

Warwick and Leamington Spa Transport Strategy

Review of Sustainable Transport Alternatives

Warwickshire County Council

27th January 2015

ATKINS

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1. Introduction

1.1. Study Context and Objectives

Atkins has been commissioned by Warwickshire County Council to undertake a transport study to inform the development of a transport strategy for the Warwick and Leamington Spa urban area.

The Strategic Transport Assessment Phase 4 (STA4) (April 2014) prepared in support of the Warwick Local Plan identified a broad package of transport schemes to mitigate the transport impacts of potential growth planned for the area up to 2028. The assessment concluded there was a need for sustainable transport improvements form part of the mitigation package to support the housing and employment growth proposals within the District. Furthermore, the study recommended the need for more detailed work to be undertaken on sustainable transport options to encourage modal shift.

The purpose of this study is to evaluate a range of alternative options to address transport issues in the area, including the exacerbation of these issues if the local growth scenarios come forward as planned. The study has been structured around four key requirements to:

- Identify local transport issues in Warwick and Leamington Spa with the use of transport evidence and stakeholder engagement
- Define and agree the objectives for the transport strategy
- Evaluate a range of alternative transport options, including demand management, to address current and future local transport issues in the area
- Recommend a preferred transport strategy for the area which best addresses the identified local transport issues and meets objectives
- From this assessment a preferred transport strategy and package of improvements for the area can be identified.

The study has been overseen by a Steering Group with representatives from WCC (Transport Planning and Public Health) and WDC (Environmental Health and Planning). Engagement with wider stakeholders has been ongoing throughout the course of the study.

1.2. Study Area

The study will specifically cover the Warwick and Leamington Spa urban areas outlined in Figure 1-1.

Figure 1-1 Study Area



The focus of the study is to address existing issues within the area, alongside the likely impact of Warwick District Council's Local Plan proposals for housing and employment growth up to 2028.

The work carried out to date by the County Council to identify the transport impact of these proposals (through the Strategic Transport Assessments) demonstrates that the main impact will be felt in the Leamington Spa and Warwick area, including the principal arterial corridors approaching the two towns (e.g. A425, A429, A452). This report therefore places most emphasis on areas where the impact is greatest, hence the Warwick-Leamington Spa focus. However, in considering solutions, the study will identify where the main demands for movement are. This will obviously extend beyond the Leamington Spa-Warwick area and include neighbouring areas such as Kenilworth.

1.3. Report structure

The remainder of this document is structured as follows:

Chapter 2: Methodology

Chapter 3: Wider Socio-economic Context

Chapter 4: Local Transport Issues and Problems

Chapter 5: Transport Strategy Objectives

Chapter 6: Option Identification and Assessment

Chapter 7: Package Descriptions

Chapter 8: Overview of Traffic Modelling Approach

Chapter 9: Stage 2: Detailed Review of Options

Chapter 10: Recommended Transport Strategy Approach

Appendices:

Appendix A: Stakeholder Workshop 1 Notes

Appendix B: Stakeholder Workshop 2 Notes

Appendix C: Park and Ride Report, 2014

Appendix D: Options Assessment: Strengths and Weaknesses

2. Methodology

2.1. Study Overview

The key stages for developing the transport strategy are outlined in Figure 2-1 and discussed in further detail in this chapter.

Figure 2-1 Overview of Study Approach



2.2. Review of Local Transport Evidence and Identification of Local Transport Issues and Problems

By carefully analysing local transport problems and challenges, it becomes easier to identify the most effective and innovative approaches to tackling them. Furthermore, an effective targeted strategy is dependent upon it being underpinned by a robust evidence base.

A review of pre-existing datasets was undertaken to identify the predominant existing and future transport related issues and problems affecting Warwick and Leamington urban areas. The aim of this review was predominantly to summarise the network symptoms and local travel demand behaviours relevant to the urban area. More importantly analysis of the evidence base was undertaken to identify the root cause of these symptoms. Detailed user surveys were not conducted as part of this study. Key data sources included: Local Census 2011 travel statistics, employer and school travel surveys, local blue tooth surveys, car parking surveys and outputs from the Warwick and Leamington Spa and the area-wide PARAMICS Highway Assignment Model. Further detail of the traffic modelling approach is described in Chapter 8.

The issues and supporting evidence were then presented to and validated by stakeholders at a workshop in May 2014. Key stakeholder groups included: local authority representatives; local businesses, education and healthcare providers; local transport providers, town council representatives, civic and amenity groups and other relevant local partners.

2.3. Define Transport Strategy Objectives

Any future transport strategy for Warwick and Leamington needs to be underpinned by a set of clear and measurable objectives. These objectives in turn should be well aligned to: the problems and issues evidence base; wider strategic policy frameworks such as the Strategic Economic Plan (SEP), the Warwickshire Local Transport Plan (LTP) and Warwick District Local Plan; and the final strategy progressed. The recommended transport strategy objectives are described in Chapter 5.

2.4. Identify and test Transport Solutions

A vast range of individual urban transport solutions exist and offer scope to address the main transport issues and problems. However, it should be recognised that not all of these solutions are either appropriate or relevant within the context of the Warwick and Leamington Spa area. A three stage approach was taken to derive the preferred package option, summarised as follows:

2.4.1. Stage 1 – Identify Available Solutions and Initial Assessment

Drawing upon the local evidence base review, adopted practice elsewhere and inputs from local stakeholders a long list of potential measures was prepared. These measures were then sifted using a qualitative assessment criteria intended to identify potential measures that are relevant to the issues and objectives of the strategy area, are likely to be effective and more importantly are deliverable (technically feasible, affordable, timing and acceptable). Once shortlisted, five packages were prepared for further testing in stage 2 (see below). No detailed modelling was conducted at this stage.

2.4.2. Stage 2 – Assessment of five package options

Once the five packages for testing had been derived and agreed in discussion with the project steering group a more detailed assessment of the advantages and disadvantages of each package option was undertaken. Although predominantly a qualitative assessment, each option was tested using the area wide Warwick and Leamington Spa PARAMICS Highway Assignment Model. The role of the model was to assist in providing an indication of the potential impact of each package on network operations including: journey times, network speeds, and network demand.

As per stage 1, the qualitative and quantitative assessment was used to identify the package most relevant to the transport issues in Warwick and Leamington Spa, most effective at addressing these issues and had the greatest potential for delivery. Following further feedback from local stakeholders, a final recommended package of measures was tested to understand the cumulative network impacts of delivering multiple interventions in Warwick and Leamington Spa.

2.4.3. Stage 3 – Testing of Preferred Package

The impact of the preferred package on the highway network in Warwick and Leamington Spa was assessed using the PARAMICS model. This quantitative assessment was used to identify whether the preferred package would provide additional network efficiency benefits to the transport schemes reported in the STA4. A qualitative assessment was also undertaken to consider the preferred package in more detail against meeting the objectives and deliverability aspects.

2.5. Develop Transport Strategy Vision for Warwick and Leamington Spa

Drawing upon the evidence base developed throughout the study, the final output of this study is a recommended strategy for further consideration by local delivery partners.

3. Wider Socio-economic Context

3.1. Introduction

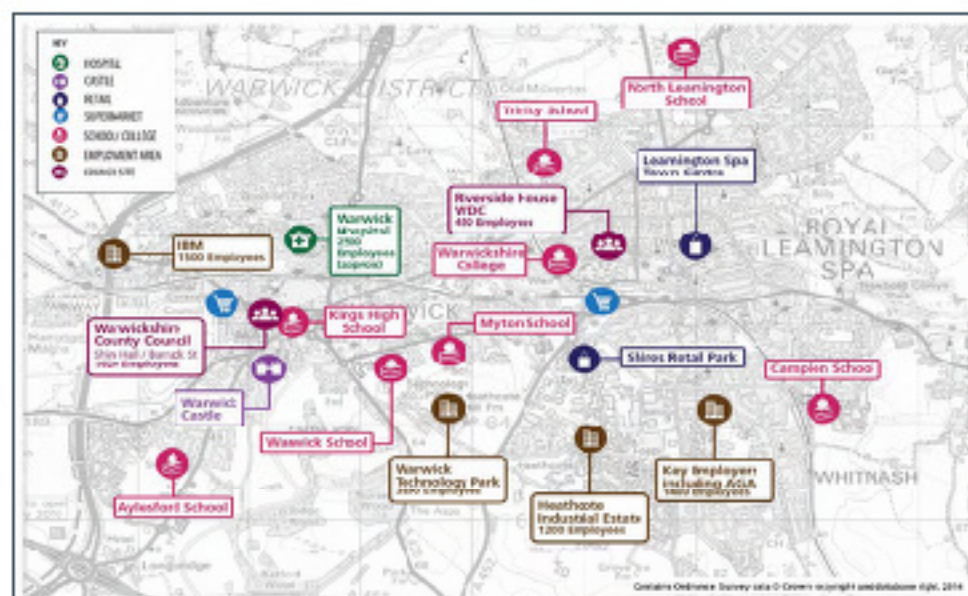
The demand for travel by all modes of transport is not only influenced by the provision of transport networks, it is also influenced by the study area's economic, social and geographic context. This section introduces the wider context in which the future transport strategy for Warwick and Leamington is being developed.

3.2. Economic Overview

The local economy in Warwick district is comparatively strong when compared to the wider Warwickshire and West Midlands economies. In 2012 Warwick District residence based earnings were £26,989, and workplace earnings £28,775. This compares to £26,308 and £27,414 for Warwickshire and £24,600 and £24,617 for West Midlands respectively¹. Key business sectors across the district include financial, business and professional services, high technology, automotive and advance manufacturing/engineering².

Warwick and Leamington Spa are significant urban centres containing numerous retail, employment, education and leisure facilities for residents and visitors (Figure 3-1). Collectively these result in a complex pattern of travel demand into, within and between the two towns and their suburbs. Warwick and Leamington Spa also have a number of historic and cultural attractors, including Warwick Castle. These attractors drive tourism across the towns, something which is promoted by the district³ given the positive economic benefits they bring.

Figure 3-1 Key Trip Generators in Warwick and Leamington Spa, including key employment, retail and education destinations



Source : Based on information provided by WCC, 2014

¹ Quality of Life in Warwickshire, Warwickshire Observatory, April 2014

² Local Plan 2011-2029, Publication Draft, 2014

³ Local Plan 2011-2029, Publication Draft, 2014

Unemployment across the district is relatively low, being almost half that of the West Midlands and England in 2011⁴. The percentage of the working age population claiming jobless benefits is 6% in Warwick District, this compares to 8% in Warwickshire and 11.3% in England⁵. As of 2011, there were 90,351 people in employment in Warwick district, with this forecast to increase by 10,200 (11.6%) up to 2029⁶. The local labour market is also highly skilled, with 38% of those employed being classified as managers, senior officials or professionals (compared to 26% in the West Midlands and 28% across England)⁷. Correspondingly, average income is relatively high compared to the regional and national averages⁸.

Whilst much of the district is prosperous, the Lillington area of Leamington Spa falls within the most deprived 20% of Super Output Areas nationally⁹.

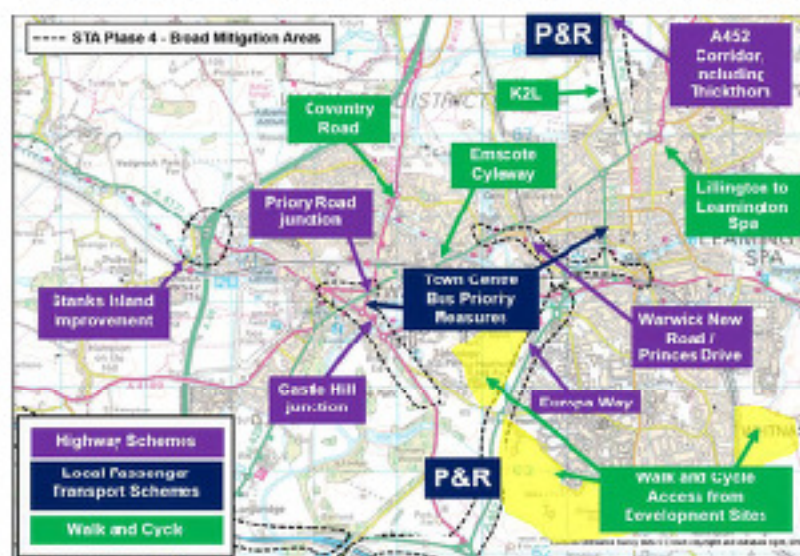
3.3. Wider growth context

The Warwick District Local Plan plans for up to 13,000 new residential properties and 16ha of employment land up to 2029 in the vicinity of Warwick and Leamington. This planned growth will generate additional demands for all modes of transport which, if left unmitigated, will impact adversely upon the performance of the transport network. An assessment of the cumulative impact of planned growth on the transport network has been undertaken and mitigation measures identified by Warwickshire County Council. This is detailed in the Strategic Transport Assessment 4 (STA4). The STA4 assessment forecast the following changes to the performance of the highway network by 2028:

- AM peak period demand will increase by 5.6%, and by 6.7% in the PM peak period
- Speeds will decrease by 20% and 12% in the AM and PM peak periods respectively
- Journeys times will increase by 28% in the AM peak period, and 15% in the PM peak period

A range of transport schemes and measures were identified to mitigate against the impact of the planned growth in the performance of the transport network. A summary of the STA 4 mitigation transport mitigation measures for the two towns is provided in Figure 3-2.

Figure 3-2 Summary of STA 4 Transport Mitigation Measures



⁴ Local Plan 2011-2029, Publication Draft, 2014

⁵ Quality of Life in Warwickshire, Warwickshire Observatory, April 2014

⁶ Local Plan 2011-2029, Publication Draft, 2014

⁷ New Local Plan Evidence Base, Appendix 3 (date unknown)

⁸ Local Plan 2011-2029, Publication Draft, 2014

⁹ Local Plan 2011-2029, Publication Draft, 2014

Source: Based on information with the STA4 Report, 2014, WCC

Further detail on the STA4 assessment methodology and mitigation measures is contained in the STA Cumulative Assessment Phase 4 Report (WCC, April 2014).

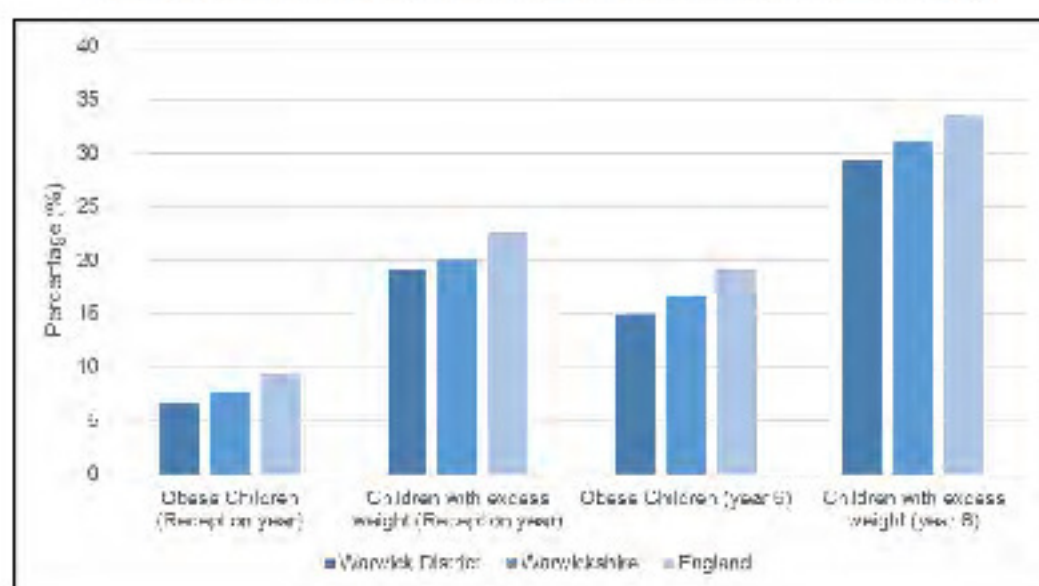
3.4. Public Health Context

Transport has an important role in facilitating healthier lifestyles by encouraging active travel behaviours including greater public transport and uptake of walking and cycling, whilst travel by sustainable modes of travel can also play a role in improving social interaction and connectivity, providing wider benefits to community cohesion. Transport networks also have a role in providing the connections people need to access local health care facilities (predominantly hospitals).

The population of Warwick district benefits from relatively good levels of health, with low levels of obesity, health deprivation and high average life expectancy¹⁰. However, there is an evident imbalance in general quality of health across the district, with a difference in life expectancy of over 11 years¹¹ between the least and most deprived areas.

Whilst the district is relatively healthy, commensurate with national trends there are issues with children's weight, which in part is caused by inactivity and car dependency. Figure 3-3 illustrates that 6.7% of children in reception year are obese, whilst 15% of children in year 6 are obese. The issue is not limited to children, in Warwick District 21.4% of adults are obese, compared to 24.1% of adults in England being obese.

Figure 3-3 Percentage of children in each school year with weight issue



Source: Based on information from the Warwick District Health Profile, Public Health England, 2014

3.5. Environmental Context

3.5.1. Air Quality

There are three AQMAs in Warwick (2) and Leamington Spa (1) shown in

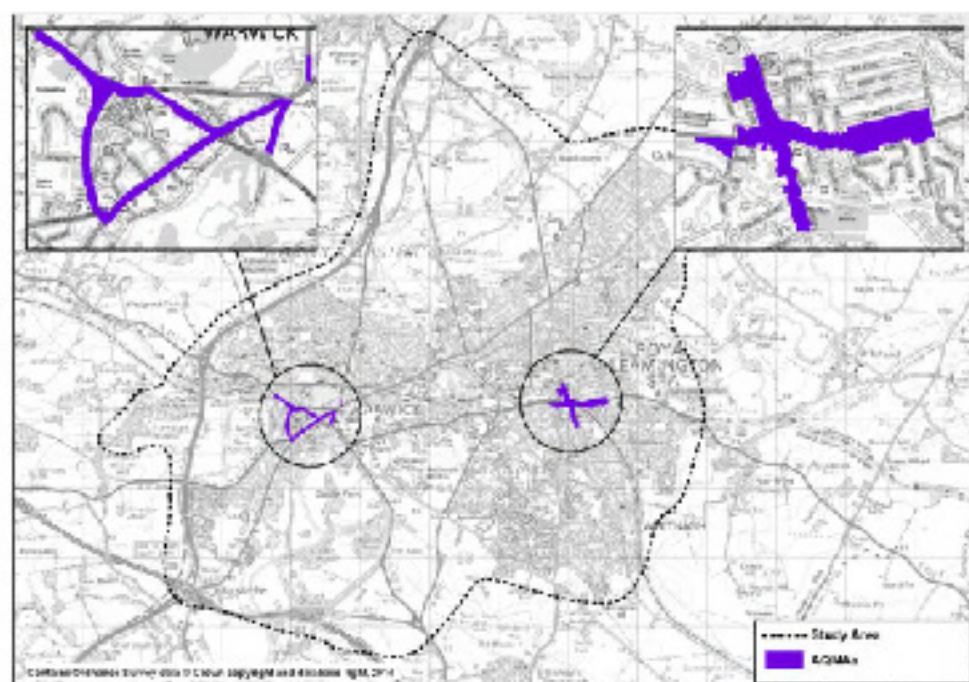
¹⁰ Local Plan 2011-2029, Publication Draft, 2014

¹¹ Local Plan 2011-2029, Publication Draft, 2014

Figure 3-4 below, and the areas covered are:

- Warwick: 1) High Street up to the junction with Bowling Green Street, Theatre Street/Saltisford up to the junction with Vittle Drive, Northgate/The Butts, Smith Street, St Nicholas Church Street and, 2) Coventry Road near St Johns
- Leamington Spa: Junctions of High Street/Bath Street/Old Warwick Road/Clemens Street

Figure 3-4 Location of Air Quality Management Areas (AQMAs)



Source : Based on data provided by WDC, 2014

Road transport is the main contributor of polluting emissions. Transport infrastructure and behavioural change measures to encourage modal shift will be key to addressing the air quality issues in these central areas whilst also providing benefits to public health and the economy.

3.5.2. Greenhouse Gases

Warwick District Council have a commitment to reduce carbon dioxide (CO₂) emissions. The district has targeted for a reduction in carbon emissions of 12% up to 2029 (from a 2011 base).

Whilst action to reduce the impact of climate change is being taken, it is anticipated that there will be changes in climate conditions in the future. It is forecast that weather will become more extreme, with drier summers, wetter winters and a greater frequency of extreme weather events – including flooding¹². Sustainable transport provision places a crucial role in reducing CO₂ emissions by reducing numbers of single occupancy car trips and increasing the use of active and sustainable modes of travel. Additionally, changing climate conditions will impact upon the transport system and therefore the transport should be able to adapt – particularly in withstanding extreme weather events. This was evident during the 2007 summer when Warwick, Leamington Spa and much of the country faced flooding.

¹² Local Plan 2011-2029, Publication Draft, 2014

3.5.3. Historic Built Environment

Warwick and Leamington Spa both have unique built environments. Warwick has a historic town centre which has many listed buildings including the popular tourist attraction Warwick Castle. Leamington Spa is a historic spa town which also attracts visitors all year round, key features include the Royal Pump rooms and Lansdowne Crescent. Both towns have a number of historic features, including historic bridges, which are of value to the residents and local economy and continue to be preserved.

The historic nature and layout of the towns means that the road network, particularly in Warwick, is constrained. This means there are competing demands for space on the transport network, and when there is unscheduled network disruption issues quickly develop. In some locations the historic street network, proximity of buildings and high volume of traffic means that air quality issues develop.

4. Local Transport Issues and Problems

4.1. Introduction

Drawing upon documented transport evidence and statistics, local traffic modelling data and feedback from local stakeholders, it is evident that there are a range of factors contributing to local congestion prevalent on parts of the network during peak periods in the urban areas of Leamington Spa and Warwick. These factors, along with potential future demands, are explored in this chapter. A summary of the local transport issues is contained in Figure 4-1.

Figure 4-1 Identified Local Transport Issues and Problems in Warwick and Leamington Spa Urban Area



4.2. High car dependency for travel to work trips

Dependency on the car for travel within Warwick and Leamington Spa is high. A high proportion of residents travel to work by car, whilst the proportion of residents travelling by sustainable modes of transport is relatively low. This is particularly evident from local travel to work statistics (Census 2011) and local staff travel surveys.

4.2.1. Car Ownership

High levels of car ownership place greater demand on the road network and potentially increases resistance to modal shift to more sustainable modes. Whilst overall car ownership trends in the area are broadly in line with the England and Wales average, the proportion of households in both Leamington Spa and Warwick owning more than one car exceeds 75% and 81% respectively, this compares to 74% nationally.

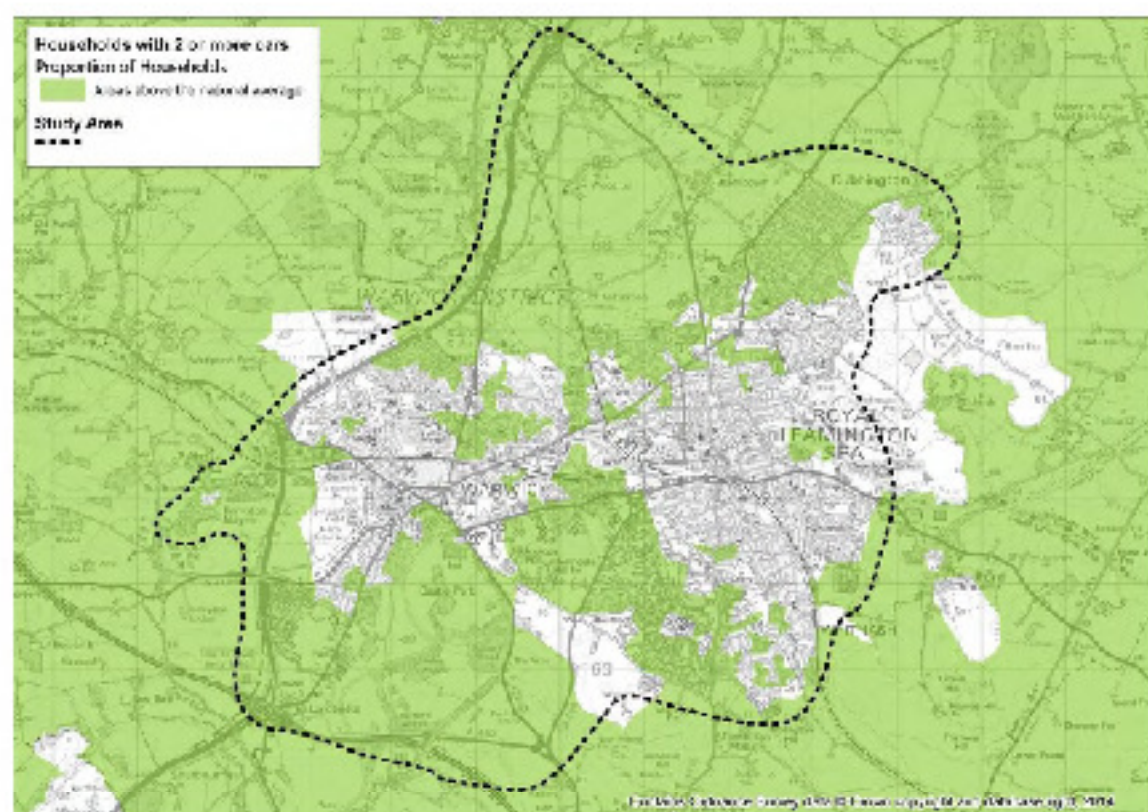
Table 4-1 Car Ownership Statistics for Study Area

Area	Car Ownership % of Households				
	None	1	2	3	4 or more
England and Wales	26%	42%	25%	6%	2%
Warwickshire	18%	41%	31%	7%	3%
Warwick Town	19%	44%	30%	5%	2%
Leamington Spa Town	25%	42%	26%	5%	2%

Source: Cens us 2011.

Figure 4-2 illustrates where car ownership is above the national average within the study area. It can be seen that car ownership is highest on the urban fringes of the towns and in the rural hinterland. In Warwick Gates 97.5% of households own a car; and has the second highest proportion of car owners in Warwickshire. This data and that provided in Figure 4-3 indicates a strong relationship between high car ownership and higher car use for journeys to work.

Figure 4-2 Car Ownership – Areas where Car Ownership exceeds National Average



Source: Cens us 2011.

4.2.2. Journeys to work: mode of travel

The data provided in Table 4-2 shows the mode of travel chosen by residents of Warwick and Leamington Spa to access their usual place of work. The data provided in Table 4-2Error! reference source not found. shows that:

- The proportion of journeys to work by car (as driver or passenger) in Warwickshire (71%) and Warwick District is above the England average (59%);
- The majority of journeys to work from the towns are by car, as a driver or passenger;
- The pedestrian and cycle mode share is broadly consistent with the England average, and;
- The bus mode share in Warwick and Leamington Spa is considerably lower (3 and 5%) than the England average (7%)

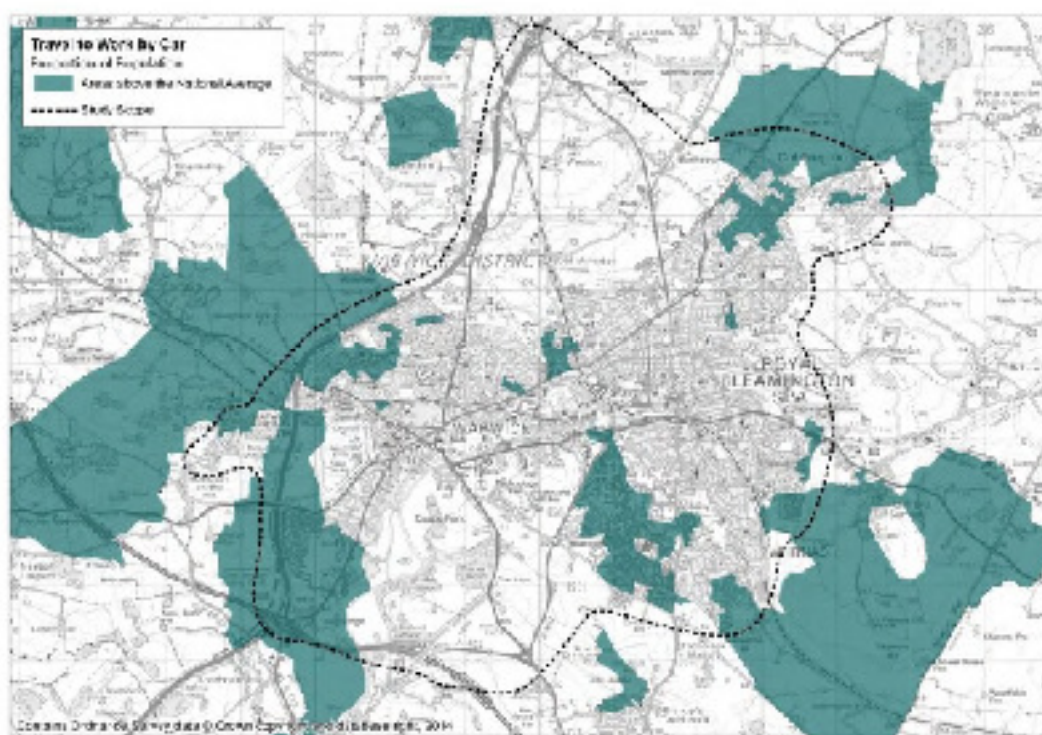
Table 4-2– Journey to work: method of travel to work (Census 2011, ONS)

	England & Wales	Warwickshire	Warwick District	Warwick	Leamington Spa
Driving a car or van	54%	65%	61%	61%	57%
On foot	10%	9%	11%	14%	14%
Work mainly at or from home	10%	12%	12%	10%	10%
Bus, minibus or coach	7%	3%	4%	3%	5%
Passenger in a car or van	5%	6%	5%	5%	5%
Train	5%	2%	3%	3%	3%
Underground, metro, light rail, tram	4%	0%	0%	0%	0%
Bicycle	3%	2%	3%	3%	4%
Motorcycle, scooter or moped	1%	1%	1%	1%	1%
Taxi	0%	0%	0%	0%	0%

Source: Census 2011.

Figure 4-3 illustrates the areas where the highest proportion of people travelling to work by car travel from. These areas are typically on the fringes of the towns, for example in Warwick Gates where between 52 and 78% of people travel to work drive by car. The proportion is also high in rural areas, where travel distances and the availability of travel alternatives can mean that car is often regarded as the most suitable modal choice. Unsurprisingly, the town centres are characterised by lower levels of car dependency for travel to work, largely due to lower residential population density and greater levels of public transport, cycling and walking accessibility.

Figure 4-3 Travel to Work as Car Driver – Areas exceed National Average

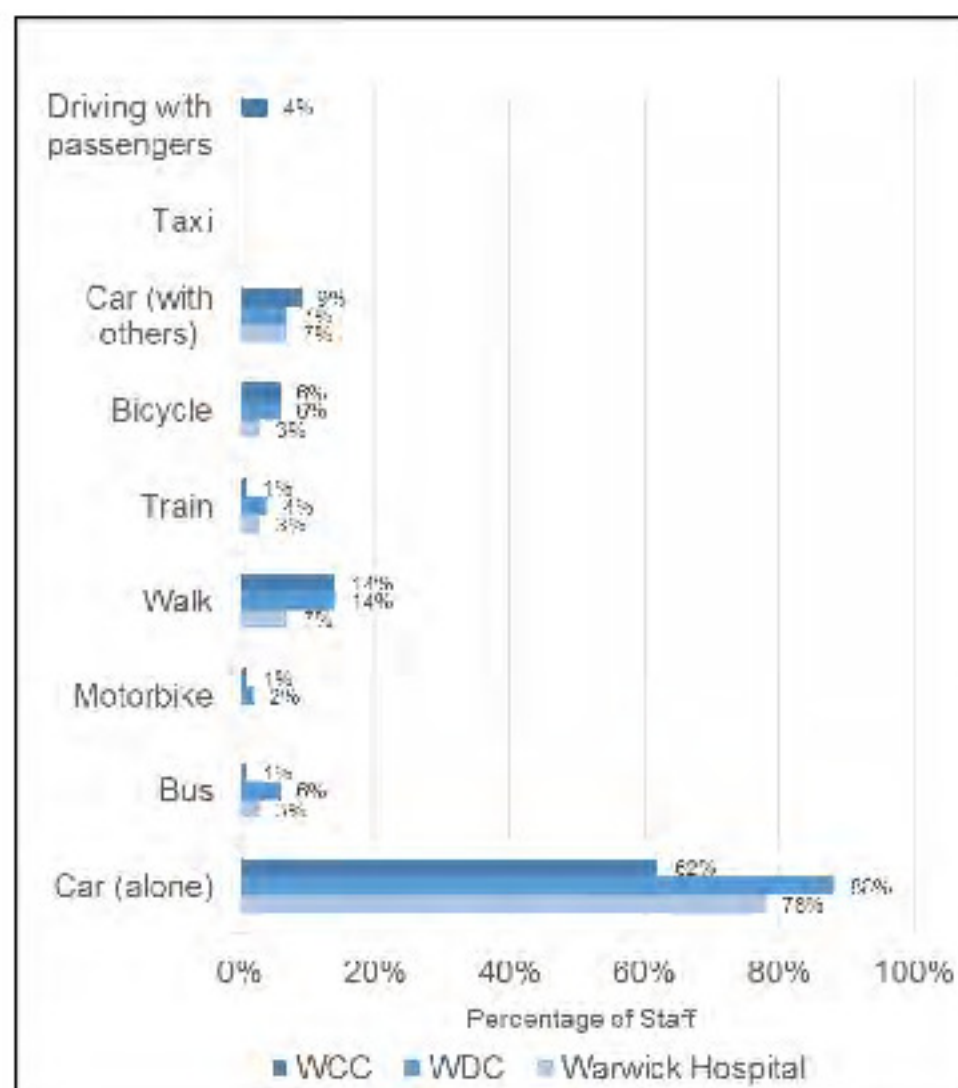


Source: Census 2011.

4.2.3. Staff Travel Surveys

Staff travel surveys conducted by Warwick Hospital in 2011, Warwick District Council (WDC) in 2014 and Warwickshire County Council (WCC) in 2013 provide additional insight into local travel to work behaviours. Headline mode share figures are provided in Figure 4-4 and further highlight the dependency on car for travel to work.

Figure 4-4 Snapshot Staff Travel Survey Results - % of staff travelling by each mode of transport



Source: Information provided by WCC. Travel surveys: WCC 2013, WDC 2014, NHS 2011

4.3. High proportion of internal and short distance journeys

A high proportion of journeys within the Warwick and Leamington Spa urban area originate within the towns and are over a short distance. This has been identified by analysis of Census travel statistics and data derived from the Warwick and Leamington Spa PARAMICS Highway Assignment Model.

4.3.1. Journey to Work: destinations

The majority (56%) of Warwick District residents travel to work within the District as demonstrated in Table 4-3, whilst a smaller proportion travel further to places of employment within the wider region including Coventry, Stratford upon Avon, Birmingham and Solihull.

Table 4-3 Journeys to Work statistics from Warwick District to Workplace (Local Authority Area) – Census 2011

Workplace / Destination	% of Total Journeys from Warwick District
Warwick District	56 %
Coventry	14 %
Stratford-upon-Avon	9 %
Birmingham	4 %
Solihull	3 %
Rugby	2 %
Cherwell	1 %
Westminster and City of London	1 %
Nuneaton and Bedworth	1 %
Redditch	1 %
Daventry	1 %

Source: Census 2011.

A high proportion of residents in Warwick and Leamington Spa travel to work within the study area. 2001 Census data, presently the most detailed dataset available, provides information on where the residents of Warwick and Leamington Spa travel to work. This is provided in Table 4-4.

Table 4-4 – Journeys to Work from Warwick and Leamington Spa¹⁹

Origin	Destination	% of All Journeys to Work
Warwick Town	Warwick Town	52 %
	Leamington Spa	14 %
	Outside study area	34 %
Leamington Spa	Warwick Town	27 %
	Leamington Spa	37 %
	Outside study area	36 %

Source: Census 2001.

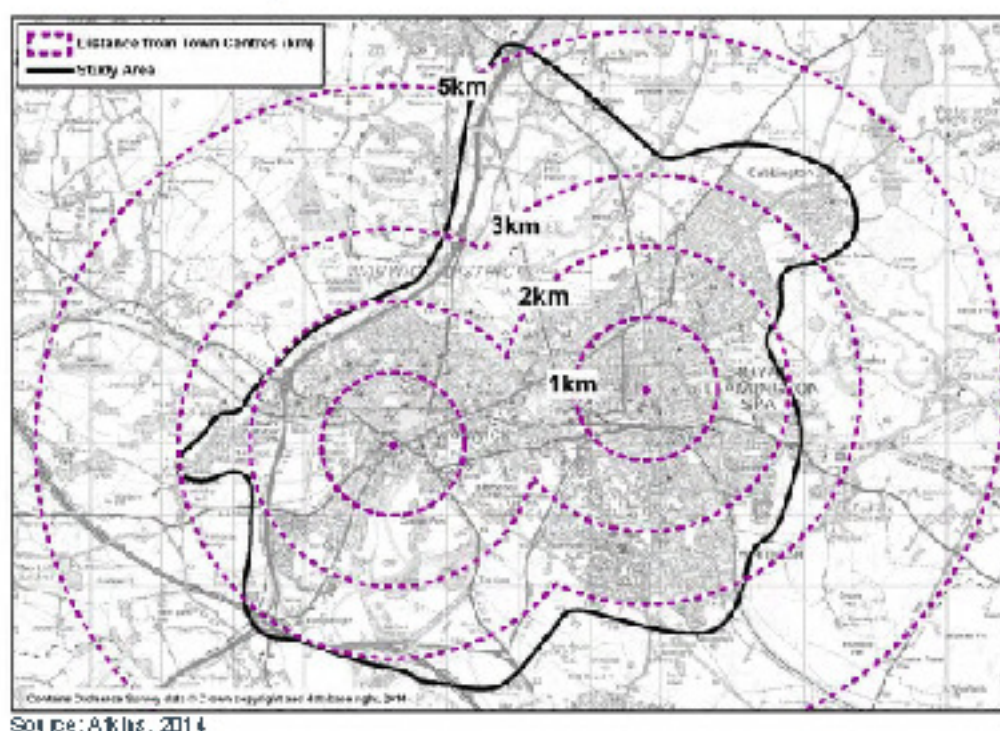
The data shows of the journeys originating in Warwick and Leamington Spa 66% and 64% respectively have a destination within the study area. The remainder of the journey to work trips from Warwick and Leamington Spa are journeys on the Warwickshire North-South corridor; travelling north to Coventry, or south to Gaydon/Banbury. The data shows that there is a strong demand for local journeys, the majority of which occur within and between the two towns.

4.3.2. Journey to Work: distance travelled

Understanding the distance people travel to work data provides a useful insight into the scope for modal shift towards sustainable modes. The study area is approximately 8.5km from north to south and 7.4km east to west, whilst the crow-flies distance between the town centres is 3.6km. The distances from the town centres is illustrated in Figure 4.5, and shows the majority of Warwick is within 2km of the town centre, and the majority of the Leamington Spa urban area is within 3km of the town centre.

¹⁹ Census 2001 Travel to Work (TtW) statistics (ONS)

Figure 4.5 Distances from Town Centres



Journeys within 2km are considered an appropriate distance to walk whilst journeys less than 5km are appropriate to cycle. Bus and rail services can cater for demand to travel longer distances. However, the data presented earlier demonstrates that a high proportion of the journeys to work are currently being undertaken by car. Table 4.5 indicates that in Warwick and Leamington Spa, 44% and 46% of journeys to work are less than 5km, whilst around 24% of journeys are less than 2km. Collectively this evidence suggest there is significant local potential to encourage a shift towards sustainable modes (predominantly walking and cycling) provided the correct infrastructure is in place to influence local safety perceptions of these modes.

Table 4.5 – Distance Travelled to Work (km)

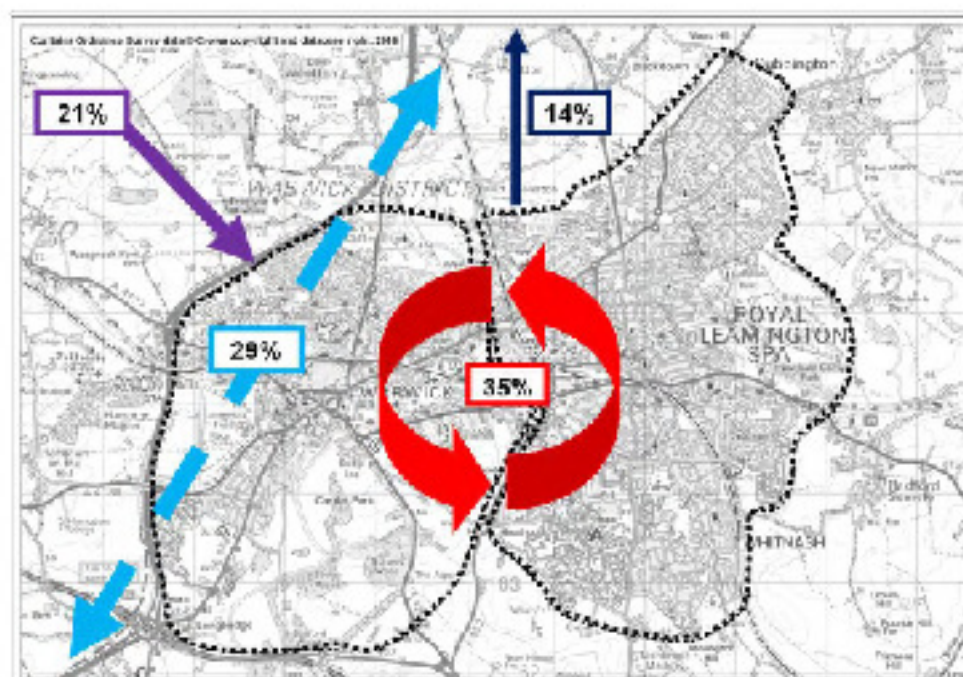
	Warwick District %	Warwick % of travel to work trips	Leamington Spa % of travel to work trips
Less than 2km	19 %	24 %	24 %
2km to less than 5km	18 %	22 %	20 %
5km to less than 10km	14 %	7 %	10 %
10km to less than 20 km	15 %	16 %	15 %
20km to less than 40km	9 %	10 %	9 %
40km to less than 60km	2 %	2 %	2 %
60km and over	4 %	5 %	4 %
Working at or from home	12 %	10 %	10 %
Other	6 %	6 %	6 %

Source: Census 2011.

4.3.3. Warwick and Leamington Spa PARAMICS Highway Assignment Model Data

Outputs from the Warwick and Leamington Spa Wider Area Paramics Highway Model are presented in Figure 4-6. The model is a highway assignment model, with a base year of 2011 and a forecast year of 2028. The areas covered explicitly within the model are Warwick town, Leamington Spa and Kenilworth, it also includes zones within the region and nationally. The model has two peak periods: AM peak period (0700-1000) and PM peak period (1600-1900).

Figure 4-6 Distribution of Traffic Movements across the Study Area – AM Peak Hour (08:00-09:00)



Source: Warwick and Leamington Spa PARAMICS Highway Assignment Model, WCC

Headline statistics from the peak hour commuter data include:

- 35% of peak hour car trips are contained entirely within the urban area;
- 29% of peak hour car trips neither originate or terminate within the study area; and
- There is an overall net inflow of commuting traffic during the morning peak period.
- The highest proportion of traffic travelling in to the study area is from the North (including Kenilworth and Coventry), the South is the second largest trip generator for journeys in to Warwick and Leamington Spa
- The North attracts the highest number of trips from Warwick and Leamington Spa
- Leamington Spa attracts and generates the greatest number of trips

4.4. Town Centre through trips

Stakeholder engagement and analysis of traffic movement data suggest that traffic travelling through the town centre is a contributory factor to local town centre traffic issues. Data provided by Warwickshire County Council from Bluetooth surveys and the Warwick and Leamington Spa Traffic Model has been analysed to understand the origin and destination of car trips in the study area.

Bluetooth surveys, using Bluetooth signals, were undertaken in Warwick to determine town-wide origin and destination of travel. The surveys were undertaken between the 7th of July 2012 and 13th July 2012. The survey was carried out across two concentric cordons, with one inner town and one outer town cordon boundary having been defined. The survey was undertaken to ascertain

the types of car trips pattern undertaken across the entire area and allow through trips (trips travelling through the entire network) to be captured.

Data from the Warwick and Leamington Spa Wider Area Highway model and bespoke Bluetooth surveys undertaken in 2011 suggest that approximately 60% of car trips in the peak periods are generated from within the Warwick and Leamington Spa urban areas. With route options for local trips in the area being relatively constrained, this places significant pressure on a number of key local routes within and linking the town centres.

It is evident from the traffic data available that whilst strategic through trips (those with a start and end point outside of the study area) do make some contribution towards local peak hour traffic demand; the greatest demand comes from within the Warwick and Leamington Spa urban area itself.

The data provided below for both Warwick and Leamington Spa is for the AM peak period 0700-1000.

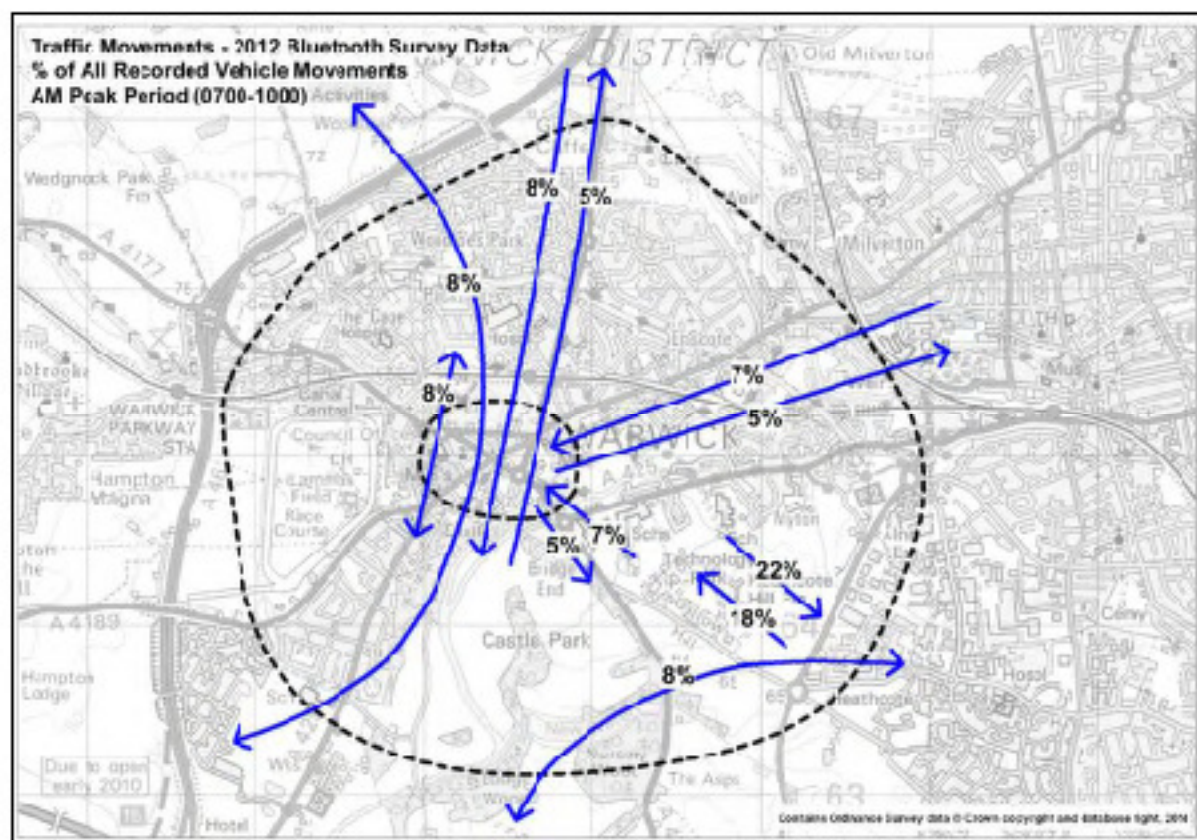
4.4.1. Traffic Movements in Warwick

The Bluetooth survey data illustrated in

Figure 4-7 shows that:

- 53% trips use the Warwick town centre road network (travelling through or within the inner cordon)
- 8% of town centre through trips have an origin and destination outside Warwick they do not stop in the town centre
- 70% of recorded trips originate from within the Warwick town area (inside the inner and outer cordon)

Figure 4-7 Traffic Movements in Warwick –based on 2012 Bluetooth survey data

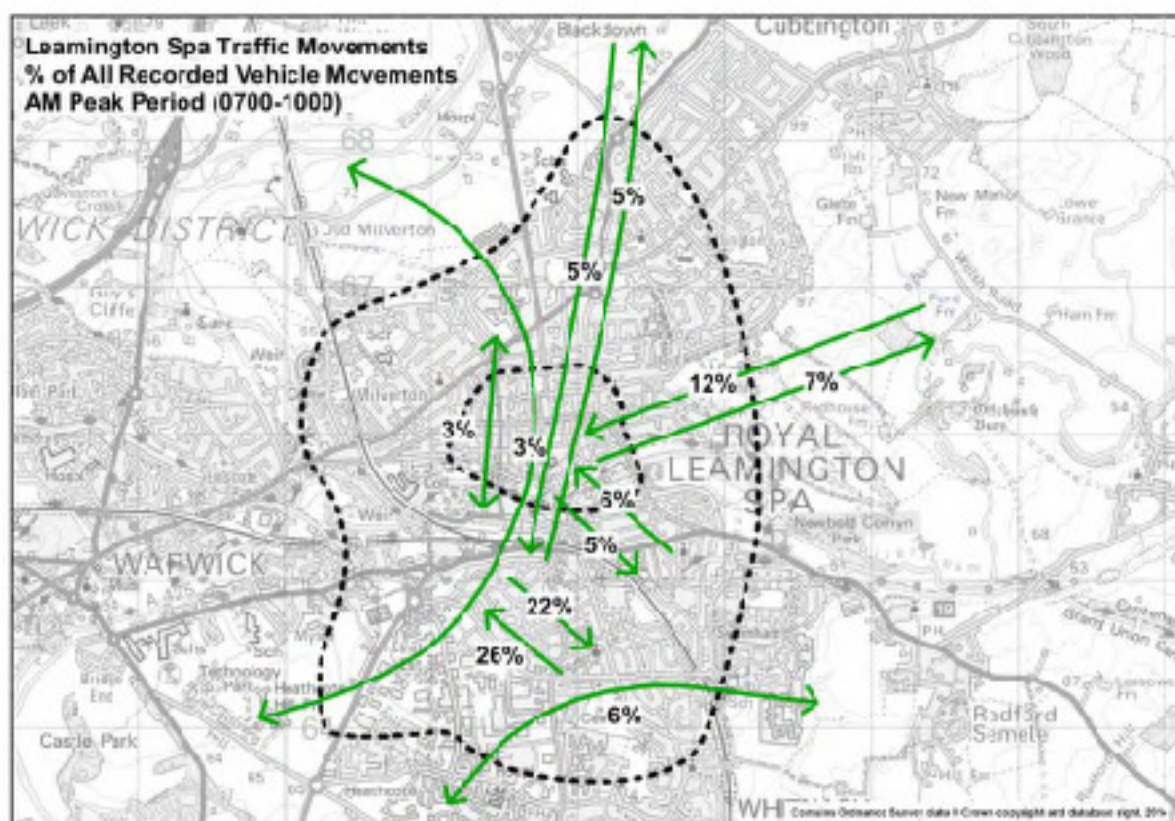


4.4.2. Traffic Movements in Leamington Spa

Data from the Warwick and Leamington Spa PARAMICS Highway Assignment Model has been analysed and is presented in Figure 4-8. The data shows that:

- 16% of trips go through the town centre inner cordon without stopping in the town centre
- 46% of trips use the Leamington Spa town centre road network (travel within or through the inner cordon)
- 3% of trips go through the town centre which have an origin and destination outside the town
- 74% of recorded trips originate within Leamington Spa area (within the outer and inner cordon)

Figure 4-8 Traffic Movements in Leamington Spa –based on Traffic Model Data



Source : Warwick and Leamington Spa PARAMICS Highway Assignment Model, WCC

4.5. School Travel is a contributor to local congestion

It is evident from traffic surveys comparing school term time and non-term time traffic levels that school traffic is a significant contributor to local peak hour congestion – particularly in the Banbury Road/Myton Road and Hampton Road corridors. Stakeholders have also raised the issue of school traffic being a contributor to local congestion. Analysis of traffic count data and school travel surveys has identified that schools contribute to local congestion but are not the sole cause of congestion in the two towns. Understanding the impact of schools on traffic flows identifies whether schools and education establishments should be incorporated in to the future strategy.

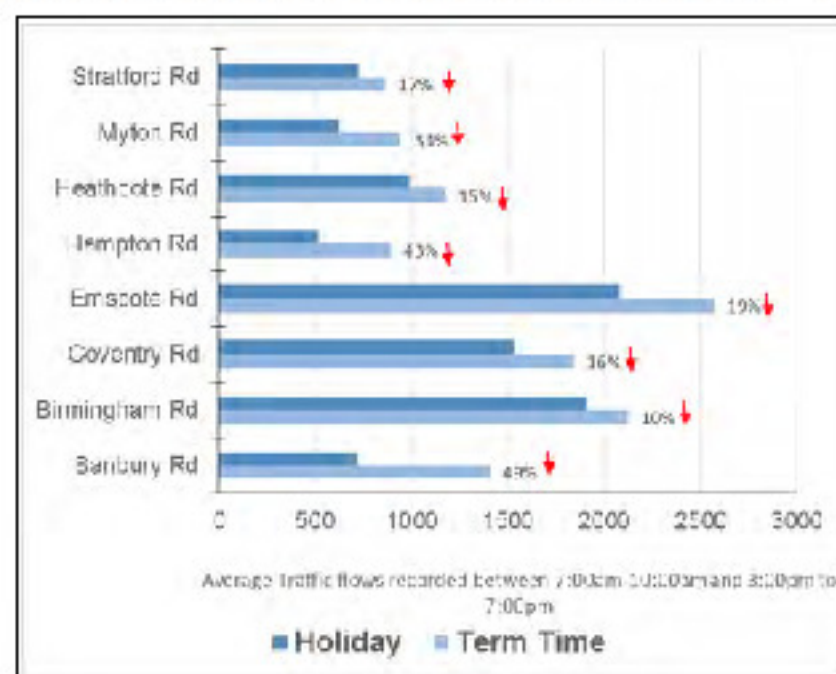
4.5.1. School Term-Time and School Holiday Traffic Flows

Traffic counts were undertaken at key locations across the study area during school term time and school holidays in February 2011, the data is presented in Figure 4-9. The data shows that traffic flows at these locations is higher during school terms, traffic during the school holidays was 23% lower in the AM peak period (0700-1000) and 4% lower in the PM peak period (1500-1900). The differences are most evident on Banbury Rd, Myton and Hampton Rd which is where the three

main schools in the study are located. The other locations have lower concentrations of education activity, and therefore there is less difference between holiday and school term traffic.

It should be noted, that whilst traffic levels are lower during school holidays this will also be because adults are taking time off work to care for their children and are therefore not travelling to work. 35% of economically active people in England and Wales are working parents (Census 2011).

Figure 4-9 Comparison of Traffic Flows in School Term and Holiday Time – February 2011



Source: WCC, Traffic Surveys, February 2011

4.5.2. School Travel Survey Evidence

School travel survey data for local authority (WCC) from 2011 and independent schools (WISF) from 2013 has been provided by Warwickshire County Council. The data presented in

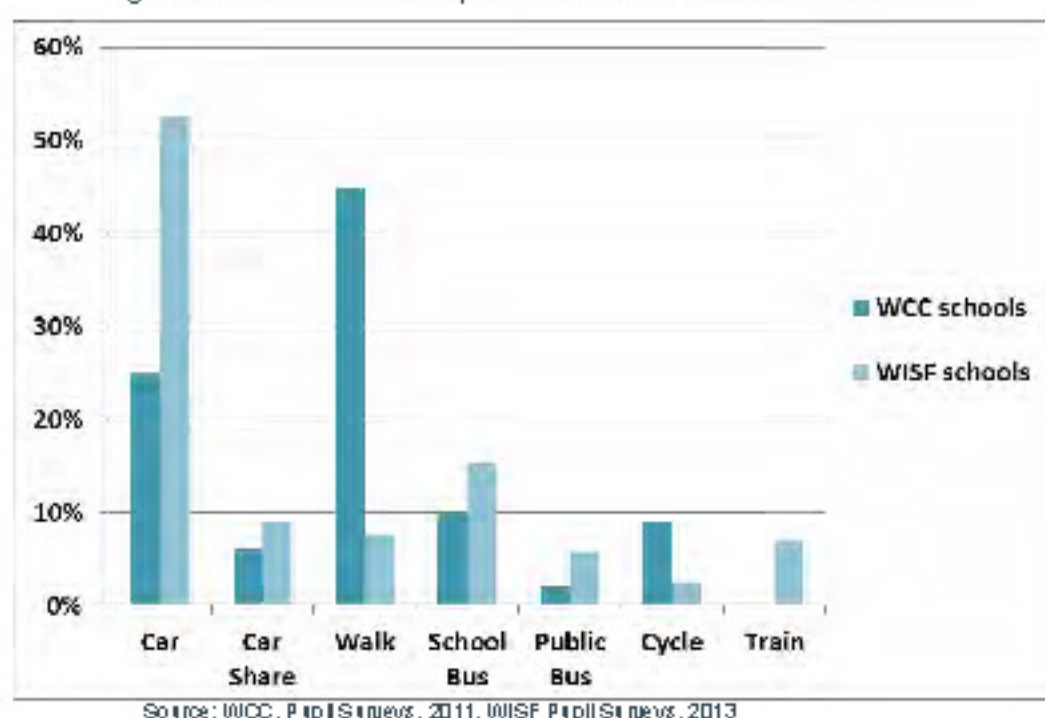
Figure 4-10 provides a comparison of the modes of transport used by pupils to access their schools.

There is a marked difference between the two school classifications. 50% of pupils travel by car to WISF schools, which is double that for WCC schools. This is most likely due to the catchment areas for the schools, WISF have a wider catchment with approximately 40% of pupils living more than 10 miles from their school. This is demonstrated by the greater number of pupils accessing WISF schools by train whilst a greater proportion of pupils walk to WCC schools most likely because they lie closer. Further points to note are as follows:

- 30-35% of pupils live less than 5 miles away from their school;
- Approximately 55% of car journeys were specifically made for school; and

- Approximately 40% of journeys to school were made en-route to employment (25% of these journeys were to work outside Warwick, 15% inside Warwick).

Figure 4-10 Method of Transport to School - WCC and WISF Schools



4.6. Quality of sustainable travel alternatives limits their use

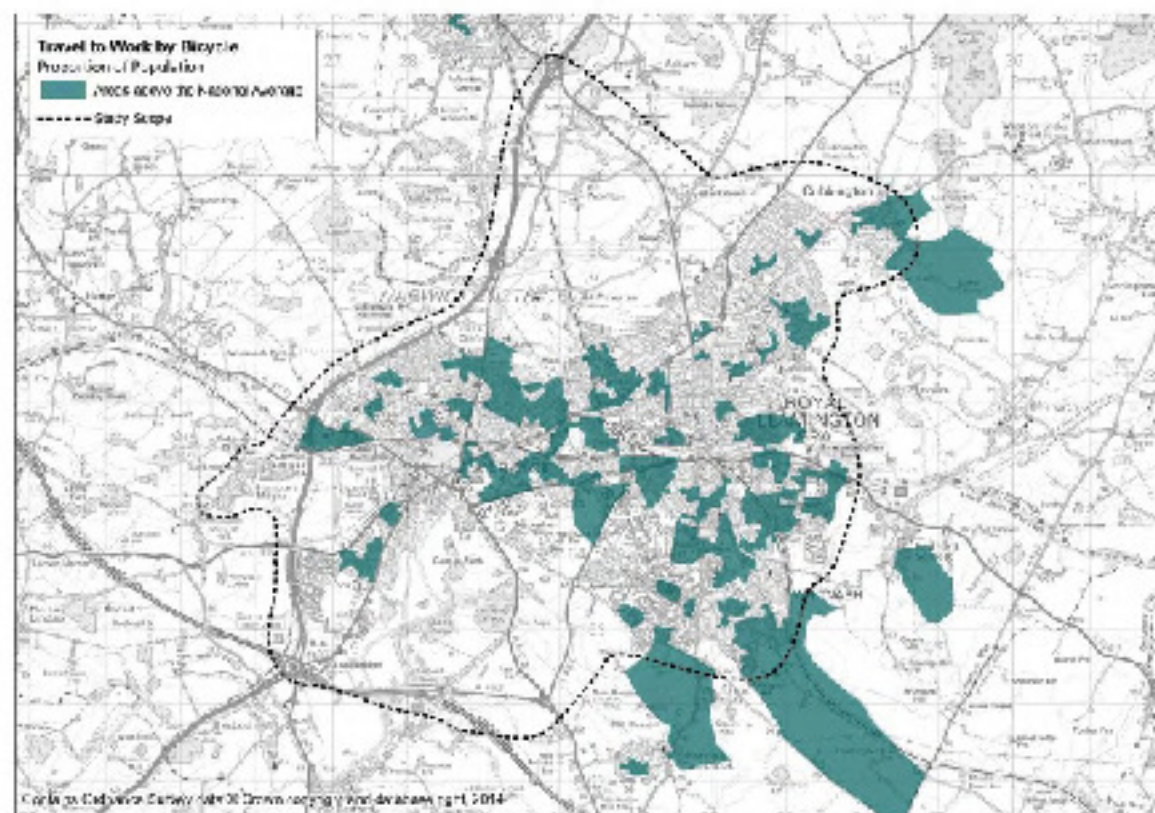
The evidence presented so far has demonstrated that there is high car dependency within the study area. Whilst a high proportion of these journeys are over a short distance, car dependency remains high across the study area. No detailed users surveys have been undertaken to understand the barriers to sustainable mode usage, however one or more of the following is likely to be a barrier to use:

- Perception that cost of travel by sustainable modes is high
- Perceived safety concerns
- Journey times by sustainable modes of travel aren't competitive with the car
- Lack of information
- Poor infrastructure provision in certain areas

These factors mean that the proportion of people travelling to work by sustainable modes of transport is relatively low as presented in Figure 4-11 to Figure 4-13. The mode share data illustrated in Figure 4-11 to Figure 4-13 illustrate that the highest proportions of people travelling by these modes are concentrated within the central areas of the towns within short distances of key employment locations and where car ownership is lower than elsewhere in the study area. The

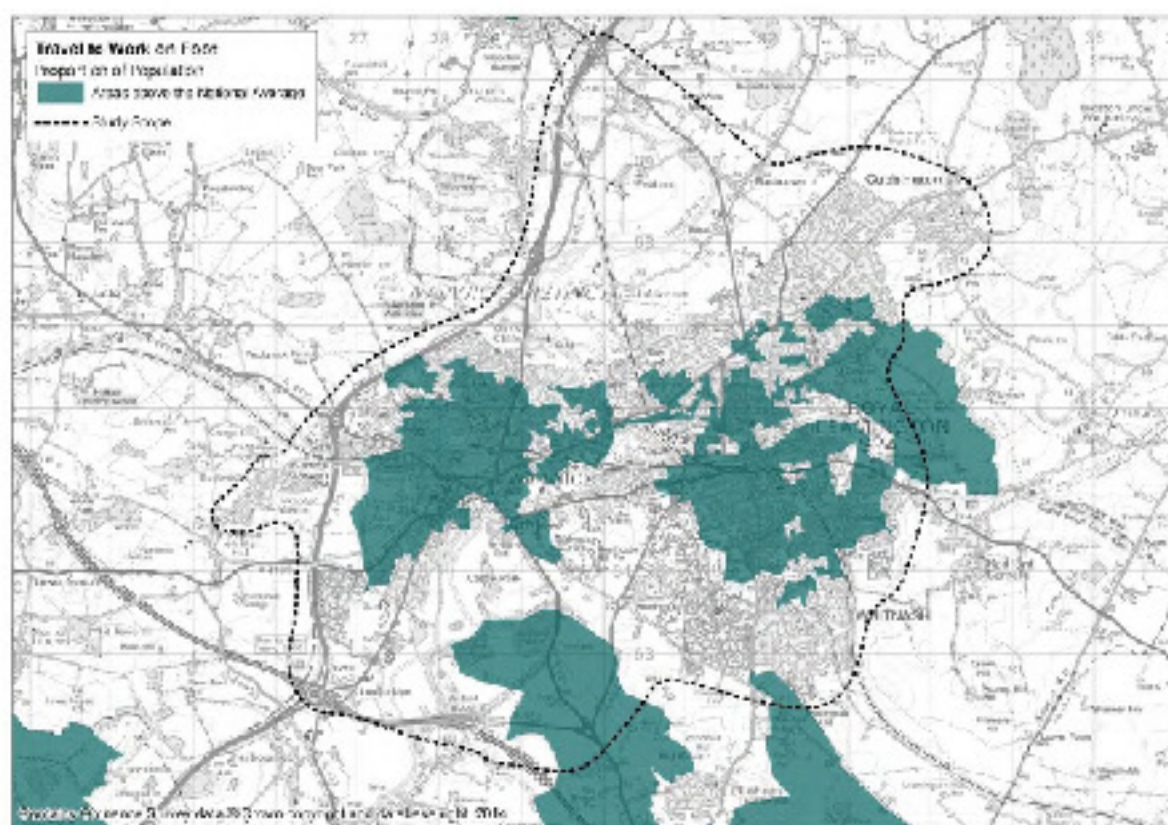
future transport strategy will need to seek out opportunities to encourage modal shift both in the urban centres, but also in residential areas located on the periphery of the urban area. The latter is particularly important as these are the geographies most likely to be existing car users and are the locations for future housing growth.

Figure 4-11 Travel to Work by Bicycle (% of people)



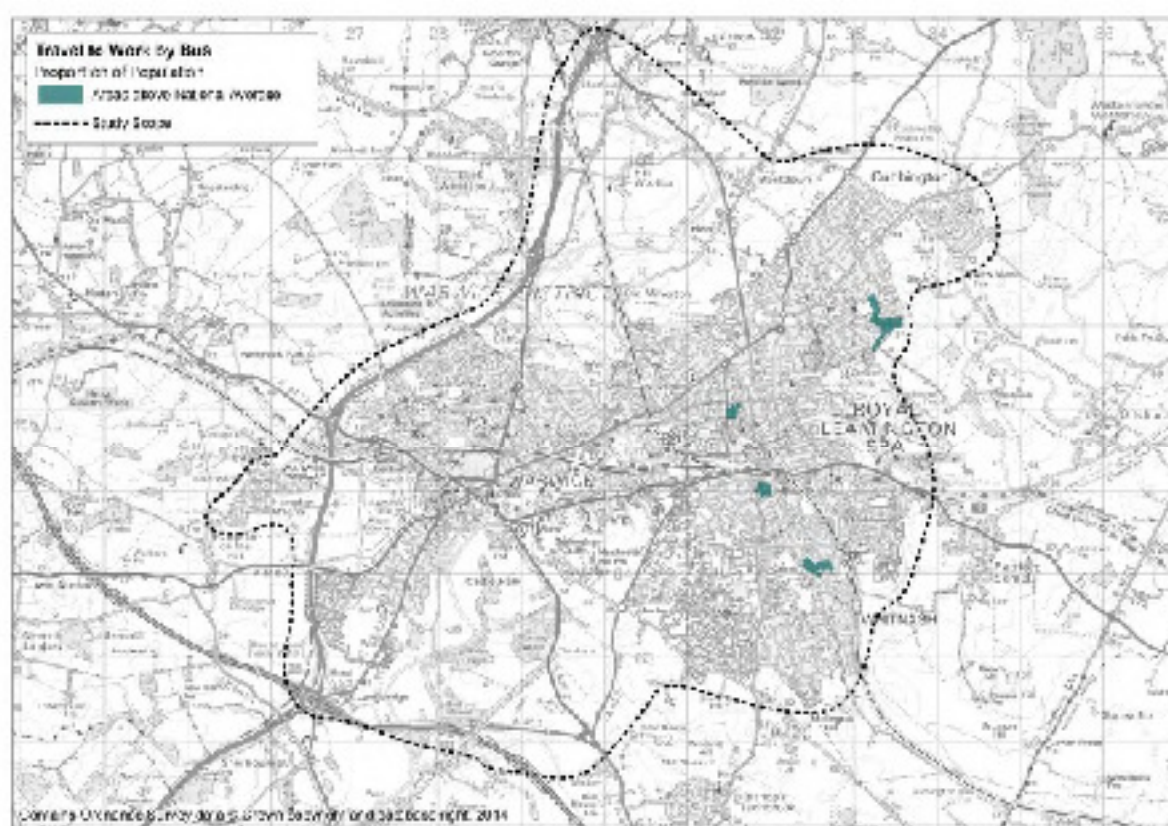
Source: Census 2011.

Figure 4-12 Travel to Work on Foot - areas which exceed the National Average



Source: Census 2011.

Figure 4-13 Travel to Work by Bus – areas which exceed the National Average



Source: Census 2011.

4.6.1. Journey Times Comparisons

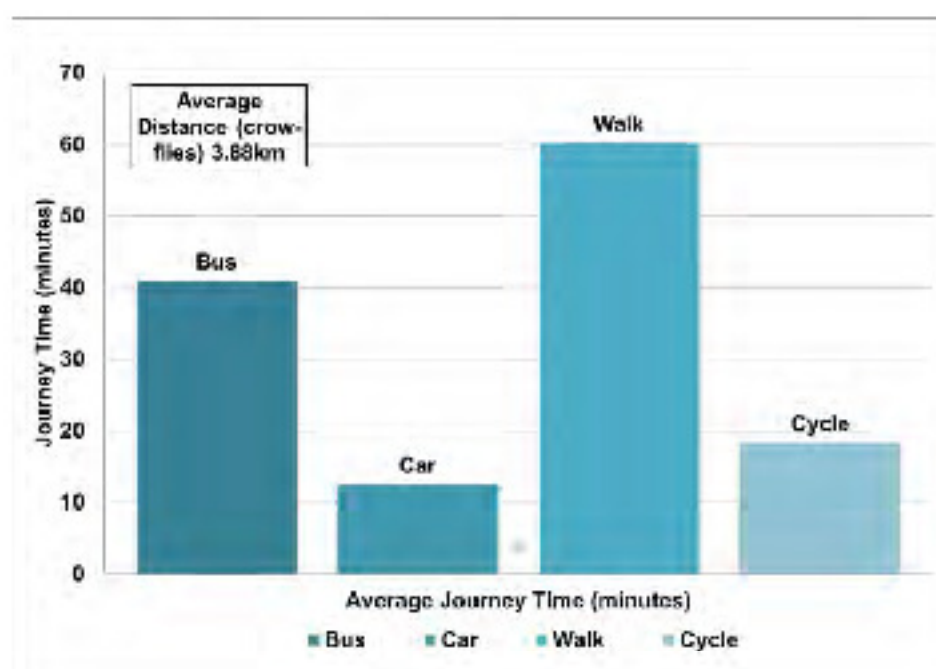
The journey times by car, bus, walk and cycle have been calculated between a number of key locations in Warwick and Leamington Spa:

- Lillington to Shire Hall;
- Woodloes Park to Riverside House;
- Milverton to Warwick Technology Park;
- Sydenham to Warwick Hospital, and;
- Warwick, Shakespeare Avenue to Leamington Spa Town Centre.

These routes were selected as they represent typical local cross town journeys between key locations in the study area. The journey times for all modes of travel were calculated using Transport Direct journey planner. The average journey times between these locations is provided in Figure 4-14.

The data shows that average journey times by car in the area are considerably lower than travelling by sustainable modes of travel. Improving the journey time competitiveness and general perceptions of sustainable modes of transport is key to reducing the number of car trips undertaken in the area. This can be done by improving the walk, cycle and bus network, the gaps in these networks are discussed below.

Figure 4-14 Comparison of Average Journey Times by Mode of Transport between Key Origins and Destinations in Study Area



Source: Transport Direct, 2014

4.6.2. Walk and Cycle Network

There is a network of footways across the two towns which provide pedestrian and cycle access to key locations. Although a detailed audit of cycling and walking audits have not been undertaken as part of this study, it is evident much can be done to improve the local walking and cycling environment. Key issues raised by local stakeholders to be addressed in the local walk and cycle network are likely to include:

- Creation of walking and cycling networks that will be perceived by local residents as safe and convenient
- Improved traffic management provision for pedestrians and cyclists accessing the town centre, key areas of pedestrian activity on key routes into, within and between town centres;

- Dedicated cross-town routes for cyclists of mixed ability;
- Appropriate on-site infrastructure for cyclists including showers and cycle parking;
- Pedestrian environment on key routes into and between the town centres
- General sustainable transport connectivity between residential areas and large areas of employment; and
- Adequate cycle and walking infrastructure at local public transport interchanges

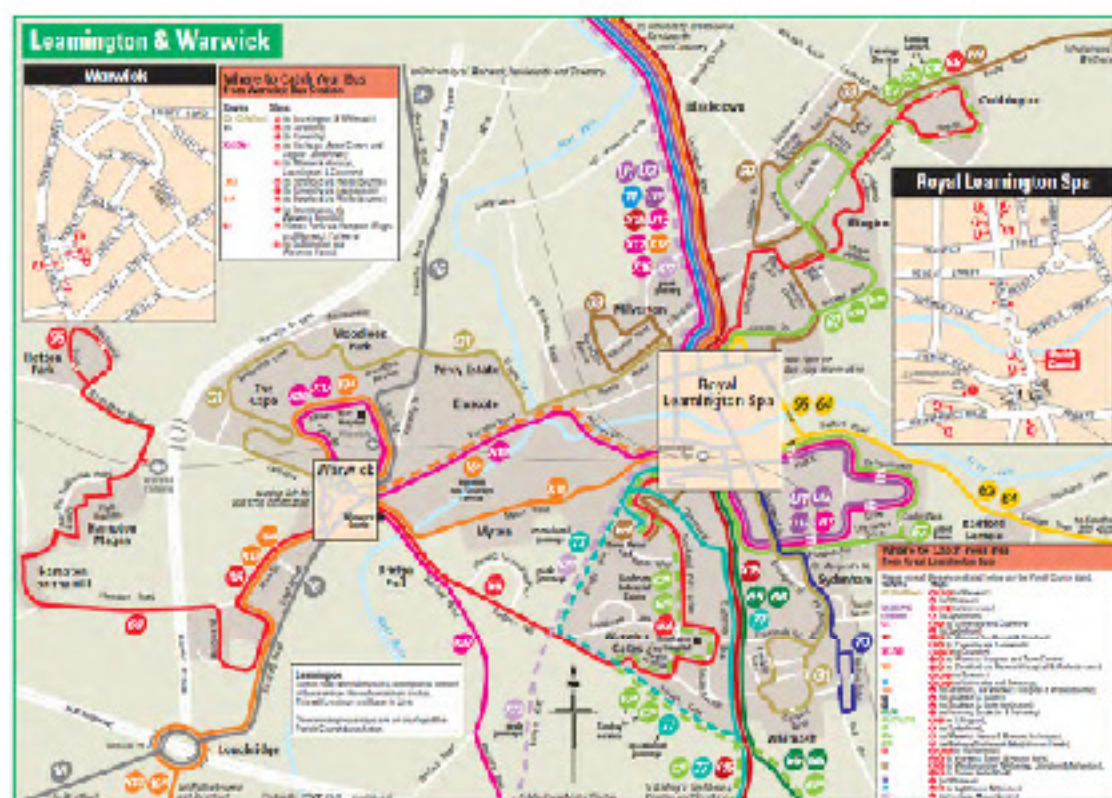
4.6.3. Bus Network

The bus network in Warwick and Leamington Spa is largely made up of inter-urban services, with a small number of supporting local services. The highest frequency bus services operating within the study area are:

- G1 (Goldline): Warwick to Leamington Spa, 7 buses per hour
- 67: Leamington Spa to Lime Avenue (of which 2 buses per hour extend the route to Sydenham), 4 buses per hour

The bus service network as illustrated in Figure 4-15 shows that there is good coverage of bus services across the area, however some of the services operate on convoluted routes in order to avoid congestion and maintain service reliability. This was an issue raised at stakeholder workshops, as well as issues with the provision of information, the cost of bus travel and the quality of interchange/waiting areas.

Figure 4-15 Warwick and Leamington Spa Bus Network



Source: WCC, Warwick and Leamington Bus Route Map, 2014

The review of available information and views from the stakeholders has identified that whilst the current bus network meet the needs for some journeys it is not a high quality alternative to journeys by car.

4.6.4. Access to Railway Stations

The study area benefits from access to local and long-distance railway services from Warwick Parkway, Warwick and Leamington Spa railway stations. For longer distance journeys rail services

can provide an alternative to the car. The towns are situated on the recently improved Chiltern Mainline between Birmingham and London. There are also direct services from Leamington Spa to the north, including Coventry and Nuneaton (from 2016 services will also call at a new station in Kenilworth). Rail user surveys undertaken at Warwick Parkway and Leamington Spa stations in 2009 asked passengers who currently drive to the station whether there are other modes they could shift to using. Table 4-6 reveals the potential mode shift for those accessing the station by driving a car (for those passengers that responded to the question).

Table 4-6 – "Which mode would you travel to these stations by?" Survey of Car Users Accessing Warwick Parkway and Leamington Spa Stations by Car

Mode	Warwick Parkway	Leamington Spa
Walk	3%	28%
Cycle	0%	0%
Bus	10%	8%
Car Share	11%	12%
Taxi	0%	4%
Other	19%	24%
No	57%	24%

Source: WCC, Railway Station Surveys, 2009

From Table 4-6 it can be seen that:

- 28% of respondents accessing Leamington Spa station by driving a car could shift to walking, with a further 8% potentially shifting mode to bus;
- At Warwick Parkway station, the largest proportion of respondents (57%) stated they would not shift mode. 10% indicated they could travel by bus and 11% by car share; and
- At both stations, 0% of respondents indicated they could shift mode to cycle.

This data shows that there is the opportunity to encourage a large proportion of rail users to walk to Leamington Spa station. There is also potential for rail users to switch to bus and car sharing for passengers using both stations. Encouraging a shift from car to access Warwick Parkway would be a challenge given the catchment area and function of the station whilst 57% of respondents indicated they could not change mode. Providing sustainable access to railway stations can reduce the number of car trips to railway stations, improves the accessibility of stations and the towns whilst ensuring that end-to-end journeys can be undertaken entirely by sustainable modes of transport.

4.7. Parking charging and supply regimes can undermine promotion of sustainable modes of travel

The availability of car parking strongly influences peoples' travel choices. If parking is conveniently located (on-site), plentiful and low cost/free of charge, the option to travel by car will always be attractive when compared with other modes. Aerial photography surveys were undertaken to identify the approximate number of private non-residential car parking spaces provided in the town these surveys were undertaken at the following locations:

- Tachbrook Business Area
- Tachbrook Industrial Estate
- Heathcote Industrial Estate
- Leamington Town Centre
- Warwick Technology Park
- Warwick District Council
- Warwickshire County Council
- Wedgnoek Industrial Estate / OPU S40

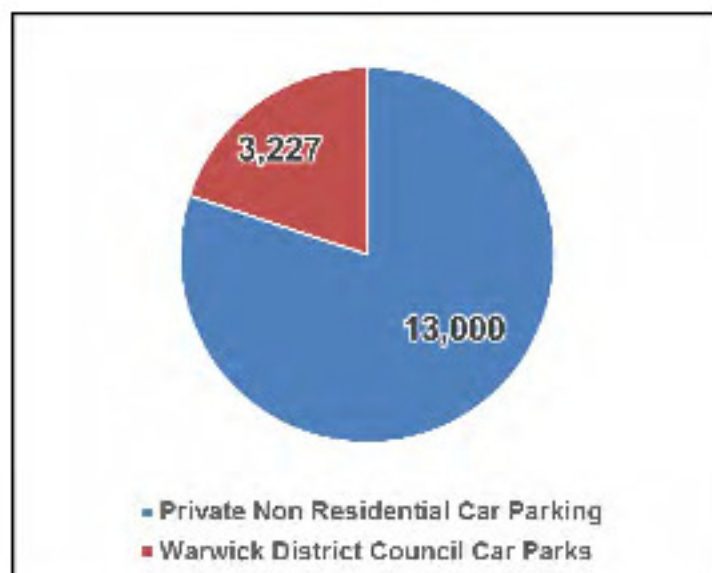
- Gallagher Business Park
- Shires Retail Park
- Warwick Hospital
- Budbrooke Industrial Estate

Additional data on the number of off-street car parking spaces at Warwick District Council car parks was provided by WCC.

4.7.1. Car parking Capacity / Availability

The number of car parking spaces at Warwick District Council off-street car parks and private non-residential (PNR) car parking in the two towns is provided in Figure 4-16. The data shows that the majority of car parking spaces in the area are PNR, which are most commonly free and in close proximity to places of work. This means that whilst there is a supply of car parking in WDC car parks, significantly more PNR spaces are available which are predominantly free. The incentive to travel by car is considerable when convenient and low cost parking is provided on this scale.

Figure 4-16 Number of Estimated Off-Street Car Parking Spaces in Warwick and Leamington Spa



Source: WCC, 2009 Car Parking Surveys, Atkins PNR Parking Survey, 2014

4.7.2. WDC Car Park Surveys

Car park count and interview surveys were undertaken by WCC in 2009 at all publicly operated off-street car parks in the two towns. The interview surveys were undertaken to identify journey purpose and the duration of stay, the results of which are presented in Figure 4-17 and

Figure 4-18 respectively.

Figure 4-17 Car Park User Journey Purpose

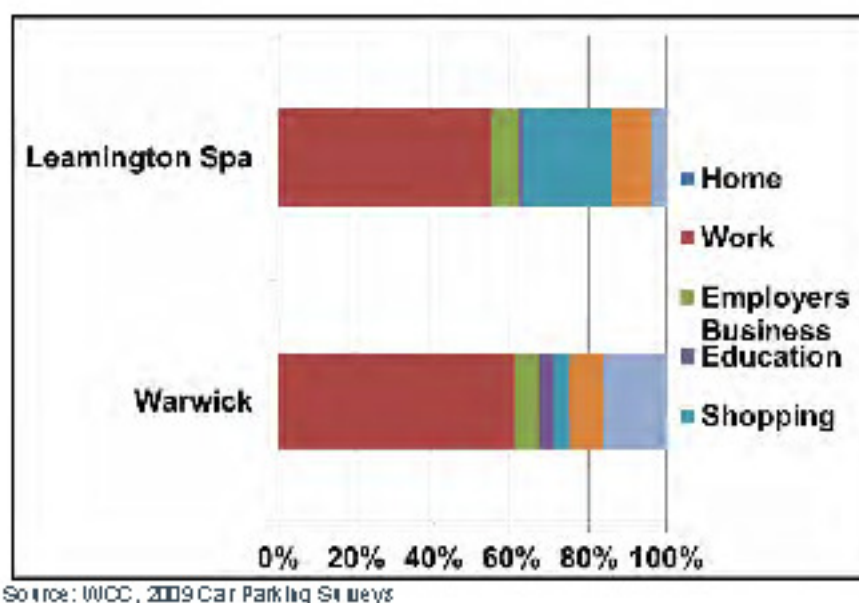
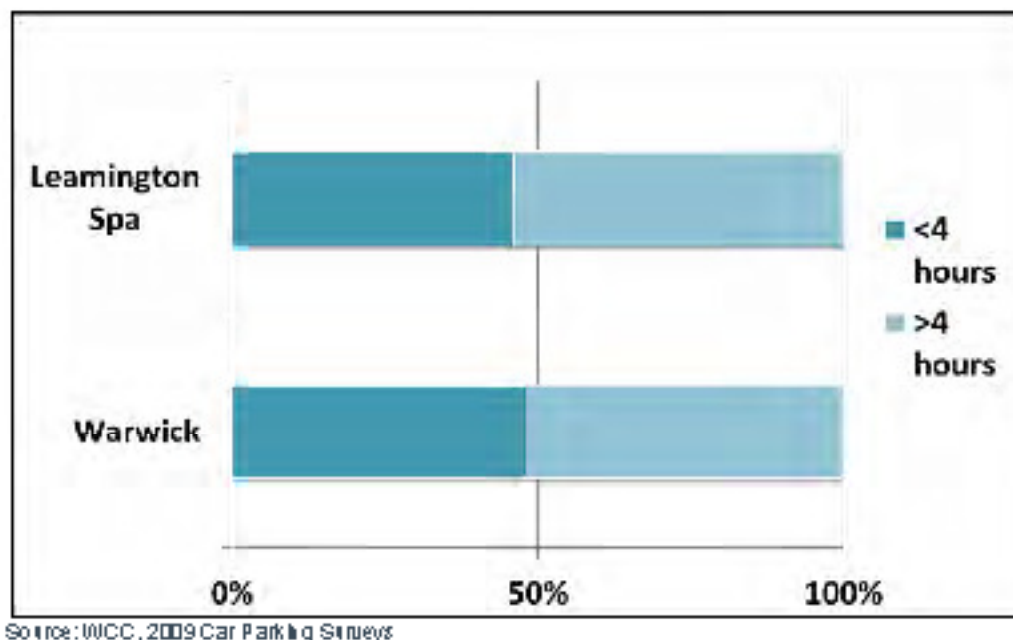


Figure 4-18 Car Park User Duration of Stay



The surveys show that

- The slight majority of people are using the car parks for work, this also means that the duration of stay is most likely to be over four hours;
- Warwick has the highest proportion of car parking related to recreation/leisure and education;
- Leamington Spa has the significantly higher proportion of car parking related to shopping; and

- The duration of stay is similar between the two towns, with the greater proportion of cars parked for more than four hours which indicates spaces are being used for journeys to work.

The data highlights that there is a high availability of PNR car parking in the study area which makes using the car for journeys to work an attractive and convenient option. Whilst the majority of people use WDC car parks for work, there is a proportion of people using them to visit the town centres for leisure and retail.

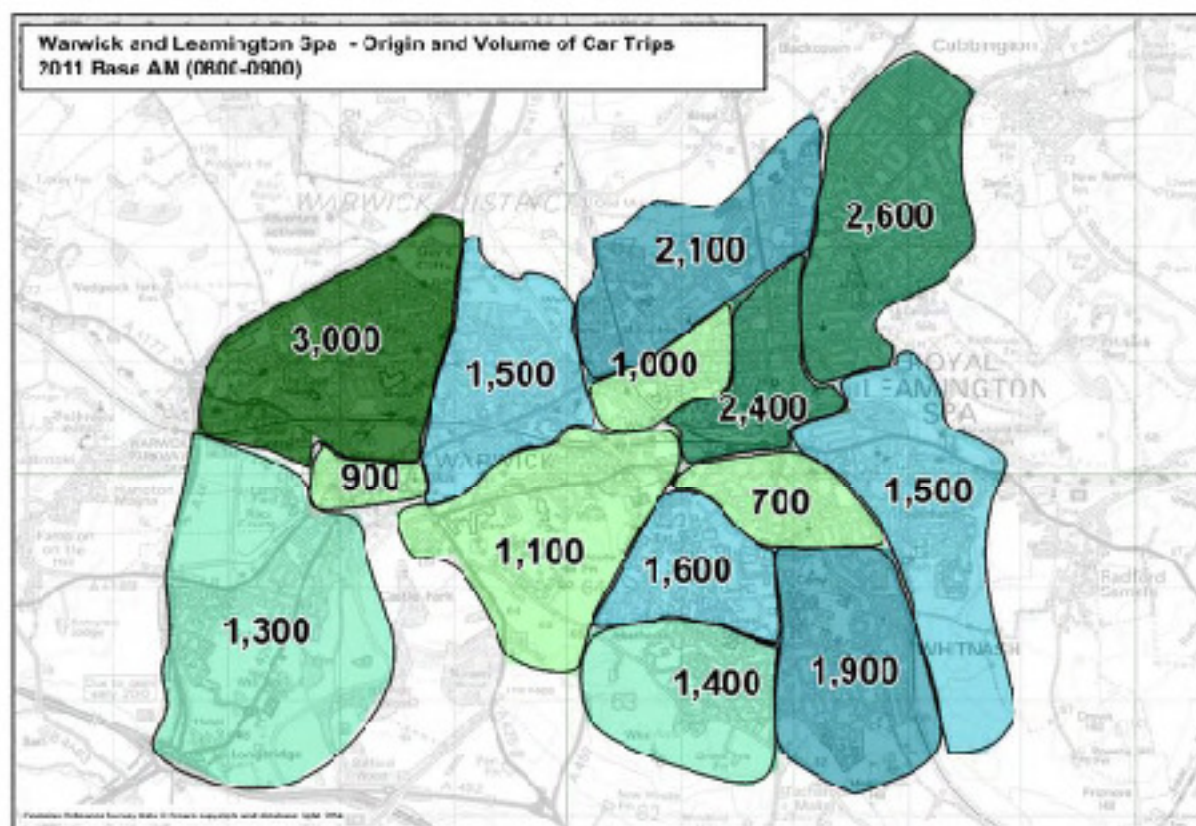
The use of car parks can also have an impact on the road network, for example: long stay parking for work would mean people arriving and departing in the peak hours. Short stay parking for leisure and retail is more likely to occur off-peak, but with a higher turnover of users generating car trips in the town centres in these hours.

4.8. Increasing sustainable travel will require behavioural change by large trip generators/attractors

There are a number of key locations and organisations in Warwick and Leamington Spa which attract and generate a significant number of trips (particularly during peak periods). It has been highlighted from the evidence provided earlier in this report that a significant proportion of these trips are by car.

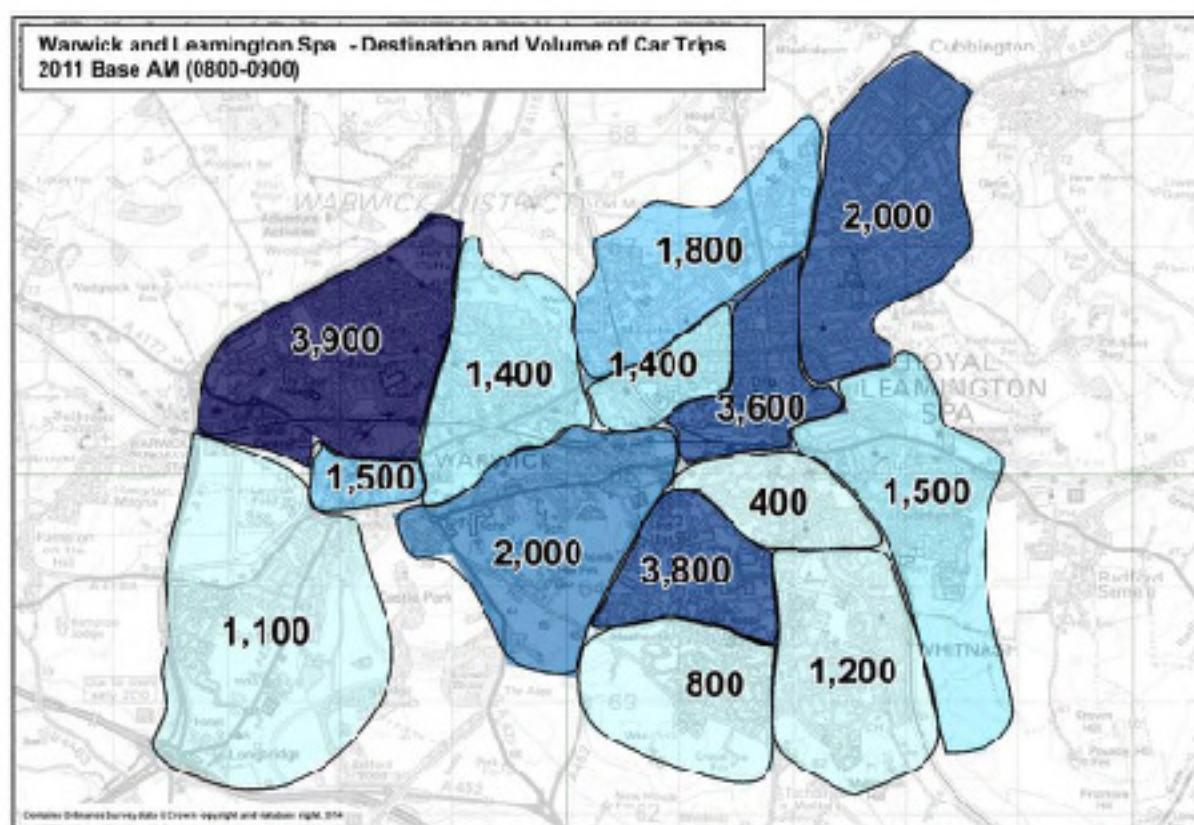
Data from the Warwick and Leamington Spa PARAMICS Highway Assignment Model has been analysed to identify the key locations in the towns which attract and generate trips by car. The number of car trips going to each zone and from each zone is illustrated in Figure 4-20 and Figure 4-19 respectively.

Figure 4-19 Origin of Car Trips - AM Peak



Source: Warwick and Leamington Spa PARAMICS Highway Assignment Model, WCC

Figure 4-20 Destination of Car Trips - AM Peak



Source: Warwick and Leamington Spa PARAMICS Highway Assignment Model, WCC

The origins which generate the greatest number of car trips are:

- North-west Warwick, including the residential area of Woodloes Park
- Lillington and north-west Leamington Spa
- Central Leamington Spa, including the town centre
- Sydenham and Whitnash

The following locations are key attractors of car trips:

- North-west Warwick, including: Warwick Hospital, Warwickshire County Council car park, IBM, Volvo and Opus40
- Central Leamington Spa, including the town centre
- Heathcote and Tachbrook employment area and Shires Retail Park
- Warwick Technology Park

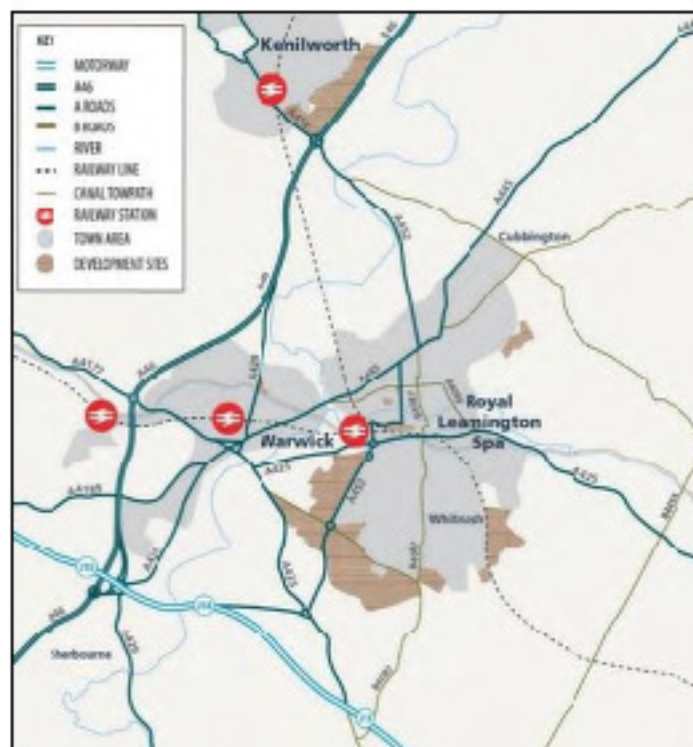
These locations contain a range of large employers and organisations which are key to the economic success of the area, however these locations attract a significant proportion of car trips within the towns and they also contain a high number of PNR car parking spaces. These organisations can play a role in promoting sustainable travel behaviours and follow the lead of local companies such as National Grid and Jaguar-Land Rover who currently operate successful sustainable transport strategies. The future strategy needs to consider these generators of travel demand, as they are located on the key corridors in the urban area which are known to have congestion issues.

4.9. The local network is sensitive to un-scheduled incidents and disruption

The towns are located at the juncture of the M40 and A46(T). The M40 provides direct motorway road access to the M42 (for Birmingham, Solihull and the M6), Banbury, Bicester, Oxford and London. The A46(T) provides direct trunk road access to Coventry, Stratford-upon-Avon, Evesham

and links to Gloucester and Cheltenham. The A452, A429, A425 and A445 are the primary routes in the towns. The strategic and primary road networks are illustrated in Figure 4-21.

Figure 4-21 Warwick and Leamington Spa Transport Network



Whilst the towns enjoy good access to the strategic and primary road network, the local town networks are sensitive to disruption on the strategic road network (SRN) caused by accidents, road closures or roadworks. Traffic diverts from the SRN and through the towns. This can result in lengthy delays and gridlock on the town centre networks. Both scheduled and unscheduled works on the local network can also contribute to network flow breakdown in Warwick and Leamington Spa.

Reducing the high level of car dependency within the two towns by ensuring that journeys by more sustainable modes of travel are an attractive alternative option to the car will help to alleviate this situation.

5. Transport Strategy Objectives

5.1. Identifying the Transport Strategy Objectives

The local plan, Strategic Economic Plan and Local Transport Plan set out a number of clear strategic objectives, these are listed as follows:

- SO1: Support and enhance the performance of local economy
- SO2: Protect the historic built environment of Warwick and Leamington Spa historic
- SO3: A healthier and active community
- SO4: Better air quality in the towns
- SO5: Improve safety and security for users of the transport network
- SO6: Support sustainable planned growth
- SO7: Achieve a measurable shift towards sustainable travel choices

The challenges and evidence presented in chapter 4 have been used to develop 8 local transport objectives for Warwick and Leamington Spa, these have been contextualised within the strategic objectives. These are summarised as follows:

- LTO1: Reduce High car dependency for travel to work trips
- LTO2: Reduce High proportion of internal and short distance trips
- LTO3: Reduce Town centre through trips
- LTO4: Reduce School travel as a contributor to local congestion
- LTO5: Improve Quality of sustainable travel alternatives limits their use
- LTO6: Ensure Sustainable parking provision that encourages sustainable travel behaviours
- LTO7: Increase the role of local trip generators/attractors in promoting sustainable travel behaviours
- LTO8: Mitigate against the sensitivity of the local network is to disruption (roadworks, accidents)

5.2. Developing the Transport Strategy to meet Objectives

The issues and challenges have been identified from the evidence and through stakeholder engagement. They have been analysed to develop specific objectives for the Warwick and Leamington Spa Transport Strategy.

The transport strategy objectives align with the wider strategic policy framework within the Strategic Economic Plan (SEP), Local Transport Plan 3 (LTP) and the Warwick District Local Plan (WDLP), this strategic fit is illustrated in Figure 5-1.

The strategic policy framework, challenges to achieving this framework and the specific transport strategy objectives are presented in Figure 5-1, these have been agreed with the stakeholders and the project steering group.

The key challenge of the strategy is to balance potential conflict between objectives, for example the implementation of one transport scheme/measure which meets one objective may undermine the achievement of another. This means that a package of transport measures will be required to meet all of the transport strategy objectives.

Figure 5-1 Wolverhampton and Leamington Spa Transport Strategy Objectives

Strategic Objective	Reduce High car dependency for travel to work trips	Reduce High proportion of internal and short distance trips	Reduce Town centre through trips	Reduce School travel as a contributor to local congestion	Improve quality of sustainable travel alternatives	Encourage sustainable travel behaviours	Increase the role of local trip generators in promoting sustainable travel behaviours	Mitigate against the concentration of network disruption (no alternative available to)
Support and enhance the performance of local economy Reduce transport costs for business and residents by maximising the performance of the transport network Improve access for businesses and to the town centres Strategic Policy Link: Strategic Economic Plan, Local Transport Plan 3, Wolverhampton District Local Plan	✓	✓	✗	✗	✓	✗	✓	✓
Protect the historic built environment of Wolverhampton and Leamington Spa historic Reduce the harmful impacts of transport on the historic built environment Strategic Policy Link: Local Transport Plan 3, Wolverhampton District Local Plan	✓	✓	✓	✓	✓	✓	✓	✓
A healthier and active community Provide health benefits by having a population which is more active and socially interactive Strategic Policy Link: Local Transport Plan 3, Wolverhampton District Local Plan	✓	✓	✓	✓	✓	✓	✓	✓
Better air quality in the towns Reduce transport emissions in sensitive environments Strategic Policy Link: Local Transport Plan 3, Wolverhampton District Local Plan	✓	✓	✓	✓	✓	✓	✓	✓
Improve safety and security for users of the transport network Provide a safe environment for pedestrians and cyclists, for example by improving lighting and natural surveillance Strategic Policy Link: Local Transport Plan 3	✓	✓	✓	✓	✓	✗	✓	✓
Support sustainable planned growth Ensure that planned growth is supported by the necessary transport infrastructure and services Strategic Policy Link: Wolverhampton District Local Plan	✓	✓	✓	✓	✓	✓	✓	✓
Achieve a measurable shift towards sustainable travel choices Develop a transport strategy which can deliver a measurable shift towards sustainable modes of travel Strategic Policy Link: Local Transport Plan 3	✓	✓	✓	✓	✓	✓	✓	✓

6. Option Identification and Assessment

6.1. Introduction

There are a range of potentially relevant transport measures and schemes that could be adopted to address the transport strategy objectives. An initial process of option identification and assessment was undertaken to refine the extensive number of options in to 5 discrete options for further detailed assessment.

The purpose of this initial assessment was to identify a range of transport options for the area in conjunction with stakeholders, produce a consolidated list of options and assess the transport options against a range of criteria, including stakeholder acceptability, to identify 5 options for further detailed assessment.

This assessment represents an initial assessment of the options and does not constitute a full options appraisal assessment as specified in WebTAG.

6.2. Identification of Options for Assessment

A range of transport measures and interventions are available to address identified transport issues. Experience from elsewhere and knowledge of existing options was used to develop an extensive list of options for assessment. This list was refined in order to provide clear options for more detailed assessment at stage 2.

Stakeholders were engaged at this stage to identify additional transport options, to those on the initial list, which they felt would address the identified transport challenges for the area. Stakeholders were invited to provide their views and ideas on options for the study area as a whole, and for specific areas within the towns which were identified as being key generators / attractors of travel demand.

Stakeholders supported the content of the initial list, and in some cases provided further detail. The number of options available was extensive, and in some instances options related to a specific mode of transport and were either related or interdependent. Therefore the extensive list was refined, and in some cases specific measures were packaged together, in order to focus the option assessment. Table 6.1 represents the consolidation of the initial extensive list.

Table 6.1 Consolidated Range of Available Transport Options

Category of Intervention	Example 1
Bus Infrastructure Improvements	Bus priority measures (junctions and links), improved stops and waiting infrastructure, Real Time Passenger Information Facilities,
Improved bus service levels	Increased service frequencies, new services/stop locations, new ticketing options, demand responsive services, service re-rolling, Bus services are not wholly in the control of local authorities.
Low Emissions Zones	Schemes to charge or ban vehicles from entering a defined zone /area if they do not meet the specified emissions requirements.
Network management changes	20mph zones, traffic calming, re-rolling, vehicle restrictions (movements or vehicle types), turning restrictions, re-allocation of road space to public transport, cyclists and pedestrians, signage and information improvements,
Parking Strategy changes	Parking charge increases, Parking supply re-structures, residents parking schemes
Park and Ride	Dedicated Park and Ride Services/Sites, Virtual Park and Ride Sites, park and stride
Road User Charge	Peak hour charges, corridor charge (all users), corridor charge (through trips only)
Smarter Travel and behavioural change initiatives	Workplace, schools, residential, retail, leisure personal/individualised travel planning preparation advisory services, On-site facilities for walking and cycling (showers, lockers, cycle parking, car share, published information,
Walking and Cycling Infrastructure Improvements	Targeted improvements to footpaths and cycle ways; streetlighting, lighting enhancements, comprehensive walk and cycle network enhancements, Pedestrian and cycle crossing improvements, advance stop line facilities, segregated/non segregated cycle ways, cycle contra-flows, improved cycle provision at public transport interchange.
Workplace Parking Levy	Charge on PNR parking spaces. Recently implemented in Nottingham.

6.3. Stage 1 Assessment of Options

The transport strategy must be developed to ensure that it is relevant to the issues and objectives as well as being achievable and deliverable. The transport measures and schemes outlined above therefore had to be assessed in order to identify the most appropriate solutions to the transport problems in Warwick and Leamington Spa. This process was undertaken by engaging stakeholders and undertaking an assessment of the options against defined criteria, including the relevance to objectives and deliverability.

6.3.1. Stakeholder Views on Transport Options

Following the identification of options for the area in conjunction with stakeholders, further feedback was sought from stakeholders on the scope of transport interventions and their acceptability. This is key to ensuring the transport strategy is developed in line with expectations.

Stakeholder views were sought on the general approach of the strategy, the journeys which they think should be targeted by transport measures and views on potential demand management measures.

6.3.1.1. General Strategy Approach

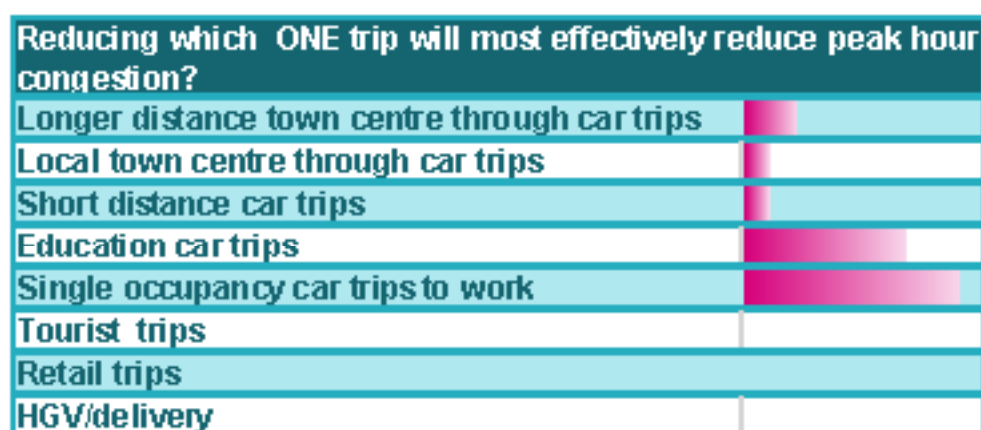
Throughout the stakeholder engagement process there was a strong message that a 'carrot and stick' approach was required to address the transport issues in Warwick and Leamington Spa, examples of these are provided below.

- 'Carrot' measures: improved walk and cycle networks, improved bus stop infrastructure, travel planning
- 'Stick' measures: travel demand management measures such as road user charging, increased car parking charges

6.3.1.2. Targeted Journeys

During the second stakeholder workshop stakeholders were asked for their views on which trips, if reduced, would most effectively reduce peak hour congestion, and should therefore be the focus of 'stick' measures (demand management measures). The response from stakeholders is provided in Figure 6-1 below.

Figure 6-1 Stakeholder Views on Target of Transport Measures



Stakeholders showed a strong view that reducing single occupancy car trips to work and education car trips would most effectively reduce peak hour congestion, whilst a smaller proportion of the group felt that reducing longer distance town centre through trips by car would have a role to play in reducing peak hour congestion.

6.3.1.3. Views on Demand Management

Stakeholders were also asked for their views on their willingness to implement specific demand management measures by asking them to rate their support for each measure. The outcome of this exercise is summarised in Figure 6-2.

Figure 6-2 Stakeholder Views on Implementing Demand Management Measures ('Sticks')

Level of Support (1 to 5)	RUC		Network Management	WPL	Car Parking	LEZ	Do-Nothing
	ALL	TRANSIT					
Strong Support (1)							
(2)							
Neutral Support (3)							
(4)							
No Support (5)							

The stakeholder group was unanimous in its view that doing nothing is not an option for the area, whilst it widely supports network management measures to reduce congestion and encourage the use of sustainable modes of transport. The group re-iterated the need for both 'carrot' and 'stick' measures.

There was little support amongst stakeholders for road user charging aimed at all car drivers, however there was stronger support for a transit charge aimed at through trips (with origins and destinations outside the area). The outcomes from the stakeholder engagement exercises informed the process of selecting 5 options for further detailed testing at stage 2. This is discussed below.

6.3.2. Multi-Criteria Initial Assessment of Options

The consolidated options provided in Table 6.1 have been assessed using three broad criteria:

- Contribution to Strategic Objectives: does the option meet the objectives?
- Contribution to local transport objectives: does the option address the operational challenges?
- Deliverability:
 - Technical Feasibility: Can the option practically be delivered?
 - Stakeholder Support: Have stakeholders indicated support for the option?
 - Public Acceptability: Are the public likely to be accepting of the option?
 - Cost: Would the option be prohibitively expensive to deliver?
 - Timing: Subject to funding, could the scheme be delivered within the next 5 years?

The options have been assessed against the criteria using a positive/negative score as outlined in Table 6-2. This is a qualitative assessment design to identify options for detailed testing and assessment.

Table 6-2 Assessment Criteria and Option Scoring

	Score		-2	-1	0	1	2
Deliverability	Technical Feasibility	Can the option practically be delivered?	Very High Risk (technically not feasible or risk unlikely to be mitigated)	High risk - some significant technical uncertainties	Medium Risk - some moderate technical uncertainties to address	Low Risk - No significant show stoppers	BAU - No Technical Show stoppers
	Stakeholder Support	Have stakeholders indicated support for the option?	Strong resistance and negativity likely	May be some change in view in the longer term but not likely within plan timeframe (2014-2031)	View likely to be neutral	Healthy level of public support based on sound awareness of issue nationally (e.g. climate change, carbon, vehicle technology etc.) but not targeted locally	Healthy level of support based on local awareness about our and past/current trends in a attitude
	Acceptability	Are the public likely to be accepting of the option?	Strong public resistance and negativity likely	May be some change in view in the longer term but not likely within plan timeframe (2014-2031)	Public view likely to be neutral	Healthy level of public support based on sound awareness of issue nationally (e.g. climate change, carbon, vehicle technology etc.) but not targeted locally	Healthy level of support based on local awareness about our and past/current trends in a attitude
	Cost	Would the option be prohibitively expensive to deliver?	High probability funding won't be obtained in plan period	Some moderate uncertainties around funding	Probable that funding will be available	Funding will be obtained to allow timely delivery	Funding already available
	Timing	Subject to funding, could the scheme be delivered within the plan period?	High probability it won't be deliverable in plan period	Some moderate uncertainties around deliverability over plan period	Probable that it will be deliverable over plan period	Can commence delivery in next few years	Can commence delivery now
Local Transport Objectives	Fit with Strategic Objectives		No Strategic Fit	Weak Strategic Fit	Moderate Strategic Fit	Good Strategic Fit	Complete Strategic Fit
	High car dependency for travel to work trips		Medium to Large negative net impact	Small to moderate negative net impact	Neutral or no impact	Small to moderate beneficial impact	Medium to Large Beneficial Impact
	High proportion of internal and short distance trips						
	Town centre through trips						
	School travel is a contributor to local congestion						
	Quality of sustainable travel alternatives limits their use						
	Parking supply can inhibit use of sustainable mode of travel						
Increasing sustainable travel will require behavioural change by large trip generators/attractions							
The local network is sensitive to disruption (roadworks, accidents)							

Table 6-3 Initial Assessment of Transport Options (Objectives and Delivery)

Transport Option	Improved Walk and Cycle Infrastructure	Smarter Choices and Travel Planning	Improved bus stop infrastructure and information	Lower speed limits	Workplace Parking Levy	Road User Charging:		Residents Parking Zone	Park and Ride	Low Emissions Zone	Reduce car parking supply	Increase car parking charges	Network Management Scheme
						All road users	Transit (through trips)						
Delivery	Technical Feasibility	2	2	0	-1	-1	-1	0	1	1	2	2	1
	Stakeholder support	2	2	0	-1	-2	-2	0	1	0	-2	-2	0
	Public Acceptability	2	2	1	0	-2	-2	0	2	1	-1	-1	0
	Cost	2	2	-1	-1	-2	-2	-1	2	-2	1	1	0
	Timing	2	2	0	-1	-2	-2	0	1	-1	1	2	2
Delivery: TOTAL		10	10	0	-4	-8	-8	-1	7	-1	1	2	3
Local Transport Objectives	Fit with Strategic Objectives	2	2	1	1	1	1	1	1	2	1	0	2
	Reduce High car dependency for travel to work trips	2	2	0	1	2	1	0	1	1	0	0	2
	Reduce High proportion of informal and short distance trips	2	2	1	1	2	1	1	1	1	0	0	2
	Reduce Town centre through trips	2	2	1	1	2	1	0	1	1	0	0	2
	Reduce school travel as a contributor to local congestion	2	2	0	1	2	0	0	0	1	0	0	2
	Improve Quality of sustainable travel alternatives to limit their use	2	2	2	2	2	0	0	1	0	0	0	2
	Sustainable parking provision that encourages sustainable travel behaviours	1	2	0	1	1	0	2	1	0	2	1	1
	Increase the role of local trip generators/attractions in promoting sustainable travel behaviours	2	2	0	1	2	0	0	0	0	0	0	0
	Mitigate against the sensitivity of the local network to disruption (road-works, accidents)	2	1	1	0	2	0	1	0	0	0	0	2
	Meeting the Objectives and Addressing the Challenges: TOTAL	17	17	6	9	15	4	5	13	6	3	1	17
TOTAL		27	27	6	5	6	-6	4	20	-5	4	3	20

6.4. Stage 1 Assessment Summary

The initial assessment indicates that some of the options perform well against the criteria, whilst others do not meet the criteria or have a negative impact. A discussion of the best and worst performing options against the criteria is provided below.

6.4.1. Meeting the Transport Strategy Objectives and Addressing the Operational Challenges

6.4.1.1. Best Performing

The options identified as best meeting the objectives and addressing the identified challenges were improved walk and cycle infrastructure, Smarter Choices travel planning, and bus stop infrastructure. These options can support the local economy by reducing the number of short distance car trips and thus maximise the performance of the highway network whilst they can also improve access to town centres. These measures also play a role in reducing car trips by facilitating travel by sustainable modes of travel which provides benefits to the environment and health with more people being active. Focussed on the appropriate corridors, measures can improve access to employment areas and schools by sustainable modes and address the challenge of commuter and school based car trips.

Park and Ride meets the objectives by providing an alternative for car travel into the towns and can remove traffic from key corridors into the towns. The Park and Ride modelling undertaken in 2014 demonstrates the 2 sites in Warwick and Leamington Spa identified by WCC could abstract a number of car trips from travelling into the centres. Further details are provided in Appendix A. A Park and Ride facility can be adapted to provide a Drop and Ride / Park and Stride function to reduce the number of car trips to schools, whilst it could also be used for community events. The provision of additional car parking at peripheral sites also means that access to the town and tourist attractions can be improved without the detrimental impact of additional car parking being provided in central areas.

Changes to car parking supply and long stay charges addresses a proportion of the challenges faced by the supply of car parking, which is a driver for car travel. However a Workplace Parking Levy would address the primary parking issue of a high quantity of Private Non Residential (PNR) spaces in the area. Concerns were expressed about the impact on the economy of changes to car parking and the WPL.

Low Emissions Zones can address some of the challenges, and meet the objectives of improving the environment. However a recent feasibility study commissioned by Warwick District Council concluded that the major contributor to air quality problems in the area are family diesel cars (greater than goods vehicles and buses), and the estimated cost of replacing these would be £4.1 million in Warwick and £4.6 million in Leamington. The study also concluded that the health benefits of implementing a scheme would be to reduce the number of life years lost over 100 years from chronic mortality effects by 1.3 life years. The study recommended that a communications programme aimed at changing lifestyle is introduced. It was also recognised that the vehicle fleet in the UK is shifting towards lower emission engines and that this evolution of the fleet would be beneficial to air quality in the area.

Network Management schemes such as re-allocation of road space to pedestrian and cyclists, public realm improvements and improving traffic flow can be beneficial to the environment by improving the environment for pedestrians and cyclists and reduce car dependency, whilst providing economic benefits by forming a sense of place in central areas and improving access to town centres.

All road user charge performed well because it would address the challenge of locally generated car trips, a high proportion of which travel through the town centres. It was appreciated by stakeholders that whilst this could address these issues this option did not meet all of the objectives

because of the potential adverse economic consequences and it does not directly support travel by sustainable modes of transport, as such it would need to be supported by 'carrot' measures.

6.4.1.2. Worst Performing

Lower speed limits and residents parking zones performed relatively poorly because whilst they can have a positive impact on improving the environment for pedestrians and cyclists, if delivered in isolation they would not meet all the objectives. They would therefore need to be implemented in conjunction with other measures such as improved walk and cycle infrastructure.

Transit road user charge does not directly address the challenges of short distance locally generated car trips, rather it would address the smaller proportion of strategic through trips. This option could also have negative economic consequences and therefore does not meet all of the objectives. This option was supported by some stakeholders who appreciate that such an option would need to be supported by 'carrot' measures.

6.4.2. Deliverability

6.4.2.1. Best Performing

The best performing options in terms of deliverability are improved walk and cycle infrastructure, Smarter Choices travel planning, and bus stop infrastructure. This is because experience from elsewhere indicates that these measures can be delivered in a reasonably short time frame, are technically feasible, relatively low cost and have broad public support.

Lower speed limits and residents' parking zones are options which can be delivered within the control of local authorities and have a relatively short lead time. Changes to car parking supply can be delivered in the short term and is within the control of the local authorities, however it is publicly contentious, and stakeholders did not support reducing the overall supply of car parking, rather they supported a change to pricing or the duration of stay.

Park and Ride performs well because it can be delivered in the short term and has stakeholder support. The cost and technical feasibility of delivering such a scheme is manageable, subject to funding.

Low Emissions Zones can be delivered in the short term and are technically feasible, however the cost of implementation is high. The high costs are a result of the need to replace the diesel car fleet, as identified in the Warwick District Council LEZ feasibility study. There was some stakeholder support for LEZ.

6.4.2.2. Worst Performing

The Workplace Parking Levy (WPL), Road user charges (both) options perform worst in terms of deliverability because they are technically complex schemes, the costs of which are unclear and can be publicly contentious, whilst fears were expressed about the potential negative economic consequences. There was no stakeholder support for a road user charge applied to all road users, however there was some support for a Transit charge.

Network management options are also technically complex however they were supported by stakeholders and could in some cases be delivered in conjunction with planned improvements.

6.5. Recommended Options for Stage 2 Detailed Assessment

Overall the best performing options from the assessment were improved walk and cycle infrastructure, Smarter Choices travel planning, Bus stop infrastructure. These options are also complementary and if delivered in conjunction can provide benefits. For this reason it is recommended that further detailed assessment is undertaken of these measures as a package.

Lower speed limits, residents' parking zones options also performed well and would need to be delivered in conjunction with the sustainable travel options they should therefore be considered

in conjunction with this package, although they will not be explicitly assessed. Although network management options have been identified as technically complex to deliver they had wide stakeholder support and could in some cases be delivered in conjunction with planned improvements.

Park and Ride also performed well because it is deliverable and can meet objectives and address some of the key challenges. It is recommended that this option is progressed for further detailed assessment.

Changes to long stay car parking charges also performed well because it addresses one of the drivers of travel demand by car. Whilst the WPL directly addresses PNR and car trips to work, delivery risks were identified. These options address car parking through two different approaches, therefore it is recommended that these are assessed further in detail.

There was no stakeholder support for an All road user charge, however there was some stakeholder support for a Transit Charge. It is therefore recommended that the impacts of this charge be more fully understood by undertaking further assessment of the likely impact.

The assessment has therefore identified that the options for further definition, investigation and testing are:

- Option A: Sustainable Transport Package
- Option B: Park and Ride Package
- Option C: Changes to Local Parking Charges
- Option D: Application of a Work Place Parking Levy
- Option E: Application of a Warwick Town Centre Road User Transit Charge

Further detail on these options is provided in the next section.

7. Package Descriptions

7.1. Introduction

This section sets out a description of the potential alternatives considered in the option assessment exercise described in subsequent chapters of this report. The options are:

- Option A: Sustainable Transport Package
- Option B: Park and Ride Package
- Option C: Changes to Local Parking Charges
- Option D: Application of a Work Place Parking Levy
- Option E: Application of a Warwick Town Centre Road User Transit Charge

It should be noted that the descriptions provided in this section are not intended to represent detailed proposals at this pre-feasibility stage. Conceptual designs have been set out to enable an early assessment of the likely effectiveness of such options to be undertaken. Should any of the options be progressed, further detailed analysis and design work would be required.

7.1.1. Option A: Sustainable Transport Package

The technical evidence base and feedback from local stakeholders clearly indicates that there should be a future role for the implementation of comprehensive sustainable transport in Warwick and Leamington Spa. The illustrative package described below is predominantly focussed on linking the key areas of travel demand in the two towns. As such this package primarily focuses on connecting key residential, educational, retail and employment areas located across the towns.

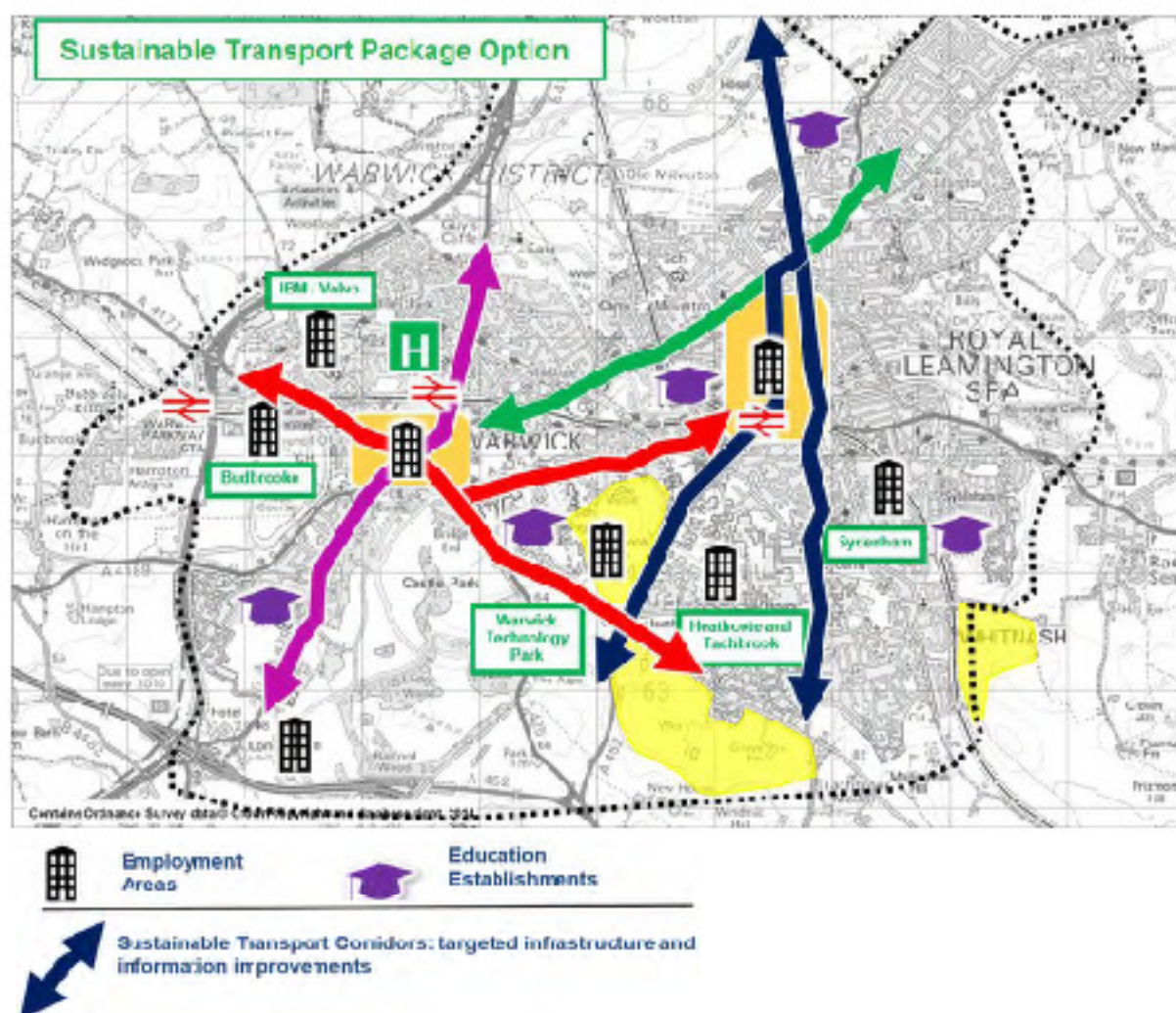
A future sustainable transport package for Warwick and Leamington should consider the relevance of the following interventions (illustrated in

Figure 7-1):

- Comprehensive area wide improvements to Walking and Cycling infrastructure and way-finding information to include:
 - Targeted walk and cycle route improvements on key corridors which link employment, education and residential areas and integrate with transport interchanges (including re-allocation of road space where required);
 - improved crossing facilities that provide first priority to pedestrians and cyclists at junctions and crossings;
 - consideration of off-road routes where suitable;
 - information and signage;
 - cycle parking facilities at key public destinations and transport interchanges;
- Targeted road space re-allocation to prioritise movement of pedestrians, cyclists, car share and public transport users to include:
 - targeted bus priority measures on key corridors;
 - priority measures given to walking and cycling in heavily pedestrianised areas (town centres, shopping areas and in proximity to schools);
 - network management including one-way systems; HGV restrictions; and public realm improvements to facilitate movement of pedestrians, cyclists and public transport users

- Local authority led Smarter Choices and Travel planning programme: targeted promotion and facilitation of travel plans amongst major local businesses, education providers, new residential developments and other significant trip generators
- Targeted Bus stop infrastructure upgrades on key public transport corridors to improve passenger experience and to include:
 - improved quality of and access to waiting facilities;
 - improved interchanges; and
 - provision of real-time passenger information.
- Consideration to other complementary measures: lower speed limits and residents' parking zones that create safer walking and cycling conditions

Figure 7-1 Conceptual Sustainable Transport Package



7.1.2. Option B: Park and Ride

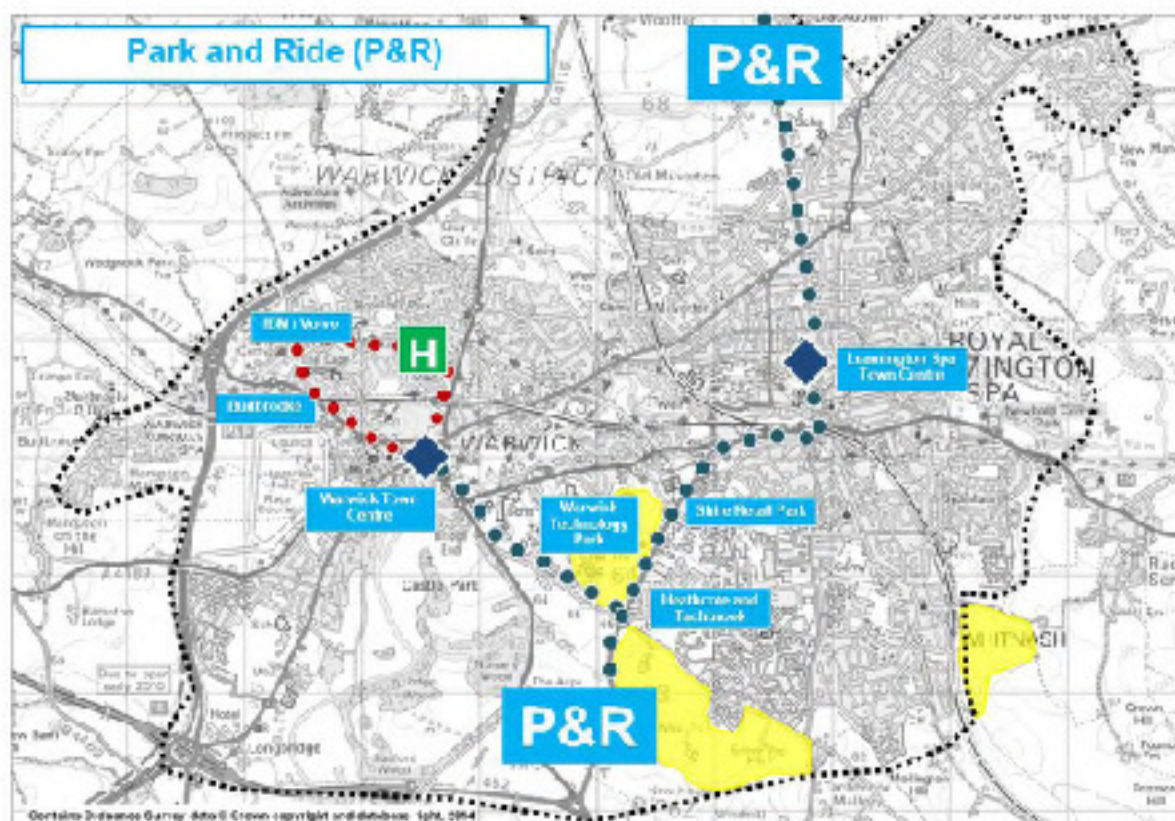
Previous Park and Ride studies undertaken by WCC identified two Park and Ride sites within the study area; one site to the north of Leamington Spa, and another to the south of Warwick/Leamington Spa (Figure 7-2). These two sites are located on the key corridors for car journeys into and through the towns along which a number of bus services also operate. It is anticipated that the northern site could potentially serve Leamington and Kenilworth. A southern

site would serve Leamington and Warwick, with through services to the aforementioned northern park and ride site.

The recent update to the Park and Ride model undertaken in July 2014 (Appendix C) identifies that there would be a considerable level of demand for both sites, whilst discussions with Stagecoach indicate that the sites could be served by a combination of existing bus services and developer funded bus services operating at a 10 minutes frequency during the peak periods.

An option to extend services from Warwick Town centre to the north-west area of Warwick including the hospital could be considered over the medium term.

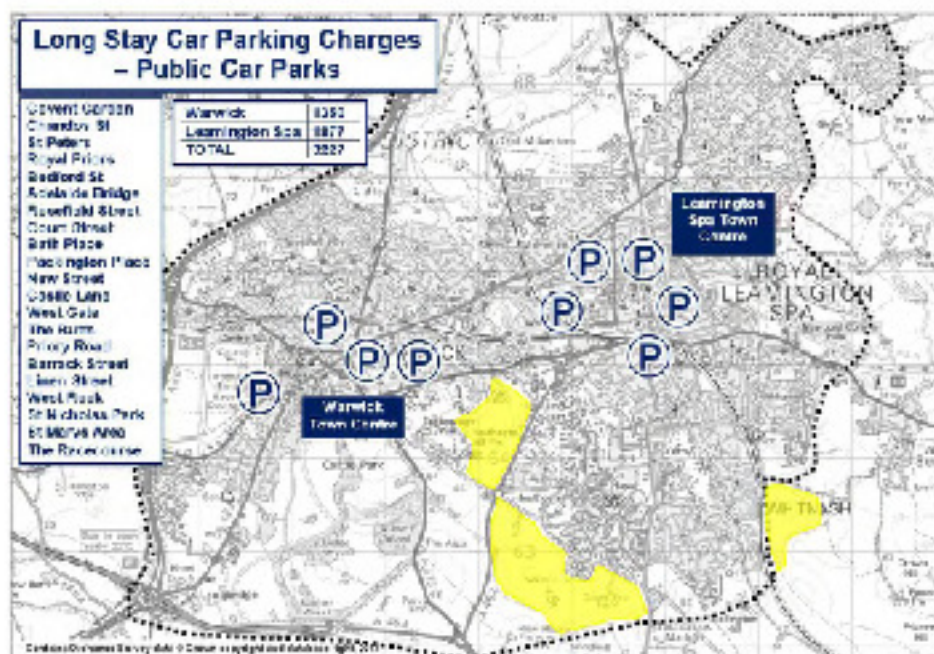
Figure 7-2 Conceptual Park and Ride Option



7.1.3. Option C: Increased Long Stay Parking Charges

There are a total of 3,227 spaces at WDC car parks in the study area. This option considers increasing parking charges for long stay parking at Warwick District Council car parks from an average of £5 per day to £10 per day. This would bring all day charges closer to those enforced in larger cities including Birmingham, Bristol and Cambridge. The charge would be applied to long stay car parking (spaces permitting a 4 hour+ stay), this equates to approximately 50% of usage. The increase in charges would affect car based commuter trips in the peak hours and would not therefore affect short stay parkers. The board location of these car parks is provided in Figure 7-3.

Figure 7-3 Conceptual Long Stay Car Parking Charges Option



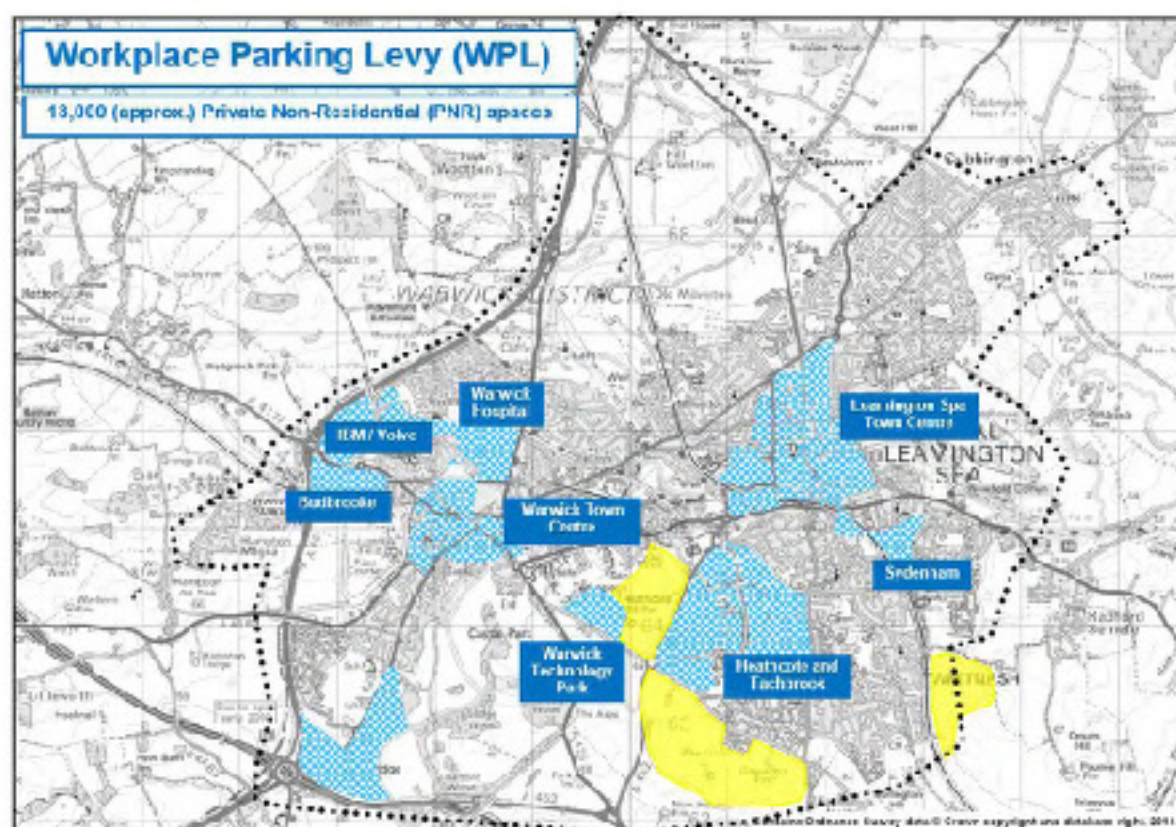
7.1.4. Option D: Workplace Parking Levy

A very conservative estimate of PNR spaces (Atkins, September 2014) suggests that there are approximately 13,000 PNR spaces in Warwick and Leamington Spa in the areas highlighted in Figure 7-4.

A workplace parking levy refers to a levy placed on private non-residential parking spaces offered by local employers. The levy is usually applied annually and enforced through the local district authority. This intervention has not yet been widely applied in the UK, although Nottingham has had a scheme in place since April 2012 and to date results show good compliance and negligible adverse impact on local business. A summary of the Nottingham scheme is provided below:

- Nottingham City Council has introduced a WPL to tackle problems associated with traffic congestion, by both providing funding for local transport and by acting as an incentive for employers to manage and potentially reduce their workplace parking.
- Money raised from the WPL will go towards NET Phase Two (the extensions to the existing tram system), the redevelopment of Nottingham Railway Station (known as the Hub Project) and will also support the popular Link bus network.
- Employers, rather than individual employees, are responsible for paying any WPL charge, although employers can choose to reclaim part or all of the cost of the WPL from their employees.
- All employers in the Nottingham City Council administrative boundary area are required to license any workplace parking places they provide. Employers inside the boundary that provide 11 or more workplace parking places (excluding those for disabled Blue Badge Holders) are required to pay a WPL charge.

Figure 7-4 Conceptual Workplace Parking Levy Option



Should the option be progressed, thought will need to be given to the following exemptions:

- Occasional business visitors
- Small companies with less than 11 travel to work spaces
- Customer vehicles
- Motorbikes
- Display vehicles (vehicles parked at an employer's premises and not used to travel to and from work) e.g. emergency vehicles; maintenance vehicles
- Fleet vehicles (vehicles parked at an employer's premises and not used to travel to and from work)
- Vehicles used primarily to deliver or collect goods
- Vehicles belonging to people who live and work/study at the same premises.

For the purpose of model testing this option it assumed in the first instance that a £155 charge would be applied to each licenced space. Such a charge has been determined through applying a ratio of daily charges in Nottingham (daily private charge: daily levy charge) to local all day public parking charges in Warwick and Leamington.

Detailed research is necessary to determine the extent to which employers would pass on the charges to their commuters. For the purpose of this study two tests were undertaken to assess the impact of employers passing on the charge. One assumed 75% of employees would be paying the fee, the other assumed 25% of employees would pay the fee.

7.1.5. Option E: Warwick Town Centre Road User Transit Charge

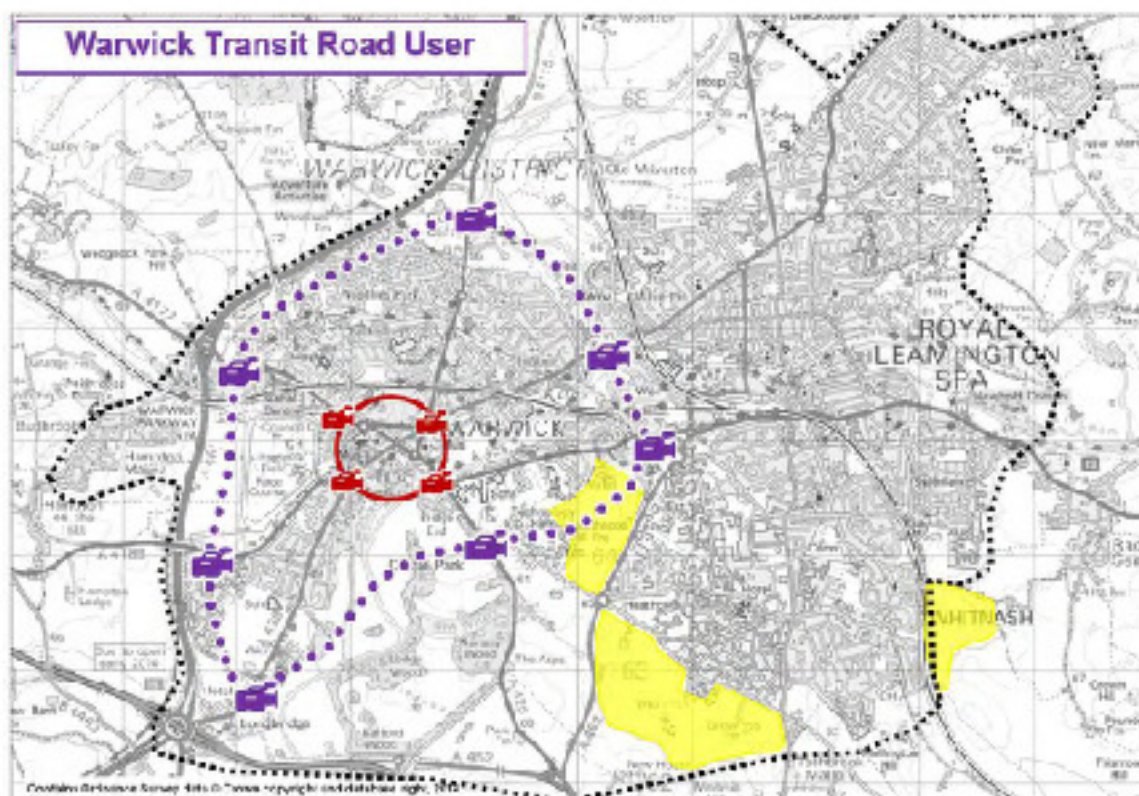
A full congestion charge was not deemed appropriate at this stage due to deliverability concerns and perceptions that it would have a significant adverse effect on local business activity. Furthermore it was felt other methods could be explored before reaching this stage. A number of stakeholders expressed a preference towards a form transit charge applicable to all trips passing through Warwick that neither originated nor stopped in the town centre. The option tested in this

study has therefore been put forward to assess the impact of such a transit charge on the Warwick and Leamington Spa transport network.

Figure 7-5 shows that in practice such a proposal would depend on an inner and outer cordon of Automatic Number Plate Recognition (ANPR) cameras linked to a back office enforcement system. The purpose of the system would be to identify vehicles eligible to pay a levy (through travellers).

It is likely that a scheme would need to include some form of exemption for local residents and as such sensitivity tests were undertaken to assess the impact of an exemption for all residents in the study area, and for residents living in Warwick only. Details of the more detailed modelling assumptions are provided in the proceeding chapter.

Figure 7-5 Warwick Town Centre Road User Transit Charge Option



8.2.2. Forecast Year and Time Periods Modelled

Each of the options has been tested using the transport model in Forecast in order to provide a quantitative assessment of their potential impact they have on the network performance. Model results quoted in subsequent chapters relate to the AM Peak Period (07:00- 10:00) in Forecast Year 2028. These model periods are intended to present the impact of the proposals in the case of a full development scenario.

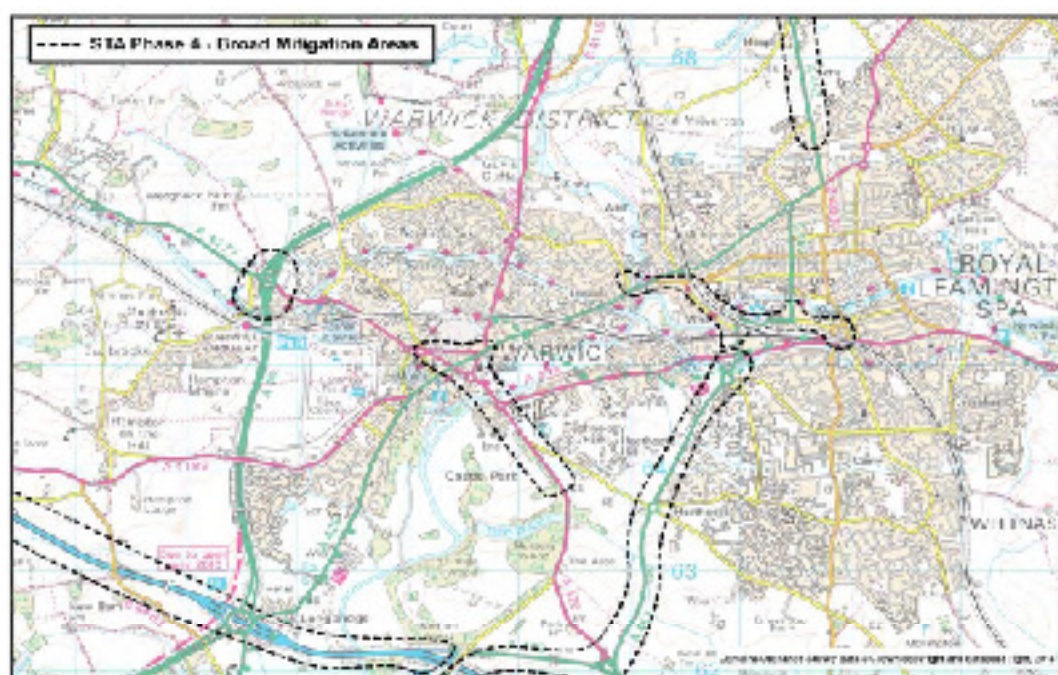
8.2.3. Do Minimum Assumptions

The scenario assessment has been based on the 2028 Warwick and Leamington Wide Area (WLWA) Revised Development Approach (RDA) model as reported in Warwick District Local Plan STA4. Prior to the commencement of this assessment the forecast models were updated to include the committed Strategic Economic Plan (SEP) A46/A4177/A425 Stanks Roundabout and corridor improvement scheme.

The Do-something options have been compared with the following do minimum scenario (Figure 8-2):

- 2028 forecast year with WDC Planned growth and STA and SEP Schemes, excluding the Priority Road and Castle Hill STA schemes.

Figure 8-2 Broad Mitigation Areas as per STA 4 Proposals (Do Minimum)



8.2.4. Do Something Assumptions – Assumed Demand Response

The model is a highway model only and therefore does not model demand responses for non-highway schemes. In the absence of a demand response transport model, the approach adopted makes best use of existing data, guidance and evidence from case studies elsewhere. As such demand responses assumed in the modelling tests have made use of elasticity and modal shift impacts described in key transport appraisal guidance such as the Department for Transport (DfT) Transport Appraisal Guidance (WebTAG). A summary of the high level assumptions made for each option test is provided in Table 8-1.

Table 8-1 Option Testing Modelling Approach and Assumptions

Option A: Sustainable Transport Package	<p>Demand reduction based on Case Studies and DfT WebTAG: Reduce car trips to employment zones by 14.4% (East of England Travel Plan Evaluation, 2009) Reduced car trips to schools by 10% for WCC schools, 5% to WISF schools (DfT WebTAG) Reduced car trips to/from zones in the study are by 8% based upon wider strategy (DfT WebTAG)</p>
Option B: Park and Ride	<p>Adjusted P&R matrices from the P&R model updated in July 2014 (See Appendix B).</p> <p>Assumes a modal shift from car for the final leg of a car trip/</p>
Option C: Long Stay Parking Charges	Demand response using typical elasticity values (-0.3). 100% increase in charges (from £5 to £10). Applied to 50% of car trips to car park zones to reflect long stay users.
Option D: Work Place Parking Levy	<p>Demand response using typical elasticity values (-0.3). with a £155 per annum levy.</p> <ul style="list-style-type: none"> • Test 1: 25% of charges passed on to commuter trips • Test 2: 75% of charges passed on to commuter trips
Option E: Road User Charge - Transit	<p>All or Nothing constraint of external movements.</p> <p>Exemption tests:</p> <ul style="list-style-type: none"> • Test 1: All Warwick and Leamington Spa residents exempt • Test 2: Warwick only residents exempt

8.2.5. Further considerations

The results from this modelling exercise should only be taken as an indication of the possible network impacts. There are number of constraints that should be noted in the general interpretation of these results, these are listed as follows:

- The model is a highway model only and does not model demand responses for non-highway schemes. Consequently assumption has been made based on evidence from elsewhere as to the potential demand responses that may emerge from the options put forward in chapter 7 (See Table 8.3);
- Adjustments to the model may result in car trips re-assigning to a different route or terminate in an alternative destination rather than not travelling by car or switching modes (which would occur in a variable demand model);
- The Do minimum used in this study assumes that the do-minimum scenario will be in accordance with STA4 but without the Priory Road and Castle Hill Assumptions.

9. Stage 2: Detailed Review of Options

9.1. Introduction

Whilst the modelling results provide an indication of the impact on the highway network, each option needs to be considered in the round, giving regards to aspects of deliverability and impact on the objectives. This chapter summarises the review undertaken for each option within the context of the following:

- Impacts on Modal Shift and Highway Network Efficiency (Area wide and town centre traffic impacts)
- Scheme Deliverability (technical, affordability and acceptability)
- Option benefits (key strengths)
- Option drawbacks (key weaknesses)

The remainder of this section presents a comparative analysis of the options within the context of the above evaluation framework.

9.2. Impact on Modal Shift and Network Efficiency

A summary of the key network statistics taken from the PARAMICS model tests for each option are summarised in Table 9-1.

Table 9-1 Summary of Network Statistics for Options 1 – 5 (AM Peak Hour – 07:00-10:00)

Network Statistics AM Peak Hour (0700 – 1000)	Do-Min	Sustainable Transport Package	Park and Ride	Increase Long Stay Parking Charge ^a	WAPPL (7.5% employee pay)	WAPPL (25% employee pay)	RUC a (Warwick and Leamington exemption)	RUC b (Warwick exemption)
Assigned trips (Demand)	50,662	46,996	50,662	Not Modelled	50,273	50,536	50,662	50,662
Total Vehicles (trips completed)	48,264	47,768	49,627	Not Modelled	49,120	49,167	49,317	49,532
Trip completion ratio	95%	102%	98%	Not Modelled	98%	97%	97%	98%
Average Speed per Vehicle	42	47	43	Not Modelled	43	42	42	43
Average Journey Time per Vehicle (sec)	562	515	553	Not Modelled	559	560	565	557
Average Journey Distance in km	6.6	6.7	6.6	Not Modelled	6.6	6.6	6.6	6.6
Demand Response (Total Network Trips Removed)	N/A	3665 (7%)	Abstraction of 492 trips	93	388	125	N/A	N/A
Journey Time Improvement (average per vehicle)	N/A	8%	2%	Not Modelled	0.5%	0.3%	-0.5%	1%

^athe long stay parking charge option was not modelled in detail due to the negligible demand response predicted to occur (less than 100 trips)

9.2.1. Area Wide Network Impacts

9.2.1.1. Demand Flow Impacts

Key headline results to note from Table 9.1 are listed as follows:

- The sustainable transport package offers the greatest scope for modal shift removing around 3,660 trips (7%) during the morning peak hour;
- Park and ride located north and south of Leamington is estimated to abstract around 500 trips from the network during the morning peak period – abstraction largely takes place from key corridors served;
- Due to commuters strong willingness to pay and the prevalence of private parking facilities in the work place, the demand response emerging from a doubling of long stay (>4 hours)

parking charges is envisaged to be negligible and hence was not modelled using PARAMICS;

- At a levy of £155 per annum, the demand response instigated by WPL is relatively modest (100-400 network trips removed during morning peak) – this again is likely to be attributable to the elasticity assumptions used at this stage. A higher charge that is more competitive with local on-street/public car parks and higher elasticity assumptions is likely to result in a much larger modal shift impact (see recommendations for further study);
- RUC has a nominal impact on overall travel demand across the study area, it is envisaged that this is due to limited spare capacity being released by blocking of strategic through trips being absorbed by local traffic that is theoretically exempt from the levy. For an RUC to have an effect on local congestion, local residents living in the local area would need to be eligible to pay.

9.2.1.2. Impact on Average Vehicle Speeds, Journey Times and Distances

Average AM Peak hour vehicle speeds across the modelled area vary from 42 kph to 47kph. However, with the exception of the sustainable transport package, none of the options offer an apparent improvement in average speeds over the do-minimum scenario. Average journey distances remain unaffected by any of the options. With the exception of the sustainable transport package, average journey time per vehicle also remains unaffected by the proposed interventions. The sustainable transport package offers an addition 2 minutes journey time saving per vehicle (8% improvement) compared to the do-minimum solution.

9.2.1.3. Impact on Journey Times

End to end journey time data has been extracted from the model for the sample of routes across the study area (Figure 9.1). The key routes assessed include:

- A452 and A425 north and south through Leamington Spa (Route 1)
- A429 and A445 east-west through Warwick town centre (Route 2)
- A425 east-west through the two towns (Route 3)
- A429 to A425 north-south through Warwick town centre (Route 4)
- A452 to the south of the towns, adjacent to M40 (Route 5)
- B4087 north-south through Leamington Spa (Route 6)
- B4455 north-south to the east of Leamington Spa (Route 7)
- Berisford Road to the north east of Leamington Spa (Route 8)
- A46(T) (Route 9)

Table 9-2 provides a comparison of the percentage journey time improvements relevant to the do minimum scenario for each option.

Figure 9-1 Warwick and Leamington Spa Journey Time Routes

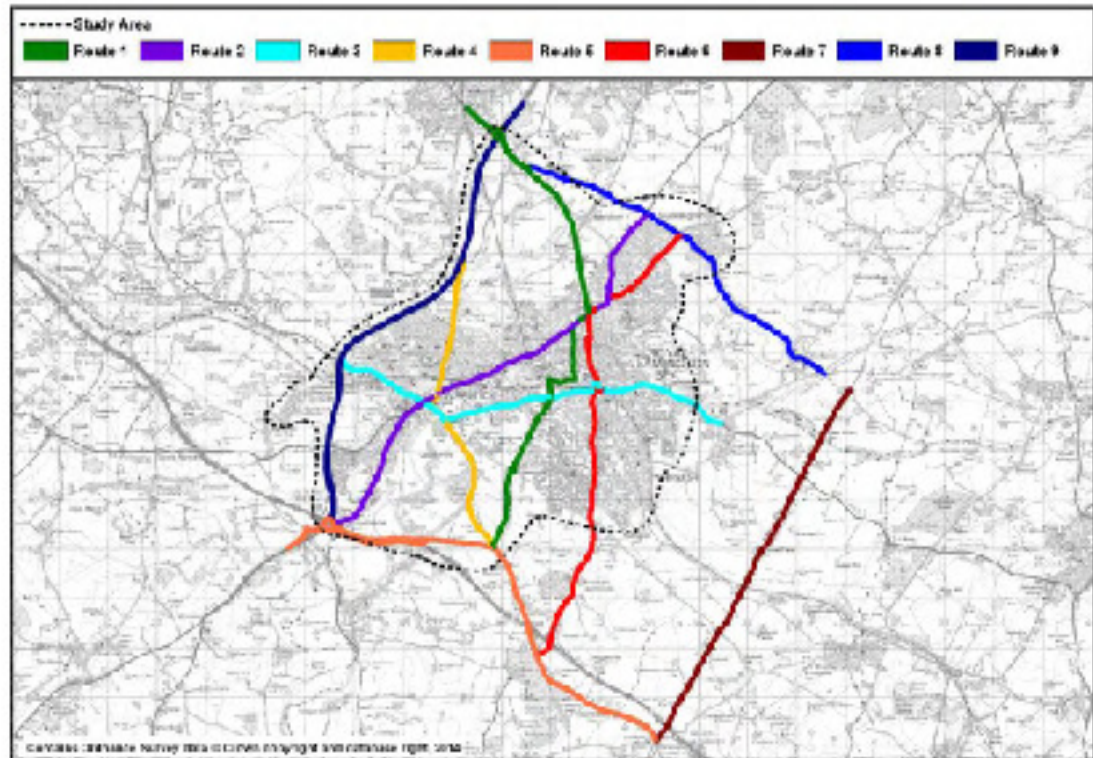


Table 9-2% Journey Time Savings vs. Do Minimum (AM Peak Period)

Average Two Way Journey Time Improvement	Sustainable Transport Package	Park and Ride	WAPPL (75% employee pay)	WAPPL (25% employee pay)	RUCa (Warwick and Leamington exemption)	RUCb (Warwick exemption)
Route 1SB	-12%	0%	1%	1%	2%	4%
Route 1NB	-14%	-3%	0%	2%	-2%	-1%
Route 2SB	-13%	2%	-2%	1%	5%	-6%
Route 2NB	-20%	-5%	-3%	0%	-1%	-8%
Route 3 SB/EB	-20%	-9%	-9%	-5%	-2%	-15%
Route 3 NB/WB	-23%	-7%	-3%	2%	-4%	-8%
Route 4SB	-13%	4%	3%	-2%	7%	0%
Route 4NB	-15%	-3%	-6%	-3%	-2%	-10%
Route 5NB	-17%	-6%	-3%	-2%	7%	-2%
Route 5SB	-14%	-5%	-5%	-1%	1%	-4%
Route 6SB	-10%	5%	4%	2%	5%	5%
Route 6NB	-13%	-3%	-1%	2%	0%	0%
Route 7SB	-10%	-2%	-3%	-2%	0%	1%
Route 7NB	-1%	0%	0%	0%	0%	0%
Route 8EB	-8%	-2%	-1%	1%	3%	1%
Route 8WB	-25%	3%	5%	2%	10%	8%
Route 9SB	-1%	1%	2%	1%	4%	-1%
Route 9NB	-1%	0%	1%	0%	1%	1%
AVERAGE % Journey Time Saving vs Do Minimum	-13%	-2%	-1%	0%	2%	-2%

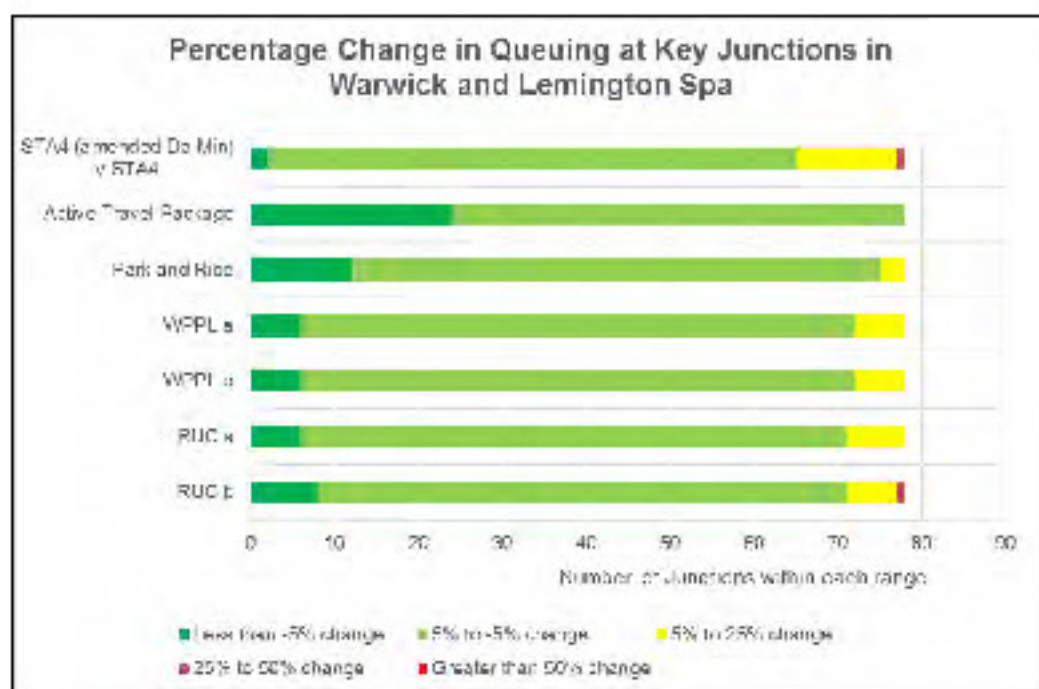
Overall the results provided indicate that the Sustainable Transport Package performs strongest when compared to the do minimum package with average savings on key routes of 13%. The alternative options show relatively small average savings. Other key journey time impacts to note are listed as follows:

- Route 9 (A46) remains relatively unaffected by any of the transport packages – this route lies on the periphery of the study area and relates to the trunk road network;
- The effects of park and ride are positive on most routes, although small compared to the improvements offered by the sustainable transport package;
- WPL performs more strongly than a RUC with full exemption applied, the latter of which has limited positive effect on journey times on most routes;
- A RUC with a Warwick resident exemption shows stronger journey time improvements on routes 1,2,3 and 4 – all of which pass through the centre of Warwick. Figures reported above however show that this journey time improvement leads to the demand reduction impacts being muted due to released local suppressed demand; and
- A full charge with no local exemptions may create a more attractive case for a form of RUC – although initial feedback from local organisational stakeholders suggests that this would not be a workable solution in Warwick and Leamington Spa.

9.2.1.4. Area wide Queuing Impacts

The change in queue length data at 80 junctions in the study area has been analysed and is presented in Figure 9-2. The data shows the number of junctions showing different levels of improvement or worsening relative to the do-minimum option.

Figure 9-2 Queue Length Data

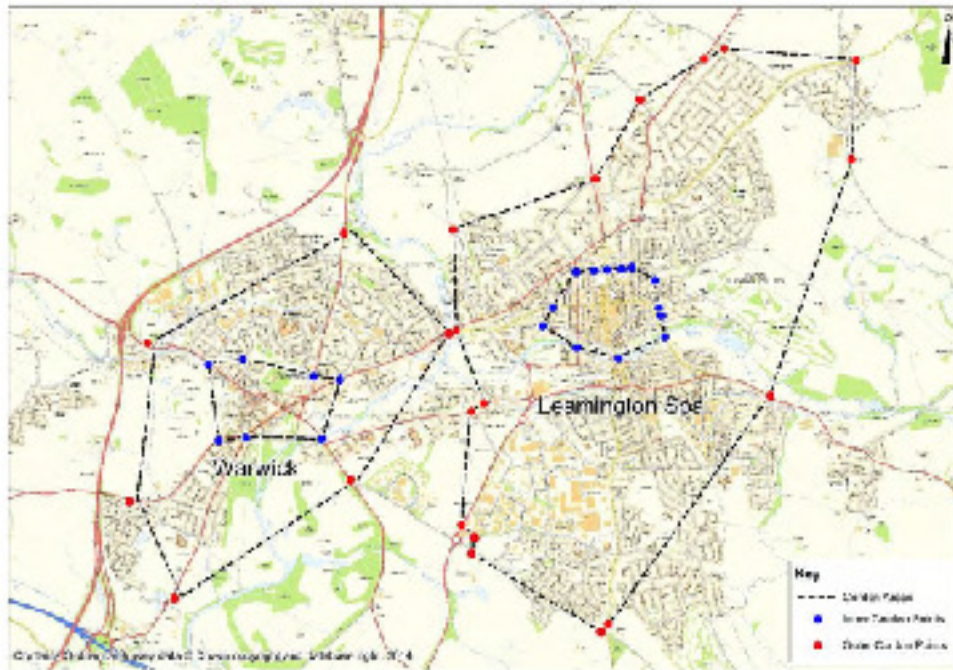


The sustainable transport package scores strongest with all junctions demonstrating no worse than overall delay in the Do-Minimum. When the sustainable transport package is applied, around 25% of all junctions showed a queue delay reduction of greater than 5% compared to the do minimum scenario. The park and ride option performed second best.

9.2.2. Impacts on Traffic Flow at Town Centre Cordons

Traffic flow data at a number of town centre cordons (Figure 9-3) has been reviewed to get a clearer view of the likely traffic impacts from each option in the town centres.

Figure 9-3 Assumed Inner and Outer Cordons for Warwick and Leamington Spa



9.2.2.1. Warwick Town Cordons

Table 9-3 provides an overview of key traffic flow changes at the Warwick inner and outer cordons respectively. Key impacts to note are as follows:

- Compared to the do minimum, only the sustainable transport package offers a measurable improvement in traffic flow at the inner cordon – however this is still less than 1%;
- Over a wider area, the additional traffic reduction materialising from the sustainable transport package increases to a much more significant 5%. This is likely to reflect the role of sustainable transport package on wider travel to work patterns in the study area (short distance trips bypassing the town centre), rather than within the town centre;
- The sustainable transport package also offers the most noticeable average improvement in vehicle speed and therefore also offers the most noticeable reduction in travel time
- With the exception of the sustainable transport package, the inner cordon flows are higher than the do minimum for all options;
- The sustainable transport option is the only package that shows a lower total distance travelled within the cordon compared to the do minimum. This reinforces the demand impact analysis presented above showing that the sustainable transport package reduces the number of trips.

Table 9-3 Warwick Town Centre Cordon (Modelled AM Peak Hour Network Impacts - 2028)

Network Statistics AM Peak Hour (0700 – 1000)	Do-Min	Sustainable Transport Package	Park and Ride	Increase Long Stay Parking Charges ¹	WAPPL (7.5% employee pay)	WAPPL (2.5% employee pay)	RUCa (Warwick and Leamington exemption)	RUCb (Warwick exemption)
Warwick Two Way Inner Cordon Flow Change	N/A	-1%	No change	Not Modelled	No Change	No Change	No Change	No Change
Warwick Two Way Outer Cordon Flow Change	N/A	-5%	No Change	Not Modelled	No Change	No Change	No Change	No Change
Total Inner Cordon Flow (Vehicles)	129,684	127,768	130,574	Not Modelled	131,620	131,724	131,412	131,079
Average Speed (mph) at Inner Cordon	12.36	13.74	12.53	Not Modelled	12.76	12.68	12.89	13.25
Total Inner Cordon Travel Time (hours)	424	370	422	Not Modelled	416	416	419	386
Total Inner Cordon Travel Distance (km)	5332	5272	5361	Not Modelled	5419	5423	5411	5379

9.2.2.2. Leamington Spa Cordons

Table 9-4 provides an overview of key traffic flow changes at the Leamington inner and outer cordons respectively.

Table 9-4 Leamington Spa Town Centre Cordon (Modelled AM Peak Hour Network Impacts 2028)

Network Station: AM Peak Hour (0700 – 1000)	Do-Min	Sustainable Transport Package	Park and Ride	Increase Long Stay Parking Charges ¹	WAPPL (7.5% employee pay)	WAPPL (2.5% employee pay)	RUCa (Warwick and Leamington exemption)	RUCb (Warwick exemption)
Leamington Spa Two Way Inner Cordon Flow Change	N/A	-6%	-1%	Not Modelled	No Change	-1%	No Change	No Change
Leamington Spa Two Way Outer Cordon Flow Change	N/A	-4%	No Change	Not Modelled	-1%	No Change	No Change	No Change
Total Inner Cordon Flow (Vehicles)	160,893	151,920	159,667	Not Modelled	159,918	159,320	161,098	160,516
Average Speed (mph) at Inner Cordon	14.71	16.73	14.53	Not Modelled	14.74	14.80	14.50	14.52
Total Inner Cordon Travel Time (hours)	425	342	428	Not Modelled	421	416	432	428
Total Inner Cordon Travel Distance (km)	7539	7082	7483	Not Modelled	7508	7471	7552	7543

Key impacts to note are as follows:

- The effect of the sustainable transport package demand impacts seems more profound in Leamington Spa compared to Warwick;
- Compared to the do minimum, only the sustainable transport package offers a measurable improvement in traffic flow at the inner cordon – this is around 5%;
- Over a wider cordon area, the additional traffic reduction materialising from the sustainable transport package is around 4%;
- The sustainable transport package also offers the most noticeable average improvement in vehicle speed and therefore also offers the most noticeable reduction in travel time
- Inner cordon flows are significantly lower in the town centre due to the sustainable transport package (around 6% lower than in the DM) – flows for the other packages remain relatively unchanged when compared to the DM
- The sustainable travel option is the only package that shows a lower total distance travelled within the cordon compared to the do minimum. This reinforces the demand impact analysis presented above.

9.3. Relevance to Strategic and Operational Objectives

Based on the feedback from stakeholders and the study team's appreciation of transport solutions adopted elsewhere, a qualitative review of each option was undertaken using the qualitative assessment framework set out in Chapter 6 (Table 6.2). Each option has been assessed according to:

- The extent to which it aligns with the strategic policy objectives set out in the Strategic Economic Plan, Warwickshire Local Transport Plan and Warwick District Council Local Plan; and
- The extent it will impact on the operational objectives identified from the evidence base review presented in early stages of this chapter.

A summary of the strategic fit scores for each option is provided in Table 9-5 below. Higher scores indicate better performing options i.e. demonstrate stronger alignment with strategic and operational objectives.

Table 9-5 Summary of Strategic Fit Assessment

	Transport Option	Sustainable Transport Package	Park and Ride	Increase Long Stay Car Parking Charge	Workplace Parking Levy	Warwick Town Centre Transit Road User Charge
Fit with Strategic Objective 1		2	1	0	0	1
Operational Objective 1	High car dependency for travel to work trips	2	2	1	1	1
	High proportion of internal and short distance trips	2	1	1	1	1
	Town centre through trips	1	2	0	1	1
	School travel is a contributor to local congestion	2	1	0	0	0
	Quality of sustainable travel alternative limits their use	2	2	0	0	1
	Parking supply can inhibit use of sustainable modes of travel	0	1	1	2	0
	Increasing sustainable travel will require behavioural change by large trip generator (attractors)	2	2	0	1	0
	The local network is sensitive to disruption (road works, accidents)	2	2	0	0	0
Meeting the Objectives and Addressing the Challenge 1 TOTAL		15	14	3	6	5

Best Strategic Fit

Park and Ride addresses the identified challenges by reducing the number of longer distance car trips travelling on key corridors in to the area. These car trips would either be for employment or education purposes in the peak hour and for leisure and retail during the off-peak. Park and Ride provides network benefits and reduces the number of car trips in the town centres, whilst providing additional car parking capacity for the towns without the adverse impact on increasing car parking supply in the town centre. This option therefore meets economic objectives by providing improved access to the town centres, whilst providing network benefits to journey times. Environmental objectives are met by reducing the number of car trips using the sensitive town centre networks. The Park and Ride sites will also support planned growth by linking existing employment areas and education establishments to planned development sites.

The Sustainable Transport Package addresses the majority of the identified transport challenges because it improves the quality of sustainable travel alternatives to the car and focuses on travel to employers and schools. This has the effect of reducing the number of car trips, resulting in improved highway network performance which is beneficial to the economy by improving journey time reliability and reducing transport costs for businesses and residents. This package also facilitates improved access to town centres. This package can benefit the local environment by reducing the number of car travelling in sensitive areas, such as the town centres. Health benefits are provided by facilitating journeys by active modes of travel, particularly for journeys to work and education.

The Workplace Parking Levy specifically addresses the key challenge of the number of PNR spaces provided in the area, and would act as a method for encouraging people to use sustainable modes of travel for journeys to work, subject to there being an attractive and suitable alternative. This option has a limited impact on specifically addressing the remaining challenges because it is a 'stick' measure which would need to be implemented in conjunction with 'carrot' measures such as those contained in the sustainable transport package in order to fully address the challenges. This option does not meet all of the objectives because it was not strongly supported by stakeholders due to concerns over the adverse impact on the local economy and businesses investing in the area.

The 'stick' nature of this option also means that in isolation it does not provide benefits to improving the health of the local community.

Worst Strategic Fit

Introducing long stay car parking charges at Warwick District Council car parks directly addresses a small proportion of the parking supply issue in the area. However the testing evidence indicates that there is a strong willingness to pay for car parking amongst the population and therefore in isolation this option does not significantly reduce the number of car trips. This means that whilst this option addresses car parking, in isolation it does not encourage a shift towards sustainable modes of travel which would address a greater number of the challenges. This limited reduction in car trips and potential shift to sustainable modes of travel in conjunction with stakeholder concerns over the impact on the local economy means that this option does not meet all the objectives.

The Warwick Town Centre Transit Road User Charge has been identified to have a limited impact on reducing the number of car trips on the network, removing these trips releases capacity in the town centre network which is filled by trips not subject to the charge re-assigning to the town centre routes. This is because the scheme specifically targets strategic through trips which is relatively small compared to the number of locally generated car trips. This means that this option has a limited role in addressing the challenges for the area, particularly because in isolation it will do little to encourage travel by sustainable modes of transport. This means that this option does not meet all of the objectives, particularly given stakeholder concerns over the impact on the local economy of such an option.

9.4. Deliverability

Deliverability is a key consideration in this assessment because the strategy must be deliverable, subject to funding, within the powers of the local authorities and within a timescale consistent with the STA measures. The deliverability of each option has been assessed against the following deliverability criteria:

- Technical Feasibility - Can the option practically be delivered?
- Stakeholder Support - Have stakeholders indicated support for the option?
- Acceptability - Are the public likely to be accepting of the option?
- Cost - Would the option be prohibitively expensive to deliver?
- Timing - Subject to funding, could the scheme be delivered within the plan period?

A summary of the deliverability scores for each option is provided in Table 9-6 below, higher scores indicate better performing options.

Table 9-6 Summary of Deliverability Assessment

	Transport Option	Sustainable Transport Package	Park and Ride	Increase Long Stay Car Parking Charges	Workplace Parking Levy	Warwick Town Centre Transit Road User Charge
Deliverability	Technical Feasibility	2	2	-1	-1	1
	Stakeholder Support	2	2	-1	-1	-2
	Acceptability	2	2	2	-1	-1
	Cost	2	1	2	-3	-2
	Timing	2	1	1	0	1
	Deliverability TOTAL	10	8	3	-6	-3

Most Deliverable Option

The Sustainable Transport Package shows strongest scope for delivery and performs well against all of the deliverability scoring criteria. This is because the majority of the schemes are not technically complex and do not require significant levels of engineering which means that they can be delivered in the short term as part of a continuous programme of improvements. Stakeholders generally supported this option, and there was interest from organisations to participate in a behavioural change programme.

Park and Ride also performs well in terms of overall deliverability because services can be provided with the use of existing commercially operated bus services, whilst the southern site could be delivered as part of planned development in the area. There are some constraints to delivering Park and Ride which includes securing the northern site and implementing supporting infrastructure and adequate bus priority along the route corridors. The delivery of Park and Ride will also require close co-ordination between the local transport authority (Warwickshire County Council) and the local planning authority (Warwick District Council).

Increases to long stay car parking charges are technically relatively straight forward to introduce because they are within the District Council's powers. However increasing parking charges is unlikely to be an acceptable solution to most stakeholders because there is a perception that increases to local charges would be detrimental to local business. In isolation this could have an adverse impact because an alternative is not available – which would be offered by both Park and Ride and the Sustainable transport package. Experience from elsewhere also indicates that securing the long term success of Park and Ride would require an integrated car parking strategy with Warwick District Council, which could also provide the revenue to operate the site.

Least Deliverable Options

Both the Workplace Park Levy and Warwick Town Centre Transit Charge would be technically complex and subject to a high degree of uncertainty regarding deliverability. This study has conducted an initial assessment of these options, further detailed feasibility studies would be required to establish their deliverability. Stakeholders were more supportive of the workplace parking levy option than the transit charge. Once again concerns were expressed over the possible impact on the economy.

9.5. Implications for Future Strategy

The assessment of the options has identified that the Sustainable Transport Package and Park and Ride best address the challenges and meet the transport strategy objectives by achieving a modal shift and providing benefits to the highway network, whilst of the 5 options assessed they are the most deliverable. The advantages and disadvantages for each option summarised here are provided in Appendix D.

It has been identified that increasing long stay car parking charges in isolation have a limited impact on reducing car trips, and therefore has a limited benefit to the highway network and meeting the objectives. This option is also likely to be particularly contentious amongst residents and the local business community without complementary measures. This option could be considered as part of a wider strategy to secure longer term benefits of the Sustainable Transport Package and Park and Ride.

A workplace parking levy addresses some of the key challenges in the area, however it does not meet all of the objectives. Stakeholder support for the scheme is mixed, with concerns expressed over the impact on the economy. The strategic fit of this option would be improved if implemented in conjunction with 'carrot' measures such as the Sustainable Transport Package and Park and Ride; the WPL could secure the long term benefits of both these options. In terms of deliverability, considerable technical feasibility work is required to explore potential implementation of such a scheme in the longer term (which is also being considered by other local authorities in the UK).

The modelling evidence indicates that the Warwick Town Centre Transit Charge does not reduce traffic on the network and therefore has a limited impact on addressing the challenges, or meeting the strategy objectives. Delivering such a scheme would be contentious, and had limited stakeholder

support, whilst the technical feasibility of delivering such a scheme would require further investigation.

In summary, the assessment has identified that the Sustainable Transport Package and Park and Ride options provide the greatest benefits, meet the objectives and are deliverable in the short to medium term. However, in order for the long term benefit of these 'carrot' options to be secured, and in the case of Park and Ride long term financial sustainability, 'stick' measures such as increased car parking charges and workplace parking levy need to be further explored.

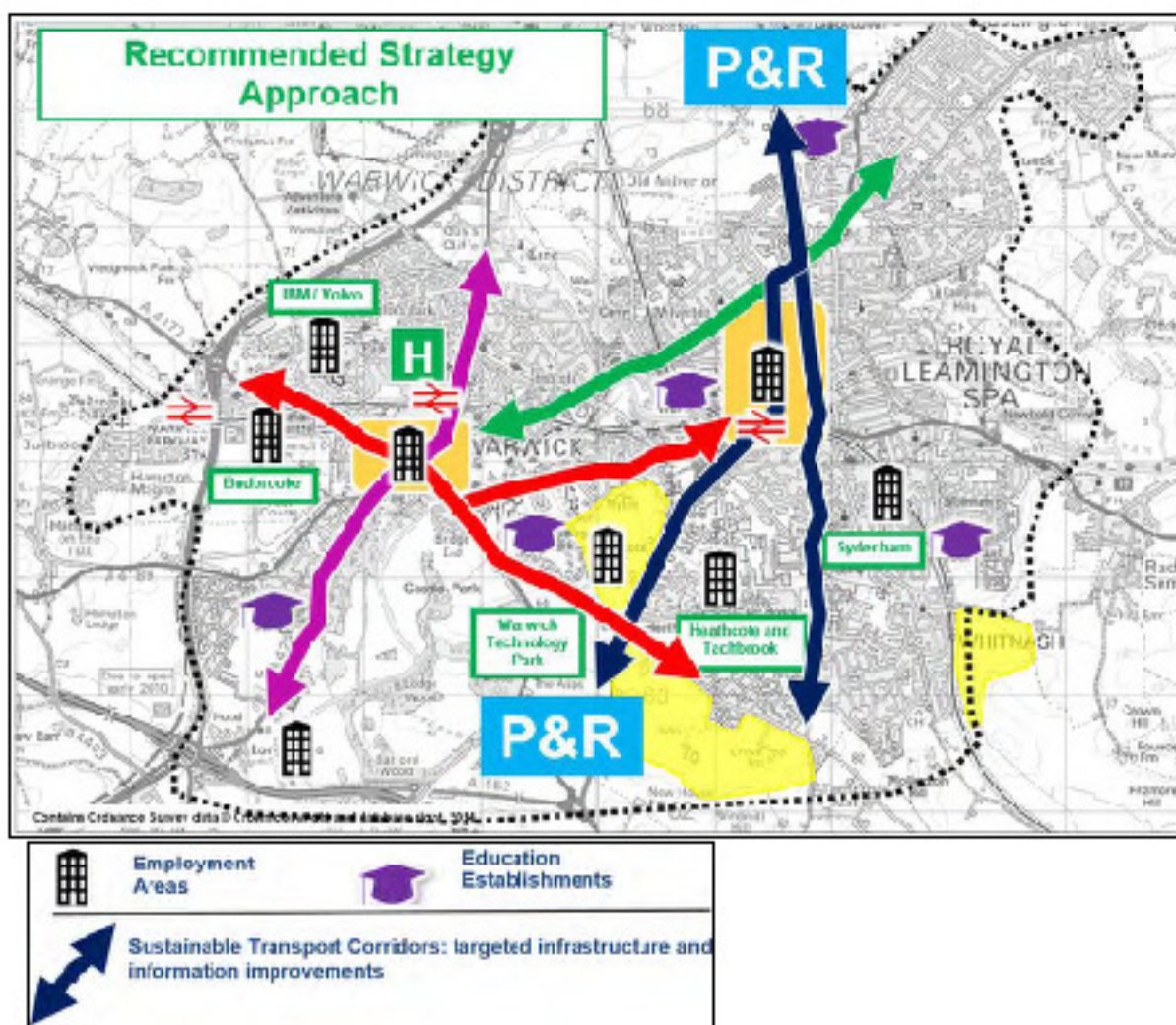
10. Recommended Transport Strategy Approach

10.1. Recommended Transport Strategy Approach

The evidence and the option assessment, including feedback from stakeholders, suggests that the future transport strategy for Warwick and Leamington Spa should consist of the components outlined below and illustrated in Figure 10-1.

- Comprehensive area wide improvements to walking and cycling infrastructure and way-finding information to include:
 - Targeted walk and cycle route improvements on key corridors of movement which link employment, education and residential areas and integrate with transport interchanges. The re-allocation of road space is an important initiative that will support:
 - improved crossing facilities that provide good priority to pedestrians and cyclists at junctions and crossings,
 - consideration of off-road routes where suitable,
 - improvements to information and signage,
 - cycle parking facilities at key public destinations and transport interchanges
- Targeted road space re-allocation to prioritise movement of pedestrians, cyclists, car share and public transport users to include:
 - targeted bus priority measures on key corridors,
 - priority measures given to walking and cycling in heavily pedestrianised areas (town centres, shopping areas and in proximity to schools),
 - network management including one-way systems; HGV restrictions; and public realm improvements to facilitate movement of pedestrians, cyclists and public transport users
- Local authority led Smarter Choices and Travel planning programme: targeted promotion and facilitation of travel plans amongst major local businesses, education providers, new residential developments and other significant trip generators
- Targeted Bus stop infrastructure upgrades on key public transport corridors to improve passenger experience and to include:
 - improved quality of and access to waiting facilities;
 - improved interchanges; and
 - provision of real-time information.
- Introduction of Park and Ride north and south of Warwick and Leamington Spa as identified by WCC: utilising existing services between the two sites which serve both towns and to include targeted bus priority enhancements, and improvements to bus stop infrastructure on key routes
- Consideration to other complementary measures: which improve the local environment for pedestrians and cyclists, this could include lower speed limits and regulated car parking
- Medium term consideration to harder demand management measures such as WPL

Figure 10-1 Recommended Transport Strategy



The measures contained within the recommended strategy should focus on movements between key residential and employment/education areas in Warwick and Leamington Spa in order to provide alternatives for a high number of journeys which would otherwise be undertaken by car. This package will therefore focus on the following locations:

- Areas
 - Warwick town centre
 - Leamington Spa town centre
- Corridors
 - Warwick and Leamington Spa town centres to Warwick Technology Park and Heathcote Industrial Estate
 - Leamington Spa to north-west Warwick (WCC, IBM and Hospital)
 - Warwick town centre to Leamington Spa town centre
 - North-south corridor (A452 and A429)
 - East-west (A425 and A445)

10.2. Recommended Transport Strategy Approach Test Results

In order to determine the potential network efficiency impacts of the recommended transport strategy approach it has been tested using the area wide Warwick and Leamington Spa PARAMICS Highway Assignment Model. Details of which are provided in Chapter 8.

10.3. Impact on Modal Shift and Network Efficiency

The area wide network statistics are provided in Table 10-1. These are discussed in the next section.

Table 10-1 Recommended Strategy Network Statistics – AM Peak Hour

Network Statistics AM Peak Hour (0700-1000)	Preferred Package Results	% change to Do-Minimum
Total Vehicle s (trips completed)	48,138	-0.3%
Average Journey Distance (km)	6.7	1.5%
Average Speed per Vehicle (km ph)	47.5	12.8%
Average Journey Time per Vehicle (secs)	505	-10.1%
Assigned trips (demand)	46,554	-8.1%
Trip completion ratio	103.40%	8.5%

10.3.1. Area Wide Network Impacts

10.3.1.1. Demand Flow Impacts

The recommended package has the greatest potential for modal shift, by potentially reducing car trips by 8.1% compared to the Do-Minimum. This equates to a reduction of approximately 4,100 car trips. This is a result of the measures to promote sustainable modes of transport for journeys within the urban areas, whilst Park and Ride removes approximately 500 car trips from entering the central urban areas.

10.3.1.2. Impact on Average Vehicle Speeds, Journey Times and Distances

The recommended strategy enhances the performance of the network. Average vehicle speeds in the area improve by 12.8%, increasing from average of 42k ph to 47k ph. This is a result of the reduced demand on the network, which also causes journey times per vehicle to reduce by 10%. The average distance travelled increases, however this is due to the sustainable transport elements of the strategy removing a number of short distance car trips from the network, because more people are travelling by sustainable modes for shorter distance journeys.

10.3.1.3. Impact on Journey Times

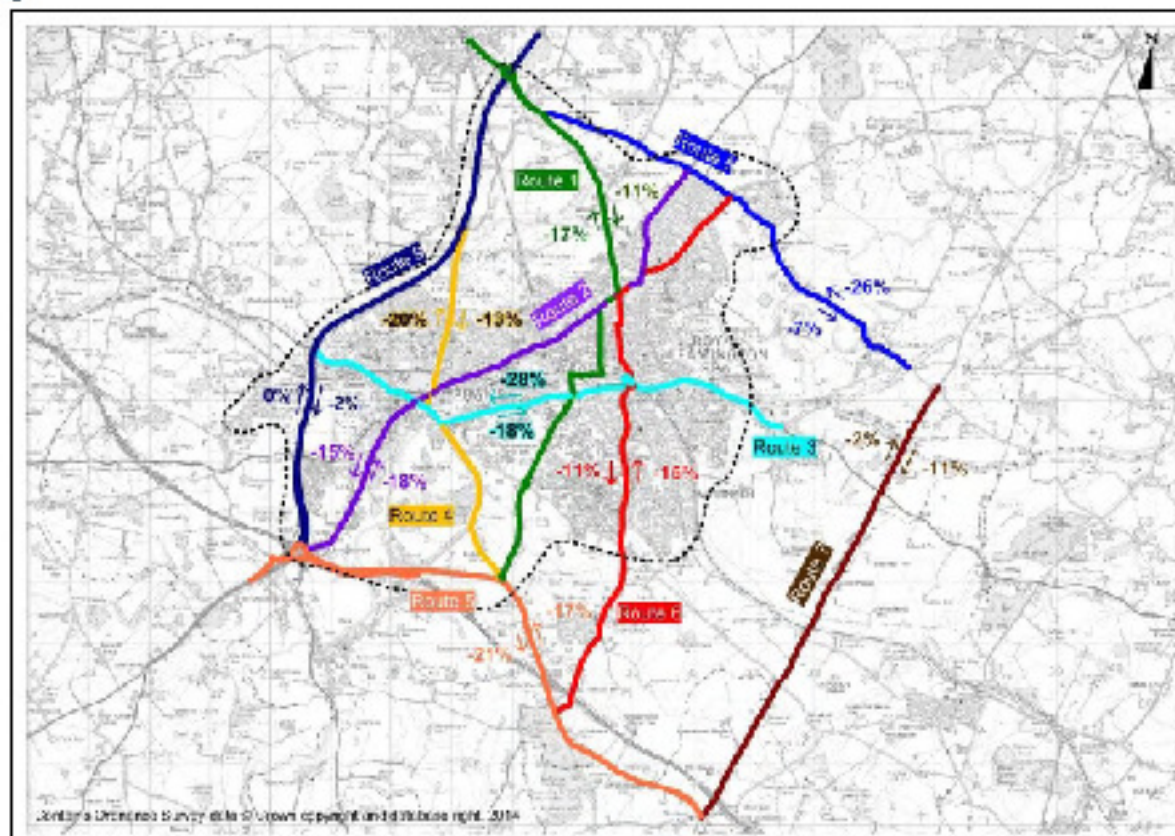
The reduced demand on the highway network as a result of more people travelling by sustainable modes of transport for shorter distance journeys improved journey times on the network. Significant improvement in journey times are recorded on the following routes:

- A452 and A425 north and south through Leamington Spa -17% northbound, -11% southbound
- A429 and A445 east-west through Warwick town centre) -18% northbound, -15% southbound
- A425 east-west through the two towns -28% westbound, -18% eastbound
- A429 to A425 north-south through Warwick town centre -20% northbound, -13% southbound

The impact on specific routes in the area is presented in Error! Not a valid bookmark self-reference. below.

Figure 10-2 Recommended Strategy: AM Peak Journey Time Route Results

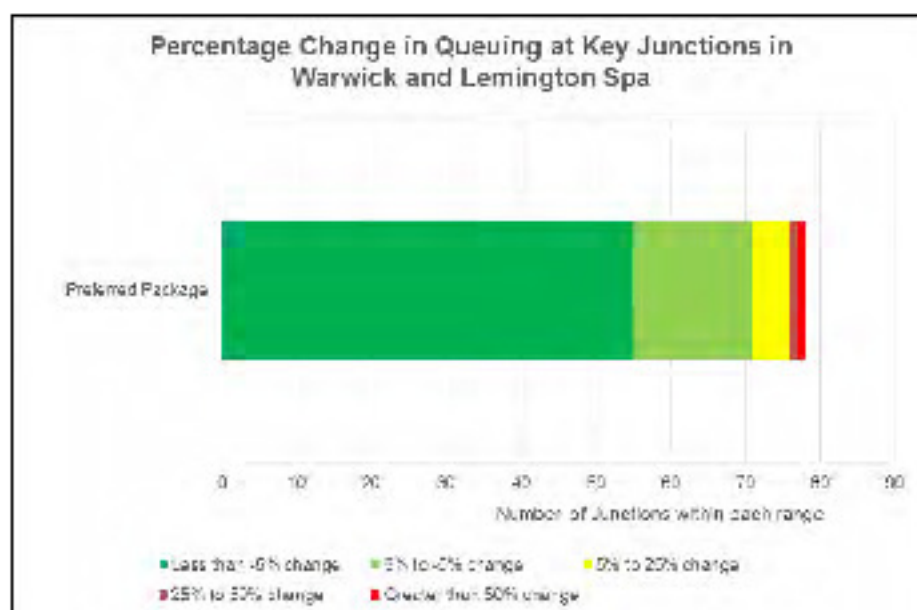
3



10.3.1.4. Area wide Queuing Impacts

The reduction in demand on the network as a result of provided for sustainable modes of transport has a positive impact on journeytimes as well as queuing within the area. The impact on queuing of the recommended approach is presented in Figure 10-2. The recommended strategy results in reduced queuing, compared to the Do-Minimum, at 55 junctions within the model area. There is an increase in queueing at some locations, which is likely to be a result of car trips diverting to use the Park and Ride facilities and locally suppressed journeys now being undertaken.

Figure 10-2 Recommended Strategy: Queue Length Impact



10.3.2. Impacts on Traffic Flow at Town Centre Cordons

10.3.2.1. Warwick Town Cordons

The recommended strategy reduces traffic flows in Warwick town centre by 3%, this provides benefits in terms of reduced travel time with the town centre and an increase in vehicle speeds. The travel distance also reduces which could be beneficial to the environment within the town centre.

Table 10-3 Warwick Town Centre Cordon (Modelled AM Peak Hour Network Impacts - 2028)

Network Statistics AM Peak Hour (0700-1000)	Do-Min	Recommended Strategy
Warwick Two Way Inner Cordon Flow Change	N/A	-3%
Warwick Two Way Outer Cordon Flow Change	N/A	5%
Total Inner Cordon Flow (Vehicle h)	129,684	126,447
Average Speed (mph) at Inner Cordon	12.36	13.69
Total Inner Cordon Travel Time (hours)	424	366
Total Inner Cordon Travel Distance (km)	5332	5225

10.3.2.2. Leamington Spa Cordons

The recommended strategy provides similar benefits in Leamington Spa town centre with flows reducing by 7% whilst average travel time and distance travelled also reduces. Again, the average vehicle speed in the town centre increases.

Table 10-4 Leamington Spa Town Centre Cordon (Modelled AM Peak Hour Network Impacts 2028)

Network Statistics AM Peak Hour (0700-1000)	Co-Min	Recommended Strategy
Leamington Spa Two Way Inner Cordon Flow Change	N/A	-7%
Leamington Spa Two Way Outer Cordon Flow Change	N/A	5%
Total Inner Cordon Flow (Vehicle h)	160,893	150,799
Average Speed (mph) at Inner Cordon	14.71	16.84
Total Inner Cordon Travel Time (hours)	425	336
Total Inner Cordon Travel Distance (km)	7539	7030

10.3.3. Network Impacts of the Recommended Strategy

The recommended approach has a positive impact upon the performance of the highway network in the urban area of Warwick and Leamington Spa by promoting and facilitating travel by sustainable modes of transport which has the effect of reducing shorter distance car trips for work and school whilst Park and Ride abstracts longer distance car journeys from travelling on the key corridors into the town centres.

10.4. Potential Benefits of Approach

10.4.1. Economy

The strategy provides highway network benefits of reduced flows, reduced journey times, increased speeds and improvements to queuing at a number of junctions. This has the benefit of reducing transport costs imposed on residents and businesses in the area. Improving accessibility for sustainable modes of travel across the town broadens the number of people who can access town centres and participate in the local economy.

Park and Ride provides improved access to the town centres, employment areas and schools during the peak hours and tourist destinations, such as the castle during peak summer periods. This means that a greater number of people can access these locations without the negative impact on the town centres.

10.4.2. Health

The testing of the recommended strategy has highlighted there is potential for a large number of people to travel by sustainable modes of travel which in the cases of walking and cycling increase individuals level of physical activity. Physical inactivity can contribute to a number of health problems, therefore increasing the proportion of the population actively travelling in the area would positively benefit the physical and mental health of the community.

10.4.3. Environment

The testing has identified that traffic flows and distance travelled in the town centres would reduce with recommend strategy. This would have a positive impact on the air quality on the area, whilst improving the public realm would make the urban area more attractive for residents and visitors.

Park and Ride can provide additional car parking capacity for the area without the adverse impact of car park expansion in the sensitive central areas.

Primary Benefits of Recommended Strategy Approach

The preferred package has a number of strengths, these are summarised as follows:

Modal Shift Impacts (*over and above the Do Minimum Scenario*)

- 3% and 7% reduction in peak hour car trips in Warwick and Leamington Town Centre respectively
- More people will travel by sustainable means – Forecast reduction of 4,000 peak hour car trips (8%) by 2028 across the total network
- Encourages greater use of active travel modes and resulting in wider social, economic and environmental benefits

Network Efficiency Benefits (*over and above the Do Minimum Scenario*)

- Improves average peak hour network speeds from 42kph to 47kph
- Reduces peak hour network average journey times by 10%
- AM peak hour journey time reductions of up to 28% on key cross town routes
- Reduced queuing at 55 key junctions across the study area

Impact on Strategic and Local Transport Objectives

- Successfully mitigates the effects of local development projections
- Network efficiency benefits bring improved conditions for local businesses and commuters, thus reducing lost time and productivity through local congestion
- Encourages greater use of active travel modes resulting in tangible benefits for public health
- Improves the local environment by reducing traffic flows – this has a positive impact on, user safety, air quality and the historic and built environment

10.4.4. Funding Opportunities

Implementing a fiscal demand management measure, such as increasing long stay car parking charges or workplace parking levy provide a source of revenue for implementing the sustainable transport infrastructure improvements and Park and Ride components outlined in this recommended strategy.

Secondary Benefits of Recommended Strategy Approach

Deliverability Strengths

- Delivery of the package can commence immediately
- Scale of package can be tailored according to funding availability allowing progressive delivery
- Offers opportunity to deliver sustainable infrastructure improvements in parallel with highway enhancements bringing potential cost savings
- Medium term consideration of Workplace Parking Charges may provide a useful opportunity to fund a more ambitious sustainable transport package while helping support the success of the proposed strategy

Behavioural Benefits

- The smarter choices and behavioural change programme encourages joint ownership of the local transport agenda by the local authority, developers and business community

10.5. Risks of the Recommended Approach

10.5.1. Long Term Funding

Although the schemes within the recommended strategy are relatively low cost, the implementation and success of the measures requires a long-term commitment to funding, beyond the initial construction. For example, the construction of a new cycle route will require surface, signing and lighting maintenance to ensure that it remains an attractive route for cyclists. However, implementing a workplace parking levy could provide a long term revenue source for improvements to the sustainable transport network across Warwick and Leamington Spa.

10.5.2. Securing Long Term Benefits

The recommended strategy focuses on Park and Ride and sustainable travel measures for delivery in the short term. However throughout this study it has been highlighted that in order to secure the longer term benefits of these measures, 'stick' measures must also be implemented to manage the demand to travel by car within the area. This was a view also expressed by stakeholders throughout the process.

10.5.3. Long Term Commitment from Employers, Schools and Local Authorities

The success of the strategy is also dependent upon a long term commitment from employers, schools and local authorities to support the behavioural change approach, take responsibility for their actions and work together to encourage, promote and facilitate travel by sustainable modes of transport. There are significant benefits to be gained as an employer or school from supporting the strategy, therefore it is recommended that these organisations are positively engaged at an early stage of strategy development.

10.5.4. Shared Vision from Local Authorities

The implementation and success of the strategy will also require a coordinated and shared vision between Warwickshire County Council and Warwick District Council.

10.5.5. Impact on Car Users

The testing has identified that the package of improvements to sustainable travel modes and Park and Ride can deliver benefits to the highway network. Further detailed assessment and modelling of specific measures, such as re-allocation of road space to sustainable modes of transport and bus priority measures, could identify a dis-benefit to journey times for car users. However, such a measure in itself could act to further reduce the demand to travel by car in the towns by increasing the competitiveness and attractiveness of alternative modes compared to car travel.

10.6. Deliverability

It is noted that the delivery of the recommended package would be subject to further work and funding availability.

10.6.1. Sustainable Transport Package

The Smarter Choices and travel planning components of this package could be programmed and delivered within a short time period. However for them to be successful they need to be implemented in conjunction with the programme for improvements to the walk, cycle and bus stop infrastructure. These infrastructure improvements will need to be implemented following a detailed network wide review and gap analysis.

10.6.2. Park and Ride

Discussions with Stagecoach, as outlined in the supporting Park and Ride report, indicated that they were supportive of diverting existing services into the proposed sites. The sites therefore must be located on existing bus routes with services operating at a high enough frequency to make Park and Ride an attractive option. WCC have identified 2 sites which meet this criteria, further work is required to secure the sites. It is understood that the southern site could be delivered by planned development in the area.

10.6.3. Demand Management Measures

The study has highlighted that in the long term there is a requirement for a work place parking or car parking strategy to secure the longer term benefits of the sustainable transport package and Park and Ride. Further feasibility studies on these options are required to progress these.

10.7. Key Delivery Challenges and Dependencies

There are a number of key challenges associated with the preferred package. Many of the components that are key to the success of the strategy are likely to appear unattractive to employers, residents and people who work in Warwick and Leamington and whom predominantly commute by car. An important activity will be to promote the benefits of the strategy, emphasising why doing nothing or continuing to squeeze extra capacity out of the network for car users isn't a feasible option.

Achieving local stakeholder 'Buy In' to the Strategy requires a long term commitment from residents, local authorities and partner organisations including schools and employers in the area. A key issue is that a co-ordinated, consistent and long term view on the transport strategy and its priorities is shared and owned by the key partners is required. The key partners are the County Council, the District Council, the LEP as well as bodies such as the Highways Agency. Forming a delivery group for the strategy may assist in ensuring momentum is maintained behind the developing strategy.

10.8. Recommended Strategy - Conclusions

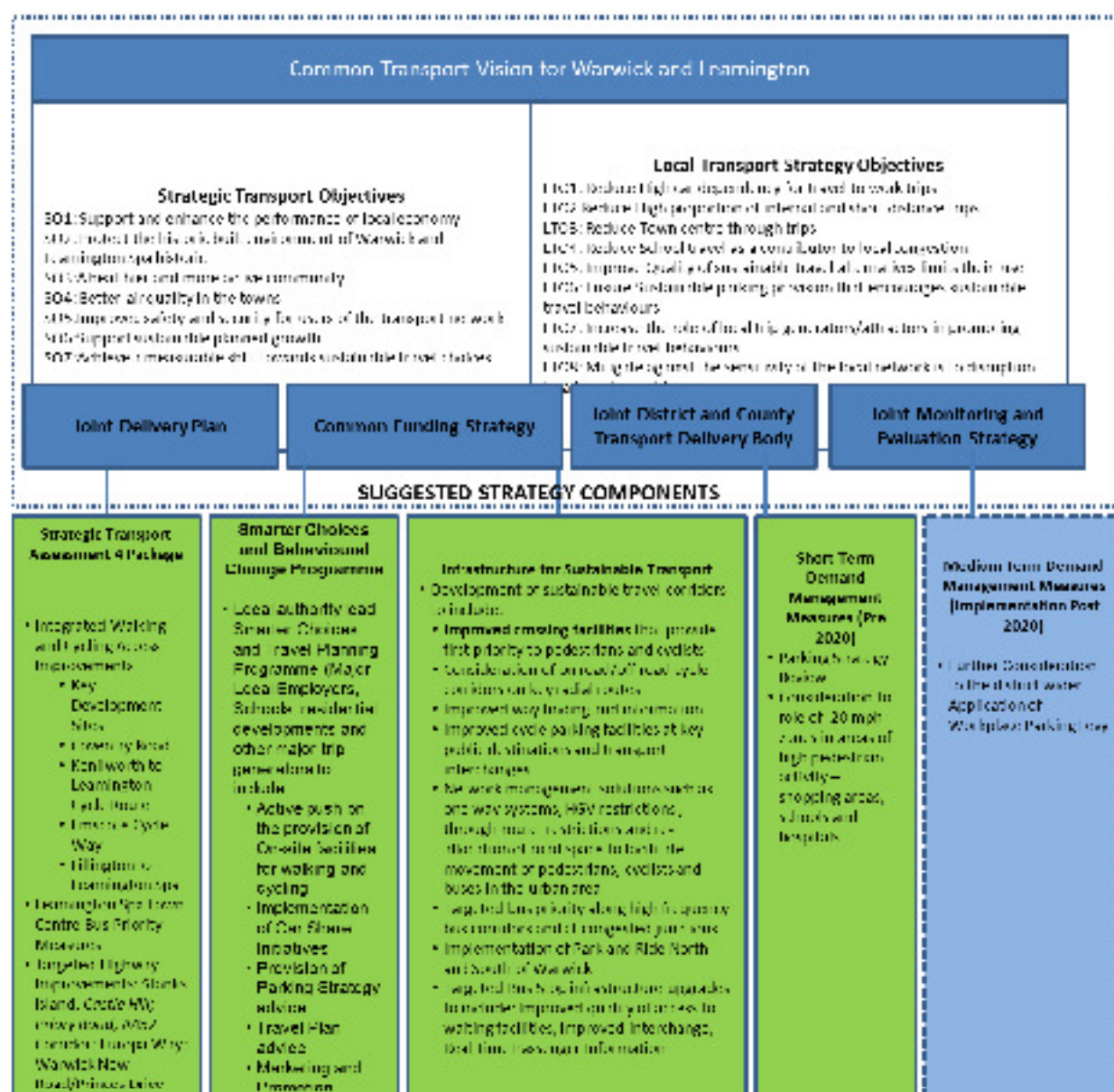
It has been identified that the recommended strategy has a number positive impacts for the area, these include delivering improvements to journey times in the area, reducing traffic flows in the town centres and increasing the number of people travel by sustainable and active modes of transport. These impacts result in number of benefits including:

- Improved access to the towns for a wider number of people by all modes of transport
- Improved urban environment, including positive impact on air quality and historic environment
- Physical and health benefits of increased physical activity

There are some risks associated with the strategy, however with a coordinated and positive approach taken by lead partners the strategy can provide benefits to the population of Warwick and Leamington Spa. Delivery of the package requires further detailed work to understand the funding requirements for this strategy, whilst further detailed feasibility studies are required to assess the implications of delivering fiscal demand management measures to secure the long term benefits of investment in sustainable transport infrastructure and Park and Ride.

The recommended transport strategy approach and way forward for delivery of the strategy is outlined in Figure 10-3. This demonstrates that the package aligns with the strategic and operational objectives, however in order to successfully deliver the components of the package a joint vision and delivery body between the local transport authority and local planning authority will be required.

Figure 10-3 Recommended Transport Strategy Approach



10.8.1. The Warwick District Local Plan

The testing of the preferred package in this study has demonstrated that the recommended package would provide additional benefits to the transport network over and above the schemes contained within STA4. These benefits have been measured as reduced average journey times; queuing at junctions; and total number of car trips on the network. The short term preferred package, if delivered in conjunction with the measures contained in STA4 as part of an integrated programme of transport improvements for Warwick and Leamington Spa, would meet the strategic objectives for the area and provide benefits for both current and future residents of the two towns.

10.9. Recommended Next Steps

In order to develop the outline strategy (preferred package) for implementation it is recommended that consideration is given to the following:

Completion of a walking/cycling/bus network review/gap analysis in the two town centres and on the key corridors to identify detailed infrastructure needs to support the vision described above. This will identify:

- Where walking and cycling activity is most likely to occur;
- Where demand for walking and cycling is being suppressed; and
- Where the greatest opportunity for significant modal share increases; and
- Consequently where investment in cycling and walking infrastructure will maximise value for money.
- Development of a phasing plan for Sustainable Transport Package implementation that is aligned to forecast funding streams and local development profiles. This should then feed into a funding strategy for the overall strategy;
- Form a joint County and District delivery group to take the strategy forward;
- Progress with development of a Smarter Choices strategy and implementation plan to commence dialogue with key local employers and educational providers – this strategy again will need to take account of funding constraints and where the greatest opportunities for achieving modal shift lie;
- Development of a joint County and District parking strategy review intended to develop a coherent integrated strategy covering parking standards for new development; park and ride policy; work place parking levy policy/feasibility and other parking related issues.

Appendices

Appendix A. Stakeholder Workshop 1 Notes

Stakeholder Workshop 1

Project:	Warwick and Leamington Spa Transport Strategy
Subject:	Stakeholder Workshop Notes
Date:	10 June 2014

Introduction

A series of stakeholder workshops and briefings are being undertaken to inform the development of the transport strategy on behalf of Warwickshire County Council (WCC). More specifically workshops are key to keeping stakeholders informed and actively engaged with the strategy as it develops. It also provides the opportunity to gather additional local intelligence information to inform the study evidence base and solutions. The timing and purpose of these workshops is outlined below:

- Workshop 1 - Issues and Problems (May 2014)
- Workshop 2 – Developing Solutions (July 2014)
- Stakeholder Presentation – Key Findings (September 2014)

The first stakeholder workshop to inform the ongoing development of the Warwick and Leamington Spa Transport Strategy was held on 13th May at Hill Close Gardens, Warwick. The agenda and list of attendee organisations is provided in Appendix A and Appendix B respectively. The purpose of the first stakeholder workshop was to:

- Present the emerging evidence base;
- Outline identified causes of the issues and problems with the Warwick and Leamington Spa transport network;
- Initiate thinking on the likely objectives for the Warwick and Leamington Spa Transport Strategy;
- Identify further causes, issues and problems from the perspective of stakeholders; and
- Identify solutions to the problems from the perspective of stakeholders.

The full presentation given by Atkins is provided in Appendix C and was followed by two interactive sessions held with 3 stakeholders groups. Stakeholders were asked to share their views on key transport issues and problems affecting the combined Warwick and Leamington Spa urban area. Furthermore they were asked for initial thoughts on the types of solution likely to be relevant to addressing the main issues.

Breakout Session 1 – Local Transport Issues and Problems

The first breakout session focussed on three main discussion areas:

- 1) Preferred strategy outcomes;
- 2) Local transport issues and problems; and
- 3) Key priorities.

Transport Strategy Outcomes

Stakeholders highlighted the need for the strategy to achieve the following:

- Achieve measurable modal shift towards sustainable and active travel modes (walking, public transport, car share, cycling etc) for all journeys, but primarily to schools and employment;
- Ensure the economic viability of the two town centres and maintain the historical environment;
- Reduce traffic in Warwick and Leamington Spa town centres and improve road safety

The group highlighted that the strategy must be deliverable and viable and has a commitment from all key groups to ensure its success.

Stakeholder Workshop 1

Stakeholder identified local transport issues and problems

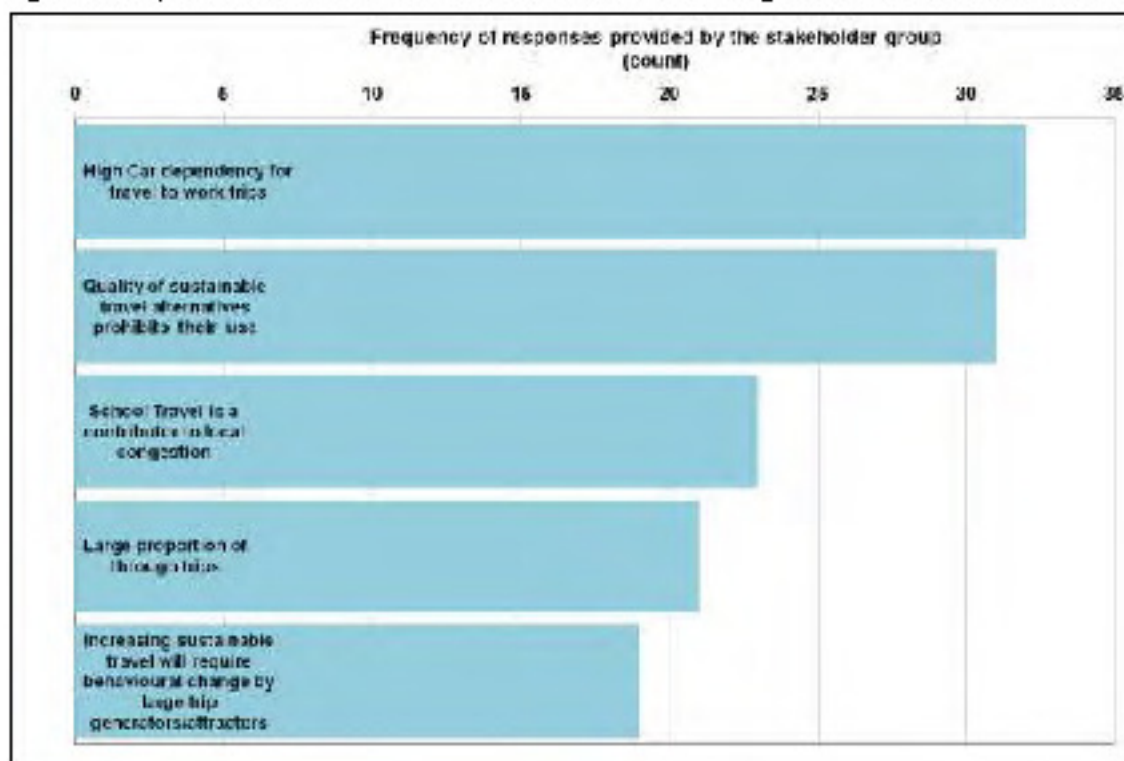
The stakeholder group was asked to identify local transport issues and problems within Warwick and Leamington Spa. The responses are summarised below:

- Impact of transport on health, air quality and the historic and natural environment;
- Issues with the transport network at all times of the day, not just peak hours. Through traffic is one of the causes of these issues whilst travelling by car remains an attractive option despite the congestion in the area;
- People need to travel further to work due to the availability of affordable housing;
- Sprawling urban development and low housing density has encouraged car dependency and created dispersed communities;
- High proportion of people travelling to work by car needs to be addressed, some of these journeys could be taken by alternative modes of travel;
- Public perception of buses is poor, whilst the quality of the journey is low due to lack of information and poor passenger facilities and infrastructure for buses;
- Culture change within organisations required to encourage travel by sustainable modes; and
- Lack of joined-up thinking / integrated approach to transport.

Priority transport issues and problems which need addressing

The stakeholder group were presented with the evidence led identified causes, issues and problems which need addressing. The stakeholder group was asked to prioritise those presented. In order of priority the top 5 priorities of the group are presented below. The full results are provided in Appendix D.

Figure 1 - Top 5 Causes, Issues and Problems - Identified during Stakeholder Prioritisation Exercise



Stakeholder Workshop 1

Breakout Session 2 - Solutions

Session 2 invited the stakeholders for their views on the transport interventions and measures which could best address the causes and issues identified.

Stakeholder views on appropriate transport interventions and measures

Each of the stakeholder groups identified a range of solutions during the discussions; these are presented in the table below.

Financial	Organisational and operational	Infrastructure
Staff car parking levy	Transport strategy with large employers (WCC, Warwick Hospital, business parks), including car sharing, car parking policy	Improve the strategic network to make it easier for people to route around the town
Customer car parking levy at retail parks	Low emission zones	Reducing / constraining highway capacity to make it more difficult for through traffic to get through the town
Road user charging for through traffic and toll bridges, with targeted exemptions	Commuter car sharing	Park and Stride for schools
	Declassify roads	Park and Ride (needs to include bus priority measures and reduced car parking)
Car parking charges and parking supply	Prioritising pedestrians/cyclist at crossings	Improving bus stop infrastructure (information, waiting facilities)
	Slower speeds (20mph zones)	Improve the public realm / shared space
Incentives to use alternative modes of transport (discounts)	Direct bus service routes (reducing need for interchange)	Cycle information, infrastructure and training
	Cycle proficiency in school	Cycle routes
A package of measures – there is not one solution		

Identified key considerations for demand management measures

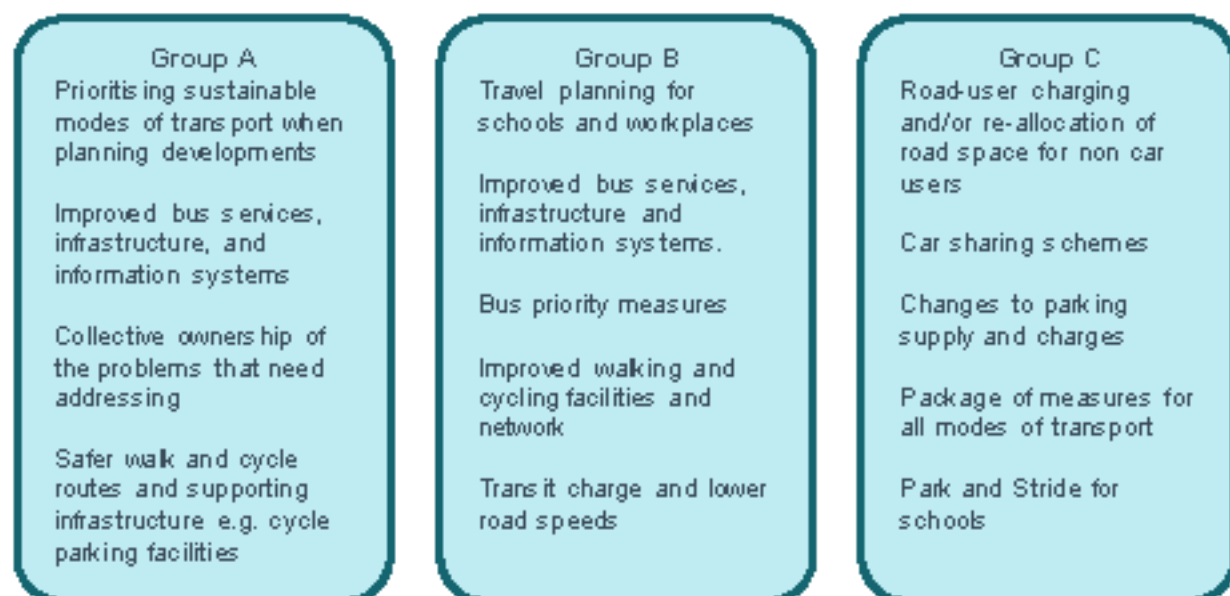
The group were asked to identify considerations for the interventions identified. The group identified the need to balance economic viability of the towns and relieving congestion as the key consideration for the emerging strategy. Further considerations were discussed, these are outlined below.

- There must realistic alternatives to the car in place / need carrots before sticks;
- A need to change travel behaviours from high car use, charging for car use is one way of doing this;
- Current car parking provision encourages more short distance car journeys;
- Any interventions should not impact on the vibrant evening economy in Warwick;
- Since recent WCC car parking charges in Leamington Spa there has been a gradual shift towards parking out of town; and
- Good examples from elsewhere of retail and entertainment sector giving discounts for using alternative modes of transport.

Stakeholder priorities: solutions to the identified problems

In order to inform the next phase of the strategy development, the stakeholder groups were asked to identify 5 priority solutions that they thought would best achieve a measurable modal shift towards sustainable and active travel modes in Warwick and Leamington Spa. These are summarised below.

Stakeholder Workshop 1



Key Conclusions

The purpose of the workshop was to understand stakeholder aspirations for the Warwick and Leamington Spa transport strategy and more specifically gather stakeholder views the issues and problems with the transport network and the causes of these. The final aim of the workshop was to discuss potential solutions to the identified problems.

Collectively the group identified the following as the most important issues to be addressed in Warwick and Leamington Spa:

- Tackling the travel demand challenges associated with high local car dependency;
- Enhancing quality of modal alternatives to the car
- Reduction of through trips;
- Mitigating the effects of school travel on the network; and
- Encouraging sustainable behaviours amongst large organisations.

Stakeholders further conveyed that the transport strategy for the two towns should:

- Not compromise their local economies or be harmful to the cultural and built environments;
- Demonstrate collaborative responsibility for how issues are addressed (joined up thinking); and
- Exploit the role of active travel/sustainable transport options in addressing local public health and environmental issues (noise and vibration/air quality).

The stakeholder group discussed a wider range of potential solutions to the identified problems, key messages from this exercise included:

- Stakeholder support for a broad range of travel demand management measures to be included in the final strategy proposed;
- Recognition that a step change in approach is required to adequately address Warwick and Leamington's existing and future transport challenges; and
- The strategy needs to represent a balanced approach ensuring that where harder travel demand measures (sticks) are preceded with upfront investment in good quality transport alternatives.

Stakeholder Workshop 1

Appendix A – Agenda

Leamington and Warwick Transport Strategy

Problems and Issues Workshop

Tuesday 13th May 2014 – 10:30-14:00

Hill Close Gardens, Bread and Meat Close, Warwick, CV34 6HF

Time	Agenda Item	Presenter (s)
09:30	Registration and Arrival	
10:00	Workshop Aims and Objectives/Workshop Rules	Adrian Hart/Adam Dent
10:10	Warm up: Briefing on Emerging Evidence Base	Neil MacDonald
10:45	Q&A Session	
11:00	Introduction to Breakout Sessions	Adam Dent
11:15	Break	
11:30	Breakout Session - Part A (Problems, Issues and Causes)	
12:15	Breakout Session - Part B (Scoping Solution)	
12:45	Session wrap up and next steps	Adrian Hart
13:00	Lunch and Networking	
14:00	Close	

Stakeholder Workshop 1

Appendix B - Attendees

Warwick & Leamington Spa Transport Strategy – Stakeholder Workshop
13th May 2014 from 9.30a.m at Hill Close Gardens, Warwick

Confirmed attendees

Name	Company
Philip Moore	Warwicks hire Police
Mike Digger	West Mercia Police
Mark Reeve	Warwick Independent Schools
Nicki Curwood	Warwick Town Centre Manager
Laura Kelly	National Grid
Rob Walker	National Grid
Louisa Lodge	Jaguar Land Rover
Gary Stanton	Warwicks hire College
Abbey Morris	Warwick Hospital
Abbey's colleague	Warwick Hospital
Dennis Crips	Resident
James Mackay	Warwick Society
Archie Pitts	Leamington Society
R Ashworth	Leamington Society
Nicola Wright	WCC – Public Health
Claire Jagers	WCC – Public Health
Grahame Helm	WDC
Susan Smith	WDC
Neil MacDonald	Atkins
Peter Blackley	Atkins
Adrian Taylor	Atkins
Gery	Royal Priors
Steve Burd	Stagecoach
Nick Small	Stagecoach
Margaret Smith	WCC
Adrian Hart	WCC
Susan Butcher	Warwick Chamber of Trade
Adam Dent	Facilitator
Yvonne Gilligan	Sustrans
Edward Healey	Sustrans
Chris Begg	Cydeways
David Butler	WDC Business Manager, Town Centres
Thomas Painter	Chiltern Railways
Cllr John Holland	
Rebecca Mushing	Wright Hassall, Solicitors
*Thelma Foulston	Volvo

Stakeholder Workshop 1

Appendix C – Stakeholder Group Presentation

Stakeholder Workshop 1

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Warwick and Leamington Transport Strategy

Stakeholder Workshop

Introduction to Problems and Issues

Neil MacDonald

13th May 2014

Plan Design Enable

adire

Stakeholder Workshop 1

Presentation Outline

- Study Context
- Issues and Problems Evidence Base
- Summary of Issues

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Stakeholder Workshop 1

Study

Context

SNIX

- Delivery of sustainable economic growth

- Supporting successful sustainable housing development

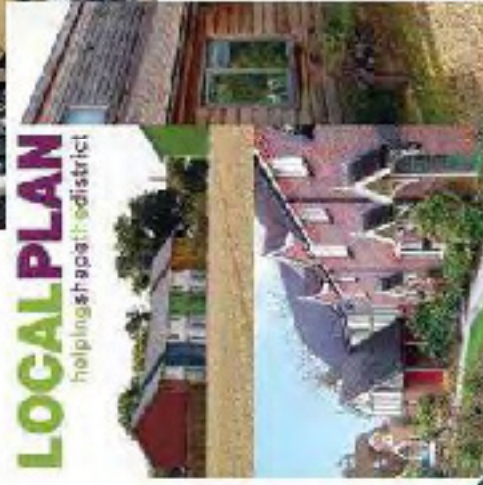
- Improving social, health and well being

- Encouraging sustainable transport behaviours



A SEP for the future and for bringing manufacturing home

Business Development Team
2nd March 2014



Stakeholder Workshop 1

Study Context

An 'Alternative' Approach

Focussed strategy objectives,
outcomes and impacts

Understanding causes of these issues and
problems

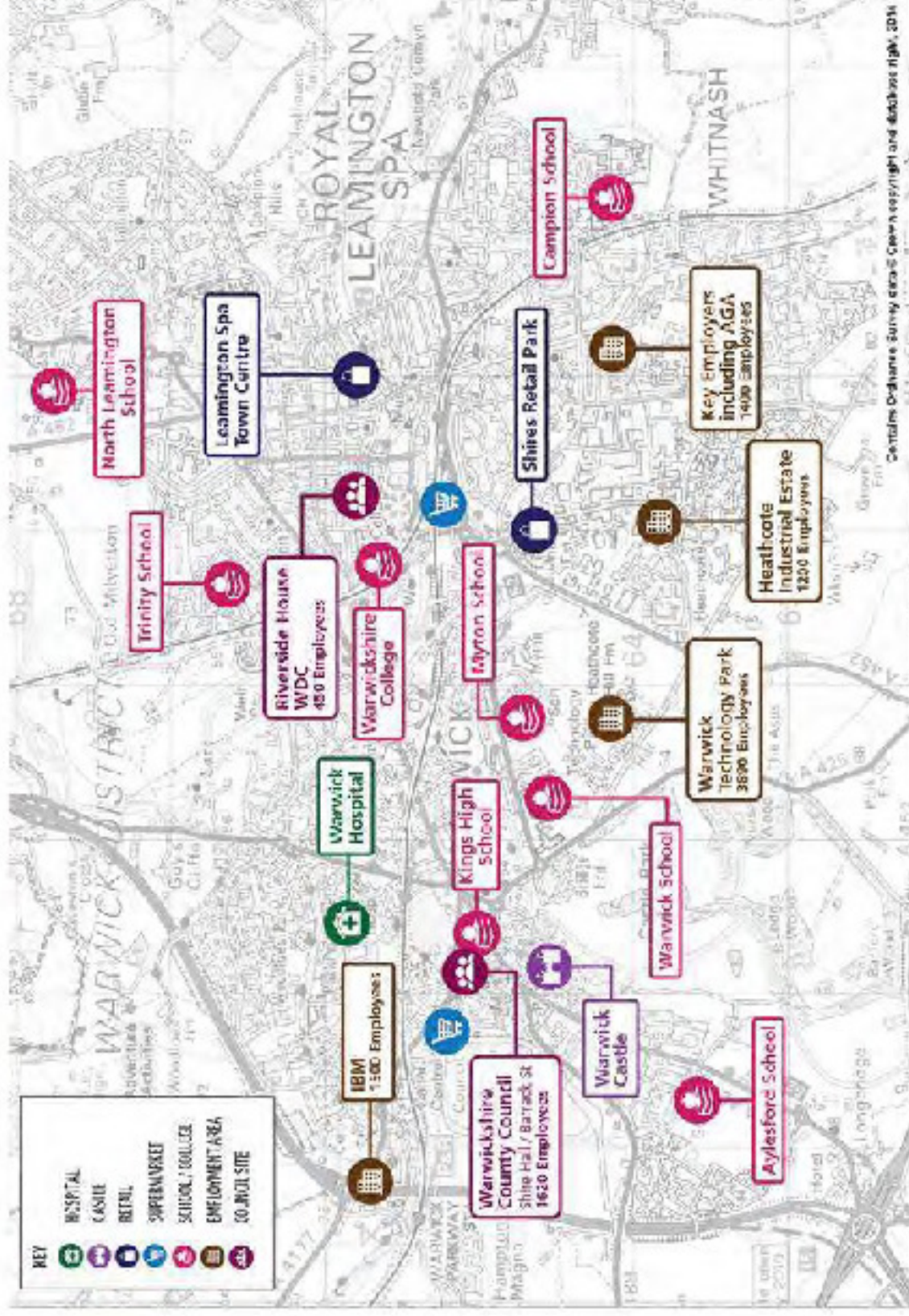
Understanding of network issues and problems

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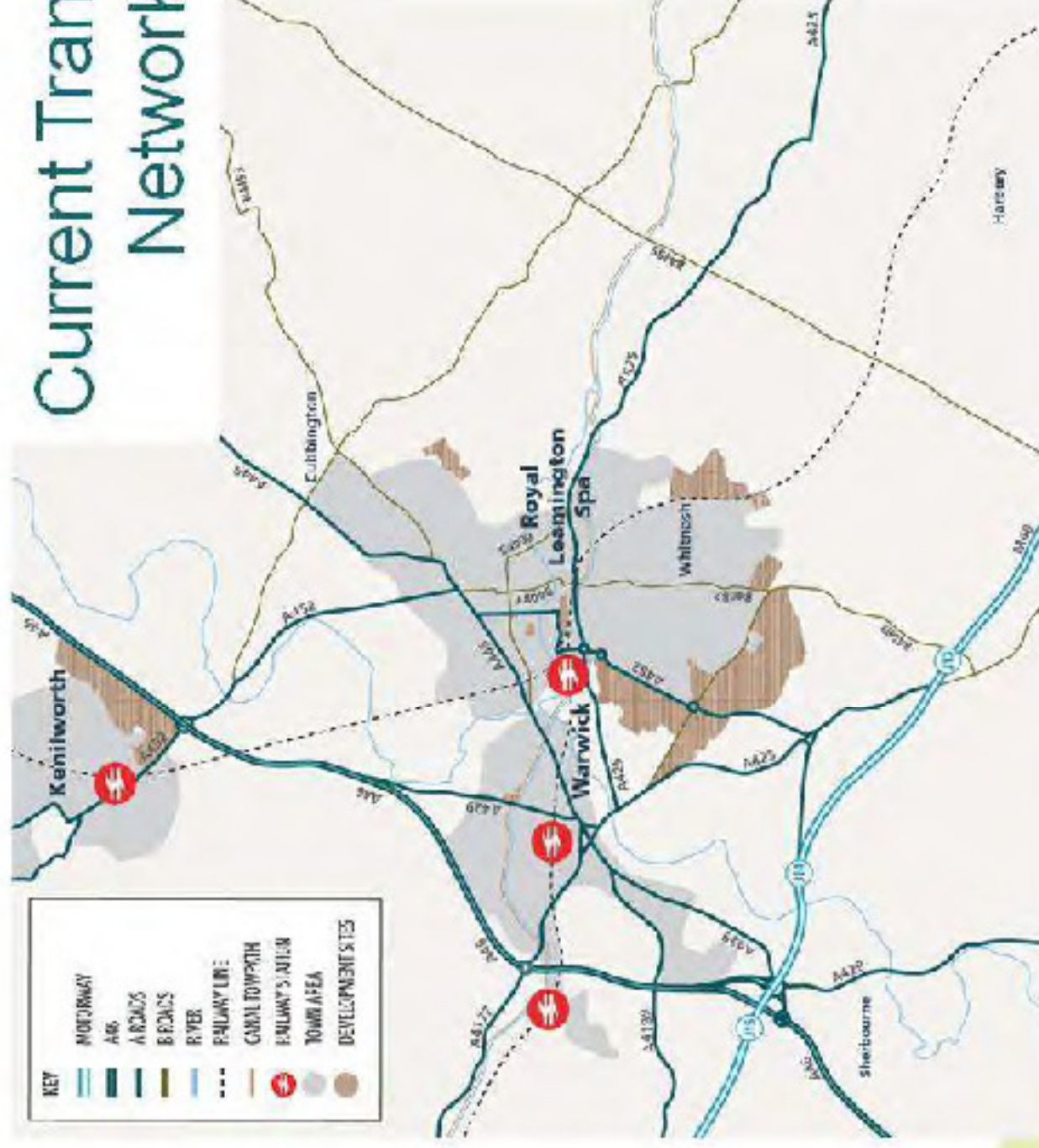
Stakeholder Workshop 1

The Study Area

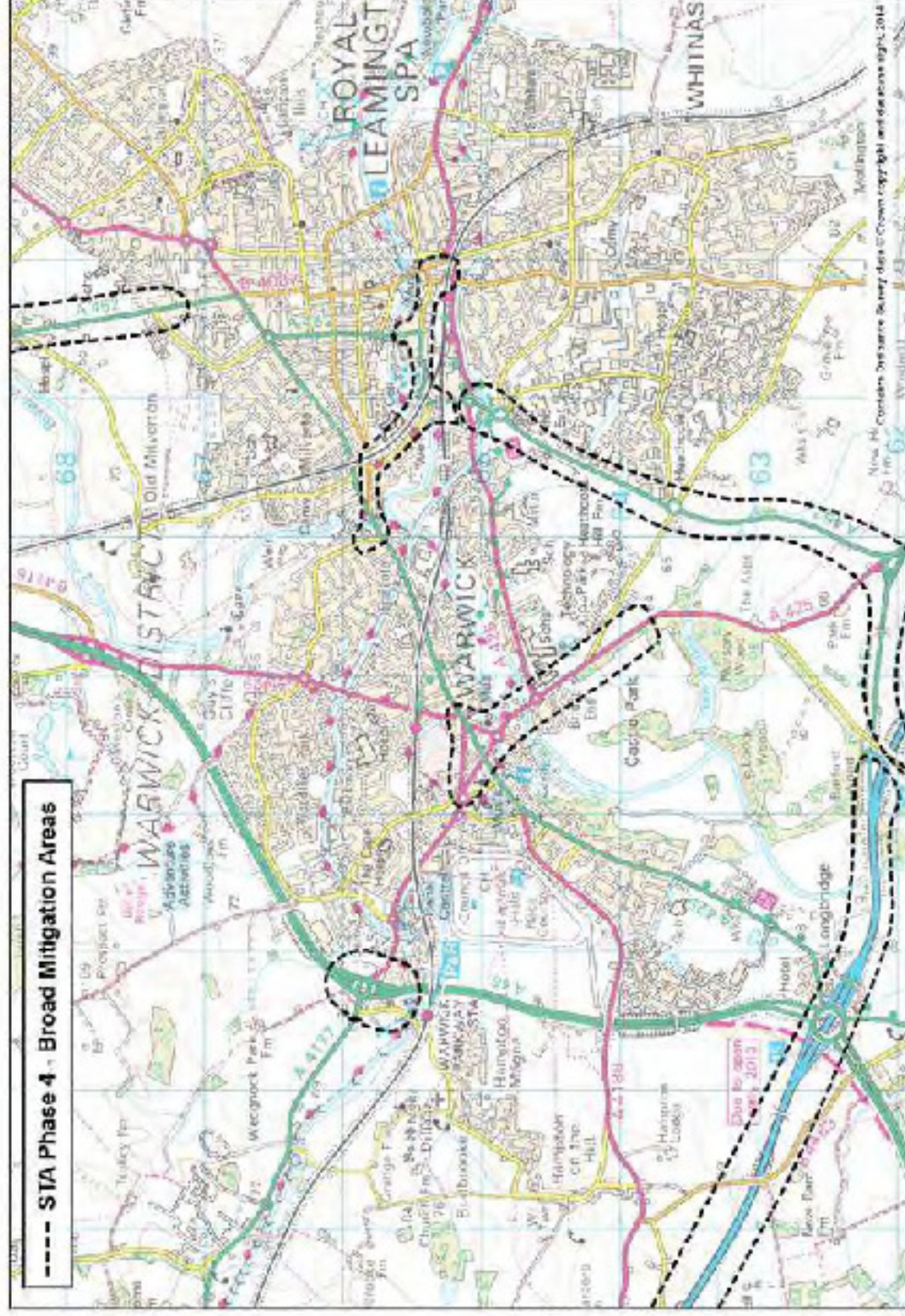


Stakeholder Workshop 1

Current Transport Network



Stakeholder Workshop 1



Stakeholder Workshop 1

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Key Issue 1a – Wider Socio economic drivers of demand (Existing)

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Well educated population – 16% with 'no qualifications' at all; 38% in senior roles



Better than national average health – 84% in very good/good health



Higher than regional average earnings (27.4k) and productivity (Indexed GVA per head of 90.6 vs UK of 100)



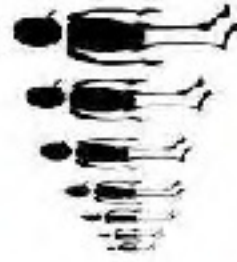
Above national average car ownership – 81% of households have 1 car or more

Stakeholder Workshop 1

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Key Issue 1b – Wider Socio economic drivers of demand (Future)

ATKINS



Population Growth – A projected 17% increase over the next 15 years (51% of increase from >65yrs population group)



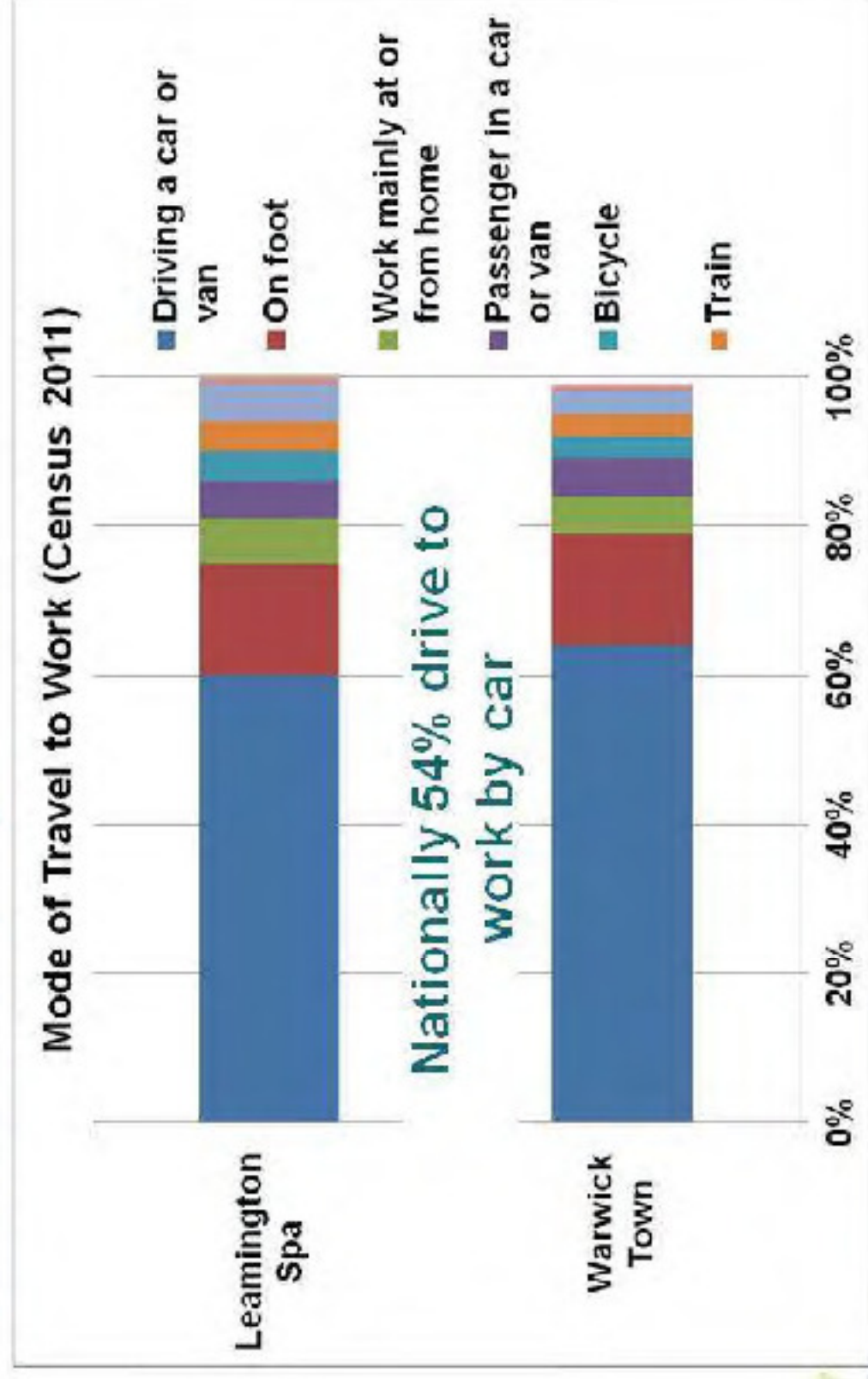
Housing Growth – 13,000 new houses to be built between 2011 and 2029



Jobs Growth –66Ha of employment between 2011 and 2029 (c10,000 new jobs)

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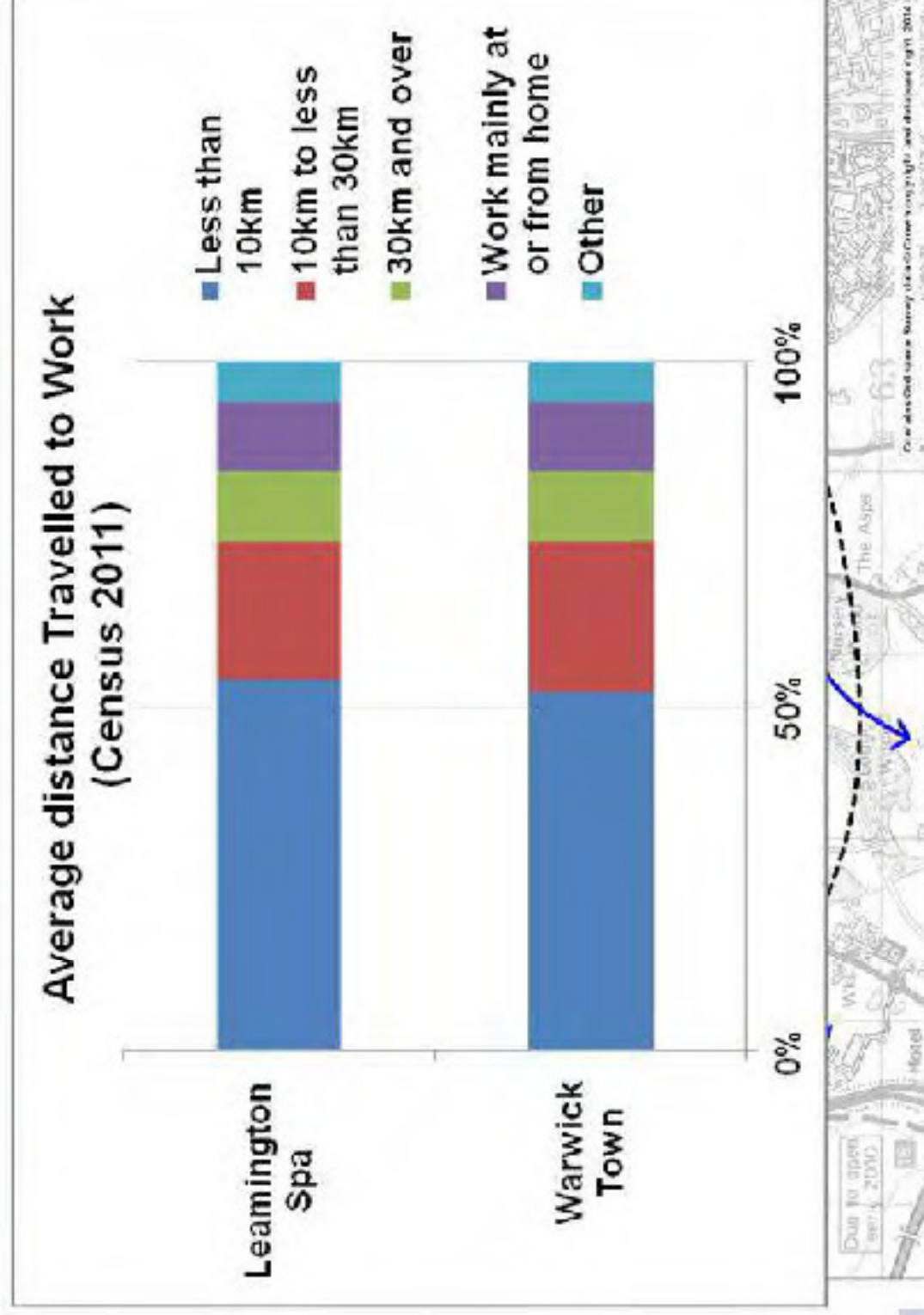
Key Issue 2 – High car dependency for travel to work trips



Stakeholder Workshop 1

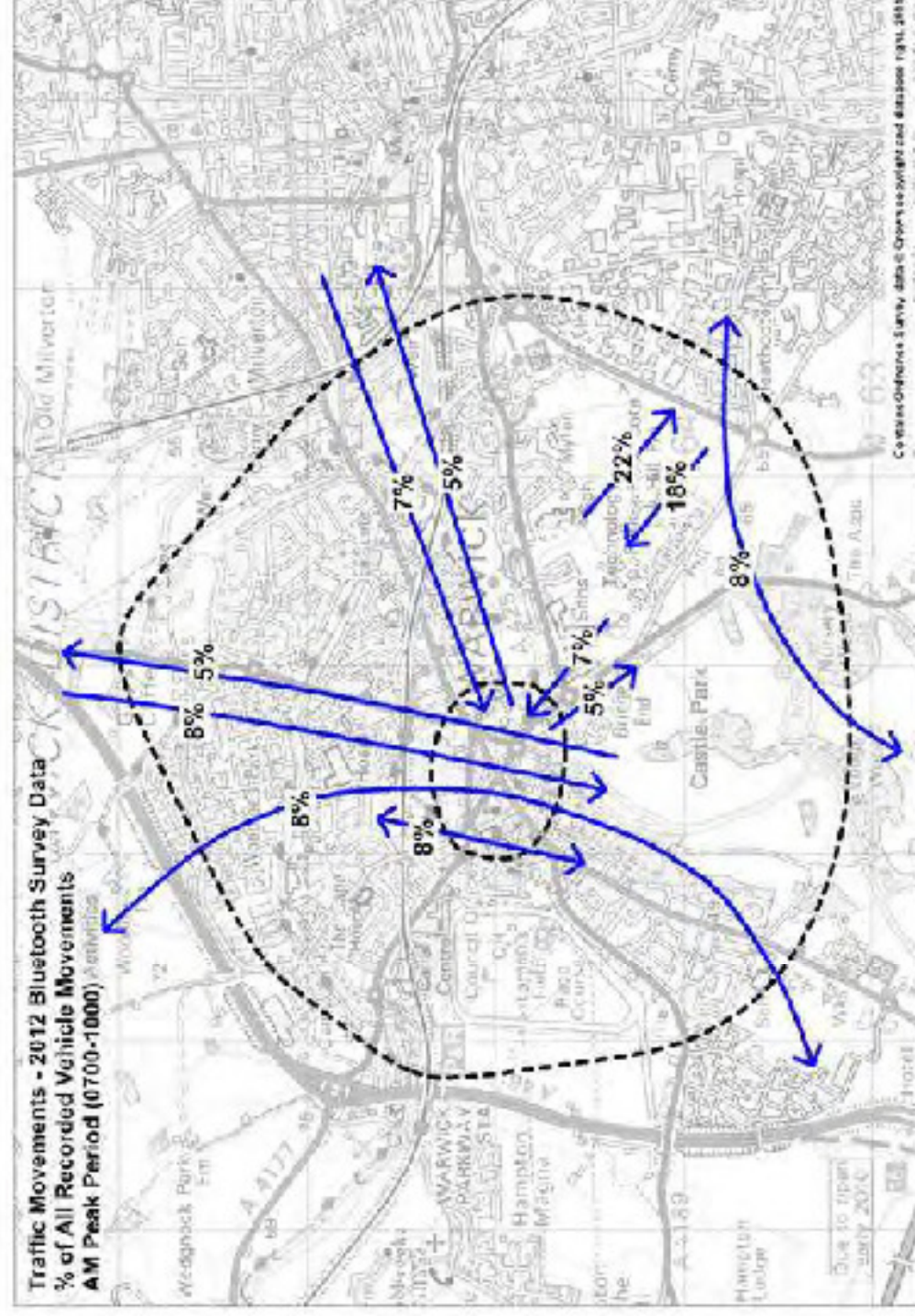
Key Issue 3 – High proportion of internal and short distance trips

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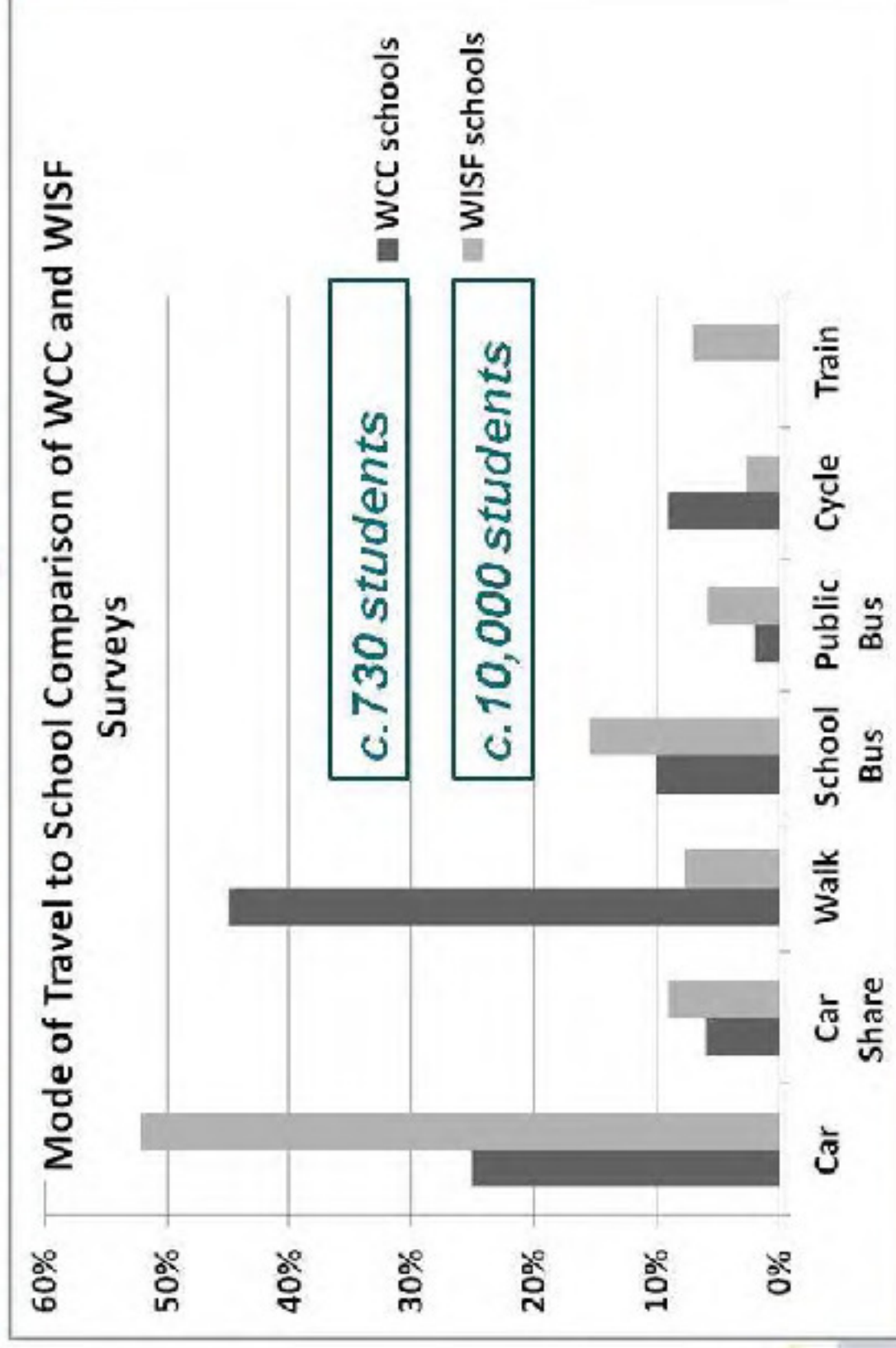
Key Issue 4 – Large proportion of through trips



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Key Issue 5 – School Travel is a contributor to local congestion

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Stakeholder Workshop 1

Key Issue 5 – School Travel is a contributor to local congestion

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Road	Term time	Holiday	Difference	%Difference
Banbury Rd	1405	715	690	49%
Birmingham Rd	2124	1914	210	10%
Coventry Rd	1842	1541	301	16%
Emscote Rd	2571	2082	489	19%
Hampton Rd	892	511	381	43%
Heathcote Ln	1176	996	180	15%
Myton Rd	946	625	321	34%
Stratford Rd	867	723	144	17%
Total	11823	9107	2716	23%

Stakeholder Workshop 1

Key Issue 6 – Quality of Sustainable Travel Alternatives prohibits their use

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