


Tring, Northchurch and Berkhamsted Urban Transport Plan – Volume 1



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Tring, Northchurch and Berkhamsted Urban Transport Plan

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Glossary of Terms

ASL	-	Advanced Stop Line
CPZ	-	Controlled Parking Zone
DaSTS	-	Delivering a Sustainable Transport Strategy
DBC	-	Dacorum Borough Council
DfT	-	Department for Transport
HCC	-	Hertfordshire County Council
HGV	-	Heavy Goods Vehicle
IWP	-	Integrated Works Programme
LEP	-	Local Enterprise Partnership
LTP	-	Local Transport Plan
MOVA	-	Microprocessor Optimised Vehicle Actuation
RSS	-	Regional Spatial Strategy
RUH	-	Route User Hierarchy
STP	-	School Travel Plan
TaSTS	-	Towards a Sustainable Transport Strategy
UTP	-	Urban Transport Plan

Executive Summary

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Executive Summary

Context

This Urban Transport Plans (UTP) has been produced by Hertfordshire County Council in its role as local transport authority. UTP's are daughter documents to the current Local Transport Plan (LTP3), which sets out the general transport policy and strategy of the County Council. UTP's are spatial plans which provide a framework to identify transport improvements and investment within specific urban areas over the next 20 years.

This document presents the Urban Transport Plan for Tring, Northchurch and Berkhamsted, and replaces sections within West Hertfordshire Area Transport Plan (2007). The study area is located approximately 30 miles northwest of central London, within the administrative district of Dacorum. Berkhamsted is the main town within the UTP boundary, with a historic market town centre located along the A4251 London Road. To the northwest of Berkhamsted connected by the A4251 lies Tring, which is largely an affluent residential community with a busy town centre. With local transport connections including the A41, M25, Grand Union Canal and rail lines to London Euston, the urban areas are in a prime location for multimodal trips to regional and national destinations.

Typical of most towns in the UK, travel patterns in the Borough are dominated by the use of the private car, with associated congestion issues at specific hotspots within the urban areas. However, the area has great potential for the increased use of safe sustainable modes, and this UTP has therefore focused upon the implementation of schemes which will help in realising this potential.

This Document

The initial steps in developing the UTP involved an examination of current transport characteristics throughout Tring, Northchurch and Berkhamsted, resulting in the identification of a number of issues. Following consultation with key stakeholders, a number of UTP objectives were developed to form the basis for improvement proposals. The objectives are to:

- Support economic growth and local housing development through the delivery of transport improvements;
- Improve connectivity between transport modes to allow for greater transport flexibility;
- Improve public transport provision and accessibility;
- Promote active travel modes throughout the study area to encourage active and healthy lifestyles;
- Improve connectivity within, and between, local towns through a complete network of walking and cycling facilities;
- Address signage issues within the towns to enable effective and efficient navigation of the town;
- Address parking issues associated with Tring and Berkhamsted railway stations, through encouragement of car share schemes and mode shift from the car;
- Reduce congestion in key traffic hotspots throughout the study area.

Following the identification of key issues, a number of interventions were developed to enhance local transport provision and improve mode choice for local residents, commuters and visitors to the market towns. The list of potential schemes was then assessed based on key LTP3 indicators and UTP

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objectives, in addition to funding and deliverability criteria in order to develop the finalised list of recommended schemes. The interventions developed cover the following areas:

- Improvements and adjustments to the existing **highway infrastructure** to improve efficiency and reduce congestion on the local highway network;
- Enhance the existing **cycle network** to ensure improved connectivity of cycle routes and a safer environment for trips to local trip attractors;
- **Accessibility** improvements at Tring and Berkhamsted railway stations to encourage improved connectivity between transport modes and less reliability on the private car;
- Improved **cycle facilities** within and between the town centres;
- Greater efficiency of existing parking provision through an **improved signage strategy** and prioritisation of non-commuter parking in the town centres;
- Making more use of existing assets, the Grand Union Canal and shared used paths, for pedestrian and cycling access to both the two stations and town centres, and to **improve connectivity** between Tring, Northchurch and Berkhamsted;
- **Speed compliance** through physical measures along highway sections where speed compliance issues have been identified and verified;
- Encourage **Smarter Choices** through greater uptake of Safer Routes to Schools, travel planning and local promotion of initiatives.

Through the implementation of proposed schemes located across the study area, it is envisaged that many existing problems should be eradicated, with increased mode choice, and greater accessibility to routes through a mixture of increased awareness and infrastructure improvements.

Next Steps

The implementation plan sets out the 46 schemes that have been identified for implementation over the short (less than one year), medium (one to two years) and long term (two to five years), and the associated costs of each scheme. It is recommended that the UTP is monitored annually to ensure implementation of schemes within the specified timescale, but also to assess the requirement for further schemes in order to fulfil the LTP3 and UTP objectives.

Introduction

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1 Introduction

1.1 Background

Hertfordshire County Council (HCC), in joint partnership with Dacorum Borough Council (DBC) appointed AECOM to undertake the development of the Urban Transport Plan (UTP) for Tring, Northchurch and Berkhamsted. UTP's are daughter documents to the Local Transport Plan (LTP), which sets out the general transport policy and strategy for the County Council. UTP's are spatial plans which set out how the relevant policies and strategies will be delivered in specific urban areas. The purpose of this UTP is to develop a range of schemes and interventions, across all modes of transport, to address existing problems within the study area. This process will also take into account the development options and locations over the next 20 years, and replaces those proposed in West Hertfordshire Area Transport Plan (2007).

This UTP Report outlines the development of numerous transport schemes and associated measures throughout Tring, Northchurch and Berkhamsted. Beginning with the collation of existing information regarding transport issues throughout the study area, and the methodology employed in prioritising schemes through Officer, Member and Stakeholder workshops.

1.2 Development of the Urban Transport Plan

The development of the Tring, Northchurch and Berkhamsted 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 (Officer, Member and Stakeholder Workshops)
- Determine priority issues
- Delivery of Stage 1 Report

Stage 2

- Review of transport issues and development of interventions

Stage 3

- Completion of Draft UTP
- Review of UTP

Stage 4

- Public Consultation

Stage 5

- Delivery of Final UTP
- Adoption of UTP

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1.3 Structure of the Document

This UTP is separated into a number of volumes to ensure that the document is presented in a readable form, but also contains all of the relevant information to justify the measures proposed.

The UTP is therefore structured as follows:

- **Volume 1** – Comprises the main UTP document. This is presented in the remainder of this report and outlines the outcomes in the form of proposed schemes.
- **Volume 2** – Contains the technical explanation and justification for the proposals that have been included within the UTP. Each proposal that has been considered is explained and justification given for its inclusion or exclusion from the UTP.
- **Volume 3** – Reports on the outcomes of the Stakeholder Consultation, which has been used to inform the development of the UTP.
- **Volume 4** – Contains the Public Consultation Comments which details the outcomes of the public consultation exercise undertaken in January/February 2013.
- **Volume 5** – Includes the Bikeability Cycle Audit Report which identifies the shortfalls in cycle facility provision in Tring, Northchurch and Berkhamsted as determined through stakeholder consultation and an audit of the existing network against the Bikeability levels. Identified issues have been prioritised, and the audit report details how these issues have led to the development of engineering measures, which if implemented will allow for improved provision to meet the LTP objectives.

Background to the UTP Area

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2 Background to the UTP Area

2.1 Context

Tring, Northchurch and Berkhamsted are located in West Hertfordshire, within the borough of Dacorum. Situated approximately 30 miles northwest of London, the urban areas are now largely commuter towns. With local transport connections including the A41, M25, Grand Union Canal and rail lines to London Euston, the urban areas are in a prime location for multimodal trips to regional and national destinations.

The development of the UTP requires an in-depth understanding of both the transport situation within the urban areas of Tring, Northchurch and Berkhamsted, and across the wider region. This process has been informed by a review of existing transport information, feedback from workshops and consultations, as well as further analysis and observation. Due to the variations in size and nature of the adjacent urban areas, the two local transport networks have been analysed separately.

Figure 2.1 Study Area



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2.2 Available Data

To gain an accurate understanding of the transport conditions throughout Tring, Northchurch and Berkhamsted, it is important to collect a range of observed data. This enables the current limitations of the transport network to be understood, and assists in the identification of problem areas.

There is currently a wide range of available data regarding mode choice and the location of transport origins and destinations, available within the 2001 and 2011 census data. In addition, HCC completed a Data Report in 2011 which provides details regarding public transport provision and transport use throughout the urban areas.

Past Public Exhibitions and Workshops add further insight into transport problems in Tring, Northchurch and Berkhamsted.

To supplement the information gathered from the above sources, and to better understand and validate the identified transport issues, a series of site visits were carried out. This firsthand experience of the study area is invaluable to the development of the Urban Transport Plan.

2.2.1 Population

2011 census data demonstrates that the study area has a total population of 34,317, including 18,015 in Berkhamsted, 13,489 in Tring and 2,813 in Northchurch. Northchurch has the oldest age structure in Dacorum Borough, with the proportion of over 65's being almost 26%. Berkhamsted's demographic consists of 64.3% working age, 16.2% retirement age and 19.4% children. Tring's population is similarly structured to Berkhamsted, consisting of 64.6% working age, 16.5% retirement age and 18.9% children.

2.2.2 Land Use Characteristics

Berkhamsted is largely made-up of residential and agricultural land uses, with the former being predominantly concentrated to the west of the town and the latter to the east. There are numerous leisure facilities in Berkhamsted which are located mainly in the central area of the town. It is within the Berkhamsted West ward where most of the town's industrial and employment areas are focused and it is also in this ward, along with Berkhamsted Castle, where the majority of the town's shopping facilities are located. Schools and retail (predominantly Waitrose) constitute the town's largest employers and these are both situated in Berkhamsted Castle ward.

In Tring, there is a concentration of employment areas to the west of the town, specifically Tring Business Centre (off Icknield Way) and off Station Road. There are also small pockets of retail along the High Street. There are some residential areas and leisure facilities located towards the centre of the town but otherwise, Tring is largely made-up of agricultural land.

2.2.3 Car Ownership

In Berkhamsted, Northchurch and Tring, 43-45% of households have two or more cars. These car ownership levels are higher than the county average (40%) and in particular, the national average (29%). At the same time, the proportion of households within the study area which do not own a car (14-20%) is approximately 7% lower than the national average, owing to the topography and demographic of the study area.

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2.2.4 Travel to work

Of the employed residents living in both Berkhamsted and Tring, 35% live and work in the respective towns whilst 65% commute to workplaces out of the towns. In addition, of the 7,100 people working in Berkhamsted, 58% commute to Berkhamsted to work, whilst almost half of the people working in Tring travel from outside the town.

Table 2.1 shows the mode split for those commuting out of and into Berkhamsted and Tring. It indicates that most people use the car to travel to work. 10-15% of people commute to work on foot whilst over 16% of people commuting from Berkhamsted use the train. Usage of other modes of transport by commuters to and from the two towns is negligible.

Table 2.1 Mode split for commuters to and from Berkhamsted and Tring

% By Mode	Out-commuters		In-commuters	
	Berkhamsted	Tring	Berkhamsted	Tring
Bus	2.5	2.7	2.0	2.9
Train	16.1	8	3.1	1.2
Car/Passenger	66.8	75.3	77.5	76.8
Walk	11.8	10.5	14.7	15.3
Cycle	0.6	1.2	1.0	1.9
Motorcycle	0.8	1	0.7	0.9
Other	1.4	1.3	1.0	0.9

Table 2.2 shows the mode split for the 35% of the population of the two towns who live and work in the same town. Whilst the proportion of people using the car to travel to work is lower than the proportion of people who use it to commute to work in a different town, it remains the most popular mode of travel. Most notable is the small amount of working population that travel to work by bicycle or bus.

Table 2.2 Mode split of local work journeys

% By Mode	Berkhamsted	Tring
Bus	0.6	1.1
Train	1.3	0.7
Car/Passenger	38.9	43.0
Walk	24.6	23.7
Cycle	0.9	1.5
Motorcycle	0.7	0.6
Home Working	32.2	28.7
Other	0.3	0.4
Taxi	0.1	0.2
Underground	0.2	0

2.2.5 Highway Infrastructure

In Berkhamsted, the A4251 High Street / London Road forms the key route through the town and connects with the A41 via the A416 Kings Road / Kings Hill Way to the south and also via London Road to the east. The key roads through Tring are B class roads; B488 Icknield Way, B4635 Aylesbury Road, High Street, London Road and the B486 connecting the two. There are connecting junctions with the A41 to the east and west of the town. Both towns are bypassed by the A41 dual carriageway to the south.

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2.2.6 Mode Share

A series of TravelWise cordons have been set up by Hertfordshire County Council to monitor travel patterns and identify trends in changing travel behaviour. The surveys are based on travel on the main routes into and out of the town centres of Berkhamsted and Tring during the AM peak period (0700 – 1000 hours) and the findings are displayed in **Tables 2.3** and **2.4**.

Table 2.3 Changes in Overall Mode Share TravelWise Cordon Surveys in Berkhamsted¹

Year	% by car	% by bus	% on foot	% by cycle	% by motorbike	Car occupancy
2001	81.9	7.8	9.1	0.7	0.5	1.26
2004	82.2	7.9	8.6	0.9	0.4	1.27
2007	78.8	7.8	11.9	0.9	0.6	1.26
2010	76.3	8	14.0	1.1	0.6	1.24

Table 2.4 Changes in Overall Mode Share TravelWise Cordon Surveys in Tring²

Year	% by car	% by bus	% on foot	% by cycle	% by motorbike	Car occupancy
2001	85.6	10.8	2.4	0.6	0.6	1.21
2004	83.9	10.4	4.6	0.6	0.5	1.20
2007	84.6	9.7	4.5	0.9	0.3	1.25
2010	84.0	10.1	4.6	0.9	0.5	1.21

Table 2.3 indicates that between 2001 and 2010, the car mode share in Berkhamsted has decreased by 5.6%, whilst at the same time the walking mode share has increased by 4.9%. A similar pattern is evident in Tring, albeit the decrease in car mode share between 2001 and 2010 is much less pronounced (1.6%).

2.2.7 Travel by bus

In Berkhamsted, bus services are generally concentrated along High Street (where most of the shops are located) and London Road, with services operating 7 days a week throughout most of the day. Buses operate along Bridgewater Road, Kings Road, Durrants Lane and Chesham Road adjacent to schools, and also along Spring Field Road industrial area. In Tring, the key stops are on High Street with the 387 and 500 services stopping on average every 15 minutes during the morning peak between 7 and 9. **Figure 2.2** illustrates the frequency of the current bus routes through the study area.

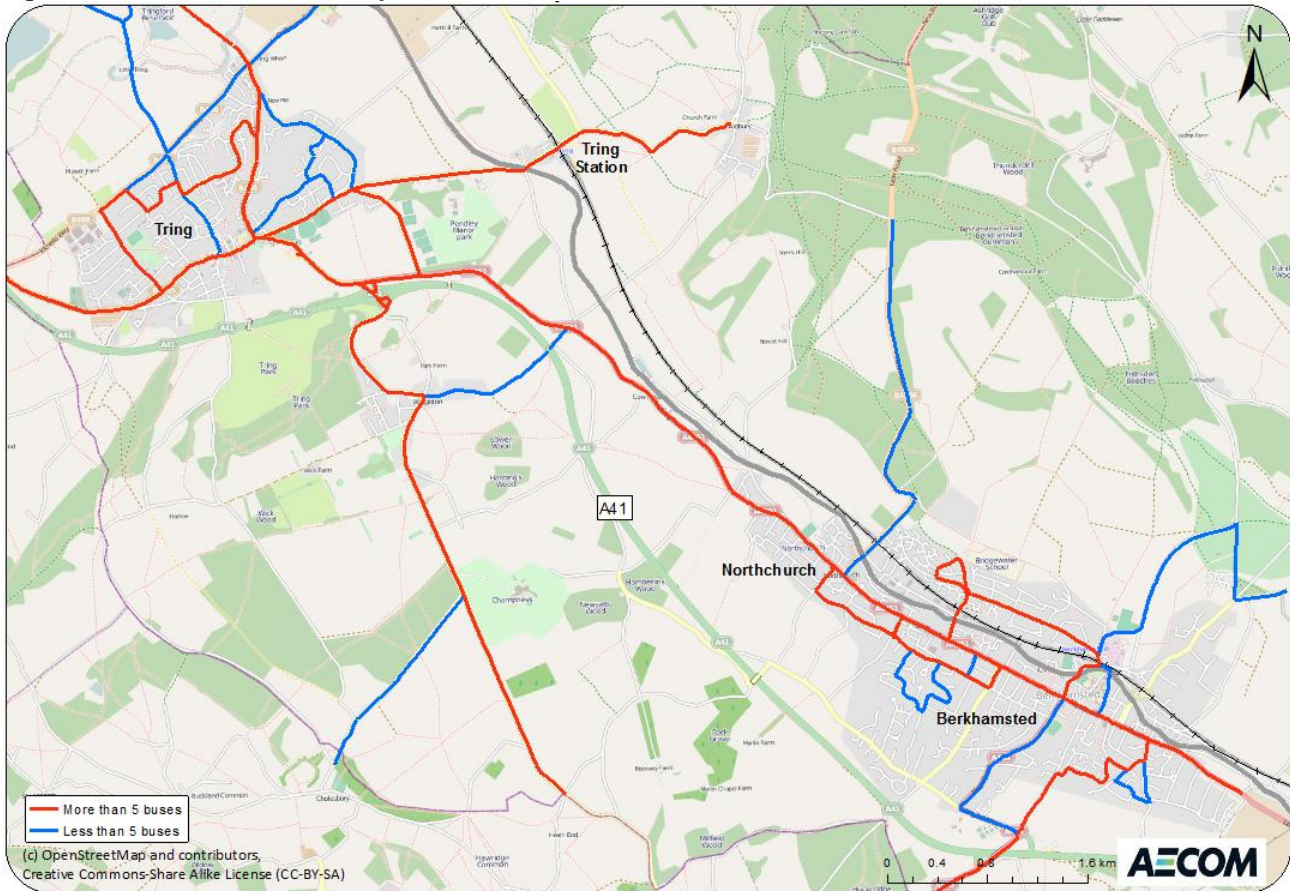
Tables 2.3 and **2.4** demonstrate that neither Berkhamsted nor Tring have experienced a noticeable increase in the proportion of people using the bus as a mode of transport into and out of the respective town centre's between 2001 and 2010.

¹ Berkhamsted and Tring Urban Transport Plan Data Report (2011)

² Berkhamsted and Tring Urban Transport Plan Data Report (2011)

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Figure 2.2 Bus Routes in Study Area



2.2.8 Travel by cycle

In Berkhamsted, there is an existing cycle network along the Grand Union canal to the north of the town centre and along Westfield Road/ Durrants Road and Shrublands Road to the south. There are also a number of connections to the Ashridge Estate and Potten End area to the north. Tring has an existing cycle route from the town centre to the station via Station Road. There are also cycle route connections to Marsworth in the north.

In 2010, only 1.1% of people in Berkhamsted cycled to and from the town centre in the AM peak period, which is similar to the proportion in Tring where 0.9% of the mode share in the AM peak was made-up of cyclists.

2.2.9 Travel by rail

Berkhamsted and Tring are on the suburban section of the West Coast mainline with services operated by London Midland. Annual passenger numbers at Berkhamsted and Tring stand at 1,383,782 and 576,452, respectively. The London terminal for trains arriving from both stations is Euston with intermediate stations serving Hemel Hempstead and Watford Junction. From Berkhamsted there is a regular service to London (4 trains per hour at peak times) which generally takes under an hour. Similarly, trains depart from Tring approximately every 15 minutes to London and arrive at Euston within an hour. Rail connections between the two towns are frequent and have a journey time of less than 5 minutes. The following table demonstrates the current services at Berkhamsted and Tring stations:

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Table 2.5 Direct Rail Service Frequencies from Berkhamsted and Tring³

Station	Key Destination	Berkhamsted and Tring Train Frequency (Average headway, time mins)					Average AM Peak Journey Time (7-10am)
		AM Peak (0700-1000)	Inter-Peak (1000-1600)	PM Peak (1600-1900)	Sat Average (9-5)	Sun Average (9-5)	
Berkhamsted	London Euston	14	15.5	15.5	14	30	55
	Watford Junction	13.5	11	12	13	25	13
	Watford High St	12	12	12	15	33.5	25
	Hemel Hempstead	10	10	10	10	31	4.5
	Tring	15	13	15	15	1hr	7
Tring	Berkhamsted	11	15	15	15	1hr	4.5
	Hemel Hempstead	17	15	15	15	1hr	9
	London Euston	16	10	12	14	1hr	1hr

³ Berkhamsted and Tring Urban Transport Plan Data Report (2011)

Policy Framework

3 Policy Framework

The Tring, Northchurch and Berkhamsted Urban Transport Plan is intended to address the transport problems that have been identified through consultation, investigation and local knowledge as affecting the urban areas. However, the overall direction and content of the Plan needs to respond to the transport objectives and targets as set out in the relevant policy frameworks. This section of the report provides a brief summary of the key policy drivers and documents which form a material consideration, as well as an overarching framework, for the development of the UTP.

3.1 National Policy Context

There are a number of themes that have emerged around carbon reduction and the role that transport can play in facilitating economic development. The general move away from centralised policy making towards Localism (and the setting of local targets and objectives) places far more importance on documents such as this Urban Transport Plan. It should, however, be noted that focusing on meeting national policy themes alone could jeopardise the UTP delivering the local requirements.

3.2 Regional Policy Context

In May 2010 the government announced that all regional plans would be withdrawn, with development decisions to instead be made at the local planning authority level. The East of England Plan, published May 2008, was the regional spatial strategy (RSS) for the East of England, including Hertfordshire. It contained regional and sub-regional spatial policies, levels of proposed growth and transport policies for the period up to 2021. The East of England Plan is no longer a material consideration for planning and, whilst the implications of its abandonment for future growth levels in Hertfordshire are not entirely clear at present, it is understood that the County Council will not change its approach to transport policy, which is shaped by a wide range of factors beyond that of just the RSS.

3.2.1 Hertfordshire Local Transport Plan 3

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

- Volume 1 provides the 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 deliver over the initial 2 year period, and an indication of the major schemes/programmes to be delivered over the 20 year plan period.

The overarching vision for Hertfordshire, as set out in LTP 3 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”.

Five goals support the vision, and form the transport strategy to:

1. Support economic development and planned dwelling growth;
2. Improve transport opportunities for all and achieve behavioural change in mode choice;

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3. Enhance quality of life, health and the natural, built and historic environment for all residents;
4. Improve the safety and security of residents and other road users;
5. Reduce transport's contribution to greenhouse gas emissions and improve its resilience.

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

In preparing the Tring, Northchurch and Berkhamsted UTP, it is important to note that LTP3 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 3.1** 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 3.1 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	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 developments ⁵	93.8% (08/09)	97.04%	> 90%	> 90%
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%
Mode share of sustainable school journeys (age 5-10)	60.4%	61.7%	65%	70%
Mode share of sustainable school journeys (age 11-16)	76.8%	78.1%	78%	78%
Air Quality (mean) ⁶	33µg/m ³	33µg/m ³	25µg/m ³	18µg/m ³

⁴ % network where structural maintenance should be considered

⁵ % new developments within 30 minutes by public transport of key services

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Indicator	Baseline (2007/08)	Progress (2009/10)	Indicative Targets	
			2015/16	2025/26
Rights of Way (easy to use) ⁷	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 LTP2 is that there will be less emphasis on building new roads or making major changes to existing roads and instead placing a much higher priority on making better use of the existing 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. The UTP will need to respond to the goals of LTP3 and the wider vision for the transport network.

3.2.2 Daughter Documents

There are also a number of daughter documents to LTP3 which contain further detailed strategies on how certain policies are to be delivered. These include:

- Cycling Strategy
- Walking Strategy
- Bus Strategy
- Rail Strategy
- Intalink Strategy
- Speed Management Strategy
- Road Safety Strategy
- Sustainable Community Strategy

The UTP will need to be developed in the context of each of these documents, where relevant, and particularly in relation to generating schemes for the specific modes or topic areas. **Figure 3.1** demonstrates the relationship between the UTP and the Local Transport Plan.

⁶ Mean roadside Nitrogen Dioxide levels across the county

⁷ % of the total length of footpaths that are easy to use by members of the public

Capabilities on project:
Transportation

Figure 3.1 LTP3 and its Daughter Documents

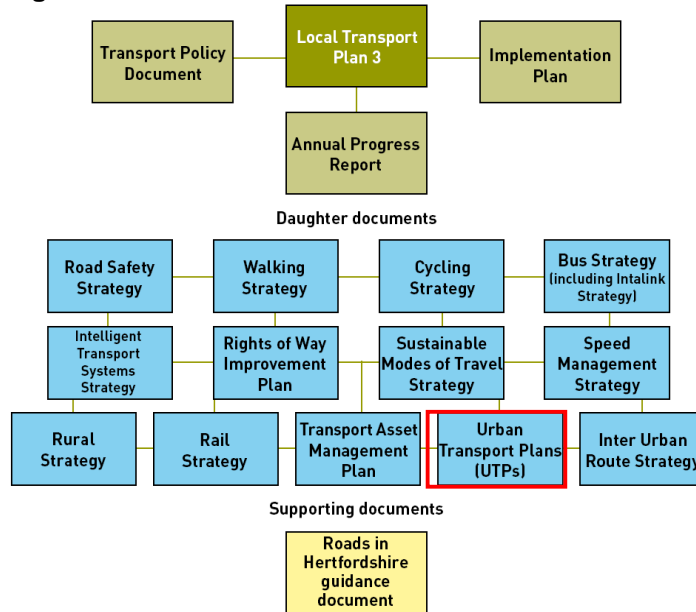


Table 3.2, overleaf, provides a summary of the five specific goals of Hertfordshire’s LTP3, and corresponding policies for each of the relevant daughter documents. In addition, the following documents have been reviewed, and will assist in the development of schemes for the UTP:

- Rights of Way Improvement Plan;
- Hertfordshire Sustainable Modes of Travel Strategy (SMoTS);
- The Corporate Plan 2009-2012;
- Hertfordshire’s Local Enterprise Partnership.

Capabilities on project:
Transportation

Table 3.2 Summary of Relevant Daughter Document Policy

Hertfordshire 3 rd Local Transport Plan Goals	Daughter Documents								Urban Transport Plan (Discussed in Chapter 7)
	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		Provide maximum benefit to the travelling					Improve connectivity between local towns through	

Capabilities on project:
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Hertfordshire 3 rd Local Transport Plan Goals	Daughter Documents								Urban Transport Plan (Discussed in Chapter 7)
	Cycling Strategy	Walking Strategy	Bus Strategy	Intalink Strategy	Rail Strategy	Speed Management Strategy	Road Safety Strategy	Sustainable Community Strategy	
	marketing and promotion		public in the most cost effective way						a complete 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		Encourage walking for short	Provide and maintain all bus stops,		Seek improvements to train			Step change in provision, quality and	Promote active travel modes throughout the

Capabilities on project:
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Hertfordshire 3 rd Local Transport Plan Goals	Daughter Documents								Urban Transport Plan (Discussed in Chapter 7)
	Cycling Strategy	Walking Strategy	Bus Strategy	Intalink Strategy	Rail Strategy	Speed Management Strategy	Road Safety Strategy	Sustainable Community Strategy	
historic environment for all residents		journeys, part of longer journeys and for leisure	and other bus related highway infrastructure		services and station facilities			use of passenger transport Improve access to the countryside for recreation and health Ensure effective management and maintenance of the transport network	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	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	
	Undertake maintenance throughout the cycle network to pursue safety and comfort								
	Continue to develop cycle training programme								
Reduce transport's	Cycling will		Encourage					Reduce the	Encourage

Capabilities on project:
Transportation

Hertfordshire 3 rd Local Transport Plan Goals	Daughter Documents								Urban Transport Plan (Discussed in Chapter 7)
	Cycling Strategy	Walking Strategy	Bus Strategy	Intalink Strategy	Rail Strategy	Speed Management Strategy	Road Safety Strategy	Sustainable Community Strategy	
contribution to greenhouse gas emissions and improve its resilience	be encourages on the carriageway rather than separate facilities		mode shift from private car, contributing to the reduction of greenhouse gas emissions					need to travel	reliability of 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

Capabilities on project:
Transportation

3.3 Local Policy Context

3.3.1 Dacorum Core Strategy

The Core Strategy is the central document in the new Local Development Framework, and relates primarily to guidance for land use in the Borough Council's area. The document itself contains a number of overarching policies for the Borough, but is also supported by a number of background documents that relate directly to market towns and growth areas, including Berkhamsted and Tring. These documents include Berkhamsted Place Strategy and Tring Place Strategy. Along with a variety of policies that cover all aspects of community and infrastructure, there are two that will directly contribute to the implementation of the Urban Transport Plan:

- Sustainable Transport; and
- Management of Roads;

The two policies relate specifically to areas that will form the basis of the UTP and include interaction between transport modes, accessibility to transport infrastructure, parking, road safety and development impact reduction. These themes must be referred to throughout the process of addressing local transport issues and appraising potential schemes.

3.3.2 Core Strategy Daughter Documents

The Dacorum Core Strategy is supported by a number of local documents that focus primarily on local policy and objectives for Tring, Northchurch and Berkhamsted. The documents include:

- Berkhamsted Place Strategy;
- Tring Place Strategy;
- Berkhamsted Town Centre Strategy;
- Tring Town Centre Strategy.

The UTP will build on and support these local strategy documents, and will recognise the objectives when developing schemes and interventions throughout the study area.

In summary, the Core Strategy daughter documents take broad planning policies and highlight particular characteristics and future requirements for Tring, Northchurch and Berkhamsted. They focus on the following key areas:

- Provision of new homes to 2031 and the impact on the local highway network;
- Safeguarding the current town centre uses;
- Maintaining the current level of employment;
- Improve routing through management and parking strategies;
- Developing and improving pedestrian routes into and through the urban areas.

3.3.3 Berkhamsted and Tring Data Report (HCC)

The 2011 Data Report provides a variety of statistics regarding the current transport use and provision within and around Berkhamsted and Tring. In terms of the development of the UTP, the Data Report will form the basis for many statistical targets and objectives for the local area. Containing specific travel to work and mode share information, the UTP will be able to examine the statistics and provide transport improvement options to allow the improvement of accessibility and shift to more sustainable modes of transport. The Data Report also provides an insight into areas of congestion, which will assist in specifying areas for improvement as part of the UTP development.

Local Issues

Capabilities on project:
Transportation

4 Local Issues

4.1 Introduction

This section builds upon the previous policy and transport review by detailing the identified problems specific to Tring, Northchurch and Berkhamsted, by transport mode and subject. The problems have been identified via a number of means, as described below.

Datasets – Datasets were provided by HCC through their data report for Berkhamsted and Tring, and were supplemented by additional information. These datasets were reviewed to gain an understanding of general travel trends within the study area.

Officer and Member consultation – Following the collation of initial information, a series of officer and member workshops were held. This provided an opportunity to gain detailed local knowledge of the issues and also to supplement the existing evidence base.

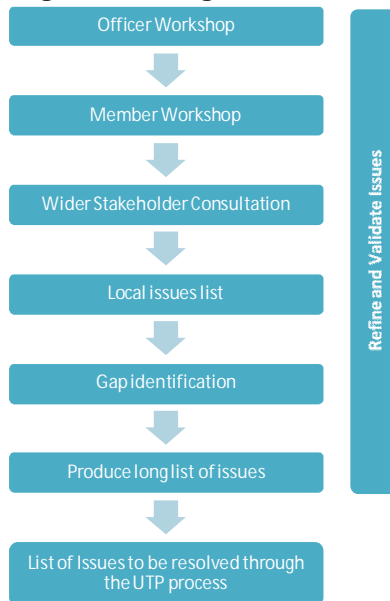
Stakeholder consultation – The stakeholder workshop process invited members of stakeholder groups with an interest in transport issues to an event where they were able to express their views. The order of the day consisted of a presentation on the background to the study followed by a series of facilitated workshop groups where individuals could openly discuss the issues.

A series of Technical Notes from these three events have been provided in the **Stage 1 Report**, giving details of discussions and outcomes of each of the sessions.

Site visits – Site visits were undertaken to gain an understanding of the local environment and to note congestion, sustainable transport, public transport, parking and safety issues within the area. These visits also provided an opportunity to audit and validate identified issues and problems.

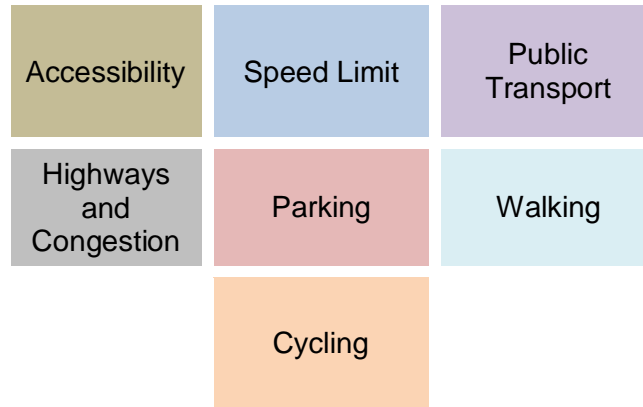
The purpose of this exercise was to identify and collate a comprehensive record of the transport issues in Tring, Northchurch and Berkhamsted. Having gathered this information, it was then possible to refine and validate the long list of identified issues to produce a final list of issues to be resolved through the UTP. The Stage 1 process is illustrated in **Figure 4.1**

Figure 4.1: Stage 1 Process



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Transportation

The following sections review each transport theme in terms of current policy context, issues identified through research/workshops, and data analysis that has been completed during the issue validation process. The following key themes have been reviewed:



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4.2 Accessibility

Relevant LTP 3 Goal:

Improve transport opportunities for all and achieve behavioural change in mode choice.

The County and Borough Councils promote sustainable travel to school through the support of School Travel Plans, in addition to the identification of schemes through the Safer Routes to School programme. There are nine state schools located throughout Berkhamsted, and two independent schools. Ten of these schools have Travel Plans. In Tring there are five state schools and two independent schools and a total of six of these have Travel Plans.

Data taken from the 2011 School Census indicates that walking is the most popular mode of transport, with over two thirds of primary school children and over half of secondary school children walking. Private car has a higher proportion within Berkhamsted, whereas bus travel is much higher for Tring secondary school pupils.

The UTP will recognise the contribution School Travel Plans and the Safer Routes to School programme has on the mode shift and reducing local congestion. It will also encourage the use of active and healthier mode choice for travelling to school.

Table 4.1 Accessibility List of Issues

Issue ID	Issue/Problem	Source
A1	Limited access to neighbouring towns	Public Exhibition

4.3 Highways and Congestion

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.

LTP3 provides a different approach to previous plans regarding methods to tackle current congestion hotspots. The focus is primarily towards making further use of the current transport infrastructure through improved efficiency and intelligent transport systems, compared to a previous focus of increased road capacity and new infrastructure.

Throughout the consultation period, it has been recognised that congestion is an issue along sections throughout the study area. It is perceived that school traffic, commuter traffic, junction layouts and a lack of traffic management are the main sources of congestion within Tring, Northchurch and Berkhamsted.

In addition, the topography of Berkhamsted has resulted in both a greater dependence on the car for local trips, and also the restricted route choice for local and through trips. It has been suggested that even though the A41 provides a quicker route, vehicles still use Berkhamsted High Street as a through route to access Hemel Hempstead and areas beyond. In addition, a number of issues have been identified regarding confusion of routing into and through Berkhamsted due to the lack of signs to both the town centre and parking locations.

In support of the LTP3 focus on improved use of the current infrastructure, feedback through consultation suggests that improvement to signage, junction improvements and greater attractiveness of modes other than the car can significantly reduce congestion at specific hotspots throughout the study area.

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Mode shift data suggests that in recent years, there has been a slight shift from the private car to other modes within Berkhamsted. However, this could be relative to overall growth in traffic levels, and should therefore be noted that congestion levels may not have changed during this period.

Table 4.2 Highways and Congestion List of Issues

Issue ID	Urban Area	Issue/Problem	Source
CH1	Berkhamsted	High St/Kings Rd long delays in all directions	Public Exhibition
CH2	Northchurch	High St/New Rd congestion	Public Exhibition
CH3	Berkhamsted	Taxis parking by station cause congestion and safety concerns for pedestrians	Public Exhibition
CH4	Tring	Speeding and congestion on Akeman St, Park Road and Western Rd	Tring Transport Plan
CH5	All	Much higher car ownership than Hertfordshire or UK (43-45% two or more cars per household)	Data Report
CH6	All	High level of car commuters (Out - 67% Berkhamsted, 75% Tring, In - 78% Berkhamsted, 77% Tring)	Data Report
CH7	Berkhamsted	Kingshill Way has been specified as a congestion hotspot	Data Report
CH8	Berkhamsted	Charles St and Castle St school time congestion (drop-off areas)	Stakeholder Workshop
CH9	Berkhamsted	Intergreens are too long at Lower Kings Rd signals	Public Exhibition
CH10	Northchurch	Too many HGVs on B4506 New Road, Northchurch	Public Exhibition
CH11	Northchurch	New Road, Northchurch too narrow for HGVs and passing points	Public Exhibition
CH12	Berkhamsted	No left filter lane on Billet Lane onto High St	Public Exhibition
CH13	Berkhamsted	Charles St is currently a rat-run	Public Exhibition
CH14	Berkhamsted	Congestion on A416/Shooters Way junction	Members Workshop
CH15	Berkhamsted	Congestion on London Rd/Station Rd junction	Members Workshop
CH16	Berkhamsted Northchurch	Through traffic not using the A41 bypass, causing congestion	Stakeholder Workshop
CH17	All	No car club in Tring or Berkhamsted	Stakeholder Workshop
CH18	Berkhamsted	Poor signage at Lower Kings Rd/Brownlow Rd	Public Exhibition
CH19	Berkhamsted	A review of access signs required (along A41)	Members Workshop
CH20	Berkhamsted	Poor access to Westfield School at Durrants Lane/High St junction	Public Exhibition
CH21	Berkhamsted	Too many HGVs in town, causing localised pollution	Public Exhibition
CH22	Berkhamsted	The traffic calming measures are bad for air quality and noise pollution	Public Exhibition

4.4 Cycling

Relevant LTP 3 Goal:

Improve transport opportunities for all and achieve behavioural change in mode choice.

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Transportation

The five goals of LTP3 support the increased use of cycling through achieving behavioural change in mode choice and reducing transports contribution to greenhouse gas emissions. The Cycling Strategy also provides support for the shift towards more sustainable, healthier modes of travel.

Table 4.3 demonstrates the amount of cycle journeys to work and school in Berkhamsted and Tring:

Table 4.3 - Cycling Trips

Mode		Berkhamsted	Tring
Work		0.9%	1.5%
School	Primary	0.2%	1.6%
	Secondary	0.8%	0.1%

Source: Berkhamsted and Tring UTP Data Report

As part of the Urban Transport Plan, a Bikeability Cycle Audit of Tring, Northchurch and Berkhamsted was undertaken. For full details, refer to **Volume 5** for the Bikeability Cycle Audit and supporting documentation.

The audit provided an assessment of the network within the UTP study area against the level of cycling skill required to use it safely, based on the three levels of training in the National Standard for Cycle Training (Bikeability), as outlined below:

- **Level 1** - Traffic free off-carriageway routes where cycling is permitted – suitable for all cycling levels.
- **Level 2** - Roads / cycle tracks suitable for cyclists at Bikeability Level 2.
- **Level 2.5 (off peak)** - During off peak times there are some roads that are quiet and safe for Level 2 cyclists. However, at peak times these roads are busy and unsafe and only suitable for Level 3 cyclists. These roads are classified Level 3 at the identified peak times and Level 2 at all others.
- **Level 3** - Roads / cycle tracks only suitable for cyclists at Bikeability level 3
- **Level 3+** - Roads not recommended for cycling

This assessment, alongside engagement with local interest groups was then used to determine the shortfalls in cycle facilities throughout the study area. The full Bikeability assessment of roads and off-road facilities in Tring, Berkhamsted and Northchurch are shown in **Figures 4.2** and **4.3**. The assessment highlights there are a number of gaps in provision within the towns; however the majority of the network is suitable for Level 2 cyclists without the requirement for specific cycle facilities.

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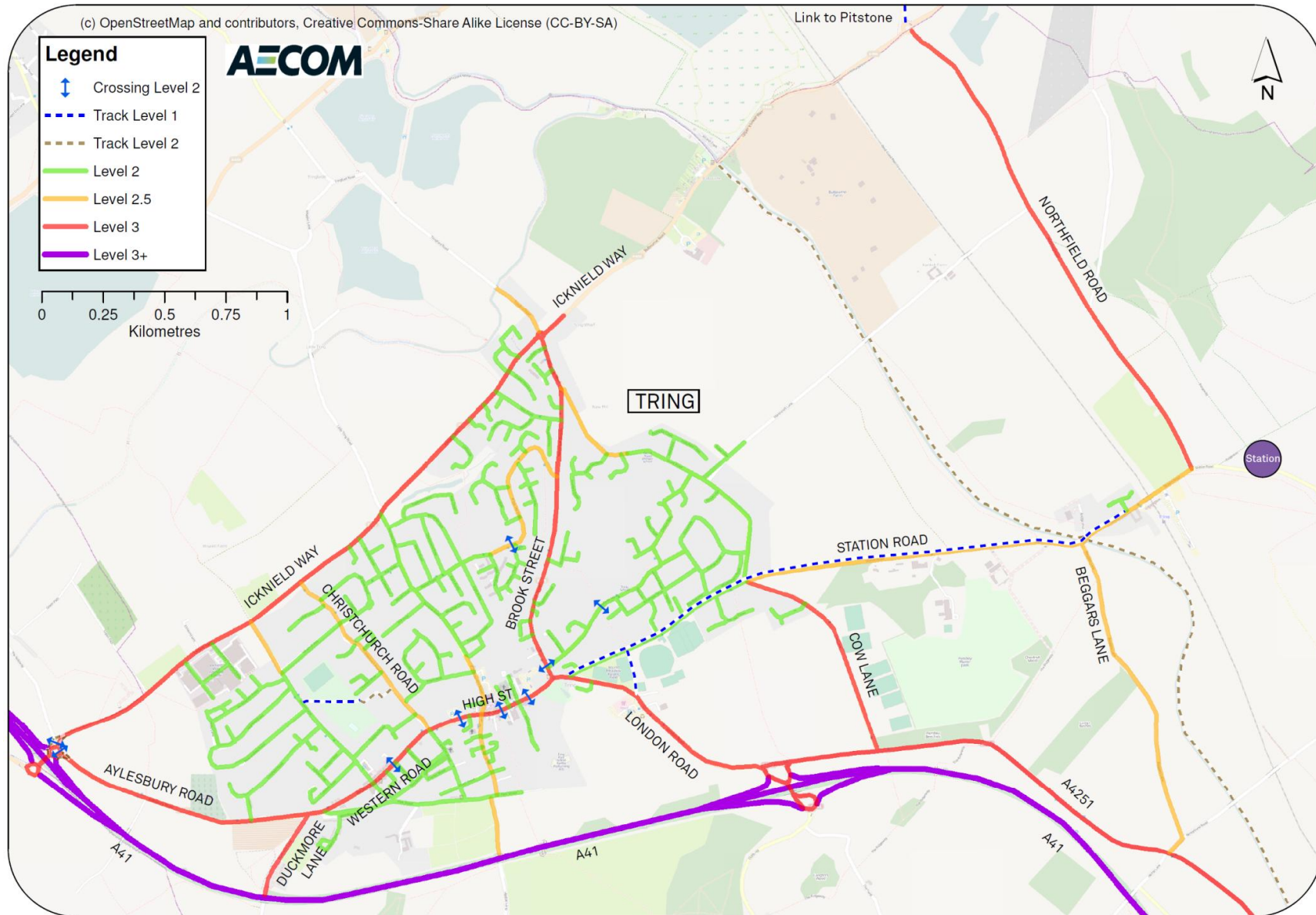


Figure 4.2 Bikeability Network Assessment - Tring

Capabilities on project:
Transportation

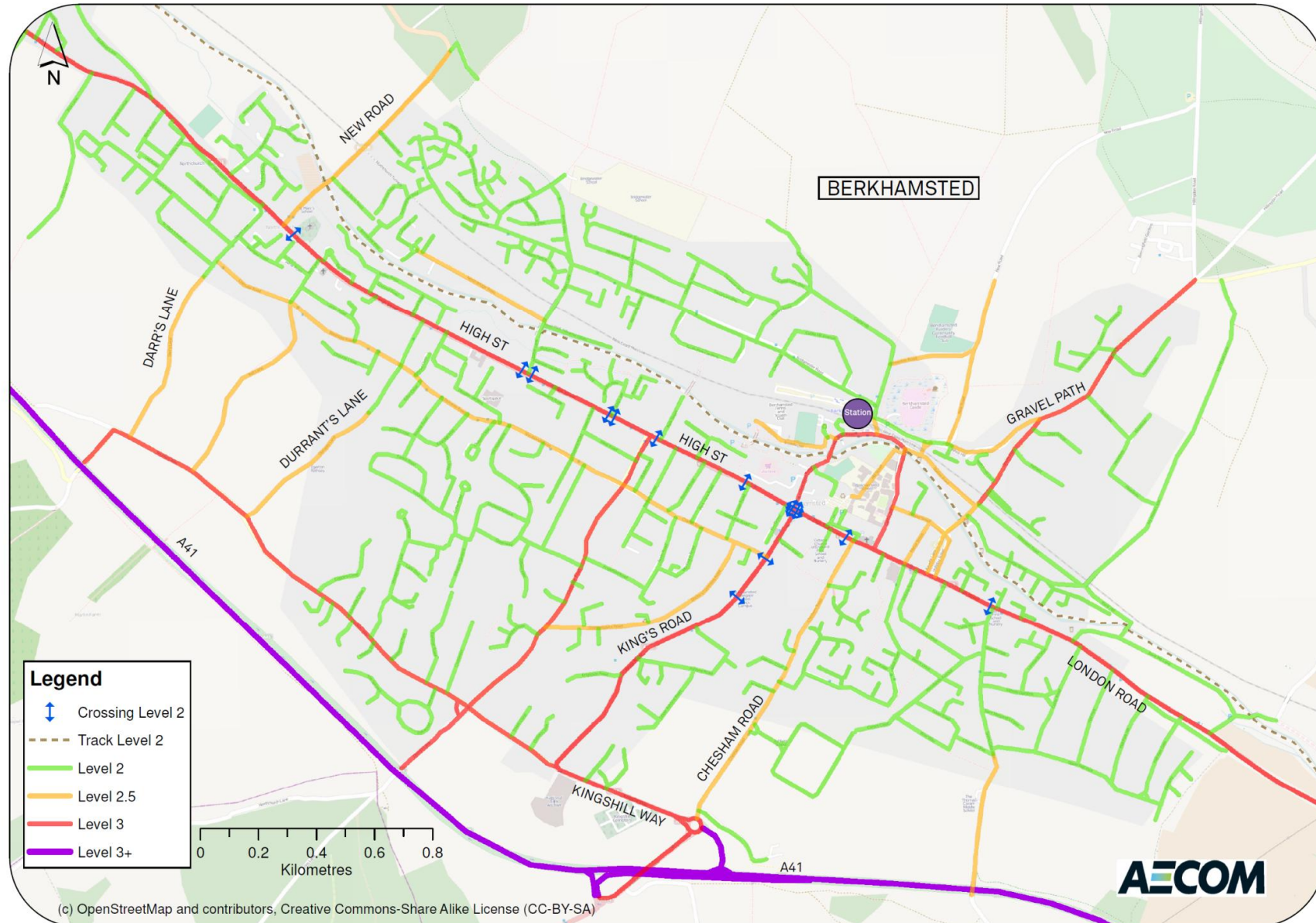


Figure 4.3 Bikeability Network Assessment - Berkhamsted

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Table 4.4 provides a full list of issues that have been identified during the consultation and audit process. The issues demonstrate that a number of improvements are required throughout the study area to encourage cycling, and for cycling to become a realistic and safe alternative to the car.

Table 4.4 Cycling List of Issues

Issue ID	Urban Area	Issue/Problem	Source
B01	Berkhamsted	No safe access for cyclists from High St to Durrants Lane	MWL Westfield Parents
B04	Berkhamsted	Cycle Lane required extending on London Road	Public Exhibition
B05	Northchurch	Conflict with fast vehicles on Tring Road, New Rd and Darr's Lane	Public Exhibition
B06	All	Very muddy towpath on canal can prevent cycling	Public Exhibition
B07	Berkhamsted	Widening of London Rd for cycle lane has created speeding and dangerous conditions for cyclists	Public Exhibition
B09	Berkhamsted	No cycle parking on High Street West	Public Exhibition
B10	Berkhamsted	No dedicated cycle routes in Berkhamsted	Public Exhibition
B11	Berkhamsted	Not enough cycle facilities, current facilities are poor quality	Berkhamsted Transport Programme
B13	Berkhamsted	Narrow roads on gateways into Berkhamsted means conflict between cyclists and drivers	Berkhamsted Transport Programme
B14	Berkhamsted	Lack of way finding for pedestrians and cyclists in Berkhamsted	Site Observations (AECOM)
B15	Berkhamsted	High Street traffic calmed but remains traffic dominated	Dacorum Cycle Strategy, 2009
B17	Berkhamsted	Inclines – height range from 110m to 160m above sea level – therefore 50 metres variance in levels across the town – some areas too steep to propose realistic cycle measures	Dacorum Cycle Strategy, 2009
B18	Berkhamsted Tring	Little cycle specific provision throughout the town	Dacorum Cycle Strategy, 2009
B19	Berkhamsted	Limited cycle parking	Dacorum Cycle Strategy, 2009
B20	Berkhamsted	Requirement to provide quieter routes parallel to the High Street and towpath	Dacorum Cycle Strategy, 2009
B21	Berkhamsted	Alternative route to High Street (via Durrants Road, Shrublands Road and Charles Street) have lots of resident parking	Site Observations (AECOM)
B22	Berkhamsted	Cycle parking is of poor quality and sporadic in the town centre	Site Observations (AECOM)
B23	Berkhamsted	Towpath west of Berkhamsted Station is in bad condition	Members Workshop
B24	Berkhamsted	Access to platforms is difficult for cyclists due to the lack of lifts and wheeling channels	Bikeability on-site meeting
B26	Berkhamsted	Horizontal and vertical traffic calming measures within the High Street has perhaps created an increasingly difficult environment	Bikeability on-site meeting

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Issue ID	Urban Area	Issue/Problem	Source
B27	Berkhamsted	Merits of alternative alignments questioned due to the requirement to access them via difficult gradients	Bikeability on-site meeting
B28	Berkhamsted	Changes to the education system in Berkhamsted may alter travel behaviour with increased traffic to Ashlyn's School recognised as a potential issue	Bikeability on-site meeting
B29	Berkhamsted	Cycle bypass at Shooters Way / Kingshill Way is never used, the alignment is poor and it creates a maintenance issue	Bikeability on-site meeting
B30	All	British Waterways have undertaken a condition audit of the whole towpath network which indicates that the section in question between the Cow Roast Marina and Tring is poor	Bikeability on-site meeting
B31	Berkhamsted	Cycling on Gravel Path is dangerous, especially on the ascent and becomes a Level 3+ due to its steep ascent and subsequent slow speed of cyclists on the narrow carriageway	Bikeability on-site meeting
B32	Berkhamsted	Location of cycle racks at the back of Berkhamsted station is not convenient - further racks should be considered at the front of the station - where they are fully utilised.	Stakeholder Workshop
B33	Berkhamsted	Width of carriageway underneath the railway bridges at Station Road / Whitehill and Lower Kings Road / Brownlow Road are hazardous to both cyclists and pedestrians	Wider UTP Workshop
B35	Northchurch	The potential to provide a link between New Road and Spring Field Road needs to be explored as connectivity for cyclists on the north side of the High St is poor	Wider UTP Workshop
B36	Berkhamsted	An alternative route suitable for a Level 1 / 2 cyclists needs to be explored just north of the High St using Stag Lane to access towpath and potential shared use	Wider UTP Workshop
T02	Tring	Link needed between Pitstone to Tring Station, utilising the Tring Gateway Station Project	Dacorum Cycle Strategy, 2009
T03	Tring	Lack of signing to cycle parking	Dacorum Cycle Strategy, 2010
T04	Tring	Alternative route required to Brook Street	Dacorum Cycle Strategy, 2009
T05	Tring	Lack of way finding for pedestrians and cyclists in Tring	Site Observations (AECOM)
T06	Tring	Cycle parking is at, or close to, capacity at Tring Station and will require expansion in the future	Site Observations (AECOM)
T07	Tring	Cycle track maintenance is poor on link between Tring Station and London Road, some surface issues	Site Observations (AECOM)
T08	Tring	No formal crossing on Station Road between footpath 39 and cycle track across playing fields to Tesco (lots of schoolchildren observed doing this movement at lunchtime)	Site Observations (AECOM)

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Issue ID	Urban Area	Issue/Problem	Source
T09	Tring	Routes of Grove Road and Frogmore Street / Dundale Road require improvements	Site Observations (AECOM)
T10	Tring	Link to Tring Rugby Club site via Cow Lane is not cycle friendly	Site Observations (AECOM)
T11	Tring	Cycle parking at Western Road shops required	Site Observations (AECOM)
T12	Tring	Cycle track on Station Road ends at junction with London Road	Site Observations (AECOM)
T13	Tring	Crossing of Brook Street if difficult via Zebra crossing with poor link to market	Site Observations (AECOM)
T14	Tring	Northfield Road link to Pitstone is currently hazardous with no cycle facilities and high vehicle speeds - carriageway condition is poor. Particularly hazardous during the AM peak with vehicles speeding to get to the station	Site Observations (AECOM)
T15	Tring	Parking present on Beggars Lane for people using the Station - road is a cycle route and could cause conflicts	Site Observations (AECOM)
T16	Tring	Bridge by Tring Station - Narrow and presents issues for cyclists	Wider UTP Workshop
T17	Tring	Signage / way finding from Tring Station to town is poor / confusing / incorrect. Link and signage to off carriageway facility needs improving.	Wider UTP Workshop
T18	Tring	Speeding is an issue in Tring making conditions not conducive to cycling	A Transport Plan for Tring and District
T19	Tring	Secure parking in Tring Station is limited with limited CCTV coverage of parking spaces	A Transport Plan for Tring and District
T20	Tring	Parking spaces in town centre are provided but will require expansion to meet demand. Parking at sports facilities are limited and not secure.	A Transport Plan for Tring and District
T21	Tring	Problems for school children travelling to school by cycle are caused by congestion as a result of the number of pupils taken to school by car.	A Transport Plan for Tring and District
T22	Tring	Lack of cycle parking at Tring Station	Stakeholder Workshop

4.5 Speed Limit Compliance

Relevant LTP 3 Goal:

Improve the safety and security of residents and other road users

Hertfordshire's Speed Management Strategy and DfT Circular "Setting Local Speed Limits" (January 2013) provides details regarding the current regulations for appropriate speed limits in terms of thresholds for the increase or reduction of existing speed limits. This strategy will act as an important reference point when developing schemes to tackle excessive speeding in Tring, Northchurch and Berkhamsted.

In addition, a Road Safety Strategy has been developed. This provides an approach to minimise the number of people killed or seriously injured on the County's roads.

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Throughout the consultation process, a number of road sections throughout the study area were perceived as problematic in terms of speeding vehicles, and viewed as a major safety concern for pedestrians and cyclists. Further analysis will be required as part of the issue validation process, to measure speeds on roads identified in **Table 4.5**. This will enable the prioritisation of areas where interventions are required.

Table 4.5 Speed Limit Compliance List of Issues

Issue ID	Urban Area	Issue/Problem	Source
S1	Berkhamsted	No traffic from Moore St at mini roundabout - vehicles do not slow down at junction	MWL Westfield Parents
S2	Berkhamsted	Too many speed bumps on Bridgewater Rd	Public Exhibition
S3	Berkhamsted	Too many speed bumps on Cross Oak Rd	Public Exhibition
S6	Berkhamsted	Inappropriate speed on Kings Road	Public Exhibition
S7	Berkhamsted	Shootersway has too many potholes along entire length and also requires traffic calming	Public Exhibition
S14	Tring	Speeding on Station Rd	Tring Transport Plan
S16	Tring	Speeding on Aylesbury Rd	Tring Transport Plan
S17	Tring	Speeding on London Rd WB into Tring	Tring Transport Plan
S18	Tring	Speeding on Brook St, combined with poor visibility, narrow and no crossing facilities	Tring Transport Plan
S24	Tring	Speed bumps on Grove Road do not deter speeding enough	Public Consultation
S25	Tring	Tring Station - vehicles regularly drive through the hamlet over the speed limit and it's very dangerous, particularly with traffic turning out of the station.	Public Consultation
S26	Northchurch	Northchurch - the main road is an accident waiting to happen	Public Consultation
S27	Tring	The treacherous crossing from Bishop Wood School across Frogmore Street is not addressed	Public Consultation
S28	All	Traffic calming measures should be considered more widely, existing roads and schools become extremely hazardous for school children and local residents due to parking around school areas for pick-up	Public Consultation
S29	All	Could consideration be made to the installation of flashing speed signs, speed cameras, additional school warning signs	Public Consultation

4.6 Parking

Relevant LTP 3 Goal:

Improve transport opportunities for all and achieve behavioural change in mode choice.

The Berkhamsted and Tring Town Centre Strategies focus primarily on improving town centre parking as an effective method in reducing congestion, providing specific policy and methodology in improving the efficiency of car parking throughout Berkhamsted and Tring. The two policy documents also focus

Capabilities on project:
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on the requirement for a balance between meeting the parking needs of residents, commuters and shoppers.

Throughout the consultation period, it was perceived that there are specific parking issues at the two railway stations, in addition to on-road and town centre parking. The initial consultation for the Urban Transport Plan highlighted the requirement for parking strategies to encourage management, tariff and capacity interventions at key locations. Berkhamsted and Tring contain a number of Controlled Parking Zones that encourage the prioritisation of shopping in town centres. However, it has become apparent that parking for shoppers, commuters and education has extended east and west into residential areas, where parking provision is already at capacity.

Public car park locations for Berkhamsted and Tring are shown in **Figures 4.4** and **4.5**, respectively.

Table 4.6 Parking List of Issues

Issue ID	Urban Area	Issue/Problem	Source
PK1	Berkhamsted	Parking is limited at the station due to taxis, skips, yellow posts etc.	Public Exhibition
PK3	Berkhamsted	Cross Oak Rd and Charles St - too much parking on both sides	Public Exhibition
PK4	Berkhamsted	Prince Edward St - hazardous parking and turning by school	Public Exhibition
PK6	Berkhamsted	Too much parking on Kitsbury Rd and Charles St	Public Exhibition
PK7	Berkhamsted	Parking charges too high - discourages customers	Public Exhibition
PK8	Berkhamsted	Very large vehicles frequently park on the High Street.	Public Exhibition
PK9	Berkhamsted	Not enough parking provision in town centre	Public Exhibition
PK10	Tring	Large number of vehicles stopping on Grove Rd at school peak times	Tring Transport Plan
PK11	Tring	Tring Station car park is full on weekdays	Members Workshop
PK12	All	Future housing development will have to be internal due to town boundaries. Residential parking already at capacity	Members Workshop
PK13	Tring	Parking issues along Cow Lane	Members Workshop
PK14	Tring	Brook St - Parking bay needs extending if traffic lights are added	Members Workshop
PK15	All	High proportion of workers using cars, filling local car parks and causing congestion	Stakeholder Workshop
PK16	Tring Berkhamsted	Parking along country lanes to avoid station parking costs	Stakeholder Workshop
PK17	Berkhamsted	The Council indicates there is confusion about what parking is and is not permitted on the High St	Berkhamsted Transport Programme
PK18	Berkhamsted	Signs to car parks are in poor condition and misleading - Berkhamsted	Berkhamsted Transport Programme

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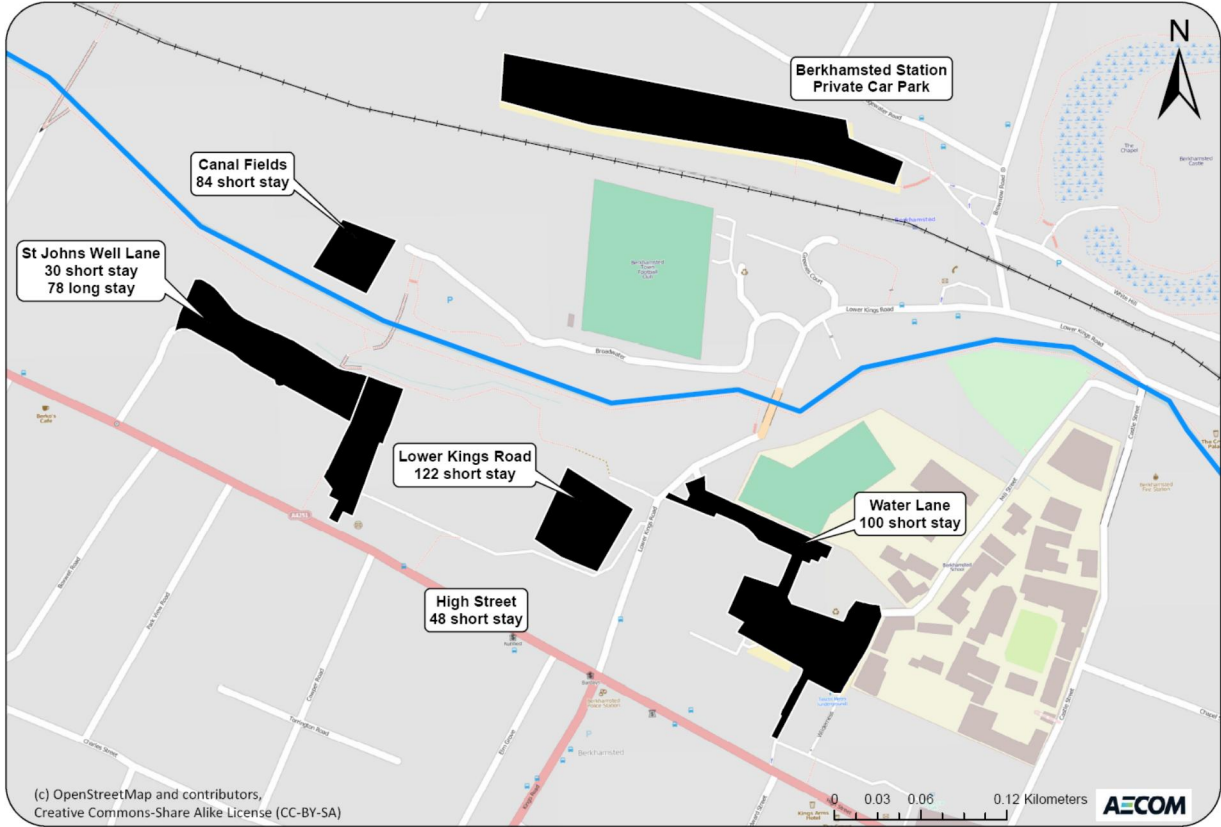


Figure 4.4 Location of Public Parking in Berkhamsted Town Centre

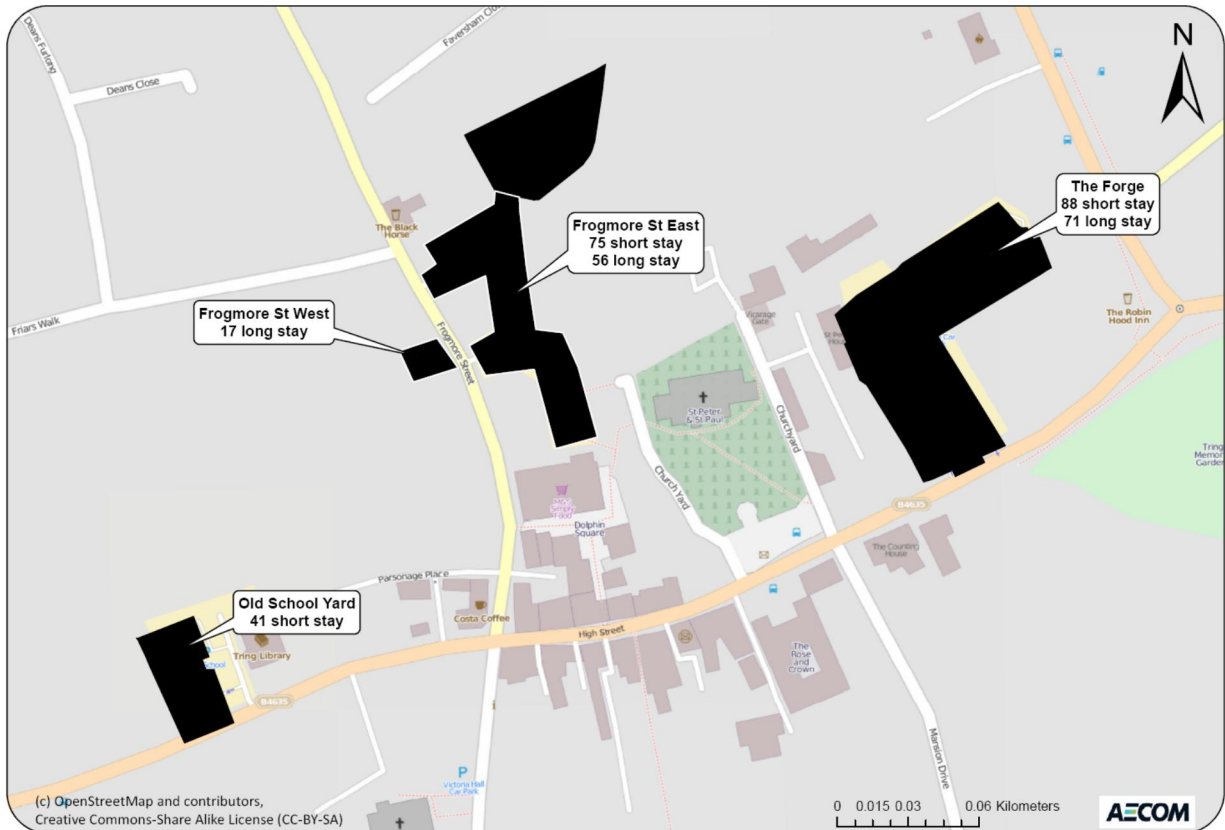


Figure 4.5 Location of Public Parking in Tring Town Centre

Capabilities on project:
Transportation

4.7 Public Transport

Relevant LTP 3 Goal:

Improve transport opportunities for all and achieve behavioural change in mode choice.

A number of LTP3 daughter documents relate to public transport, including the Bus Strategy, Rail Strategy and Intalink Strategy. In summary, the three documents focus primarily on delivering the five overarching LTP3 goals through various improvements to public transport facilities, access to information and connectivity between modes. These contribute towards reducing the need to travel by private car, and supporting economic growth through increasing accessibility to key locations and local towns.

Throughout the consultation period, it was recognised that Tring and Berkhamsted, even though different in many aspects, have similar requirements for improving public transport. The perception from stakeholders was that there needs to be greater accessibility to public transport throughout Tring, Northchurch and Berkhamsted, with an emphasis on reviewing timetabling and routing to allow for greater efficiency of bus routes to access key facilities at appropriate times of the day. **Table 4.7** provides a full list of public transport related issues throughout the study area. **Figures 4.6** and **4.7** demonstrate 400m accessibility to bus routes throughout the study area.

The above information is demonstrated in **Figures 4.6** and **4.7**, below. These demonstrate the impact that the local topography has on the safe accessibility of buses within the local road network.

Table 4.7 Public Transport List of Issues

Issue ID	Urban Area	Issue/Problem	Source
PT1	Berkhamsted	Bus Stops by Durrants Lane lead to dangerous overtaking	Public Exhibition
PT2	Berkhamsted	Bus stop on A4251 NB is located at pedestrian refuge, blocking road	Public Exhibition
PT3	All	The bus reliability requires improvement	Public Exhibition
PT4	All	500 route not reliable	Public Exhibition
PT5	Berkhamsted	Impossible to get a taxi in peak periods	Public Exhibition
PT6	Tring	Bus Mode Share in Tring decreased (10.8% 2001, 10.1% 2010)	Data Report
PT8	Berkhamsted	Bus reliability is an issue in Berkhamsted	Members Workshop
PT9	All	Lack of shuttle buses to schools	Stakeholder Workshop

Capabilities on project:
Transportation

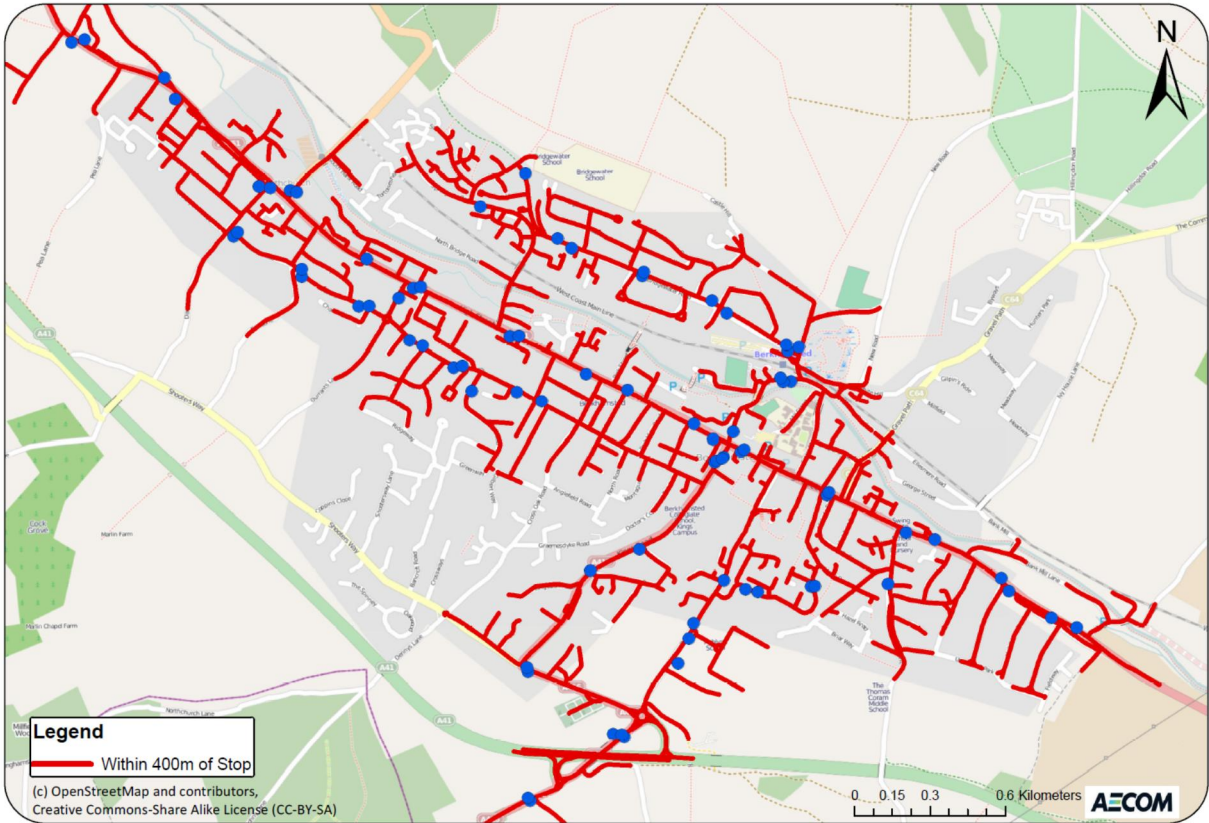


Figure 4.6 Bus Accessibility in Berkhamsted

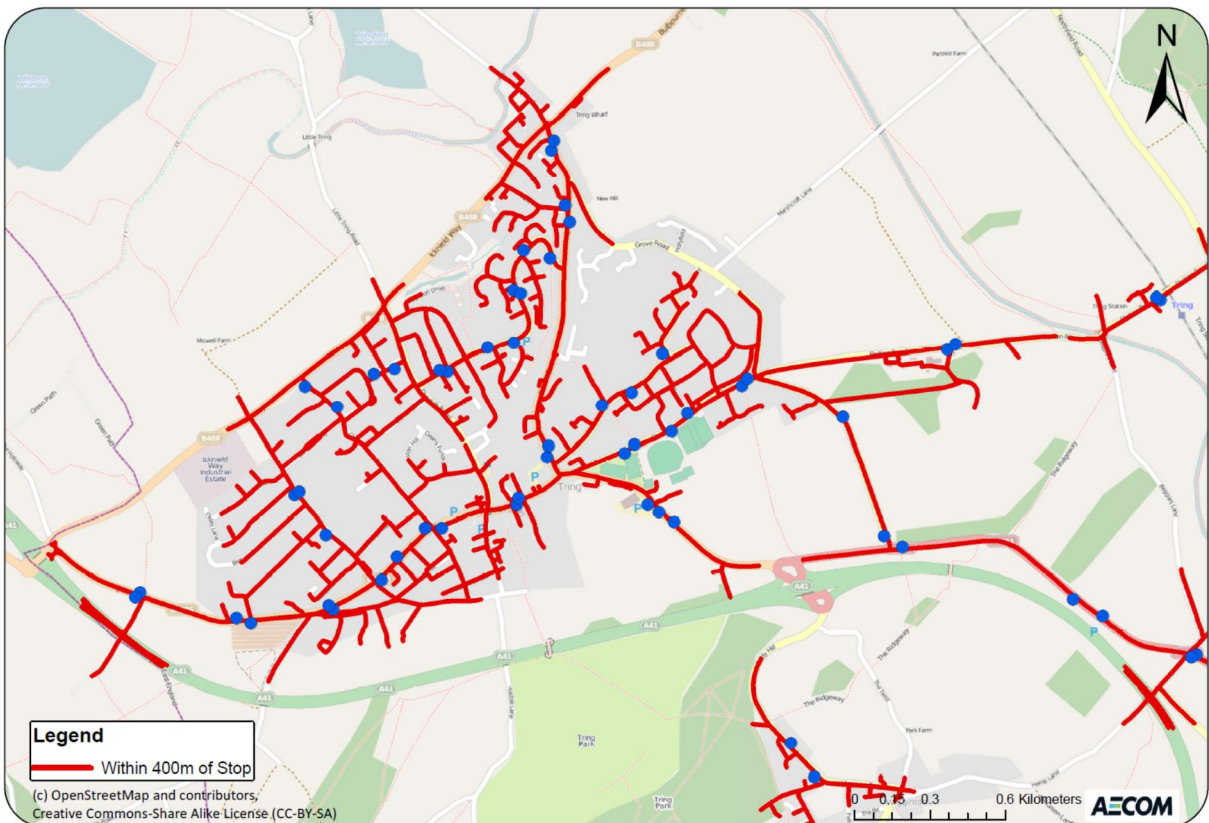


Figure 4.7 Bus Accessibility in Tring

Capabilities on project:
Transportation

4.8 Walking

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.

The Walking Strategy for Hertfordshire sets out a number of policies to encourage walking both short journeys, and as part of long journeys. The UTP will recognise these policies by suggesting schemes that will improve walking facilities and increase pedestrian priority within the urban areas of Berkhamsted, Northchurch and Tring.

Similarly to cycling, there is a perception that the private car has higher priority than walking in many areas throughout the study area, and that there are a number of safety concerns due to the poor standard of some current pedestrian facilities. The main issues focus on the requirement for additional crossing points near key locations, and the extension of the current footpath network to fill any connectivity gaps. A full list of walking issues can be found in **Table 4.8**.

Development of the Route User Hierarchy has indicated that certain gaps in the pedestrian network could form the basis for interventions as part of this UTP. A number of issues identified in relation to walking are also linked to other modes, and will therefore be prioritised when assessing the requirement for intervention. For example, Durrants Lane has no crossing facilities, but is also unsafe for cyclists due to speeding vehicles.

Table 4.8 Walking List of Issues

Issue ID	Urban Area	Issue/Problem	Source
W1	Berkhamsted	Pedestrian refuse points at High St/Durrants Lane are unsafe due to speed and depth	MWL Westfield Parents
W2	Berkhamsted	No safe crossing point for pedestrians on northern side of High St/Durrants Lane	MWL Westfield Parents
W3	Berkhamsted	Billet Lane has no crossing point near southern section where pavement disappears	MWL Westfield Parents
W4	Northchurch	Difficult to cross the road near Bell Lane due to narrow pavement	Public Exhibition
W5	Berkhamsted	Speeding vehicles round corner towards pedestrian crossing on Kings Rd, outside Collegiate School	Public Exhibition
W6	Berkhamsted	Too many vehicles speeding on Graemes Dyke Rd	Public Exhibition
W7	Berkhamsted	Billet Lane/Bridgewater Rd is very busy, and deters people from walking to nearby school	Public Exhibition
W8	Tring	Lack of crossing points on Silk Mill Way (especially near bus stops)	Tring Transport Plan
W9	Tring	Dundale Rd - no crossing facilities. Road bends on a hill, reducing visibility.	Tring Transport Plan
W10	Tring	Christchurch Rd - layout makes it difficult for pedestrians. Lack of crossing facilities.	Tring Transport Plan
W13	Tring	No pedestrian crossing on Brook St from Shugars Green to Silk Mill Way	Tring Transport Plan
W14	Tring	Lack of pedestrian facilities on Icknield Way to the industrial estate (700m towards A41)	Tring Transport Plan
W15	Tring	Oddy Hill pedestrian route needs upgrading, as the route along the A41 is not sufficient	Tring Transport Plan

Capabilities on project:
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Issue ID	Urban Area	Issue/Problem	Source
W16	Berkhamsted	Footpaths do not provide a continuous network in the town centre (Berkhamsted)	Berkhamsted Transport Programme
W17	Berkhamsted	4 pathways lacking signs where the A41 cut walking routes	Berkhamsted Transport Programme
W18	Tring	No pedestrian crossing on Miswell Lane (north of Beaconsfield Rd). Lots of pupils cross road here	Email (Christopher Townsend)
W30	Tring	Poor signage to St Murtha's Methodist Church, Tring	Email (Christopher Townsend)
W32	Tring	Insufficient crossing facilities on Grove Road adjacent to Grove Road Primary School	Public Consultation
W33	Berkhamsted	It is becoming more and more dangerous to cross Greenway everyday	Public Consultation
W34	Berkhamsted	Pedestrian crossing on Bridgewater Road, leading to the back entrance to the Berkhamsted Rail Station. At present this is an informal pedestrian crossing but the vehicular traffic here is very busy at peak times.	Public Consultation
W35	Tring	Frogmore Street crossing has far worse visibility than in other locations where change is proposed for this plan.	Public Consultation
W36	Tring	Due to the car park there is a large number of traffic movements including HGV deliveries to the Dolphin Square shops, but the traffic coming from north have no warning of a school entrance or the risk of pedestrian crossing even though the visibility is very poor.	Public Consultation
W37	Tring	The sightline from the Bishop Wood side of the road towards the town is very poor, and the school entrance, the junction with Friars Walk and the small car park beside the school entrance are nearby, all of which, along with the car park entrances opposite, give a large amount of car movements in a small area.	Public Consultation
W38	Tring	Dunsley farm to Pound Meadow along London Road - no pavement. Pedestrians have to negotiate a very narrow sloping verge or walk in the road. Also, crossing to the farm from the opposite side of London Road is quite dangerous.	Public Consultation
W39	Berkhamsted	Proper footpath pavements are needed alongside Cross Oak Rd and Kings Rd to avoid pedestrian/vehicle conflict and potential resulting accidents.	Public Consultation

Figures 4.8 and 4.9 summarise the locations of all issues throughout Tring, Northchurch and Berkhamsted.

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Transportation

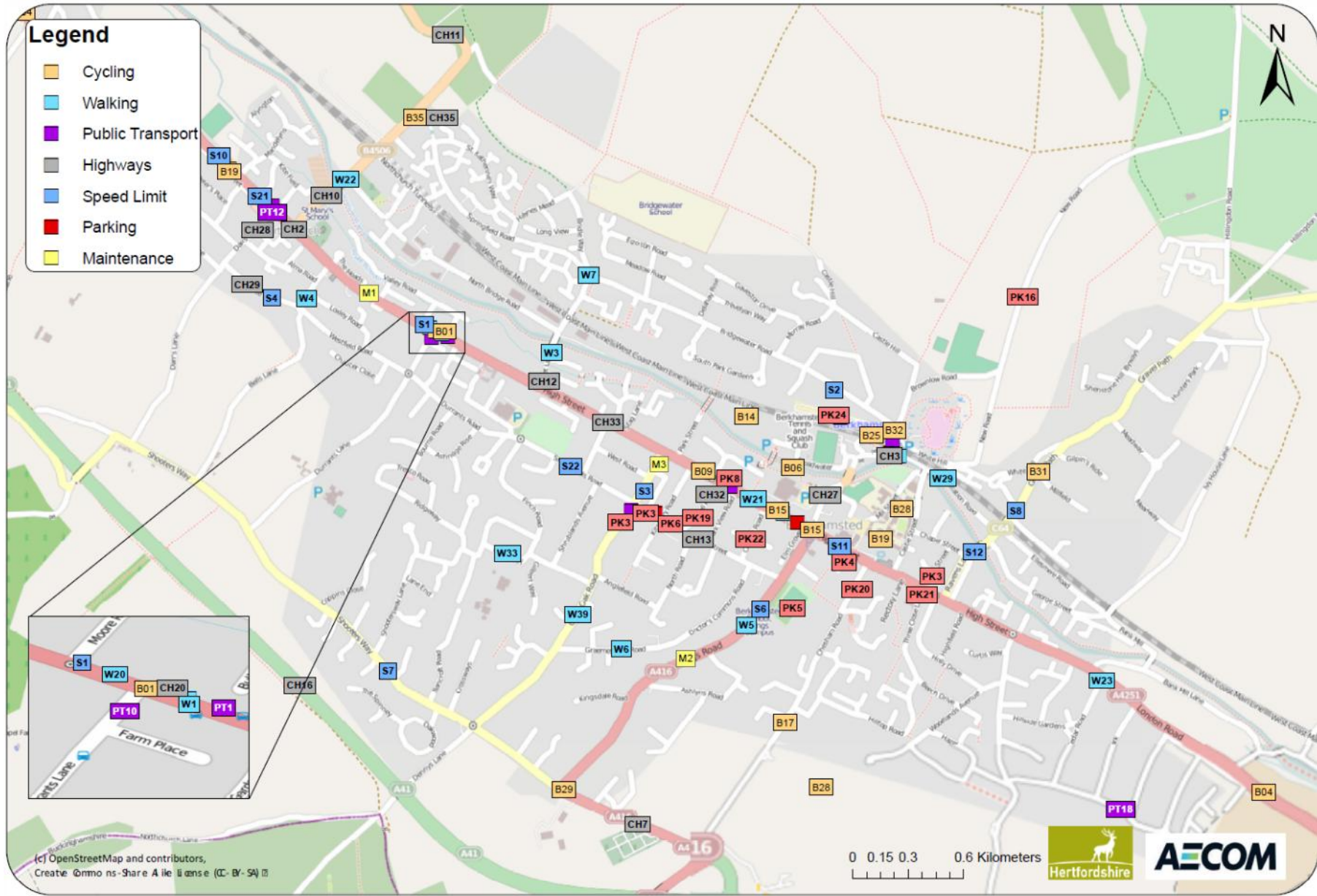


Figure 4.8: Berkhamsted Issues

Capabilities on project:
Transportation

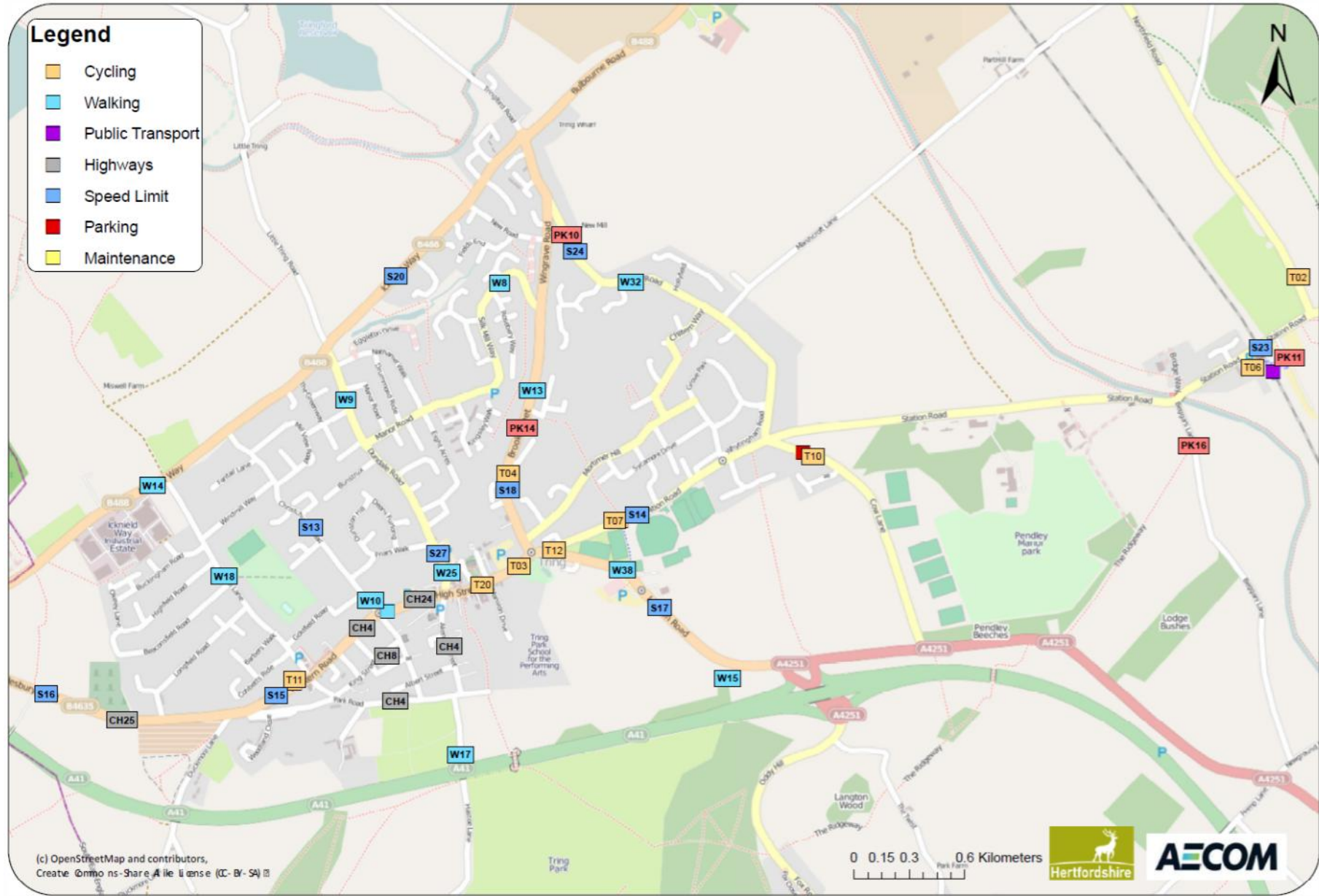


Figure 4.9: Tring Issues

Route User Hierarchy

Capabilities on project:
Transportation

5 Route User Hierarchy

5.1 Introduction

A Route User Hierarchy (RUH) has been developed for Tring, Northchurch and Berkhamsted to supplement the identification and validation of transport issues in the study area. 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 highlight key areas for improvements. In developing the UTP, the RUH has:

- Summarised the current network priority based on modal function, network function and land use;
- Identified gaps in mode networks;
- Assisted in the development and prioritisation of schemes during Stage 2 of the UTP.

The following sections summarise the methodology in developing the current RUH, with corresponding progress maps provided in **Appendix B**.

5.2 Route Categorisation

5.2.1 Strategic Function

The strategic function of the highway network in Tring, Northchurch and Berkhamsted can be split into five main categories:

- 1 Primary Route – Caters for long distance traffic linking centres of regional importance (e.g. A41 bypass);
- 2 Main Distributor – Caters for short to medium distance traffic, linking urban centres to the strategic road network (e.g. London Road);
- 3 Secondary Distributor – Caters for local traffic with frontage access and frequent junctions (e.g. Tring High Street, New Road, Northchurch);
- 4 Local Distributor – Roads linking between Main and Secondary Distributors with frontage access and residential areas (e.g. Shootersway, Gravel Path);
- 5 Other – mainly residential links carrying only access traffic.

The strategic function of the highway network is demonstrated in **Appendix B**.

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5.2.2 Land Use Categories

In addition to the strategic function, land use can be used to further split the highway network. Land use can influence the modes that are given priority on certain routes (For example, industrial areas have HGV priority on adjacent links). Therefore, the land use throughout each urban area has been classified into the following:

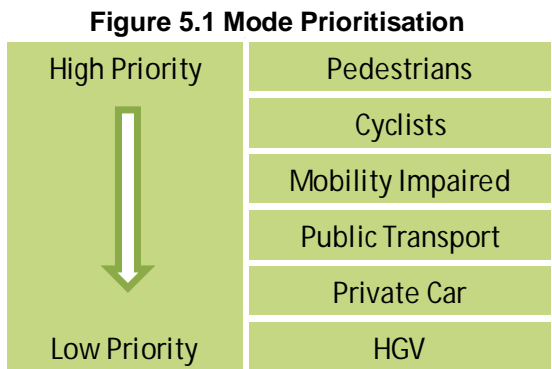
- A Town Centre;
- B Local Shops;
- C Education;
- D Residential;
- E Leisure;
- F Employment; and
- G Rural.

By combining the route and land use categorisations, the network can be split into 35 individual link functions, as demonstrated in **Table 5.1**, below:

Table 5.1 Link Functions

Function	Land Use						
	A	B	C	D	E	F	G
1	1A	1B	1C	1D	1E	1F	1G
2	2A	2B	2C	2D	2E	2F	2G
3	3A	3B	3C	3D	3E	3F	3G
4	4A	4B	4C	4D	4E	4F	4G
5	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. **Appendix B** demonstrates the priority each mode has on each link type, in conjunction with the following hierarchy of road users:



The current Route User Hierarchy for Tring, Berkhamsted and Northchurch is illustrated in **Figures 5.2** and **5.3**. The network priority has been split into the categories contained within **Table 5.2**.

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Table 5.2 Network Priority Examples

Priority	Example
All users/modes equal	Berkhamsted High Street Kings Road
Pedestrian/Cyclist/Mobility Impaired/Car	Shootersway Grove Road
Pedestrian/Cyclist/Mobility Impaired/PT/Car	Durrants Road Cow Lane
PT/Car/HGV	A41 Icknield Way

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 A41 is only suitable for motor vehicles, whereas Kings Road is 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 aren’t prioritised.

5.3 Summary

The RUH has identified the route user priority on each section of the network through analysis of 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 to highlight key areas for improvement. It is important to note that the RUH is only part of the assessment process, and has not formed the sole basis for development of schemes for Tring, Northchurch and Berkhamsted.

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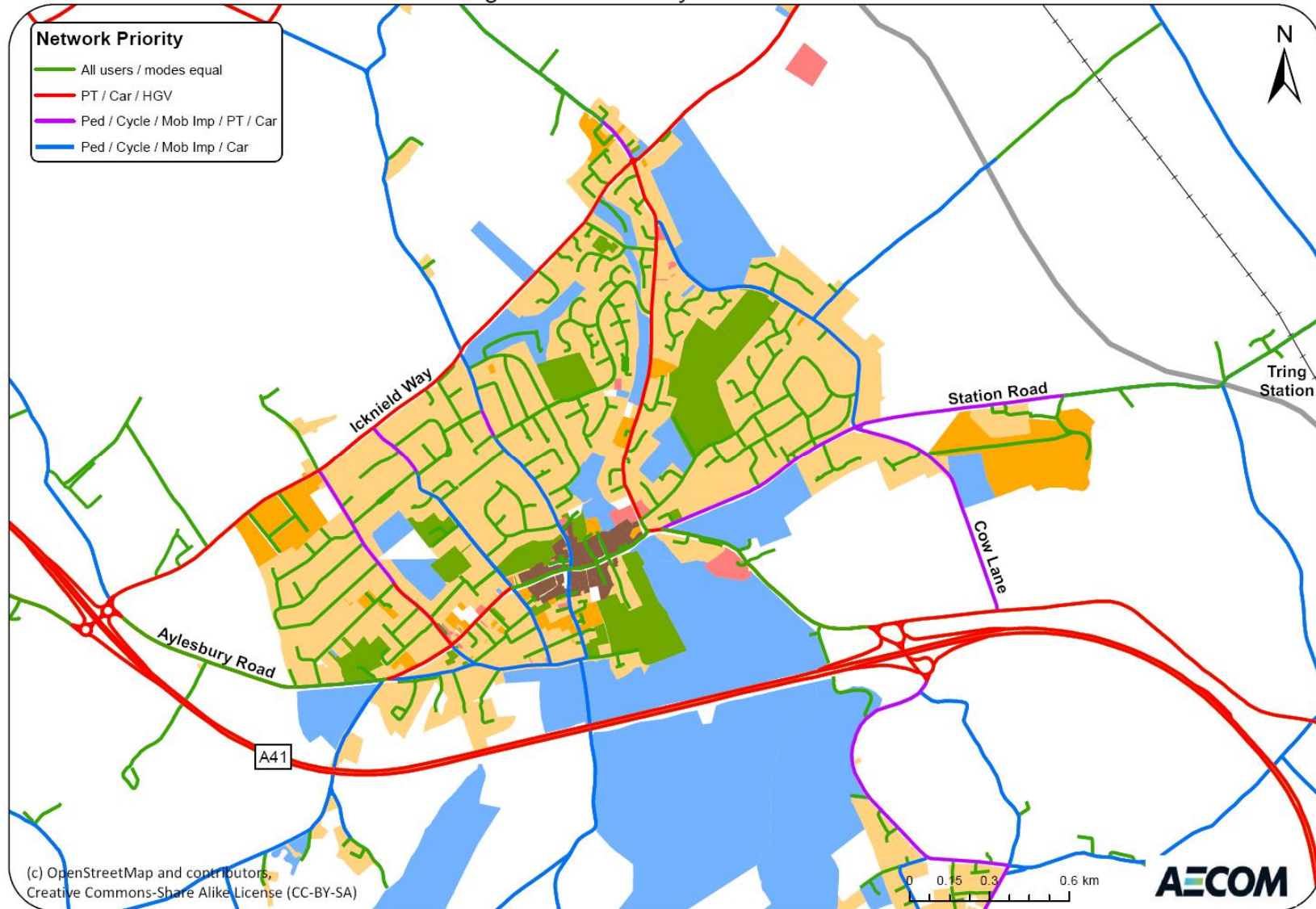


Figure 5.2 Tring Current Route User Hierarchy

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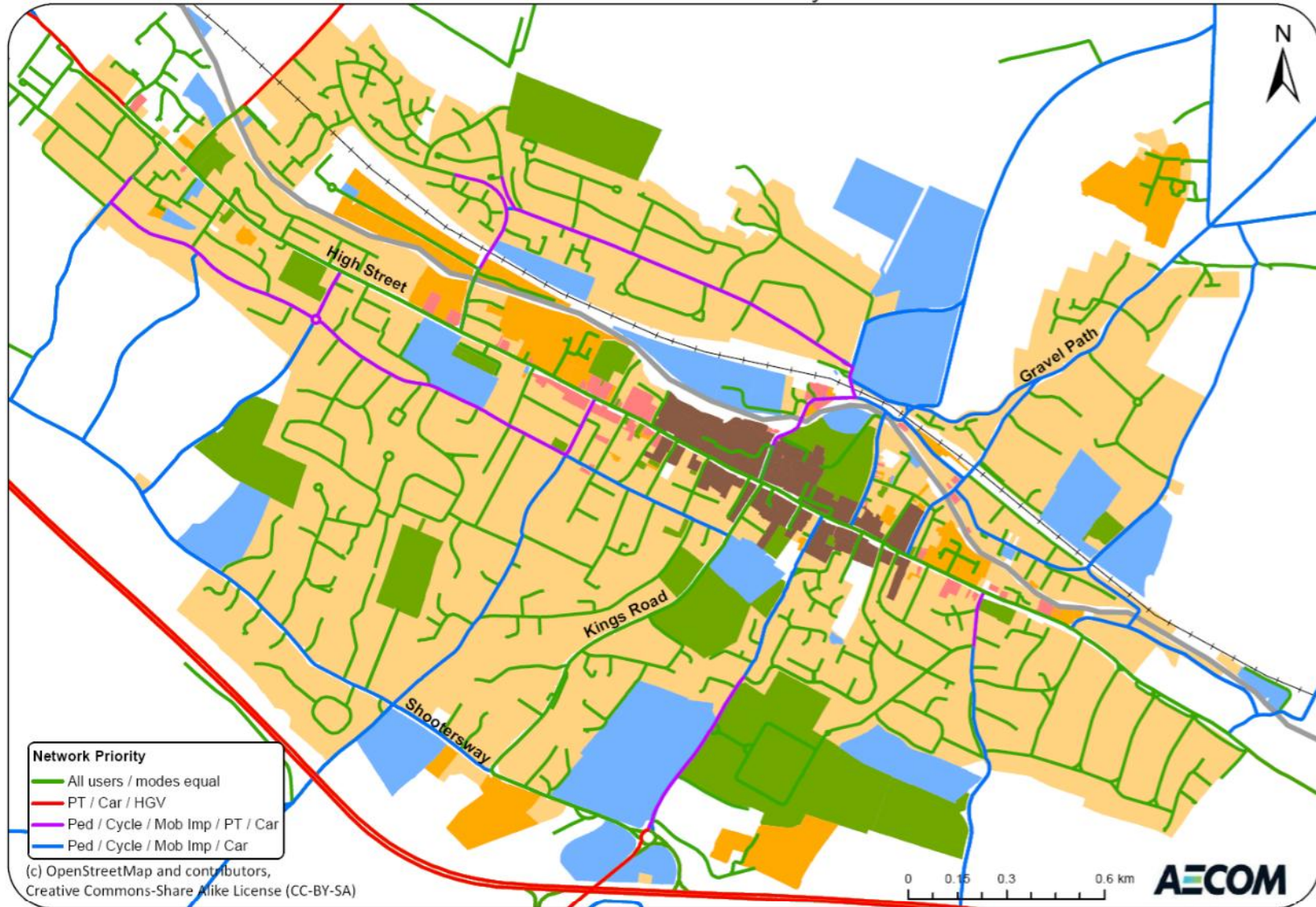


Figure 5.3 Berkhamsted Current Route User Hierarchy

Local Opportunities / Future Pressures

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Transportation

6 Local Opportunities / Future Pressures

6.1 Introduction

This section identifies the future development options throughout Tring, Northchurch and Berkhamsted, and provides an insight into the impact that the development may have on the local transport infrastructure, and the implications for the market towns.

6.2 Growth in Berkhamsted

The recent 'Dacorum Core Strategy Pre-Submission' (2011) indicates that 1,180 homes will need to be accommodated in Berkhamsted between 2006 and 2031, of which over 1,000 will be built within the urban area. Due to the constraints of the town boundaries and local topography, future development will be located throughout the current residential areas and urban centre. Therefore, current transport issues are likely to be exacerbated due to internal trip generators, and as a result will require analysis as part of the UTP.

Local planning documents have identified two specific sites that are either proposed or committed for Berkhamsted, including one strategic site and one local allocation:

- Land at Durrants Lane / Shootersway (including Egerton Rothesay School). This strategic site is proposed to include 180 new homes and an extension to the existing school, and will be completed by 2015.
- Land at Hanburys, Shootersway. As a local allocation, this development has been proposed to include 60 new homes and could impact on the current capability of Shootersway / Kingshill Way junction.

Even though the total development to 2031 within Berkhamsted is relatively small, the local impact of developments on the road network could be critical due to the current junction performance at key locations adjacent to the proposed developments.

6.3 Growth in Tring

The recent 'Dacorum Core Strategy Pre-Submission' indicates that 480 homes will be developed between 2006 and 2031. Local planning documents have specified a single development for Tring, located to the west of Tring, off Icknield Way. The development includes 150 new dwellings and an extension to the current employment area. As a result of these developments, the following transport network areas will require further consideration as part of the UTP:

- Shootersway / Kingshill Way junction;
- Durrants Lane / High Street;
- Berkhamsted High Street;
- Icknield Way, Tring.

Local Targets and Objectives and Key Strategy Statement

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Transportation

7 Local Objectives and Key Strategy Statement

While the ultimate aim of the Urban Transport Plan is to enable Tring, Northchurch and Berkhamsted to grow and flourish in a sustainable way, the development of interventions will need to be measured against a set of relevant national and regional objectives. It is important that the urban areas maintain the vitality of local shops and businesses, but also improve sustainable access to town centres and local services, promote more active and healthier lifestyles and reduce CO₂ emissions through reducing the reliance on the private car. Through a set of workshops, and the examination of primary and secondary information, the following transport objectives have been identified for Tring, Northchurch and Berkhamsted:

- Support economic growth and local housing development through the delivery of transport improvements;
- Improve connectivity between transport modes to allow for greater transport flexibility;
- Improve public transport provision and accessibility;
- Promote active travel modes throughout the study area to encourage active and healthy lifestyles;
- Improve connectivity within and between local towns through a complete network of walking and cycling facilities;
- Address signage issues within the towns to enable effective and efficient navigation of the town;
- Address parking issues regarding Tring and Berkhamsted Stations, through encouragement of car share schemes and mode shift from the car.
- Reduce congestion in key traffic hotspots throughout the study area.

These objectives will be used throughout the development of the UTP to ensure that the schemes that are being developed meet the overall strategic direction for the towns (as far as transport and growth are concerned).

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

The proposed Key Strategy Statement for the Tring, Northchurch and Berkhamsted UTP is;

“To address current and potential future transport issues so as to enable residents and visitors to make informed and sustainable travel choices”.

Opportunities and Interventions

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Transportation

8 Opportunities and Interventions

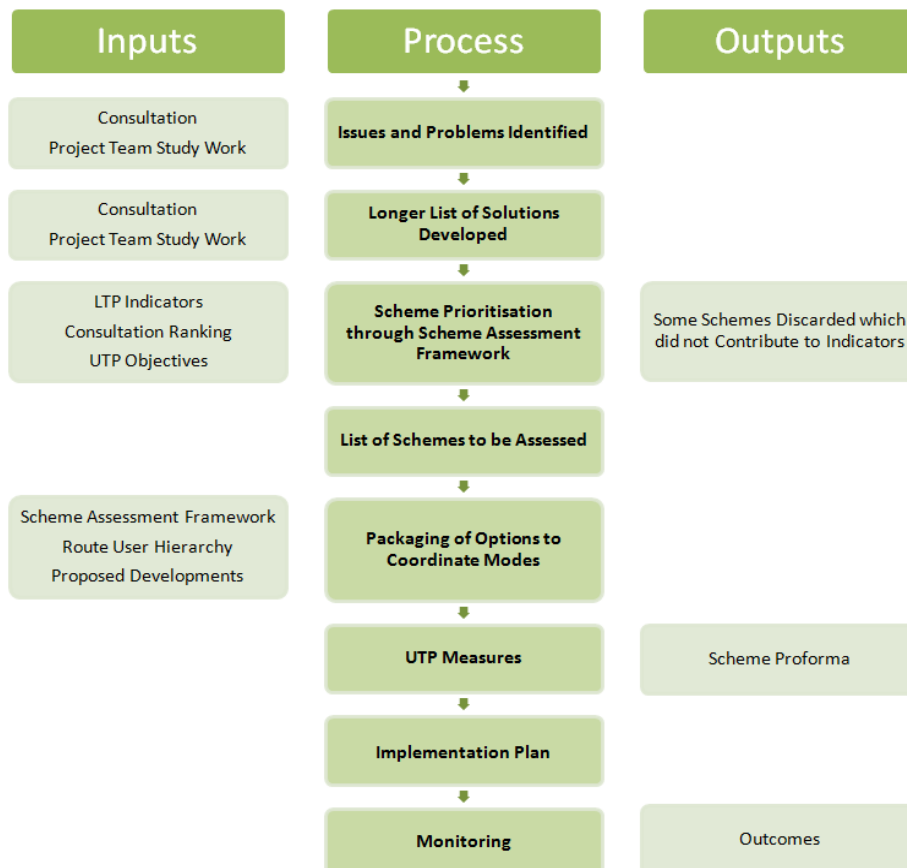
8.1 Introduction

A range of measures have been developed during the UTP process which will address specific problems identified throughout Tring, Northchurch and Berkhamsted. These measures have been informed through a consultation process with key stakeholders, officers and members, with additional measures developed based on other identified transport issues. The full range of schemes is presented at the end of this chapter, with associated scheme proforma documents located in **Volume 2**. Each proforma sets out the issues that would be addressed, associated costs, timescale for implementation, and any deliverability or feasibility issues that could prevent or delay implementation.

8.2 Scheme Selection Process

Once all information had been collated through consultation, document review and site visits with regards to transport issues throughout the study area, a number of schemes were proposed in order to address all of the issues that had been raised. **Figure 8.1**, below, demonstrates the methodology employed in prioritising the schemes.

Figure 8.1 Scheme Selection Process



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8.2.1 Long List of Solutions

As explained above, the initial task involved the collation of existing issues throughout the study area, and consequently the creation of a long list of associated schemes that would address all issues across the transport network. This long list of solutions was then reduced following further validation of issues during analysis of data and consultation, and assessment of feasibility based primarily on cost and alternative proposed schemes.

8.2.2 Scheme Prioritisation

The purpose of this UTP is to articulate how local policies and strategies will interact with the development and delivery of transport improvements within Tring, Northchurch and Berkhamsted over the next 20 years. All interventions were required to demonstrate how they met the County Council's policies and objectives, and also the key objectives for this UTP.

Stage 2 of the UTP development consisted primarily of the generation of options and their appraisal, which has been summarised within an Option Appraisal Framework, included in **Appendix A**. Each of the proposed schemes has been assessed and prioritised against relevant policy targets and objectives, and feasibility and affordability criteria. In addition, a priority score was given based on feedback during the Key Stakeholder Workshop and Public Consultation event. As the validation exercise removed any problems that were deemed as superseded or unrelated to the UTP scheme development, all 46 schemes that required prioritisation have been included within the UTP. However, the Option Appraisal Framework does provide a mechanism for prioritising schemes during the UTP period.

8.2.2.1 Feasibility and Affordability Scoring

This initial test demonstrated whether there were any high level issues relating to the deliverability of any of the proposed schemes. The following schemes were therefore not taken any further within the UTP process, as the risks or costs were too great, or the schemes would not fall within the scope of the UTP.

Table 8.1 Schemes highlighted at high level deliverability assessment

Measures removed at High Level Deliverability Scoring	Reasons
Widen bridge on New Road, Northchurch to allow two-way traffic	Associated cost against need was too high in relation to the LTP3 objectives. In addition, this bridge was narrowed to improve safety for pedestrians – widening would create issues. Alternative measures could mitigate issues along New Road, Northchurch.
Implement a blanket 20mph speed limit in Berkhamsted	Too difficult to 'self-enforce'. Did not fulfil requirements of Speed Management Strategy. ⁸
Introduce traffic calming measures on Charles Street	Alternative measures would alleviate traffic and parking issues along Charles Street

8.2.2.2 Scoring against LTP3 Indicators

As part of the Scheme Appraisal Framework, each of the proposed schemes was scored against 12 measurable Local Transport Plan Indicators:

- 1) Congestion
- 2) Accessibility to key trip attractors
- 3) Accessibility of new developments

⁸ <http://www.hertsdirect.org/services/transtreets/17642062/ltp/ltp2/speedmanstrat/>

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- 4) Accessibility
- 5) Percentage 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) Percentage of Rights of Way easy to use by public
- 11) Air Quality
- 12) Speed Limit Compliance

Once all of the scores had been defined for each of the 46 schemes, a total score was 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 **Chapter 3**.

Table 8.2 demonstrates an example set of 3 schemes that contribute significantly towards LTP3 indicators, and 3 that contribute the least. It is these scores that will assist in the prioritisation of delivery during the UTP period.⁹

Table 8.2 Scoring Against LTP3 Indicators

Scheme	Score
Introduce a package of Smarter Measures to reduce reliance on the private car	43
Improve operation of Durrants Lane / High Street junction	34
Improvements along New Road, Northchurch corridor between High Street and South Bank Road	25
Traffic Calming on Berkhamsted High Street to encourage cycling	3
Parking Improvements	5
Improve operation of Brook Street corridor	7

8.2.2.3 Additional Considerations

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

- Stakeholder Consultation Score – as mentioned in **Chapter 4**, a score was given by each of the attendees based on their priority schemes;
- Public Consultation Score – as part of the public consultation workshop, members of the public had an opportunity to prioritise schemes based on which they thought would deliver most significant benefits to the local community and transport network. This score will be utilised when selecting schemes to be delivered in the short, medium and long term.
- Timescale – Consideration is given regarding the timescale for implementation of each scheme. This is broken into 3 periods (focused on the Hertfordshire County Council's Integrated Works Programme timeline):

⁹ Based on the following scoring system: +3 Contributes to Indicator significantly; 0 Neutral Impact on Indicator; - 3 Detracts significantly from Indicator

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- Less than 1 year ('Quick Win');
- 1 to 2 years (Standard Delivery);
- More than 2 years (Complex Delivery).

The full scoring of each scheme was completed in the Option Appraisal Framework excel spreadsheet, with the outcomes provided in **Appendix A**.

8.3 Public Consultation

Following the initial creation of scheme proposals, the Urban Transport Plan was put out to consultation for a six week period. The scheme proposals were placed on the *hertsdirect*¹⁰ website along with a self-completion questionnaire. In advance of the consultation period, a press release was also placed on the *hertsdirect* website and provided to the local press. To encourage public participation, a local event was organised to provide an opportunity for public to provide their opinion on the existing scheme proposals.

As a result of the public consultation, significant feedback was provided for each of the schemes, with a number of additional issues raised that were not identified during the Stage 1 process. The feedback has been presented in **Volume 4** of the UTP. The final set of scheme proposals considers the feedback given during public consultation, with additional schemes and measures provided where appropriate.

8.4 Programme of Measures Required

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 (within the Integrated Works Programme) have been developed to provide high value to cost. These schemes have been presented in **Figures 8.2** and **8.3**, below. The following text provides specific details for each of the 46 proposed schemes, with full details provided in **Volume 2**.

¹⁰ <https://consult.hertsdirect.org/>

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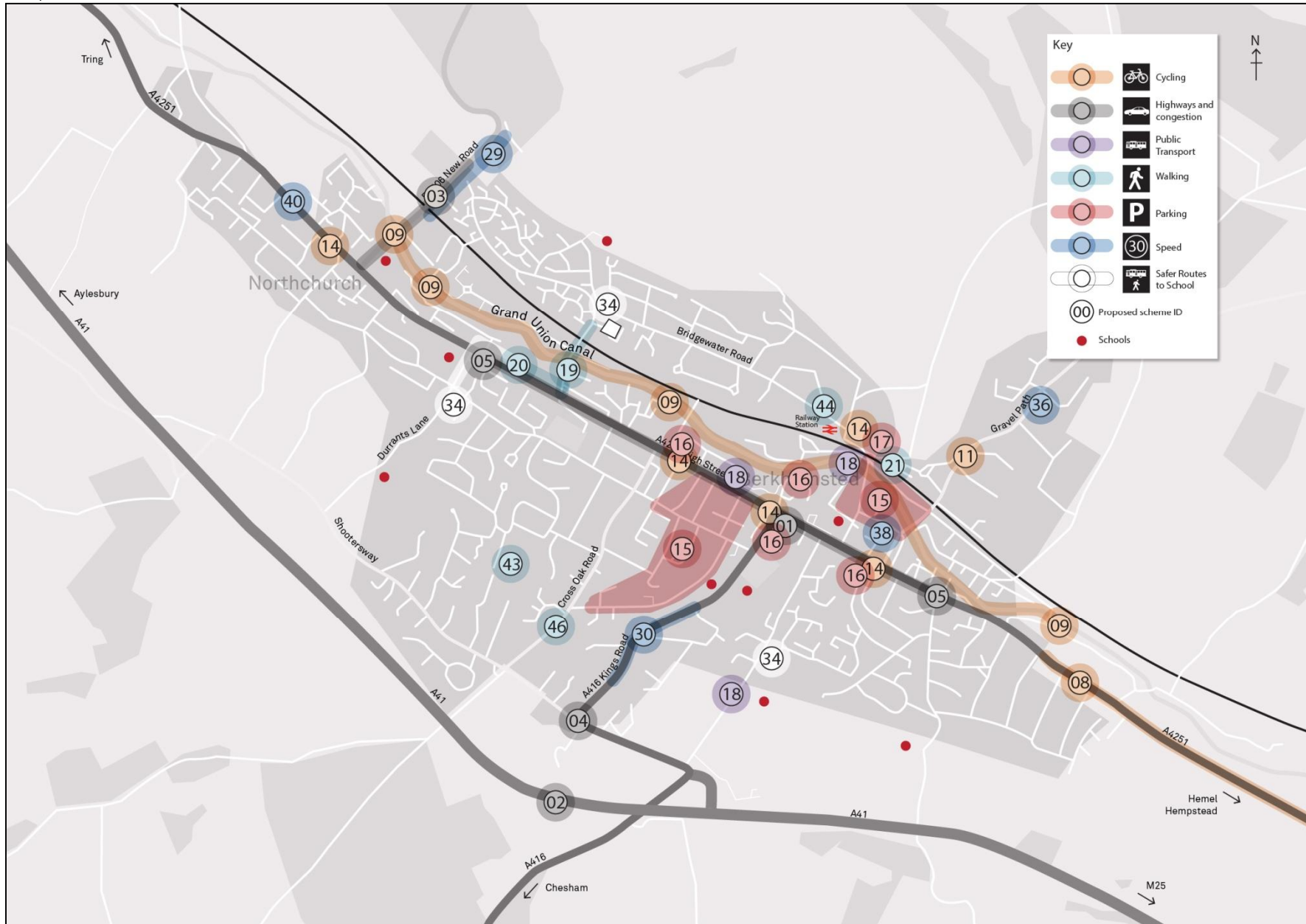


Figure 8.2 Proposed Schemes – Berkhamsted and Northchurch

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Transportation

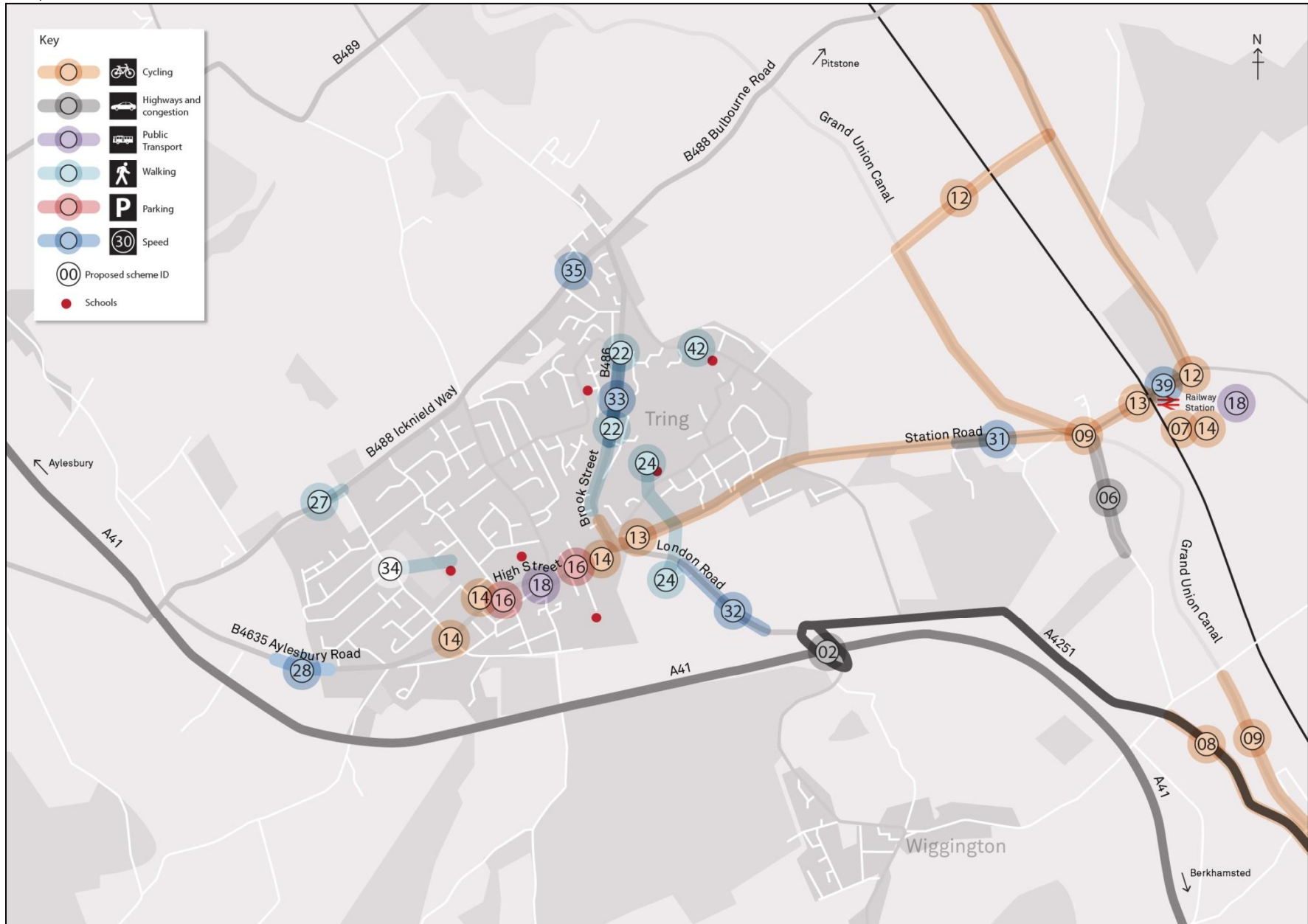


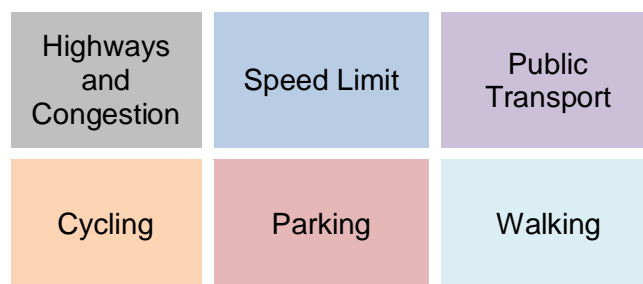
Figure 8.3 Proposed Schemes - Tring

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8.5 Final Packages of Scheme Proposals

8.5.1 Packaging of Options

A Route User Hierarchy was used to inform the packaging of UTP schemes. As discussed in Chapter 5, the priority of different transport users should be split into pedestrians, cyclists, mobility impaired, public transport, private car and HGV. The current emphasis on transport improvement, as demonstrated in LTP3, lies with demand management, and not infrastructure provision. Therefore, many of the proposed schemes focus on the shift of priority to cyclists and pedestrians, instead of providing further highway infrastructure for the private car and HGVs. For example, many of the cycle and walking schemes relate to gaps identified within the existing route user hierarchy, encouraging greater connectivity within the study area for modes other than the private car. The schemes have been packaged into the following six themes that align directly with the hierarchy of transport users, but also with the key themes used during the issue identification stage.



Parking and Speed Limit have been added to transport user themes, as a number of parking and speeding issues relate directly to the provision and location of parking, or the existing speed limits on specific road sections. However, these two areas include schemes that relate directly to all modes, with a focus on reduced congestion, and improved condition for vulnerable road users.

The following sections introduce the 46 proposed schemes for Tring, Northchurch and Berkhamsted, broken down into the six aforementioned packages. For full scheme details, refer to **Volume 2**, which contains individual proformas for each scheme.

8.5.2 Highways and Congestion

Tring and Berkhamsted have relatively high levels of car ownership in comparison to the average for Hertfordshire, and the nation as a whole. During the consultation and data collection period, it was found that, due to a variety of reasons including local topography, age demographics and workplace destinations, the local population has a perception that there is currently no realistic alternative to the private car for travelling both short and long journeys. In addition, Berkhamsted railway station accommodates almost 1.4 million passengers per annum, acting as a key route for commuters from northwest Hertfordshire into central London. Hence, traffic levels have increased in recent years throughout the study area, with congestion at key junctions during the peak periods.

As an historic market town, with limited space for town centre improvements, opportunity to reduce congestion in Berkhamsted is restricted to improving the efficiency of the current highway network and introducing methods to shift mode use from the private car to cycling and walking. In addition, LTP3 places a priority on making better use of the existing network through improved awareness of travel options.

During the consultation process, a number of specific traffic pinch-points were identified as contributing towards congestion issues throughout the study area. It is these locations that have been the focus of

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scheme development, with a view to enhancing the efficiency of junctions to support the ongoing work conducted by Hertfordshire County Council, and to improve the safety of cyclists on the highway network through increased priority. In addition, measures have been proposed that would restrict the movement of HGVs through the study area in order to reduce noise and air pollution, and to reduce town centre congestion.

Table 8.3 Highways and Congestion Schemes

Scheme	Urban Area	ID	Score	Measure	ID
Improve operation of High Street / Kings Road Junction	Berkhamsted	01	10	Update MOVA signal timings	01.1
				Provide ASLs on all four approaches	01.2
Improve Access and Egress Signage for A41 Bypass	Berkhamsted	02	11	Change A41 egress signage	02.1
				Sign at A41 / A4251 junction	02.2
				Replace broken sign to Berkhamsted	02.3
Improvements along New Road corridor Northchurch (between High Street and South Bank Road)	Northchurch	03	25	HGV weight limit restriction	03.1
				Cycling and walking link to canal towpath	03.3
				Cycle link between Springfield Road and New Road	03.4
Improvements at Shootersway / Kingshill Way Junction	Berkhamsted	04	17	Remove cycle bypass at junction	04.3
				Replace priority junction with signals	04.4
Traffic Calming and Extension of 20mph zone on the High Street, Berkhamsted	Berkhamsted	05	3	Investigate use of improved materials	05.1
				ASLs at signals	05.2
				Cycle logos at strategic locations	05.3
				Extend 20mph zone	05.4
Review Parking on Beggars Lane to Improve Safety for Cyclists	Tring	06	11	Increase parking restrictions along Beggars Lane	06.1

8.5.3 Cycling

Opportunities to increase cycling within the study area do exist, with many potential routes being under used - most notably the Grand Union Canal. The proposed improvements to the cycle network focus on connectivity between key destinations within the study area, including Berkhamsted and Tring town centres and Berkhamsted and Tring railway stations. In addition to route improvements, additional facilities, including cycle parking, have been proposed 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 within the town centres aims to reduce congestion through mode shift, and reduce the amount of parking in residential areas or side roads.

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

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the proposals will contribute to the overarching objectives of LTP3, but also increase the priority of cyclists throughout the transport network in Tring, Northchurch and Berkhamsted.

The proposals aim to reduce the restrictions on mode choice through the introduction of electric bikes, but also to encourage the use of off-road cycle routes to travel safely between destinations. Another issue relates to the interaction between cyclists and other road users, with a perception that cyclists do not have priority, and that the existing town centre routes are unsafe, discouraging local residents to travel by bike. The proposals, demonstrated in **Table 8.4** focus on improving the safety of cyclists on the road, through greater awareness and improved priority both within the town centres, and on approach to it.

Table 8.4 Cycling Schemes

Scheme	Urban Area	ID	Score	Measure	ID
Enhancements to Tring Railway Station	Tring	07	21	Additional cycle parking	07.1
				Improve security of existing cycle parking	07.2
				Improve cycling conditions at Station Road bridge	07.4
Gateways into Tring and Berkhamsted	Tring Northchurch Berkhamsted	08	10	Provide cyclist warning signs in vicinity of gateways	08.2
				Reconfigure Northchurch and Kingshill Way gateways	08.3
				Removal of existing inadequate cycle facilities	08.4
				Provide Inter-urban cycle facilities	08.5
				Cycle warning signs on Gravel Path	08.6
Improve condition of canal towpath	Tring Northchurch Berkhamsted	09	25	Towpath surface - Cow Roast to Station Road	09.1
				Berkhamsted Town Centre condition	09.2
				Access point - Park Street	09.3
				Access point - Bridge 135	09.4
				Access point - St John Well's Lane	09.5
				Access point - Bridge 143	09.6
				Billet Lane towpath improvements	09.7
				Way finding	09.9
				Pedestrian Priority Signs	09.11
Cycle and Pedestrian Way finding, Tring and Berkhamsted	Tring Northchurch Berkhamsted	10	18	Improve route signage in Berkhamsted	10.1
				Improve route signage in Tring	10.2
				Improve route signage at Berkhamsted Station	10.3
				Improve route signage at	10.4

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Scheme	Urban Area	ID	Score	Measure	ID
				Tring station	
				Chilterns Cycleway	10.5
				Inter-Urban Routes	10.6
				Personal Travel Plan mapping	10.7
Marketing of electric bikes in Tring and Berkhamsted	Berkhamsted	11	10	Marketing of electric bicycle hire scheme	11.1
Implement cycle route from Tring station to Pitstone	Tring	12	22	Off-road link to Pitstone via Northfield Road	12.2
				Marshcroft Lane link from Pitstone to Tring station	12.3
				Associated Marketing of Pitstone Link	12.4
Extend cycle facility in Tring from London Road to connect to town centre	Tring	13	17	Extend segregated cycle track to Brook Street	13.1
				Provide an alternative alignment via High Street	13.3
				Improve link to High Street via market	13.4
				Zebra crossing at Brook St (to market)	13.5
				Shared facility during maintenance	13.6
Cycle Parking in Tring and Berkhamsted	Tring Berkhamsted	14	20	Provide cycle parking at key locations	14.1
				Improved security of existing cycle parking	14.2
				Replace wooden cycle racks in Berkhamsted	14.3
				Signage to cycle parking	14.4

8.5.4 Parking

During Stage 1 of the UTP, a number of issues were identified regarding the availability of parking for visitors, residents, shoppers and commuters throughout Tring and Berkhamsted. In addition, issues were raised regarding the proposals for parking management zones within Berkhamsted, with many residents and business owners suggesting that existing proposals would reduce available parking, and therefore have a detrimental effect on the vibrancy of the town centre.

With direct routes from Tring and Berkhamsted railway stations to London Euston, many commuters drive to the stations from areas throughout northwest Hertfordshire, utilising the recently upgraded two-tiered parking facilities in both Tring and Berkhamsted. However, some commuters prefer to park in nearby lanes or residential areas in order to avoid parking costs, even with spare capacity being available at each station. This is evident on Beggars Lane in Tring, and on New Road and Station Road in Berkhamsted. A number of schemes have therefore been proposed in order to encourage mode shift for short commuter journeys to each of the stations, but also to increase parking choice and availability for residents and shoppers in order to enhance the existing vibrancy of these historic market towns.

Another issue that was identified, and would have a significant impact on congestion within the town centres, is the existing signage to car park locations. Following site visits and consultation, it was found

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that existing signage is difficult to read, or is in an incorrect location, and that some car parks do not have signs at key locations. The provision of appropriate signage is vital for these towns, as most of the available parking is off the main through routes. As a result, visitors and shoppers find it difficult to navigate the town centres, but also to find areas of available town centre parking. Schemes have therefore been proposed to provide improved navigation to parking, but also to provide live information of available parking at key destinations. The proposals work towards an enhanced visitor and shopping experience, but also works towards removing unnecessary town centre congestion.

Table 8.5 presents those proposed parking schemes discussed above.

Table 8.5 Parking Schemes

Scheme	Urban Area	ID	Score	Measure	ID
Parking improvements	Berkhamsted	15	5	Provision of multi-storey car park off Lower Kings Road	15.1
				Comprehensive review of double yellow lines on junctions	15.2
				Bridgewater Road parking restrictions	15.3
				Improve efficiency of existing parking in Northchurch centre	15.4
				Review of parking control and implementation	15.5
				Achieve STP targets	15.6
Review of parking information in town centres	Berkhamsted Tring	16	17	Replace existing parking signs	16.1
				Add parking signs at suitable locations	16.2
				Variable Message Signs (entrances to Berkhamsted Town Centre)	16.3
Enhancements to Berkhamsted Railway Station	Berkhamsted	17	22	Designated taxi-overflow parking	17.1
				Designated drop-off area	17.2
				Improve signage at junction with Brownlow Road	17.3
				Cycle Parking locations	17.4
				Extend parking restrictions (White Hill)	17.6

8.5.5 Public Transport

Tring and Berkhamsted have excellent rail links into central London, being served by two railway stations. Due to the location and availability of parking, a large number of commuters drive to these stations from the hinterland. There is a perception that the increasing amount of commuters using these stations has led to increased local daily parking and increased town centre congestion. The main issue in relation to public transport therefore lies with connectivity between modes at the stations, and accessibility to information for all road users in order to encourage mode shift for commuters and town centre users.

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The two rail stations are connected to local centres by frequent bus services that stop adjacent to each of the station forecourts. There is a perception that buses are frequently late, with passengers unsure of delays and potential arrival times. The proposal, demonstrated in **Table 8.6**, aims to improve customer satisfaction through the introduction of Real Time Passenger Information (RTPI) at stops in both town centres, and at Tring and Berkhamsted Rail Stations. As a result, passengers will have greater access to public transport information, including arrival times, delays and available routes. In addition, a marketing campaign has been proposed in order to increase awareness of options available to passengers, and recent technical innovations regarding public transport.

Following a review of existing routes on the local highway network, there are only small areas that lie outside of the 400m accessibility zone to bus stops. Due to the topography of Berkhamsted, it is difficult for services to reach some residential areas to the south of the High Street. The proposals therefore focus primarily on improving passenger satisfaction of the existing routes, and reducing congestion on these routes in order to improve reliability of arrival times.

Table 8.6 Public Transport Schemes

Scheme	Urban Area	ID	Score	Measure	ID
Introduce Real Time Information (to improve connectivity between public transport modes)	Tring Berkhamsted	18	18	Real time information (town centre bus stops)	18.1
				Real time information (station bus stops)	18.2
				Further Real time information at bus stops in Northchurch and Berkhamsted	18.3
				Bus Route 500 changes	18.4

8.5.6 Walking

Following a review of the Route User Hierarchy, it is evident that one of the main barriers to people walking short journeys into and around Tring, Northchurch and Berkhamsted is the lack of connectivity and legibility between existing walking routes, with many residents choosing to drive to local destinations instead of walk. As a result, congestion builds up during peak times, especially surrounding local schools and business areas.

The proposals, outlined in **Table 8.7**, focus on improving connectivity of existing pedestrian routes, in order to improve safety and encourage walking to key destinations during peak periods. For example, the implementation of local School and Workplace Travel Plan measures can significantly reduce congestion levels on the local highway network, but also improve resident's health and wellbeing. In addition, the proposals include a number of safe crossing points at key locations in order to increase the priority of pedestrians, and to allow safe access to destinations including schools, workplaces, and the town centres. A number of these schemes have been combined and linked with cycle routes and crossing facilities to ensure maximum benefit of scheme investment in terms of mode shift and user priority shift.

Table 8.7 Walking Schemes

Scheme	Urban Area	ID	Score	Measure	ID
Improve operation of Billet	Berkhamsted	19	27	Upgrade junction signals to MOVA	19.1

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Scheme	Urban Area	ID	Score	Measure	ID
Lane corridor between Gossoms End and Bridgewater Road				Shared facility between canal towpath and junction with Gossoms End	19.3
				ASLs at signals	19.5
				Upgrade guard railings at signals	19.6
				Informal crossing on Billet Lane	19.7
				Signal-controlled pedestrian crossing facilities on the Billet Lane arm	19.8
Improve operation of Durrants Lane / High Street junction	Berkhamsted	20	34	Traffic signals with toucan crossing	20.1
				Replace Moore Road roundabout with priority junction	20.2
				Bus lay-by on northern side of High Street	20.3
Improve safety of railway underbridges on Brownlow Road and New Road, Berkhamsted	Berkhamsted	21	18	Provide signs on approach to bridges	21.1
				Improved lighting through underbridges	21.3
				Provide signs on approach to Brownlow Road / Bridgewater Road junction	21.5
Improvements to Footpath 41 in Tring	Tring	22	6	Zebra crossing between Shugars Green and Silk Mill Way	22.1
				Zebra crossing on Silk Mill Way	22.2
				Upgrade Footpath 41 to shared use	22.3
Introduce a package of Smarter Measures to reduce reliance on the Private Car	Tring Northchurch Berkhamsted	23	43	Workplace Travel Plans	23.1
				Integrated Strategy for marketing sustainable modes	23.3
				Car Sharing and Car Club Schemes	23.4
Improvements at Footpath 39, Tring	Tring	24	12	Remove street clutter	24.1
				Informal crossing point on London Road	24.2
				Footpath along the northern edge of London Road between Footpath 39 and Dunsley Farm	24.3

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Scheme	Urban Area	ID	Score	Measure	ID
Provide Safe Route to Goldfield School via Miswell Lane, Tring	Tring	25	18	Upgrade Footpath 48 to shared use	25.1
Improve Pedestrian Facilities along Icknield Way from Miswell Lane to Tring Industrial Estate	Tring	27	12	Maintain existing footpath	27.1
Safer Routes to Schools	Tring Northchurch Berkhamsted	34	19	Maintain and enhance School Travel Plans	34.1
				Cycle parking at schools	34.2
				Provide Zebra Crossing on Miswell Lane	34.3
				Provide school crossing signs on approach along Miswell Lane	34.4
				Install informal crossing point on Bridgewater Road	34.5
				Associated marketing of Sustainable Travel to School	34.6
				Connect toucan crossing at Billet Lane with shared use footpath on north side of High Street	34.10
				Raised crossing on Durrants Lane	34.11
				Zebra crossing on Hilltop Road, Berkhamsted	34.12
				Crossing signs on approach along Hilltop Road and Chesham Road	34.13
				Extend footpath on western edge of Chesham Road and provide informal crossing point	34.15
				Relocate Arriva Bus stop (for Service 354) on Chesham Road	34.16
Upgrade Pedestrian Crossing on Grove Road, Tring	Tring	42	13	Zebra crossing to replace existing informal crossing point near Bunyan Close	42.1
Provide Pedestrian Crossing facilities on Greenway, Berkhamsted	Berkhamsted	43	11	Kerb build-out for pedestrians adjacent to school entrance	43.1
Provide improved Pedestrian Crossing	Berkhamsted	44	9	Zebra Crossing	44.1

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Scheme	Urban Area	ID	Score	Measure	ID
facilities on Bridgewater Road, Berkhamsted					

8.5.7 Speed Management

During the consultation process, a number of locations were considered as dangerous by local stakeholders due to speeding and inappropriate driver behaviour. Following a review of average speed data¹¹, accident location and severity data, the set of identified locations was reduced to ten, where specific requirements for further speed management was specified within Hertfordshire's Speed Management Strategy.

It is evident that many issues which relate to speeding occur along the routes leading into the study area, as vehicles travel from areas of National Speed Limit, into the residential suburbs of each of the two towns.

As demonstrated within the Speed Management Strategy for Hertfordshire, speed management measures can range from new infrastructure, including central islands, speed bumps and chicanes, to simple signage and buffer zones in order to increase awareness in advance of hazards. The most appropriate measures have therefore been selected for each location, as demonstrated in **Table 8.8**, based on the criteria for each measure and the associated level of need.

The proposed schemes have been based primarily on TrafficMaster data, and would therefore require full speed surveys during a complete feasibility assessment. The data used has provided a sound foundation in the selection of problem locations, and analysis against criteria for speed limit changes.

Table 8.8 Speed Management Schemes

Scheme	Urban Area	ID	Score	Measure	ID
Speed Management on Aylesbury Road (near Tring Gateway)	Tring	28	9	Speed Buffer Zone	28.1
				Off-carriageway cycle facility linking Icknield Way with Tring Town Centre	28.3
Speed Management on New Road (Northchurch)	Northchurch	29	9	20mph speed limit between High Street and canal	29.1
				Rippleprint on entrance into 30mph zone	29.3
Speed Management on Kings Road (between Shootersway and Berkhamsted High Street)	Berkhamsted	30	9	Vehicle Activated Sign Roundels	30.2
Speed Management on Station Road (Tring)	Tring	31	9	40mph speed buffer zone	31.1
Speed Management on London Road	Tring	32	9	40mph speed buffer zone	32.1
				Rumble strips at entrance into 30mph limit	32.3

¹¹ TrafficMaster Data has been provided via the Department for Transport (DfT) in order to complete an assessment of speeding at particular locations. In raw form, TrafficMaster data relates to satellite navigation journey times. Specifically for Tring and Berkhamsted, the data was available for the whole of 2011. The journey time was translated into speed based on highway link length information.

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Scheme	Urban Area	ID	Score	Measure	ID
(Approaching Tring)					
Speed Management on Brook Street (Tring)	Tring	33	9	Vehicle Activated Sign Roundels on Brook Street	33.1
				Rippleprint on entrance into 30mph zone	33.4
Speed Management on Icknield Way	Tring	35	9	Rippleprint on Icknield Way	35.2
Traffic Calming and extension of 20mph zone to include Gravel Path, Berkhamsted	Berkhamsted	36	7	Gateway Features	36.2
				Round plateau humps along Gravel Path	36.3
				Coloured surfacing and painted speed limit roundels on the carriageway	36.5
Traffic Calming and extension of 20mph zone into the Castle Road / Mill Road area, Berkhamsted	Berkhamsted	38	7	Introduction of speed cushions in Castle Street	38.3
Speed Management adjacent to Tring Station	Tring	39	8	Introduction of Rippleprint in the 30mph zone	39.5
Speed Management along Northchurch High Street	Northchurch	40	9	Introduction of central islands	40.2
				Vehicle Activated Sign Roundels (VASR) on approach to the section between Darr's Lane and New Road, Northchurch	40.3
				Pedestrian refuge on Tring Road	40.7
Speed limits around schools to be reduced to 20mph	Tring Northchurch Berkhamsted	41	10	Introduce a 20mph zone on the roads surrounding schools	41.1
				Introduce additional signage and coloured tarmac	41.2
				Introduction of further speed cushions on Silk Mill Way	41.3

8.6 Changes to the Route User Hierarchy

As specified in Chapter 5, the RUH has been used to highlight key areas for improvement throughout the study area. However, the assessment of the RUH formed only part of the assessment process, and therefore did not form the sole basis for development of schemes for Tring, Northchurch and Berkhamsted.

A number of proposed schemes have focused primarily on a shift of priority from the private car to cycling and walking. As a result, a number of changes would occur on the Route User Hierarchy for the study area, as demonstrated in **Figures 8.4** and **8.5**.

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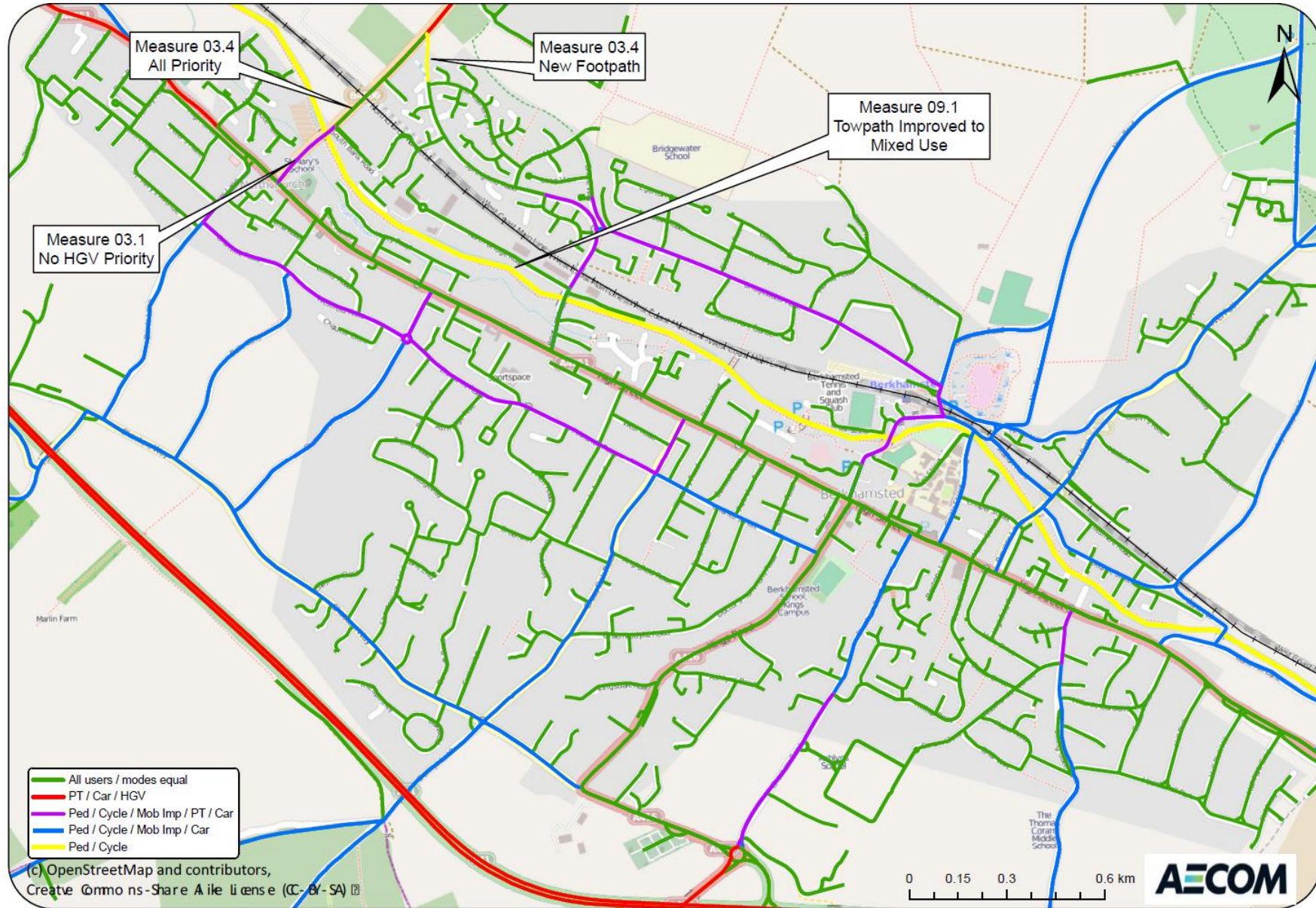


Figure 8.4 Route User Hierarchy Changes (Berkhamsted)

Capabilities on project:
Transportation

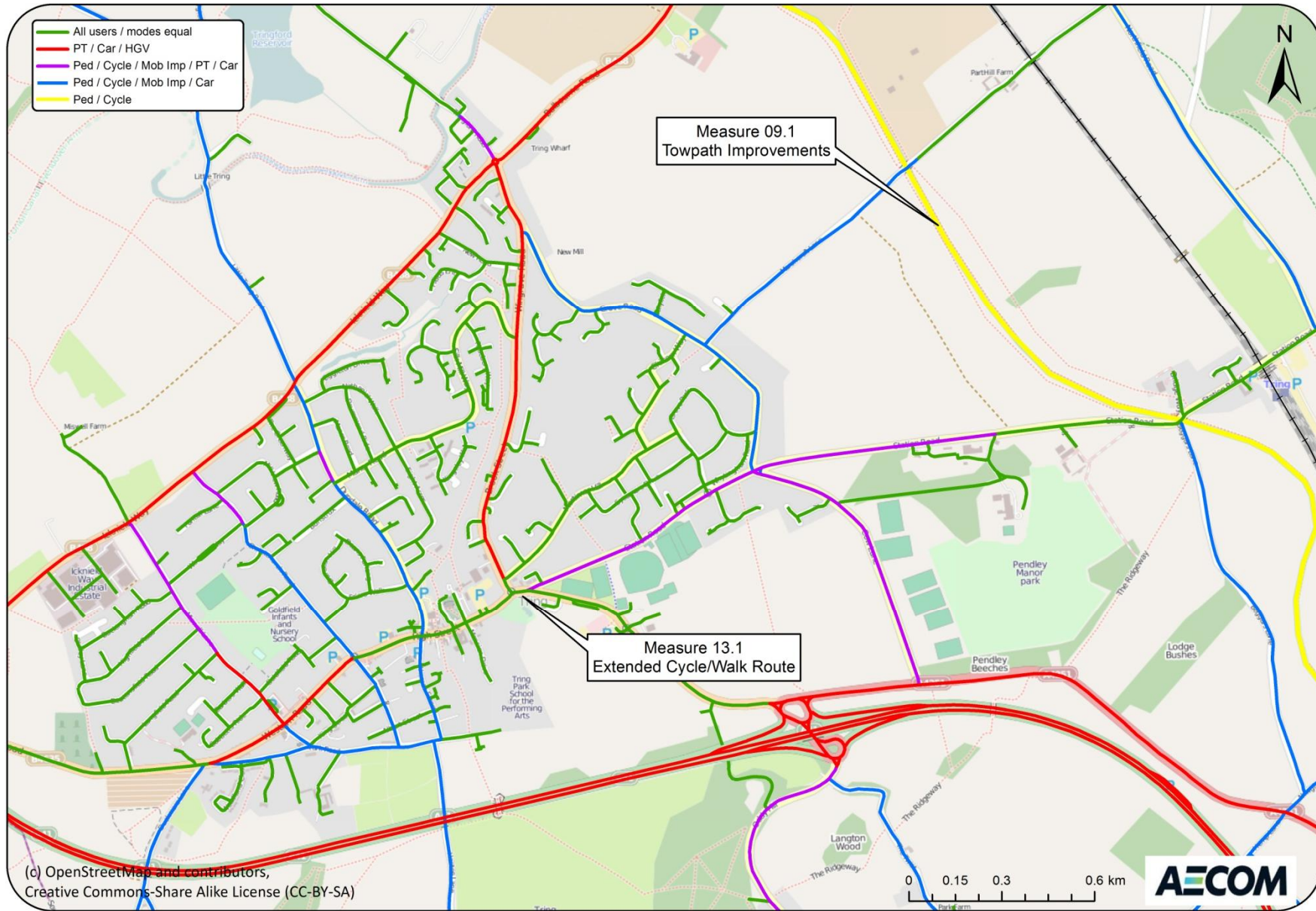


Figure 8.5 Route User Hierarchy Changes (Tring)

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8.7 Measures not included within Proposals

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 8.9** demonstrates the selection of schemes 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. Others were removed as they would not fit criteria during a full feasibility assessment (e.g. visibility constraints, lack of support from key stakeholder).

As a result, the most appropriate range of schemes has been proposed, providing maximum benefit to transport users throughout the study area of Tring, Northchurch and Berkhamsted.

Table 8.9 Measures not Included

Scheme	Associated Measure	Reasons
Improvements along New Road corridor, Northchurch	Adjust vehicle priority at High Street / New Road junction	Visibility from the High Street north approach would be less than required. Increase pollution levels within Northchurch as a result of increased congestion.
Improvements at Shootersway / Kingshill Way Junction	Replace priority junction with an offset mini-roundabout	Insufficient visibility on approach
	Change priorities at junction to relieve congestion on Shootersway, whilst reducing average speeds on Kings Road	Insufficient visibility on approach
Traffic Calming and Extension of 20mph zone on the High Street, Berkhamsted	Redistribute carriageway to improve conditions for cyclists	Not feasible to narrow central refuges
Tring Station Improvements	Sign cyclists through the station subject to bridge width / parapet height	It would not be advisable to allow cycling on the bridge due to narrow width
Gateways into Tring and Berkhamsted	Remove central islands at London Road Gateway, Berkhamsted	Further investigation is required to determine the rationale behind the provision of the islands initially.
Improve condition of canal towpath and access in Tring and Berkhamsted	Access via Shaftesbury Court	Land ownership issues
Link to Pitstone Village from Tring Station	On-road link to Pitstone via Northfield Road	Speeds are high and would only cater for the most confident cyclists
	Reduce Northfield Road speed limit to 40mph	Existing speed is too high for new reduced limit to be enforced
Cycle Track extension – Station Road / London Road / Brook Street	Provide shared use footway from Station Road to Brook Street	Alternative proposal to extend shared use footway preferred
Controlled Parking Zones	Implement CPZ south of	Little support for the proposals

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Scheme	Associated Measure	Reasons
(CPZs)	Berkhamsted High Street	due to safety and lack of parking options for residents and business owners
	Implement Controlled Parking Zones (CPZs) on Station Road and adjacent areas	
Enhancements to Berkhamsted Railway Station	Provide wheeling channels and improved access to platforms for cyclists	London Midland does not support this proposal
Improve operation of Billet Lane corridor between Gossoms End and Bridgewater Road	Provide pedestrian crossing on Billet Lane adjacent to canal bridge	Poor visibility
	Provide left turn lane on egress to Gossoms End through widening Billet Lane.	Requires land take
Improve Safety of Railway Underbridges on Brownlow Road and New Road, Berkhamsted	Provide one way gyratory through underbridges and White Hill	Height restrictions at bridges
	If a one way gyratory is provided, include segregated cycle lane approaches on Brownlow Road and New Road	
Provide Safe Route to Goldfield School via Miswell Lane, Tring	Provide Build Outs on either side of Miswell Lane to replace current dropped kerb	Alternative measure preferred
Provide Pedestrian Crossing on Northchurch High Street near Bell Lane	Zebra crossing	Insufficient space on either side of the High Street to provide for a drop kerb and adjacent footpath
	Build-outs on both sides of High Street	
Speed Management on Aylesbury Road (near Tring Gateway)	Speed Count Down Markers on approach to 30mph speed limit	This measure would be least effective in reducing approach speeds along Aylesbury Road.
Speed Management on New Road (Northchurch)	Introduction of Rumble Strips at entrance into 30mph buffer zone	Noise pollution in vicinity to dwellings
Speed Management on Kings Road (between Shootersway and Berkhamsted High Street)	Further speed limit signs along Kings Road between Shootersway and Ashlyns Road	Existing signs have little impact
Speed Management on London Road (Approaching Tring)	Speed countdown markers on approach to 30mph speed limit	This measure would be least effective in reducing approach speeds along London Road
	Introduction of central islands and refuges along 30mph zone	Central Islands can reduce the road space available for cyclists
Speed Management on Brook Street (Tring)	Traffic Cushions	Alternative measure preferred
	Introduction of Rumble Strips at entrance into 30mph buffer zone	Alternative measure preferred. Driver frustration could increase the chance of collisions
Safer Routes to Schools	Connect Toucan crossing with shared use footway on south	Insufficient width to provide shared use path

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Scheme	Associated Measure	Reasons
	side of High Street (to Billet Lane junction)	
	Provide Advanced Stop Lines at Durrants Lane proposed signalised junction for cyclists	Lack of visibility
	Provide Zebra Crossing between Durrants Lane and Moore Road	Poor visibility and signalised crossing proposed at Durrants Lane junction
Speed Management on Icknield Way	Introduction of Rumble Strips at entrance into 30mph zone	Noise pollution in vicinity to dwellings
	Speed Count Down Markers on approach to 30mph speed limit	This measure would be least effective in reducing approach speeds
Traffic Calming and Extension of 20mph zone to include Gravel Path, Berkhamsted	Extend the 20mph zone in Berkhamsted along Gravel Path to the junction with The Common, with associated repeater signs	Existing speeds are too high to implement a self-enforcing 20mph zone. Associated measures will be implemented to reduce existing speeds.
	Vehicle Activated Signs on approach to hazardous bends on Gravel Path between junctions with Gilpin's Ride and Meadway	The number of injury accidents along the route is not sufficient to implement Vehicle Activated Signs.
Traffic Calming and Extension of 20mph zone into the Castle Road / Mill Road area of Berkhamsted	Extend the 20mph zone in Berkhamsted to include the area of Castle Street, Chapel Street and Mill Street	Existing speeds are too high to implement a self-enforcing 20mph zone.
	Introduction of round topped speed bumps in Castle Street	Other speed management measures preferred.
	Introduction of rumble strips in Castle Street	Creates too much noise pollution.
Speed management adjacent to Tring station	Introduction of 'Road narrows on both sides' signage	Sign clutter.
	Introduction of horizontal and/or vertical speed reducing measures	Safety concerns in relation to railway bridge.
	Introduction of Vehicle Activated Sign Roundel (VASR)	The number of injury accidents along the route is not sufficient to implement Vehicle Activated Signs.
	Introduction of rumble strips in the 30 mph zone	Creates too much noise pollution.
Speed management along Northchurch High Street	Introduction of vertical speed reducing measures	Other speed management measures preferred.
	Introduction of Ripple Print in the 30 mph zone	Other speed management measures preferred.
	Mini-roundabout at the Tring Road junction with Hamberlins Lane	Poor visibility and geometry. Measure 40.7 preferred.
	Pedestrian refuge on Tring	

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Scheme	Associated Measure	Reasons
	Road, adjacent to junction with Hamberlins Lane	
Speed limits around schools to be reduced to 20mph	Introduction of central islands	Other speed management measures preferred.
	Introduction of Vehicle Activated Sign Roundel (VASR)	The number of injury accidents along the route is not sufficient to implement Vehicle Activated Signs.
	Introduction of Ripple Print in the 30 mph zone	Other speed management measures preferred.
Provide Pedestrian Crossing facilities on Greenway, Berkhamsted	Zebra crossing	Insufficient geometry.
	Provide a 'Home Zone' along the stretch of Greenway between the junctions with Finch Road and Orchard Avenue	Other measures preferred. May be an option for future years.
Provide improved Pedestrian Crossing facilities on Bridgewater Road, Berkhamsted	Kerb build-out for pedestrians adjacent to school entrance, with associated drop-kerb and tactile paving	Other crossing measures preferred.
Provide improved Pedestrian Crossing facilities on Frogmore Street, Tring	Raised crossing point at existing school patrol point	Insufficient geometry.
	Kerb build-out for pedestrians adjacent to school entrance, with associated drop-kerb and tactile paving	
	Zebra crossing with associated features	
Provision of Footpath along Cross Oak Road between Kingsdale Road and Oaklands	Introduce a one-way system along Cross Oak Road between Shootersway and Graemes Dyke Road	Insufficient geometry and visibility. Safety concerns for cyclists. Rerouting would be necessary.
	Provision of footpaths on edge of Cross Oak Road carriageway with associated priority movements and signage measures	

Implementation Plan

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9. Implementation Plan

The Implementation Plan is presented in **Table 9.1**, 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 without significant 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 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.

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Table 9.1 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)					
Improve operation of High Street / Kings Road junction	01	01.1	Update MOVA signal timings	£4000 - £6,000			HCC	Dacorum BC	LTP	02, 05, 08, 16	Junction modelling and traffic counts required
		01.2	Provide ASLs on all four approaches	£4000 - £6,000			HCC	Dacorum BC	LTP		None
Improve Access and Egress Signage for A41 Bypass	02	02.1	Change A41 egress signage		£15,000 - £20,000		HCC	Dacorum BC	LTP	01, 04, 16	Impact on traffic along Kingshill Way
		02.2	Sign at A41 / A4251 junction	£2,000 - £4,000			HCC	Dacorum BC	LTP		None
		02.3	Replace broken sign to Berkhamsted on A41 junction	£2,000 - £4,000			HCC	Dacorum BC	LTP		None
Improvements along New Road corridor (Northchurch) between High Street and South Bank Road	03	03.1	HGV weight limit restriction		£30,000 - £35,000		HCC	Dacorum BC	LTP	02, 09, 23, 26, 29	Replacement routes for HGVs
		03.3	Cycling and walking link to canal towpath		£2,000 - £4,000		HCC	Dacorum BC	LTP/Dacorum BC/LSTF		None
		03.4	Cycle link between Springfield Road and New Road			£100,000 - £150,000	HCC	Dacorum BC	LTP/Dacorum BC/LSTF		None
Improvements at Shootersway / Kingshill Way Junction	04	04.3	Remove cycle bypass at junction		£10,000 - £15,000		HCC	Dacorum BC	LTP/S106	2	None
		04.4	Replace priority junction with signals			£350,000 - £400,000	HCC	Dacorum BC	LTP/S106		Temporary TRO, site investigation, Road Safety Audit
Traffic Calming and Extension of 20mph zone on the High Street, Berkhamsted	05	05.1	Investigate use of improved materials		£140,000 - £150,000		HCC	Dacorum BC	LTP	01, 08, 10, 14, 15, 19, 20, 26	Berkhamsted High Street within Berkhamsted Conservation Area
		05.2	ASLs at signals		£6,000 - £8,000		HCC	Dacorum BC	LTP		
		05.3	Cycle logos at strategic locations	£1,000 - £2,000			HCC	Dacorum BC	LTP		
		05.4	Extend 20mph zone		£450,000 - £500,000		HCC	Dacorum BC	LTP		TRO required
Review Parking on Beggars Lane to Improve Safety for Cyclists	06	06.1	Increase parking restrictions along Beggars Lane		£4,000 - £6,000		HCC	Dacorum BC	LTP	None	Further consultation required
Enhancements to Tring Railway Station	07	07.1	Additional cycle parking	£30,000 - £40,000			HCC	London Midland	LSTF/London Midland	12, 14	None
		07.2	Improve security of existing cycle parking	£15,000 - £20,000			HCC	London Midland	LSTF/London Midland		None
		07.4	Improve cycling conditions at Station Road bridge		£2,000 - £4,000		HCC	Dacorum BC	LTP		None
Gateways into Tring and Berkhamsted	08	08.2	Provide cyclist warning signs in vicinity of gateways	£2,000 - £3,000			HCC	Dacorum BC	LTP	28	None

Capabilities on project:
Transportation

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)					
		08.3	Reconfigure Northchurch and Kingshill Way gateways		£14,000 - £18,000		HCC	Dacorum BC	LTP		None
		08.4	Removal of existing inadequate cycle facilities		£50,000 - £60,000		HCC	Dacorum BC	LTP		None
		08.5	Provide Inter-urban cycle facilities		£6,000 - £8,000		HCC	Dacorum BC	LTP		None
		08.6	Cycle warning sign on Gravel Path	£1,000 - £3,000			HCC	Dacorum BC	LSTF		None
Improve condition of canal towpath	09	09.1	Towpath surface - Cow Roast to Station Road		£30,000 - £40,000		Canal & River Trust	Dacorum BC	Waitrose / Towpath Frontages	03, 10, 12, 19	Liaison with the Canal and River Trust throughout
		09.2	Berkhamsted Town Centre condition		£30,000 - £40,000		Canal & River Trust	Dacorum BC	Waitrose / Towpath Frontages		
		09.3	Access point - Park Street			£50,000 - £75,000	HCC	Dacorum BC	Waitrose / Towpath Frontages		
		09.4	Access point - Bridge 135		£30,000 - £40,000		Canal & River Trust	Dacorum BC	Waitrose / Towpath Frontages		
		09.5	Access point - St John Well's Lane			£150,000 - £180,000	Canal & River Trust	Dacorum BC	Waitrose / Towpath Frontages		
		09.6	Access point - Bridge 143			£150,000 - £180,000	Canal & River Trust	Dacorum BC	Waitrose / Towpath Frontages		
		09.7	Billet Lane towpath improvements		£30,000 - £40,000		Canal & River Trust	Dacorum BC	Waitrose / Towpath Frontages		
		09.9	Way finding	£8,000 - £10,000			HCC	Canals and Rivers Trust	LTP		
		09.11	Pedestrian Priority Signs	£2,000 - £4,000			HCC	Canals and Rivers Trust	LTP		
Cycle and Pedestrian Way finding, Tring and Berkhamsted	10	10.1	Improve route signage in Berkhamsted		£15,000 - £20,000		HCC	Dacorum BC	LTP	07, 08, 09, 12, 17	Location of signing subject to confirmation by utility suppliers and landowners
		10.2	Improve route signage in Tring		£10,000 - £15,000		HCC	Dacorum BC	LTP		
		10.3	Improve route signage at Berkhamsted Station	£25,000 - £30,000			HCC	Dacorum BC	LTP		
		10.4	Improve route signage at Tring Station	£25,000 - £30,000			HCC	Dacorum BC	LTP		
		10.5	Chilterns Cycleway		£21,000 - £25,000		HCC	Dacorum BC	LTP		
		10.6	Inter-Urban Routes	£22,000 - £30,000			HCC	Dacorum BC	LTP		

Capabilities on project:
Transportation

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)					
		10.7	Personal Travel Plan mapping	£5,000 - £6,000			HCC	Dacorum BC	LTP		
Marketing of electric bikes in Tring and Berkhamsted	11	11.1	Marketing of electric bicycle hire scheme			TBC	Wokingham Borough Council	Dacorum BC	LSTF	10	None
Implement Cycle Route from Tring Station to Pitstone	12	12.2	Off-road link to Pitstone via Northfield Road			£180,000 - £200,000	HCC	Bucks CC / Dacorum BC	S106 / LSTF	07, 10, 14	Land acquisition
		12.3	Marshcroft Lane link from Pitstone to Tring Station			£100,000 - £150,000	HCC	Bucks CC / Dacorum BC	S106 / LSTF		Access through farmland
		12.4	Associated Marketing of Pitstone Link	£2,000 - £4,000			HCC	Bucks CC / Dacorum BC	S106 / LSTF		None
Extend cycle facility in Tring from London Road to connect to town centre	13	13.1	Extend segregated cycle track to Brook Street			£20,000 - £25,000	HCC	Dacorum BC	LTP	10, 22	Land take/confirmation of highway boundary
		13.3	Provide an alternative alignment via High Street		£15,000 - £20,000		HCC	Dacorum BC	LTP		Land take/confirmation of highway boundary
		13.4	Improve link to High Street via market			£20,000 - £25,000	HCC	Dacorum BC	LTP		Land take/confirmation of highway boundary
		13.5	Zebra crossing at Brook St (to market)			£40,000 - £55,000	HCC	Dacorum BC	LTP		Land take/confirmation of highway boundary
		13.6	Shared facility during maintenance		£6,000 - £8,000		HCC	Dacorum BC	LTP		None
Cycle parking in Tring and Berkhamsted	14	14.1	Provide cycle parking at key locations	£8,000 - £10,000			HCC	Dacorum BC	LTP	05, 07, 17	Location of cycle parking subject to utility locations and highway boundary
		14.2	Improved security of existing cycle parking	£15,000 - £20,000			HCC	Dacorum BC	LTP		
		14.3	Replace wooden cycle racks in Berkhamsted	£10,000 - £15,000			HCC	Dacorum BC	LTP		
		14.4	Signage to cycle parking	£2,000 - £4,000			HCC	Dacorum BC	LTP		
Parking Improvements	15	15.1	Provision of multi-storey car park located off Lower Kings Road adjacent to Waitrose supermarket		TBC		HCC	Dacorum BC	LTP/LSTF	16, 17	Consultation required
		15.2	Comprehensive review of double yellow lines on junctions and white lines	£7,000 - £8,000			HCC	Dacorum BC	LTP/LSTF		Site visit required to review existing lining
		15.3	Bridgewater Road parking restrictions		£2,000 - £3,000		HCC	Dacorum BC	LTP/LSTF		Consultation with London Midland and residents

Capabilities on project:
Transportation

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)					
		15.4	Improve efficiency of existing parking in Northchurch centre		£42,000 - £45,000		HCC	Dacorum BC	LTP/LSTF		Parking design
		15.5	Review of parking control and implementation of double yellow lines on Cow Lane, Tring	£5,000 - £6,000			HCC	Dacorum BC	LTP/LSTF		Consultation with local clubs and residents
		15.6	Achieve STP targets	Existing Programme			HCC	Dacorum BC	LTP/LSTF		None
Review of parking information in town centres	16	16.1	Replace existing parking signs		£2,000 - £4,000		HCC	Dacorum BC	LTP	15	None
		16.2	Add parking signs at suitable locations		£2,000 - £4,000		HCC	Dacorum BC	LTP		None
		16.3	Variable Message Signs (entrances to Berkhamsted Town Centre)			£90,000 - £100,000	HCC	Dacorum BC	LTP		Detailed design for location and dimensions
Enhancements to Berkhamsted Railway Station	17	17.1	Designated taxi-overflow parking		< £2,000		HCC	Dacorum BC	LTP/London Midland	21	Consultation with London Midland
		17.2	Designated drop-off area		< £2,000		HCC	Dacorum BC	LTP/London Midland		Consultation with London Midland
		17.3	Improve signage at junction with Brownlow Road	< £2,000			HCC	Dacorum BC	LTP/London Midland		None
		17.4	Cycle Parking locations	£2,000 - £4,000			HCC	Dacorum BC	LTP/London Midland		Consultation with London Midland
		17.6	Extend parking restrictions (White Hill)	£4,000 - £6,000			HCC	Dacorum BC	LTP		None
Introduce real time information to improve connectivity between public transport modes	18	18.1	Real time information (town centre bus stops)		£70,000 - £80,000		HCC	Dacorum BC	LTP/Private Investors/LSTF	N/A	Funding Sources
		18.2	Real time information (station bus stops)		£10,000 - £15,000		HCC	Dacorum BC	LTP/Private Investors/LSTF		Funding Sources
		18.3	Further Real Time Information at bus stops in Northchurch and Berkhamsted		£48,000 - £60,000		HCC	Dacorum BC	LTP/Private Investors/LSTF		Funding Sources
		18.4	Bus Route 500 Changes		TBC		HCC	Dacorum BC	LTP/Private Investors/LSTF		Funding Sources
Improve operation of Billet Lane corridor between Gossoms End and Bridgewater Road	19	19.1	Upgrade junction signals to MOVA		£40,000 - £45,000		HCC	Dacorum BC	LTP	20, 34	Junction modelling and traffic counts required
		19.3	Shared facility between canal towpath and junction with Gossoms End		£4,000 - £6,000		HCC	Dacorum BC	LTP/LSTF		None
		19.5	ASLs at signals		£4,000 - £6,000		HCC	Dacorum BC	LTP		None
		19.6	Upgrade guard railings at signals		< £2,000		HCC	Dacorum BC	LTP		None
		19.7	Informal Crossing on Billet Lane		£4,000 - £6,000		HCC	Dacorum BC	LTP		None
		19.8	Signal-controlled pedestrian crossing facilities on the Billet Lane arm		£8,000 - £10,000		HCC	Dacorum BC	LTP		None

Capabilities on project:
Transportation

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)					
Improve operation of Durrants Lane / High Street junction	20	20.1	Traffic signals with toucan crossing			£200,000 - £250,000	HCC	Dacorum BC	LTP	05, 19, 34	Junction modelling and consultation. Land take.
		20.2	Replace Moore Road roundabout with priority junction			£150,000 - £200,000	HCC	Dacorum BC	LTP		Require public consultation
		20.3	Bus lay-bys on northern side of High Street near Durrants Lane to replace existing on-highway stop facilities		£17,000 - £18,000		HCC	Dacorum BC	LTP		Consultation with public transport operator
Improve safety of railway underbridges on Brownlow Road and New Road	21	21.1	Provide signs on approach to bridges	£10,000 - £15,000			HCC	Dacorum BC	LTP	17	None
		21.3	Improved lighting through underbridges	£6,000 - £8,000			HCC	Dacorum BC	LTP		None
		21.5	Provide signs on approach to Brownlow Road / Bridgewater Road junction	£10,000 - £15,000			HCC	Dacorum BC	LTP		None
Improvements to Footpath 41 in Tring	22	22.1	Zebra crossing between Shugars Green and Silk Mill Way		£50,000 - £60,000		HCC	Dacorum BC	LTP	33	Footfall survey required
		22.2	Zebra crossing on Silk Mill Way		£50,000 - £60,000		HCC	Dacorum BC	LTP		Footfall survey required
		22.3	Upgrade Footpath 41 to shared use		£50,000 - £60,000		HCC	Dacorum BC	LTP/LSTF		None
Introduce a package of Smarter Measures to reduce reliance on the Private Car	23	23.1	Workplace Travel Plans	£70,000 - £80,000 per annum			HCC	Dacorum BC	LSTF/LEP	10, 18, 34	Funding Sources
		23.3	Integrated Strategy for marketing sustainable modes	£25,000 - £30,000 per annum (plus £70,000 - £80,000 for campaign development)			HCC	Dacorum BC	LSTF		Funding Sources
		23.4	Car Sharing and Car Club Schemes	£30,000 - £40,000 per annum (plus £30,000 - £40,000 to develop strategy)			HCC	Dacorum BC	LSTF		Funding Sources
Improvements at Footpath 39, Tring	24	24.1	Remove street clutter	£6,000 - £10,000			HCC	Dacorum BC	LTP	13	None
		24.2	Informal crossing point on London Road adjacent to mini-roundabout with Tesco		£10,000 - £15,000		HCC	Dacorum BC	LTP		None
		24.3	Footpath along the northern edge of London Road between Footpath 39 and Dunsley Farm		£35,000 - £40,000		HCC	Dacorum BC	LTP		
Provide Safe Route to Goldfield School via Miswell Lane, Tring	25	25.1	Upgrade Footpath 48 to mixed use		£45,000 - £50,000		HCC	Dacorum BC	LTP/LSTF	34	None
Improve Pedestrian Facilities along Icknield Way from Miswell Lane to Tring Industrial Estate	27	27.1	Maintain existing footpath	£1,000 per annum			HCC	Dacorum BC	LTP	23	None
Speed management on Aylesbury Road	28	28.1	Speed Buffer Zone		£10,000 - £15,000		HCC	Dacorum BC	LTP	08	Speed Surveys

Capabilities on project:
Transportation

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)						
		28.3	Off-carriageway cycle facility linking Icknield Way with Tring Town Centre		£100,000 - £150,000		HCC	Dacorum BC	LTP		Land take	
Speed management on New Road	29	29.1	20mph speed limit between High Street and canal		£8,000 - £10,000		HCC	Dacorum BC	LTP	03	Speed Surveys	
		29.3	Rippleprint at entrance into 30mph limit		£30,000 - £34,000		HCC	Dacorum BC	LTP		Consultation with local residents	
Speed management on Kings Road	30	30.2	Vehicle Activated Sign Roundels (VASRs)		£8,000 - £10,000		HCC	Dacorum BC	LTP	01, 02, 04	Speed Surveys	
Speed management on Station Road	31	31.1	40mph speed buffer zone		£10,000 - £15,000		HCC	Dacorum BC	LTP	13	Speed Surveys	
Speed management on London Road into Tring	32	32.1	40mph speed buffer zone		£8,000 - £10,000		HCC	Dacorum BC	LTP	08	Speed Surveys	
		32.3	Rumble strips at entrance into 30mph limit		£2,000 - £4,000		HCC	Dacorum BC	LTP		Consultation with local residents	
Speed management on Brook Street	33	33.1	Vehicle Activated Sign Roundels on Brook Street		£8,000 - £10,000		HCC	Dacorum BC	LTP	13, 22	Speed Surveys	
		33.4	Rippleprint at entrance into 30mph limit		£30,000 - £34,000		HCC	Dacorum BC	LTP		Consultation with local residents	
Safer Routes to Schools	34	34.1	Maintain and enhance School Travel Plans (STP's)	Existing Programme			HCC	Dacorum BC	LTP/LSTF	03, 15, 19, 23, 24, 25	Speed Surveys	
		34.2	Cycle parking at schools		£6,000 - £10,000 (per school)		HCC	Dacorum BC	LTP/LSTF/SRtS		Speed Surveys	
		34.3	Provide zebra crossing on Miswell Lane		£40,000 - £45,000		HCC	Dacorum BC	LTP/LSTF/SRtS		Consultation with local residents	
		34.4	Provide school crossing signs on approach along Miswell Lane		£2,000 - £4,000		HCC	Dacorum BC	LTP/LSTF/SRtS		Speed Surveys	
		34.5	Install formal Crossing Point on Bridgewater Road		£60,000 - £70,000		HCC	Dacorum BC	LTP/LSTF/SRtS		Speed Surveys	
		34.6	Associated Marketing of Sustainable Travel to School	£10,000 - £15,000 per annum				HCC	Dacorum BC		LTP/LSTF/SRtS	Speed Surveys
		34.10	Connect toucan crossing at Billet Lane with shared use footpath on north side of High Street		£40,000 - £45,000		HCC	Dacorum BC	LTP/LSTF/SRtS		Speed Surveys	
		34.11	Raised crossing on Durrants Lane		£25,000 - £30,000		HCC	Dacorum BC	LTP/LSTF/SRtS		Speed Surveys	
		34.12	Zebra crossing on Hilltop Road, Berkhamsted		£60,000 - £65,000		HCC	Dacorum BC	LTP/LSTF/SRtS		Full crossing design required (visibility)	
		34.13	Crossing signs on approach along Hilltop Road and Chesham Road, Berkhamsted		£1,500 - £2,000		HCC	Dacorum BC	LTP/LSTF/SRtS		None	
		34.15	Extend footway on western edge of Chesham Road and provide informal crossing point		£8,000 - £10,000		HCC	Dacorum BC	LTP/LSTF/SRtS		Land take may be required	

Capabilities on project:
Transportation

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)					
		34.16	Relocate Arriva Bus stop (for Service 354) on Chesham Road from opposite Ashlyns School to within the school's main entrance	£1,200 - £1,500			HCC	Dacorum BC	LTP/LSTF/SRtS		Consultation with Ashlyns School and public transport operator
Speed management on Icknield Way	35	35.2	Rippleprint on Icknield Way		£12,000 - £14,000		HCC	Dacorum BC	LTP	N/A	Speed Surveys
Traffic Calming and Extension of 20mph zone to include Gravel Path, Berkhamsted	36	36.2	Gateway features		£11,000 - £13,000		HCC	Dacorum BC	LTP	05, 08, 11	Speed Surveys
		36.3	Round plateau humps along Gravel Path		£60,000 - £65,000		HCC	Dacorum BC	LTP		Speed Surveys
		36.5	Coloured surfacing and painted speed limit roundels on the carriageway		£5,000 - £6,000		HCC	Dacorum BC	LTP		Speed Surveys
Traffic Calming and Extension of 20mph zone into the Castle Road / Mill Road area	38	38.3	Introduction of speed cushions in Castle Street		£16,000 - £18,000		HCC	Dacorum BC	LTP	05, 17, 34	Speed Surveys
Speed management adjacent to Tring station	39	39.5	Introduction of Ripple Print in the 30 mph zone		£12,000 - £14,000		HCC	Dacorum BC	LTP	06, 07, 12	Speed Surveys
Speed management along Northchurch High Street	40	40.2	Introduction of central islands		£9,000 - £10,000 per island		HCC	Dacorum BC	LTP	03, 05, 08, 26	Speed Surveys
		40.3	Vehicle Activated Sign Roundel (VASR) on approach to the section between Darr's Lane and New Road (Northchurch)		£8,000 - £10,000 per sign		HCC	Dacorum BC	LTP		Speed Surveys
		40.7	Pedestrian refuge on Tring Road		£12,000 - £13,000		HCC	Dacorum BC	LTP		Insufficient highway width
Speed limits around schools to be reduced to 20mph	41	41.1	Introduce a 20mph zone on the roads surrounding the identified school		£8,000 - £10,000		HCC	Dacorum BC	LTP	03, 05, 20, 34	Speed Surveys
		41.2	Introduce addition signage and coloured Tarmac.		£4,000 - £5,000		HCC	Dacorum BC	LTP		Speed Surveys
		41.3	Introduction of speed cushions on Silk Mill Way		£42,000 - £45,000		HCC	Dacorum BC	LTP		Speed Surveys
Upgrade Pedestrian Crossing on Grove Road, Tring	42	42.1	Zebra crossing to replace existing informal crossing point near Bunyan Close		£45,000 - £50,000		HCC	Dacorum BC	LTP/LSTF/SRtS	N/A	Consultation with local residents
Provide Pedestrian Crossing facilities on Greenway, Berkhamsted	43	43.1	Kerb build-out for pedestrians adjacent to school entrance		£6,000 - £8,000		HCC	Dacorum BC	LTP/LSTF/SRtS	34, 41	Consultation with local residents
Provide improved Pedestrian Crossing facilities on Bridgewater Road, Berkhamsted	44	44.2	Zebra crossing		£45,000 - £50,000		HCC	Dacorum BC	LSTF	15, 17, 21	Footfall survey required

Capabilities on project:
Transportation

As demonstrated within the Implementation Plan, a number of schemes require further analysis in order to determine their cost for implementation and maintenance. However, **Tables 9.2** and **9.3** demonstrate the approximate cost summary for the delivery of schemes across Tring, Northchurch and Berkhamsted throughout the UTP period. The proposed measures focus primarily on the prioritisation of cyclists and pedestrians with numerous schemes addressing both issues identified during Stage 1, but also focussing on the LTP3 and UTP objectives. In addition, the majority of scheme costs relate to years 2 to 5 within the UTP process. This is due to several substantial long term schemes being proposed within this period, but also to the requirement for further analysis, Traffic Regulation Orders, detailed design and public consultation to be completed within the initial stages.

Table 9.2 Cost Summary by Timescale

Theme	Year 1 (Simple)	Year 2 (Standard)	Years 3 to 5 (Complex)	Total
Highways and Congestion	£13,000 to £22,000	£657,000 to £738,000	£450,000 to £550,000	£1,120,000 to £1,310,000
Cycling	£172,000 to £229,000	£259,000 to £338,000	£710,000 to £890,000	£1,141,000 to £1,457,000
Parking	£18,000 to £26,000	£48,000 to £60,000	£90,000 to £100,000	£156,000 to £186,000
Public Transport	£0	£128,000 to £155,000	£0	£128,000 to £155,000
Walking	£269,200 to £335,500	£790,500 to £932,000	£485,000 to £590,000	£1,544,700 to £1,857,500
Speed Limit	0	£413,000 to £515,000	£0	£413,000 to £515,000
Total	£472,200 to £612,500	£2,295,500 to £2,738,000	£1,735,000 to £2,130,000	£4,502,700 to £5,480,500

Table 9.3 Cost Summary by Location

Theme	Tring	Northchurch	Berkhamsted	Total
Highways and Congestion	£4,000 to £6,000	£132,000 to £189,000	£984,000 to £1,115,000	£1,120,000 to £1,310,000
Cycling	£522,000 to £669,000	£55,000 to £70,500	£564,000 to £717,500	£1,141,000 to £1,457,000
Parking	£7,000 to £10,000	£42,000 to £47,000	£107,000 to £129,000	£156,000 to £186,000
Public Transport	£40,000 to £47,500	£24,000 to £30,000	£64,000 to £77,500	£128,000 to £155,000
Walking	£482,000 to £597,500	£173,000 to £208,000	£889,700 to £1,052,000	£1,544,700 to £1,857,500
Speed Limit	£238,000 to £316,000	£67,000 to £77,000	£108,000 to £122,000	£413,000 to £515,000
Total	£1,293,000 to £1,646,000	£493,000 to £621,500	£2,716,700 to £3,213,000	£4,502,700 to £5,480,500

Monitoring and Review

10. Monitoring and Review

10.1 Introduction

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 Monitoring

Monitoring of the UTP can take two forms:

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

Physical delivery of the scheme and how this relates to the proposed and actual costs of delivery. Recording progress made against the implementation plan can result in adjustments to the implementation plan to ensure delivery within the UTP period.

2. The **Outcomes** of proposed schemes

Assessment of the impact of the each scheme 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. There may be other outcomes from the schemes that would also need to be considered, particularly with regard to the travel behaviour and perceptions.

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

10.3 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.

Appendices

**Appendix A – Scheme Assessment
Framework**

Capabilities on project:
Transportation

Scheme	Scheme ID	Theme	Issue ID	Priority Issue Score	Scoring Against LTP3 Indicators		
					Objective - Support economic development and planned dwelling growth		
					Congestion	Accessibility to key trip attractors	Accessibility of new developments
Improve operation of High Street / Kings Road junction	1	Highways and Congestion	CH1 CH7 CH9 CH13 CH15 B15	3	3	1	0
Improve Access and Egress Signage for A41 Bypass	2	Highways and Congestion	CH1 CH16 CH19 E1	2	2	0	0
Improvements along New Road corridor between High Street and South Bank Road	3	Highways and Congestion	CH2 CH10 CH11 B10 B14 B35 E1		2	1	0
Improvements at Shootersway / Kingshill Way Junction	4	Highways and Congestion	CH7 CH14 B29 S6	2	3	0	2
Traffic Calming on Berkhamsted High Street to encourage cycling	5	Highways and Congestion	B11 B15 B18 B26 S21 B07 S11	2	-2	1	0
Review Parking on Beggars Lane to Improve Safety for Cyclists	6	Highways and Congestion	T15 PK11 PK13 PK16	2	1	0	0
Enhancements to Tring Railway Station	7	Cycling	T06 T17 T19 T22 PK11 T16	1	0	2	2
Enhance Gateways into Tring and Berkhamsted	8	Cycling	B31 B04 B05 B07 B13 B18	2	0	0	0
Improve condition of canal towpath	9	Cycling	B06 B11 B14 B23 B27 B30	2	1	2	2
Review signage on the cycle network	10	Cycling	B11 B14 B20 B21 T03 T05 T17 B27 W16 W17 W30	2	0	1	2
Introduce electric bikes and associated marketing	11	Cycling	B17	1	0	0	0
Implement Cycle Route from Tring Station to Pitstone	12	Cycling	T02	2	0	2	3
Extend cycle facility in Tring from London Road to connect to town centre	13	Cycling	B04 B18 T07 T12 T13	2	0	2	0
Cycle parking in Tring and Berkhamsted	14	Cycling	B09 B11 B18 B19 B22 T03 T11 T20	2	0	3	0
Parking Improvements	15	Parking	PK3 PK4 PK5 PK6 PK8 PK12	3	1	0	0
Review of parking information in town centres	16	Parking	PK17 PK18	1	2	3	0
Enhancements to Berkhamsted Railway Station	17	Parking	CH3 CH18 B24 B32 B33 PK1 PK16 PT5		1	2	0
Introduce real time information to improve connectivity between public transport modes	18	Public Transport	PT3 PT4 PT8	3	0	2	0
Improve operation of Billet Lane corridor between Gossoms End and Bridgewater Road	19	Walking	CH12 B10 B14 B18 W3 W7	3	3	1	0
Improve operation of Durrants Lane / High Street junction	20	Walking	B01 PT1 PT2 S1 W1 W2	3	2	2	2
Improve safety of railway underbridges on Brownlow Road and New Road	21	Walking	CH18 B33 W16	3	1	2	0
Improvements to Footpath 41 in Tring	22	Walking	T04 W13 W8		0	0	0
Introduce a package of Smarter Measures to reduce reliance on the Private Car	23	Walking	CH5 CH6 CH8 CH17 T10 PK15 PT6 T21 PK12 W15 W16 B14 B28 B34 T05 PK5 PK10 PT9	2	3	3	2
Provide crossing on Station Road between footpath 39 and playing fields to Tesco - subject to 1/95 assessment	24	Walking	T08	1	0	2	1
Provide Safe Crossing on Miswell Lane, north of junction with Beaconsfield Road	25	Walking	W10 W18	2	0	2	0
Improve Pedestrian Facilities along Icknield Way from Miswell Lane to Tring Industrial Estate	27	Walking	W14	1	0	2	0
Introduce traffic calming measures on Aylesbury Road	28	Speed Limit	S16 B18	3	-1	0	0
Introduce traffic calming measures on New Road	29	Speed Limit	B05	3	-1	0	0
Introduce traffic calming measures on Kings Road	30	Speed Limit	S6	3	-1	0	0
Introduce traffic calming measures on Station Road	31	Speed Limit	S14	3	-1	0	0
Introduce traffic calming measures on London Road into Tring	32	Speed Limit	S17	3	-1	0	0
Introduce traffic calming measures on Brook Street	33	Speed Limit	S18	3	-1	0	0
Safer Routes to Schools	34	Walking	CH8 B01 B18 B28 T08 T21 PK10 PT9 W7 W18	3	2	3	0
Introduce traffic calming measures on Icknield Way	35	Speed Limit	S20	3	-1	0	0
Traffic Calming and Extension of 20mph zone to include Gravel Path, Berkhamsted	36	Speed Limit	B31 S8		-1	0	0
Traffic Calming and Extension of 20mph zone into the Castle Road / Mill Road area of Berkhamsted	38	Speed Limit	CH8		-1	0	0
Speed management adjacent to Tring station	39	Speed Limit	S25 T14		-1	0	0
Speed management along Northchurch High Street	40	Speed Limit	S21 S26		-1	0	0
Speed limits around schools to be reduced to 20mph	41	Speed Limit	S24 S28 S29		-1	0	0
Upgrade Pedestrian Crossing on Grove Road, Tring	42	Walking	W32		0	3	0
Provide Pedestrian Crossing facilities on Greenway, Berkhamsted	43	Walking	W33		0	2	0
Provide improved Pedestrian Crossing facilities on Bridgewater Road, Berkhamsted	44	Walking	W7 W34		0	2	0

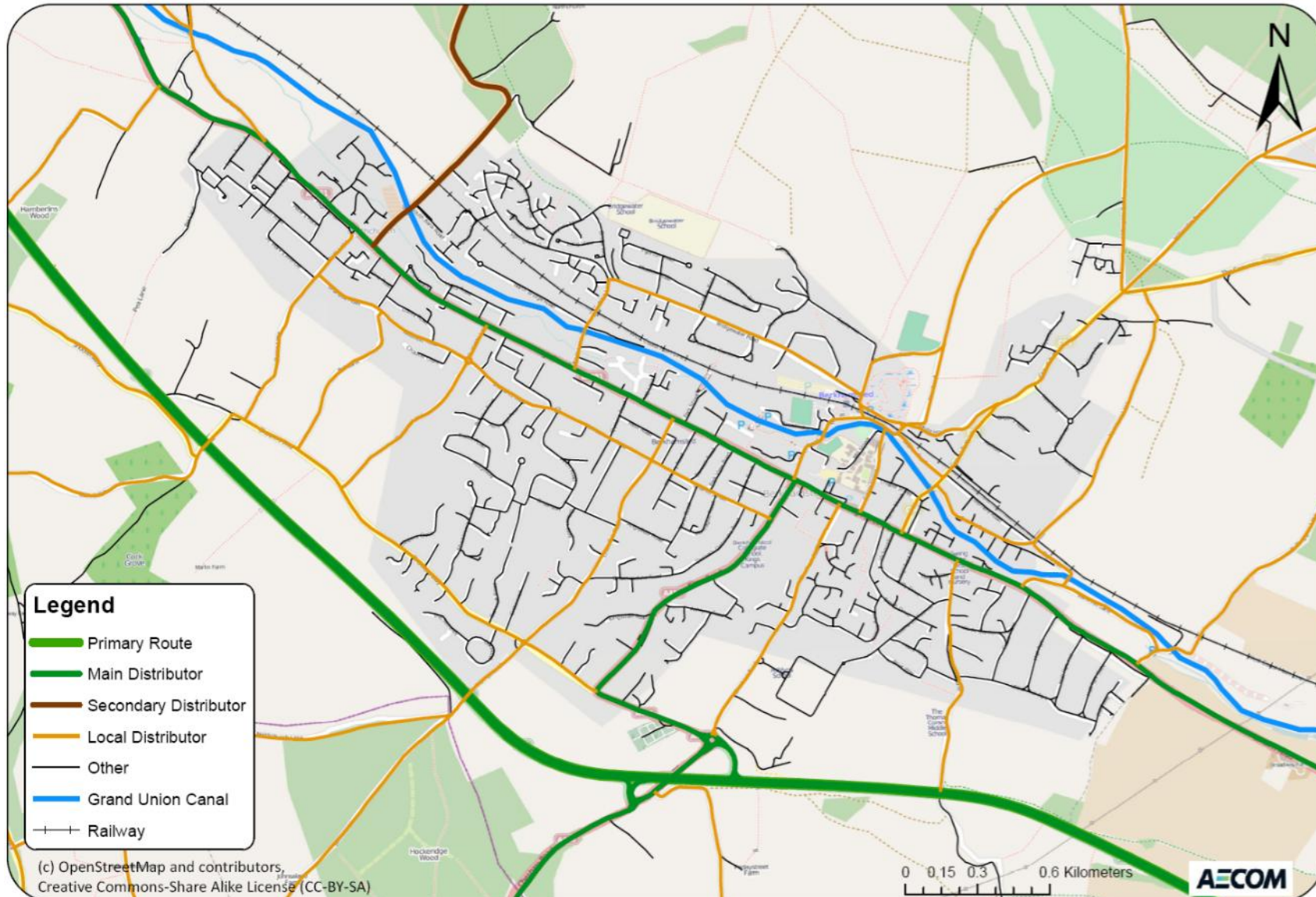
Capabilities on project:
Transportation

Scheme	Scheme ID	Theme	Scoring Against UTP Objectives								Total Indicator Score	Proposed Timescale - Simple / Standard / Complex
			Support economic growth and local housing development through the delivery of transport improvements	Improve connectivity between transport modes to allow for greater transport flexibility	Improve public transport provision and accessibility	Promote active travel modes throughout the study area to encourage active and healthy lifestyles	Improve connectivity within and between local towns through a complete network of walking and cycling facilities	Address signage issues within the towns to enable effective and efficient navigation of the town	Address parking issues regarding Tring and Berkhamsted Stations, through encouragement of car share schemes and mode shift from the car	Reduce congestion in key traffic hotspots throughout the study area		
Improve operation of High Street / Kings Road junction	1	Highways and Congestion	2	0	0	-2	0	0	0	3	10	Simple
Improve Access and Egress Signage for A41 Bypass	2	Highways and Congestion	0	0	0	-1	0	3	0	2	11	Standard
Improvements along New Road corridor between High Street and South Bank Road	3	Highways and Congestion	1	2	0	2	1	0	0	2	25	Standard
Improvements at Shootersway / Kingshill Way Junction	4	Highways and Congestion	2	0	0	-2	0	0	0	3	17	Complex
Traffic Calming on Berkhamsted High Street to encourage cycling	5	Highways and Congestion	-1	1	0	2	2	0	0	-1	3	Standard
Review Parking on Beggars Lane to Improve Safety for Cyclists	6	Highways and Congestion	0	0	0	0	0	0	3	1	11	Standard
Enhancements to Tring Railway Station	7	Cycling	0	2	1	3	2	0	2	0	21	Standard
Enhance Gateways into Tring and Berkhamsted	8	Cycling	0	1	0	1	2	1	0	0	10	Standard
Improve condition of canal towpath	9	Cycling	2	3	0	3	3	0	0	0	25	Standard
Review signage on the cycle network	10	Cycling	1	2	0	1	2	3	0	0	18	Standard
Introduce electric bikes and associated marketing	11	Cycling	0	1	0	2	0	0	0	0	10	Complex
Implement Cycle Route from Tring Station to Pitstone	12	Cycling	2	0	0	3	3	0	2	0	22	Complex
Extend cycle facility in Tring from London Road to connect to town centre	13	Cycling	2	2	0	2	2	0	0	0	17	Complex
Cycle parking in Tring and Berkhamsted	14	Cycling	0	2	0	3	1	0	2	0	20	Simple
Parking Improvements	15	Parking	0	0	0	0	0	0	2	2	5	Standard
Review of parking information in town centres	16	Parking	1	1	0	-1	0	3	0	3	17	Complex
Enhancements to Berkhamsted Railway Station	17	Parking	1	3	2	1	1	1	0	1	22	Complex
Introduce real time information to improve connectivity between public transport modes	18	Public Transport	1	3	2	0	0	0	0	0	18	Standard
Improve operation of Billet Lane corridor between Gossoms End and Bridgewater Road	19	Walking	1	1	0	2	2	2	0	3	27	Standard
Improve operation of Durrants Lane / High Street junction	20	Walking	2	2	1	3	2	0	0	3	34	Complex
Improve safety of railway underbridges on Brownlow Road and New Road	21	Walking	0	2	0	1	1	2	1	2	18	Simple
Improvements to Footpath 41 in Tring	22	Walking	0	1	0	1	2	0	0	0	6	Standard
Introduce a package of Smarter Measures to reduce reliance on the Private Car	23	Walking	2	2	0	3	0	0	3	3	43	Simple
Provide crossing on Station Road between footpath 39 and playing fields to Tesco - subject to 1/95 assessment	24	Walking	0	1	0	1	2	0	0	0	12	Simple
Provide Safe Crossing on Miswell Lane, north of junction with Beaconsfield Road	25	Walking	0	1	0	2	2	0	0	0	18	Standard
Improve Pedestrian Facilities along Icknield Way from Miswell Lane to Tring Industrial Estate	27	Walking	1	1	0	2	2	0	0	0	12	Standard
Introduce traffic calming measures on Aylesbury Road	28	Speed Limit	0	0	0	1	0	0	0	1	9	Standard
Introduce traffic calming measures on New Road	29	Speed Limit	0	0	0	1	0	0	0	1	9	Standard
Introduce traffic calming measures on Kings Road	30	Speed Limit	0	0	0	1	0	0	0	1	9	Standard
Introduce traffic calming measures on Station Road	31	Speed Limit	0	0	0	1	0	0	0	1	9	Standard
Introduce traffic calming measures on London Road into Tring	32	Speed Limit	0	0	0	1	0	0	0	1	9	Standard
Introduce traffic calming measures on Brook Street	33	Speed Limit	0	0	0	1	0	0	0	1	9	Standard
Safer Routes to Schools	34	Walking	0	0	0	3	2	0	0	1	19	Standard
Introduce traffic calming measures on Icknield Way	35	Speed Limit	0	0	0	1	0	0	0	1	9	Standard
Traffic Calming and Extension of 20mph zone to include Gravel Path, Berkhamsted	36	Speed Limit	0	0	0	1	0	0	0	1	7	Standard
Traffic Calming and Extension of 20mph zone into the Castle Road / Mill Road area of Berkhamsted	38	Speed Limit	0	0	0	1	0	0	0	1	7	Standard
Speed management adjacent to Tring station	39	Speed Limit	0	0	0	1	0	0	0	1	8	Standard
Speed management along Northchurch High Street	40	Speed Limit	0	0	0	1	0	0	0	1	9	Standard
Speed limits around schools to be reduced to 20mph	41	Speed Limit	0	0	0	1	0	0	0	1	10	Standard
Upgrade Pedestrian Crossing on Grove Road, Tring	42	Walking	0	0	0	1	1	0	0	0	13	Standard
Provide Pedestrian Crossing facilities on Greenway, Berkhamsted	43	Walking	0	0	0	1	1	0	0	0	11	Standard
Provide improved Pedestrian Crossing facilities on Bridgewater Road, Berkhamsted	44	Walking	0	0	0	1	1	0	0	0	9	Standard

Appendix B – Route User Hierarchy Development

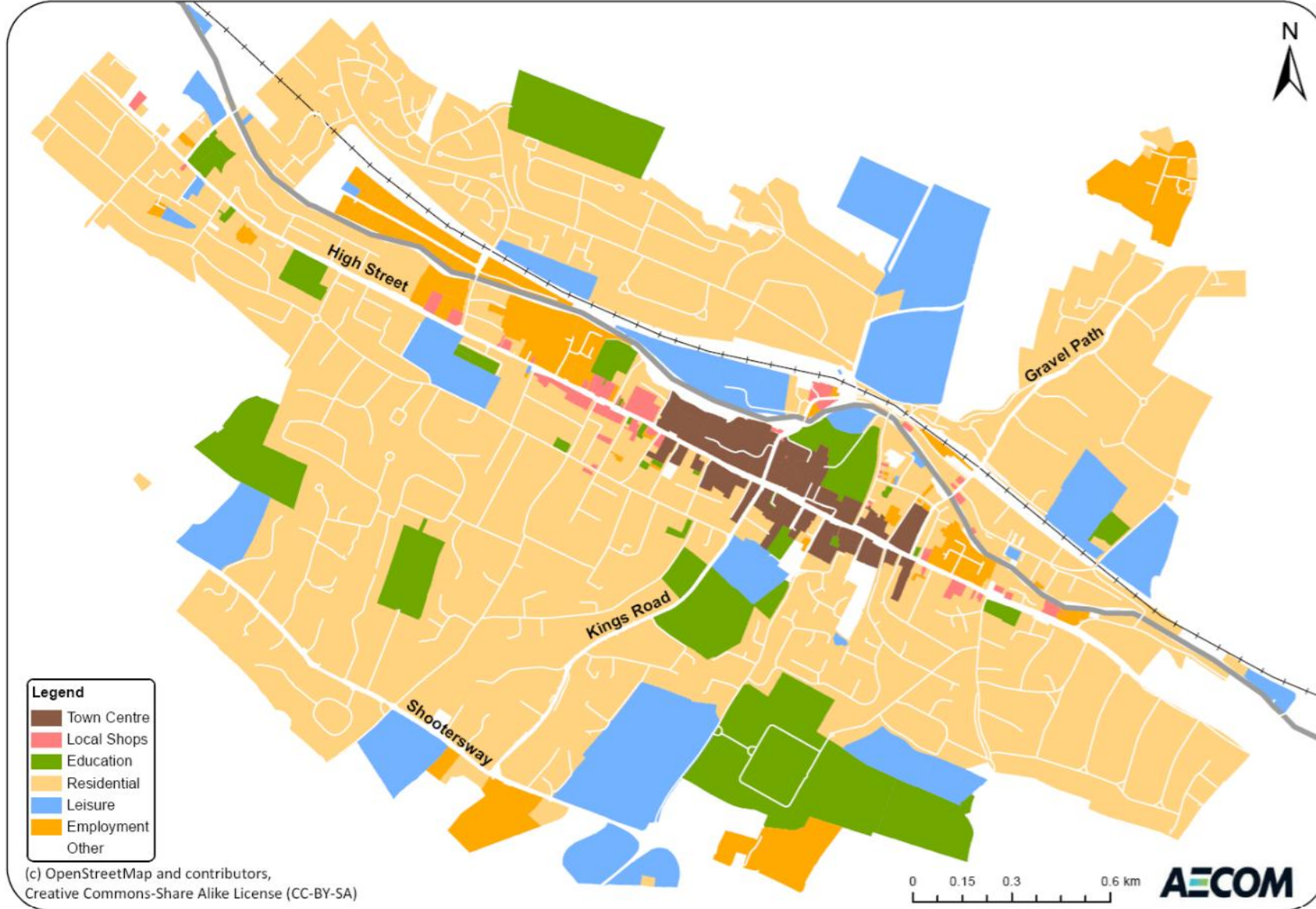
Capabilities on project:
Transportation

Berkhamsted Road Hierarchy



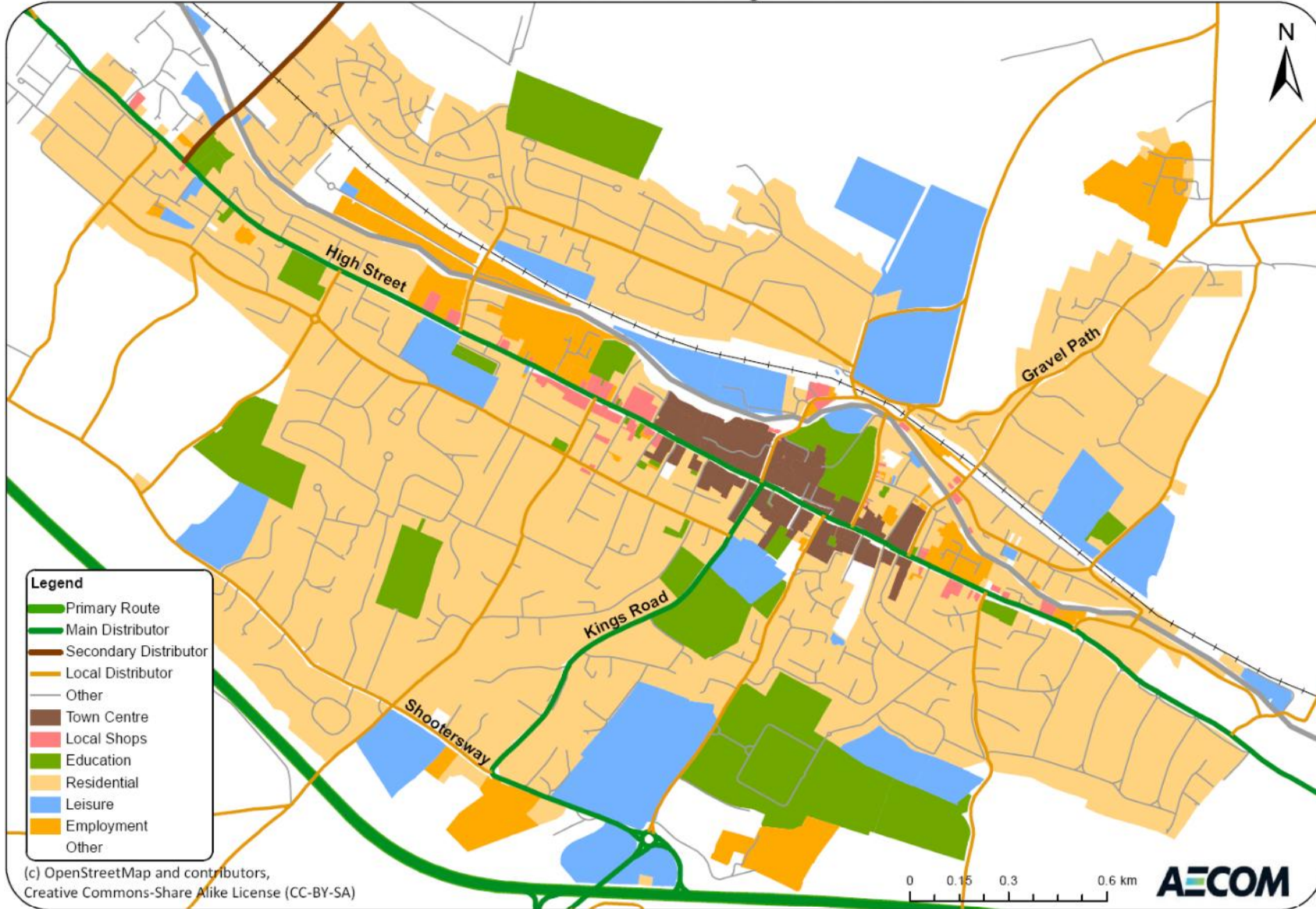
Capabilities on project:
Transportation

Berkhamsted Land Use Classification



Capabilities on project:
Transportation

Berkhamsted Land Use and Strategic Road Function



Capabilities on project:
Transportation

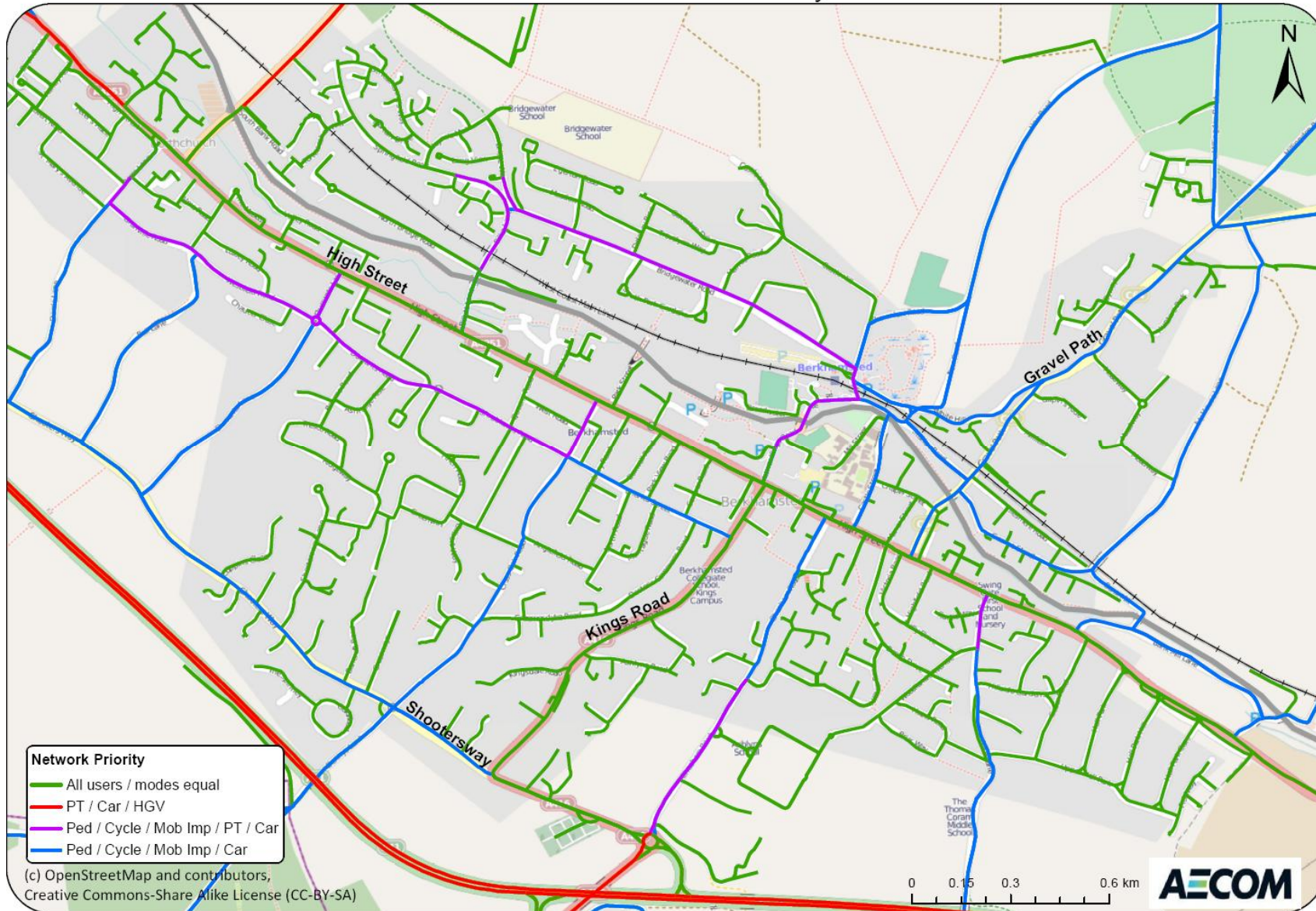
Strategic Function	Land Use	General						High Frequency Bus Route						
		Ped	Cyc	Mob Imp	PT	Car	HGV	Ped	Cyc	Mob Imp	PT	Car	HGV	
1	Primary Route	A: Town Centre												
		B: Local Shops												
		C: Education												
		D: Residential												
		E: Leisure												
		F: Employment												
		G: Rural	5	4	5	3	2	1						
2	Main Distribution	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	3	3	3	3	1	1	3	3	3	1	1	1
		E: Leisure	1	1	1	1	1	1						
		F: Employment	1	1	1	1	1	1	1	1	1	1	1	1
		G: Rural	5	4	5	3	1	1	5	4	5	3	1	1
3	Secondary Distribution	A: Town Centre	1	1	1	1	1	1	1	1	1	1	1	1
		B: Local Shops	1	1	1	1	1	1						
		C: Education	1	1	1	1	1	1						
		D: Residential	5	4	5	3	1	1	5	4	5	3	1	1
		E: Leisure	1	1	1	1	1	1	1	1	1	1	1	1
		F: Employment	1	1	1	1	1	1						
		G: Rural	5	4	5	3	1	1	5	4	5	3	1	1
4	Local Distribution / Access Road	A: Town Centre	1	1	1	4	1	4						
		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: Employment	1	1	1	5	1	6						
		G: Rural	1	1	1	1	1	1						
5	Other	A: Town Centre	1	1	1	1	1	1						
		B: Local Shops	1	1	1	1	1	1						
		C: Education	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						
		F: Employment	1	1	1	1	1	1						
		G: Rural	1	1	1	1	1	1	1	1	1	1	1	1

 Not applicable for study area

 No priority for vehicle class

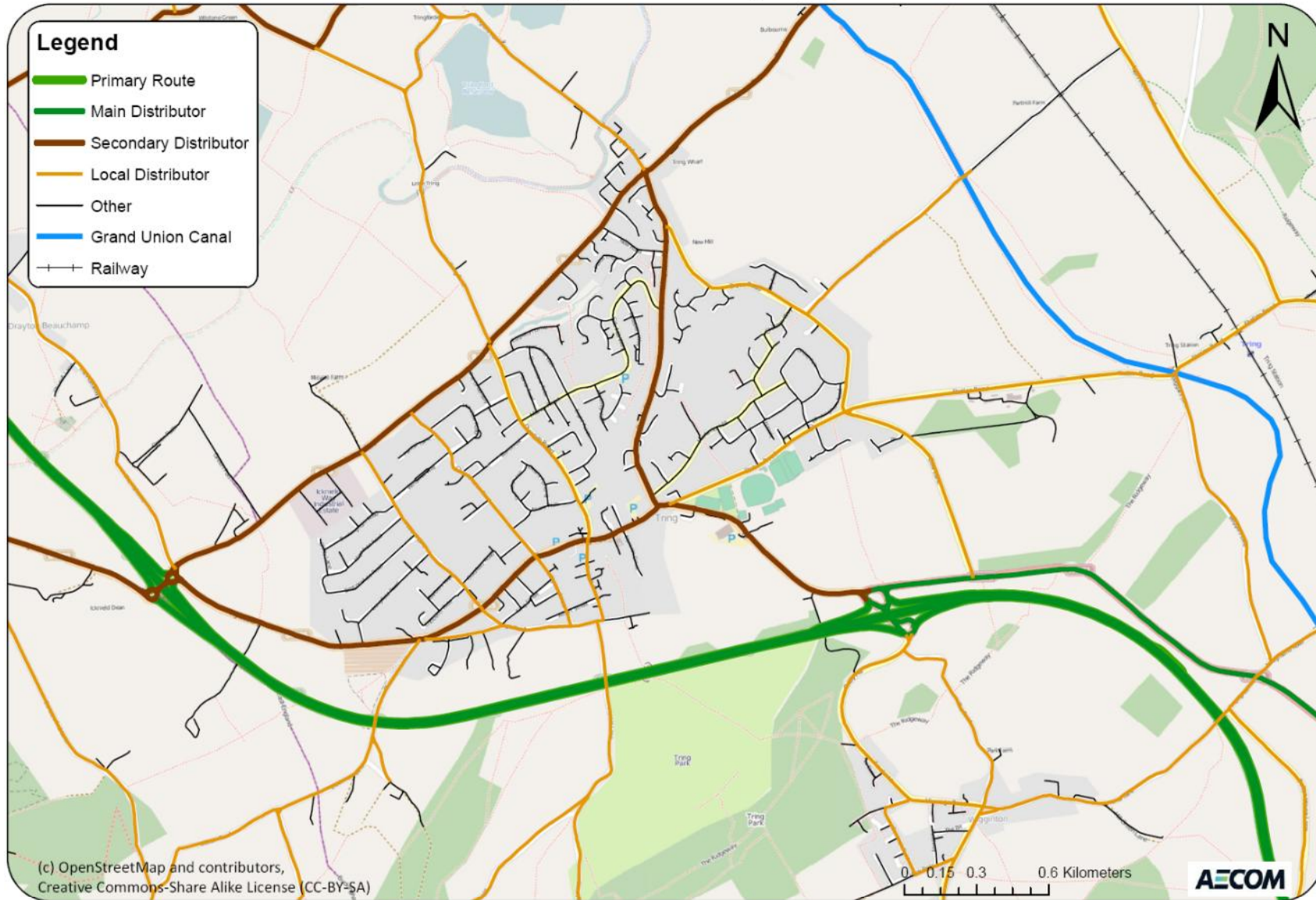
Capabilities on project:
Transportation

Berkhamsted Network Priority



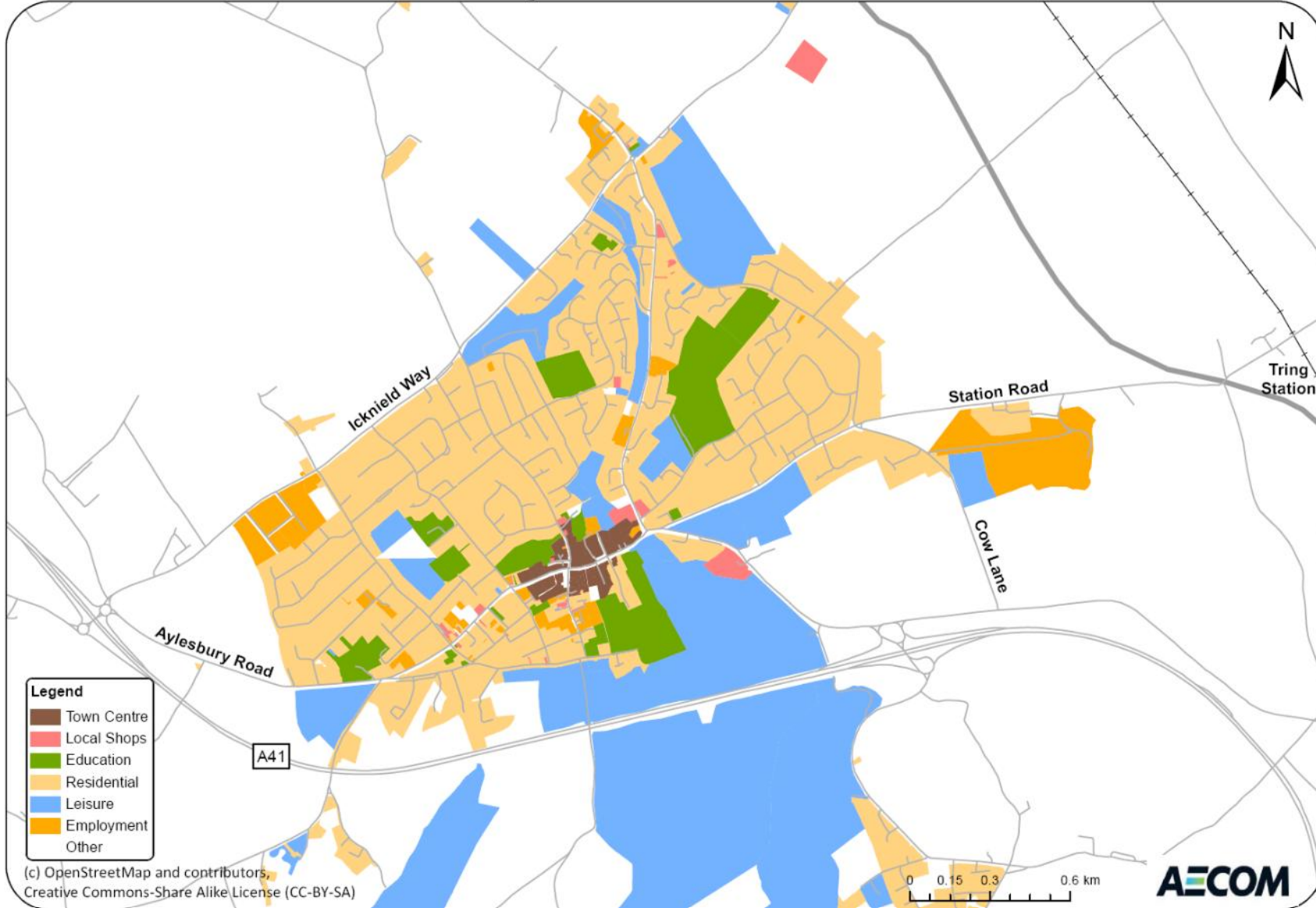
Capabilities on project:
Transportation

Tring Road Hierarchy



Capabilities on project:
Transportation

Tring Land Use Classification



Capabilities on project:
Transportation

Tring Land Use and Strategic Road Function

