Borehamwood and Elstree Urban Transport Plan

Prepared by: .....
Simon Willison
Principal Consultant

Mark Artis
Senior Consultant

Checked by: .....
John Alderman
Associate Director

Approved by: .....
Ian Burrows
Regional Director

Borehamwood and Elstree Urban Transport Plan

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AECOM House, 63-77 Victoria Street, St Albans, Hertfordshire, AL1 3ER
Telephone: 01727 535000 Website: http://www.aecom.com

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Executive Summary

Urban Transport Plans are produced by the County Council to set out a framework to focus transport improvements within a specific geographical area for the next 15 to 20 years. They are daughter documents of County Council's Local Transport Plan which sets out the transport priorities for the whole of Hertfordshire. The aim of an Urban Transport Plan is to provide a clear definitive list of the transport issues for each area and a present potential solutions and improvements to address the most critical issues.

This document presents the consultation draft of the Urban Transport Plan for Borehamwood and Elstree, incorporating Well End. Once it is finalised and adopted, this Urban Transport Plan will replace the 2007 Borehamwood and Elstree Urban Transport Plan.

Being one of the largest towns within Hertsmere, Borehamwood, along with adjoining Well End area, has been identified as a location for growth and improvement, and transport will make an important contribution towards enabling people to access local job opportunities and amenities.

Elstree is more rural in character but has close associations with Borehamwood, both geographically and in other aspects including economically and in terms of transport, with Elstree and Borehamwood railway station being situated on the western side of Borehamwood being a vital hub for Borehamwood, Elstree and Well End as a whole, as well as the surrounding rural area.

Transport issues have been identified and have the potential to act as obstacles to achieving the objectives set out in the Urban Transport Plan, as well as the plan and policies of other key documents including Hertfordshire County Council's Local Transport Plan and Hertsmere Borough Council's Revised Core Strategy. If the most critical issues are not better understood and addressed, existing transport conditions of concern such as traffic congestion could deteriorate further. Furthermore, development growth ambitions which could contribute to the local economy by creating new jobs and new homes, may be disrupted.

Even issues which in the present day may be regarded as being comparatively insignificant and quite localised in nature could become of increasing concern and potentially a burden on people's lives in the future. Addressing important locally-specific transport issues through the Urban Transport Plan should therefore make an important contribution towards the successful implementation of other plans, thus helping to secure the successful future of the area.

Transport can make a vital contribution to maintaining and improving the quality of life that residents deserve by improving access to key local facilities including shops and employment areas, addressing traffic speed concerns, and promoting more sustainable lifestyles through new and enhanced cycle facilities. The transport issues identified in this Plan, if managed effectively and in a timely manner, can contribute to the growth of strong, cohesive communities and will support the achievement of wider objectives.

This Urban Transport Plan sets out an analysis of the current travel patterns in the area. The private car is recognised as a popular mode of travel, not just for trips into and out of the area over longer distances (where the car may be the only viable option) but also for shorter distance trips, some taking place within the area. Trips on foot or by bicycle, particularly the latter, represent only a small proportion of trips. These local travel behavioural trends have provided a backdrop in the development of a series of proposed scheme packages.

Urban Transport Plan Objectives

The Urban Transport Plan objectives are as follows:

- Support economic growth and local housing development through the delivery of transport improvements
- Improve connectivity between transport modes to allow for greater travel flexibility
- Improve public transport provision and accessibility
- Improve connectivity across Elstree, Borehamwood and Well End through a cohesive and attractive network of walking and cycling facilities
- Promote active travel modes throughout the study area to encourage active and healthy lifestyles
- Encourage reliability of travel through sustainable travel alternatives
- Reduce congestion at key traffic hotspots throughout the study area.

Proposed Schemes

Multiple site visits have been undertaken to observe how the existing transport network operates and provide further confirmation of the key issues that need to be taken into account in the development of proposed interventions within this Urban Transport Plan.

The transport solutions and improvements are set out within the context of Hertfordshire County Council's overall transport objectives set out within Hertfordshire's Local Transport Plan.

The process undertaken to develop the Plan has included the consideration of a long list of transport issues and interventions developed through consultation with local authority officers, members and key stakeholders. An assessment of the schemes against the objectives, Local Transport Plan funding criteria and deliverability criteria has also been undertaken and this has led to the development of a list of schemes recommended for implementation. Schemes have been developed and packaged within the following six themes:

- **Accessibility:** This includes schemes to improve multi-modal accessibility to key sites, services and facilities such as schools, in particular for non-car travel modes such as public transport, walking and cycling. Schemes include packages of measures to improve access to Centennial Park by bicycle, to improve access to Hertswood School by bicycle and to improve links between Maxwell Park and Kenilworth Park.

- **Highways and Congestion:** This includes schemes to improve the operation and efficiency of the local highway network, including tackling well-known bottlenecks. Schemes include improvements to the signalised crossroads junction in Elstree and improvements to the Theobald Street/Shenley Road/Station Road/Allum Lane junction.

- **Cycling:** This includes schemes to enhance and extend cycle infrastructure including cycle parking at key destinations, new/improved cycle routes and new way-finding signage. Schemes include a comprehensive package of measures to improve east-west cycle links across Elstree, Borehamwood and Well End, and new cycle parking facilities at local shopping parades across Borehamwood.

- **Walking:** This includes schemes to improve the pedestrian environment, particularly in areas of interaction with other modes such as motor vehicles. Schemes include footway enhancements on Deacon's Hill Road, footway crossing improvements at the Allum Lane/Deacon's Hill Road mini roundabout, and improvements to footway/cycleway crossing facilities at the Stirling Corner roundabout.

- **Parking Management:** This includes schemes to address the impact of obstructive parking through targeted management schemes, with the aim of improving access for other modes such as walking, cycling and public transport. Schemes include the implementation of Variable Message Signs informing motorists of available parking spaces at town centre car parks on key routes entering Borehamwood.

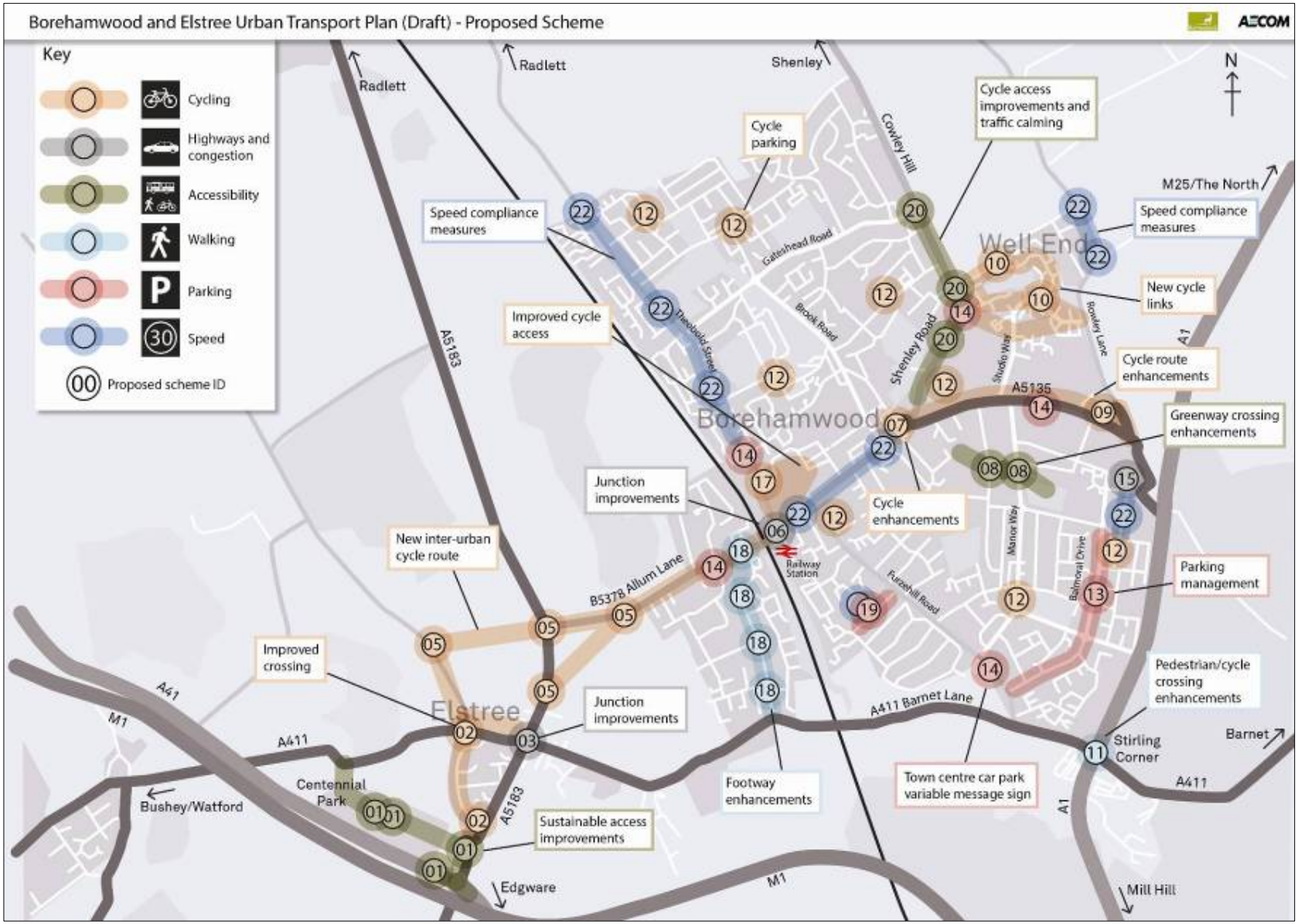
- **Speed Compliance:** This includes schemes to address excessive speeds recorded on local routes with the aim of increasing compliance with speed limits. Schemes include a package of measures on Theobald Street including flat top speed humps at controlled pedestrian crossings, measures to encourage lower speeds on Well End Road and a 20mph speed limit zone on Shenley Road within Borehamwood Town Centre.

A Route User Hierarchy has also been developed as part of this Urban Transport Plan which seeks to identify the priority that should be given to the different categories of road user (i.e. pedestrians, cyclists, mobility impaired, public transport, car and HGV) on different parts of the network. It has been designed to enable the transport interventions developed as part of this Urban Transport Plan to be seen in terms of the strategic priorities for the transport network. It is also used to check that interventions are targeted at routes where they are most appropriate and give a clear indication of where a change in route hierarchy will occur as a result of proposed schemes.

Next Steps

This Urban Transport Plan recommends schemes to be taken forward over a five year timeframe. The implementation plan included within this document sets out the schemes identified for implementation over the short, medium and long term and the indicative cost of each scheme.

The schemes identified for implementation over the short term are lower cost and easily implemented; those recommended for funding over the medium term will require further design feasibility and consultation and those schemes identified for funding over the long term will require additional funding.


Borehamwood and Elstree Urban Transport Plan (Draft) - Proposed Scheme
AECOM
Key
Cycling
Highways and congestion
Accessibility
Walking
Parking
Speed
Proposed scheme ID
N
Radlett
Radlett
Shenley
M25/The North
Cycle access improvements and traffic calming
Cycle parking
Cowley Hill
Speed compliance measures
Speed compliance measures
Well End
New cycle links
Gatehead Road
Improved cycle access
Theobald Street
Brook Road
Shenley Road
Studio Way
Rowley Lane
A1
Cycle route enhancements
A5183
A5135
Borehamwood
Greenway crossing enhancements
Junction improvements
Cycle enhancements
Manor Way
Balmoral Drive
New inter-urban cycle route
Railway Station
Furzehill Road
Parking management
B5378 Allum Lane
Improved crossing
Pedestrian/cycle crossing enhancements
A41
M1
Elstree
Junction improvements
A411 Barnet Lane
Stirling Corner
Barnet
A411
Centennial Park
Bushey/Watford
Footway enhancements
Town centre car park variable message sign
A5183
Sustainable access improvements
A1
Edgware
M1
Mill Hill

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Glossary of Terms

AAP	Area Action Plan
ACPO	Association of Chief Police Officers
AQMA	Air Quality Management Area
CIL	Community Infrastructure Levy
CPZ	Controlled Parking Zone
DCLG	Department for Communities and Local Government
DDA	Disibility Discrimination Act
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
DPD	Development Plan Document
EBTC	Elstree and Borehamwood Town Council
FPN	Fixed Penalty Notice
HA	Highways Agency
HBC	Hertsmere Borough Council
HCC	Hertfordshire County Council
HGV	Heavy Goods Vehicle
IMD	Indices of Multiple Deprivation
LEZ	Low Emission Zone
LTP	Local Transport Plan
LSOA	Lower-Layer Super Output Area
LTN	Local Transport Note
NPPF	National Planning Policy Framework
OS	Ordnance Survey
RUH	Router User Hierarchy
S106	Section 106 Agreement
SPD	Supplementary Planning Document
TfL	Transport for London
TRADS	Traffic Information Database System
TRO	Traffic Regulation Order
TSM	Traffic Signs Manual
TSRGD	The Traffic Signs and General Regulations
UTP	Urban Transport Plan
VMS	Variable Message Sign

Introduction

1 Introduction

1.1 Background

Hertfordshire County Council (HCC), in partnership with Hertsmere Borough Council (HBC), has appointed AECOM to undertake the development of the Urban Transport Plan (UTP) for Borehamwood, Elstree and Well End.

UTPs are daughter documents to Hertfordshire's Local Transport Plan (LTP) which sets out the general transport policy and strategy for the County Council. UTPs are spatial plans, setting out how LTP policies and strategies will be delivered in specific urban areas.

The purpose of the Borehamwood, Elstree and Well End UTP is to develop a range of schemes and interventions, across all modes of transport, to address existing problems across the area. This process has taken into account the problems and schemes that were identified in the 2007 Borehamwood and Elstree UTP, for which this UTP will eventually supersede, and consider the development growth proposals that are emerging in the area which are being progressed by HBC, for which transport forms a major component.

1.2 Development of the Urban Transport Plan

The UTP process aims to be outcomes-driven, therefore it is vital that all issues are identified as early as possible, and the process of identifying issues, understanding their context and resonance, is transparent. This approach is essential in ensuring the remedial measures that will be developed in subsequent stages of the UTP process address the most critical issues, are deliverable and affordable, and offer benefits to local people and users of the transport network in Borehamwood, Elstree and Well End.

The development of the UTP has been closely aligned with HCC's Urban Transport Plan Guidance (December 2011). As such, the programme for the UTP includes a number of key stages which inform the ongoing development of the plan. These are:

Stage 1

- Data and Policy Review
- Consultation (Officers, Members and Stakeholders)
- Determine priority issues
- Delivery of Stage 1 Report

Stage 2

- Review of transport issues and development of proposed schemes

Stage 3

- Completion of Draft UTP
- Review of UTP

Stage 4

- Public Consultation

Stage 5

- Delivery of Final UTP
- Adoption of UTP

1.3 Structure of the UTP

Chapter 2 provides a background to the UTP study area, including general observations of current issues and relevant statistics regarding existing travel patterns and behaviour

Chapter 3 reviews relevant policy documents which provide a framework within which the UTP has been prepared.

Chapter 4 outlines the critical issues which have been identified in the UTP study area.

Chapter 5 presents a Route User Hierarchy for the UTP study area.

Chapter 6 provides details regarding the location of future development, and potential impacts on the local transport network.

Chapter 7 contains local targets and objectives relevant to the UTP study area. In addition, a key strategy statement is provided.

Chapter 8 outlines the scheme development and selection process, the purpose of packaging of schemes into the themes.

Chapter 9 provides a proposed timeline for the delivery of the proposed schemes, indicative scheme costs and potential and likely funding sources.

Chapter 10 provides a summary of the method for monitoring the implementation and effectiveness of the UTP over its five-year term.

Appendix A sets out the Scheme Assessment Framework which details the priority score (assessed against LTP and UTP objectives) designated against each of the proposed schemes, and the issues addressed by each scheme.

Appendix B includes the Cycle Study undertaken by Transport Initiatives on behalf of Hertfordshire County Council in 2009.

Appendix C summarises which schemes have been taken forward from the 2009 Cycle Study through the UTP.

Appendix D includes the proformas for all twenty two proposed schemes.

Appendix E includes a log of comments and actions arising from the 6-week public consultation undertaken in early 2013.

Background to the UTP Area

2 Background to the UTP Area

2.1 Borehamwood, Elstree and Well End local area

Borehamwood, Elstree and Well End are located within the administrative borough of Hertsmere, in the southern part of Hertfordshire. Borehamwood is the largest of the three urban areas, and is adjoined with the village of Well End on the north-eastern edge. Elstree, a separate village, is located to the south west of Borehamwood.

Situated on the edge of the Greater London area within the Metropolitan Green Belt, the UTP area is approximately 12 miles from Central London and is located between St Albans, Watford, Edgware, Barnet and Potters Bar.

The A1 runs in a north south direction on the eastern edge of Borehamwood and is connected with the A5135 and the A411. The A5135 runs east / west through Borehamwood and forms a major distributor route. This route connects to the B5378 (Shenley Road) that runs east/west to the A5183, with the A5183 running north/south in between Borehamwood and Elstree and becomes the main road running through Elstree, incorporating the High Street.

The A411 which connects to the A1 in the south east corner of Borehamwood runs in an east-west direction along the southern side of Borehamwood (Barnet Lane) and runs through the northern tip of Elstree.

Running in close proximity to the UTP area is the M1 and M25 Motorways as well as the A41 Watford Bypass.

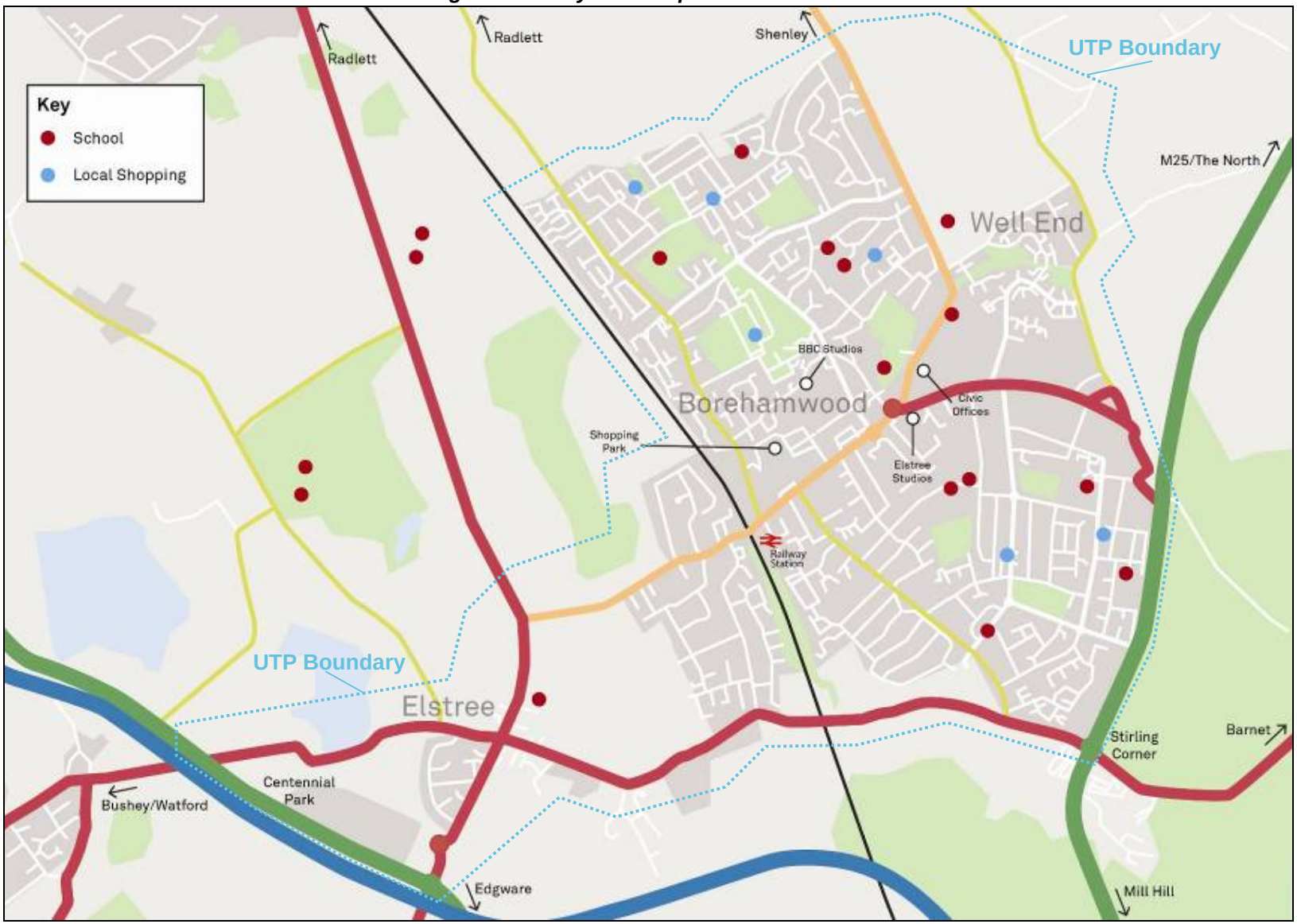
Hertfordshire County Council is the local highway authority for all roads within the UTP area except the A1 trunk road which is maintained by Transport for London (south of the A5135 Rowley Lane junction) and the Highways Agency (the non-London section). The neighbouring London Borough of Barnet is the local highway authority for roads in their area.

The Midland Main Line railway runs through the area, with Elstree and Borehamwood station located on the western side of Borehamwood. The station is served by trains connecting with St Albans, Luton and Bedford in the north, London suburbs including Mill Hill Broadway and West Hampstead, Central London (via St Pancras International, Farringdon and Blackfriars stations) and south London suburbia including Wimbledon and Sutton, as well as other destinations beyond.

The UTP area is served by a range of bus services, with connections to neighbouring towns such as Watford, including some outer London bus services with connections into Edgware and Barnet.

The UTP area is shown in ***Figure 1*** below.

Figure 1: Study area map



There are several known transport issues which emerged from the 2007 Borehamwood and Elstree Urban Transport Plan which persist today:

- Congestion at Elstree crossroads;
- Congestion at Stirling Corner roundabout;
- Congestion in Borehamwood Town Centre corridor, including the Station Road-Allum Lane-Theobald Street-Shenley Road junction; and
- Parking displacement from Controlled Parking Zone (CPZ).

Since the 2007 UTP was adopted there have been some notable achievements in the local area in terms of transport, most significantly the improvement of the forecourt at Elstree and Borehamwood railway station and implementation of new cycle parking facilities at the station.

Photograph 1: Elstree and Borehamwood station forecourt

Photograph 2: Cycle Parking at Elstree and Borehamwood railway station

Photograph 3: New bus stop facilities at the station

2.2 Elstree and Borehamwood UTP Data Report (2012) (HCC)

A UTP Data Report, prepared by HCC, provides a compendium of statistics regarding current transport use specific to the UTP area. The Data Report contains specific travel to work and mode share information based on local data sources and the 2001 Census, and provides a useful insight into local travel behaviour and trip patterns.

The report provides details of recorded average speeds and congested junctions, mode share for particular journeys (e.g. internal/external, inbound/commuter trips), distribution of season ticket holders, travel plan details and strategic development locations.

This data is invaluable in shaping the UTP by providing evidence to reinforce issues and informing the development of schemes.

Census data source

The most up to date population figures available at the time of writing for Borehamwood and Elstree are from the 2001 Census. Only a limited amount of data is currently available from the 2011 Census. Census data including mode share statistics quoted in this chapter therefore originates from 2001 and it is acknowledged that travel patterns and behaviours may have changed in the last decade.

UTP area Socio-Demographic Profile

Borehamwood has a resident population of 31,616 and in Elstree there is a resident population of 1,643. Elstree & Borehamwood both have young age profiles with 63% and 62% of residents being under the age of 45.

The percentage of residents aged between 45 and 64 in Elstree and in Borehamwood is equal at 22%. The level of over 65s is the same in both Elstree & Borehamwood with 15% of residents being within this age bracket. There are also similarities between the number of residents aged under 17 in Elstree (23%) and Borehamwood (24%).

Index of Multiple Deprivation

The English Indices of Deprivation 2010 use 38 separate indicators, organised into seven ‘domains’ of deprivation which can be combined, using appropriate weights, to calculate the Index of Multiple Deprivation 2010. This is an overall measure of multiple deprivation experienced by people living in an area and is calculated for every Lower Layer Super Output Area (LSOA) in England. The IMD 2010 can be used to rank every LSOA in England according to their relative level of deprivation.

Higher IMD values indicate higher levels of deprivation. Seven domains of deprivation are combined to produce the overall Index of Multiple Deprivation. Each domain contains a number of component indicators.

The Living Environment Deprivation domain measures the quality of individuals' immediate surroundings both inside and outside the home. The indicators fall into two sub-domains: the 'indoors' living environment, which measures the quality of housing, and the 'outdoors' living environment which contains two measures relating to air quality and road traffic accidents. The outdoors living environment has been assessed as it is relevant to transport, as shown in ***Figure 2*** below.

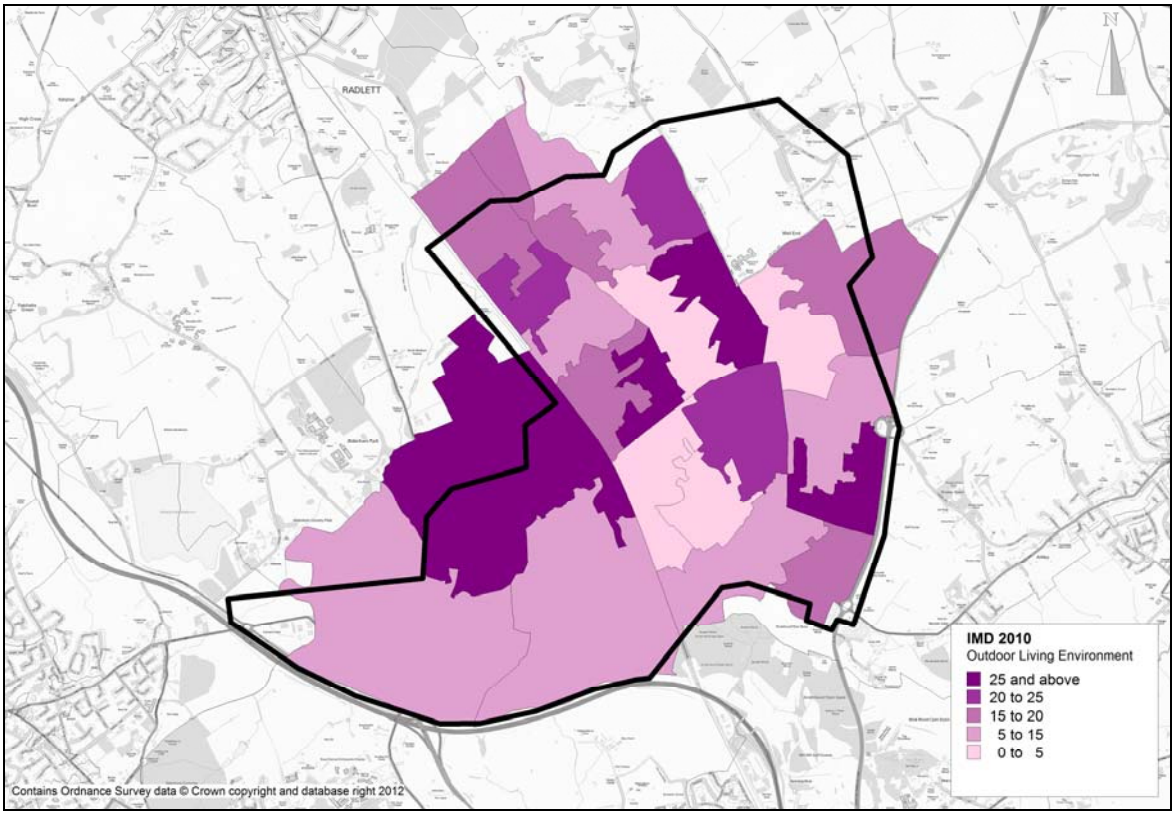


Figure 2: IMD 2010 – Living Environment Deprivation (Sub-Domain – Outdoor Living Environment)

Higher IMD values indicate higher levels of deprivation. ***Figure 2*** shows that there is a contrast between different LSOAs within the UTP area with concentrations of higher Outdoor Living Environment deprivation in some areas clustered around Allum Lane, Shenley Road and Elstree Way which run through Borehamwood, as well as along Shenley Road and Cowley Hill and in areas abutting the A1 on the south eastern side of Borehamwood. These are likely to be a result of higher volumes of traffic which can result in higher concentrations of pollutants and potentially a higher risk to road safety.

Car Ownership

According to the 2001 Census, Elstree has a much higher level of car ownership than Hertfordshire, Borehamwood and England & Wales, with only 15% of Elstree households not having access to a car. This is likely to be due to Elstree's socio-economic make up and its more rural location, with residents more likely to be reliant on using a car to access key services, shops and employment.

Borehamwood on the other hand is a more self-contained town and also has good transport links. This is reflected in the car ownership levels of the town, with 25% of households not owning a car.

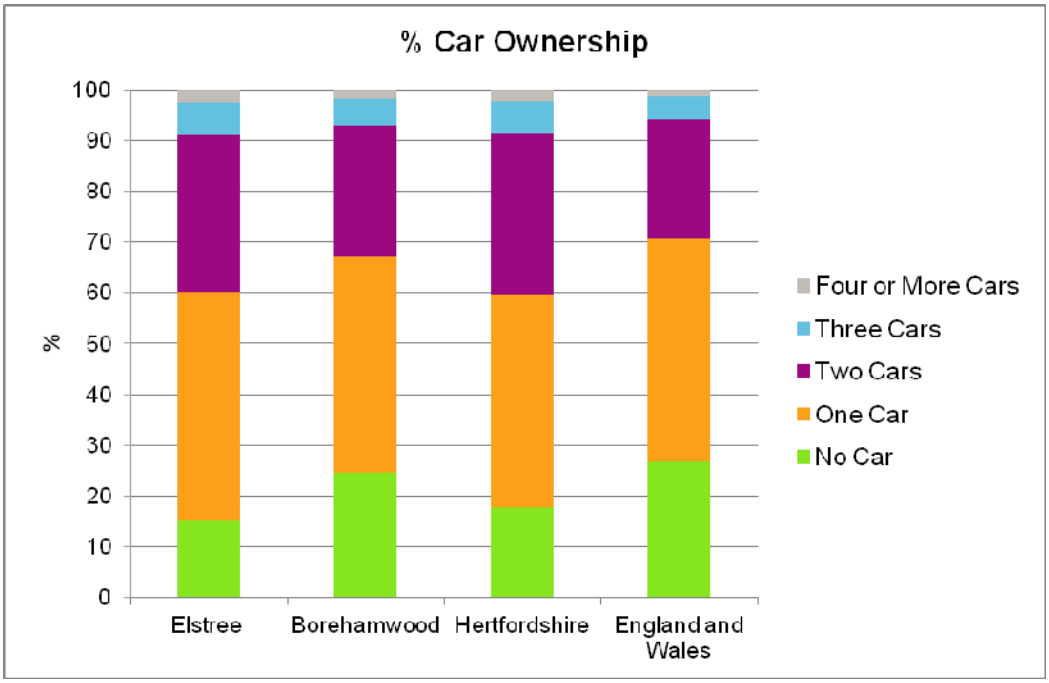


Figure 3: Car Ownership (2001 Census)

The level of car ownership does vary within the study area. Areas with lower car ownership include large sections of Borehamwood Cowley Hill Ward, including the area around Leeming Road. There are some smaller sections of low car ownership in the Brookmeadow area (nearer the town centre) and Hillside Ward (broadly corresponding with the area of mobile homes around Stirling Corner).

Out commuting

The 2001 Census indicated that there were around 16,400 employed residents within Elstree & Borehamwood, with approximately 40% (6,500) living and working within the local area and around 60% (10,000) commuting to workplace locations outside the area.

The 2001 Census indicated that around 38% of employed residents commuted to Greater London, as well as destinations closer by including Barnet (10%). Other external workplace locations account for only a small proportion of trips and include destinations such as Radlett (2.9%), Watford (2.7%) and St Albans (2.1%).

Figure 4 and ***Figure 5*** below show the mode split for local residents who commute out of area. Dependence upon the car is unsurprisingly high, and represents the largest mode share for commuting trips from Borehamwood and from Elstree. Commuting trips by train, to destinations such as Greater London and St Albans also represents a significant proportion for both Borehamwood and Elstree. Trips by bus represents a modest mode share and is likely to attract trips occurring more on an east-west axis (as opposed to the north-south axis of train-based trips), most likely taking in destinations such as Barnet, Watford and Edgware. Walking and cycling have low mode share, however given the distances that are likely to be travelled to access work outside of the UTP area, these low mode shares are not unexpected.

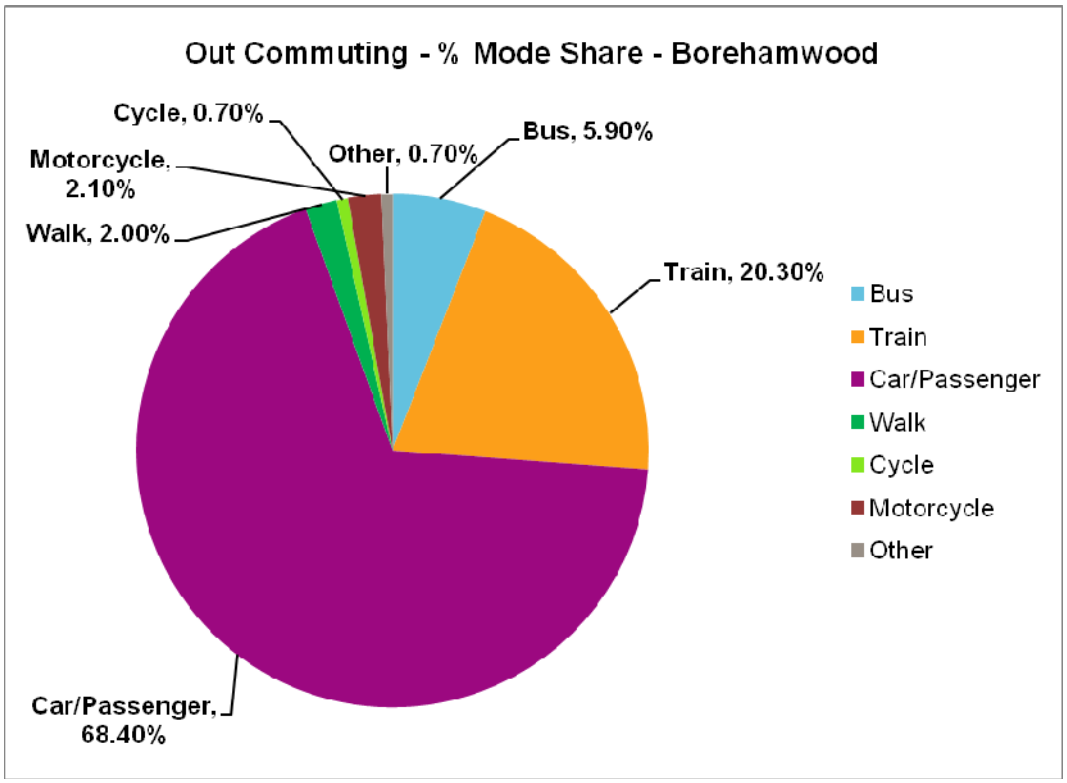


Figure 4: Out Commuting from Borehamwood (2001 Census)

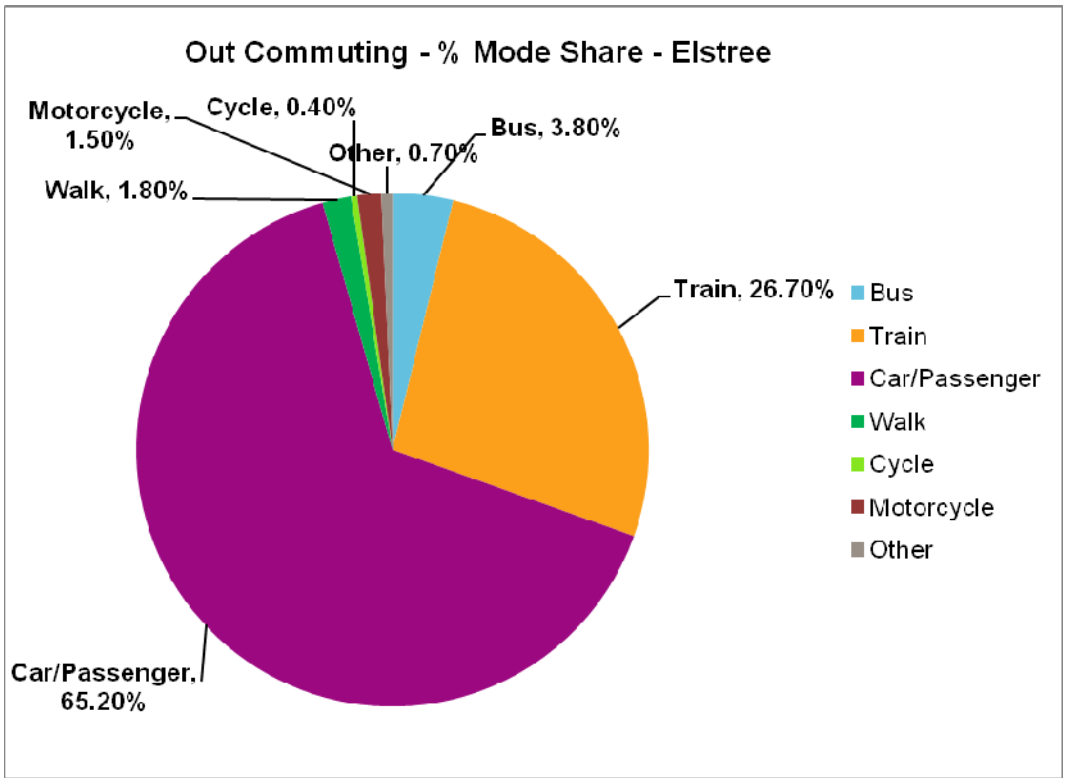


Figure 5: Out Commuting from Elstree (2001 Census)

Figure 6 shows the spatial distribution of journeys to work from the UTP area. The darker colours represent destinations (represented as wards) where there are higher concentrations of trips from the UTP area. This shows that there are some concentrations of trips in the surrounding area although there is not a discernible pattern which corresponds to particular transport routes. The multitude of work place destinations, the majority of which are likely to be accessed most easily by car (especially where there is no direct public transport alternative) presents a challenge in terms of encouraging a shift from the car to more sustainable travel modes.

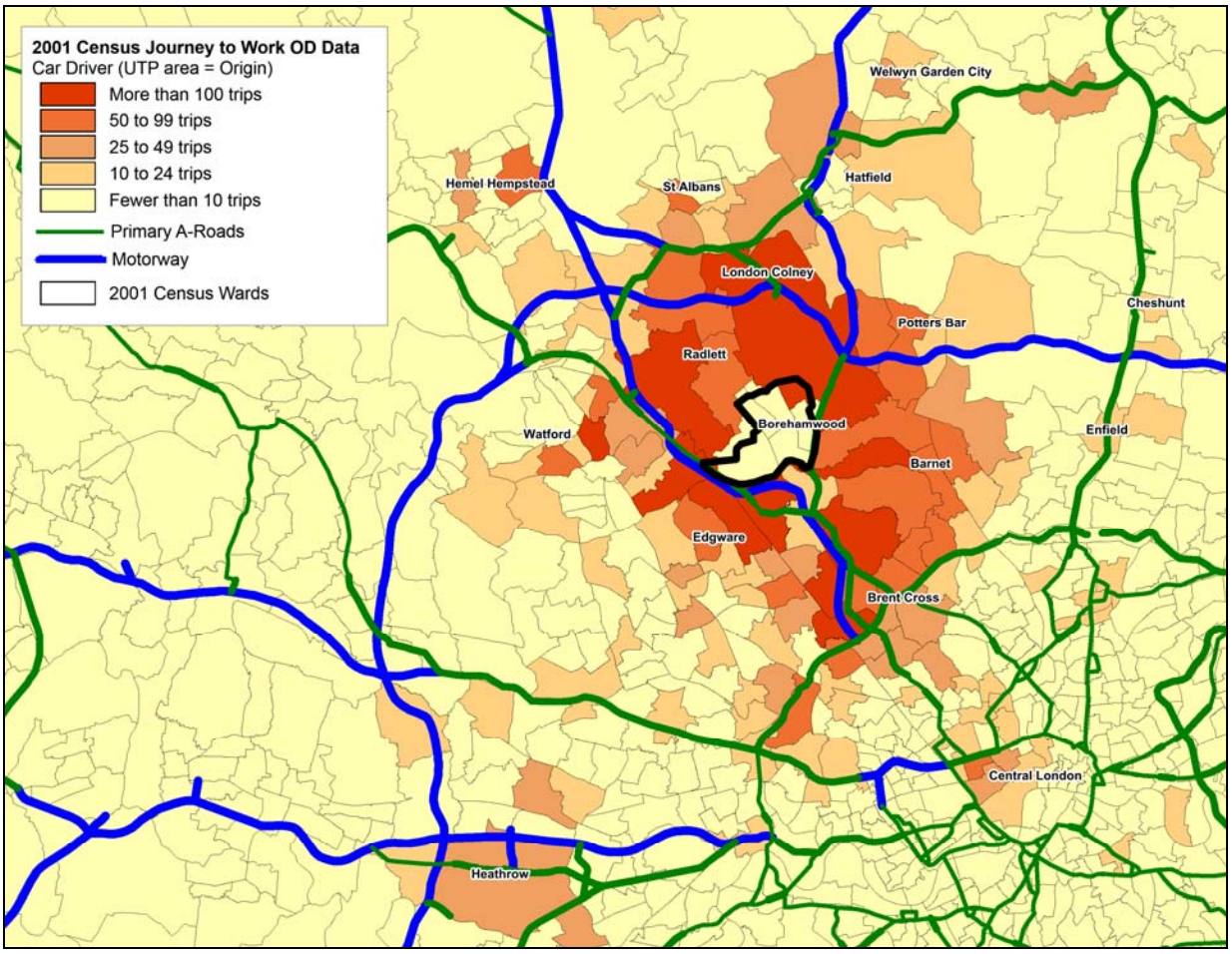


Figure 6: 2001 Census Journeys to Work Car Driver trips – Spatial Distribution (UTP Area = Origin)

In commuting

The 2001 Census indicated that around 17,800 people worked in Borehamwood and Elstree (including residents) with around 11,400 travelling to work in Borehamwood and Elstree from outside.

Other than residents who both live and work in Borehamwood and Elstree (36%), the highest proportion of in-commuters are those travelling from Greater London, making up 27% of the workplace population. Of those Greater London trips, Barnet makes up a large percentage of these at 9%. Other notable origins of in commuters include St Albans (2.7%), Watford (2.7%) and Potters Bar (1.7%). Figure ***Figure 9*** supplements this text and shows the key in commuting origins to Elstree & Borehamwood.

Figure 7 and ***Figure 8*** below show in commuting to the study area is more car dependent than out commuting, with over 85% of trips made by car. The 2001 Census showed that train and bus use for in commuting had a 5-6% mode share in Borehamwood but was lower in Elstree. Walking and in particular cycling represent only a small mode share, however as mentioned in relation to out-commuting, these modes may not make viable alternatives to motorised forms of transport given the distances likely to be travelled.

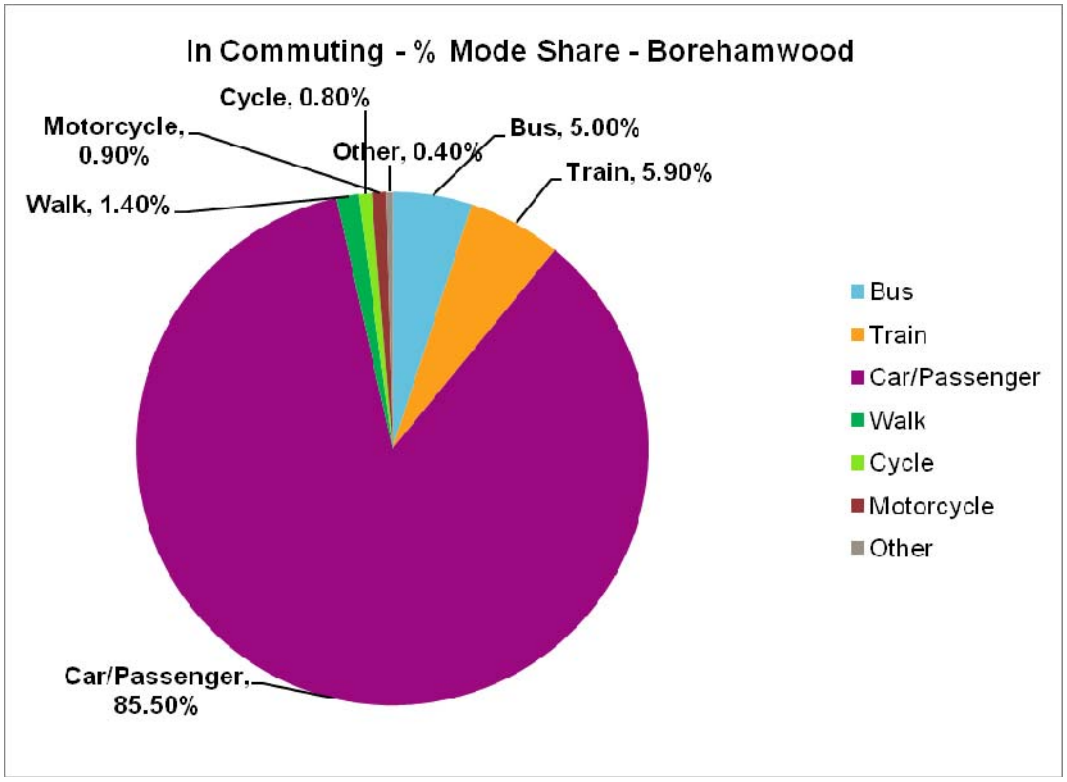


Figure 7: Commuting into Borehamwood (2001 Census)

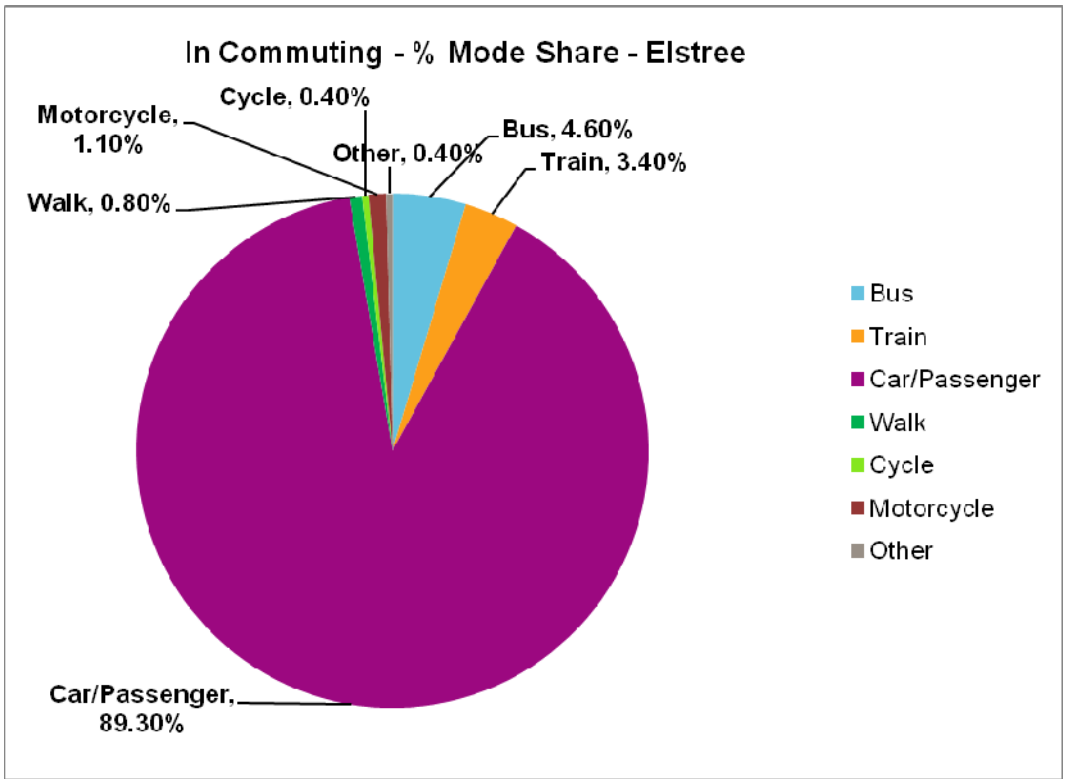


Figure 8: Commuting in Elstree (2001 Census)

Figure 9 below shows the spatial distribution of commuting trips destined for the UTP area which originate from elsewhere. The darker shades indicate higher concentrations of trips from wards. This shows that there are some higher concentrations of trips from areas including Barnet, Shenley, London Colney and Potters Bar however the distribution is quite dispersed. This information shows that the transport network in Borehamwood and Elstree has to manage a mixture of commuting trips which originate from a wide range of locations, and this presents a challenge in terms of focusing efforts to, for example, reduce car dependency and encourage travel by more sustainable modes for in-commuting trips.

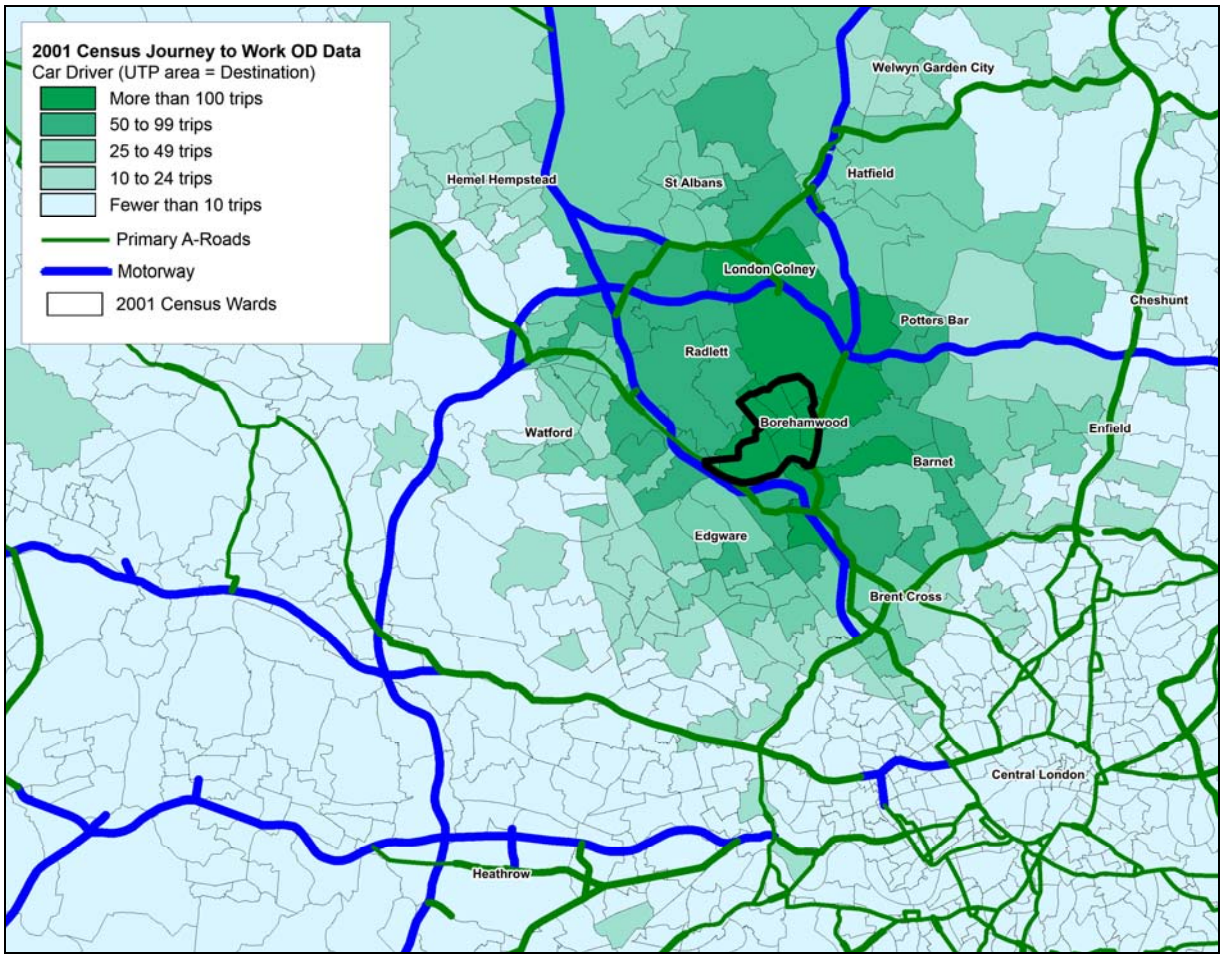


Figure 9: 2001 Census Journeys to Work Car Driver trips – Spatial Distribution (UTP Area = Destination)

Travel to work within the town

The 2001 Census identified that around 40% of employed Borehamwood and Elstree residents also worked within the area. This figure includes home workers and those with no fixed place of work, in addition to those working locally.

Figure 10 shows the mode split of work journeys for those living and working in Elstree and Borehamwood. Approximately 20% walk to work and around 6% use the bus. Cycle use is very low with just over 1% mode share. Car use within the town accounts for the majority share, with 46% of residents travelling to work over relatively short distances by car.

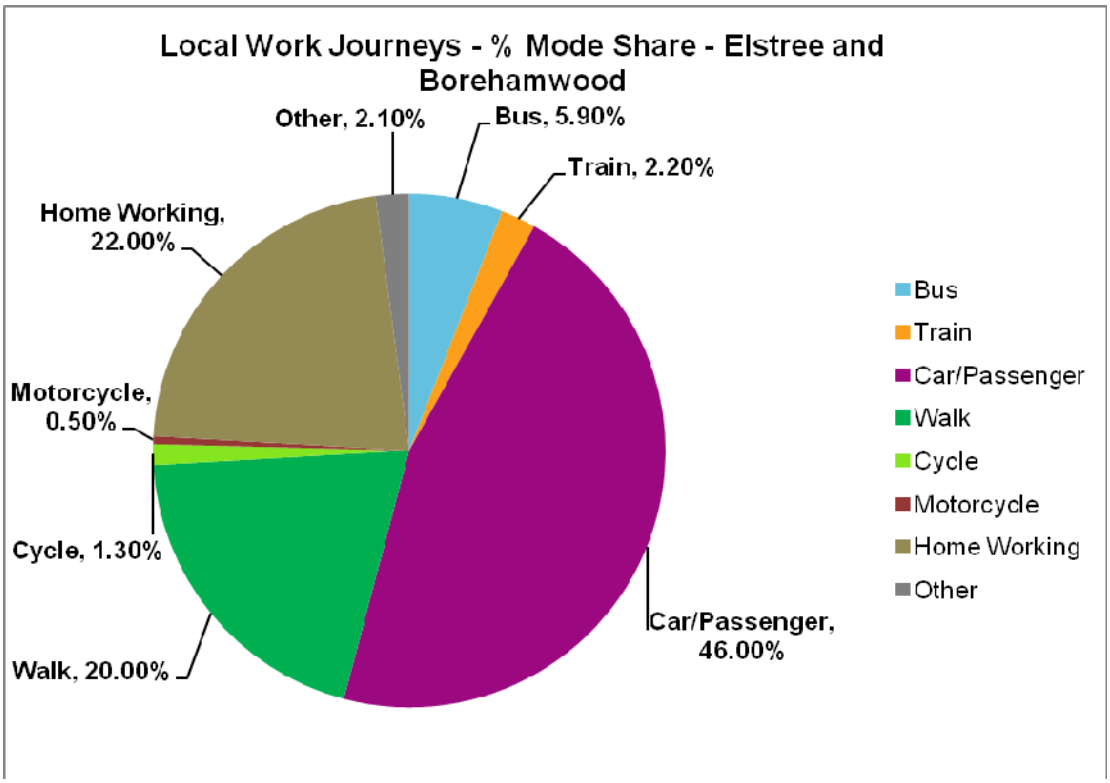


Figure 10: Local work journeys within the UTP area (2001 Census)

Travel to work between the towns

Due to Elstree & Borehamwood being a combined area within the 2001 Census Profile, with Elstree Ward incorporating areas of Borehamwood, it is difficult to isolate trips from Borehamwood to Elstree. However, by narrowing down Elstree to a few output areas, it is possible to analyse the data and broadly distinguish Borehamwood from Elstree and vice versa.

As shown in ***Figure 11*** and ***Figure 12****,* the 2001 Census identified that car/car passenger trips are the most popular mode of travel for work trips taking place between Borehamwood and Elstree (both directions) with a 55% mode share for trips from Elstree to Borehamwood and 65% of trips from Borehamwood to Elstree. Trips on foot represent a modest mode share in both directions despite the walk distance. Bus trips represent a notable mode share for trips from Elstree to Borehamwood, but bus has no mode share for trips from Borehamwood to Elstree. Cycling has zero or low mode share in both directions. However the distance between the towns may be

considered favourable to cycling and the low mode share may point to issues such as poor cycle links and parking facilities.

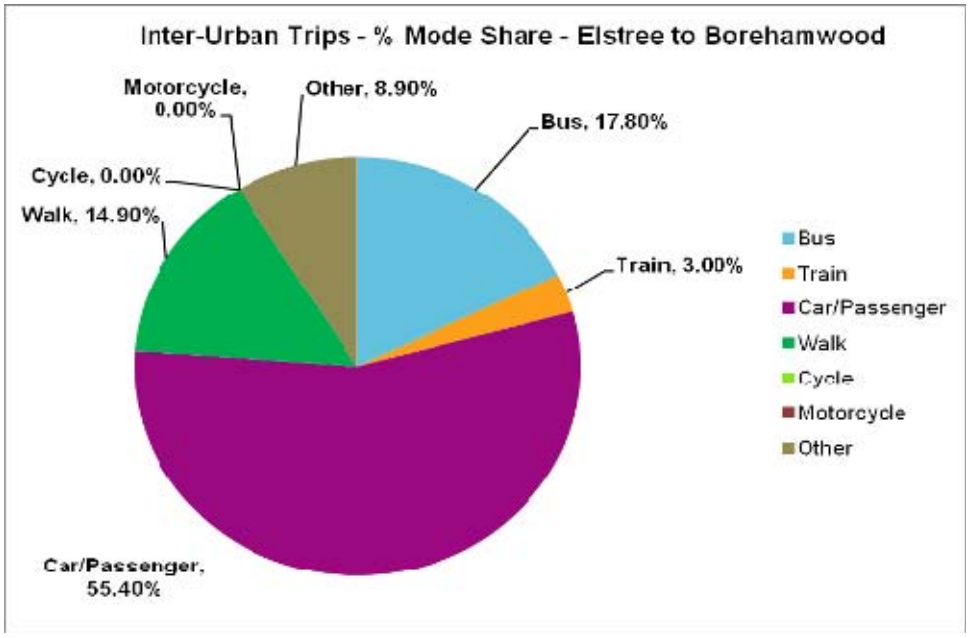


Figure 11: Elstree to Borehamwood Work Trips (2001 Census)

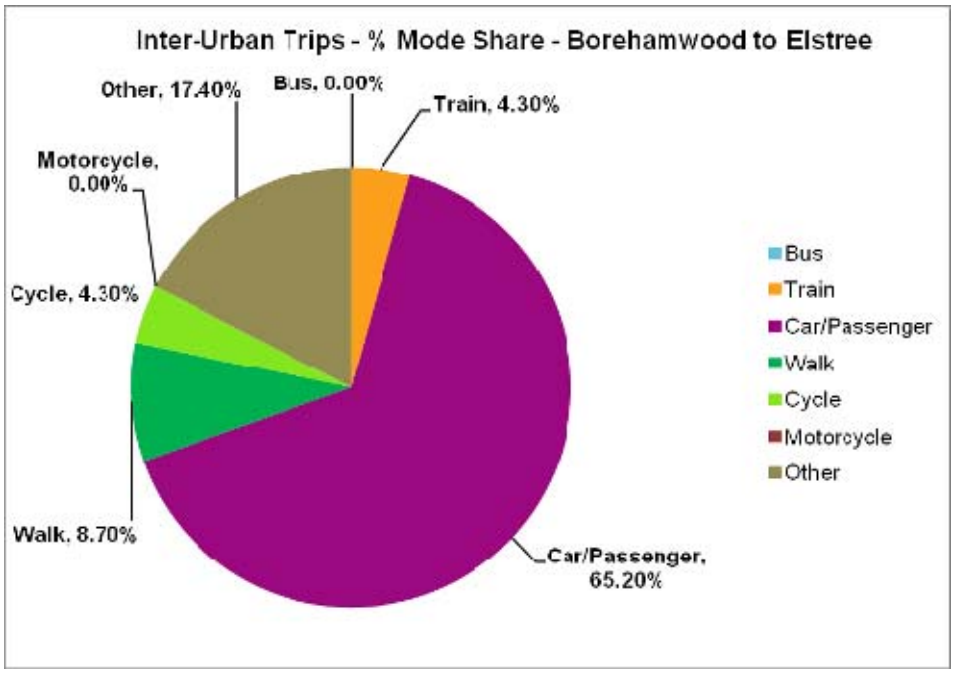


Figure 12: Borehamwood to Elstree Work Trips (2001 Census)

Summary

To briefly summarise, the 2001 Census statistics have identified a number of overriding travel trends that have a bearing on the development of the UTP:

- High car mode share for in-commuting and out-commuting work trips, and even for work trips taking place over shorter distances between Elstree and Borehamwood and within the these towns (trips that could in theory be undertaken on foot, by bike or by bus); and
- Low or zero cycle mode share, notably for work trips taking place over shorter distances between Elstree and Borehamwood and within the UTP area.

Policy Framework

3 Policy Framework

3.1 Policy Framework

The initial step in preparing a UTP is to review policy and strategy documents spanning all relevant levels of transport and planning: national; county (sub-regional), borough and UTP area levels.

Figure 13 below demonstrates the linkages between the different 'levels' of policy. A table demonstrating the linkages between LTP3 goals, the daughter documents and guiding UTP objectives is provided at the end of this chapter.

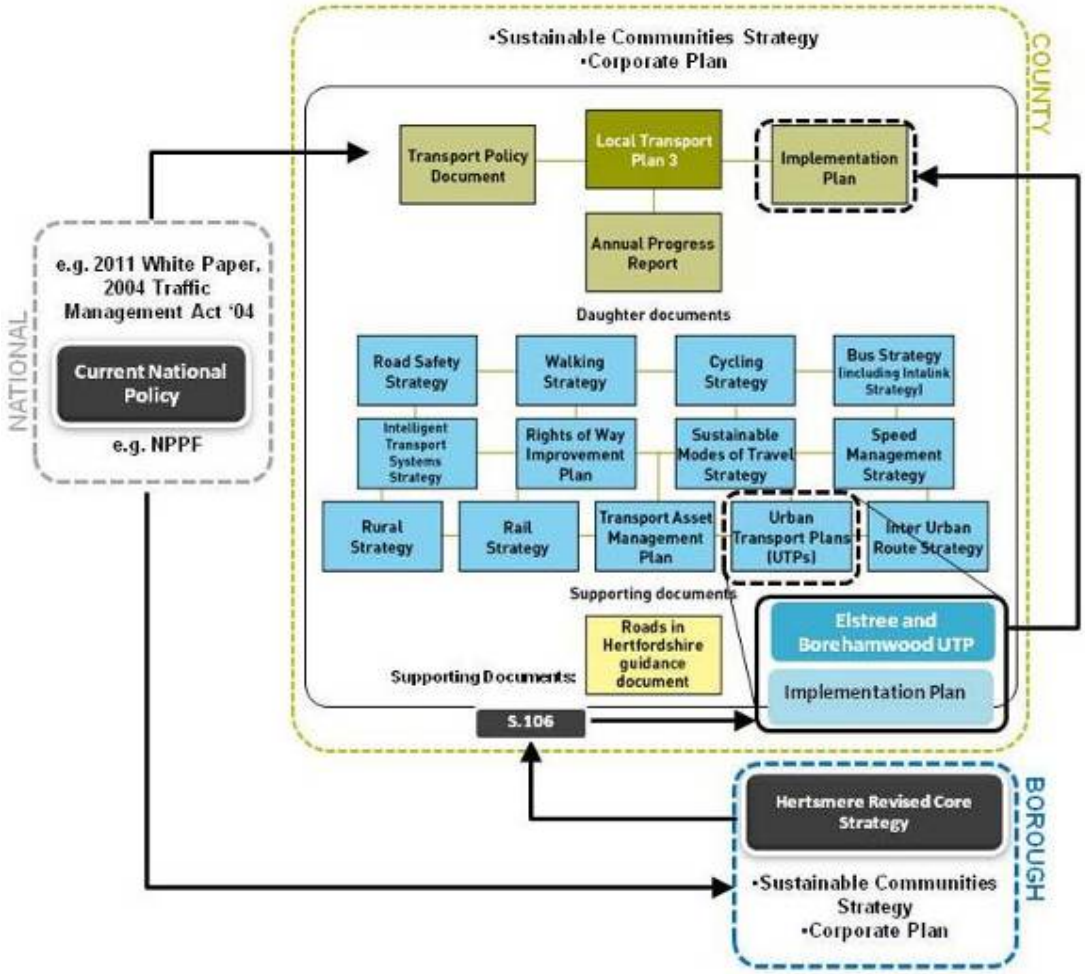


Figure 13: Policy Framework

3.2 National Level Context

3.2.1 National Planning Policy Framework (2012) (DCLG)

A new National Planning Policy Framework was adopted in 2012 which sets out the Government's planning policies for England, replacing planning policy statements and guidance documents. The NPPF focuses on the planning system's contribution to the achievement of sustainable development, and the need to strike an appropriate balance between the three pillars of sustainable development – the economy, society and the environment.

The NPPF emphasises the need to explore new technologies to reduce the need to travel and, where it is reasonable to do so and through the planning process combine with sustainable patterns of development developed through the local planning process, sustainable transport modes should be encouraged. The relationship between spatial land-use planning and transport is critical in helping to deliver a sustainable transport system, where a mix of land uses can contribute to a reduction in trip generation off-site or the encouragement of trips by more sustainable modes, and this should be a consideration by local authorities in the preparation of local development plans.

3.2.2 Creating Growth, Cutting Carbon – Making Sustainable Local Transport Happen (2011) (DfT)

The White Paper sets out a series of nation-wide commitments to enhancing the sustainability of local transport. These include:

- providing funding for Bikeability cycle training, to allow as many children as possible to undertake high quality on-road cycle training;
- improving end-to-end journeys by enabling most public transport journeys to be undertaken with a smart ticket by December 2014;
- reviewing the way in which investment decisions are made to ensure that the carbon implications are fully recognised;
- setting out in a road safety strategy how to ensure that Britain's roads are among the world's safest; and
- reviewing traffic signs policy so as to provide more freedom for local authorities to reduce the number of signs they put up and to develop innovative traffic management solutions.

3.3 County Level Context

3.3.1 Hertfordshire Local Transport Plan 3

Hertfordshire's third Local Transport Plan is made up of three main volumes and a number of associated 'daughter' documents, as follows:

- Volume 1 provides the strategy framework for achieving a better transport for all over the next 20 years
- Volume 2 sets out the County's main transport policies that will achieve the challenges set out in Volume 1
- Volume 3 sets out the programme of schemes/interventions that the County Council and its partners intend to implement over the initial 2 year period, and an indication of the major schemes/programmes to be delivered over the 20 year plan period

The structure of the LTP3 is shown in **Figure 14** below.

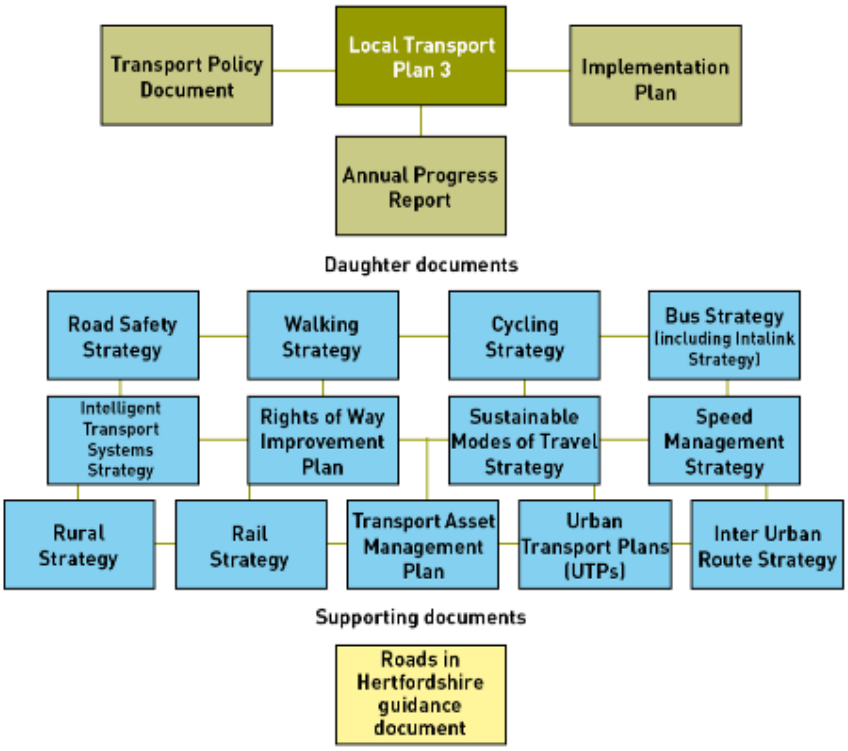


Figure 14: Structure of HCC's Local Transport Plan 3

The overarching vision for Hertfordshire, as set out in LTP3 is:

"*To provide a safe, efficient and resilient transport system that serves the needs of business and residents across Hertfordshire and minimises its impact on the environment*".

The five goals and thirteen challenges which support this vision are described in ***Table 1*** below.

Table 1: Local Transport Plan 3 Goals and Challenges

1. Support economic development and planned dwelling growth	
1.1	Keep the county moving through efficient management of the road network to improve journey, reliability and resilience and manage congestion to minimise its impact on the economy.
1.2	Support economic growth and new housing development through delivery of transport improvements and where necessary enhancement of the network capacity.
2. Improve transport opportunities for all and achieve behavioural change in mode choice	
2.1	Improve accessibility for all and particularly for non car users and the disadvantaged (disabled, elderly, low income etc).
2.2	Achieve behavioural change as regards choice of transport mode increasing awareness of the advantages of walking, cycling and passenger transport, and of information on facilities and services available.
2.3	Achieve further improvements in the provision of passenger transport (bus and rail services) to improve accessibility, punctuality, reliability and transport information in order to provide a viable alternative for car users.
3. Enhance quality of life, health and the natural, built and historic environment of all Hertfordshire residents	
3.1	Improve journey experience for transport users in terms of comfort, regularity and reliability of service, safety concerns, ability to park and other aspects to improve access.
3.2	Improve the health of individuals by encouraging and enabling more physically active travel and access to recreational areas and through improving areas of poor air quality which can affect health.
3.3	Maintain and enhance the natural, built and historic environment managing the streetscape and improving integration and connections of streets and neighbourhoods and minimising the adverse impacts of transport on the natural environment, heritage and landscape.
3.4	Reduce the impact of transport noise especially in those areas where monitoring shows there to be specific problems for residents.
4. Improve the safety and security of residents and other road users	
4.1	Improve road safety in the county reducing the risk of death and injury due to collisions.

4.2	Reduce crime and the fear of crime on the network to enable users of the network to travel safely and with minimum concern over safety so that accessibility is not compromised.
5. Reduce transport's contribution to greenhouse gas emissions and improve its resilience.	
5.1	Reduce greenhouse gas emissions from transport in the county to meet government targets through the reduction in consumption of fossil fuels.
5.2	Design new infrastructure and the maintenance of the existing network in the light of likely future constraints and threats from changing climate, including the increasing likelihood of periods of severe weather conditions.

The UTP is intended to be the local expression of the Local Transport Plan and therefore play an important role in the LTP process by providing details of specific and targeted schemes required in a specific UTP area, which will then be included in the LTP Implementation Plan as appropriate.

In preparing the Borehamwood and Elstree UTP, it is important to note that Local Transport Plan 3 marks a shift in approach for the County Council. Whilst many of the key transport issues in Hertfordshire remain consistent, such as tackling peak-time congestion, maintaining roads, reducing casualties, supporting economic growth and maintaining access to key services, the Plan states that the prospect of higher demand, limited resources and the need to tackle the effects of climate change, means that the Council must look for different ways to meet these challenges.

Table 2 reveals the Indicators and associated targets set in LTP 3, which will form the basis for the priority of schemes as part of the UTP.

Table 2: LTP3 Indicators

Indicator	Baseline (2007/08)	Progress (2009/10)	Indicative Targets	
			2015/16	2025/26
Congestion	2.97mins/mile	2.87mins/mile (08/09)	2.80mins/mile	2.70mins/mile
Principal Road Condition	4%	6%	< 6%	< 6%
Non-Principal Road Condition	7%	11%	< 9%	< 9%
Unclassified Road Condition	12%	13%	< 13%	< 13%
Footway Condition	27%	26%	26%	26%
Accessibility of new	93.8% (08/09)	97.04%	> 90%	> 90%

Indicator	Baseline (2007/08)	Progress (2009/10)	Indicative Targets	
			2015/16	2025/26
developments				
Accessibility to key services	89%	89% (08/09)	91%	93%
Walking journeys (under 1 mile)	No Data	58.9%	64%	73%
Cycling journeys (under 3 miles)	No Data	2.7%	3%	8%
Public transport patronage	33.5m	35.4m	36m	39m
Bus punctuality	90.8%	82.5%	90%	91%
Bus service user satisfaction	65%	78%	80%	84%
PT Information user satisfaction	57%	84%	85%	87%
Sustainable school journeys (age 5-10)	60.4%	61.7%	65%	70%
Sustainable school journeys (age 11-16)	76.8%	78.1%	78%	78%
Air Quality (mean)	33µg/m^3	33µg/m^3	25µg/m^3	18µg/m^3
Rights of Way (easy to use)	67.25%	78%	77%	70%
Speed limit compliance	No Data	81% (10/11)	82%	84%
Killed and Seriously Injured	550	413	< 413	< 413
Children Killed and Seriously Injured	42	42	< 42	< 42
Crimes at rail stations (per 100k journeys)	1.81 (08/09)	1.62	1.62	1.62
Transport CO^2 Emissions per capita	1.73 tonnes (08/09)	No Data	1.35 tonnes	1.20 tonnes

One of the key differences from the previous LTP2 is that there is now less emphasis placed on building new roads or making major changes to existing roads, and instead more emphasis placed on making better use of the existing transport network. A key element of LTP3 is to fully embrace intelligent transport systems and their utilisation across the County, with the aim of making everyone fully aware of their travel options.

There are also a number of daughter documents to the LTP 3 which contain further detailed strategies on how certain policies are to be delivered. These include:

- Cycling Strategy
- Walking Strategy
- Bus Strategy
- Rail Strategy
- Interlink Strategy
- Speed Management Strategy
- Road Safety Strategy
- Rights of Way Improvement Plan

The UTP has been developed in the context of each of these mode-specific strategies, where relevant, and particularly in relation to generating schemes for the specific modes or topic areas.

3.4 Borough Level Context

3.4.1 Revised Core Strategy (Submission draft 2011) (HBC)

Hertsmere Borough Council has defined an overarching strategic policy to guide development called the Core Strategy. All comments provided in this report refer to the Revised Core Strategy Submission Draft (2011). The Revised Core Strategy covers the period from 2012 to 2027. Important aspects of this pivotal policy document are set out below.

Policy SP1 – creating sustainable development

Policy SP1 states that all development across the Borough should achieve the objectives described in ***Table 3***.

Table 3: Hertsmere Borough Council Revised Core Strategy Policy SP1

Reference	Policy
iii	Mitigate the environmental impact of transport by promoting alternatives to the car for accessing new development and existing development and other destinations across the Borough, and opportunities for linked trips
vi	Minimise and mitigate the impact on local infrastructure and services
xvii	Ensure that pollutants are minimised, including emissions to air, water, soil, light and noise.

Other Core Strategy policies which could be of relevance throughout the lifespan of the UTP are summarised in***Table 4***..

Table 4: Hertsmere Borough Council Revised Core Strategy – other key policy

Reference	Policy
CS1	**The supply of new homes** In providing for the new homes and identifying new locations for development in the Site Allocations DPD, the Council will take account of: iv) the need to locate new development in the most accessible locations taking account of local infrastructure capacity
CS2	**The location of new homes** Priority will be given to locating the majority of residential development within the main settlements of Borehamwood… Between 2012-2027, up to 60% of new housing will be sought in Borehamwood
CS8	**Scale and distribution of employment land** The Council will support development proposals in appropriate locations, which attract commercial investment, maintain economic competitiveness and provide employment opportunities for the local community… provision will be made for the supply of at least 110 ha of designated employment land for B-class development within the Borough up to 2027, focused on the following locations… - Elstree Way, Borehamwood - Stirling Way, Borehamwood - Centennial Park, Elstree …a new area of land between the A1 and Rowley Lane, adjoining the Elstree Way Employment Area, will be designated as Safeguarded Land for a mix of phased, B-class development.
CS9	**Local Significant Employment Sites** In order to sustain a competitive local economy with good access to employment for the local population, the Council will seek to maintain a supply of smaller, business units across the Borough. These designated local significant employment sites are… located at the following locations: - Borehamwood Enterprise Centre and adjoining sites - Theobald Court and adjoining site, Borehamwood - Lismirrane Industrial Park, Elstree
CS14	**Promoting recreational access to open spaces and the countryside** The Council will work with its partners and relevant agencies to safeguard, enhance and facilitate access to parks, open spaces, rural visitor attractions and to the wider local countryside. Measures which secure the provision of safer and more secure car-free access including enhancements and additions

Reference	Policy
	to the rights of way / Greenways network as set out in the Council's Greenways Strategy, will be actively sought where they do not present a risk to the biodiversity value and intrinsic environmental quality of the locality.
CS17	**Access to services** The Council will work with local service providers to facilitate and promote their land use and buildings requirements through the identification of mixed-use and other development opportunities in the Site Allocations DPD. The Council will also require new development to contribute to the Community Strategy aim of achieving fair access to key community facilities and the wider goal of creating a safer and more sustainable environment.
CS19	**Securing mixed use development** Mixed-development will be sought on major development sites in Borehamwood town centre and in other locations capable of satisfactorily accommodating a range of uses.
CS20	**Standard charges and other planning obligations** The Council will seek to introduce a CIL charging schedule by April 2014. Following the introduction of a CIL charging schedule, planning obligations under Section 106 of the Town and Country Planning Act will only be sought to in relation to individual schemes where such contributions would be necessary to mitigate site-specific impacts and are not for items already covered in a CIL charging schedule
CS22	**Elstree Way Corridor** Within the Elstree Way Corridor the continued development and refurbishment of Employment, Civic and Community uses will be actively encouraged… Development should also provide active frontages to Elstree Way where possible to promote the identity of the corridor as a civic and commercial gateway to the borough, should build on the accessibility location of the corridor. Any development should have regard to guidance set out in the Elstree Way Corridor Action Plan Document (at the time of writing this document is in preparation) and be brought forward in an appropriate manner.
CS23	**Development and Accessibility to services and employment** The Council will work towards Hertfordshire County Council's vision of

Reference	Policy
	providing a safe, efficient and affordable transport system that allows access for all to everyday facilities.
CS25	**Promoting alternatives to the car** The Council will support a wide range of measures to provide safer and more reliable alternatives to the car for accessing new development and existing development and other destinations across the Borough including:
CS29	**Safe and attractive evening economy** The Council wishes to promote a range of town centres that cater for the whole community, creating a balanced evening economy including entertainment and late night retailing as well as the provision of a range of eating and drinking establishments.

3.4.2 Watling Chase Greenways Strategy Draft (2010) (HBC)

Hertsmere Borough Council's Greenways Strategy, which covers the whole Borough, focuses on providing and promoting a network of routes for walkers, cyclists and horse riders of all abilities, both to encourage people to make more sustainable journeys to school or work and to provide them with wider opportunities for informal recreation. In 2010, HBC published a review of the original strategy which was published in 2003.

Greenways routes will typically link open spaces, country parks, schools, leisure facilities and other features of interest. The aim of the strategy is to provide well-designed facilities where they are most needed locally. Since inception in 1999, the project has created or improved key links reaching over 13 miles of the proposed network of 65 miles.

It is understood that responsibility for maintaining the Watling Chase Greenways initiative may be transferred from HBC to another body in the future.

3.4.3 Hertsmere Parking Enforcement Policy (2007) and Parking Standards Supplementary Planning Document (2008)

Hertsmere Borough Council has delegated authority for parking across the borough. The Parking Enforcement Policy is primarily concerned with who can park in restricted areas and when they may do so; how challenges, representations and dispensations are dealt with, including how the Council will endeavour to treat people fairly, equally and with respect, taking full account of their personal circumstances; the conduct of the Council's staff and the manner in which it carries out enforcement, and; service standards that will be adopted by Hertsmere Borough Council when carrying out parking enforcement.

With the adoption of the Parking Enforcement Policy, the Borough Council has an obligation to enact the following:

- Maintain and, where possible, improve the flow of traffic thereby making the Borough a more pleasant and environmentally safe place to live in and visit.
- Take into account the need to improve safety and environmental conditions.
- Improve the quality and accessibility of public transport by discouraging the use of cars where road conditions and public transport facilities justify this. Again encouraging a more environmentally friendly lifestyle.
- Take into account the needs of local residents, shops and businesses, including making deliveries and collecting goods, thereby sustaining the Borough's economic growth.
- Actively support the needs of disabled people bearing in mind that, in some cases, they are unable to use public transport and are entirely dependent upon the use of a car. This will ensure that people with disabilities are able to have equal access to all facilities within the Borough.
- Actively discourage indiscriminate parking that causes obstruction to other motorists, pedestrians, motorcyclists, pedal cyclists and people with disabilities. This will ensure that the Borough remains accessible to all equally and safely.

This Parking Standards SPD sets out the Council's off-street parking standards for new development. Applications for planning permission will be assessed against these standards.

3.5 UTP Area Context

3.5.1 Borehamwood and Elstree Bikeability study (Transport Initiatives for HCC)

Transport Initiatives prepared a Bikeability Study of Borehamwood and Elstree on behalf of HCC in 2009. The study notes that little progress had been made in more recent years on HBC's Watling Chase Greenways Strategy, mainly due to lack of available funding.

The study indicates that a different approach may be needed in the area to encourage more people to cycle, focusing on the provision of new/improved on-road cycle routes, so-called "routes for cyclists" as opposed to "cycle routes" which the study indicates mirrors the direction of national policy, in particular the Manual for Streets (DfT).

The study involved a Cycle Skills Network Audit of the entire area, with all roads assessed against different levels of training set out in the National Standard for Cycle Training (Bikeability). Crossings were also assessed as part of the study.

The study, and therefore its identification of improvements, is constructed around the National Standards, and the overarching need to reduce the ability level required to cycle on routes, as opposed to responding to evidence of specific issues at particular locations.

The study recommended many priority schemes, ranked in terms of their benefits, practicality, cost level and timescale. A summary of some of the area-wide and 1st priority recommended schemes is provided in ***Table 5*** below.

Table 5: Borehamwood and Elstree Bikeability study – proposed improvements

Area Wide
• Introduce area-wide 20mph speed limits • Introduce traffic calming schemes • Provide advanced stop lines at appropriate junctions with lead-in lanes • Improve cycle parking (Sheffield stands) • Review cycle direction signage
1st Priority
• Shenley Rd/Station Rd rbt – remodel to continental design and reduce circulating space • Shenley Rd link (Theobald St-Elstree Way) – introduce shared space elements • Shenley Rd/Furzehill Rd rbt – remodel to continental design, reduce circulating space • Shenley Rd/Eldon Ave jct (incl. Tesco access) – remodel to continental design, reduce circulating space, install Toucan crossing on Shenley Rd and Eldon Ave, and install wide zebra crossing on Tesco access, extend cycletrack facilities to offer alternative to using the roundabout • Shenley Rd/Brook Rd/Elstree Way corridor – remodel to continental design/remove cycle lanes, reduce circulating space, provide pedestrian/cycle crossing particularly on Brook Rd • Elstree Way (Shenley Rd-Studio Way link) – widen cycle tracks to 3m, install flat top ramps, removal of road centre lines to assist with speed limit compliance, replace subway with toucan crossing • Elstree Way/Studio Way/Manor Way rbt – remodel to continental design/remove cycle lanes, reduce circulating space • Theobald St (Shenley Rd to Croxdale Rd) link – review mini roundabouts and centre dome heights to reduce speeds • Furzehill Rd (Shenley Rd-Brownlow Rd) link – develop alternative route to Shenley Rd via Drayton Rd with cycle gap in road closure • Furzehill Rd (Brownlow Rd to Barnet Lane) link – extend traffic calming along length of link, investigate alternative route to E&B station via Station Road and route through new development • Brook Rd (Gateshead Rd to Shenley Rd) link – Create cycle gaps in closure of Eldon Ave, upgrade crossing of Brook Rd at Fairway Ave

It is evident that since the publication of the Bikeability Study, some schemes and initiatives have already been implemented, for example additional/improved cycle parking was installed at Elstree

and Borehamwood station in 2011, and a contra-flow link has been implemented at the junction of Drayton Road and Shenley Road. Transport Initiatives' Bikeability Study is included in **Appendix B** and a table outlining the schemes taken forward in the UTP is included in **Appendix C.**

3.5.2 Elstree Way Corridor Feasibility Study (2010) (Colin Buchanan for HBC)

Colin Buchanan has undertaken the Elstree Way Corridor Feasibility Study on behalf of Hertsmere Borough Council (HBC). The aim of the study is to prepare a viable master plan scenario for the redevelopment of the Elstree Way Corridor (EWC). The EWC is the main access to the centre of Borehamwood from the A1, and forms part of the main commercial area of the town. The study area comprises the land along both sides of Elstree Way, Borehamwood, between the junctions with Shenley Road and Manor Way. Much of this land is owned by Hertsmere Borough Council, Hertfordshire County Council, and other public or quasi-public sector agencies.

Through in-depth baseline analysis and consultation with key stakeholders, Colin Buchanan developed three spatial development options (Options 1, 2 and 3) to test ways of re-providing the public service facilities and regenerating the EWC area. Through close liaison with stakeholders, Option 1 was selected as the preferred spatial development option to be taken forward for more detailed viability testing and design development. The design concept behind this option can be summarised as:

> *"To extend the town centre 'feel' to include the study area, by creating town centre like urban form along Elstree Way up to the Oaklands College site/Studio Way and facilitating residential-led mixed use development. This involves the creation of two new urban squares, the removal of the Shenley Road/Elstree Way roundabout and the general 'taming' of the vehicular dominance of the road, using Shared Space principles, while at the same time ensuring development provides continuous and substantial frontages."*

3.5.3 Elstree crossroads scheme drawing and consultation (HCC)

The Borehamwood and Elstree Urban Transport Plan 2007 highlighted Elstree crossroads as a site with congestion and a history of accidents. In addition it is a registered Hertsmere Borough Council AQMA indicating high levels of pollution associated with queuing traffic.

Site assessments have been carried out including the analysis of traffic direction, queue data, pedestrian and cyclist counts and accident data exploring the issues at the junction in more depth.

As a result of the findings and information collected, a series of scheme options were drawn up for consideration by key groups including County, Borough and Town Councillors, HBC officers, Transport Access and Safety (TAS) team and Emergency Services.

The scheme put forward for consultation in 2012 comprises of the banning of the right-turn from Elstree Hill South to Barnet Lane, maintaining existing banned right turn except buses on Elstree Hill North approach, removal of the splitter island on Watford Road approach, extension of 'No Waiting At Any Time' restriction on north-side of Barnet Lane adjacent to the crossroads, anti-skid surfacing, footpath widening adjacent to pedestrian crossings, diversion of statutory undertaker's apparatus and narrowing of the central refuge island on the Elstree Hill South arm.

Consultation on the preferred scheme took place between 14th February and 30th March 2012. The views of the general public including local businesses in the vicinity of the junction were sought before proceeding to the next stage which would involve the implementation of permanent works.

The results of the consultation were summarised and a meeting was held with representatives of County, Borough and Town Councillors to consider the key points and identify the next steps.

At the meeting it was agreed that Option 4 was the preferred scheme that should be progressed through further consultation and design. A letter was therefore sent to all households that were informed of the original consultation and anyone who submitted comments via e-mail to make them aware of this decision. It was also confirmed that the proposal to trial Option 5, which included a proposed right turn ban from Elstree Hill South onto Barnet lane over a 6-month period, would not be taken forward.

3.5.4 Consultation on the trial removal of traffic signals located at Stirling Corner on the TfL network – Consultation Report (2011) (TfL Streets)

The document provides an overview of a scheme undertaken by TfL in 2011 at the Stirling Corner roundabout. TfL, who are responsible for maintaining and operating traffic signals across Greater London, are reviewing traffic signals in line with the Mayor's Transport Strategy – the Smoothing

Traffic Flow programme. The report argues that many traffic signals are installed based on localised criteria and are not always appropriate.

A trial removal of traffic signals at the Stirling Corner roundabout took place between March 21st and June 21st 2011 with extension to 30th September 2011. Traffic signals at this junction are part-time, operating from 3:30pm to 6:30pm Monday-Friday. The junction is not fully signalised, with signals on the 'London' arms of A411 Barnet Road (SE) and A1 Barnet Way (S), and give-way priority on the Hertfordshire arms of the A1 (N) and A411 Barnet Road (NW).

TfL surveys suggested traffic signals at this junction provided limited benefit due to part time operation. TfL's consultation generated 57 responses, 53 opposed to removal of signals and 4 in favour.

TfL's trial determined that there were increases in queues and journey times and on conclusion, TfL decided that traffic signals would be retained, reverting to the existing arrangement. Implementation of new road markings on the circulatory carriageway has since occurred.

3.5.5 Section 106 Table for Hertsmere (2012) (HCC / HBC)

Developer Contributions are monies secured through Section 106 legal agreements to mitigate the impact of new development. The County Council negotiates developer contributions for a number of its functions including education, libraries and transport.

It is important during the process of identifying and sifting issues, and subsequently developing remedial measures, that an exercise is undertaken to identify how any available S.106 monies could be utilised to fund measures if certain criteria are met.

3.5.6 2007 Borehamwood and Elstree UTP

The current Urban Transport Plan for Borehamwood and Elstree (not including Well End) was adopted in 2007. The UTP document is not presented in the same format as current UTPs which are now informed by the latest set out guidance set by the County in 2011, however it provides an indication of specific issues or general themes that have emerged in the past in the UTP area.

The 2007 UTP defined the following key issues to address:

- Manage congestion at key locations such as Elstree Crossroads and adjacent junctions, and the Elstree Way/Shenley Road corridor.
- Air quality (and AQMA designation) at Elstree Crossroads
- Improve safety on the Elstree Way/Shenley Road corridor, at Elstree Crossroads and at Stirling Corner roundabout.

- As the majority of accidents are not at hazardous sites, consideration needs to be given to safety improvements throughout the area.
- Address displacement from the existing Controlled Parking Zones and parking problems in residential areas.
- Improve station access for people with mobility impairments
- Improve urban routes and facilities (e.g. cycle parking) for utility cycling and continue the implementation of the Greenways project.
- Improve the maintenance of footways and improve crossing facilities
- Some School Travel Plans need reviewing and all Plans need monitoring. Plan measures need to be implemented and maintained.
- Improve the condition of roads and footways
- Manage and reduce congestion

3.6 Policy Context Summary

A matrix showing how LTP3 goals are cascaded through all of the daughter documents and the UTP objectives is provided in ***Table 6*** below.

Table 6: LTP3 Goals/Challenges and UTP Objectives (overleaf)

Hertfordshire Local Transport Plan 3 Goals	Daughter Documents								Urban Transport Plan Objectives
	Cycling Strategy	Walking Strategy	Bus Strategy	Intalink Strategy	Rail Strategy	Speed Management Strategy	Road Safety Strategy	Sustainable Community Strategy	
Support economic development and planned dwelling growth	Develop a cycle network that links major origins and destinations with safe, direct and continuous cycle routes		Continue to develop partnerships to achieve improvements in service provision	Improve journey times and reliability through greater access to information				Improve the reliability of journey times and improve east to west travel	**Support economic growth and local housing development through the delivery of transport improvements**
Improve transport opportunities for all and achieve behavioural change in mode choice	Ensure that policies encourage modal shift, promote cycling and other sustainable forms of transport	Identify and promote networks of pedestrian priority routes within towns	Support, promote and improve a network of efficient and attractive bus services that are responsive to existing and potential passenger needs	Provide improved information through publications, website, roadside information, ePIPs, Real-Time Information	Support Community Railway Partnerships in the County			Encourage the use of alternatives to the car	**Improve transport connectivity between transport modes to allow for greater transport flexibility**
	Relevant changes to the road environment will encourage mode shift	Implement measures to increase the priority of pedestrians over cars		Provide information regarding connectivity between public transport modes				Improve access to services, including education and health no matter where you live	**Improve public transport provision and accessibility**
	Encourage more people to cycle more often through marketing and		Provide maximum benefit to the travelling public in the most cost						**Improve connectivity across Elstree, Borehamwood**

Hertfordshire Local Transport Plan 3 Goals	Daughter Documents								Urban Transport Plan Objectives
	Cycling Strategy	Walking Strategy	Bus Strategy	Intalink Strategy	Rail Strategy	Speed Management Strategy	Road Safety Strategy	Sustainable Community Strategy	
	promotion		effective way						**and Well End through a cohesive and attractive network of walking and cycling facilities**
	Work with stakeholders to promote cycling strategy		Develop a passenger transport network as a viable alternative to the use of the private car						
	Needs of cyclists are considered through workplace and school travel plans, road safety and partnerships		Encourage parents and school aged children to make maximum use of the public transport network						
			Seek to give greater priority to buses on the road network						
			Promote and publicise through the Intalink partnership						
Enhance quality of life, health and the natural, built and historic environment for all		Encourage walking for short journeys, part of longer	Provide and maintain all bus stops, and other bus related		Seek improvements to train services and station			Step change in provision, quality and use of passenger	**Promote active travel modes throughout**

Hertfordshire Local Transport Plan 3 Goals	Daughter Documents								Urban Transport Plan Objectives
	Cycling Strategy	Walking Strategy	Bus Strategy	Intalink Strategy	Rail Strategy	Speed Management Strategy	Road Safety Strategy	Sustainable Community Strategy	
residents		journeys and for leisure	highway infrastructure		facilities			transport Improve access to the countryside for recreation and health Ensure effective management and maintenance of the transport network	**the study area to encourage active and healthy lifestyles**
Improve the safety and security of residents and other road users	Work to promote the provision of secure cycle parking Undertake maintenance throughout the cycle network to pursue safety and comfort Continue to develop cycle training programme	Provide improved pedestrian facilities along routes and at key destinations to encourage journeys by foot				Ensure that speed limits are introduced and reviewed in a manner consistent with current government guidance	Promoting a mix of engineering, education and enforcement activity focused on casualty reduction and prevention	Improve road safety	
Reduce transport's contribution to	Cycling will be		Encourage mode shift					Reduce the	**Encourage reliability of**

Hertfordshire Local Transport Plan 3 Goals	Daughter Documents								Urban Transport Plan Objectives
	Cycling Strategy	Walking Strategy	Bus Strategy	Intalink Strategy	Rail Strategy	Speed Management Strategy	Road Safety Strategy	Sustainable Community Strategy	
greenhouse gas emissions and improve its resilience	encourages on the carriageway rather than separate facilities		from private car, contributing to the reduction of greenhouse gas emissions					need to travel	**travel through sustainable travel alternatives**
			Recognise that car users need to be encouraged to use other modes						**Reduce congestion at key traffic hotspots throughout the study area**

Local Issues

4 Local Issues

4.1 Introduction

This section builds upon the previous policy and transport review by detailing the identified problem specific to the UTP area, by transport mode and subject. The problems have been identified via a number of means, as described in this chapter.

From an early stage and to assist an organised and methodical process of identifying and understanding issues, all issues were composed under a range of transport themes as shown in **Figure 15**.

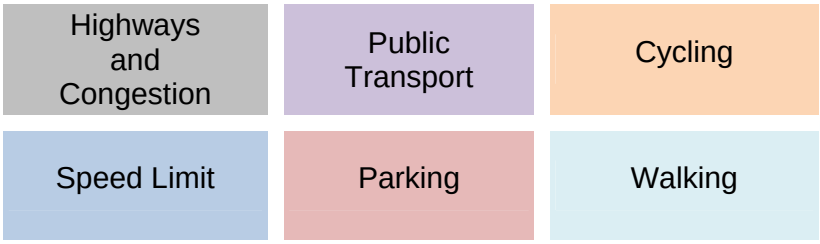


Figure 15: Transport Issue Themes

4.2 Highways and Congestion

4.2.1 Context

Relevant LTP 3 Goal:
Reduce transport's contribution to greenhouse gas emissions and improve its resilience.
Enhance quality of life, health and the natural, built and historic environment for all residents.

Tackling congestion is a key priority for the county. Challenge one under the LTP3 goal *'Support economic development and planned dwelling growth'* identifies the need to *"keep the county moving through efficient management of the road network to improve journey, reliability and resilience and manage congestion to minimise its impact on the economy"*. Other challenges seek to address the harmful effects of congestion including transport noise, improving road safety and reducing greenhouse gas emissions. Tackling highways and congestion issues is therefore a top priority, however the method of easing congestion (and therefore potentially reducing greenhouse gas emissions and noise impacts) does not necessary entail the provision of additional road capacity. Instead, remedial measures could be sought through the improvement of alternative and more sustainable travel modes, which is addressed under some of the other issue themes addressed later.

Movement of freight on-road can be considered intrusive in terms of noise and pollution. One of the LTP3 challenges is to reduce the impact of transport noise and this may be considered applicable to concerns raised regarding HGVs on roads within the UTP area.

Issues and concerns around traffic volumes were raised in context with specific routes and junctions identified as being perceived problems including most notably the Elstree signalised crossroads junction, Allum Lane/Shenley Road/Theobald Street/Station junction and Shenley Road roundabouts in the vicinity of the Tesco supermarket and Hertsmere Borough Council offices. A more generic, area-wide issue identified is the high dependency on the private car for trips between Borehamwood and Elstree which is likely to be attributing towards congestion across the area, including more acutely at the aforementioned junctions. Chapter 6 identifies when issues were identified and by whom.

Hertsmere Borough Council drew attention to an article in the local press regarding concern raised by local residents on Newark Green about the enforcement of the weight restriction and effectiveness of the measures currently in place.

All of the problem junctions are defined congestion hotspots and are identified in the Data Report. The junctions identified as being problematic are widely known and previous studies have looked at tackling congestion, for example at Elstree Crossroads. The Elstree and Borehamwood transport study undertaken by consultants Colin Buchanan for Hertsmere Borough Council has looked at a series of improvement options at a number of junctions between Borehamwood and Elstree including those identified as issues.

A Traffic Regulation Order (TRO) is enforced across on a number of roads in Borehamwood assisted by regulatory signs on the perimeter indicating weight restrictions imposed on Heavy

Goods Vehicles (HGVs) for structural or for environmental reasons. It is a legal control on a specified vehicle weight or width. The purpose of the restriction is to prevent large vehicles from using inappropriate roads, routes and areas in order to reduce any risks to pedestrians and other road users, preserve the environment, manage congestion and reduce the risk of damage to buildings and other structures. In addition to signage, it is sometimes necessary to implement physical measures to prevent HGVs from entering inappropriate roads and one such example is evident on the Newark Green exit from the A1 Rowley Lane/A5135 Elstree Way roundabout. Roads within the UTP area are popular for not only trips to/from and between Elstree, Borehamwood and Well End, but also form part of longer distance routes, in particular the A411 Barnet Lane which runs broadly on an east-west axis south of Borehamwood which provides a link between the A41 and A1.

The Traffic Management Act 2004 states that authorities need to ensure that roadside controls preventing loading, parking or banning particular traffic movements, and changes in speed limits etc continue to exist where there is a need for them. Also traffic signs (including road markings) associated with traffic regulation orders need to be of a sufficient standard to both convey a message to road users and allow enforcement. Any concern regarding the effectiveness of existing restrictions needs to be evaluated. Observations made on site confirm that in the case of Newark Green, the signage can be considered dated and potentially less effective.

Table 7: Highways and Congestion Issues

Issue ID	Issue Name	Issue Description
HC01	Station Road-Shenley Road-Theobald Street roundabout	Accident hotspot – signalisation scheme has been drawn up – need to consider the needs of pedestrians and turning circle of buses
HC02	Allum Lane-Watling Street junction congestion	A combined issue of traffic queuing back from the priority T-junction and poor gap acceptance for traffic exiting Allum Lane onto Watling Street because of high speeds on Watling Street. Potentially needs addressing with a separate scheme to Elstree crossroads
HC03	AQMA Elstree Crossroads congestion	Proposed improvement consulted on, trial banned right turn may not go ahead
HC04	Elstree Crossroads rat-run through Composers Estate	Rat-running can occur through Composers Estate - potential conflict with residential street system
HC05	Theobald St Shopping Park access congestion	Congestion at weekends caused by motorists queuing for parking at the Shopping Park
HC06	High car dependency for inter-town trips	Car trips make up the largest share of trips taking place between Borehamwood and Elstree
HC07	Shenley Road Rbt congestion hotspots	Congestion occurring at Shenley Road-Elstree Way-Brook Road roundabout and Tesco roundabout which are situated quite close together

Issue ID	Issue Name	Issue Description
HC09	Newark Green - damage to width restriction measure/damage to vehicles	Newark Green - damage to width restriction measure/damage to vehicles
HC10	Stirling Corner - exit from roundabout/entry to mobile homes site potential speed and safety issue	Access to mobile homes site close to exit from Stirling Corner Roundabout - concern from residents turning into site from the roundabout in terms of signalling to other drivers of their intended turn and safety implications of this
HC11	Review of weight restriction	Review of TRO
HC12	Barnet Lane HGV cut through	HGV cut through between M1, A41 and A1

4.3 Public Transport

4.3.1 Context

Relevant LTP 3 Goal:
Improve transport opportunities for all and achieve behavioural change in mode choice.

Under the County's LTP3 goal *'Improve transport opportunities for all and achieve behavioural change in mode choice'* a challenge has been set to achieve further improvements in the provision of passenger transport (bus and rail services) to improve accessibility, punctuality, reliability and transport information in order to provide a viable alternative for car users. A further challenge for the county is to 'Improve accessibility for all and particularly for non car users and the disadvantaged (disabled, elderly, low income). Addressing bus-related issues may warrant a bus-related response, e.g. the improvement of services, however there is the possibility of delivering improvement to the bus user experience by improving bus stop facilities and/or addressing related issues under the other issue themes, for example highways and congestion which could help to cut congestion and improve bus service reliability. The County has no control over the rail services provided however there is close engagement between the rail operator First Capital Connect in terms of service promotion and station facilities.

The UTP area is well-served by bus and rail, in particular Borehamwood, with a number of inter-town/cross-country bus services connecting Hertfordshire towns, intra-town circular services within Borehamwood, and London buses connecting Borehamwood to areas to the south including Edgware and Barnet, as well as frequent rail services from Elstree and Borehamwood railway station on the Midland Main Line.

With regard to bus, the issues raised are anecdotal, identified by local people including Council members and will therefore require closer examination. The County Council does not have responsibility for running bus services, therefore further consultation may be required with local bus operators including UNO and Sullivan Buses. The lack of services in the evenings is a

common issue not unique to Borehamwood and whilst there could be opportunity for improvement, operators may be seeking a significant improvement in patronage in order to justify the cost of running additional services. Increasing patronage may however occur if other related issues were tackled, for instance reducing congestion, which may improve the bus reliability, if this is a reason for low passenger numbers and a lack of services.

On-road parking is prevalent at locations across Borehamwood, including on roads used by buses. Disruption caused by parking to buses has not been observed, however it may cause delays to services. Parking can also be disruptive to other modes, for example pedestrians, especially if it across footways.

HCC's Transport Access and Safety (TAS) team has a programme for improving facilities at key bus stops and further discussion will be required to identify any further stops in the UTP area which may benefit from improvement in the future.

Substantial works to the bus interchange at Elstree and Borehamwood railway station have been undertaken in recent years which should improve the bus-to-rail interchange experience. A concern was raised however that some bus services were not timed with rail services. Rail services, currently run by First Capital Connect, are reasonably frequent especially during peak periods, thus reducing the potential waiting time for passengers. The station is served by six different bus services (107, 292, 306, 398, 615 and B3) including one intra-Borehamwood circular service B3 (route B1 was withdrawn on the 23rd July, service B2 only calls at the station during the evening). A number of changes in late July 2012 may have reduced service frequencies and this may create bus-rail interchange issues. A long-term perspective may be required in terms of addressing high-car dependency and promoting bus as a viable alternative.

With regard to rail, the railway station has benefited greatly from improvements to the forecourt, including easier access to buses and information and an improved pedestrian environment.

Plans for providing step-free access to all platforms at the railway station are already underway, and forms part of a wider programme under the responsibility of Network Rail and the DfT. Provision of step-free access should provide considerable improvements to passengers' experience at the station and could potentially lead to an uplift in boarders/alighters at the station. Step-free access is currently only provided to Platform 1 (for services towards London).

According to First Capital Connect's website, the railway station ticket office is open from 06:30-20:30 Monday to Saturday and 06:30-21:15 on Sunday. Ticket machines are available all day and should accept cash and card payments. A toilet is provided at the station which is available to disabled people under the National Key Scheme however this can only be accessed from the platform. Access to the platform is controlled by ticket barriers which are in operation during the day.

Table 8: Public Transport Issues

Issue ID	Issue Name	Issue/Problem
PT01	Centennial Way bus facilities	Car dominated industrial estate, poor facilities at bus stops served by route 615
PT07	Manor Way/ Balmoral Drive - non bus compliant traffic management measures.	Obstructive parking alongside cushions and raised tables less than 6 metres in length.

4.4 Cycling

4.4.1 Context

Relevant LTP 3 Goal:
Improve transport opportunities for all and achieve behavioural change in mode choice.

Under the County's LTP3 goal *'Improve transport opportunities for all and achieve behavioural change in mode choice'* there is a challenge to increase the awareness of the advantages of cycling. Furthermore, under the County's LTP3 goal *'Enhance quality of life, health and the natural, built and historic environment of all Hertfordshire residents'* there is a challenge to improve the health of individuals by encouraging and enabling more physically active travel. Clearly addressing cycling related issues is of importance, primarily through the improvement of route facilities, through the improvement of cycling parking facilities at key destinations and potentially accompanied by a campaign to encourage cycling in the area. Tacking issues under some of the other themes may indirectly have a benefit on cycling, for instance reducing congestion by implementing junction improvements which incorporate better facilities for cyclists.

The vast majority of the cycling issues were identified in the Bikeability Study for Borehamwood and Elstree which was undertaken by Transport Initiatives in 2009/10. Some of the issues and proposed measures addressed in the study have since been taken forward. Further issues have been identified by council members whose local knowledge is invaluable.

The vast majority of cycling related issues were identified in the Bikeability Study for Borehamwood and Elstree and therefore do not require further validation. The potential solutions to issues may however require re-evaluation. As discussed in the previous chapter, the 2001 Census report indicates that few people cycle in the area proportional to private car, and this is despite many trips occurring within the UTP area therefore distance is unlikely to be a barrier. High levels of traffic congestion may also be indicative of low mode share for cycling and other non-car modes.

Table 9: Cycling Issues

Issue ID	Issue Name	Issue/Problem
CY01	Allum Lane cycling impediment	High speed rural route potentially discourages cyclists - key route to station from Elstree
CY02	Manor Way shops - cycle parking	No cycle parking facilities at popular parade of shops
CY03	Leeming Road shops - cycle parking	No cycle parking facilities at popular parade of shops
CY04	Rowley Lane-Shenley Road via Denham Way/-Studio Way links	Improve quality of links - new surfacing, improved crossing facilities
CY05	Hartforde Road shops - cycle parking	No cycle parking facilities at popular parade of shops
CY06	Rowley Lane/Elstree Way one-way system - cycle route	Discontinuous cycle route around one-way system - may be confusing to cyclists and discourage potential new cyclists
CY07	Rossington Avenue shops - cycle parking	No cycle parking facilities at popular parade of shops
CY08	Elstree-Edgware cycle route - under-used A41 crossing	Elstree-Edgware cycle route - under-used A41 crossing
CY09	Low proportion of cycle to work trips within and between towns	Low proportion of cycle to work trips within and between towns (1.1%)
CY11	Elstree-Allum Lane link	Narrow rural route with high traffic volumes and unwelcoming gradients discourages cycling between Borehamwood and Elstree
CY13	Cycle Signing and Wayfinding	Limited cycle (and pedestrian) wayfinding exists within Borehamwood and Elstree and promotion of facilities could encourage more cycling trips
CY14	Balmoral Drive / Ashley Drive anti-social parking	Partial footway parking causes problems for cyclists on the road as parking levels are high
CY15	Borehamwood east-west corridor	Allum Lane / Shenley Road / Elstree Way exceeds Level 2 along its length - accessibility issues for Level 2 cyclists
CY17	Elstree Way cycle lanes and tracks	Sub-standard mandatory cycle lanes throughout Elstree Way - 1m or less in places; Cycle tracks require priorities for cyclists at side roads/crossovers

Issue ID	Issue Name	Issue/Problem
CY18	Cycle facilities at roundabouts	Existing roundabouts create challenging environments for cyclists to navigate safely
CY20	Theobald Street cycling environment	Theobald Street is a distributor road to the west of Borehamwood and is heavily trafficked with limited cycle facilities
CY24	Cowley Hill / Hertswood School	Existing facilities are not consistent so require some rationalisation and improvement to encourage cycling
CY25	Stirling Corner cycling environment	Navigation of roundabout for cyclists and pedestrians is hazardous with the A1 acting as a barrier to east to west movement

4.5 Speed Limit Compliance, Collisions and Road Safety

4.5.1 Context

Relevant LTP3 Goal:
Improve the safety and security of residents and other road users.

The Speed Management Strategy provides details regarding the current regulations for appropriate speed limits. This strategy will act as an important reference point when developing schemes to address excessive speeding in the UTP area.

During the consultation, officers and local council members with useful local knowledge raised concern with potential perceived speed issues on various roads across the UTP area.

The County's Speed Management Strategy outlines a number of key criteria in evaluating and setting speed limits, including the use of the Hertfordshire Speed Limit framework, an assessment of the environment to assess the appropriate speed for a road, and the mean and 85th percentile vehicle speeds must not exceed those stated in the Proposed Speed Limit Threshold table for the specified speed which is replicated in ***Table 10***.

Table 10: Proposed Speed Limit Thresholds

Proposed Speed Limit (mph)	Maximum Mean Speed (mph)	Maximum 85th percentile speed (mph) (ACPO)
20	-	24
30	29	35
40	39	46
50	49	57
60	59	68
70	69	79

The Strategy also indicates that when analysing traffic speed data, it is important to look at the speeds that occur under free flow traffic conditions, and therefore 12 hour or 24 hour average 85th percentile speeds may not be appropriate. It may therefore be necessary to exclude peak hour data as congestion may have a dramatic effect on the results. This guidance has been taken on board in the analysis of traffic flow data for this UTP.

Speed data has been obtained for a number of the identified locations where there is a perceived speed issue. This is shown in ***Table 11***.

Table 11: Speed Survey Data

	Speed Limit (mph)	Direction	Average in 24hrs 85%ile Speed (mph)	12hr (0700-1900) 85%ile Speed (mph)	Direction	Average in 24hrs 85%ile Speed (mph)	12hr (0700-1900) 85%ile Speed (mph)
Well End Road	30	NW	**39.2**	**39.0**	SE	**42.6**	**41**
Rowley Lane (between Industrial Estate and Studio Way Roundabout)	30	N	**42**		S	**42**	
Melrose Avenue	30	NE	**35.2**	**35.3**	SW	**34.8**	34.8
Tempsford Avenue	30	N	33.8	34.0	S	34.2	34.5
Theobald Street	30	N	**35.5**	34.4	S	**36.5**	**35.3**
A411 Barnet Lane	30	E	**40.9**	**38.2**	W	**41.3**	**39.4**
Bullhead Road	30	N	29.3	29.2	S	30.0	29.7
A1 (E of Borehamwood)	70	N	70.5	68.2	-	-	-
Cowley Hill/Shenley Road	30	-	*Awaiting Data*	*Awaiting Data*	-	*Awaiting Data*	*Awaiting Data*
Theobald Street service road (adjacent to Meryfield School)	30	-	*Awaiting Data*	*Awaiting Data*	-	*Awaiting Data*	*Awaiting Data*
Organ Hall Road	30	-	*Awaiting Data*	*Awaiting Data*	-	*Awaiting Data*	*Awaiting Data*

The data provided indicates that on Well End Road, Rowley Lane and Theobald Street, the 85th percentile speed recorded in a twenty-four period exceeds the Speed Limit Threshold for roads with a 30mph speed limit, and this suggests that there are excessive speeds occurring on these roads. The data suggests that in general speeds closer to the speed limit tend to occur between 7am and 7pm, suggesting that higher speeds are more likely to occur outside of this period potentially when traffic flows are lower.

Data for Temspford Road indicates that speeds are close to but do not exceed the ACPO threshold.

Data for Bullhead Road indicates that speeds do not exceed the ACPO threshold and therefore concerns regarding traffic speeds on this road may be more a case of perception.

Data for the A411 Barnet Lane indicates that speeds exceed the ACPO threshold however the survey was undertaken within the 30mph speed limit area but close to where the speed limit changes to 40mph and therefore the effect of this transition may be reflected in the data.

For the A1, reference has been made to the Highways Agency's HATRIS TRADS database to obtain 85th percentile speed data. The A1 is not an HCC road. The section to the north of the A5135 Rowley Lane junction is managed by the Highways Agency and the section to the south of this junction is managed by TfL.

Data has been extracted for two sites in the vicinity of the A5135 Rowley Lane junction. No data is available from the TRADS database for the A1 in the immediate vicinity of the Ripon Way junction however this junction is close by and the road does not vary in character between these locations.

Given that the issue concerns only the A1 northbound carriageway, data for TRADS site 162 has been used. Data for June 2009 has been extracted as this is the most recent monthly data available for this site.

The data shows that the 85th percentile speed does not exceed both the maximum mean speed and maximum 85th percentile speed specified in ***Table 10***, although the mean is exceeded at some points during the day.

Table 12: Speed Compliance Issues

Issue ID	Issue Name	Issue/Problem
SP01	Shenley Road Town Centre speed signage	20mph speed limit is required to support the Shenley Road town centre traffic calming scheme

Issue ID	Issue Name	Issue/Problem
SP02	Deacons Hill Road-Barnet Lane junction	High speeds on Barnet Lane - potential safety issue with traffic exiting from Deacons Hill Road.
SP03	Tempsford Avenue potential speed compliance issue	Adjacent to popular park, designated off-road parking created clear road space which may encourage higher vehicle speeds.
SP04	Ripon Way A1 junction	Poor gap acceptance onto high speed route - functions as give-way.
SP05	Melrose Avenue speed management	Funding secured for possible speed management measures on Melrose Avenue in response to Furzehill development.
SP06	Well End Road - potential speed compliance issue	Potential speed compliance issue on rural road as it enters Borehamwood - 30mph speed limit enforced - lack of supporting signage.
SP07	B5378 Cowley Hill/Shenley Road - potential speed compliance issue	Possible speed compliance issue. Sections with little active frontage may encourage higher speeds.
SP08	Theobald Street - potential speed compliance issue	Possible speed compliance issue, potentially discourages cyclists (to/from station).
SP11	Bullhead Road – potential speed compliance issue	Potential speed compliance issue on Bullhead Road (Elstree Way end) on residential street with busy on-road parking at times.

4.6 Parking

4.6.1 Context

Relevant LTP 3 Goal:
Improve transport opportunities for all and achieve behavioural change in mode choice.

In Hertsmere Borough Council's Revised Core Strategy it is acknowledged that excessive levels of off-street parking can encourage additional or unnecessary car use and inefficient use of land, in the same way that new road building can generate demand for additional journeys. Facilitating fair and equitable access to a range of local services requires that an appropriate amount of off-street car parking be provided to reflect the different local needs. Parking standards are currently enforced for new residential and non-residential development, however tackling parking at existing developed areas may be more problematic.

Parking was identified as a prevalent issue across the UTP area, in particular the issue of on-road parking and the disruption this may cause and the lack of off-road parking. What may be perceived as parking 'problems' have been observed on site. A number of specific locations where parking issues occur have been identified which will aid the process of identifying targeted solutions. Parking issues appeared to be focused in the residential areas however a concern was raised in terms of a lack of parking at the railway station and displacement caused by the existing Controlled Parking Zone (CPZ) on adjacent roads.

What may be perceived as parking 'problems' have been observed on site and further evidence will be required to determine the severity and potential benefits of providing remedial measures. A targeted or corridor/neighbourhood based approach may be more effective than sporadic interventions in terms of addressing footway parking.

Table 13: Parking Issues

Issue ID	Issue Name	Issue/Problem
PK02	Ashley Drive footway parking	Footway parking - impediment to pedestrians
PK03	Bullhead Road (Elstree Way end) parking and speed compliance issue	Residential road feeding Elstree Way - on road parking and potential speed compliance issue
PK04	Shenley Road - footway parking	Parking on the footway and across off-road cycle path on a popular route for school children
PK09	CPZ parking displacement on adjacent streets	Displacement of parking from CPZ zones on nearby streets including (but not limited to) Furzehill Road, Vale Avenue, Oakwood Avenue and adjacent streets. Potentially caused by rail commuters or from town centre shoppers and workers
PK10	Balmoral Drive footway parking	Footway parking - impediment to pedestrians

4.7 Walking

4.7.1 Context

Relevant LTP 3 Goals:
Improve transport opportunities for all and achieve behavioural change in mode choice.
Enhance quality of life, health and the natural, built and historic environment for all residents.

Encouraging walking is a priority of the County's LTP3. Under the goal *'Improve transport opportunities for all and achieve behavioural change in mode choice'* there is a challenge to increase the awareness of the advantages of walking. Furthermore, under the County's LTP3 goal *'Enhance quality of life, health and the natural, built and historic environment of all Hertfordshire residents'* there is a challenge to improve the health of individuals by encouraging

and enabling more physically active travel. LTP3 challenge *"Improve road safety in the county, reducing the risk of death and injury due to collisions"* under the goal *'Improve the safety and security of residents and other road users'* highlights the need to consider the interaction between different users of the transport network including pedestrians and vehicles.

Concerns were raised mainly by local council members with first-hand experience of the problems raised by local people. Issues related to walking were related more to the interaction between pedestrians and vehicles, and the threat this could pose to pedestrian safety.

The Data Report highlights the low proportion of walking to work trips within the UTP area. This is despite many major employment destinations being within easy walking distance of residential areas within Borehamwood. The observed parking issues and congestion may also be indicative of the low proportion of walking trips undertaken within the area, even potentially for shorter distance trips.

Table 14: Walking Issues

Issue ID	Issue Name	Issue/Problem
WA01	Allum Lane Community Centre pedestrian linkage	Possible need to improve pedestrian crossing facilities in vicinity of community centre and in vicinity of Deacons Hill Road
WA02	Centennial Way-Waterfront/Lismirrane Industrial Estates sustainable link	Provide a pedestrian/cyclist route between two adjacent by segregated industrial estates - possible linkage to London Loop
WA04	Pedestrian crossing facilities at Stirling Corner roundabout	Pedestrian crossing facilities at junction are poor - junction is heavily trafficked with high speeds on entries and exits - especially to/from Elstree mobile homes park, and severance between Barnet and Borehamwood
WA05	Low proportion of walk to work trips within towns	Low proportion of walk to work trips within towns (8.6%)
WA06	Deacon's Hill Road lack of dropped kerbs	There are a lack of dropped kerbs along length of Deacon's Hill Road on side roads - making it difficult for pedestrians to cross
WA07	Shenley Road Roundabouts by HBC offices and Tesco - pedestrian crossing impediment	Shenley Road Roundabouts by HBC offices and Tesco - pedestrian crossing impediment - high speed traffic at Shenley Road roundabout and traffic volumes. Potentially used by children travelling to/from secondary school
WA09	Manor Way/Kenilworth Park crossing	Concerns with pedestrian safety at crossing point on Manor Way adjacent to eastern access to Kenilworth Park - on-street parking close to crossing point - restricting visibility for all users
WA10	Hertswood School Thrift Farm Lane access	Concerns with pedestrian safety on Thrift Farm Lane and on Shenley Road adjacent to lower school access.

The spatial distribution of all these issues is shown in ***Figure 16*** below. Some issues are area-wide/not location specific and these are not shown. The map shows that issues are spatially diffuse however there is evidence of clusters of issues occurring on key corridors for example on Shenley Road, Theobald Street and around the Elstree Crossroads. The coalescence of issues at particular locations could offer the potential to identify a single measures or small group of related measures which could deliver significant improvement to a wide range of transport users.

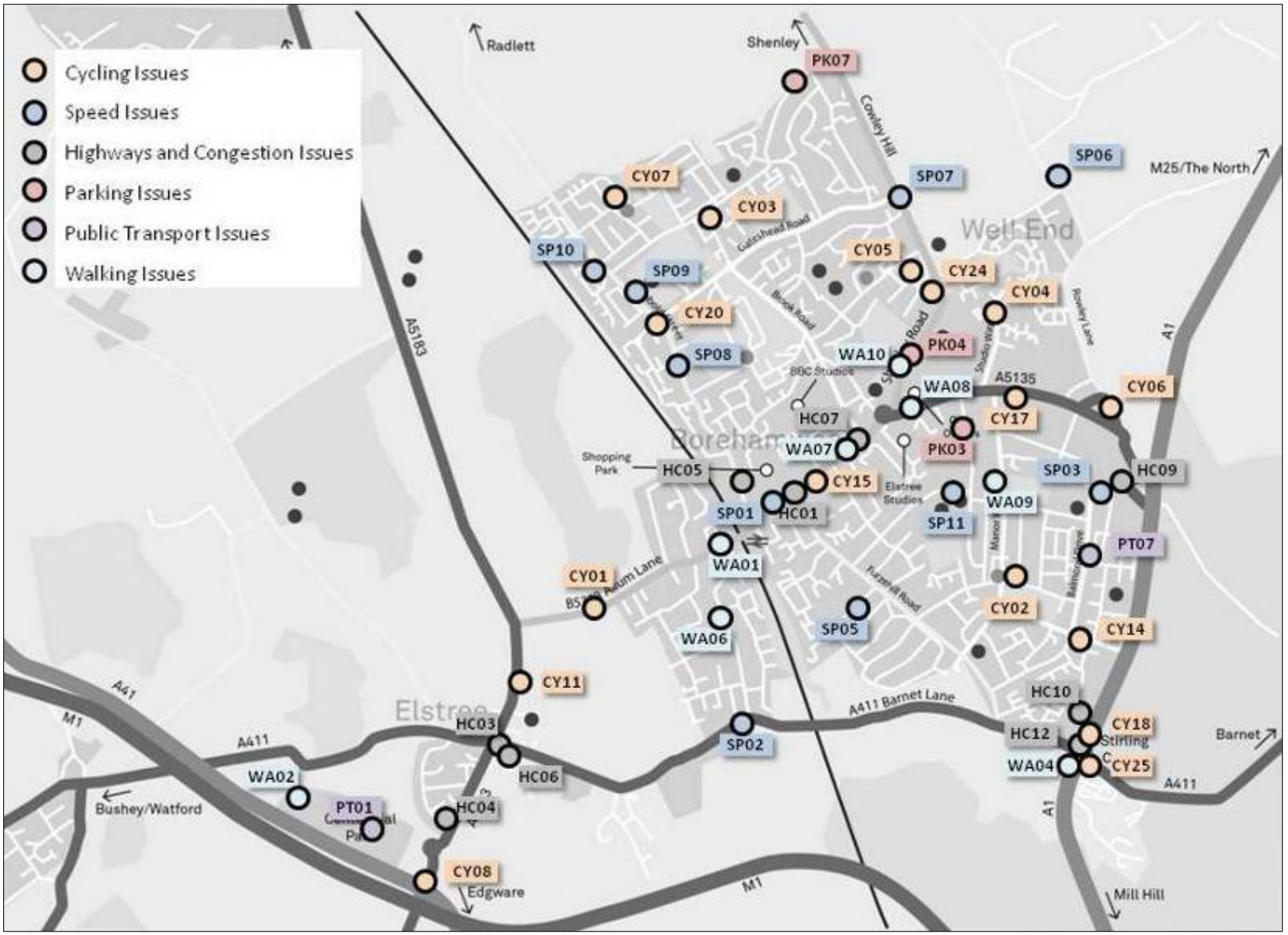


Figure 16: Location of Critical Issues

Route User Hierarchy

5 Route User Hierarchy

5.1 Introduction

In addition to the identification and validation of transport issues in the UTP area, a Route User Hierarchy (RUH) has been developed. The RUH identifies the route user priority on each section of the network through analysis of strategic road function, modal function and adjoining land use.

The outputs from the RUH will assist Hertfordshire County Council to carry out its network management duties and also assist the process of prioritising issues/remedial measures that highlight key areas for improvements.

The RUH will enable the HCC Traffic Manager to understand the potential impacts of any traffic diversions that might be planned and help ensure that appropriate diversionary routes are selected.

In developing the UTP, the objectives of the RUH are to:

- Summarise the current network priority based on a) highway function, b) adjoining land uses, and c) modal function;
- Enable the identification of gaps in mode networks; and
- Assist in the development and prioritisation of issue response measures during Stage 2 of the UTP process.

The methodology undertaken to derive the RUH for Elstree, Borehamwood and Well End is described below.

5.2 Route Categorisation

5.2.1 Highway Function

The highway function of the network in Elstree, Borehamwood and Well End can be split into five main categories:

1 **Primary Route** – Caters for longer distance traffic linking centres of regional importance (not including motorways) (e.g. A41 Watford Bypass and A1 Barnet Bypass);
2 **Main Distributor** – Caters for short to medium distance traffic, linking urban centres to the strategic road network (e.g. A411 Barnet Lane);
3 **Secondary Distributor** – Caters for local traffic with frontage access and frequent junctions (e.g. B5378 Allum Lane / Shenley Road);
4 **Local Distributor** – Roads linking between Main and Secondary Distributors with frontage access and residential areas (e.g. Gateshead Road);
5 **Other** – mainly residential links carrying only access traffic.

The A1 Barnet Bypass passes on broadly a north-south rotation to the west of Borehamwood. The section which is located within Hertfordshire, north of the Rowley Lane/Elstree Way grade separated junction, is within Hertfordshire and is maintained by the Highways Agency as a trunk

road. The section south of this junction through the Stirling Corner junction is within the London Borough of Barnet and is maintained by Transport for London as a so-called ‘red route’. The A1 is therefore not the responsibility for Hertfordshire County Council.

The highway function of the network is demonstrated in **Figure 17** below. Roads outside the UTP area are not colour-coded according to the definitions listed above.

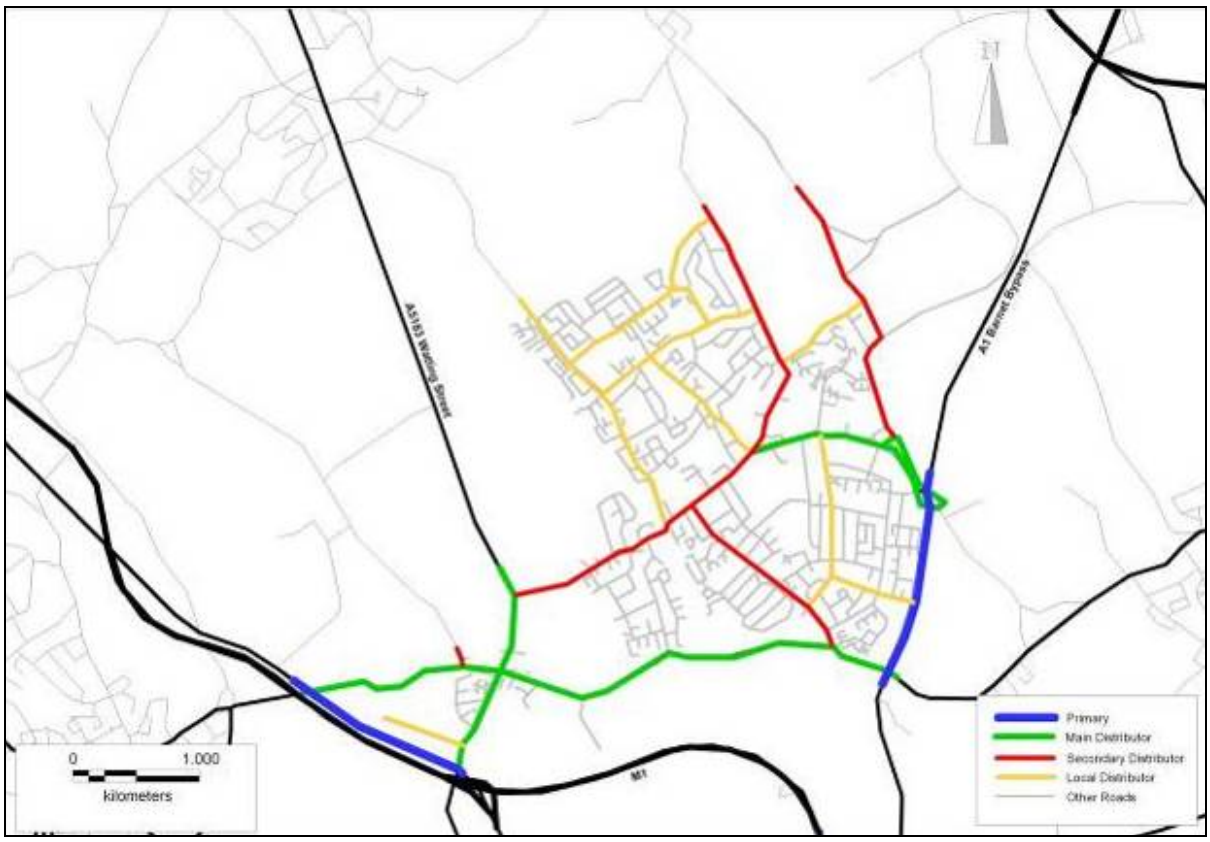


Figure 17: Highway Function in Elstree, Borehamwood and Well End

5.2.2 Adjoining Land Uses

In addition to the highway function, land use can be used to further categorise the highway network. Land use can influence the modes that are given priority on particular routes, so for example routes adjacent to schools pedestrians are expected to afford pedestrians a higher priority, and on routes within predominately industrial/commercial land uses, HGVs may have a higher priority. Land uses throughout the UTP area has been sub-divided into the following categories:

A Town Centre
B Local Shops
C Education
D Residential
E Leisure
F Employment
G Rural

Some key service land uses such as GP Surgeries and Libraries are, for the purposes of this assessment, grouped within the Leisure category. The land use functions of the UTP area is demonstrated in **Figure 18** below. Other land uses have been identified (e.g. utilities and vacant) in the analysis which for the purposes of the RUH will be ignored as they are infrequent and small in scale except where they are adjacent to routes where consideration will be given to potential permitted use.

Figure 18: Adjoining Land-Use Function in Elstree, Borehamwood and Well End

By combining the route and land use categorisations, the network can be split into 35 individual link functions, as demonstrated in ***Table 15*** below.

Table 15: Highway Function and Adjoining Land Use Categorisation

		A	B	C	D	E	F	G
		Town Centre	**Local Shops**	**Education**	**Residential**	**Leisure**	**Employment**	**Rural**
1	Primary	1A	1B	1C	1D	1E	1F	1G
2	Main Distributor	2A	2B	2C	2D	2E	2F	2G
3	Secondary Distributor	3A	3B	3C	3D	3E	3F	3G
4	Local Distributor	4A	4B	4C	4D	4E	4F	4G
5	Other	5A	5B	5C	5D	5E	5F	5G

Each of the 35 link functions will have a priority for each category of transport mode. Some link functions have been perceived to have no priority for certain transport modes due to location or highway features.

5.2.3 Mode Prioritisation

The modal function identifies the modes that are already designated to use different routes. ***Table 16*** below summarises the four network priority categories.

Table 16: Mode Prioritisation

Priority	Example
All users/modes equal	Other roads
Pedestrian/Cyclist/Mobility Impaired/Car	Local Distributor Roads and Other roads
Pedestrian/Cyclist/Mobility Impaired/PT/Car	Secondary Distributor Roads and Local Distributor Roads
PT/Car/HGV	Primary and Main Distributor Roads E.g. A1, A41, A411, A5183

The figures below show high frequency bus routes, designated cycle routes and high frequency vehicle routes within the UTP area.

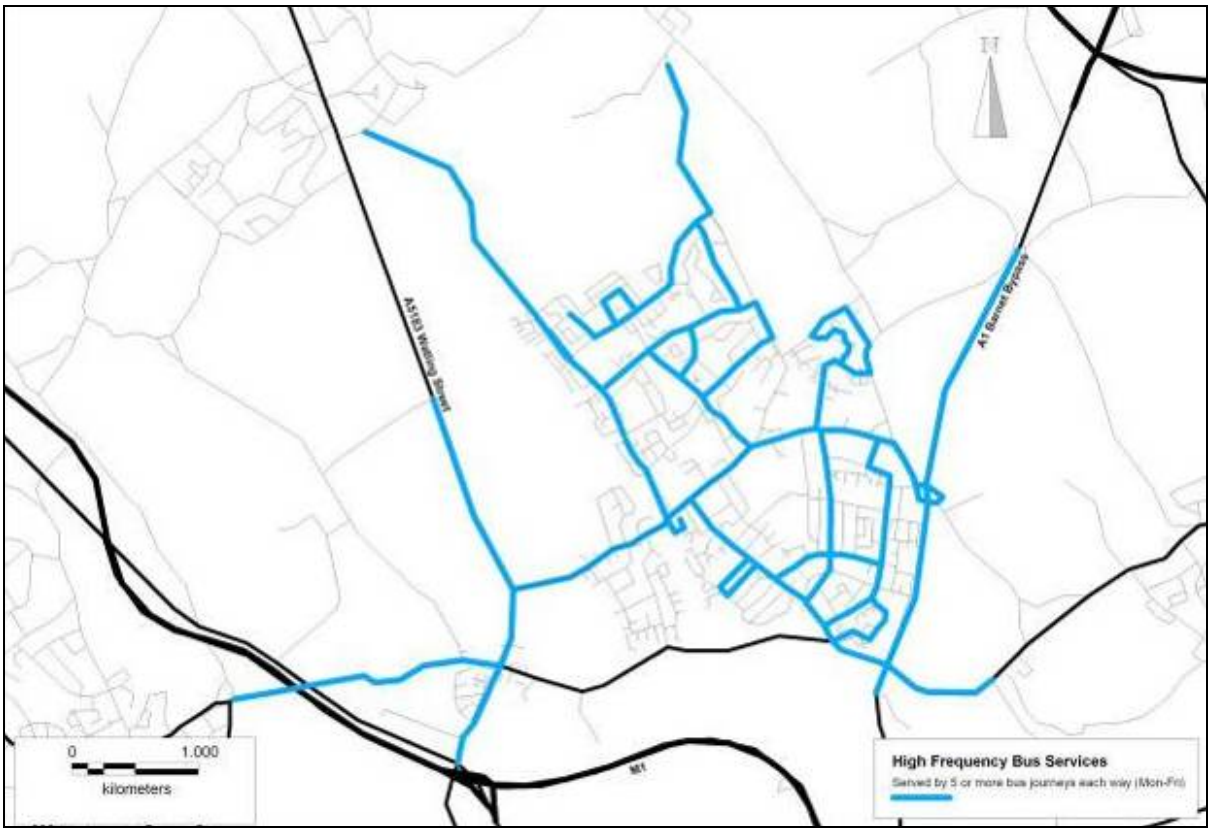


Figure 19: High Frequency Bus Routes (defined as 5 or more bus journeys each way (Monday to Friday)

Figure 20: Designated Cycle Routes in and around the UTP area (on and off-road routes)

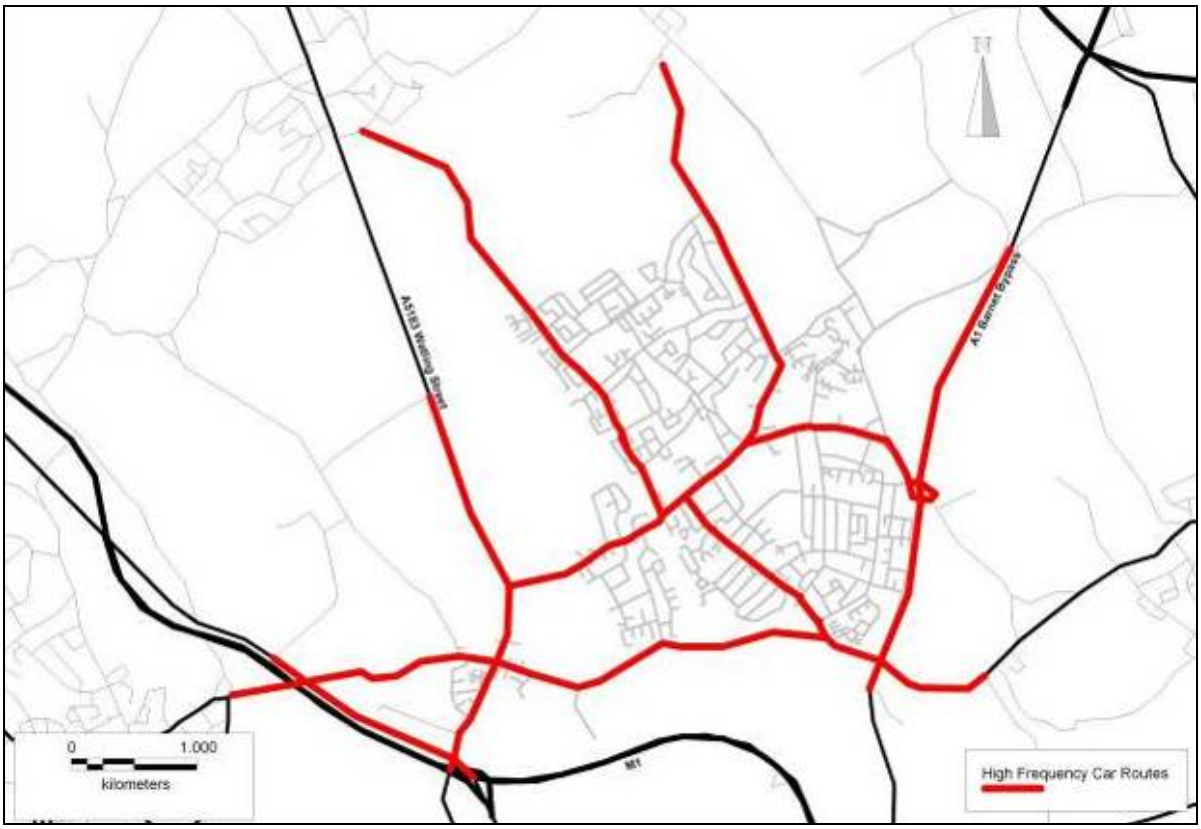


Figure 21: High Frequency Vehicle Routes in and around the UTP area

For many highway links across the urban area, the priority has either been 'all users/modes equal' or 'PT/Car/HGV' due to the strategic function of the road. For example, the A1 is more suitable for motor vehicles, whereas many local roads are accessible for all modes. However, in some cases, the priority has included or excluded public transport or HGVs. This is due to the location of public transport routes through areas where HGVs are not prioritised.

5.3 Route User Hierarchy

The Route User Hierarchy seeks to identify the priority that should be given to the different categories of route user on different sections of the network within the UTP area. The RUH for the UTP area is shown in ***Table 17*** below. The 'General' RUH provides a ranking for each route user and is intended to represent sections of the network where there is not a high frequency bus service. A separate RUH has been devised specifically for routes which are served by higher frequency bus services.

Table 17: Highway Function and Adjoining Land Use Categorisation

Strategic Function		Land Use		General						High Frequency Bus Route					
				Ped	Cyc	Mob Imp	PT	Car	HGV	Ped	Cyc	Mob Imp	PT	Car	HGV
1	Primary Route	A	Town Centre												
		B	Local Shops												
		C	Education												
		D	Residential												
		E	Leisure												
		F	Out/Edge of Town Employment												
		G	Rural	5	4	5	3	2	1						
2	Main Distributor	A	Town Centre	1	1	1	1	1	1	1	6	1	1	1	1
		B	Local Shops	4	4	5	1	1	1	1	6	1	1	1	1
		C	Education	1	1	1	1	1	1	1	1	1	1	1	1
		D	Residential	3	3	3	1	1	1	4	4	4	1	1	1
		E	Leisure	1	6	1	5	1	1	1	6	1	1	1	1
		F	Out/Edge of Town Employment	1	6	1	5	1	1	1	6	1	1	1	1
		G	Rural	5	4	5	3	1	1	5	4	5	3	1	1
3	Secondary Distributor	A	Town Centre	1	1	1	1	1	4	1	1	1	1	1	4
		B	Local Shops	1	6	1	5	1	1						
		C	Education	1	1	1	1	1	1	1	1	1	1	1	1
		D	Residential	3	3	3	3	1	1	4	4	4	1	1	1
		E	Leisure	1	1	1	1	1	1	1	6	1	1	1	1
		F	Out/Edge of Town Employment	1	1	1	1	1	1	1	6	1	1	1	1
		G	Rural	5	4	5	3	1	1	5	4	5	3	1	1
4	Local Distributor (neighbourhood access road)	A	Town Centre												
		B	Local Shops	1	1	1	4	1	4	1	1	1	1	1	6
		C	Education	1	1	1	5	1	6	1	1	1	1	1	6
		D	Residential	1	1	1	5	1	6	1	1	1	1	1	6
		E	Leisure	1	1	1	5	1	6	1	1	1	1	1	6
		F	Out/Edge of Town Employment	1	1	1	5	1	6	1	1	1	1	1	6
		G	Rural	1	1	1	1	1	1						
5	Other	A	Town Centre	1	1	1	1	1	1	1	1	1	1	1	1
		B	Local Shops	1	1	1	1	1	1	1	1	1	1	1	1
		C	Education	1	1	1	1	1	1	1	1	1	1	1	1
		D	Residential	1	1	1	1	1	1	1	1	1	1	1	1
		E	Leisure	1	1	1	1	1	1	1	1	1	1	1	1
		F	Out/Edge of Town Employment	1	1	1	1	1	1	1	1	1	1	1	1
		G	Rural	1	1	1	1	1	1	1	1	1	1	1	1

Figure 22 displays the RUH for the area as it currently stands. The effect of the proposed schemes on the RUH is shown in ***Figure 27***.

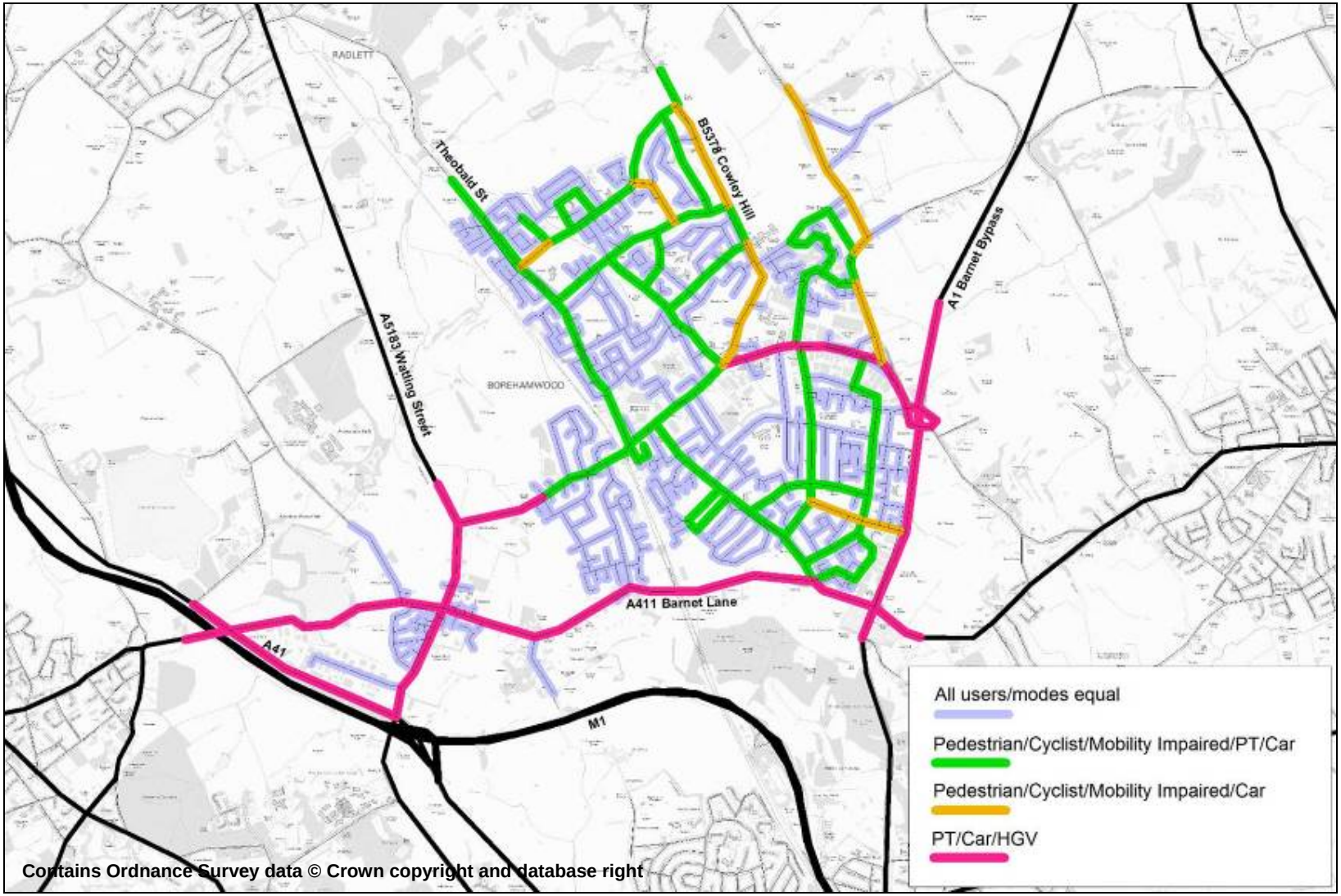


Figure 22: Route User Hierarchy for Elstree, Borehamwood and Well End

Local Opportunities / Future Pressures

6 Local Opportunities / Future Pressures

6.1 Introduction

This section identifies the future development options within the Borehamwood and Elstree area and provides an insight into potential impacts that local development opportunities will have on local transport infrastructure, including the implications for the area.

6.2 Housing and Employment Growth Aspirations in Borehamwood and Elstree

The Revised Core Strategy (Submission Draft, 2011) allocates a significant amount of growth to sites within the UTP area, with around 2,351 additional dwellings in the plan period allocated to Borehamwood and around 118 dwellings allocated to Elstree and Shenley (the latter of which is outside the UTP area). These dwellings will form part of a 3,740 net yield across Hertsmere Borough. Within Borehamwood, a significant part of the allocation will be focused on sites close to the Town Centre, with significant mixed-use development potential focused around the Elstree Way corridor (including land around Hertsmere Borough Council offices) and the potential re-development of the BBC studios site.

The Revised Core Strategy proposes that employment development is focused on the expansion and enhancement of the Elstree Way employment area, given the area's proximity to population centre, the strategic road network (including A1 and M25) and its accessibility by a variety of transport modes, e.g. car, bus, rail and cycle.

Within the Revised Core Strategy, Policy CS8 proposes the provision of 110 hectares of additional employment land, with a focus on several existing strategic employment areas within Herstmere Borough. Areas identified within the UTP area are Elstree Way, Stirling Way and Centennial Park (located adjacent to the A41).

6.3 Elstree Way Corridor, Borehamwood

The Elstree Way Corridor, Borehamwood, represents a major development opportunity in the area, and master planning work is progressing on exploring and refining proposals. Transport forms a major consideration within emerging plans and a balance will need to be struck between facilitating existing through-traffic movements as well as creating a safe and attractive environment for pedestrians. A key element of the proposals is the removal of the Shenley Road/ Elstree Way roundabout, and reconfiguration of the road network in the immediate vicinity. The purpose of this is to release land for future development, improving the physical appearance of an important gateway into the town and enhancing pedestrian links. Hertsmere Borough Council is developing an Elstree Way Corridor Area Action Plan which, in accordance with Revised Core Strategy policies, will provide the policy basis for development and outline the form it should take.

6.4 Current / Emerging Large Developments with Planning Permission

Larger development sites with planning permission, and are completed or are being built-out at the time of writing within Borehamwood and Elstree include:

- Land at Studio Plaza, Elstree Way. With the erection of 85 residential units within this location of the development.
- Land at Oaklands College, Elstree Way. This development comprises of 125 new dwellings and has now been completed.
- Land at Allum Lane (adjacent to Elstree and Borehamwood Station). This development comprises of 73 dwellings. At the time of writing, this site is currently being built-out.
- Land at Shenley Road, Borehamwood. This development has been granted planning permission for the construction of a multi-functional community building, which will house the town's library, with associated parking and landscaping. Whilst located on Shenley Road, which can experience traffic issues, the site is in a sustainable Town Centre location and has good accessibility by a variety of modes. At the time of writing, this site is currently being built-out.
- Land at Elstree Hill South. An application for proposed change of use of land to a green waste recycling and composting operation, including the siting of temporary structures including skip, machinery, portaloo and erection of a steel portal framed building and could impact on the current capability of Elstree Hill South Road.
- Land on Rowley Lane – demolition of the former Elstree Business Centre, Elstree Way (Borehamwood) and redevelopment for retail and other commercial use.

6.5 Potential Future Developments

A number of potential development sites within the UTP area are summarised below:

- Vacant land to the south of Elstree and Borehamwood railway station (east of the Midland Main Line) adjacent to Coleridge Way – has potential capacity for 60 dwellings.
- BBC Studios - has potential capacity for 308 dwellings.
- Old Haberdasher's Sports Ground – has potential capacity for 107 dwellings.

Furthermore, an area of land between Rowley Lane and the A1 has been identified as safeguarded land in Hertsmere Borough Council's Revised Core Strategy with the potential for development in the future.

It is important to note that some or all of these potential development sites may not go ahead. The locations of these development sites are shown in ***Figure 23*** below.

6.6 Transport Implications

Through the planning application process, developers and promoters of sites will be expected to demonstrate the transport impacts of their developments and, if required, provide (or make an equivalent monetary contribution towards) mitigation measures which sufficiently offset any impacts. The local authorities have responsibility for assessing planning applications and consider the transport implications before determining applications and potentially granting planning permission.

The UTP recognises that a number of developments are currently taking place or are likely to come forward in the future. It has therefore been necessary to ensure that, in discussion with the local authorities, the UTP proposals do not restrict or prevent important local development coming forward in the area, and if possible could provide some benefit to potential developments by improving the transport network in the local vicinity and wider area.

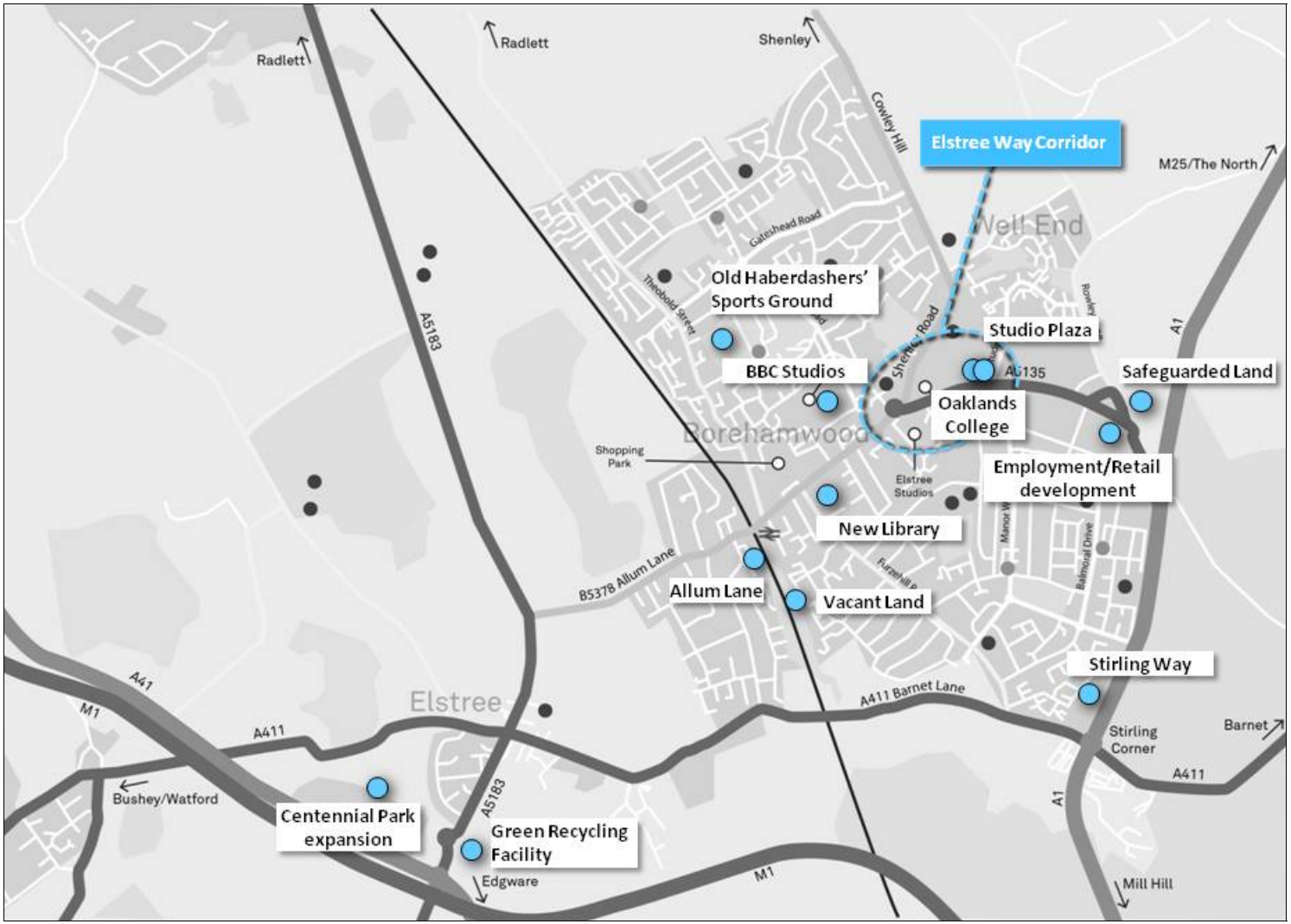


Figure 23: Recent, Committed and Potential Developments

Local Objectives and Key Strategy Statement

7 Local Objectives and Key Strategy Statement

7.1 Local Objectives

It is necessary to set a series of objectives which can guide the development and implementation of the UTP. The following UTP objectives have been devised which accord with the overarching Local Transport Plan 3 for Hertfordshire:

- Support economic growth and local housing development through the delivery of transport improvements;
- Promote active travel modes such as walking and cycling across Elstree, Borehamwood and Well End to encourage active and healthy lifestyles;
- Improve non-car transport connectivity across Elstree, Borehamwood and Well End through a cohesive and attractive network of walking and cycling facilities;
- Improve public transport provision and promotion;
- Improve transport connectivity between transport modes to allow for greater transport flexibility;
- Encourage reliability of travel through sustainable travel alternatives; and
- Reduce congestion at key traffic hotspots throughout the study area.

These objectives have been used throughout the development of the UTP to ensure that the schemes that are devised meet the overall strategic direction for the area as far as transport and growth are concerned.

7.2 Key Strategy Statement

It is also important to identify an overarching strategy statement for the UTP to ensure that the Plan is focused upon a clear goal. This helps to ensure that the transport schemes developed through the UTP form part of a coherent strategy for the area.

The proposed Key Strategy Statement for the UTP:

"The UTP will deliver a coherent strategy for identifying the key transport issues facing Elstree, Borehamwood and Well End, and provide a transparent and systematic process for evaluating, formulating and prioritising targeted projects and measures to address the most critical transport issues which help enable the area to flourish sustainably for years to come."

Opportunities and Interventions

8 Opportunities and Interventions

8.1 Developing the schemes

A range of schemes have been developed during the UTP process which address specific issues identified throughout Borehamwood, Elstree and Well End. The schemes that have been developed have been informed through a consultation process with local council officers and members, with additional schemes developed based on other identified transport issues. The full range of schemes are listed out this chapter. A Scheme Proforma document has been prepared for each scheme which provides more detail about the scheme location, the issues that would be addressed, associated costs, timescale for implementation, and any deliverability or feasibility issues that could prevent or delay implementation, as well as supporting drawings, maps and photographs.

The overarching process of identifying issues through to developing schemes is shown in ***Figure 24*** below.

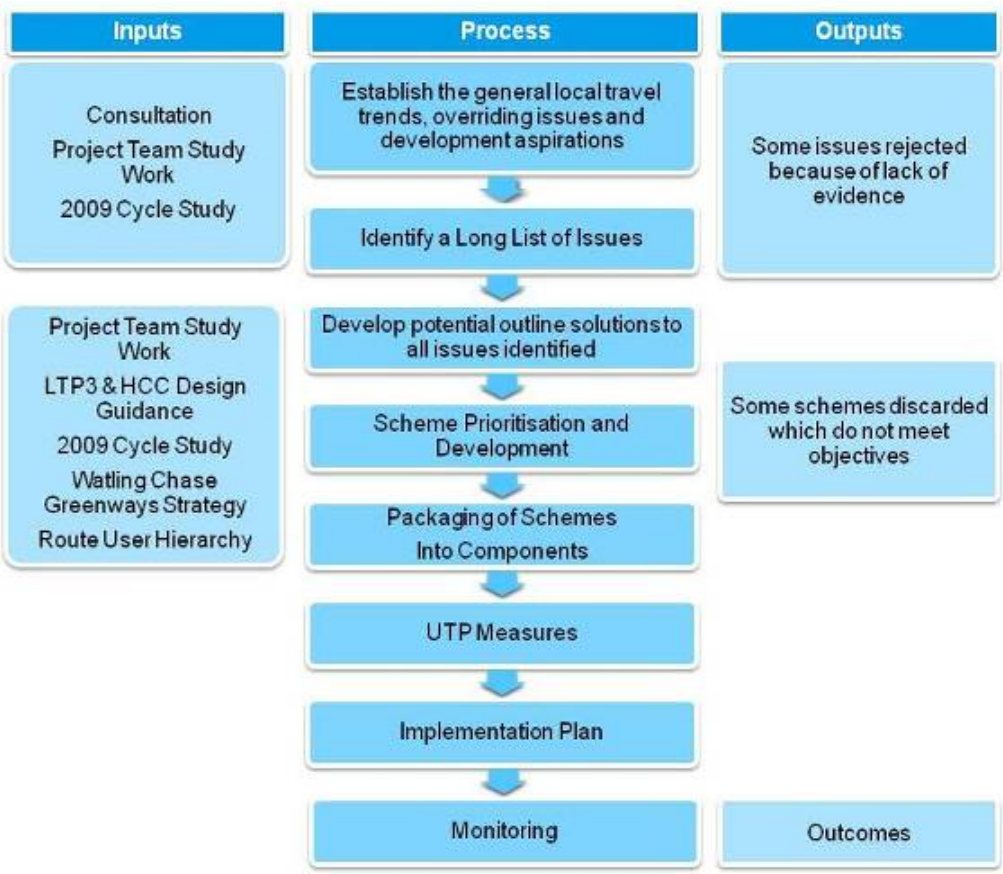


Figure 24: The process of developing the UTP

8.2 Packaging the schemes

Schemes have been packaged under the following themes:

Accessibility: Schemes to improve multi-modal accessibility to key sites, services and facilities such as schools, in particular for non-car travel modes such as public transport, walking and cycling.

Highways and Congestion: Schemes to improve the operation and efficiency of the local highway network, including tackling well-known bottlenecks.

Cycling: Schemes to enhance and extend cycle infrastructure including cycle parking at key destinations, cycle routes and way-finding signage.

Walking: Schemes to improve the pedestrian environment, particularly in areas of interaction with other modes such as motor vehicles.

Speed Compliance: Schemes to address excessive speeds recorded on local routes with the aim of increasing compliance with speed limits.

Parking Management: Schemes to address reduce the impact of obstructive parking through targeted management schemes, with the aim of improving access for other modes such as walking, cycling and public transport.

Schemes can comprise of one or more individual measure or component. The purpose of breaking down schemes into these so-called ‘building blocks’ is so that any risks and costs associated with specific elements of an overall scheme can be identified and understood, however all measures/components should be complimentary and work towards a common scheme objective.

There are instances where more than one option has been considered, therefore a choice can be made following more detailed assessment work to determine which option to take forward.

There are also instances where similar measures have been proposed at different locations, and whilst each measure/component could be implemented and work effectively in independence of one another, if they were all implemented this could contribute to a more coherent strategy.

8.3 Scheme Selection Process

Each of the proposed schemes has been assessed against the following criteria:

- **Urban Transport Plan Objectives**:
  Each of the proposed schemes has been assessed against the Urban Transport Plan objectives, resulting in a score between +3 and -3, depending on the contribution of the scheme towards each objective.

- **Local Transport Plan objectives/indicators and fit with programme entry/funding criteria:**
  Each of the proposed schemes has been scored against 12 measurable Local Transport Plan Indicators:
  1) Congestion
  2) Accessibility to key trip attractors
  3) Accessibility of new developments
  4) Accessibility
  5) % of all trips made by walking and cycling
  6) Passenger transport patronage
  7) Bus punctuality
  8) User satisfaction with public transport
  9) Mode share of sustainable school journeys
  10) % Rights of Way easy to use by public
  11) Air Quality
  12) Speed Limit Compliance

- **Deliverability criteria** (i.e. public acceptability, funding / affordability, cost, feasibility, delivery risk):
  The deliverability assessment results in a score of low, medium or high, depending on the level of cost or risk for each scheme.

Once all of the scores had been defined for each of the 22 schemes, a total score has been derived which was then used to understand the level at which each scheme contributed to LTP3 indicators. The full set of indicators is demonstrated in **Appendix A**.

There are additional considerations when considering the value of each scheme:

- **Timescale** – Consideration is given regarding the timescale for implementation of each scheme. This is broken into three periods (focused on the Hertfordshire Highways Integrated Works Programme timeline):

  - **SIMPLE** : Less than 1 year
  - **STANDARD** : 1 to 2 years
  - **COMPLEX** : More than 2 years

The full scoring of each scheme is contained in the Scheme Appraisal Framework excel spreadsheet, with the outcomes provided in **Appendix A**.

It is these scores that will assist in the prioritisation of delivery during the UTP period [1].

Table 18 demonstrates three schemes that contribute the most towards LTP3 indicators and UTP objectives, and three schemes that contribute the least.

Table 18: Scoring Against LTP and UTP Objectives (top 3 and bottom 3 schemes)

Scheme	Score
07 - Shenley Road-Elstree Way Roundabout	***34***
08 - Kenilworth Park-Maxwell Park Sustainable Link	***31***
02 - Composers Estate, Elstree - Sustainable Connections	***27***
19 - Managing Disruptive Parking (CPZ displacement)	***3***
15 - Newark Green Width Restriction Refresh	***2***
16 - HGV Weight Restriction Review	***2***

The proposed schemes have been designed for implementation over the next 15 to 20 years. However, the Implementation Plan outlined in Chapter 9 covers the funding and implementation for the next 5 years (2013 to 2018). The short term schemes (those for proposed entry into the Integrated Works Programme) have been developed to provide high value to cost.

The following text provides specific details for each of the 22 proposed schemes and their scheme components, with full details provided in **Appendix D**. A location plan for the schemes (excluding those which are area wide) is contained in ***Figure 26*.**

The scheme proformas included within the UTP are intended to provide an initial indication of the scale and form of potential measures that could be implemented in the future. All schemes

[1] Based on the following scoring system: +3 Contributes to Indicator significantly; 0 Neutral Impact on Indicator;- 3 Detracts significantly from Indicator

intended to be taken forward will be subject to further more detailed investigations prior to implementation. There is potential that not all of the schemes will be taken forward, and those that are taken forward may eventually vary in scale and form to those outlined in the UTP. Schemes which are to be taken forward for further development will be subject to public consultation prior to being included in the County Council's forward programme of works, and implementation.

8.4 Accessibility Schemes

Centennial Park is a major employment site within the UTP study area. It is set apart from Elstree and is most easily accessed by car. The site is however served by bus and there is footway access to the site from Elstree Hill South. Also in close vicinity are offroad cycleways on the A41 Watford Bypass however linkage between these and Centennial Park are poor. Anyone travelling between Elstree and Centennial Park would need to travel via Elstree Hill South, which is a heavily trafficked route especially in peak times. A package of schemes has been developed to improve access to Centennial Park, recognising its importance as a major employment site which has the potential to expand in the future as indicated in HBC's Revised Core Strategy.

It is important to ensure that existing and future employees and visitors have the option to access the site by means other than the car, and the package of measures set out under **Scheme 01** provides opportunities to achieve a modal shift, especially towards the bike.

An existing 'greenway' pedestrian/cycle link is provided between Manor Way and Bullhead Road accesses on the eastern side of Manor Way into Kenilworth Park and on the western side into Maxwell Park. Concern was raised that crossing facilities on Manor Way immediately adjacent to the footway access into Kenilworth Park is poor, with prevalent parking obstructing visibility. There may also be a perception of high traffic speeds. To improve connectivity, making use of the existing greenway connections, **Scheme 08** has been developed to improve crossing facilities for pedestrians and cyclists, thus creating a new park-to-park link, with onward connections via Maxwell Park into Borehamwood Town Centre.

Hertswood School is the only state secondary school in Borehamwood and therefore its catchment area extends across a wide area. Statistics obtained from the school's Travel Plan indicates that there is a high dependency on the car for students, staff and visitors. A package of measures under **Scheme 20** have been developed which address a number of issues on Shenley Road, Cowley Hill and Thrift Farm Lane with the aim of improving access on foot and by bike, and reducing the detrimental effect of prevalent parking (particular on the footways) and excessive speeds where these could pose a risk to pedestrians' safety. By implementing a range of improvements, and in conjunction with other schemes including 07 – Shenley Road/Elstree Way roundabout and 10 – Well End-Borehamwood Sustainable Connections, the scheme aims to encourage a higher proportion of trips to/from the school by more sustainable modes.

Table 19: Accessibility Schemes

Scheme	Scheme ID	Component Measure ID	Component / Measure	Scheme Score
Centennial Park Accessibility	01	1.1	Centennial Way-Waterside Park sustainable link	***27***
		1.2	Elstree Hill South/A41 Watford Bypass/Brockley Hill roundabout cycle crossing improvements	
		1.3	Convert Elstree Hill South/A41 Watford Bypass/Brockley Hill junction to signalised crossroads	
		1.4	Improved cycle crossing facilities at Centennial Way access roundabout	
		1.5	Improve bus stop facilities within Centennial Way site	
		1.6	Improve/implement cycle provision on Elstree Hill South between Centennial Way and Sullivan Way junction	
Kenilworth Park-Maxwell Park Sustainable Link	08	8.1	Cycle crossings/speed tables/build-outs on Manor Way (traffic to have priority)	***31***
		8.2	Address cycle provision on Bullhead Road - park link (dog-leg approach)	
Safe and sustainable access to Hertswood School	20	20.1	Improve pedestrian environment on Thrift Farm Lane	***20***
		20.2	Implement parking management measures on Shenley Road adjacent to Thrift Farm Lane	
		20.3	Introduce speed reduction measures adjacent to schools	

8.5 Highways and Congestion Schemes

A number of highways schemes are already in preparation by HCC, and these are reflected in the UTP as they are likely to have a significant positive effect on the operation of the local highway network by helping to ease existing congestion problems. These schemes are:

- **Scheme 03** - Elstree crossroads (scheme to improve the layout to reduce traffic queues)
- **Scheme 06** - Station Road/Allum Lane/Theobald Street/Shenley Road junction (scheme to replace the existing mini roundabout with a signalised crossroads)

During the development of the UTP, concerns were raised regarding the effectiveness of the existing width restriction measure which is situated on Newark Green on the eastern side of Borehamwood. The width restriction is designed to prevent unsuitably large vehicles from entering a predominantly residential area. **Scheme 15** has been developed as a refresh of the existing measure. At the time of writing this has been partially implemented by HCC. Further consideration of additional improvements which should complement the existing measure have been developed as these may also help to reduce the likelihood of large vehicles from entering Newark Green in error.

A number of weight restrictions are in place across the UTP area. These restrictions are intended to discourage HGVs from routing through the area which have neither an origin nor destination in the area, particularly on routes which have environmental sensitivities. Under **Scheme 16**, consideration has been given to a review of existing restrictions and a new signing strategy to promote alternative routes for through-HGV movements away from the UTP area.

Table 20: Highways and Congestion Schemes

Scheme	Scheme ID	Component Measure ID	Component / Measure	Scheme Score
Elstree Crossroads Junction Improvements	03	3.1	Preferred Scheme only	***16***
Station Road/Allum Lane/Theobald Street/Shenley Road Junction Improvements	06	6.1	Committed Scheme	***15***
		6.2	Additional Cycle Enhancements	
Newark Green Width Restriction Refresh	15	15.1	Scheme refresh (committed scheme already in progress)	***2***
		15.2	Supplementary scheme enhancement - additional/replacement signage	
HGV weight restriction review and signage strategy	16	16.1	Review HGV weight restrictions including A411 Barnet Lane	***2***
		16.2	HGV route signage	

8.6 Cycling Schemes

Opportunities exist to increase cycling within the UTP area. Borehamwood already benefits from existing on and offroad cycle facilities, however the quality of these routes varies. Elstree has

very little in the form of cycle facilities and dedicated cycle provision between the two towns is non-existent.

The proposed improvements to the cycle network set out under **Schemes 02, 05, 07, 09 and 10** are focused on connectivity between key destinations within the study area by establishing an east-west cycle corridor extending from Well End and the A1 in the east to Centennial Park and Elstree in the west via Borehamwood Town Centre. In addition to route improvements, additional facilities such as cycle parking have been proposed under **Schemes 12 and 17** at key destinations in order to improve security, and to encourage mode shift for short journeys for commuters, visitors and shoppers. The provision of these facilities at key destinations aims to reduce congestion through mode shift, and reduce the amount of parking in residential areas or side roads.

Figure 25 shows diagrammatically the cycle corridor and the various destinations and connections that could be accessed en route.

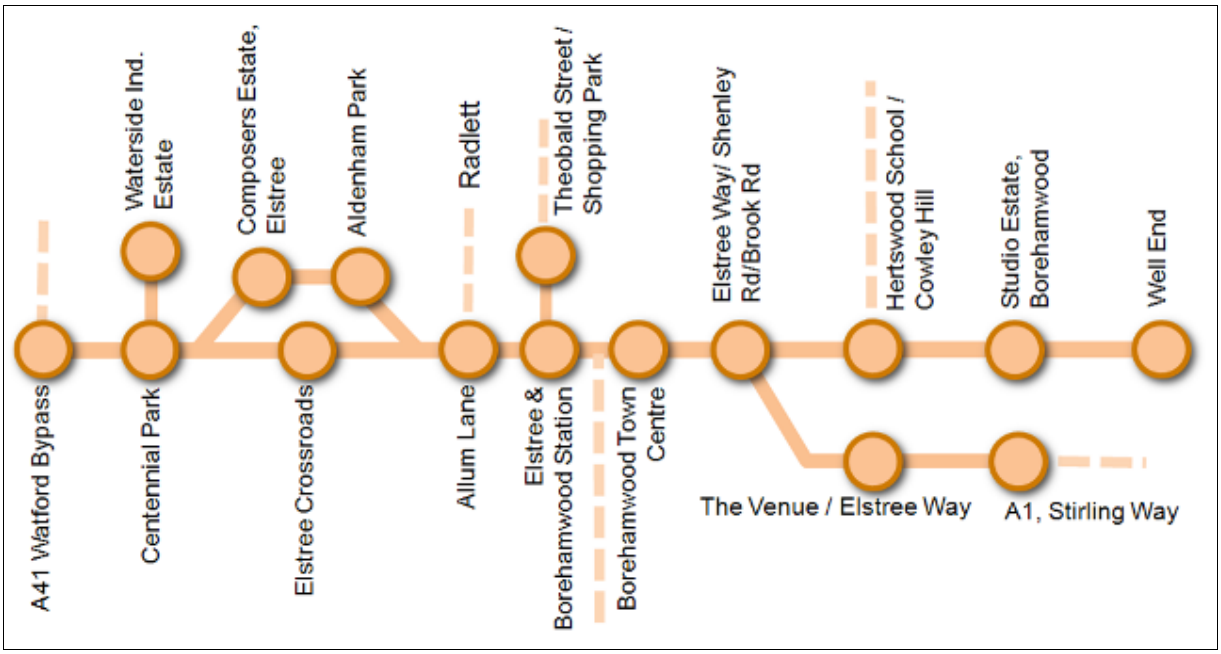


Figure 25: East-West Cycle Links (connecting the proposals)

By introducing a variety of cycling schemes, and associated measures, local residents will have greater accessibility to safer cycling routes, and improved mode choice for local journeys. It is anticipated that the proposals will contribute to the overarching Objectives of LTP3, but also increase the priority of cyclists throughout the transport network in Borehamwood, Elstree and Well End. **Scheme 21**, which will provide new way-finding signage across the area, will help to

promote new and existing routes and help towards establishing a coherent, well-connected network across the UTP area.

Table 21 lists the proposed cycle schemes, the scheme score and the various component measures which make up overall scheme packages.

Table 21: Cycling Schemes

Scheme	Scheme ID	Component Measure ID	Component / Measure	Scheme Score
Composers Estate, Elstree - Sustainable Connections	02	2.1	Cycle bypass route on Coates Road one-way section / in conjunction with one-way enforcement	***27***
		2.2	Convert Pelican crossing on Watford Road to Toucan standards	
		2.3	On-road cycle route on Sullivan Way with access in vicinity of Schubert Way/Watford Road and Elstree Hill South junctions	
Elstree-Borehamwood Inter-Urban Cycle Spine	05	5.1	Station Road-Allum Lane service road link	***26***
		5.2	Allum Lane service road on-road cycle provision	
		5.3	Allum Lane service road - Cemetery access junction shared cyclepath/footpath	
		5.4	Cemetery access junction - Elstree Hill North a) Via Elle-Dani Farm route	
		5.5	Cemetery access junction - Elstree Hill North b) Via Aldenham Park route	
		5.6	Elstree Hill North route	
		5.7	Physical Gateway Measure (north of A5183 cottages)	
		5.8	Gateway Measure - road markings / signage	
Elstree Way-Shenley Road Roundabout	07	7.1	Preferred Scheme - Significant Scheme (longer term)	***34***
		7.2	Increase size of splitter islands/hatching and circulatory markings with the aim of reducing	

Scheme	Scheme ID	Component Measure ID	Component / Measure	Scheme Score
			vehicle speeds and pedestrians'/cyclists' safety - interim scheme	
Elstree Way East Cycle Gateway	09	9.1	Increase cycle lane widths	***26***
		9.2	Make eastbound cycle lane route (address Rowley Lane junction in vicinity of splitter island)	
		9.3	Improve westbound cycle lane route (improve jug-handle commencement of cycle lane)	
		9.4	Provide combined east/westbound off-road cycle route	
Well End-Borehamwood Sustainable Connections	10	10.1	Rowley Lane-Denham Way - make route cycle compliant	***23***
		10.2	Denham Way-Potters Way offroad shared cycle/footpath provision and crossing facilities	
		10.3	Rowley Lane-Studio Way-Shenley Road link - make route cycle compliant (including crossing facilities and potential relocation of bus stop on Studio Way)	
Cycle parking at Key Local Destinations	12	12.1	Introduce cycle stands at Manor Way shopping parade (1 option)	***21***
		12.2	Introduce cycle stands at Leeming Road shopping parade (1 option)	
		12.3	Introduce cycle stands at Hartforde Road shopping parade (1 option)	
		12.4	Introduce cycle stands at Rossington Avenue shopping parade (1 option)	
		12.5	Introduce cycle stands at Croxdale Road shopping parade (1 option)	
Borehamwood Shopping Park – Cycle Access	17	17.1	Implement cycle route (mixture of on/off-road provision)	***26***
Cycle Wayfinding - Promoting the Connections	21	21.1	Elstree - Composers Estate - Centennial Way	***26***
		21.2	Elstree - Borehamwood	
		21.3	Borehamwood	

8.7 Walking Schemes

Footways and pedestrian crossings are also dealt with through schemes under other themes. For example, schemes such as **08 – Maxwell Park-Kenilworth Park Sustainable Link**, **20 – Sustainable Access to Hertswood School**, 22.3 Tempsford Avenue speed reduction measures and 22.4 Theobald Street speed reduction measures, amongst others, should provide benefit to pedestrians as well as other modes.

Two dedicated walking schemes have been developed, **Schemes 11** and **18**.

Stirling Corner is a major junction in the local area and experiences heavy traffic flows especially during peak periods. The junction can also encourage higher speeds given its edge-of-town character and also because it is situated on a major north-south trunk road. This makes it an inhospitable environment for pedestrians and cyclists.

A package of small-scale measures has been developed under **Scheme 11** to improve the existing crossing facilities and it is considered that these should be deliverable within the UTP implementation period. It is noted however that larger-scale measures such as grade-separated crossing provision may be aspired to, however this is not considered to be affordable through the UTP and further discussion with other parties including Transport for London would be necessary to pursue this further. Consideration has also been given to improving the vehicle access to the mobile home park on the south-western side of the Stirling Corner roundabout, by making it more prominent to motorists. This has been packaged with measures to improve footway/cycleway crossing facilities.

Deacon's Hill Road has been identified as lacking in accessible crossing facilities at side-arm junctions. Under **Scheme 18**, it is proposed that a series of dropped kerbs incorporating tactile paving is introduced to improve the footway. In addition, the footway crossing environment around the Allum Lane / Deacon's Hill mini roundabout has been identified as being poor. The junction is heavily trafficked, especially during peak times and with the Allum Hall community centre facility and Elstree and Borehamwood railway station in the close vicinity, the introduction of improved crossing facilities incorporating of tactile paving and amendment of footway alignments to reduce crossing distances should help to improve pedestrian access to these facilities. Additional pedestrian wayfinding signage on the length of Deacon's Hill Road will help to promote the route.

Table 22: Walking Schemes

Scheme	Scheme ID	Component Measure ID	Component / Measure	Scheme Score
Stirling Corner Roundabout - Safer Navigation for Pedestrians and Cyclists	11	11.1	Reduce exit width on Barnet Lane / expand splitter island to improve cycle/pedestrian crossing and potentially reduce speeds on exit.	***19***
		11.2	Nearside hatching on exit and introduce give-way line on Mobile	

Scheme	Scheme ID	Component Measure ID	Component / Measure	Scheme Score
			Home access to give it greater presence	
Allum Lane-Deacons Hill Footway Enhancements	18	18.1	Introduce dropped kerbs/speed tables at junctions on Deacons Hill	***24***
		18.2	Improve pedestrian crossing facilities at Allum Lane/Deacon's Hill mini roundabout	

8.8 Parking Schemes

Parking has been identified as a major issue affecting the UTP area, specifically parking which occurs in inappropriate places which can as a consequence cause obstruction to other road users. A specific issue was raised regarding parking along Balmoral Drive and Ashley Drive which in part is used by local bus services. The concern was that footway parking was obstructing the flow of buses and the free movement of buses approach bus stops. Footway parking immediately adjacent to speed cushions has also been highlighted as a problem for buses and for cyclists. Cars parked half on / half off the footway can also be a hindrance to pedestrians, especially where this may force pedestrians into the road or cross to avoid the obstruction. A package of measures (**Scheme 13**) has been developed to address these issues along the Balmoral Drive / Ashley Drive corridor, however it is recognised that this could be a regular occurrence at other locations across the UTP area.

Scheme 19 aims to identify disruptive parking, mainly on roads immediately outside or in close vicinity to the Controlled Parking Zone within Borehamwood. Several locations were highlighted during consultation where measures could be implemented however the scheme aims to review all locations and identify appropriate responses (if required) on a case by case basis. This will need to be undertaken in close association with Hertsmere Borough Council whose responsibilities include parking enforcement.

Scheme 14 proposes a number of variable message signs that will be positioned on major routes entering Borehamwood. These signs will provide information to motorists entering the town of the parking spaces available at council-run car parks within the town centre. The aim of the scheme is to encourage more efficient journeys by informing motorists who may be intending to park at a particular car park that may be operating at full capacity, that spaces are available at alternative car parks.

Table 23: Parking Schemes

Scheme	Scheme ID	Component Measure ID	Component / Measure	Scheme Score
Balmoral Drive/Ashley Drive Parking Management	13	13.1	Double yellows protecting speed cushions	***17***
		13.2	Bollards adjacent to bus stops	
		13.3	Bus stop improvements	
Car Parking Variable Message Signs	14	14.1	VMS on Allum Lane (between Deacon's Hill and Station Road)	***5***
		14.2	VMS on Theobald Street (north of Shopping Park access)	
		14.3	VMS on Furzehill Road (e.g. between Oakwood Ave and Hillside Ave)	

Scheme	Scheme ID	Component Measure ID	Component / Measure	Scheme Score
		14.4	VMS on Shenley Road (upstream of Hertsmere BC council office car park access)	
		14.5	VMS on Elstree Way (east of Shenley Road/Brook Road roundabout)	
		14.6	VMS on Brook Road	
Managing Disruptive Parking (CPZ displacement)	19	19.1	Area Wide review of parking displacement (ongoing)	***3***

8.9 Speed Management Schemes

A number of issues concerned traffic speeds. Speed data collected however does not always highlight speeds in excess of the designated speed limit, and therefore concerns relating to traffic speeds may be a result of people's perceptions and consideration of their safety when travelling in the road environment. Pedestrians and cyclists could be most at risk of excessive speeds, however it could also pose a risk to other motorists.

A package of schemes, which for ease of reference have been gathered together under **Scheme 22**, have been developed to address recorded excessive speeds or a perception of excessive and dangerous speeds. Traffic speeds are also addressed, albeit indirectly, through **Scheme 08 - Maxwell Park-Kenilworth Park Sustainable Link and Scheme 20 – Sustainable Access to Hertswood School.**

Scheme 22.1 addresses a problem of speeds exceeding the speed limit on Well End Road. The road is currently subject to a 30mph speed limit however speeds have been recorded well in excess of this limit. The road is on the edge of the urban area. The section of Well End Road to the north is subject to a 40mph speed limit. Consideration has been given to the possibility that the 30mph speed limit is not appropriate on this section and that this could be replaced with a 40mph speed limit. If this is not considered a reasonable approach, traffic calming measures have been developed to encourage compliance with the existing 30mph speed limit, including enhanced 'gateway' measures and kerb build-outs.

Scheme 22.2 incorporates flat top speed humps on Melrose Avenue and is a scheme which is already in development.

For **Scheme 22.3**, whilst excessive speeds have not been recorded, anecdotal evidence has indicated that this straight section of road, adjacent to a public park, could encourage higher traffic speeds, therefore measures have been development in the form of flat top road humps, which can also double as uncontrolled pedestrian crossings, to address this.

Scheme 22.4 addresses the Theobald Street corridor between the northern edge of Borehamwood to the mini roundabout access to the Borehamwood Shopping Park. A package of complimentary measures has been developed to encourage lower speeds. There is the aim that through lower traffic speeds, cycling could be encouraged along this route which is a key access corridor to Borehamwood town centre and Elstree and Borehamwood railway station.

Traffic calming and management measures are already in place along Shenley Road within Borehamwood Town Centre, however it is subject to a 30mph speed limit. As part of **Scheme 22.5**, in order to provide greater emphasis to the presence of pedestrians, it is proposed at a 20mph speed limit is designated on the section of Shenley Road between the junction with Theobald Street/Station Road/Allum Lane, and the roundabout access to the supermarket.

Table 24: Speed Management Schemes

Scheme	Scheme ID	Component Measure ID	Component / Measure	Scheme Score
Speed Compliance Response	22	22.1	Well End Road Gateway and Build Outs	***7***
		22.2	Melrose Avenue - HCC scheme in preparation	***7***
		22.3	Tempsford Avenue - 2 speed humps/uncontrolled pedestrian crossings (improved access to Tempsford Green)	***16***
		22.4	Theobald Street - various route measures	***18***
		22.5	Shenley Road Town Centre Signage	***11***

8.1 Safer Routes to Schools (Accessibility)

Scheme 04, Safer Routes to Schools, looks to ensure all schools in the area have up to date Travel Plans, and proposes measures to ensure that students, staff and visitors are made aware of the new/improved cycle routes.

Figure 26 shows the location of the proposed schemes (except those which are area-wide).

As a consequence of adopting the schemes, the road network is expected to change in terms of the priority afforded to different modes. Therefore the **Route User Hierarchy** has been altered to represent these anticipated changes and this is shown in ***Figure 27***.

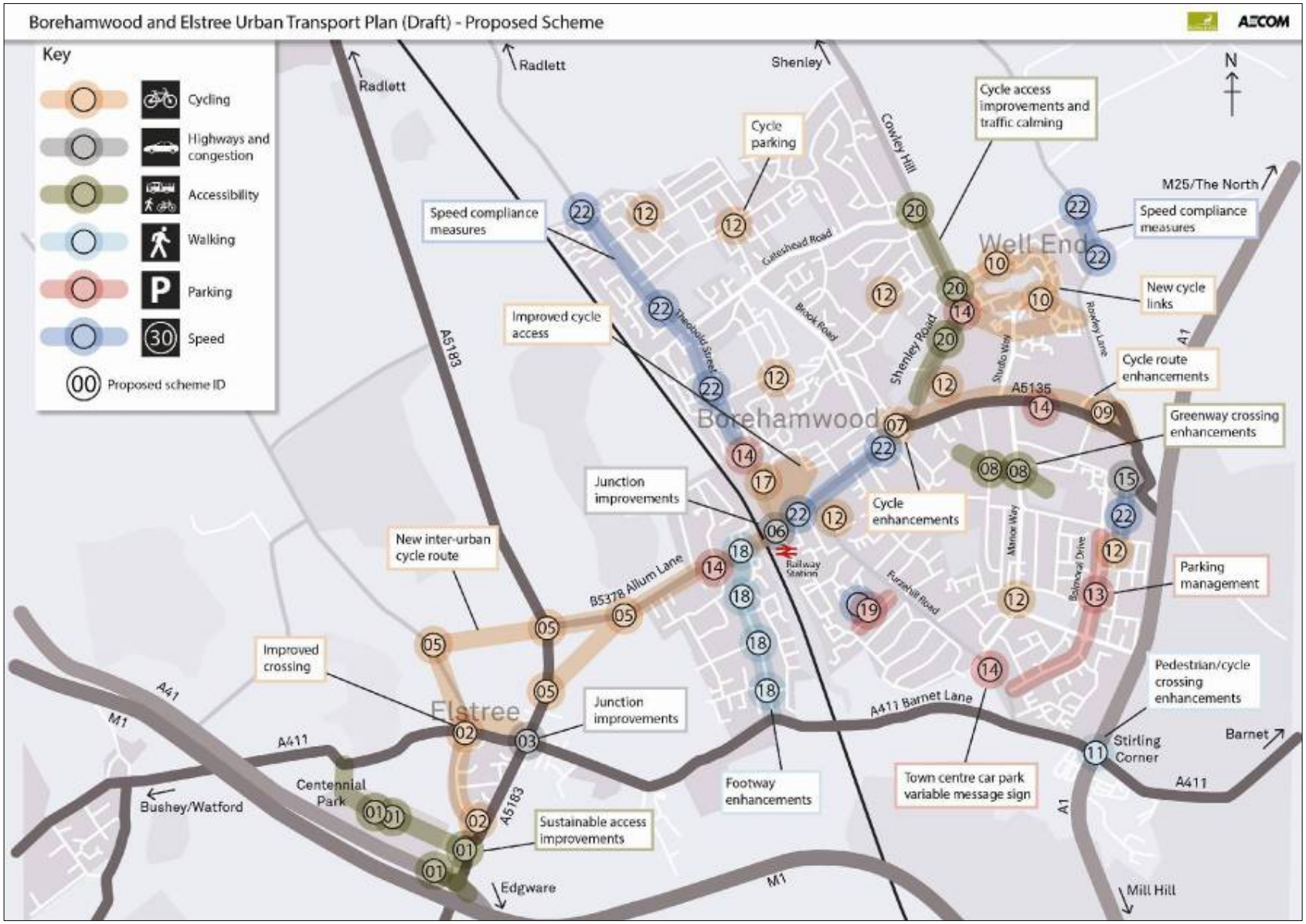
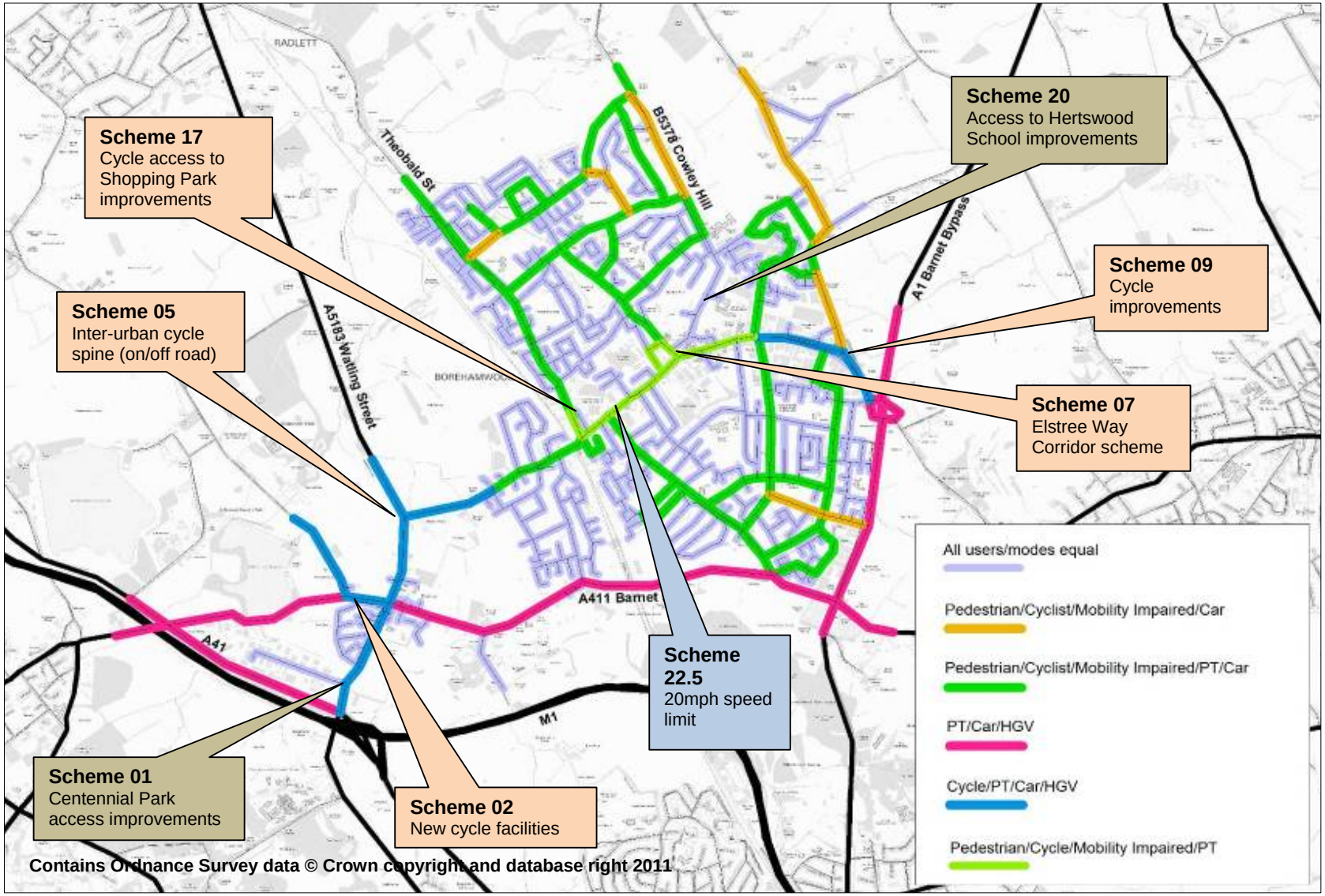


Figure 26: Proposed Schemes

Figure 27: The effect of proposed schemes on the RUH



Implementation Plan

9 Implementation Plan

9.1 Implementation Plan

The Implementation Plan is presented in ***Table 25***, and includes the following:

- Scheme name and associated identification number;
- Scheme measure description and associated identification number;
- Cost of measure, with time of delivery;
- Lead Partner;
- Key Partner;
- Potential funding sources;
- Other proposed schemes that have a direct relationship; and
- Key risks with delivery.

The schemes identified for implementation over the short term (less than one year) are low cost and easily implemented as there are no barriers to implementation. Those recommended for funding in the medium term (1 to 2 years) can be implemented within the Integrated Works Programme (IWP), and may require further feasibility assessment before delivery. Those that have been selected for funding in the long term (over 2 years) have significant barriers to delivery, including funding arrangements, land take, consultation and/or detailed design.

Safer Routes to Schools has its own implementation process, and therefore lies outside of the UTP delivery programme.

The schemes are presented in number order, and therefore do not reflect the priority status of each scheme.

Table 25: Implementation Plan

Scheme	Scheme ID	Measure ID	Measure Description	Phasing / Timescale / Cost			Lead Partner	Key Partner (Stakeholder)	Potential Funding Sources	Links to Other Schemes	Key Risks (Technical / Feasibility)
				Year 1 (Simple)	Year 2 (Standard)	Years 3 to 5 (Complex)					
Centennial Park Accessibility	01	1.1	Centennial Way-Waterside Park sustainable link			£40,000-£50,000	HCC	HBC/Centennial Park/Waterside Park	S106	02,03,21	Land ownership within Centennial Park (i.e. private landowners
		1.2	Elstree Hill South/A41 Watford Bypass/Brockley Hill roundabout cycle crossing improvements		£200,000-£300,000		HCC	HBC	S106		
		1.4	Improved cycle crossing facilities at Centennial Way access roundabout	£5,000-£15,000			HCC	HBC	S106		
		1.5	Improve bus stop facilities within Centennial Way site	£25,000 (each site)			HCC	HBC/Centennial Park/Waterside Park	S106		
		1.6	Improve/implement cycle provision on Elstree Hill South between Centennial Way and Sullivan Way junction		£10,000-£20,000		HCC	HBC	S106		
Composers Estate, Elstree - Sustainable Connections	02	2.1	Cycle bypass route on Coates Road one-way section / in conjunction with one-way enforcement	£5,000-£8,000			HCC	HBC	S106 Greenways	01,03,05	Narrow footways may prohibit location of crossing on current alignment. Elstree Crossroads scheme may impact on delivery
		2.2	Convert Pelican crossing on Watford Road to Toucan standards		£80,000-£100,000		HCC	HBC	S106 Greenways		
		2.3	On-road cycle route on Sullivan Way with access in vicinity of Schubert Way/Watford Road and Elstree Hill South junctions	£2,000-£5,000			HCC	HBC	S106 Greenways		
Elstree Crossroads Junction Improvements	03	3.1	Preferred Scheme only			£820,000	HCC	HBC	Committed	02,05,21	Scheme in development by HCC
Elstree-Borehamwood Inter-Urban Cycle Spine	05	5.1	Station Road-Allum Lane service road link	£5,000-£15,000			HCC	HBC	S106 Greenways	02,03,04,06, 18, 21	Land ownership and highway boundary limits, permissions sought to alter designations of footpaths and facilities
		5.2	Allum Lane service road on-road cycle provision	£2,000-£5,000			HCC	HBC	S106 Greenways		
		5.3	Allum Lane service road - Cemetery access junction shared cyclepath/footpath		£40,000-£60,000		HCC	HBC	S106 Greenways		
		5.4a	Cemetery access junction - Elstree Hill North a) Via Elle-Dani Farm route			£20,000-£40,000	HCC	HBC	S106 Greenways		
		5.4b	Cemetery access junction - Elstree Hill North b) Via Aldenham Park route			£20,000-£40,000	HCC	HBC	S106 Greenways		
		5.5	Elstree Hill North route			£90,000-£120,000	HCC	HBC	S106 Greenways		
		5.6	Physical Gateway Measure (north of A5183 cottages)	£8,000-£15,000			HCC	HBC	S106 Greenways		
		5.7	Gateway Measure - road markings / signage	£4,000-£8,000			HCC	HBC	S106 Greenways		
		5.8	Barnet Lane-Deacons Hill Road route	£TBC			HCC	HBC	S106 Greenways		
Station Road/ Allum Lane/Theobald Street/Shenley Road Junction Improvements	06	6.1	Committed Scheme			£801,000	HCC	HBC	Committed	05,21	Traffic modelling has identified the need to signalise the junction

Scheme	Scheme ID	Measure ID	Measure Description	Phasing / Timescale / Cost			Lead Partner	Key Partner (Stakeholder)	Potential Funding Sources	Links to Other Schemes	Key Risks (Technical / Feasibility)
				Year 1 (Simple)	Year 2 (Standard)	Years 3 to 5 (Complex)					
Shenley Road/Elstree Way Roundabout	07	7.1	Preferred Scheme - Significant Scheme (longer term)			*HBC scheme*	HCC	HBC	S106 Greenways	N/A	
		7.2	Increase size of splitter islands/hatching and circulatory markings with the aim of reducing vehicle speeds and pedestrians'/cyclists' safety - interim scheme	£80,000-£120,000			HCC	HBC	S106 Greenways	N/A	
Kenilworth Park-Maxwell Park Sustainable Link	08	8.1	Cycle crossings/speed tables/build-outs on Manor Way (traffic to have priority)		£40,000-£60,000		HCC	HBC	S106 Greenways	N/A	
		8.2	Address cycle provision on Bullhead Road - park link (dog-leg approach)		£40,000-£60,000		HCC	HBC	S106 Greenways	N/A	
Elstree Way East Cycle Gateway	09	9.1	Increase cycle lane widths		£4,000-£5,000		HCC	HBC	S106 Greenways	07	Any scheme taken forward from this proforma should ensure that it links to these proposals to ensure delivery of consistent facilities
		9.2a	Eastbound cycle lane route - address Rowley Lane junction in vicinity of splitter island – off carriageway provision and improved cycle crossings		£22,000-£30,000		HCC	HBC	S106 Greenways	07	
		9.2b	Eastbound cycle lane route – reduce gyratory to single lane + on-road provision		£65,000-£80,000						
		9.3	Improve westbound cycle lane route (improve jug-handle commencement of cycle lane)		£10,000-£20,000		HCC	HBC	S106 Greenways	07	
		9.4	Provide combined east/westbound off-road cycle route		£200,000-£220,000		HCC	HBC	S106 Greenways	07	
Well End-Borehamwood Sustainable Connections	10	10.1	Rowley Lane-Denham Way - make route cycle compliant	£15,000-£25,000			HCC	HBC	S106 Greenways	20,21	
		10.2	Denham Way-Potters Way offroad shared cycle/footpath provision and crossing facilities		£40,000-£50,000		HCC	HBC	S106 Greenways	20,21	
		10.3	Rowley Lane-Studio Way-Shenley Road link - make route cycle compliant (including crossing facilities and potential relocation of bus stop on Studio Way)		£80,000-£110,000		HCC	HBC	S106 Greenways	20,21	
Stirling Corner Roundabout - Safer Navigation for Pedestrians and Cyclists	11	11.1	Reduce exit width on Barnet Lane / expand splitter island to improve cycle/pedestrian crossing and potentially reduce speeds on exit.	£5,000-£10,000			HCC	HBC	S106 Greenways	N/A	Junction heavily trafficked; implementation could cause some short-term disruption. No visible trace of Statutory Undertakers Plant at location
		11.2	Nearside hatching on exit and introduce give-way line on Mobile Home access to give it greater presence	£2,000-£5,000			HCC	HBC	S106 Greenways	N/A	
Cycle Parking at Key Local Facilities	12	12.1	Introduce cycle stands at Manor Way shopping parade	£2,000-£5,000			HCC	HBC	LTP	21	Potential loss of footway, obstruction to pedestrians, cyclists' approach and exit from the cycle stand area does not increase the risk of collisions,
		12.2	Introduce cycle stands at Leeming Road shopping parade	£3,000-£6,000			HCC	HBC	LTP		
		12.3	Introduce cycle stands at Hartforde Road shopping parade	£5,000-£10,000			HCC	HBC	LTP		
		12.4	Introduce cycle stands at Rossington Avenue shopping parade	£5,000-£10,000			HCC	HBC	LTP		

Scheme	Scheme ID	Measure ID	Measure Description	Phasing / Timescale / Cost			Lead Partner	Key Partner (Stakeholder)	Potential Funding Sources	Links to Other Schemes	Key Risks (Technical / Feasibility)
				Year 1 (Simple)	Year 2 (Standard)	Years 3 to 5 (Complex)					
		12.5	Introduce cycle stands at Croxdale Road shopping parade	£2,000-£8,000			HCC	HBC	LTP		forward visibility and no interruption of driver's envelope of visibility
		12.6	Introduce cycle stands at Howard Drive shopping parade	£2,000-£5,000			HCC	HBC	LTP		
		12.7	Introduce cycle stands at HBC Civic Offices	£2,000-£5,000			HCC	HBC	LTP		
		12.8	Introduce cycle stands at The Point, Shenley Road	£2,000-£5,000			HCC	HBC	LTP		
Balmoral Drive/Ashley Drive Parking Management	13	13.1	Double yellows protecting speed cushions	£5,000-£15,000			HCC	HBC	LTP	N/A	TRO amendments required and statutory measures need to be followed
		13.2	Bollards adjacent to bus stops	£2,000-£5,000			HCC	HBC	LTP		
		13.3	Bus stop improvements	£20,000-£30,000			HCC	HBC	LTP		
Car Parking Variable Message Signs	14	14.1	VMS on Allum Lane		£30,000-£50,000		HCC	HBC	LTP	N/A	Subject to confirmation of statutory undertaker plant (subterranean plant) and highway boundary checks
		14.2	VMS on Theobald Street		£30,000-£50,000		HCC	HBC	LTP		
		14.3	VMS on Furzehill Road		£30,000-£50,000		HCC	HBC	LTP		
		14.4	VMS on Shenley Road		£30,000-£50,000		HCC	HBC	LTP		
		14.5	VMS on Elstree Way		£30,000-£50,000		HCC	HBC	LTP		
		14.6	VMS on Brook Road		£30,000-£50,000		HCC	HBC	LTP		
Newark Green Width Restriction Refresh	15	15.1	Scheme refresh (committed scheme already in progress)	£5,000-£10,000			HCC	HBC	LTP		
		15.2	Supplementary scheme enhancement - additional/replacement signage	£2,000-£5,000			HCC	HBC	LTP		
HGV Weight Restriction review	16	16.1	Review HGV weight restrictions		£8,000-£10,000		HCC	HBC	LTP	03, 11	Could direct lorries to the LEZ. Approvals from Barnet Borough Council and TfL may be necessary
		16.2	Implement supporting directional signage		£10,000-£20,000		HCC	HBC	LTP		
Borehamwood Shopping Park-Cycle Access	17	17.1	Implement cycle route (mixture of on/off-road provision)		£110,000-£130,000		HCC	Borehamwood Shopping Park/HBC	LTP	08	Liaison with Borehamwood Shopping Park owner/site management required
		17.2	Introduce cycle stands and signage at Borehamwood Shopping Park	£5,000-£15,000			HCC	Borehamwood Shopping Park/HBC	LTP		
		17.3	Improve walking and cycling environment along Theobald Street between Shenley Road and Borehamwood Shopping park			£6,000-£9,000+	HCC	Borehamwood Shopping Park/HBC	LTP		
Allum Lane-Deacons Hill Footway Enhancements	18	18.1	Introduce dropped kerbs/speed tables at junctions on Deacons Hill		£10,000-£20,000		HCC	HBC	LTP	05	
		18.2	Improve pedestrian crossing facilities at Allum Lane/Deacon's Hill mini roundabout		£5,000-£15,000		HCC	HBC	LTP		
		18.3	Pedestrian signing to Elstree and Borehamwood Station		£4,000-£6,000		HCC	HBC	LTP		

Scheme	Scheme ID	Measure ID	Measure Description	Phasing / Timescale / Cost			Lead Partner	Key Partner (Stakeholder)	Potential Funding Sources	Links to Other Schemes	Key Risks (Technical / Feasibility)
				Year 1 (Simple)	Year 2 (Standard)	Years 3 to 5 (Complex)					
Managing Disruptive Parking	19	19.1					HCC	HBC	LTP/HBC		
Safe and Sustainable Access to Hertswood School	20	20.2	Improve pedestrian environment on Thrift Farm Lane	£30,000-£50,000			HCC	HBC	LTP	04, 07, 10	Dependant on sufficient space between existing residential vehicle crossovers. Potential additional drainage requirements at the proposed flat top humps.
		20.3	Implement parking control measures on Shenley Road adjacent to Thrift Farm Lane			£5,000-£10,000	HCC	HBC	LTP		
		20.4	Introduce speed reduction measures adjacent to school sites			£30,000-£50,000	HCC	HBC	LTP		
Cycle Wayfinding – Promoting the Connections	21	21.1	Elstree - Composers Estate - Centennial Way		£50,000-£300,000		HCC	HBC	S106 Greenways	01,02,05,06, 07,08,09,10, 12,17,20	Potential land ownership issues
		21.2	Elstree - Borehamwood		£50,000-£300,000		HCC	HBC	S106 Greenways		
		21.3	Borehamwood		£50,000-£300,000		HCC	HBC	S106 Greenways		
Speed Compliance Response	22	22.1	Well End Road/Rowley Lane/Potters Lane- package of speed management components		a) £1,200-£1,500 b) £30,000-£50,000 c)TBC d)TBC e)TBC f)TBC g)TBC		HCC	HBC	LTP	17,19	
		22.2	Melrose Avenue - HCC scheme in preparation		£70,000		HCC	HBC	Committed		
		22.3	Tempsford Avenue - 2 speed humps/uncontrolled pedestrian crossings (improved access to Tempsford Green)	£20,000-£40,000			HCC	HBC	LTP		
		22.4	Theobald Street - various route measures			a) £11,400-£1,800 b)25,000-£30,000 c)£100,0000-£110,000 d)£40,000-£60,000 e)£30,000-£40,000 f)TBC	HCC	HBC	LTP		Potential implications of accommodating wider splitter islands with carriageway deflections including statutory undertaker plant, diversion of footway. Bus stops may need to be relocated
		22.5	Shenley Road Town Centre Signage	£10,000-£20,000			HCC	HBC	LTP		

9.2 Scheme components not being taken forward

During scheme development, all options and measures were explored in order to ascertain the most appropriate solution to issues identified during Stage 1 of the UTP. Where multiple options were assessed against feasibility and cost, the most appropriate was selected based on the benefits each option delivered.

Table 26 summarises the scheme components that have been removed from the final proposals, and associated reasons for exclusion. For most, an alternative measure has been preferred due to greater benefits.

Table 26: Scheme Component Measures not taken forward

Scheme	Scheme ID	Reasons for exclusion
01 – Centennial Park-A41 Accessibility	**1.3** – Convert Elstree Hill South/A41 Watford Bypass/Brockley Hill junction to a signalised crossroads	Conversion of the existing roundabout to a signalised crossroads will be expensive and the benefits of which are unclear and would require more detailed investigations.
06 – Station Road/Theobald Street/Shenley Road/Allum Lane junction improvements	**6.2** – Create a shared-use ramp linking Allum Lane with the station forecourt	Component 6.2 would be complimentary to component 6.1 which is preferred and is already in preparation by HCC. The full costs associated with component 6.2 are unknown, especially when considering land outside of the existing highway boundary, and the risks that the scheme may not be affordable are high.

9.3 Stirling Corner Roundabout – recommended way forward

During the development of the UTP, concerns have been raised regarding the Stirling Corner roundabout, in particular the need to provide 24hr operation of the traffic signals and to make the navigation of the junction easier for pedestrians and cyclists. Improvements to road markings have already been introduced at the junction following a trial exercise undertaken by TfL.

This junction is located outside of Hertfordshire within the Greater London area. The junction is located on a priority ‘red route’ and the traffic signals are managed by TfL. In line with the County’s LTP priorities, the UTP has focused on measures to improve pedestrian and cycle crossings at the junction, initially on the arms which are located within Hertfordshire.

Given the significance of the Stirling Corner junction on local and strategic journeys, it is recommended that a joint-authority approach is taken to explore and agree what further improvements may be required at the junction. This therefore requires liaison between the following authorities, as well as other interested parties:

- Hertfordshire County Council;
- Transport for London;
- Hertsmere Borough Council;
- Barnet Borough Council; and
- Highways Agency

Monitoring and Review

10 Monitoring and Review

10.1 The need to monitor

Checking the progress of schemes and initiatives is an important process to ensure that the proposals within this UTP are implemented in the timeframe suggested within the Implementation Plan. Monitoring can also assist in judging the effectiveness of schemes that will be delivered throughout the UTP period. Thus, the requirement for further mitigation can be identified.

10.2 The process of monitoring

Monitoring of the UTP can take two forms:

1. **Delivery** of schemes as suggested within the Implementation Plan

   Recording of progress or completion of proposed schemes, in addition to the corresponding expenditure relative to the proposed cost. Recording progress made against the implementation plan can result in associated adjustments to ensure future consideration of schemes.

2. The **resultant impacts** of proposed schemes

   The assessment of the impacts of schemes will assist in judging the effectiveness of this UTP. Hertfordshire County Council produces data reports, in addition to TravelWise surveys and Workplace/School Travel Plans during the UTP period. These will assist in the analysis of future mode shift from the private car in the local area.

   An updated Data Report for Borehamwood and Elstree could be published when the UTP is next reviewed in 2017, which will enable the monitoring of the change in transport characteristics.

10.3 The process of review

The LTP programme monitoring arrangements suggests annual review of schemes. The first annual review should take place 18 months after the finalisation of the plan in 2013, by which time, a number of short terms schemes would have been implemented.

It is proposed to review the plan after 5 years and to produce an updated plan at that stage.