA 4 - Covering the link roads and the town centre ring road.

Both AQMAs are designated due to their levels of Nitrogen Dioxide (NO_2). An Air Quality Action Plan (2017- 2022)[51] has been produced and covers both AQMAs, presenting a series of short term and long term actions.

Soil and Land

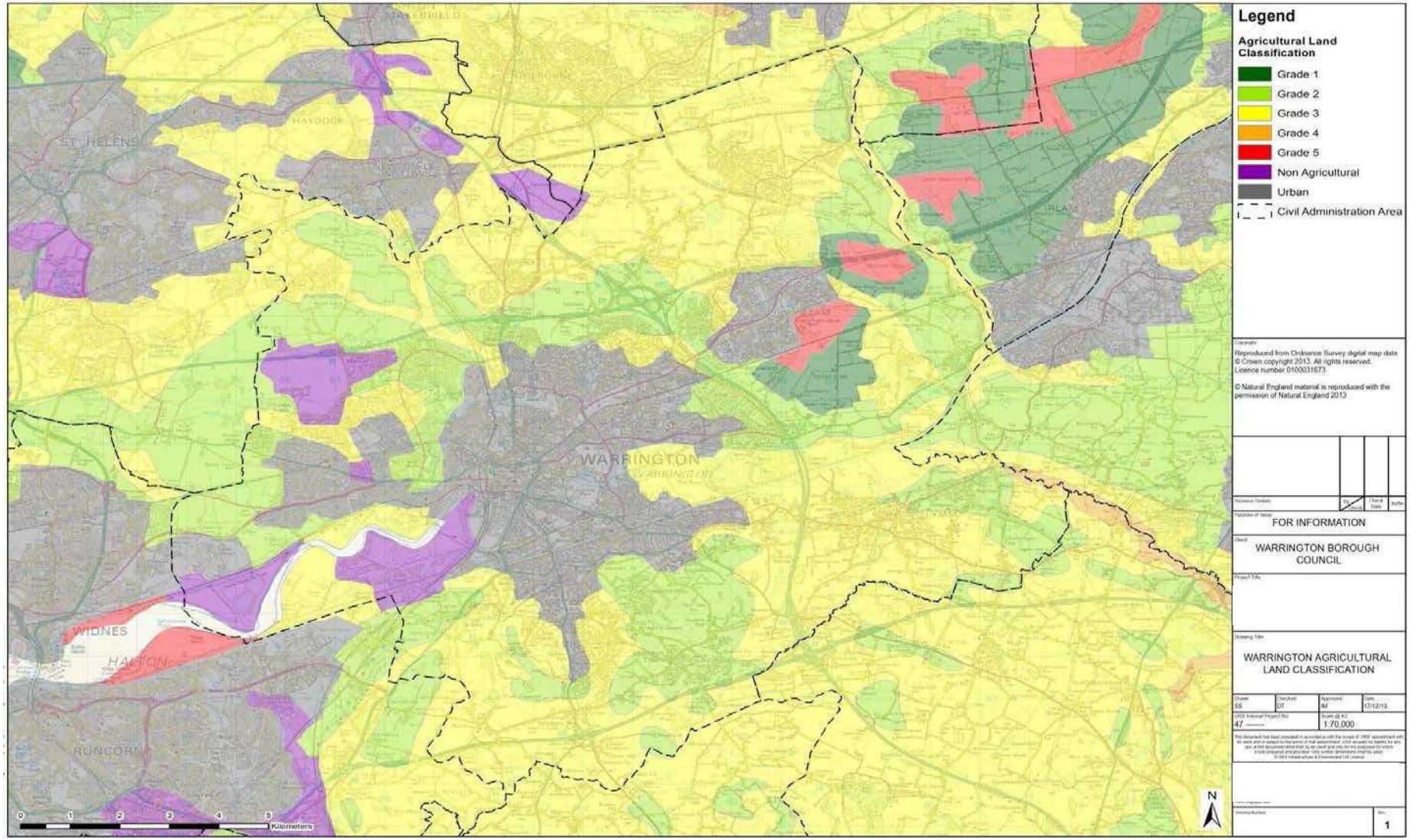
In Warrington during the 2016/17 monitoring period, the percentage of dwellings completed on previously developed land has remained high at 98%. 2016/17 also saw the completion of 33,463 Sq.M. of new commercial floorspace across 2 sites totaling 8.08 Ha. This was partially achieved on previously developed land. [52]

The Agricultural Land in Warrington is predominantly Grade 2 and 3, which is classified as 'the best and most versatile. There are only two pockets of Grade 1 land, which are located to the east of the Borough, in the fields north of Manchester Road. The Agricultural Land in Warrington is shown in **Figure 3.7**. It should be noted that Grade 3 land is not split between Grade 3a (which is classified as 'best and most versatile' and Grade 3b (which is not).

The Adopted Local Plan Core Strategy prioritises urban regeneration, which will help to minimise effects on agricultural land. However, the Plan could influence the release of greenfield land for transport infrastructure development, which could result in a loss of some agricultural land.

[51] Warrington Borough Council (2018) Air Quality Action Plan.
[52] Warrington Borough Council (2015) Annual Monitoring Report [online] available: https://www.warrington.gov.uk/download/downloads/id/10037/amr_2015.pdf

Figure 3.7 - *Agricultural Land Classification in Warrington*



Minerals

In terms of Geology, Carboniferous Pennine Coal Measures are present in the north-western tip of Warrington, whilst younger, Permo-Triassic rocks cover much more of the Borough. Glaciofluvial Deposits are located predominantly in the central northern areas of the Borough. Sand and gravel has historically been quarried in the Borough, and Southworth Quarry, an active sandstone quarry, is also located near its northern border in Croft Parish. This is the only aggregate producing quarry in Warrington, and has planning permission for operation until 2025.

Coal Bed Methane is extracted within the Borough, whilst clay is extracted at sites in the east (Rixton). There are also sites of secondary and recycled aggregate production at Fiddlers Ferry Power Station, Southworth Quarry and Woolston Deposit Ground Bed No.1.

According the Greater Manchester, Merseyside and Halton, and Warrington Joint Local Aggregate Assessment[53], the priorities for Warrington with regards to minerals include:

- Prioritise the use of secondary and recycled material
- Safeguard critical transport infrastructure
- Provide for windfall applications appropriately
- Monitor landbank adequacy annually

[53] Greater Manchester, Merseyside and Halton, and Warrington, Joint Local Aggregate Assessment (2014), Available: https://www.warrington.gov.uk/info/200564/planning_policy/1905/evidence_base/5, Last Accessed: 20/10/16

3.8 Cultural heritage

Contextual review

At an international level, the ***European Landscape Convention (2002)*** seeks to support and promote the protection, management and enhancement of landscapes.

The ***European Convention on the Protection of the Archaeological Heritage (1992)*** seeks to protect and record the archaeological heritage, which includes all remains and objects and traces of human activity from past times. A key relevant principle within the convention is to '*'integrate the conservation and archaeological investigation of archaeological heritage in urban and regional planning policies".*

At the national level, the ***Government White Paper: Heritage Protection for the 21st Century (2007)***[58] seeks to put the historic environment at the heart of the planning system.

The Government's ***Statement on the Historic Environment for England*** sets out their vision for the historic environment [54]. It calls for those who have the power to shape the historic environment to recognise its value and to manage it in an intelligent manner in light of the contribution that it can make to social, economic and cultural life. Also of note is the reference to promoting the role of the historic environment within the Government's response to climate change and the wider sustainable development agenda.

The ***NPPF*** states that Authorities should set out a positive strategy in their local plan for the '*'conservation and enjoyment of the historic environment*'', including those heritage assets that are most at risk. Assets should be recognised as being an irreplaceable resource that should be conserved in a manner appropriate to their significance; taking account of the wider social, cultural, economic and environmental benefits that conservation can bring, whilst also recognising the positive contribution new development can make to local character and distinctiveness.

The planning system should protect and enhance valued landscape and townscapes. Particular weight is given to ''*conserving landscape and scenic beauty"*[55].

The Council has prepared a number of **Conservation Area Management Appraisals,** which are discussed below:

The Bewsey Street Conservation Area Appraisal (2007) established that a significant level of progress had been made in improving the declining condition of the area around Bewsey Street.

The document states that of the list of some 13 problem areas identified in the designation report, 9 have been 'satisfactorily resolved' and two have been 'partly resolved'. The appraisal confirms that Bewsey Street's conservation area status has '*'undoubtedly helped to restore confidence in the future of the street as a residential and business location"*.

Bridge Street Conservation Area Appraisal (2006) concluded that further changes were required to reflect new issues on the public realm since the implementation of the plan over almost three decades ago.

The appraisal notes the mediocre quality of some of its ground floor frontages on Lower Bridge Street which convey ''*an air of neglect and an area which is undervalued"*. The document priorities further enhancement of the scheme in relation to Lower Bridge Street, as well as highways signs and street furniture that are in keeping with local character across the area.

Buttermarket Street Conservation Area Appraisal (2007) identified numerous issues associated with the core of conservation area, including inappropriate design features and other visually intrusive elements of the streetscape along Buttermarket Street and at its junction with Academy Street and Scotland Road.

[54] HM Government (2010) The Government's Statement on the Historic Environment for England [online] available at: http://webarchive.nationalarchives.gov.uk/+/http://www.culture.gov.uk/reference_library/publications/6763.aspx
[55] Council of Europe (2000) The European Landscape Convention [online] available at: http://conventions.coe.int/Treaty/en/Treaties/Html/176.htm

The document also identifies several development opportunities along Dial Street and Fennal Street along with a proposed revision of the Buttermarket Street Conservation Area boundary line.

Church Street Conservation Area Appraisal (2007) identifies new appropriate design standards for new developments on 'gap sites'. It also indicates that general improvements and the redevelopment of existing 'mediocre' buildings at the western extremity of the conservation area, could form a more visually appealing gateway to the area. The document also provides several objectives associated with revisions to the public realm.

Palmyra Square Conservation Area Appraisal (2007) divides identified issues between public and private sector. The private sector issues comprise of appropriate alterations to architectural features and the aesthetic of private properties, as well as their general upkeep. This is outlined with the intention of establishing a clearer standard for design across the conservation area, which property owners should conform to. The public sector issues are predominantly focused on removing unnecessary signage, renewing street furniture and ensuring the area's upkeep. The document also proposes several strategies of utilising vacant properties including a Technical School, along with confirmation that outside of a few minor amendments, the Conservation Area boundary shall remain largely unaltered.

Town Hall Conservation Area Appraisal (2007) outlines a number of 'short-medium term' and 'medium /longer term' measures to target identified issues from the report. shorter-term measures primarily consist of urban design and public realm improvements along with a regeneration program for the former baths and potentially their adjacent areas too. The longer-term measures set out a plan for the reinstatement of the Town Hall railings flanking the 'Golden Gates' along with their central carriage crossing restoration. It also outlines the desire for a strategy for the use and management of Bank Park.

The Council has also prepared a range of additional documents, which seek to achieve the restoration and regeneration of locations with valued character. These are summarised below:

Bridge Street Management Proposal focuses on the restoration of a variety of historic and locally significant buildings along the street. The proposal also seeks to ensure the character of the area is maintained through the monitoring of the streetscape via the suggestion of photographic studies and an urban design study. These studies would centre on targeting frontage and street aesthetics.

Town Hall Management Proposals seek to form a strategy for the Town Hall building and ground external works, signage and access. The former baths adjacent to the Town Hall are also considered as requiring an urban design and regeneration strategy. There is also emphasis on preserving the character of the area through the investigation of unauthorised works or signage.

Buttermarket Street Conservation Area Management Proposals strives to protect shop frontages on the street that might not have listed building status. The proposal suggests several aesthetic amendments to the streetscape such as tree planting and the repainting of street furniture and roadside barriers.

Church Street Management Proposals proposes infill of development on derelict sites, consideration of design of development within the conservation area, as well as changes/replenishment of street furniture and signage. The proposal suggests that these smaller changes to the street are to be followed up by periodic photographic studies in order to identify and act upon any unauthorised works.

The current and projected baseline

Historic assets and features

In 2017, there were 374 listed buildings recorded in the Borough, of which six are Grade I. There are also 13 Scheduled Monuments (mostly moated halls in the Green Belt) and 16 conservation areas [56].

[56] English Heritage (2017) Heritage Counts– Local Authority Profiles available [online] at: https://historicengland.org.uk/research/heritage-counts/2017-conservation-areas/indicator-data

The Council has identified a local list of buildings of community interest. Of the 623 buildings listed, many include local landmarks and buildings that would fail to meet criteria for statutory listing, but add to the character of the local area. This includes numerous farm buildings, cottages, schools, public houses and churches. There are also a scattering of mileposts, mounting blocks and war memorials amongst a range of other features.

There are eight entries (2017) on the Heritage at Risk Register in Warrington, including three conservation areas and two Places of Worship. These are:

- Bewsey Street, Bewsey (Conservation Area);
- Bridge Street, Warrington Town Centre (Conservation Area);
- Church Street, Warrington Town Centre (Conservation Area);
- Bowl Barrow west of Highfield Lane, Winwick (Scheduled Monument);
- Church of St. Oswald, Golborne Road, Winwick (Grade I Listed Building);
- Church of St. Thomas, London Road, Stockton Heath (Grade II* Listed Building);
- Bank Quay Transport Bridge (Scheduled Monument and (Grade II* Listed Building); and
- Gatehouse to Bradlegh Old Hall, Burtonwood and Westbrook (Grade II* Listed Building/Scheduled Monument).

Historic landscape and townscape

A large area of land to the north of Winwick has been registered as the site of the Battle of Winwick on 19 August 1648, which ended the Second English Civil War as a military contest.

There are areas identified within the borough for their potential archaeological value including parts of the town centre and Stockton Heath.

According to The Cheshire Historic Towns Survey [57], Warrington is split into five archaeological character zones. There are primary and secondary characteristics for each zone, which though not exhaustive contribute to a zone's distinct features.

Table 3.3: *Archaeological character zones within Warrington*

Zone	Primary characteristics
Warrington Zone 1: *Roman Wilderspool*	Roman roads, cemetery, settlements, industry
Warrington Zone 2: *Norman Warrington*	St Elphins Church, Motte and Bailey Castle, tenements, market places
Warrington Zone 3: *Late Medieval Warrington*	Medieval settlement, Warrington Bridge, Market Places, Augustinian Friary
Warrington Zone 4: *Bank Quay Industrial Centre*	Industrial sites
Warrington Zone 5: *Post Medieval Expansion*	Industrial estates, domestic expansion
Lymm Zone 1: *Medieval Settlement*	Settlement, The Cross

The history of the borough is reflected by a range of features that have been identified in the Historic Environment Record for Cheshire. For Example:

- There is evidence of agricultural practices, including ancient field systems at Croft, Moss Side, Moore and around Denow Wood.

[57] Cheshire County Council & English Heritage (2003) Cheshire Historic TownsSurvey [online] at: http://www.cheshirearchaeology.org.uk/?page_id=223

- Medieval 'townfields' can still be traced in the landscape, particularly those around Thelwall Heys, as well as those on either side of 'The Gorse' south of Grappenhall Heys

- There is substantial evidence of Roman activities in the area; with a large settlement at Wildespool, along with evidence of small, unenclosed farmsteads across the borough.

- There are several sites of military origin such as the airfield at Burtonwood and associated facilities, the airfield at Stretton, the Royal Ordnance Factory at Birchwood evidenced by the Bunkers at Birchwood Park and the old reservoirs.

Landscape Character

Warrington's landscape has taken many thousands of years to evolve and develop. Farming has shaped most of the present landscape, which continues to evolve. As farming techniques become ever more efficient and mechanised, it is likely to cause a corresponding impact on the landscape. Another feature of Warrington's landscape is the exploitation of minerals, stone, sand and salt, as well as the deposition of waste materials which will likely have a permanent effect on the landscape.

The landscape is vital for a healthy environment and for providing habitat for a diverse range of flora and fauna. The landscape can also provide leisure and tourism benefits, boosting the rural economy.

The Warrington Borough Council Landscape Character Assessment (2007)[58] assesses the Borough as having six different character types. Within these character types they include distinctive features. These are listed below.

Character type 1: Undulating enclosed farmland

- Stretton & Hatton;
- Appleton Thorn;
- Winwick, Culcheth, Glazebrook & Rixton;
- Croft;
- Burtonwood; and
- Penketh & Cuerdley.

Character type 2: Mossland Landscape

- Rixton, Woolston & Risley Moss;
- Holcroft & Glazebrook Moss;
- Stretton & Appleton Moss; and
- Pill Moss.

Character type 3: Red Sandstone Escarpment

- Appleton Park & Grappenhall;
- Massey Brook; and
- Lymm.

Character type 4: Level Areas of Farmland and Former Airfields

- Limekilns;
- Former Burtonwood Airfield; and
- Former Stretton Airfield.

Character type 5: River Flood Plain

- River Mersey/Bollin;
- River Glaze; and
- Sankey Brook.

[58] Warrington Landscape Character Assessment (2007), http://www.warrington.gov.uk/downloads/file/938/landscape_character_assessment_lca_final_report.

Character type 6: Inter-Tidal Areas

- Victoria Park to Fiddlers Ferry.

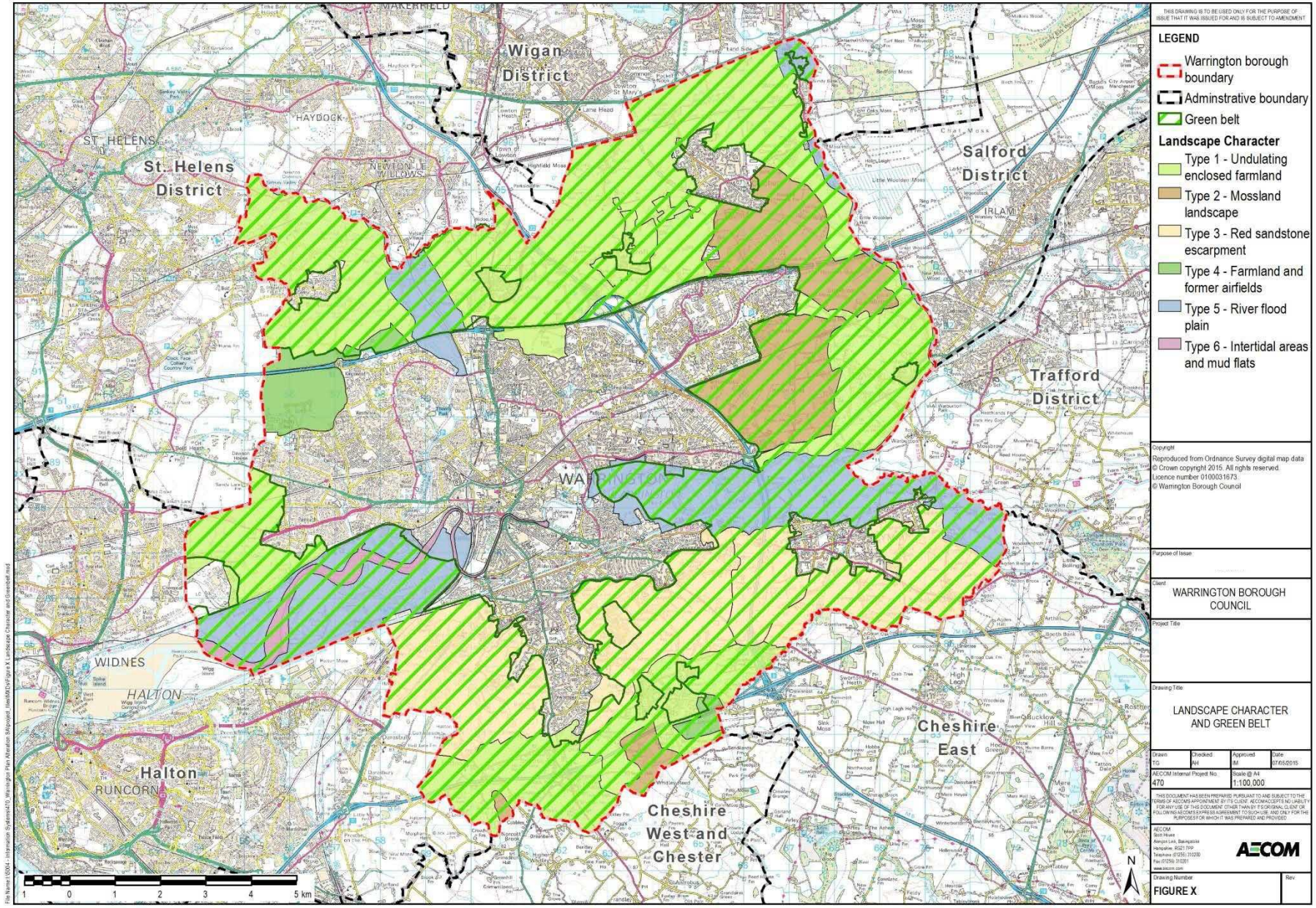
These Character Areas from the Landscape Character assessment will need to be respected as they provide base information on the visual status of the landscapes around Warrington, from which Visual Impact Assessments can be judged. These assessments are required when visually dominant developments are proposed.

Figure 3.8 shows the extent of these character areas across the borough. This figure also illustrates the extent of the Greenbelt, which is drawn fairly tightly around the urban areas and contributes to the protection of landscape character in the countryside.

Alongside these local assessments, there are National Character Areas (produced by Natural England) which cover areas of Warrington. These are Mersey Valley, Lancashire Coal Measures and the Shropshire, Cheshire and Staffordshire Plain.

These National Character Areas provide profiles which can help communities to inform their decision-making about the places that they live in and care for. The information they contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and encourage broader partnership working through Local Nature Partnerships. The profiles will also help to inform choices about how land is managed and can change.

Figure 3.8 – *Landscape character areas and Green Belt*



3.9 Biodiversity and Geodiversity

Contextual Review

The ***Natural Environment White Paper*** states that there is a need to halt the overall decline in biodiversity and the degradation of ecosystem services; and restore them in so far as feasible and seek to deliver net gains in biodiversity where possible[59].

The ***Biodiversity 2020*** **Strategy**[60], published by the government, sets out objectives to deliver: a more integrated large-scale approach to conservation, to put people at the heart of biodiversity policy, to reduce environmental pressures, an overall improvement in the status of species and prevention of further human-induced extinctions and improved public knowledge of biodiversity.

The ***NPPF*** discusses the importance of healthy well-functioning ecosystems, encourages the 'preservation, restoration and re-creation of priority habitats, ecological networks' and promotes the 'protection and recovery of priority species. It states that there is a need to protect and maximise the value of areas already rich in wildlife; expand, buffer, and create connections and stepping stones between these areas; and make the wider landscape more permeable to wildlife.

The TCPA and Wildlife Trust guidance document, **Planning for a Healthy Environment**, suggests that positive planning for 'green infrastructure' is recognised as part of planning for ecological networks and making the built environment permeable for wildlife[61].

The guidance document ***Creating Garden Cities and Suburbs Today***, suggests that 'New development should incorporate green space consisting of a 'network of well-managed, high-quality green/open spaces linked to the wider countryside[62]'. These spaces should be of a range of types (e.g. community forests, wetland areas and public parks) and be multifunctional, for instance as areas that can be used for walking and cycling, recreation and play, supporting of wildlife, or forming an element of an urban cooling and flood management system.

Green infrastructure is defined as being: 'a network of multi-functional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities'.

The Mersey Forest Plan (2014) incorporates the concept of green infrastructure. The purpose of the plan is to achieve environmental, social and economic benefits for local people through the creation of a community forest – in simple terms it seeks to substantially increase tree cover across Merseyside, Warrington and North Cheshire over the next ten years.

59 Defra (2012) The Natural Choice: securing the value of nature (Natural Environment White Paper) [online] available at: http://www.official-documents.gov.uk/document/cm80/8082/8082.pdf

60 Defra (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem services [online] available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf

61 The Wildlife Trusts & TCPA (2012) Planning for a healthy environment: good practice for green infrastructure and biodiversity [online] available at:: http://www.wildlifetrusts.org/news/2012/07/06/planning-healthy-and-natural-environment

62 TCPA (2012) Creating garden cities and suburbs today [online] available at: http://www.tcpa.org.uk/data/files/Creating_Garden_Cities_and_Suburbs_Today.pdf

The current and projected baseline

Designated habitats

There are three Special Areas of Conservation (SACs) in Warrington;

- Holcroft Moss (part of Manchester Mosses);
- Risley Moss (part of Manchester Mosses); and
- Rixton Claypits.

There are four Sites of Special Scientific Interest (SSSI) within Warrington's boundary. These are:

- Woolston Eyes (breeding bird assemblage);
- Rixton Clay Pitts (grassland and rare species);
- Risley Moss (mosses, open water habitat and vegetation); and
- Holcroft Moss (peat bogs/mosses).

The conditions of these SSSIs at the time of the latest surveys are as follows[63]:

***Table 3.3**: SSSI Condition*

SSSI	Condition	Last assessment	Condition risk threat	Sensitivities
Woolston Eyes	100% favourable condition	Dec, 2010	Medium	Important to breeding birds. Recreation along the ship canal and public rights of way through the SSSI could lead to potential disturbance. Improvements to walking/cycling routes here could potentially have effects (either positive or negative).
Rixton Clay Pitts	100% favourable	June, 2015	No identified condition threat	The use of the site by great crested newts is one of its most important features. Water quality is an important issue that needs to be maintained. Of most relevance to the LTP4 would be walking and cycling along PROWs through the site, as well as the potential for pollution from traffic.
Risley Moss	61% unfavourable recovering 40% favourable	April, 2015	Low / No identified condition threat	Reliant on water levels. Transport related effects unlikely. Rights of way nearby but recreational effects unlikely given the nature of the sites (peat bogs).
Holcroft Moss	100% unfavourable recovering	June, 2013	High	The site is unlikely to be a affected by recreational pressure or pollution from local sources. However, the M62 runs close by with the potential for effects on air quality. The site could also be affected in the longer term through the construction of HS2 route Phase 2b.

There are four Local Nature Reserves in Warrington; Rixton Clay Pits and Risley Moss (which are also SSSIs), Paddington Meadows and Colliers Moss.

As well as these designated sites, Warrington also has over 50 Sites of Local Importance for Nature Conservation, known as Local Wildlife Sites which represent the best local wildlife sites in the Borough and are vital to the maintenance of biodiversity of the town.

[63] Natural England - Condition of SSSI report [online] at: www.sssi.naturalengland.org.uk

During the monitoring period of 2013-14 there was a net gain of 378ha of land recognised for its biodiversity importance within the Borough[64],. This was due to the designation of several new Local Wildlife Sites such as Rixton Moss. Since, there has been no change to the area of biodiversity importance. Further monitoring of habitats is required to determine if there have been net increases in biodiversity, and to identify potential sites that may be suitable for designation.

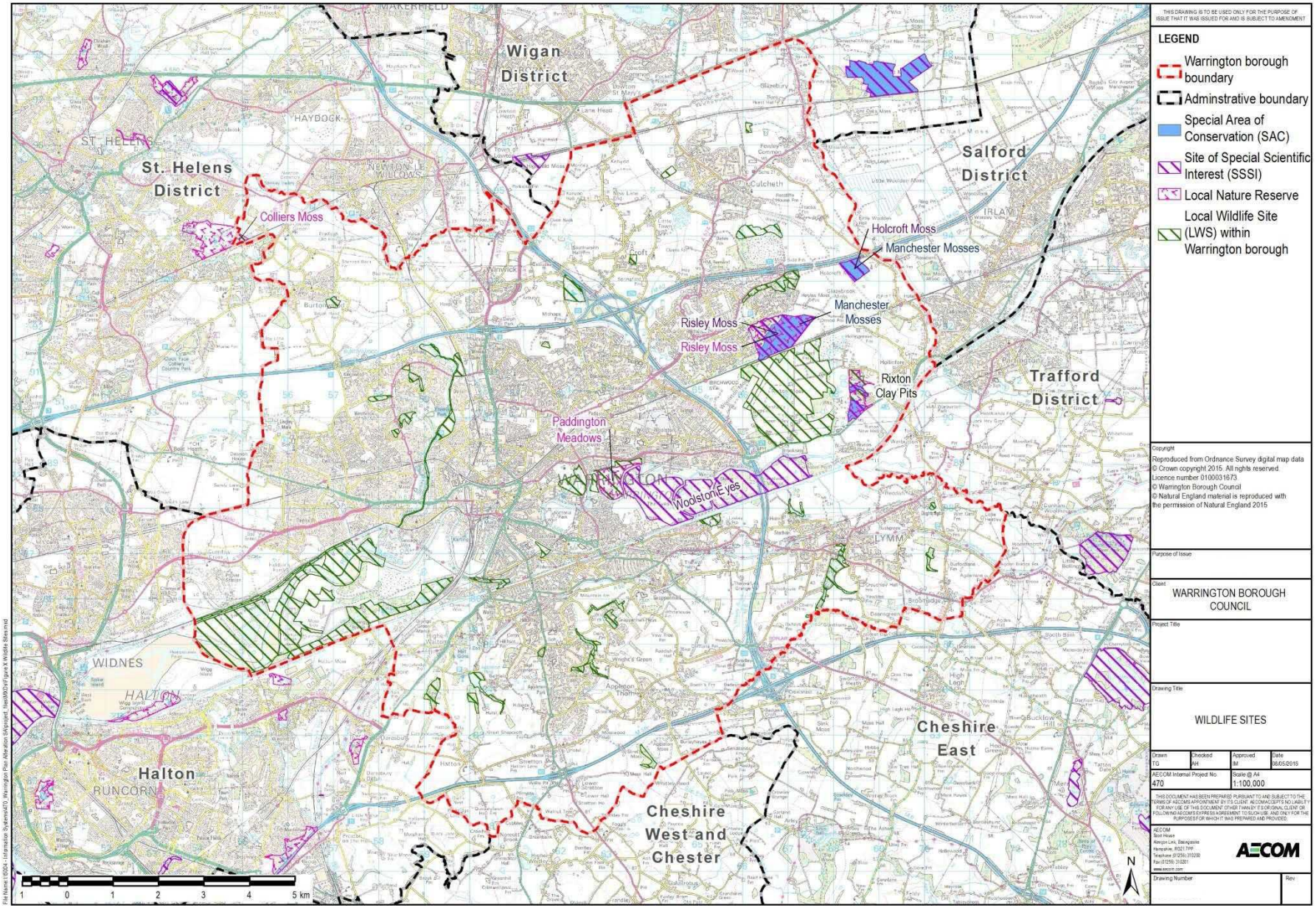
It is assumed that the number of designated sites would be unlikely to alter substantially in the foreseeable future although improvement should continue. The Adopted Core Strategy provides both biodiversity protection and crucially enhancement in Warrington.

The development of further species action plans would provide an improved foundation for the protection of the various species and increase awareness of their locations so measures may be put in place for enhanced protection. With an increase in development and growth of the population, there are potential negative impacts on biodiversity associated with increased access onto sensitive habitats, including designated sites.

Figure 3.9 shows the location of these designated wildlife sites throughout the Borough and in neighbouring authorities.

[64] Warrington Borough Council (2014) Annual Monitoring Report http://www.warrington.gov.uk/downloads/file/8187/amr_2014

Figure 3.9 - *Designated wildlife sites*



3.10 Climate Change and Resource Use

Contextual Review

The Carbon Plan (2011)[65] sets out the Government's plans for achieving the greenhouse gas emissions reductions committed to in the Climate Change Act 2008 and the first four carbon budgets. The Carbon Plan aims to reduce the UK's greenhouse gas (GHG) emissions by 80% by 2050, relative to levels in 1990.

Domestic transport emissions make up nearly a quarter of the UK's GHG emissions and the plan states that low carbon transport is an essential part of meeting the targets in the Carbon Plan. The Plan notes that by 2027, emissions from transport should be between 17% and 28% lower than 2009 levels.

According to the ***NPPF*****,** the need to '*'support the transition to a low carbon future in a changing climate"* is a core planning principle. Planning (and associated transport measures) should also play a key role in securing radical reductions in greenhouse gas (GHG) emissions through planning for new development in locations and ways which reduce GHG emissions in order to meet the targets set out in the Climate Change Act 2008.

The ***NPPF*** further encourages transport solutions that support reductions in greenhouse gas emissions and reduce congestion; notably through concentrating new developments in existing cities and large towns and/or ensuring they are well served by public transport.

The *NPPF* also states that Planning authorities are encouraged to 'adopt proactive strategies' to adaptation. New developments should be planned so that they avoid increased vulnerability to climate change impacts. Where new development is at risk to such impacts, this should be managed through adaptation measures including the planning of green infrastructure.

Development should also be directed away from areas at highest risk from flooding, and should 'not to be allocated if there are reasonably available sites appropriate for the proposed development in areas with a lower probability of flooding'. Where development is necessary, it should be made safe without increasing levels of flood risk elsewhere.

In the guidance document ***How local authorities can reduce emissions and manage climate risk***[66] it is considered particularly important that local authorities use their powers as follows in relation to transport:

- Reduce transport emissions by concentrating new developments in existing cities and large towns and/or ensuring they are well served by public transport;
- Avoid increasing the area's risk to climate change impacts by locating new development in areas of lowest flood risk; and

The Flood and Water Management Act[67] sets out the following approaches to flood risk management that are relevant with regards to transportation:

- Utilising the environment, such as management of the land to reduce runoff and harnessing the ability of wetlands to store water; and Identifying areas suitable for inundation and water storage.

The National Adaptation Programme: Making the Country Resilient to a Changing Climate (Defra, 2013) promotes the adoption of measures to improve resilience (for businesses, communities and the built and natural environment) to the likely effects of climate change, including the need to manage flood risk, protect and enhance green infrastructure and urban heating.

[65] HM Government (2011) Carbon Plan: Delivering our low carbon future [online] available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47613/3702-the-carbon-plan-delivering-our-low-carbon-future.pdf

[66] Committee on Climate Change (2012) How local authorities can reduce emissions and manage climate risk [online] available at: https://www.theccc.org.uk/publication/how-local-authorities-can-reduce-emissions-and-manage-climate-risks

[67] Flood and Water Management Act (2010) [online] at: http://www.legislation.gov.uk/ukpga/2010/29/contents

The *Climate Change Strategy for Warrington (Jun 2013*) refreshes the Council's pledge to take action on climate change and to lead Warrington toward a sustainable, low carbon future. It identifies three main priorities for action: reducing the Council's own carbon emissions; helping to reduce carbon emissions across the borough as a whole; and adapting Warrington to cope with changing weather. The strategy commits the Council to setting appropriate targets and actions under each of the three priority areas.

The Council's ***Flood Risk Management Strategy (March 2011):*** aims to ensure that the Council prioritises its investment in managing the flood risk in Warrington in the best way possible. It identifies where and what the flood risk is, how it can be managed and prioritises the delivery the identified measures.

The Government's ***Review of Waste Policy in England (2011)*** recognises that environmental benefits and economic growth can be the result of a more sustainable approach to the use of materials. As such, it sets out a vision to move beyond our current 'throwaway society' to a 'zero waste economy'.

The ***Waste Management Plan for England (2013)*** concludes that from the 2011 review, further policy measures are not needed to meet the key objectives of the revised Waste Framework Directive

The ***National Planning Policy for Waste*** **(DCLG, 2014)** states that waste planning authorities 'should prepare Local Plans which identify sufficient opportunities to meet the identified needs of their area for the management of waste streams'. It further sets out a criteria for waste planning authorities to assess the suitability of sites, this includes 'the capacity of existing and potential transport infrastructure to support the sustainable movement of waste, and products arising from resource recovery, seeking when practicable and beneficial to use modes other than road transport'.

The current and projected baseline

Waste

The 2016/17 monitoring period saw a decrease of 2,131 tonnes in the total municipal waste arisings when compared to the previous monitoring period. This resumes the previous downward trend in the total municipal waste arisings after last year's slight increase. There was another decrease of 1,784 tonnes in the amount of recycled/composted waste that was collected (down from 55,255 to 53,471 tonnes). The amount of waste incineration has also decreased by 874 tonnes from 40,761 to 39,797 tonnes.[68]

Whilst, in general terms the 2016/17 monitoring period saw the continued effects of the Council's new municipal waste disposal contract[69], which has seen a further reduction in the total amount of municipal waste arising when compared to the previous monitoring period (down from 97,795 to 95,664 tonnes), there has been a slight increase in the amount of waste being landfilled when compared to the previous monitoring period (up from 1,869 to 2,396 tonnes)..

Energy and carbon emissions

In 2016, the estimate of total carbon dioxide emissions for Warrington was 6.7 tonnes per head. This represents a 1.0 tonne per head decrease compared to 2013[70].

Warrington is intersected by several Motorways (M56, M62) so it is important to bear in mind where emissions originate, as much of these emissions cannot be directly influenced by local planning policy.

Table 3.4 below shows figures in Warrington between 2005 and 2016. There is a general downward trend from 2005 to 2016 (shown in Figure 3.10) although in some years there was an increase in emissions.

[68] Warrington Borough Council (2017) Annual Monitoring Report [online] available: https://www.warrington.gov.uk/downloads/file/11831/annual_monitoring_report_1_april_2016_31_march_2017

[69] In 2013/2014 a new municipal waste disposal contract came into effect which now sees non-recyclable municipal waste diverted to an Energy from Waste (EfW) facility as opposed to being landfilled.

[70] Department for Business, Energy and Industrial Strategy (2017) 2005 to 2016 UK local and regional CO2 emissions– data tables available [online] at: https://www.gov.uk/government/collections/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics

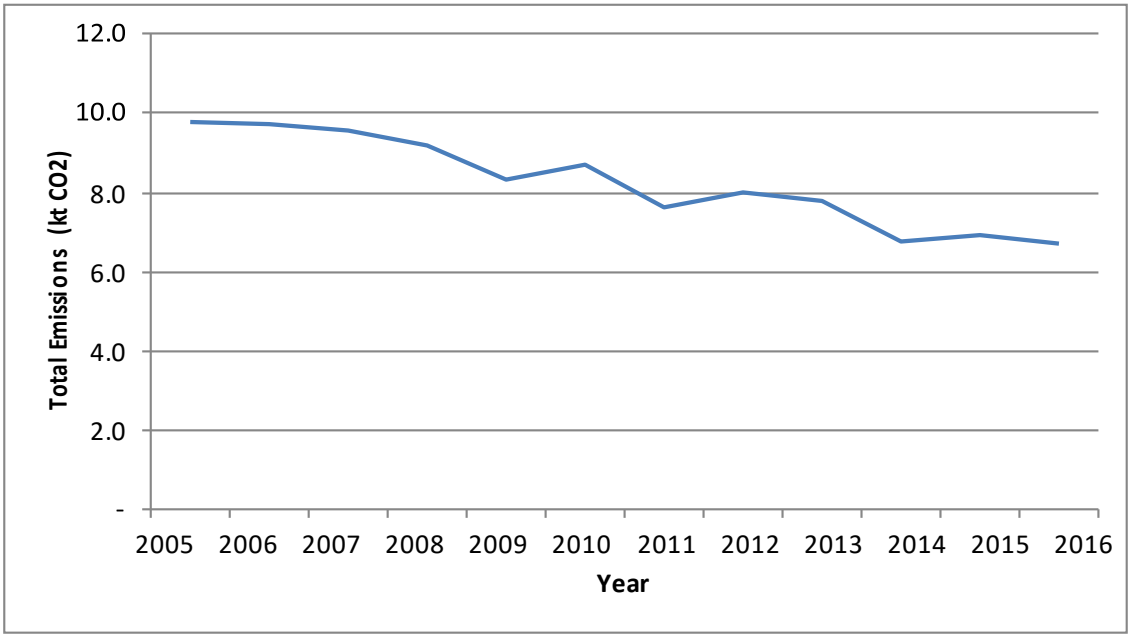
Overall significant progress has been made in the last ten years, with a particular reduction in emissions from the industry and commercial total.

Table 3.4: CO_2 Emissions between 2005 and 2016

Year	Industry and Commercial Total	Domestic Total	Transport Total	Grand Total	Per Capita Emissions (t)
2005	695.3	484.9	681.3	**1,873.0**	9.7
2006	708.3	480.9	683.4	**1,883.9**	9.7
2007	689.1	471.2	701.8	**1,872.9**	9.5
2008	651.8	467.9	674.0	**1,804.4**	9.1
2009	570.9	429.7	650.3	**1,661.7**	8.3
2010	634.8	457.8	641.0	**1,744.1**	8.7
2011	508.2	397.8	624.3	**1,540.5**	7.6
2012	568.3	425.7	614.2	**1,618.1**	7.9
2013	559.5	415.7	604.0	**1,589.1**	7.7
2014	422.8	344.3	611.1	**1,387.8**	6.7
2015	450.6	334.2	631.0	**1,425.3**	6.9
2016	419.6	319.2	654.9	**1,403.0**	6.7

Source: Department for Business, Energy and Industrial Strategy

***Figure 3.10 –** Warrington CO_2 emissions estimates 2005-2016 (kt CO2)*



Source: Department for Energy and Climate Change

Historically, increased development will result in a greater amount of greenhouse gas emissions. The North West Sustainable Energy Strategy sets a target of at least 20% of North West electricity requirements being met by renewable sources by 2020.

Meeting this target will be dependent upon the successful delivery of a range of carbon reduction activities, including tighter standards for the performance of buildings and an increased provision of low-carbon energy [71].

It is anticipated that emissions will continue to fall over time as emissions targets tighten, the energy efficiency of homes is improved, low carbon energy schemes come on line and vehicle efficiency continues to improve.

An increase in the take-up of electric vehicles would be expected to increase demand for electricity over the Plan period. It will therefore be necessary to ensure that there is adequate capacity within the electricity grid. This includes the need for sufficient energy generation (when it is needed) as well as the ability for substations to accommodate increased loads.

Resilience

The Government's Climate Change Adaptation Strategy outlines the importance of building resilience to the effects of climate change that are already predicted to happen in the future.

A key principle for adaptation is the need to take action early to avoid costly effects in the future (as identified in the 'Stern Report'). The LTP4 has the potential to address resilience in a number of ways including consideration of flood risk and the implications for movement. The introduction of walking and cycling routes
/ measures could also be implemented as part of green infrastructure enhancements.

Flooding

The Warrington Strategic Flood Risk Assessment Volume 2 (2011) followed on from the 2008 Volume which looked at fluvial, tidal, surface water and sewer flood risk. The report looked at each source of flooding in detail. Warrington is at risk from many different sources of flooding including, main rivers, ordinary watercourses, surface water runoff, sewer flooding and the residual risks associated with artificial water bodies such as the Bridgewater Canal, the Manchester Ship Canal and reservoirs.

The main source of flooding is the River Mersey and its five key tributaries, which flow through the centre of the borough. Flooding can be both fluvial and tidal in nature with the tidal limit of the Mersey located at Howley Weir, central Warrington.

The Environment Agency's June 2011 Flood Map indicated there are 6789 homes, businesses and other buildings within the 1 in 100-year fluvial or 1 in 200-year tidal flood extent (Flood Zone 3) within Warrington. These properties have a 1% (fluvial) or 0.5% (tidal) chance of flooding in any given year. This number rises to 14670 properties when the extreme 1 in 1000-year fluvial and tidal flood event is considered[72].

Figure 3.11 sets out the Environment Agency flood maps. It can be seen that large parts of the urban area are at risk of flooding, including the potential for disruption to roads within and around the town centre.

Since 2006, the Annual Monitoring Report (2017) confirms that there have been no planning permissions granted contrary to the advice of the Environment Agency on flooding and water quality grounds.

[71] North West Sustainable Energy Strategy (2006), http://www.4nw.org.uk/downloads/documents/aug_06/nwra_1156410969_North_West_Sustainable_Energy.pdf.
[72] Warrington Strategic Flood Risk Assessment Volume 2 (2011)

Figure 3.11 – *Environment Agency Flood Risk Zones.*

4. What are the key issues that should be a focus of the appraisal?

4.1 Key sustainability issues

Drawing on the review of the policy context and baseline position, a range of environmental and sustainability issues have been identified to ensure that the SEA is focused on the most relevant factors. Importantly, this needs to consider the extent to which the LTP4 can influence these issues (i.e. the potential for significant effects to be generated).

Table 4.1 below presents a list of the key issues grouped under a series of environmental / sustainability themes. For each issue / factor, a 'scoping outcome' is provided. Essentially, this is a decision as to whether the LTP4 could lead to significant effects on the issue/factor and should therefore be a focus of the SEA.

Table 4.1: *Key sustainability issues identified through scoping*

SEA Theme	Key issues and scoping outcome
Economy and regeneration	• **Pockets of Deprivation –** Deprivation across the borough as a whole is below regional and national averages, but there has been a slight worsening in the overall index of deprivation from 2010-2015. However, there are inequalities across the borough with several communities within the inner areas of Warrington falling into the 10% most deprived areas in England. Access to services and jobs is a key factor that can help to address deprivation in such areas. Consequently, this factor is **scoped-in** to the SEA. • **Employment needs** – The 2016 Economic Development Needs Assessment identifies a need for an additional 276 hectares of employment land. Transport and access will play an important role in ensuring attractive sites come forward for employment use. Consequently, this factor is **scoped-in** to the SEA. • **Economic Growth** – There is a need to continue to promote sustainable economic growth and to support aspirations to transform Warrington from a new town to a 'New City', with corresponding economic growth. There will be a need to support growth with adequate transport infrastructure, with HS2 forming an important catalyst for further growth in the longer term. Consequently, this factor is **scoped-in** to the SEA.

SEA Theme	Key issues and scoping outcome
Health and Wellbeing	• **Ageing population** – There are significant changes to the structure of the population anticipated with projections suggesting there will be a 50% increase in the population aged over 65 years by 2036. There is a need to ensure that evidence based interventions which promote healthy ageing and retain independence are prioritised and promoted. This will include consideration of mobility, movement and accessibility. Therefore, this factor is **scoped-in** to the SEA. • **Fear of Crime and Antisocial behaviour –** Household surveys show that fear of crime at night is higher than national figures, and substantially higher in more deprived neighbourhoods. It is important to ensure that people feel safe when travelling, especially if levels of walking and cycling are to be increased. Consequently, this factor is **scoped-in** to the SEA. • **Pockets of Health Deprivation** – Health deprivation relative to other boroughs has worsened since 2010, with approximately 32% of the local population living in areas which are ranked amongst the most health-deprived in the country. Inner areas of the borough are affected most severely, but there are pockets across other Warrington neighbourhoods that are ranked amongst the 20% most deprived nationally. Tackling deprivation can be influenced by transport and accessibility and therefore this factor is **scoped-in** to the SEA. • **Green Infrastructure** – Green infrastructure provides multi-functional benefits for health and wellbeing and should be protected and enhanced. • **Obesity rates** amongst adults are rising and currently exceed the average for England, contributing to actual and forecast increases in a number health conditions. Opportunities to maximise physical activity, active travel and healthy eating should be explored. Consequently, this factor is **scoped-in** to the SEA. • **Access to Primary Care:** The NHS Strategic Estates Plan has identified that there are areas within the borough that currently have insufficient capacity to accommodate new residents, and will become increasingly more constrained over the plan period with further development. This factor has been **scoped-in** to the SEA.
Accessibility	• **Accessibility of Employment –** Travel to work by public transport / walking / cycling figures for Warrington are lower than regional or national average. The use of car is high and the problem is exacerbated by the New Town Development pattern. This factor is therefore **scoped-in** to the SEA. In the long term, the completion of HS2 could have benefits for employment access to and from a wider catchment area. • **There are rising traffic volumes and traffic congestion -** The scale and distribution of new development is also likely to contribute to further increases in car usage across the Borough. Consequently, this factor is **scoped-in** to the SEA. • **High levels of commuting into and out of the Borough –** Patterns of economic growth and housing delivery could potentially help to reduce the amount of commuting in the longer term. This factor is therefore **scoped-in** to the SEA.
Housing	• **Housing delivery** - There is a pattern of solid housing completions over the last 5 years, with the majority taking place on brownfield land. However, a continued need for housing delivery will mean that greenfield / greenbelt land is likely to be developed on the urban fringes. This will require supporting infrastructure and consideration of patterns of movement. Consequently, this factor is **scoped-in** to the SEA. • **Ageing population** - To address the impact of an ageing population here is a need to ensure there are sufficient homes that are accessible, adaptable and support care in the community and independent living despite changing requirements caused by age, disability or illness. The LTP4 could potentially have an influence on this factor and it is therefore **scoped-in** to the SEA.

SEA Theme	Key issues and scoping outcome
Natural Resources	• **Pollution, air quality and climate change** – Two AQMAs are designated within the Borough. One is related to the motorway network; and one is associated with the town centre ring road and link roads. There is a need to improve air quality in these areas in particular, and therefore this factor is **scoped-in** to the SEA. • **Quality of land and waterways in the Borough –** There are a large number of potentially contaminated sites within the Borough and a significant length of Warrington's rivers are graded as having poor chemical and biological quality. Transport measures could potentially involve the consideration of water travel and / or walking and cycling along routes alongside water courses. This factor is therefore **scoped-in** to the SEA. • **Soil quality –** Warrington contains considerable areas of Agricultural Land classified as Grade 2 and 3a (i.e. Best and Most Versatile). However, the LTP4 is unlikely to lead to a direct loss of such resources, so this topic is **scoped-out** of the SEA. • **Mineral resources –** There is a need to protect mineral resources and supporting infrastructure from sterilisation. Transport schemes can have an effect on minerals through a requirement for construction materials. However, the scope of influence that the LTP4 will have on materials choice is limited. This factor is therefore **scoped-out** of the SEA.
Cultural heritage	• **Protection and enhancement of heritage assets –** There is a significant number of historic assets in the Borough & a number of buildings / monuments have been identified as being in vulnerable or deteriorating condition. The LTP4 has the potential to have positive or negative effects upon cultural heritage, and this factor is therefore **scoped-in** to the SEA. • **Historic Environment –** In addition to designated assets, there is a range of locally important buildings and features with historic and cultural value. This also includes a number of historic field patterns, areas of archaeological potential and the form of the built environment in settlements, which gives them their sense of place. This factor is therefore **scoped-in** to the SEA. • **Landscape character –** There is a need to preserve and enhance the character of Warrington's countryside, whilst recognising the need to release Green Belt land. Though this is an important issue, the LTP4 is unlikely to have a significant effect on landscapes as it does not involve large-scale infrastructure schemes and would not lead to a loss of land in the greenbelt or countryside. The potential for positive effects is also considered to be unlikely. Consequently, this factor is **scoped-out** of the SEA.
Biodiversity and Geodiversity	• **Protection & Enhancement of Biodiversity and geodiversity Assets –** There are significant nature conservation and wider green infrastructure assets in the borough that need to be protected, enhanced and made more resilient. • Water quality and air quality can have a detrimental effect upon certain wildlife habitats and species. • The LTP4 has the potential to have significant effects (either positive or negative), and is therefore **scoped-in** to the SEA.

SEA Theme	Key issues and scoping outcome
Climate Change and resource use	• **Flood protection in the borough –** Flooding throughout the borough has the potential to disrupt transport networks and access to services. Consequently, this factor is **scoped-in** to the SEA. • **Renewable energy and energy efficiency** – There is a need for a more pro-active approach to energy production and usage. An increased use of electric vehicles could put increasing pressure on the electricity grid. However, it is unlikely that the LTP4 can have a significant influence upon energy infrastructure. Therefore, this factor is **scoped-out** of the SEA. • **Amount of waste entering land fill** – There are European and National targets for waste reduction and an increase in reuse, recycling and composting. However, the LTP4 is unlikely to have a significant influence upon waste and recycling. Therefore, this factor is **scoped-out** of the SEA.

4.2 The SEA Framework

The sustainability issues identified through scoping have been used to establish eighteen environmental sustainability objectives, which have been grouped under eight 'SEA themes' in **Table 4.2** below.

Taken together; the SEA themes, objectives and supporting criteria make-up the 'SA Framework', which provides the basis for undertaking appraisals.

Table 4.2: *The 'SEA framework '*

SEA Theme	SEA objectives	Sub criteria / supporting questions
Economy and regeneration	1. Support the growth of a modern economy which helps to address inequalities and deprivation.	- Will it support the release of employment land by ensuring land suitable for employment uses have good transport connectivity? - Will it improve connections between Warrington town centre and the M62 corridor to the north of the town centre to areas further afield? - Will it improve connectivity with the rest of the region? - Will it help to manage parking whilst ensuring access to the town centre?
	2. Reduce poverty, deprivation and social exclusion and secure economic inclusion	- To what extent will new transport infrastructure be accessible to people on low incomes? - Will it improve the affordability of public transport services? - Will it improve access to public transport services for the elderly and/or those with a disability?
Health and Wellbeing	3. Improve community safety and reduce the fear of crime and disorder.	- Will it improve the overall safety of the Borough and help reduce road traffic accidents? - Will it reduce transport related crime, anti-social behavior and the fear of crime?
	4. Provide, protect or enhance leisure opportunities, recreation facilities, green infrastructure and access to the countryside	- Will it improve access to open space, sport and recreational facilities? - Will it help to protect and enhance a network of multi-functional green infrastructure that encourage active travel and recreation?
	5. Ensure good access to health services.	

SEA Theme	SEA objectives	Sub criteria / supporting questions
Accessibility	6. Support sustainable patterns of economic growth by; securing improvements to transport networks, ensuring good access to jobs and services, and enabling sustainable modes of travel.	- Will it support the interconnectivity of transport modes? - Will it extend walking paths, cycle ways and public transport services to key facilities, housing and employment sites? - Will it improve highways infrastructure to employment, key facilities and services? - Will it improve access to services, facilities and employment for those living in rural parts of the Borough? - Will it reduce private car mileage? - Will it encourage the use of alternatives to car travel? Such as walking, cycling and public transport?
Housing	7. Support sustainable patterns of housing growth.	- Will it help to ensure that housing developments are supported by strong public transport, walking and cycling routes?
Natural Resources	8. Protect, manage and improve water quality. 9. Protect, manage and improve air quality.	- Will it help to address air quality problems, particularly within Warrington's AQMAs. - Will it reduce transport related air pollutants? - Will it improve the quality of water in the Borough?
Historic environment	10. Conserve and enhance the historic environment, heritage assets and their settings.	- How will it affect designated heritage assets? - How will it affect locally important heritage assets? - How will it affect archaeological assets (designated and non designated)?
	11. Ensure high quality and sustainable design for transport infrastructure, spaces and the public realm that is appropriate to the locality.	- How will it affect the character of townscapes? - Will it encourage high quality design? - Will it enhance the public realm? - Will it help to preserve and create a sense of place? - Will it contribute to better management of cultural heritage assets?

SEA Theme	SEA objectives	Sub criteria / supporting questions
Biodiversity	12. Protect, maintain and enhance biodiversity habitats and species.	- Will there be a net gain in biodiversity? - Will it reduce the levels of disturbance to species and habitats? - Will it protect or enhance habitat corridors and linking routes? - Will it continue to protect nationally and locally designated sites? - To what extent can any effects be mitigated?
Climate Change: Flooding and resilience	13. Ensure the Borough is prepared for climate change, particularly the risks of flooding.	- Has the extent to which flooding could affect transport routes been considered? - Will it help to improve the resilience of the public realm to climate change?

5. Appraisal methods

5.1 Introduction

This chapter sets out the methods and assumptions for undertaking the appraisals. The SEA Framework set out in **Table 4.2** is at the heart of the appraisal process and forms the basis for structuring the assessments.

5.2 Appraisal methods

The appraisals identify and evaluate 'likely significant effects' on the baseline / likely future baseline associated with the draft Plan (and any reasonable alternatives), drawing on the sustainability topics and objectives as a methodological framework.

It is important to note that effects have been predicted based upon the criteria presented within the SEA Regulations. So, for example, account is taken of the nature of effects (including magnitude, spatial coverage and duration), the sensitivity of receptors, and the likelihood of effects occurring as far as possible.

The potential for 'cumulative' effects has also been considered. The effect 'characteristics' are described within the appraisal as appropriate under each sustainability theme / objective. A table is also presented for each topic, summarising the predicted effects and their characteristics (i.e. namely whether they are significant or not).

To aid in the communication of findings, the effects of the Plan (and reasonable alternatives) have been illustrated by using the following symbols, which highlight whether effects are significant or not. The nature of uncertain effects have also been identified, for example, an uncertain negative or positive effect

++	The policy is likely to have a **significant positive effect.**
+	The policy is likely to have a **minor positive effect.**
0	The policy is likely to have a **neutral effect**.
-	The policy is likely to have a **minor negative effect**
--	The policy is likely to have a **significant negative effect**
?	There are **uncertainties** with regards to the predicted effects

5.3 Assumptions

When undertaking the appraisals, the following factors have been considered:

- The effects associated with the Plan should be considered in the context of what would occur in the absence of the Plan (i.e. the projected baseline position). In the absence of a new transport plan for Warrington, there would still be national and local policy, programmes and schemes to consider. Therefore the effects of the LTP4 should be predicted in the context of how the LTP4 is likely to lead to a more positive or negative effects when compared to a less proactive approach.
- Significant effects will only be identified if there is likely to be a tangible change to the projected baseline.
- It is assumed that detailed effects associated with specific transport schemes would be dealt with at the Planning stage through appropriate assessments (which might include EIA). The appraisal of LTP4 is focused on strategic matters.
- Where routine mitigation measures could be implemented to reduce potential negative effects, this will be taken into account in the appraisals.

5.4 Consultation on the Scope

The 'SEA Regulations' require that: ''When deciding on the scope and level of detail of the information that must be included in the report, the responsible authority shall consult the consultation bodies''.

In England, the consultation bodies are Natural England, The Environment Agency and English Heritage.

Engagement with the statutory consultees at the Scoping Stage helps to ensure that the SA is wide ranging in its consideration of the appropriate issues which should be the subject of the assessment.

The Scoping Report was consulted upon in line with the procedures set out in Chapter 1 of this report. This involved a 5 week consultation period starting from August 1st 2018.

Following-on from the consultation process, the scope was updated as necessary, to reflect the responses received (See Appendix A).

6. Consideration of reasonable alternatives

6.1 Introduction

A key part of the SA process is to consider whether there are different ways in which the vision and objectives of the Plan can be achieved. In this case, the Plan seeks to achieve a well-connected place with high quality walking, cycling and public transport networks. There is also a need to support economic growth.

A large number of policies have been developed to help deliver this vision and objectives. In the main, these policies are not mutually exclusive strategic approaches, and so there are no reasonable alternative approaches to test in relation to individual policies. For example, policies that seek to improve safety do not have any strategic alternatives, nor do policies that seek to improve awareness of services, to support cleaner fuels and so on.

However, there are strategic decisions to make about what form of transport measures to focus efforts and funding towards. In this regard, three reasonable options have been identified as follows:

1. Focus on a mix of sustainable travel (walking, cycling and improvement of existing public transport networks) and traffic management measures.

2. A new mass transit system to be implemented alongside traffic management measures and sustainable travel. For this option, there would be a need for substantial investment in a new transit system, which could mean that there is less (but still some) investment in traffic management and sustainable travel

3. Sole focus on sustainable modes of travel. This would involve greater investment sustainable modes of travel such as walking and cycling infrastructure and supporting measures (awareness raising, training, technological improvements to public transport etc.).

6.2 Appraisal findings

Each of the three strategic options has been appraised against the SEA framework and the findings are included in detail within **Appendix B.**

The effects are summarised below:

- Option 2 generates the most significant positive effects overall. In particular, this option best supports economic growth and housing development, which are crucial elements of the emerging Local Plan for Warrington. This option is also most positive in terms of improving accessibility for a wider range of communities and achieving improvements in air quality and contributing to climate change mitigation.

- However, this option does have the potential to generate some minor negative effects which would not occur for the other two options. These are related to the potential effects of the physical infrastructure needed to support a mass transit system.

- Whilst Option 3 would have no negative effects upon environmental factors, the positive effects are not significant for any factors. This approach may also not help to support the growth of housing that is required to support the population of Warrington.

- Option 1 does generate significant positive effects for health, wellbeing, air quality and climate change. However, there is a degree of uncertainty. Whilst it does not generate the minor negative effects that Option 2 could create, Option 1is less positive with regards to accessibility improvements and support for housing and employment growth.

6.3 Rationale for the preferred approach

The Councils preferred approach is broadly reflective of Option 2, in the sense that it involves the inclusion of a broad range of policy measures to deliver the vision and objectives of the Plan. Of particular note is the commitment to the development of a mass transit system and the intention to explore options for its development.

The reasons why the Council has adopted this approach are outlined below:

- To have a transformative effect on the town so that the car is not the dominant mode of travel there is a need to deliver improvements to the walking and cycling network. An approach that does not include a strategy for increasing the uptake and experience of walking and cycling is therefore considered to be inappropriate.

- To achieve ambitious targets in the use of public transport networks, there is a need to transform the public transport network. The Council commissioned a study to explore how such improvements could be achieved, and a potential mass transit network has been identified as an appropriate way of achieving this.

- There is also a need to manage demand for private car travel and improve the efficiency and connectivity of networks. An approach that does not involve such measures would make it more difficult to achieve sustainable economic growth. Demand management also works hand-in-hand with measures to improve public transport and active modes of travel.

7. Appraisal of the draft Plan

7.1 Introduction

This section presents an appraisal of the Plan against the SEA Framework. Effects have been identified taking into account a range of characteristics including: magnitude, duration, frequency, and likelihood. Combined, these factors have helped to identify the significance of effects, whether these are positive or negative.

To give the appraisal a clear structure but avoid repetition and duplication, the findings are presented in a series of summary tables for each SEA Topic. The tables set out all the policies within the Plan, and identify the effects that different elements (groups of similar policies) of the Plan would have.

Finally, the effect of the Plan 'as a whole' is identified, which considers cumulative effects, synergistic effects and how the different plan policies interact with one another. This is important as Plan policies should be read in the context of the whole Plan and not in isolation.

A score is given to reflect the significance of effects as follows:

++	The policy is likely to have a **significant positive effect.**
+	The policy is likely to have a **minor positive effect.**
0	The policy is likely to have a **neutral effect**.
-	The policy is likely to have a **minor negative effect**
--	The policy is likely to have a **significant negative effect**
?	There are **uncertainties** with regards to the predicted effects

7.2 Economy and Regeneration (SEA Objective 1): Support the growth of a modern economy which helps to address inequalities and deprivation.

Active Travel	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9
Effects	+	+	+	0	+	+	+	+	0

The use of the car in Warrington is high and the problem is exacerbated by the New Town development pattern. In addition there are high levels of traffic volumes and traffic congestion along with high levels of commuting. Policy AT1 seeks to develop Active Travel infrastructure with AT2 seeking to target walking and cycling investment. AT3 seeks to design and build active travel facilities in an equitable way.

AT1, AT2 and AT3 will assist in improving connections between Warrington town centre and the M62 corridor and further afield. The policies will potentially assist in managing parking whilst ensuring access to the town centre. The policies will also assist in improving connectivity with the rest of the region as AT2 seeks to invest in links to rail stations. These policies will have positive effects. The policies could be strengthened by identifying what types of active travel infrastructure will be encouraged.

Policy AT4 focuses on monitoring Active Travel patterns and will have a neutral effect.

AT5, AT7, and AT8 will lead to positive effects as it will be likely to improve connectivity for the borough and further afield. AT5 would encourage further Active travel connections are created through the development control process for new development .

AT6 is beneficial as it seeks to support walking and cycling. This has indirect benefits for the economy and in terms of health (i.e. more healthy lifestyles). The effects are of a small magnitude though.

Overall, the policies for active travel are likely to result in **minor positive effects** in terms of supporting the growth of a modern economy which helps to address inequalities and deprivation.

Smarter Travel Choices	STC1	STC2	STC3	STC4	STC5	STC6	STC7	STC8	STC9	STC10	STC11
Effects	+	+	+	+	+	+	+	+	+	+	+

STC1 is likely to have a positive effect and will make sure new environments being created encourage active travel. However, it does not mean individuals will all use active travel modes. The policy would be strengthened by seeking to reduce the need to travel by encouraging a balanced mix of land uses along with other measures.

Policy STC2 would help to manage parking whilst ensuring access to the town centre and would lead to positive effects.

Policy STC3 seeks to establish a city centre car club and bike sharing scheme. This will assist in ensuring that land suitable for employment uses has good transport connectivity, it will improve connections within Warrington centre and assist in managing parking.

Policies STC4,STC5,STC6, STC7, STC9, STC10 and STC11 are more likely to have positive effects due to the enhanced accessibility they give. These policies support active travel which are cheaper for individuals, therefore, encouraging walking and cycling to employment and services including communities within deprived areas.

Policy STC8 is similar to Policy AT1 and will lead to positive effects.

Overall, a **minor positive effect** is predicted as a result of the smarter travel choice policies. These would all support improved accessibility, which helps to support economic growth and social inclusion.

Safer Travel	RS 1	RS 2	RS 3	RS 4	RS 5	RS 6	RS 7	RS 8	RS 9	RS 10	RS 11	RS 12	RS 13	RS 14	RS 15	RS 16	RS 17	RS 18
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	+	0	0

The majority of policies are predicted to have neutral effects as they relate to specific safety measures, behaviors and procedures that do not relate directly to economic growth.

Policy RS14 and RS15 seek to promote safer road behavior for vulnerable users. Often vulnerable users of transport can be from deprived areas as they may use cheaper forms of transport such as walking cycling and bus travel. Demographics of these groups who could be most vulnerable will be older people, children and disabled people. Addressing these matters should therefore be helpful.

Policy RS16 seek to ensure that highway traffic uses appropriate routes in making journeys through and within the borough. The policy therefore will potentially improve connections within Warrington, which is necessary if modern economic growth is to be supported.

Overall, a **minor positive effect** is predicted, mainly relating to the benefits that could arise for deprived communities as a result of safer travel.

Passenger Transport	PT 1	PT 2	PT 3	PT 4	PT 5	PT 6	PT 7	PT 8	PT 9	PT 10	PT 11	PT 12	PT 13	PT 14	PT 15	PT 16	PT 17	PT 18	PT 19
Effects	++	+	+	+	+	+	+	+	+	+	+	+	+	++	++	++	++	++	+

Policy PT1 seeks to review the core strategic bus network which can potentially ensure that employment uses have good transport connectivity and can improve connections in Warrington and manage parking and will have significant positive effects.

Policies PT2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13 and 19 will have positive effects as they focus on the improvement of public transport facilities and options for individuals in Warrington. The policies particularly focus on improving transport within Warrington which should help to support business growth in these areas.

Policies PT14-PT18 identify specific rail infrastructure development opportunities including HS2 and Northern Powerhouse Rail which would significantly assist in releasing employment land and improve transport connections within Warrington and improve connectivity with the rest of the region.

The overall score for Passenger Transport policies against the SEA objective is a **significantly positive effect**.

Cleaner Fuel	CF1	CF2	CF3	CF4
Effects	+	+	+	+

CF1, CF2, CF3 and CF4 will support the uptake of low emissions vehicles, which will become a necessary feature of a modern transport network. Consequently, **minor positive effects** are predicted overall.

Network Management	NM1	NM2	NM3	NM4	NM5	NM6	NM7	NM8	NM9	NM 10	NM 11	NM 12	NM 13
Effects	+	+	+	+	+	+	+	+	+	+	+	+	+

NM1 will have a positive effect however it is part of the transport act therefore it would be a government requirement for a local authority to do this anyway.

Policies NM2-NM13 are likely to have a positive effect as they will improve connectivity throughout the borough and promote sustainable transitions to new transport systems. To support a modern economy, these enhancements will be necessary, which is acknowledged by policy NM13 in particular.

Policies NM5,6,7 and 8 seek to manage parking whilst ensuring access to the town centre. This will help to ensure that there is appropriate access to town centre jobs, retail and leisure.

The overall score for the network management policies against the SEA objective 1 is a **minor positive effect**.

Asset Management	AM1	AM2	AM3	AM4	AM5	AM6
Effects	+	+	+	+	+	+

Transport systems managed well can have significant financial savings, which could help to benefit groups from a lower income band. AM2, AM3, and AM4 are policies that will help the cost of transport not to be inflicted on the consumer including communities of greatest need. Therefore positive effects are predicted.

AM1 and AM2 are likely to have positive effects as they are management procedures based policies and AM,4,5 and 6 are likely to have a positive effect as they are policies that will try and make the negative externalities of transport have minimum impact in terms of emissions, costs and transport efficiency.

Policy AM3 seeks to maximise opportunity for investment in the transport network which has the potential to improve connections within Warrington (which is beneficial for business).

The overall effect of the Asset management policies on SEA objective 1 is a **minor positive effect.**

Freight Management	FM 1	FM 2	FM 3	FM 4	FM 5	FM 6	FM 7	FM 8	FM 9	FM 10	FM 11	FM 12	FM 13	FM 14	FM 15	FM 16
Effects	+	0	0	0	+	+?	+?	+	+	+	+	+	0	0	+	+

Policies FM2, 3, 4, 13 and 14 relate to air quality, construction logistics plans and information for freight operators for loading bays. These are beneficial measures with regards to business efficiency, but are unlikely to lead to benefits beyond the baseline position. Therefore, neutral effects are predicted.

FM1,5,6,7,8,9,10,11,15 and 16 are likely to have positive effects as they focus on managing freight transport infrastructure, which would support the growth of a modern economy. In particular it will allow the Borough to take advantage of regional growth opportunities such as the Liverpool Super port.

Overall, a **minor positive effect** is predicted.

Cumulative effects of the plan policies for SEA Objective 1

Taking these policy themes and combining overall scores allows for the cumulative effects of the Plan to be established. These effects are represented visually in the table below, with a summary of effects provided also.

Policy groups	ATP	STCP	RS	PTP	CFP	NMP	AMP	FMP
Significance of effects	+	+	+	++	+	+	+	+

Overall a **significant positive effect** is predicted as improvements to the transport network are critical to support a modern economy. In particular measures to; reduce car usage, improve accessibility, strengthen and expand public transport network, enable more environmental friendly travel, and freight management will help to transform the way that people and goods are transported. A number of policies also seek to ensure that deprived communities are supported.

7.3 Economy and Regeneration (SEA Objective 2): Reduce poverty, deprivation and social exclusion and secure economic inclusion

Active Travel	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9
Effects	+	+	+	0	+	0	+	0	0

Deprivation across the borough as a whole is below regional and national averages, but there has been a slight worsening in the overall index of deprivation from 2010-2015. However, there are inequalities across the borough with several communities within the inner areas of Warrington falling into the 10% most deprived areas in England. Access to services and jobs is a key factor that can help to address deprivation in such areas.

Policies AT1,2,3,5 and 7 are likely to have positive effects as they focus on making transport accessible to everyone including people on low incomes.

Policy AT4 focuses on monitoring active travel patterns, which is a procedural matter and unlikely to lead to notable impacts in terms of social inclusion.

Similarly, Policy AT6 encourages the use of Best Practice and Government Guidance, and Policy AT8 focusing on the specific needs of equestrians, neither of which is directly related to addressing economic inclusion.

Overall, a **minor positive effect** is predicted as improvements in walking and cycling links will help to support accessibility for a range of communities, particularly those that do not have access to a private vehicle.

Smarter Travel Choices	STC1	STC2	STC3	STC4	STC5	STC6	STC7	STC8	STC9	STC 10	STC 11
Effects	+	+	0	+	+	0	+	+	+	+	+

Policies STC1, 2,4,5,7,8 and 9 are likely to have positive effects as they will give greater travel options for people in Warrington to use and they should cater to all income groups as well.

Policy STC3 relates to promoting of a car club and bike sharing scheme and is likely to have a **neutral effect.**

It is unclear if adult cycle training courses (SC6) will be easily accessed by people on low incomes, and certain groups such as those with disabilities would not benefit from such schemes. Therefore, this policy is also likely to have a **neutral effect.**

STC10 and 11 particularly focus on allowing transport cost assistance for jobseekers which contributes to reducing poverty and social inclusion, which are positive effects.

The overall score for Smarter Travel Choices policies is **minor positive effects.**

Safer Travel	RS 1	RS 2	RS 3	RS 4	RS 5	RS 6	RS 7	RS 8	RS 9	RS 10	RS 11	RS 12	RS 13	RS 14	RS 15	RS 16	RS 17	RS 18
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	0	0	0

Policies RS1,2,3,4,5,6,7,8,9,10,11,12,13,16,17 and 18 will have a neutral effect. These policies promote the Safe Systems approach and road safety measures and will not directly contribute to reducing poverty, deprivation and social exclusion and securing economic inclusion.

Policy RS14 and RS15 seek to promote safer behaviour for vulnerable road users, encouraging walking and cycling, which would improve access to public transport for the elderly and those with a disability. These

policies are therefore likely to have positive effects.

Overall the safer travel policies will have broadly neutral effects, but RS14 and RS15 contribute **minor positive effects.**

Passenger Transport	PT 1	PT 2	PT 3	PT 4	PT 5	PT 6	PT 7	PT 8	PT 9	PT 10	PT 11	PT 12	PT 13	PT 14	PT 15	PT 16	PT 17	PT 18	PT 19
Effects	++	++	+	++	+	+	++	++	++	+	+	+	+	++	++	++	++	++	+

Policies PT1, PT2, PT4, PT7 - PT9, and PT14-PT18 are seeking to improve access to public transport and will improve access to such services for people on low incomes and/or for the elderly or people with a disability. Policies PT14 - PT18 in particular could generate significant positive effects.

Policies PT3, PT5, PT6, PT10-PT13 and PT19 either generally seek to improve access to public transport or set out specific improvements which would be potentially beneficial to all. These policies are likely to have positive effects.

These policies are likely to have **significant positive effects** in combination.

Cleaner Fuel	CF1	CF2	CF3	CF4
Effects	$+^{?}$	$+^{?}$	$+^{?}$	$+^{?}$

CF1, CF2,CF3 and CF4 will lead to potential positive effects as the use of cleaner fuels should help to improve environmental quality in the longer term, with benefits for human health. Deprived communities often suffer disproportionately by such issues, and so such changes are positive.

The overall score for Cleaner Policies against SEA objective 2 is a **potential minor positive effect.**

Network Management	NM1	NM2	NM3	NM4	NM5	NM6	NM7	NM8	NM9	NM 10	NM 11	NM 12	NM 13
Effects	0	+	+	0	0	0	+	0	0	0	0	$+^{?}$	$+^{?}$

Policies NM1,NM4,NM5,NM6,NM8,NM8,NM9,NM10 and NM11 are thematic policies which are unlikely to contribute to making transport infrastructure more accessible to people on low incomes. These policies will therefore have neutral effects. Policy NM12 could help fund improvements to transport that benefit a wide range of communities.

Policy NM2, NM3 and NM7 are likely to have positive effect due to them working towards the improvement of the transport services in Warrington which will lead to potential long-term savings which means that transport can be at a lower cost for the consumer.

NM13 will help to ensure that economic growth is supported in the long term through the delivery of necessary major infrastructure. This is positive, but the effects are uncertain as it will be linked to a Local Plan Review.

The overall score for Network Management Policies on objective 2 is a **minor positive effect.**

Asset Management	AM1	AM2	AM3	AM4	AM5	AM6
Effects	+	+	+	+	+	+

Transport systems managed well can have significant financial savings therefore these costs will not be inflicted on the consumer. Policies AM1, AM2, AM3, AM4, AM5 and AM6 are policies that will help the cost of transport not to be inflicted on the consumer including communities.

AM1 and AM2 are likely to have positive effects as they are management procedures based policies and AM3,4,5 and 6 are likely to have a positive effect as they are policies that will try and make the negative externalities of transport have minimum impact in terms of emissions, costs and transport efficiency.

The overall effect of the Asset management policies on SEA objective 2 is a **minor positive effect.**

Freight Management	FM 1	FM 2	FM 3	FM 4	FM 5	FM 6	FM 7	FM 8	FM 9	FM 10	FM 11	FM 12	FM 13	FM 14	FM 15	FM 16
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Policy FM1-FM16 relate to air quality, construction logistics plans and information for freight operators for loading bays, managing freight and associated infrastructure. These are likely to have **neutral effects** on SEA objective 2.

The overall effect of the Freight Management Policies on SEA objective 2 is a **neutral effect.**

Cumulative effects of the Plan on SEA Objective 2

Taking these policy themes and combining overall scores allows for the cumulative effects of the Plan to be established. These effects are represented visually in the table below, with a summary of effects provided also.

Policy groups	ATP	STC	RS	PTP	CFP	NMP	AMP	FMP
Significance of effects	+	+	0	++	+?	+	+	0

Overall a **significant positive effect** is predicted in relation to SEA Objective 2. This is largely due to the significant effects generated by the passenger transport policies which could help to improve access for disadvantaged groups. Positive effects are also generated from a range of other policies.

7.4 SEA Objective 3 Health and Wellbeing: Improve community safety and reduce the fear of crime and disorder.

Active Travel	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9
Effects	+	+	+	0	+	0	0	0	0

Fear of Crime and antisocial behaviour remains a sustainability issue for the Borough. Household surveys show that fear of crime at night is higher than national figures, and substantially higher in more deprived neighbourhoods.

It is important to ensure that people feel safe when travelling, especially if levels of walking and cycling are to be increased. Policies in the Local Transport Plan have the potential to improve the overall safety of the Borough and help reduce road traffic accidents and reduce transport related crime, anti-social behaviour and the fear of crime.

Policies AT1, 2, 3 and 5 are likely to have some positive effect as investment in active travel infrastructure will improve the overall safety for users.

Policies AT4, AT6, AT7, AT8 and AT9 relate to monitoring, reviews, application of best practice and government guidance and improvements for disabled users and meeting the needs of equestrians and therefore are not directly related to community safety or fear of crime. These policies will have a neutral effect.

The overall effect of the Active Travel Policies on SEA objective 3 is a **minor positive effect.**

Smarter Travel Choices	STC1	STC2	STC3	STC4	STC5	STC6	STC7	STC8	STC9	STC10	STC11
Effects	+	+	0	+	+	+	0	0	++?	0	0

Policy STC1 is likely to have positive effects as new developments could potentially be built and have a safer environment with active travel designed within the development from the beginning.

Policy STC9 seeks to expand the choice of travel which would reduce the need to travel by car which in turn could reduce road traffic accidents.

Policy STC5 will support the rollout of new infrastructure for Active Travel which should improve the safety for such road users.

Policy STC4 and STC6 seeks to support child training courses and the use of adult cycle training courses which can potentially improve safety and reduce traffic accidents.

These policies will therefore all have a positive effect. These are unlikely to be significant but they will make a small contribution towards improved safety.

Policy STC9 seeks to support a safer travelling environment around Warrington and this policy could also help to reduce transport related crime, anti-social behaviour and the fear of crime. This policy could therefore have a **significant positive effect** in the longer term (in combination with other policies).

Policy STC3, STC7, STC8, STC10 and STC11 relate to other policy themes and are therefore likely to have a neutral effect with regards to community safety.

The overall effect of the Smarter Travel Choices Policies on SEA objective 3 is **significantly positive**. This relates mostly to Policy STC9, which explicitly seeks to support safer traveling. However, several other policies also contribute to an overall culture of improved safety for pedestrians, road users and on public safety. The effects are significant in combination, though it should be noted that other 'non-travel' environments would not be likely to benefit from improvements. The Warrington Local Plan could help to address such issues though.

Safer Travel	RS 1	RS 2	RS 3	RS 4	RS 5	RS 6	RS 7	RS 8	RS 9	RS 10	RS 11	RS 12	RS 13	RS 14	RS 15	RS 16	RS 17	RS 18
Effects	+	+	+	+	+	+	+	0	0	0	+	+	+	+	+	+	+	+

Policies RS1,RS2,RS3,RS4,RS5,RS13,RS14,RS16 and RS17 are likely to have positive effects due to making road safety a cultural priority. This could help to change people's attitudes, and embed road safety behaviours as second nature.

Policies RS6,RS7,RS11,RS12,RS15 and RS18 will likely have positive effects as they will help to reduce casualties on the road; thereby improving community safety when traveling around Warrington. Many of the policies relate to enforcement measures with regards vehicle speeds, which have been evidenced to have a positive effect with regards to road safety.

Policies RS8, RS9 and RS10 will have neutral effects as they relate to monitoring, data and governance. The overall effect of the Safer Travel Policies on SEA Objective 3 is a **significant positive effect.**

A wide range of measures are proposed that will each contribute positively towards improvements in travel safety. In combination, the effects are likely to be significant.

Passenger Transport	PT 1	PT 2	PT 3	PT 4	PT 5	PT 6	PT 7	PT 8	PT 9	PT 10	PT 11	PT 12	PT 13	PT 14	PT 15	PT 16	PT 17	PT 18	PT 19
Effects	0	0	0	0	0	+	0	0	+	0	0	0	0	0	0	0	0	0	0

The majority of policies relate to measures to seek to encourage more users to use passenger bus and rail transport modes. Increased patronage of such services could help to foster improved feelings of safety, but there is no direct link towards community safety and crime matters, and so effects are predicted to be broadly neutral.

Policies PT6 and PT9 are likely to have a minor positive effect as these policies seek to review transport infrastructure to maximise safety and security and promote better integration between different modes.

The overall effect of the Passenger Transport Policies on SEA Objective 3 is a **minor positive effect.**

Cleaner Fuel	CF1	CF2	CF3	CF4
Effects	0	0	0	0

The cleaner Fuel policies will have a **neutral effect** on community safety because they are focused on cleaner emission vehicles and they do not directly relate to community safety with regards to reducing crime and accidents.

Network Management	NM1	NM2	NM3	NM4	NM5	NM6	NM7	NM8	NM9	NM10	NM11	NM12	NM13
Effects	+	+	+	+	0	0	0	0	0	0	0	0	0

Policies NM1, NM2, NM3 and NM4 are likely to have positive effects as they seek to change the organisation of the transport system to make sure it is safe for users to use.

Policies NM5 – NM13 relate largely to car parking and other strategic matters which do not directly relate to safety or crime.

The policies could perhaps be enhanced by referring to a need for car parks to be designed so that they are safe, and perhaps achieve accreditation to a recognised standard such as 'Park Mark' (though control of such matters may need to be established in relation to town planning policy to be effective).

Overall the likelihood of effects for the Network Management policies is a **minor positive effect.**

Asset Management	AM1	AM2	AM3	AM4	AM5	AM6
Effects	0	0	0	0	0	0

Policies AM1-AM6 are likely to have neutral effects as they concentrate on managing assets, with no direct reference to safety.

Overall the Asset Management Policies will have a **neutral effect** in terms of community safety.

Freight Management	FM 1	FM 2	FM 3	FM 4	FM 5	FM 6	FM 7	FM 8	FM 9	FM 10	FM 11	FM 12	FM 13	FM 14	FM 15	FM 16
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Freight Management policies are likely to have a **neutral effects** as the focus us upon the transport of business goods rather than community safety.

Cumulative effects upon SEA Objective 3

Taking these policy themes and combining overall scores allows for the cumulative effects of the Plan to be established. These effects are represented visually in the table below, with a summary of effects provided also.

Policy groups	**ATP**	**STCP**	**RS**	**PTP**	**CFP**	**NMP**	**AMP**	**FMP**
Significance of effects	++	+	++	+	0	0	0	0

Overall a **significant positive effect** is predicted in relation to SEA Objective 3. This is largely due to the significant effects generated by the active travel policies and road safety policies. The Plan is likely to encourage greater usage of services, which can contribute to improved perceptions of safety with regards to crime. There are also direct measures to improve road safety.

7.5 Health and Wellbeing (Objective 4): Provide, protect or enhance leisure opportunities, recreation facilities, green infrastructure and access to the countryside

Active Travel	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9
Effects	+	+	+	0	+	+	+	+	0

Policies AT1, AT2, AT3, AT5, AT6, AT7, AT8 and AT9 have positive effects as they encourage active travel which should improve access to leisure and recreation opportunities by walking or cycling. This also includes improved infrastructure provision and access for specific recreation types such as equestrian.

If active travel is integrated into green infrastructure corridors this should help to ensure that benefits for health are more pronounced.

Policies AT4 relate to monitoring active travel and will have a neutral effect.

The overall effect of the Active Travel Policies on SEA objective 4 is a **minor positive effect**.

Smarter Travel Choices	STC 1	STC 2	STC 3	STC 4	STC 5	STC 6	STC 7	STC 8	STC 9	STC 10	STC 11
Effects	+	+	0	0	+	0	0	+	0	+	0

Policy STC1, STC 2, STC5, STC8 and STC10 will encourage people to walk and cycle along by supporting the rollout of new infrastructure. This will provide opportunities for leisure and recreation. These policies are therefore likely to have positive effects.

Policies STC3, STC4, STC6, STC7, STC9 and STC11 are policies that relate to bike sharing schemes and training programmes and are not directly related to improving access to open space, sport and recreation facilities. Therefore, neutral effects are predicted.

Overall the Smarter Travel Choices policies are predicted to have **minor positive effects.**

Safer Travel	RS1	RS2	RS3	RS4	RS5	RS6	RS7	RS8	RS9	RS 10	RS 11	RS 12	RS 13	RS 14	RS 15	RS 16	RS 17	RS 18
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

The above policies relate to measures which encourage safer travel. This is unlikely to directly improve access to open space, sport and recreational facilities, but could perhaps encourage more active forms of travel. The policies are unlikely to do much with regards to protecting and enhancing networks of multi-functional green infrastructure. Consequently, **neutral effects** are predicted for each policy both individually and in combination.

Passenger Transport	PT 1	PT 2	PT 3	PT 4	PT 5	PT 6	PT 7	PT 8	PT 9	PT 10	PT 11	PT 12	PT 13	PT 14	PT 15	PT 16	PT 17	PT 18	PT 19
Effects	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	0	0	0	0	0	0	0	0

An improvement in passenger transport is positive with regards to accessibility, but this will not necessarily improve access to open space and recreation locally. In particular, rail travel is less likely to be used to access local recreation, access to the countryside and open space. Therefore, policies PT12-PT18 are predicted to have broadly neutral effects (though together could have some positive implications).

Similarly, bus services are also unlikely to lead to better access to open space and recreation at a neighbourhood level. However, given that buses serve a wider range of communities, improvements to these services are more likely to serve access to wider leisure opportunities. As a result, minor uncertain positive effects are predicted for PT1-PT11.

Overall, the passenger transport policies ought to generate **minor positive effects** as they support improved accessibility in general (which could include access to leisure, recreation and health facilities).

Cleaner Fuel	CF1	CF2	CF3	CF4
Effects	0	0	0	0

These policies are predicted to have **neutral effects** as they bare no relation to accessibility or green infrastructure.

Network Management	NM1	NM2	NM3	NM4	NM5	NM6	NM7	NM8	NM9	NM 10	NM 11	NM 12	NM 13
Effects	0	+	0	0	0	0	0	0	0	0	0	0	0

Policies NM1 and NM3-NM13 are likely to have neutral effects as these policies directly relate to the management of the transport network and parking matters. Whilst this can improve the efficiency of travel (and thus reduce travel times), the influence upon recreational activities is minimal.

NM2 is likely to have positive effects as it seeks to provide facilities for pedestrians and cyclists which would improve access to open space, sport and recreational activities.

Overall, the network management policies are predicted to have **neutral effects** when it comes to accessibility to recreation, leisure and other facilities.

Asset Management	AM1	AM2	AM3	AM4	AM5	AM6
Effects	0	0	0	0	0	0

Policies AM1 – AM6 would have **neutral effects** both individually and in combination as they do not directly relate to improving access to open spaces and leisure opportunities.

Freight Management	FM 1	FM 2	FM 3	FM 4	FM 5	FM 6	**FM 7**	FM 8	FM 9	FM 10	FM 11	FM 12	FM 13	FM 14	FM 15	FM 16
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Policies FM1 – FM do not directly relate to improving access to open spaces and leisure opportunities. Each policy both individually and in combination is therefore predicted to have **neutral effects** with regards to the baseline position for SEA Objective 4.

Cumulative effects of the Plan

Taking these policy themes and combining overall scores allows for the cumulative effects of the Plan to be established. These effects are represented visually in the table below, with a summary of effects provided also.

Policy groups	ATP	STCP	RS	PTP	CFP	NMP	AMP	FMP
Significance of effects	+	+	0	+	+	0	0	0

The overall effect of the Plan with regards to SEA Objective 4 is a **minor positive effect**. This relates to policies which seek to improve active travel and accessibility on public transport. The effects are not predicted to be significant as there is no explicit goal to improve access to green infrastructure. No negative effects are identified as measures to improve the range of transport choices on offer throughout the Borough improves accessibility, which can only be a good thing in terms of accessing open space.

Should open space be affected by new transport infrastructure it is more than likely that this would be compensated for through the application of the Warrington Local Plan policies.

7.6 Health and Wellbeing: Objective 5: Ensure good access to health services.

Active Travel	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9
Effects	+	+	+	+	+	+	+	0	0

AT1, 2, 3,4,5,6 and 7 are likely to generate some positive effects as they will put in place infrastructure that could make health services more accessible via active travel. They would generally improve people's health as well as people would presumably be using active travel as a form of exercise.

AT8 is likely to have a neutral effect as it refers to active travel infrastructure for equestrian purposes. This is very specific to horse riders who would do this activity regardless, but the infrastructure allows them to do it on the highway instead of a field for example.

AT9 commits to a review of the PROW improvement plan, the outcome of which is not known.

Overall, a **minor positive effect** is predicted.

Smarter Travel Choices	STC1	STC2	STC3	STC4	STC5	STC6	STC7	STC8	STC9	STC10	STC11
Effects	+	+	0	0	0	0	+	+	+	+	0

Several policies will contribute towards a general improvement in the awareness of, ease of access to and take-up of active travel and public transportation usage. This should have positive effects with regards to accessibility to health services. However, the effects are minor given that the location of health facilities (and their capacity to support communities) would not be influenced by these policies

Policies STC1 and STC2 ought to ensure that access to health facilities is a consideration in the siting of new development, but this will be dependent upon liaison with planning officers.

Several policies are predicted to have neutral effects as they have no relation to health facilities (For example, training to use cycles, and the use of school travel plans).

Overall, a **minor positive effect** is predicted, as improved awareness of smarter travel choices, and better facilities could help improve physical access to health facilities for certain people.

Safer Travel	RS1	RS2	RS3	RS4	RS5	RS6	RS7	RS8	RS9	RS10	RS11	RS12	RS13	RS14	RS15	RS16	RS17	RS18
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

These policies are primarily concerned with the improvement of road safety, for all kinds of road users. This is not likely to have a direct effect upon accessibility to health facilities.

Whilst people are generally willing to access health facilities regardless of road safety levels, improvements in travelling environments could potentially help to encourage a greater use of alternative modes to the private car. These effects would be indirect though and are uncertain, so **neutral effects** are predicted overall.

Passenger Transport	PT1	PT2	PT3	PT4	PT5	PT6	PT7	PT8	PT9	PT10	PT11	PT12	PT13	PT14	PT15	PT16	PT17	PT18	PT19
Effects	+	+	+	+	+	+	+	+	+	+	? ++	+	+	+	+	+	+	0	0

In combination, the passenger transport policies should help to improve the quality, ease of access, geographical spread and usage of public transport services. Each policy is likely to contribute minor positive effects individually. However, in combination there may be significant positive effects.

In particular, should policy PT11 lead to the establishment of a mass transit system, this could have major benefits with regards to accessibility. There is uncertainty about the effects at this stage though due to lack of firm proposals.

It is recommended that the optioneering process involves an assessment of environmental impacts to help guide a preferred approach.

Overall, a **minor positive effect** is predicted.

Cleaner Fuel	CF1	CF2	CF3	CF4
Effects	0	0	0	0

Though cleaner fuels would benefit health by reducing emissions of pollutants; this would not have an effect upon access to health care facilities. Consequently, **neutral effects** are predicted for SEA Objective 5.

Network Management	NM1	NM2	NM3	NM4	NM5	NM6	NM7	NM8	NM9	NM 10	NM 11	NM 12	NM 13
Effects	0	0	+?	+?	0	0	0	0	0	0	0	0	0

Policies NM3 and NM4 could contribute a positive effect towards accessibility to health facilities as they see to reduce congestion and improve traffic management. This ought to help people get to places within Warrington easier and quicker, which is positive with regards to the objective.

Overall a minor positive effect is predicted to reflect these factors, but there is a degree of uncertainty given the high level nature of the policies.

Asset Management	AM1	AM2	AM3	AM4	AM5	AM6
Effects	+?	+?	+?	+?	+?	+?

Collectively these policies seek to achieve better management of the highway network and assets. Should this lead to a successful programme of improvements to the network, then it could help people to travel to health care facilities easier and quicker.

These are minor positive effects, but given the high level nature of the policies a degree of uncertainty exists.

Freight Management	FM 1	FM 2	FM 3	FM 4	FM 5	FM 6	FM 7	FM 8	FM 9	FM 10	FM 11	FM 12	FM 13	FM 14	FM 15	FM 16
Effects	+?	0	0	0	+?	0	0	+?	+?	+?	0	0	0	0	0	0

The majority of policies are predicted to have neutral effects as they are unlikely to affect accessibility. For example, some policies focus on moving towards more environmentally friendly practices with regards to freight, whilst others seek to achieve better facilities for freight transport with regards to parking and operations.

Minor positive effects are predicted with regards to policies FM1, FM5, FM8, FM9 and FM10. These policies seek to improve the management of freight so as to reduce congestion and impacts upon other road users.

This should help to improve accessibility in general, though the implications are relatively minor when considered in isolation.

Overall, **minor positive effects** are predicted.

Cumulative effects of the Plan

Taking these policy themes and combining overall scores allows for the cumulative effects of the Plan to be established. These effects are represented visually in the table below, with a summary of effects provided also.

Policygroups	ATP	STCP	RS	PTP	CFP	NMP	AMP	FMP
Significance of effects	+	+	0	+	0	+?	+?	+?

The overall effect of the Plan with regards to SEA Objective 5 is a **minor positive effect.** Though there are no specific measures relating to access to health facilities, the plan will lead to a general improvement in accessibility, which would likely include better access to health facilities.

7.7 Accessibility (Objective 6): Support sustainable patterns of economic growth by; securing improvements to transport networks, ensuring good access to jobs and services, and enabling sustainable modes of travel.

Active Travel	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9
Effects	+	+	+	+	+	+	+	+	+?

The active travel policies are all likely to have positive effects as they support transport that is available to a wide range of people at little cost. Walking and cycling are sustainable forms of travel (for those that are able), and so improvement of these networks, awareness and engagement with active travel could lead to significant positive effects with regards to accessibility.

Smarter Travel Choices	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8	STC9	STC10	STC11
Effects	+	+	+	+	+	+	+	+	+	+	+

All the smarter travel choice policies are likely to have positive effects as they each seek to encourage sustainable and active modes of travel. For a range of communities this is positive with regards to accessibility, especially where there is a reliance on such services and networks.

With regards to services and jobs, policies STC1 and STC11 are particularly positive, as they seek to ensure new developments are accessible (STC1) and to provide assistance for jobseekers to help people into employment (STC11).

In combination, **significant positive effects** are predicted.

Safer Travel	RS 1	RS 2	RS 3	RS 4	RS 5	RS 6	RS 7	RS 8	RS 9	RS 10	RS 11	RS 12	RS 13	RS 14	RS 15	RS 16	RS 17	RS 18
Effects	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

The policies are likely to have some positive effect on accessibility, as they seek to make traveling environments safe. They particularly focus on reducing fatalities and changing driver behaviour to increase safety of transport in Warrington.

Whilst this does not improve accessibility with regards to distance to services, and the efficiency of networks, congestion and so on, it does remove barriers to the take-up of cycling, walking and public transport.

Overall, **minor positive effects** are predicted.

Passenger Transport	PT 1	PT 2	PT 3	PT 4	PT 5	PT 6	PT 7	PT 8	PT 9	PT 10	PT 11	PT 12	PT 13	PT 14	PT 15	PT 16	PT 17	PT 18	PT 19
Effects	+	+	+	++	+	+	++	++	+	+	++?	+	+	+	+	+	+	0	0

The passenger transport policies focus on accessibility and ensuring that there will be sustained and enhanced services for users. Overall, the policies should encourage more people to use facilities (which promotes sustainable travel); should improve the experience and efficiency of travel using passenger transport (which improves access to services and jobs); and specifically targets disadvantaged groups who might otherwise not have the same access (Policies PT4, PT7 and PT8 are significantly positive in this respect).

In combination **significant positive effects** are predicted for accessibility. There could also be significant effects in relation to specific individual policies in relation to groups with protected characteristics.

Cleaner Fuel	CF1	CF2	CF3	CF4
Effects	+	+	+	+

The effects of these policies with regards to accessibility are limited in respect of groups that cannot currently afford electric vehicles. Similarly, there is no effect in terms of the speed in which trips take.

What is positive though is the move towards more sustainable modes of travel that will allow people to take up electric vehicles more readily without it being an inconvenience to charge their vehicles. This advance in technology should help to drive sustainable economic growth in the borough.

Overall, **minor positive effects** are predicted.

Network Management	NM 1	NM 2	NM 3	NM 4	NM 5	NM 6	NM 7	NM 8	NM 9	NM 10	NM 11	NM 12	NM 13
Effects	0	0	+	+	?	?	+	+	0	+	+	+	+

Policies NM1, NM2 and NM9 are broadly a continuation of current actions, and so neutral effects are predicted.

Policies, NM3, NM4, NM8, NM10-NM13 are all predicted to contribute minor positive effects in terms of accessibility. If networks are more efficient and traffic is better managed, then this is beneficial for users regardless of the mode of transport. The use of technology (NM4) will also help people to better plan their journeys and have greater confidence in the reliability of services.

Policies NM5 and NM6 are predicted to have uncertain effects. Whilst parking provision and management is positive in respect of sustainable travel, it could worsen 'accessibility' for those wanting to (or requiring) use of a private vehicle.

Policy NM8 could have significant positive effects for those with a disability.

NM13 will ensure that the longer term requirements of the transport network are well-planned, which is a positive effect.

Overall, the policies are predicted to have **significant positive effects.**

Asset Management	AM1	AM2	AM3	AM4	AM5	AM6
Effects	+	+	+	+	+	+

The policies are likely to have **minor positive effects**, as the management and improvement of transport infrastructure will contribute towards improved accessibility.

Freight Management	FM 1	FM 2	FM 3	FM 4	FM 5	FM 6	FM 7	FM 8	FM 9	FM 10	FM 11	FM 12	FM 13	FM 14	FM 15	FM 16
Effects	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Overall, in combination, the freight management policies could have a **significant positive effect** with regards to the sustainable movement of goods. This is beneficial in terms of carbon emissions reductions, but could also relieve some pressure off the road networks, with knock on benefits for other users in terms of accessibility.

Cumulative effects of the Plan

Taking these policy themes and combining overall scores allows for the cumulative effects of the Plan to be established. These effects are represented visually in the table below, with a summary of effects provided also.

Policy groups	ATP	STCP	RS	PTP	CFP	NMP	AMP	FMP
Significance of effects	++	++	+	++	+	++	+	++

Unsurprisingly, the Plan is predicted to have **significant positive effects** upon accessibility. There are some key benefits likely to arise:

- Specific community groups should benefit in terms of improved access to services.
- Active modes of travel will be supported and barriers to their use ought to be addressed.
- New development will need to be well served by a range of transport modes and local services.
- There should be a modal shift in the movement of freight from roads to rail and water.
- A reduction in carbon emissions related to technological improvements.

Though certain elements of the Plan could encourage increased car trips (for example increased parking provision / improvements to road networks), these are offset significantly by the host of positive measures.

7.8 Housing (SEA Objective 7): Support sustainable patterns of housing growth

Active Travel	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9
Effects	+	+	+	0	+	0	0	0	0

Several policies seek to improve cycling and walking links, including to new developments. This will help to support sustainable patterns of residential development, but will be dependent upon the application of parallel planning policies.

The policy also seeks to focus investment in areas where the greatest benefits could be achieved such as links to rail stations. This ought to help support new residential development in the town centre areas (which are a key element of the emerging Warrington Local Plan).

Overall, a **minor positive effect** is predicted, reflecting these factors.

Smarter Travel Choices	STC1	STC2	STC3	STC4	STC5	STC6	STC7	STC8	STC9	STC 10	STC 11
Effects	+	+	0	0	0	0	0	+?	+?	+?	+?

Several policies actively seek to encourage and enable sustainable patterns of housing and employment development (STC1 and STC2), and so positive effects are predicted.

Policies STC8-STC11 are predicted to have potential positive effects also, but there is a greater degree of uncertainty as they involve factors that contribute to attractive housing locations rather than supporting housing provision directly.

Policies STC3-STC7 are predicted to have neutral effects as they are focused upon training and awareness raising, which do not relate to housing provision or surrounding environments.

Overall, a **minor positive effect** is predicted.

Safer Travel	RS 1	RS 2	RS 3	RS 4	RS 5	RS 6	RS 7	RS 8	RS 9	RS 10	RS 11	RS 12	RS 13	RS 14	RS 15	RS 16	RS 17	RS 18
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

The safer travel policies are predicted to have broadly **neutral effects** upon housing delivery. This is because they focus on behaviours, managing speed and procedural issues in tackling safety issues. However, in combination, a minor positive effect could be achieved with regards to sustainable residential development

For example; safer travel behaviour from motorists and the removal of psychological barriers into other modes of transport such as cycling should help to connect residential areas with services and jobs.

Passenger Transport	PT 1	PT 2	PT 3	PT 4	PT 5	PT 6	PT 7	PT 8	PT 9	PT 10	PT 11	PT 12	PT 13	PT 14	PT 15	PT 16	PT 17	PT 18	PT 19
Effects	+	+	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0	0

Policies PT1, PT2 and PT9 are each predicted to have positive effects upon housing as they explicitly seek to link residential areas with key services and jobs, improve the existing transport networks and seek contributions towards infrastructure enhancements.

New developments are typically built around areas with good transport links, so these policies ought to help

support new housing growth in sustainable locations.

Policies that seek to improve the usage and quality of passenger transport services will also be positive in terms of creating well connected residential areas. However, the effects are less direct and more uncertain.

Overall, a **minor positive effect** is predicted.

Cleaner Fuel	CF1	CF2	CF3	CF4
Effects	0	0	0	0

The policies are predicted to have **neutral effects** on housing development as they are closely focused upon enabling cleaner fuel uptake rather than changes to the built environment or efficiency of transportation networks.

Network Management	NM1	NM2	NM3	NM4	NM5	NM6	NM7	NM8	NM9	NM 10	NM 11	NM 12	NM 13
Effects	+	+	+	+	+	+	+	+	+	+	+	+	+

NM1,4,6,9-11 are likely to have positive effects as they focus on providing better transport infrastructure in Warrington which is necessary to support sustained housing growth.

NM2,3,5,7 and 8 are also likely to have positive effects as they are likely to make residential developments more attractive with regards to accessibility and the quality of the environment.

NM12 is likely to have positive effects with regards to housing as it will help to support continued growth by facilitating transformational transport schemes. Likewise, policy NM13 will help to identify what is needed to support growth aspirations in the longer term.

In combination, **significant positive effects** are predicted, as without such improvements, it may be difficult to support the housing that is needed to accommodate needs.

Asset Management	AM1	AM2	AM3	AM4	AM5	AM6
Effects	+	+	+	+	+	+

AM1,4 and 6 are likely to have positive effects as attractive housing developments rely upon well-maintained transport assets.

AM2,3 and 5 is likely to lead to some positive effect on objective 7 as they focus on cutting CO2 emissions continued maintenance and investment in transport assets. This is positive particularly where public transport routes and transport networks link to residential areas which are expected to grow.

Overall, **minor positive effects** upon housing are predicted.

Freight Management	FM 1	FM 2	FM 3	FM 4	FM 5	FM 6	FM 7	FM 8	FM 9	FM 10	FM 11	FM 12	FM 13	FM 14	FM 15	FM 16
Effects	0	0	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	0	0

FM1, 2,15 and 16 are likely to have neutral effects on objective 7 due them focusing upon air quality improvement, freight transport routes and freight parking which does not directly relate to sustained housing growth.

FM3- 14 are all policies that directly affect freight transport in Warrington.

There is some focus on increasing rail freight transport particularly in FM8. This could have uncertain positive effects for sustained housing growth (objective 7) as the increase in this business sector could attract people to come and live and work in Warrington.

The increase in transport such as rail freight could result in less congestion from motor vehicle freight being on the roads, which would allow easier commuting patterns from people living in residential areas to services and jobs. These are **minor and uncertain positive effects** though.

Cumulative effects of the Plan

Taking these policy themes and combining overall scores allows for the cumulative effects of the Plan to be established. These effects are represented visually in the table below, with a summary of effects provided also.

Policy groups	ATP	STCP	RS	PTP	CFP	NMP	AMP	FMP
Significance of effects	+	+	+	+	0	++	+	+?

"The Plan is predicted to have **significant positive effects** upon housing. Without the measures in place to support economic and housing growth, delivery of the Local Plan's strategy and housing target could be challenging. Therefore, the LTP4 and subsequent schemes is of importance to the delivery of the Local Plan. Additionally, the Plan seeks to secure sustainable patterns of growth and movement, both of which are important with regards to the delivery of new homes."

7.9 Natural Resources (Objective 8): Protect, manage and improve water quality.

Active Travel	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9
Effects	?	?	?	?	?	?	?	?	?

The policies seek to encourage and promote Active Travel. This is likely to encourage a decrease in road traffic which in turn could lead to a reduction in water pollutants from surface runoff.

While the delivery of bridges to support active travel could potentially have an impact on Warrington waterways this is largely dependent on how this infrastructure is delivered.

In addition, whilst measures that encourage active travel may reduce the level of road traffic and associated surface water-runoff, the extent of this potential benefit is questionable. Overall effects would be indirect and are uncertain, so neutral effects are predicted overall.

Smarter Travel Choices	STC1	STC2	STC3	STC4	STC5	STC6	STC7	STC8	STC9	STC10	STC11
Effects	?	?	?	?	?	?	?	?	?	?	?

Policies STC1-STC11 relate largely to encouraging smarter travel choices seeking to encourage people to walk, cycle and use public transport. This is unlikely to have a direct impact on water quality. However, an overall reduction in car travel ought to help reduce pollutants being washed off roads. Effects would be indirect and are uncertain, so neutral effects are predicted overall.

While encouraging active travel may reduce the need for other car based transport infrastructure such as bridges (which could potentially have an impact on Warrington waterways) this is largely dependent on how this infrastructure is delivered. Overall effects would be indirect and are uncertain, so neutral effects are predicted overall.

Safer Travel	RS 1	RS 2	RS 3	RS 4	RS 5	RS 6	RS 7	RS 8	RS 9	RS 10	RS 11	RS 12	RS 13	RS 14	RS 15	RS 16	RS 17	RS 18
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Policies RS1-RS18 relate largely to encouraging road safety and are therefore unlikely to have a direct impact on water quality. Consequently, neutral effects are predicted overall.

Passenger Transport	PT 1	PT 2	PT 3	PT 4	PT 5	PT 6	PT 7	PT 8	PT 9	PT 10	PT 11	PT 12	PT 13	PT 14	PT 15	PT 16	PT 17	PT 18	PT 19
Effects	?	?	0	?	0	0	0	?	?	?	?	0	?	?	?	?	0	0	0

Policies PT1, PT2, PT4, PT8- PT11 and PT13-PT16 seek to encourage and promote bus and rail services in Warrington. This is likely to encourage a decrease in road traffic which in turn could lead to a reduction in water pollutants from surface run-off. However, effects would be indirect and are uncertain, so neutral effects are predicted overall.

Policies PT3, PT5, PT6, PT7, PT12 and PT17 relate to specific measures which seek to improve bus and rail services such as bus journey times. The policies are unlikely to have a direct impact on water quality.
Despite, improved public transport potentially reducing pollution from car trips, the effects would be indirect and are uncertain, so neutral effects are predicted.

Overall, **minor positive effects** are predicted as a result of these policies, reflecting the potential reductions in the amount of emissions/pollutants being deposited on road networks as a result of improved passenger transport services.

Cleaner Fuel	CF1	CF2	CF3	CF4
Effects	?	?	?	?

Policies CF1-CF4 relates to specific measure which seeks to encourage the use of low emission vehicles. The policies are unlikely to have a direct impact on water quality, but would help to reduce diffuse pollution from vehicles being carried into watercourses. Overall effects would be indirect and are uncertain, but could be positive in combination

Network Management	NM1	NM2	NM3	NM4	NM5	NM6	NM7	NM8	NM9	NM 10	NM 11	NM 12	NM 13
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0

Policies NM1 – NM13 directly relate to the management of the highways and parking and are unlikely to have a direct impact on water quality. Overall effects would be indirect and are uncertain, so **neutral effects** are predicted overall.

Asset Management	AM1	AM2	AM3	AM4	AM5	AM6
Effects	0	0	0	0	0	0

Policies AM1 - AM6 relate to asset management of the transport network. Specific measures to improve highways assets could include improving highway drainage, but effects on water quality are unlikely to be significant.

Freight Management	FM 1	FM 2	FM 3	FM 4	FM 5	FM 6	FM 7	FM 8	FM 9	FM 10	FM 11	FM 12	FM 13	FM 14	FM 15	FM 16
Effects	0	0	0	0	0	0	0	+	-	-	0	0	0	0	0	0

Policy FM8 seeks to promote rail freight. Promoting alternative forms of freight transport such as rail may reduce pollutant run off from vehicles and therefore may have a marginal positive effect overall on water quality. It is predicted that this policy will have a positive effect.

While policy FM9 and FM10 also seek to promote other forms of freight, the use of the Manchester Ship Canal and development of Port Warrington could (depending of implementation) negatively impact on water quality.

Policies FM1 – FM7 and FM9 - FM16 relate to more detailed matters of road freight. These policies are predicted to have neutral effects overall.

Overall, mixed effects are predicted. On one hand, better management of road freight ought to reduce diffuse pollution from surface water run-off. However, an increased usage of water-based freight could potentially lead to disturbances on Warrington's waterways. On balance, an **uncertain minor negative** effect is predicted. Ensuring that freight movements on waterways are made in a sustainable manner ought to be promoted as a key principle to ensure that this modal change does not have negative effects.

Cumulative effects of the Plan

Taking these policy themes and combining overall scores allows for the cumulative effects of the Plan to be established. These effects are represented visually in the table below, with a summary of effects provided also.

Policy Groups	ATP	STCP	RS	PTP	CFP	NMP	AMP	FMP
Significance of effects	?	0	0	?	?	0	0	-?

The overall effect of the Plan with regards to SEA Objective 8 is **mixed.** Broadly speaking, the Plan is likely to have **neutral effects** upon water quality. This is because the majority of policies would not generate a direct link with water quality. Some policies could potentially lead to a reduction in pollutants in surface water run-off by reducing car trips and promoting alternative modes of travel. However, the effects are indirect and uncertain, so unlikely to be significant. However, in combination, these could be **minor positive effects**.

Minor negative effects are also possible in relation to policies that support an increase in water based freight movements.

7.10 Natural Resources Objective 9: Protect, manage and improve air quality.

Active Travel	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9
Effects	+	+	0	0	+	+	+	0	0

Whilst the majority of Warrington has good air quality, there are areas close to major roads where nitrogen dioxide levels are high and exceed national standards. Two AQMAs are designated within Warrington. One is related to the motorway networks; and one is associated with the town centre ring road and link roads.
There is a need to improve air quality in these areas in particular.

The Warrington Air Quality Action Plan sets out how the council will tackle air quality issues within its control. This includes a series of actions with those relevant to the LTP including working with Highways England to improve air quality along the local motorway, sustainable transport strategies covering walking, cycling and other less emitting forms of transport and improvements to road and rail infrastructures.

Policies AT1, AT2, AT5-AT7 seek to seek to encourage active travel and the provision of associated infrastructure. Increasing the accessibility of active travel is likely to encourage modal shift and can potentially reduce private vehicle use on the network. This would contribute a positive effect in terms of air quality.

Policies AT3, AT4 and AT8 relate to how active travel infrastructure is built, monitoring and the needs of equestrians. AT9 is a procedural commitment to review rights of way improvement. In light of this neutral effects are predicted with regard to air quality for these policies.

Overall, the active travel policies contribute a **minor positive effect** towards the improvement of air quality, the effect is unlikely to be significant.

Smarter Travel Choices	STC 1	STC 2	STC 3	STC 4	STC 5	STC 6	STC 7	STC 8	STC 9	STC 10	STC 11
Effects	+	+	+	0	+	0	+	+	0	+	0

Policy STC1-STC3, STC5, STC7, STC8 and STC10 seek to encourage active travel and encourage the provision of associated infrastructure including a city centre car club and bike sharing scheme. Increasing the accessibility of active travel is likely to encourage modal shift and can potentially reduce private vehicle use on the network resulting in a potential positive effect on air quality.

Policies STC4, STC6, STC9 and STC11 relate to funding for training programmes for active travel. These measures are not directly linked to a reduction in private vehicles on the road network. Therefore, the policies will result in a neutral effect.

Overall, the policies contribute a **minor positive effect** towards air quality improvement.

Safer Travel	RS 1	RS 2	RS 3	RS 4	RS 5	RS 6	RS 7	RS 8	RS 9	RS 10	RS 11	RS 12	RS 13	RS 14	RS 15	RS 16	RS 17	RS 18
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0

The safer travel policies focus on ways to make transport around the city physically safer. This will help to improve the experience of people that use the network, and could potentially encourage a greater take-up of cycling (should safety be a significant barrier at present). However, these effects are uncertain and indirect. Consequently, Policies RS1-RS15 and RS17 and RS18 are predicted to have neutral effects.

Policy RS16 seeks to ensure that highway traffic uses appropriate routes within the borough to minimise the impact of traffic on sensitive areas. This has the potential to improve traffic flows and reduce traffic volumes within Air Quality Areas, which is a positive effect.

Overall, a **minor positive effect** is predicted, reflecting the benefits of RS16 in particular.

Passenger Transport	PT 1	PT 2	PT 3	PT 4	PT 5	PT 6	PT 7	PT 8	PT 9	PT 10	PT 11	PT 12	PT 13	PT 14	PT 15	PT 16	PT 17	PT 18	PT 19
Effects	+	+	+	+	+?	+?	+?	+	+	+	+	+	+	+	+	+	+?	+?	+

Policy PT1 – PT4 and PT8 – PT16 aim to increase public transport use and decrease individual car usage. Increasing the accessibility of public transport is likely to encourage modal shift and can potentially reduce private vehicle use on the network resulting in a potential positive effect on air quality (due to reduced congestion). However, to ensure that an increase in buses does not contribute towards worsening air quality, there should be a focus on the use of low emissions vehicles.

Policy PT5, PT6 and PT7 relate to improving bus information, bus stops and upgrading public transport infrastructure. These policies do not directly increase accessibility of public transport, but could encourage greater use and more efficient services.

Policies PT17 and PT18 are positive, but are partly reliant on the inclusion of stations within more strategic rail networks (HS2 and Northern Powerhouse). Therefore, there is an element of uncertainty.

Overall the passenger transport policies are predicted to contribute a **positive effect** with regards to air quality, particularly in the town centre areas.

Cleaner Fuel	CF1	CF2	CF3	CF4
Effects	++?	++?	++?	++?

Policies CF1 – CF4 seek to increase the number of low emission vehicles and the use of cleaner fuels. These measures will directly help to improve air quality problems, particularly within Warrington's two AQMAs and will reduce transport related air pollutants.

This could generate **significant positive effects** in the longer term, but the policy will need to be supported by physical improvements to infrastructure (charging points etc.), which are not within the remit of the current version of the Plan. There is therefore uncertainty about the significance of these plan policies alone.

Network Management	NM1	NM2	NM3	NM4	NM5	NM6	NM7	NM8	NM9	NM 10	NM 11	NM 12	NM 13
Effects	0	0	+	+	0	+	+	0	0	+	0	+	?

Policies NM1 and NM2 relate to the Network Management Duty, which would need to be met anyway. Therefore, additional effects are considered unlikely as a result of these policies.

Increasing parking could possibly encourage more car-based travel, but this is likely to be offset by the strong focus on other modes of transport throughout the Plan. Furthermore, NM12 could help to discourage car travel to workplaces, NM6, NM7 and NM10 seek to manage parking to encourage alternative modes of travel. These policies together should all help to reduce the overall emissions from car travel.

Policy NM3 seeks to encourage traffic management measures and reduce the impact of vehicle emissions on health. This will have a minor positive effect in relation to air quality. Likewise, the implementation of technological solutions to help improve traffic management should help to reduce congestion, which is a contributor to poor air quality, especially in urban areas.

Policy NM13 seek to deliver infrastructure to support the aspirations for growth for Warrington. Such growth will result in additional vehicles and associated emissions within Warrington.

This could have a negative impact on air quality, but modelling for the Local Plan suggests that overall air quality should improve due to a switch towards cleaner fuels and other measures. In any case, the LTP4

itself is not driving the growth, and so the effects are not apportioned as such. Furthermore, without supporting infrastructure, the effects on air quality could potentially be significantly negative, as there would be increased congestion. NM13 also relates to longer term requirements for infrastructure, so there is an element of uncertainty.

The remaining policies are more procedural in nature (for example, committing to a review of parking), and so neutral effects are predicted.

Overall the network management policies are predicted to have a **minor positive effect** on air quality. Policies that support car parking could arguably encourage continued car based travel in the town centre. However, several policies seek to reduce car based travel through a management of car parking, which outweighs any negatives.

Asset Management	AM1	AM2	AM3	AM4	AM5	AM6
Effects	0	0	0	0	+	0

Policies AM1- AM4 and AM6 are likely to have neutral effect on air quality as they relate to asset management. The resulting actions (such as improvements to potholes etc.) would not necessarily improve air quality.

Policy AM5 seeks to reduce the amount of greenhouse gases produced during the maintenance of transport assets which will have a positive impact on Air Quality.

Overall the asset management policies will have a **minor positive effect** upon air quality.

Freight Management	FM 1	FM 2	FM 3	FM 4	FM 5	FM 6	FM 7	FM 8	FM 9	FM 10	FM 11	FM 12	FM 13	FM 14	FM 15	FM 16
Effects	+	+	+	+	+	0	0	+	+	+	0	0	0	0	0	0

Several policies seek to improve the management of freight traffic. This has the potential to improve air quality within the town centre.

Policies FM8, FM9 and FM10 seek to encourage rail and other types of freight movements, which would reduce the amount of road based trips. This should therefore help to protect and possibly improve air quality in sensitive locations such as the town centre and strategic transport routes.

Other policies FM6, FM7 and FM11 – FM16 relate more to the management of freight including local lorry parking facilities. These policies are less likely to affect air quality.

Overall, the policies contribute a **positive effect** towards the management of air quality.

Cumulative effects of the Plan

Taking these policy themes and combining overall scores allows for the cumulative effects of the Plan to be established. These effects are represented visually in the table below, with a summary of effects provided also.

Policy groups	ATP	STCP	RS	PTP	CFP	NMP	AMP	FMP
Significance of effects	+	+	+	+	++?	+	+	+

The overall effect of the Plan with regards to air quality is a **significant positive effect**. This relates to; the strong drive to achieve modal shift to active modes of travel, support and encouragement for the use of public transport, the management of road networks to reduce congestion, and the support for cleaner / low emissions transport.

7.11 Historic Environment: Objective 10: Preserve and where possible enhance the significance of historic assets and their settings.

Active Travel	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9
Effects	0	0	0	0	0	0	0	0	0

Policies AT1-A9 are likely to have a neutral effect on the historic environment as they are focused on active travel. The resulting actions would not have any significant adverse or positive effects upon the historic environment directly.

While active travel infrastructure could impact on the historic environment this is dependent on its implementation. Similarly, active travel could improve access to heritage and archaeological assets however this is also dependent on implementation.

On balance, **neutral effects** are predicted overall.

Smarter Travel Choices	STC 1	STC 2	STC 3	STC 4	STC 5	STC 6	STC 7	STC 8	STC 9	STC 10	STC 11
Effects	0	0	0	0	0	0	0	0	0	0	0

Policies STC1- STC11 are likely to have a neutral effect on heritage as smarter travel choices are not directly affect the condition or setting of heritage assets or the build environment.

On balance, **neutral effects** are predicted overall.

Safer Travel	RS 1	RS 2	RS 3	RS 4	RS 5	RS 6	RS 7	RS 8	RS 9	RS 10	RS 11	RS 12	RS 13	RS 14	RS 15	RS 16	RS 17	RS 18
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Policies RS1- RS18 are likely to have a neutral effect on heritage as safer travel has no direct relationship with the condition, setting or experience of the historic environment.

Policies RS7, RS11, RS16 and RS18 relate to camera enforcement, highway improvements with regard to speed limits and transport measures to reduce opportunities for terrorism, crime and anti-social behaviour. Such installations and measures could negatively affect archaeology and the setting of built heritage however this is largely related on how such schemes are implemented (and routine mitigation ought to be possible). Therefore, overall these policies are also likely to have a **neutral effect**.

Passenger Transport	PT 1	PT 2	PT 3	PT 4	PT 5	PT 6	PT 7	PT 8	PT 9	PT 10	PT 11	PT 12	PT 13	PT 14	PT 15	PT 16	PT 17	PT 18	PT 19
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

The passenger transport policies will have a neutral effect on the historic environment as an improvement public transport does not relate directly to the condition or setting of heritage. Though improved public transport could allow more people to experience heritage assets in the town centre, the effects are not significant. Therefore, overall these policies are also likely to have a **neutral effect**.

Cleaner Fuel	CF1	CF2	CF3	CF4
Effects	0	0	0	0

There is a weak link between the condition of heritage assets and air pollution (which can damage assets visually). Therefore, an improvement in air quality could have indirect benefits in this respect. However, there is considerable uncertainty about these effects, and the magnitude of impacts would be small. Therefore, **neutral effects** are predicted overall.

Network Management	NM1	NM2	NM3	NM4	NM5	NM6	NM7	NM8	NM9	NM 10	NM 11	NM 12	NM 13
Effects	0	0	0	0	0	0	0	0	0	0	0	0	?

Policies NM1 – NM13 are likely to have a neutral effect on the historic environment, as management of the network ought not to lead to any changes in the condition or setting of heritage assets or the built environment. Overall, **neutral effects** are predicted.

Major infrastructure improvements that are identified such as the Western Link and the Garden Suburb Strategic Link could potentially have impacts upon historic assets. However, these are not attributed wholly to the LTP4. At this stage, uncertain effects are predicted for NM13.

Asset Management	AM1	AM2	AM3	AM4	AM5	AM6
Effects	0	0	0	0	0	0

The asset management policies do not directly relate to heritage as they focus on the management of transportation property and infrastructure (and ways to fund further development in transportation). Therefore **neutral effects** are predicted.

Freight Management	FM 1	FM 2	FM 3	FM 4	FM 5	FM 6	FM 7	FM 8	FM 9	FM 10	FM 11	FM 12	FM 13	FM 14	FM 15	FM 16
Effects	0	0	0	0	0	0	0	0	?	?	0	0	0	0	0	0

The freight management policies focus on managing freight transport for businesses in Warrington. In the main, this relates to operational issues and would not have effects on the historic environment. However, policies that seek to encourage increased rail and water freight could potentially have effects upon heritage assets such as the Warrington Transporter Bridge. These effects could be potentially positive though, if there is potential to improve the condition of the bridge in association with development of freight facilities.

On balance, **neutral / uncertain effects** are predicted with regards to heritage assets.

Cumulative effects of the Plan

Taking these policy themes and combining overall scores allows for the cumulative effects of the Plan to be established. These effects are represented visually in the table below, with a summary of effects provided.

Policygroups	**ATP**	**STCP**	**RS**	**PTP**	**CFP**	**NMP**	**AMP**	**FMP**
Significance of effects	0	0	0	0	0	0	0	0

None of the Plan policies relate strongly and directly to protection and enhancement of the historic environment. Whilst some measures could lead to slight improvements in the environment (cleaner fuels for example), the magnitude of impacts is very low. Therefore, **neutral effects** are predicted overall. Certain infrastructure schemes may have negative effect, but it is presumed these would be dealt with through a detailed assessment alongside planning (and mitigated accordingly).

7.12 Historic Environment Objective 11: Ensure high quality and sustainable design for transport infrastructure, spaces and the public realm that is appropriate to the locality.

Active Travel	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT8
Effects	0	+	0	0	0	0	0	0	0

The majority of these policies would have neutral effects, as they seek to change behaviors relating to travel. Whilst this may involve some positive changes to the built environment and improvement to the public realm (such as high quality infrastructure for Policy AT2) the overall effects are likely to be **neutral.**

Smarter Travel Choices	STC 1	STC 2	STC 3	STC 4	STC 5	STC 6	STC 7	STC 8	STC 9	STC 10	STC 11
Effects	0	0	0	0	0	0	0	0	0	0	0

The smarter travel choice policies are mostly focused on engagement with communities to encourage alternative, safer and more inclusive modes of travel. There wouldn't be any direct effects upon the built environment as a result of such measures, and so **neutral effects** are predicted.

Safer Travel	RS 1	RS 2	RS 3	RS 4	RS 5	RS 6	RS 7	RS 8	RS 9	RS 10	RS 11	RS 12	RS 13	RS 14	RS 15	RS 16	RS 17	RS 18
Effects	0	0	0	0	0	0	-?	0	0	0	-?	0	0	0	0	-?	0	-?

The majority of policies are predicted to have neutral effects as they focus on safety behaviours rather than changes to the physical environment.

Policy RS7, RS11, RS16 and RS18 relate to camera enforcement, highway improvements with regard to speed limits and transport measures to reduce opportunities for terrorism, crime and ant-social behaviour. Such installations and measures could negatively affect townscape and public realm (for example, bollards, road alignments, cameras etc.). However this is largely related to how such schemes are implemented, and with sensitive design, negative effects ought to be possible to avoid.

Overall, an **uncertain negative effect** is predicted to reflect these potential issues. However, the effects would not be anticipated to be significant.

Passenger Transport	PT 1	PT 2	PT 3	PT 4	PT 5	PT 6	PT 7	PT 8	PT 9	PT 10	PT 11	PT 12	PT 13	PT 14	PT 15	PT 16	PT 17	PT 18	PT 19
Effects	0	0	0	0	0	+	0	0	0	0	?	0	0	0	0	0	0	0	0

Only policies PT6 and PT11 have some relevance to the quality of the built environment and the public realm. The remaining policies are focused on improving passenger transport services and the use of such services, which is unlikely to have an effect on the environment.

Policy PT6 could potentially have positive effects in terms of a sense of place, by seeking to ensure that public transport stops are safe and attractive places to wait. The effects are minor and uncertain though.

A mass transit system could potentially involve segregated lanes, redesigning junctions, new stations/stops and other infrastructure changes. These could all have a potential effect on the character of the built environment, either positively or negatively (in fact, public realm improvements could be designed into infrastructure). Whilst policy PT11 commits to exploring a mass transit option, the effects would need to be determined through detailed options appraisal. At this stage, an **uncertain effect** is predicted.

Cleaner Fuel	CF1	CF2	CF3	CF4
Effects	0	0	0	0

These policies are predicted to have a **neutral effect** on the public realm overall. Whilst cleaner vehicles could help to create more attractive public spaces (which his positive for the townscape), the effects would be very small in magnitude when considered in isolation.

Network Management	NM1	NM2	NM3	NM4	NM5	NM6	NM7	NM8	NM9	NM 10	NM 11	NM 12	NM 13
Effects	0	0	0	0	0	?	0	0	0	0	0	0	0

The majority of policies are likely to have a **neutral effect** as they focus on the management of the road networks and their operation. However, policies that look to review parking provision and other built environment elements could possibly lead to changes in the appearance of the townscape. New car parks (Policy NM7) could lead to changes in the appearance of the built environment, but this is unlikely to be significant given the locations in question are already highly influenced by development and vehicles.

Asset Management	AM1	AM2	AM3	AM4	AM5	AM6
Effects	0	0	0	0	0	0

These policies focus on the management of transport property and infrastructure, and ways to fund further development in transport. As such, there is limited scope for effects upon the public realm, townscape and design. **Neutral effects** are predicted.

Freight Management	FM 1	FM 2	FM 3	FM 4	FM 5	FM 6	FM 7	FM 8	FM 9	FM 10	FM 11	FM 12	FM 13	FM 14	FM 15	FM 16
Effects	+?	+?	+?	0	0	0	0	0	0	0	0	0	0	0	+?	+?

The majority of freight management policies are likely to have neutral effects, as they focus on modal shift, the efficiency of freight and particular management arrangements. However, policies FM1-FM3 could have minor positive effects on town centre environments by re-routing traffic and seeking to improve air quality. This ought to help preserve a sense of place and protect the experience of the public realm.

Policies FM15 and FM16 relate specifically to the management of on-road freight parking, which can negatively affect the townscape. These policies could therefore have minor positive effects too.

Overall, a **minor positive effect** is predicted.

Cumulative effects of the Plan

Taking these policy themes and combining overall scores allows for the cumulative effects of the Plan to be established. These effects are represented visually in the table below, with a summary of effects provided.

Policygroups	ATP	STCP	RS	PTP	CFP	NMP	AMP	FMP
Significance of effects	0	0	0	-?	0	0	0	+

The overall effect of the Plan with regards to high quality design, townscape and the public realm is a **neutral effect**. The majority of policies do not directly relate to the character of the townscape and public realm in Warrington. Whilst some policies could encourage positive effects these would be minor, and on the other hand, physical infrastructure measures could potentially have impacts on townscape.

7.13 Biodiversity (SEA Objective 12):

Active Travel	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9
Effects	$+^{?}$	$+^{?}$	$+^{?}$	0	$+^{?}$	$+^{?}$	$+^{?}$	0	0

Policies AT1-AT3 and AT5 - AT7 encourage active travel which can improve air quality; potentially having a minor positive effect on biodiversity in the longer term.

Policies AT4 and AT8 relate to monitoring active travel and the needs of equestrians and will therefore have neutral effects.

Overall, **minor positive effects** are predicted, as a reduction in car based travel can help to improve air quality, but not significantly.

Smarter Travel Choices	STC 1	STC 2	STC 3	STC 4	STC 5	STC 6	STC 7	STC 8	STC 9	STC 10	STC 11
Effects	0	0	0	0	0	0	0	0	0	0	0

These policies would not lead to physical changes in the environment and so **neutral effects** are predicted.

Safer Travel	RS 1	RS 2	RS 3	RS 4	RS 5	RS 6	RS 7	RS 8	RS 9	RS 10	RS 11	RS 12	RS 13	RS 14	RS 15	RS 16	RS 17	RS 18
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	$+^{?}$	0	0

The majority of policies are predicted to have neutral effects upon biodiversity and geodiversity, as they are focused upon the safety of people. The measures that are likely to be used would not be likely to lead to any direct effects upon wildlife species or habitats.

RS16 discusses highway traffic using appropriate routes for transport. The policy seeks to minimise the impact of traffic on the environment in 'sensitive areas'. This could potentially have a positive effect by reducing speeds and the potential for collisions with wildlife for example. The effects are uncertain though.

Overall, a **neutral effect** is predicted given that the majority of policies will have no effect upon biodiversity, and those that may involve uncertainty.

Passenger Transport	PT 1	PT 2	PT 3	PT 4	PT 5	PT 6	PT 7	PT 8	PT 9	PT 10	PT 11	PT 12	PT 13	PT 14	PT 15	PT 16	PT 17	PT 18	PT 19
Effects	0	0	0	0	0	0	0	0	0	0	?	0	0	0	0	0	0	0	0

The majority of policies will have neutral effects upon biodiversity and geodiversity as they focus on the improvement of passenger transport services rather than physical changes to the built environment.

The indirect effects of these measures could be an improvement in air quality, but this would be unlikely to generate notable effects in isolation. PT11 supports the exploration of options for mass transit network.

Depending on the type, routes and other factors there is potential for effects to occur. However, there is a lack of detail at this stage to determine what these would be accurately, so uncertain effects are predicted.

Overall, the effects are broadly **neutral**, but the environmental effects of specific schemes should be tested to support the delivery of the LPT4 Action Plan.

Cleaner Fuel	CF1	CF2	CF3	CF4
Effects	+	+	+	+

The cleaner fuel policies are all likely to have some positive effect as they focus on reducing carbon emissions in motorised transport. This should have a positive effect due upon biodiversity by contributing to better air quality. However, the contribution made is unlikely to be significant so minor positive effects are predicted overall.

Network Management	NM1	NM2	NM3	NM4	NM5	NM6	NM7	NM8	NM9	NM 10	NM 11	NM 12	NM 13
Effects	0	0	0	0	0	0	0	0	0	0	0	0	?

The Network Management policies will likely have a **neutral effec**t as they do not directly relate to biodiversity and the enhancement of habitats. They focus on how to improve transport around Warrington with infrastructure, management and technological advances.

The support for major infrastructure improvements could lead to negative effects upon biodiversity assets, and these will need to be addressed through scheme specific assessments. With regards to further infrastructure, there will be a need for different options for growth to be tested as part of a Local Plan review and LTP update.

Asset Management	AM1	AM2	AM3	AM4	AM5	AM6
Effects	0	0	0	0	0	0

The Asset management policies will likely have **neutral effects** as they focus on investing and maintaining transport assets with limited consideration of biodiversity implications. A reduction in greenhouse gases (AM5) could contribute towards improved air quality, but these effects would be limited.

Freight Management	FM 1	FM 2	FM 3	FM 4	FM 5	FM 6	FM 7	FM 8	FM 9	FM 10	FM 11	FM 12	FM 13	FM 14	FM 15	FM 16
Effects	0	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0

Policies FM 2-4 could have indirect positive effects in combination with one another (and other plan policies) with regards to an improvement in air quality. This could have some benefit to certain habitats and species that are sensitive to air quality.

The remaining policies are predicted to have neutral effects as they are more concerned with detailed arrangements for freight management.

Overall, an **uncertain minor positive** effect is predicted reflecting the benefits that could arise in relation to air quality improvements.

Cumulative effects of the Plan

Taking these policy themes and combining overall scores allows for the cumulative effects of the Plan to be established. These effects are represented visually in the table below, with a summary of effects provided.

Policygroups	ATP	STCP	RS	PTP	CFP	NMP	AMP	FMP
Significance of effects	+?	0	0	0	+	0	0	+?

Broadly speaking, the Plan is predicted to have mostly **neutral effects** with regards to biodiversity. This is because many of the policies are unlikely to involve physical changes to the built environment that would affect wildlife species and habitats. However, there are multiple policies in the plan that would contribute to better air quality that could have **minor positive effects** for specific species and habitats (for example mosses). There are also potential effects that would arise in relation to a mass transit system, but these are uncertain at this stage.

7.14 Climate Change, Flooding and Resilience Objective 13

Active Travel	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9
Effects	0?	0?	0?	0?	0?	0?	0?	0?	0?

These policies focus on encouraging people to use active modes of travel, which would not directly affect the risk of flooding or resilience to climate change. Therefore neutral effects are predicted.

However, active travel infrastructure could (if linked to green infrastructure), help to mitigate flood risk and provide shade / address other potential issues. These links should be made with the emerging Local Plan for Warrington to ensure that an increase in active travel does not increase people's exposure to hazards caused by climate change (e.g. hot, dry weather and flooding).

Overall **neutral effects** are predicted, but uncertainty is recorded to account for the potential to address resilience matters.

Smarter Travel Choices	STC 1	STC 2	STC 3	STC 4	STC 5	STC 6	STC 7	STC 8	STC 9	STC 10	STC 11
Effects	0	0	0	0	0	0	0	0	0	0	0

Overall these policies are predicted to have **neutral effects**. There are no direct links to flooding and climate change resilience, and effects would be uncertain and minor.

Safer Travel	RS 1	RS 2	RS 3	RS 4	RS 5	RS 6	RS 7	RS 8	RS 9	RS 10	RS 11	RS 12	RS 13	RS 14	RS 15	RS 16	RS 17	RS 18
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

These policies focus on improving the safety of transport through infrastructure improvements, maintenance works, technological advances, monitoring and awareness raising. There is no direct relation to climate change or flooding resilience. This is why **neutral effects** are likely to occur.

Passenger Transport	PT 1	PT 2	PT 3	PT 4	PT 5	PT 6	PT 7	PT 8	PT 9	PT 10	PT 11	PT 12	PT 13	PT 14	PT 15	PT 16	PT 17
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

The passenger transport policies focus on increasing the frequency and quality of public transport services in Warrington; enhancing transport options for people that live and work in Warrington. These are unlikely to have effects with regards to flooding or wider adaptation to climate change, so neutral effects are predicted.

Cleaner Fuel	CF1	CF2	CF3	CF4
Effects	0	0	0	0

These policies do not relate to flooding or climate change resilience, so **neutral effects** are predicted.

Network Management	NM1	NM2	NM3	NM4	NM5	NM6	NM7	NM8	NM9	NM 10	NM 11	NM 12	NM 13
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0

The Network Management policies will have a neutral effect as they do not directly relate to climate change and the risk of flooding. They focus on how to improve transport around Warrington with infrastructure, management and technological advances.

Asset Management	AM1	AM2	AM3	AM4	AM5	AM6
Effects	?	?	?	?	0	?

With the exception of AM5, the policies are predicted to have uncertain effects. Each relates to the maintenance of highways and actions are prioritised in terms of risks to road users. The measures taken are not seeking to address flooding or climate change resilience explicitly. However, it is possible that upgrades and maintenance could help to reduce the risks of flooding, and resilience to changing climate (for example, roads that are resistant to hotter summers). To provide a greater degree of certainty, it is recommended that an additional policy is included that seeks to ensure that assets are managed so that flood risk is managed (for example, through clearing of drains, the use of permeable materials as appropriate), and infrastructure is resilient to potential changes in climate change.

AM5 relates to climate change mitigation (carbon emissions) rather than resilience and so neutral effects are predicted.

Overall, **uncertain effects** are predicted.

Freight Management	FM 1	FM 2	FM 3	FM 4	FM 5	FM 6	FM 7	FM 8	FM 9	FM 10	FM 11	FM 12	FM 13	FM 14	FM 15	FM 16
Effects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Management of freight is not likely to have notable effects with regards to flooding or adaptation to climate change. Therefore, **neutral effects** are predicted.

Cumulative effects of the Plan

Taking these policy themes and combining overall scores allows for the cumulative effects of the Plan to be established. These effects are represented visually in the table below, with a summary of effects provided also.

Policygroups	ATP	STCP	RS	PTP	CFP	NMP	AMP	FMP
Significance of effects	0?	0	0	0	0	0	?	0

The overall effect of the Plan with regards to flooding and resilience to climate change is **neutral.** The policies are not directly related to flood risk or adaptation to climate change.

8. Consideration of Plan updates

8.1 Introduction

Public and stakeholder consultation on the draft fourth Local Transport Plan took place for nine weeks, starting on 15th April 2019, and closing on 17th June 2019.

Following this consultation, the Council considered the responses received and as a result various elements of the draft LTP4 were amended.

Most of these changes relate to supporting text, background information and other minor additions. Such changes have no implications for the findings of the SEA.

A smaller number of changes have been made to the Plan policies, some of which have minor implications for the SEA findings. Table 8.1 below summarises the relevant changes to policies and discusses the implications with regards to the SEA.

Table 8.1: Amendments to the Warrington LTP4 following Consultation Draft stage

Policy change	Implications
PT1: Introduces consideration of cross boundary routes.	This change is positive with regards to the economy and regeneration objectives. In particular, it contributes directly to the sub-objective relating to 'connecttivity to the rest of the region'. The change ought to ensure that the benefits of transport infrastructure extend beyond the boundaries of Warrington. The Plan is already predicted to have significant positive effects in relation to the economy, and so this policy amendment only has minor implications.
PT2: Includes consideration of operational hours of passenger transport.	This change is positive as it supports people that need to use public transport at earlier and later times. This has benefits for the economy as it improves accessibility to jobs (particularly those working early and late shifts). There are also benefits more generally in terms of supporting greater usage of public transport. These changes contribute to the significant positive effects that are already predicted for 'accessibility' and 'economy and employment' SEA Objectives.
PT16: Emphasis on promoting use of the new station at Warrington West.	The changes involve a greater element of promotion, which should help to achieve a shift towards greater use of public transport. This is a minor positive effect, but does not alter the overall findings set out in the SA Report.
PT17: Clarity on the position regarding HS2 and the role of Warrington Central Station.	The changes made are clarifications, which set out the commitment to support network connections in Warrington. Providing that improvements are achieved, there would be positive effects on the economy as it would better link Warrington to the region (and further afield), providing access to a wider range of jobs and recreation opportunities. Though positive, the effects are not significant.
PT18: Clarity on the role of Warrington Bank Quay in relation to the Northern Powerhouse.	

The changes made are all positive, mostly in relation to accessibility and the economy. However, the overall findings in the SEA Report remain the same. This is because significant positive effects are already predicted in relation to these SEA Objectives (and the changes are relatively minor).

There are no alternative approaches to consider, as the changes are not matters that lend themselves to strategic appraisals.

There are no further mitigation or enhancement measures identified, and the existing monitoring framework in the SEA Report remain appropriate.

9. Mitigation and enhancement

9.1 Introduction

The SEA of the draft Warrington Local Transport Plan (4) has been an iterative process, in which proposals for mitigation and enhancement have been considered at different stages.

Draft versions of each plan policy have been appraised through the SA process, and recommendations have been made for improvements. .

Table 9.1 below sets out how the recommendations that have been made and how the SA findings would be affected by subsequent changes to policies. The Council will consider the recommendations of the SA before finalising the Plan following Consultation.

Table 9.1 *Mitigation and enhancement measures*

SA Recommendations	Implications for the SA findings
The Active Travel policies could be strengthened by identifying what types of active travel infrastructure will be encouraged.	Minor improvements with regards to accessibility and health and wellbeing.
The safer travel policies could perhaps be enhanced by referring to a need for car parks to be designed so that they are safe, and perhaps achieve accreditation to a recognised standard such as 'Park Mark'.	Amendments would be beneficial with regards to health and wellbeing / community safety. However, significant effects would not occur.
It is recommended that the options exploration process for a mass transit system involves an assessment of environmental impacts to help guide a preferred approach.	There are different options for how a mass transit scheme could be delivered. It is when such detail is provided that an informal SEA can add value with regards to the assessment of options.
Ensuring that freight movements on waterways are made in a sustainable manner ought to be promoted as a key principle to ensure that this modal change does not have negative effects.	There would be greater certainty that potential negative effects upon water quality would be avoided and / or mitigated.
The passenger transport policies seek to support an increase in bus uses. To ensure that an increase in buses does not contribute towards worsening air quality, there should be a focus on the use of low emissions vehicles.	This may already be covered through the cleaner fuel policies, but an explicit commitment to the reduction of emissions from all forms of transport *(including public transport which can contribute to poor air quality*) would help to achieve more positive effects with regards to air quality. The change would not be significant though.
To provide a greater degree of certainty, it is recommended that an additional asset management policy is included that seeks to ensure that assets are managed so that flood risk is managed (for example, through clearing of drains, the use of permeable materials as appropriate), and infrastructure is resilient to potential changes in climate change.	Would achieve positive effects with regards to climate change resilience. It is acknowledged that flood risk and drainage are covered by the supporting text in the asset management chapter though.

10. Monitoring

10.1 Introduction

At this stage there is a requirement to outline the measures envisaged to monitor the predicted effects of the Plan. In particular, there is a need to focus on the significant effects that are identified. It is important to track predicted effects to ensure that positive effects are actually realised and to identify any unforeseen negative effects that may occur.

Table 10.1 below sets out monitoring measures under each SA topic which are intended to be used to monitor any significant effects and to track the baseline position more generally.

At this stage the monitoring measures have not been finalised, as there is a need to confirm the feasibility of collecting information for the proposed measures. Wherever possible, measures have been drawn from the Local Transport Plan monitoring framework to reduce duplication.

The monitoring measures will be finalised once the Plan is adopted, and will be set out in an SEA Statement in accordance with the SEA Regulations.

Table 10.1: *Monitoring the effects of the Plan*

Summary of effects	Proposed monitoring measures
Economy and Regeneration: Modern Economy **Significant positive effects** are predicted as the Plan will help to improve accessibility for a range of communities, continue to support regeneration within Warrington and lead to more sustainable modes of transport that are required for modern economic growth.	- Proportion of freight transport by road, rail and water. - Levels of unemployment. - Employment growth by sector.
Economy and Regeneration: Equality and inclusion Overall a **significant positive effect** is predicted. This is largely due to the significant effects generated by the passenger transport policies which could help to improve access for disadvantaged groups. Positive effects are also generated from a range of other policies	- Walking and cycling routes accessible to deprived communities. - Focus group meetings with community groups with protected characteristics to determine what aspects of active travel could be improved from their perspective.
Health and Wellbeing: Community Safety Overall a **significant positive effect** is predicted. This is largely due to the significant effects generated by the active travel policies and road safety policies. The Plan is likely to encourage greater usage of services, which can contribute to improved perceptions of safety with regards to crime. There are also direct measures to improve road safety.	- Transport related crime and anti-social behaviour reported. - Number of road traffic accidents.

Summary of effects	Proposed monitoring measures
Health and Wellbeing: Recreation and healthy lifestyles **Minor positive effects** are predicted as the Plan encourages and facilitates active travel and improved accessibility in general. The effects are not predicted to be significant as there is no explicit goal to improve access to green infrastructure. No negative effects are identified as measures to improve the range of transport choices on offer throughout the Borough improves accessibility, which can only be a good thing in terms of accessing open space.	No significant effects are likely. It may be beneficial to track trends though, such as: - Length of improved walking and cycling routes.
Health and Wellbeing: Access to health care The overall effect of the Plan is a **minor positive effect**. Though there are no specific measures relating to access to health facilities, the plan will lead to a general improvement in accessibility, which would likely include better access to health facilities. Improving active travel options within the borough should also contribute to improving people's health and lifestyle if more places are accessible through walking and cycling.	No significant effects are likely. It may be beneficial to track trends though, such as: - Public transport access to health facilities. - Proximity of residential development to health facilities.
Accessibility **Significant positive effects** are predicted with regards to accessibility, as the Plan will help to better manage transport networks, encourage and enable active and sustainable modes of travel, and improve access for groups with barriers to travel.	- Travel to work trends - Public transport usage. - Frequency and reliability of public transport - Changes in peak level congestion levels
Housing To support sustainable housing growth, there is a need to maintain and enhance the infrastructure that will enable people to move around Warrington effectively and sustainably. The Plan should have positive effects in this respect as it seeks to promote links between residential areas, services and jobs, reduce pressure on the transport networks, and encourage active and sustainable modes of travel. Without such measures, it may be difficult to accommodate increased housing sustainably. Consequently, **significant positive effects** are predicted.	Distance of new residential development from a range of facilities and public transport services. - Schools - GP - Bus / train stop - Community facilities - Walking and cycling networks.

Summary of effects	Proposed monitoring measures
Natural Resources: Water quality Broadly speaking, the effects of the Plan are predicted to be neutral as they do not relate directly to water quality. Whist some policies could potentially lead to a reduction in pollutants in surface water run-off, the effects are indirect and uncertain, so unlikely to be significant. **Minor negative effects** are also possible in relation to policies that support an increase in water based freight movements.	No significant effects are likely. It may be beneficial to track trends though, such as; - Water quality along relevant sections of the Manchester Ship Canal and River Mersey.
Natural Resources: Air quality Overall the Plan is likely to generate **significant positive effects** upon air quality by; - Increasing the proportion of trips made by sustainable and active modes of travel; - Managing congestion on road networks; - Supporting technological improvements such as low emissions transport. - Reducing road freight.	- Nitrogen dioxide levels at key monitoring locations. - Particulate matter concentrations at key monitoring locations. - Number of electric charging points installed.
Historic environment: Heritage assets On balance **neutral effects** upon heritage assets are predicted.	No monitoring measures have been identified.
Historic environment: Townscape On balance, **neutral effects** are predicted with regards townscape, public realm and high quality design.	No monitoring measures have been identified.
Biodiversity Broadly speaking, the Plan is predicted to have mostly **neutral effects** with regards to biodiversity. However, there are multiple policies in the plan that would contribute to better air quality that could have **minor positive effects** for specific species and habitats (for example mosses).	No significant effects are likely. It may be beneficial to encourage and monitor the extent to which biodiversity considerations are taken into account in the delivery of new infrastructure though. For example: - The use of permeable surfaces - The use of SUDs - Number of trees planted alongside new infrastructure
Climate Change: Flooding and resilience On balance, the plan is predicted to have **neutral effects** with regards to flooding and resilience.	No significant effects are likely. It may be beneficial to track trends though. For example, by monitoring disruption to traffic as a result of flooding (identifying locations and the magnitude of impacts).

Appendix A: Scoping Consultation Representations

	Comments	Response
Natural England	Natural England have specified that water quality and air quality are not just human health issues as they also affect wildlife and plants. Issues like air and water quality impacting on designated site features and severing connectivity between designated sites and other ecological assets should be considered.	The SA has been amended to acknowledge the effects on air and water quality that could occur.
	The information detailing Warrington's designated sites (not habitats) is incorrect. The SAC's should read Manchester Mosses SAC and Rixton Clay Pits SAC.	Factual errors corrected.
	There is very little detail provided on the features of the designated sites and which activities resulting from the LTP may cause damage to them.	Information added with regards to the features of designated sites
	The SA should discuss the implications of HS2 with regards to Warrington LTP.	Updates provided relating to HS2.
	It is important to factor in the use of indicators in the approach to SEA. The use of indicators will monitor the success of the SEA objectives.	Monitoring measures will be identified in the SEA Report.
	We recommend that consideration be given to carrying out a Habitats Regulations Assessment (HRA) at an early stage in the development of the Plan so that the assessment influences the evolution of the Plan.	The Council will consider the need for HRA.

	Comments	Response
Historic England	Historic England have made the following comments : The contextual review needs to be more comprehensive and certain elements clarified. Undesignated heritage assets should be identified. Cheshire historic landscape characterization should be referred to and relevant information drawn out. The definition of built heritage should correlate with the NPPF definition. The SA theme should be changed from Built Heritage to Cultural Heritage so it covers historic and natural historic environments. Additional criteria should be added to objective 11 that refers to the historic and local character. Objective 10 should be amended to *Conserve and enhance the historic environment, heritage assets and their settings*". Additional objectives suggested covering townscape, local distinctiveness and sense of place. A list of wording amendments has been recommended for page 29.of the SA Scoping Report	The SA will add the NPPF definition of Built Heritage. Information added relating to undesignated assets and the historic landscape characterisation. Definition of built heritage amended. The topic Built Heritage has been renamed as Cultural Heritage. Additional criteria included. Wording for SA Objective 10 has been amended. It is considered that the current objectives (amended) make sufficient provision for consideration of townscape and local sense of place. Amendments made accordingly.

Appendix B: Appraisal of strategic options

Option 1: *Traffic management and Sustainable travel*	Option 2 *Traffic management, Sustainable travel + Mass Transit*		Option 3. *Great focus on Sustainable modes of transport only*
Biodiversity and Geodiversity			
+	+	- ?	+ ?

Certain habitats and species are sensitive to changes in air quality, and so measures that reduce air pollution would have positive effects.

The improvement of cycling and walking infrastructure will likely have some positive effect on biodiversity due to these modes of transport helping to improve air quality. Likewise, improvements in traffic management may also help to reduce congestion, adding further benefits.

Measures that include new pathways and routes that cut through areas of green space could potentially increase disturbance to certain species and habitats, but it ought to be possible to mitigate effects and ensure that multi-functional green infrastructure corridors are secured.

Traffic management that reduces speeding and improves safety (such as lighting) could also have benefits in terms of reduced collisions with animals. However, this is an uncertain effect and unlikely to be of significant magnitude.

Overall, minor positive effects are predicted for Option 1.

For Option 2, there would be additional positive effects in terms of reduced air pollution as a result of a mass transit system. However, a new transit system would require new infrastructure and may involve road widening and new stops / stations. The indicative routes for a mass transit system are not likely to be in close proximity to any notable biodiversity habitats. However, there could be localised loss of green infrastructure, with some minor negative effects. A route through the proposed Garden Suburb could have negative implications though depending on routes and mitigation measures. Consequently, the effects are mixed for Option 2.

For option 3, the effects are similar to option 1, but could potentially be less certain, because there would be less focus on traffic management. Whilst there would be greater direction of effort into sustainable travel (which can also help to address air quality issues), the impacts from traffic management are more likely to help reduce air quality issues relating to congestion, and minimise disturbance to species in terms of walking and cycling routes. Therefore, the positive effects are uncertain.

Built up and Natural Heritage		
Option 1: *Traffic management and Sustainable travel*	**Option 2 *Traffic management, Sustainable travel + Mass Transit***	**Option 3. *Great focus on Sustainable modes of transport only***
+	+	0

There is no direct relationship between transportation / accessibility and the historic environment. However, a reduction in traffic congestion could potentially help to improve the experience of cultural heritage and the peacefulness of tranquil / rural locations. An improvement in air quality may also help to reduce pollution that can cause degradation to the surface of historic buildings. In this respect, the policy ought to have minor positive effects.

The infrastructure and systems put in place to manage traffic will likely be building on existing road systems, and so the implications for townscape are not anticipated to be significant. However, changes could potentially be positive or negative depending upon scheme designs. It is assumed these issues could be dealt with adequately through the planning system though.

Overall, a minor positive effect is predicted for Option 1.

The mass transit system will likely be serviced predominantly on existing infrastructure, but with more regular services and better management. There could be some infrastructure improvements though, which could potentially change the nature of the built environment. The implications are unclear. However, high quality design could help to improve current stops/stations, and reduce congestion; having a positive effect on the built environment and public realm. Overall the effects are minor positives.

Option 3 is likely to have similar effects to Option 1, but it is less certain that there would be a take-up in walking and cycling and so the improvements in air quality may be less pronounced compared to options 1 and 2, which would also address management of the dominant modes of travel. Consequently, neutral effects are predicted.

Economy and Regeneration		
Option 1: *Traffic management and Sustainable travel*	**Option 2 *Traffic management, Sustainable travel + Mass Transit***	**Option 3. *Great focus on Sustainable modes of transport only***
+	++	+?

The improvement of road traffic systems would contribute to sustainable economic growth. If networks are not managed then there could be implications for business such as the costs of travel, and strategic sites would be less attractive for investment / development if the surrounding transport infrastructure was not capable of accommodating such growth.

With regards to active travel, this too should help to manage the effects on traffic that an increase in population can have. It should also support people from poorer backgrounds that do not rely on private car usage to access jobs and services. An increase in active travel would also help to improve the health of the population, with potential benefits regarding work attendance. Overall, minor positive effects are predicted.

In addition to the effects identified for option 1, option 2 would involve a mass public transit system. This would provide better access to key employment areas and educational facilities, which is beneficial for the economy. Furthermore, a mass transit network ought to help reduce traffic, and make the road networks more attractive for businesses. There would be capital costs of implementing a transit scheme, but this would also create jobs for local people in the highways sector. Overall, this option could have a potentially significant effect in terms of economic growth and regeneration.

For Option 3 there are positive implications to be felt with regards to an increase in sustainable travel. In the main, this relates to improved health, and an increase in the amount of trips made by non-car modes. However, it is not likely that a major shift towards cycling and walking would be achieved in the short term, because the dominant mode of travel is by car, and then public transport. Warrington has been developed in the context of car-based travel, and so there is also a need to address network management issues and public transport improvements. Consequently, the positive effects of this option are less certain.

Health and Wellbeing			
Option 1: *Traffic management and Sustainable travel*	**Option 2 *Traffic management, Sustainable travel + Mass Transit***		**Option 3. *Great focus on Sustainable modes of transport only***
++?	**++**	**-**	**+**

Supporting sustainable and active travel in particular can be positive for health in a number of ways. Firstly, it leads to more active lifestyles, which has proven health benefits. Secondly, it contributes to better air quality, and help to reduce traffic, which is good in terms of access to facilities and services.

The improvement of the highways network should also improve road safety and users may feel more comfortable, positively affecting wellbeing.

Overall, a potential significant positive effect is predicted.

There is uncertainty whether or not the uptake of active travel modes would be widespread though given the dominance of the car at present.

Option 2 would also involve a mass transit system, which should significantly improve travel around the borough. This should help to increase accessibility for all groups, and those who cannot switch to active modes of travel (for example due to a disability). Furthermore, a mass transit system ought to improve air quality and reduce congestion in the longer term. Overall, a significant positive effect is predicted. There may be temporary disruptions to the network whilst upgrades are made to support a mass transit system. This could cause negative effects in terms of congestion, disruption to travel and amenity. These effects would only be temporary though, and minor in nature.

Option 3 is focused entirely on sustainable modes of travel (mainly walking and cycling), and could have more pronounced effects in terms of encouraging more people to live healthier lifestyles. However, in terms of accessibility and traffic management, the effects would be more limited. Therefore, improvements to air quality, congestion and access to services and jobs would not be anticipated to be as significant. This approach also does little to target access to health care and services for those that cannot walk or cycle. Overall, this balances to a minor positive effect in terms of health and wellbeing for option 3.

Accessibility

Option 1: *Traffic management and Sustainable travel*	Option 2 *Traffic management, Sustainable travel + Mass Transit*	Option 3. *Great focus on Sustainable modes of transport only*
+	++	+?

Each option is likely to have positive effects (to differing degrees) as the primary focus is on the improvement of transport and travel choices.

Option 1 is predicted to have a minor positive effect. Management of traffic is positive in relation to accessibility, as it should help to reduce travel times, improve safety and improve routes. An improvement in walking and cycling links would also be positive in terms of supporting improved access to services from active travel. A minor positive effect is predicted.

For option 2 the addition of a mass transit system would generate significant positive effects as it would serve a wider range of people, improve travel times and frequency and provide better access for people without access to a car.

For option 3, the positive effects are less certain. Improved walking and cycling would benefit some members of the community and improve access to local services. However, it would do less to address transport issues relating to roads, it would not have benefits for all members of the community, and may be slow to facilitate a large scale shift in behaviours.

Climate Change and resource use

Option 1: *Traffic management and Sustainable travel*	Option 2 *Traffic management, Sustainable travel + Mass Transit*		Option 3. *Great focus on Sustainable modes of transport only*
++?	++	-	+

Increased use of sustainable travel such as walking and travel would reduce emissions from car-based travel. The reduction would be dependent upon uptake of such measures though; which would not be anticipated to be significant given that the dominant mode of travel is car based. Without further measures to reduce car-based travel, the benefits would likely be minor (Option 3).

With additional measures to manage traffic, this will not necessarily result in a decrease in emissions. Reduced congestion and an increase in infrastructure could arguably support increased car traffic, as it would be more attractive. In this respect, emissions would not be anticipated to reduce substantially, and so a minor positive effect is also predicted for Option 1.

The introduction of a mass transit system has the potential to significantly decrease carbon emissions in the long term, as it should lead to a more notable reduction in car use compared to improvements in walking and cycling. However, the need for infrastructure provision to support a system would require natural resources (e.g. construction materials and energy) which would generate minor negative effects in the short term that would not occur for options 1 and 3.

Natural Resources : Air quality		
Option 1: *Traffic management and Sustainable travel*	**Option 2 *Traffic management, Sustainable travel + Mass Transit***	**Option 3. *Great focus on Sustainable modes of transport only***
++?	**++**	**+**

All three options are predicted to have positive effects upon air quality to differing extents.

A shift to walking and cycling will reduce car based travel, and therefore the release of emissions. In the town centre this is particularly beneficial given the presence of the AQMA.

Improving traffic management is also beneficial. Whilst the overall level of usage might remain similar, the efficiency of the network would help to reduce congestion, which is a contributor to poorer air quality in the town centre for example. Major improvements that divert traffic from sensitive locations should also help to improve air quality. The Western Link is a good example.

In combination, traffic management and sustainable modes of transport would therefore create the potential for significant positive effects for Option 1. For Option 3, the lack of traffic management measures would mean that effects on air quality are entirely reliant on a shift to sustainable travel. This is unlikely to be substantial over the plan period, and so only minor positive effects are predicted.

The introduction of a mass transit system in addition to these measures (as per Option 2) would help to further reduce emissions due to car use and congestion. However, buses can generate harmful emissions themselves, and an increase in the town centre could be negative. With the use of low / zero carbon vehicles though, these impacts would not occur. Overall, a significant positive effect is predicted.

Natural Resources : Water quality		
Option 1: *Traffic management and Sustainable travel*	**Option 2 *Traffic management, Sustainable travel + Mass Transit***	**Option 3. *Great focus on Sustainable modes of transport only***
+?	**+**	**+**

A reduction in car usage could potentially have some minor benefits relating to water quality due to a decrease in pollutants being washed off roads into watercourses.

However, the effects are uncertain and not likely to be significant. The benefits are perhaps most likely to occur for Options 2 and 3 that would be most likely to reduce the numbers of car trips across the borough.

Natural Resources : Land and Soil		
Option 1: *Traffic management and Sustainable travel*	**Option 2 *Traffic management, Sustainable travel + Mass Transit***	**Option 3. *Great focus on Sustainable modes of transport only***
?	+?	0

Measures to increase walking and cycling would not affect best and most versatile land unless new routes were established that passed directly through farmland. This is unlikely to occur, and so neutral effects are predicted.

Traffic management would not be likely to affect soil or land resources if the measures are related to existing infrastructure. New major infrastructure schemes could potentially affect soil and land, but this is unclear at this stage.

A mass transit system would most likely not affect large areas of land and soil as in the main it would build upon existing networks and would be in the urban areas. However, some new infrastructure and routes could sever agricultural land. In particular, new routes through the Garden Suburb location, which is predominantly Grade 3a and 2 land. Therefore, a potential minor negative effect is predicted.

Housing		
Option 1: *Traffic management and Sustainable travel*	**Option 2 *Traffic management, Sustainable travel + Mass Transit***	**Option 3. *Great focus on Sustainable modes of transport only***
+	++	-

There is a need for housing development to be supported by a strong transport network so that residents can access work and other facilities. A lack of such infrastructure would also lead to congestion and other accessibility issues.

Option 1 will have some positive effect on housing as it supports traffic management improvements, which will be necessary to accommodate increased housing. Furthermore, there would be a degree of switching to more active modes of travel which would work hand in hand with network management measures. Consequently a minor positive effect is predicted on housing.

Option 2 would generate similar benefits to Option 1, but the development of a mass transit system in theory should help to relieve car based traffic on the network. In turn, this would have positive effects on housing as new development would be less likely to lead to an adverse effect on an already pressured network. There would also likely be stronger links between housing developments and employment areas. This approach may therefore better help support the delivery of housing development, particularly large scale sites that need to demonstrate that the highway network can accommodate growth. Consequently, a potentially significant positive effect is predicted.

Option 3 is less likely to support housing growth, as it does not involve improvements to the highways network or substantial improvements in passenger transport. It may therefore be more difficult to demonstrate that strategic housing growth could be delivered. The housing growth proposed in the Draft Warrington Local Plan would be unlikely to be accomodated through a focus on walking and cycling and other sustainability measures only. Therefore, the effects are minor negatives.

Summary

	Option 1: *Traffic management and Sustainable travel*	Option 2 *Traffic management, Sustainable travel + Mass Transit*		Option 3. *Great focus on Sustainable modes of transport only*
Biodiversity and Geodiversity	+	+	-?	+?
Built and natural heritage	+	+		0
Economy and regeneration	+	++		+?
Health and Wellbeing	++?	++	-	+
Accessibility	+	++		+?
Climate Change and Resource Use	++?	++	-	+
Natural Resources: Air quality	++?	++		+
Natural Resources: Water quality	+?	+		+
Natural Resources: Soil and Land	?	-?		0
Housing	+	++		-

Option 2 generates the most significant positive effects overall. In particular, this option best supports economic growth and housing development, which are crucial elements of the emerging Local Plan for Warrington.

This option is also most positive in terms of improving accessibility for a wider range of communities and achieving improvements in air quality and contributing to climate change mitigation.

However, this option does have the potential to generate some minor negative effects which would not occur for the other two options. These are related to the potential effects of the physical infrastructure needed to support a mass transit system.

Whilst Option 3 would have no negative effects upon environmental factors, the positive effects are not significant for any factors. This approach may also not help to support the growth of housing that is required to support the population of Warrington.

Option 2 does generate significant positive effects for health, wellbeing, air quality and climate change. However, there is a degree of uncertainty. Whilst it does not generate the minor negative effects that Option 2 could create.

Option 2 is less positive with regards to accessibility improvements and support for housing and employment growth.