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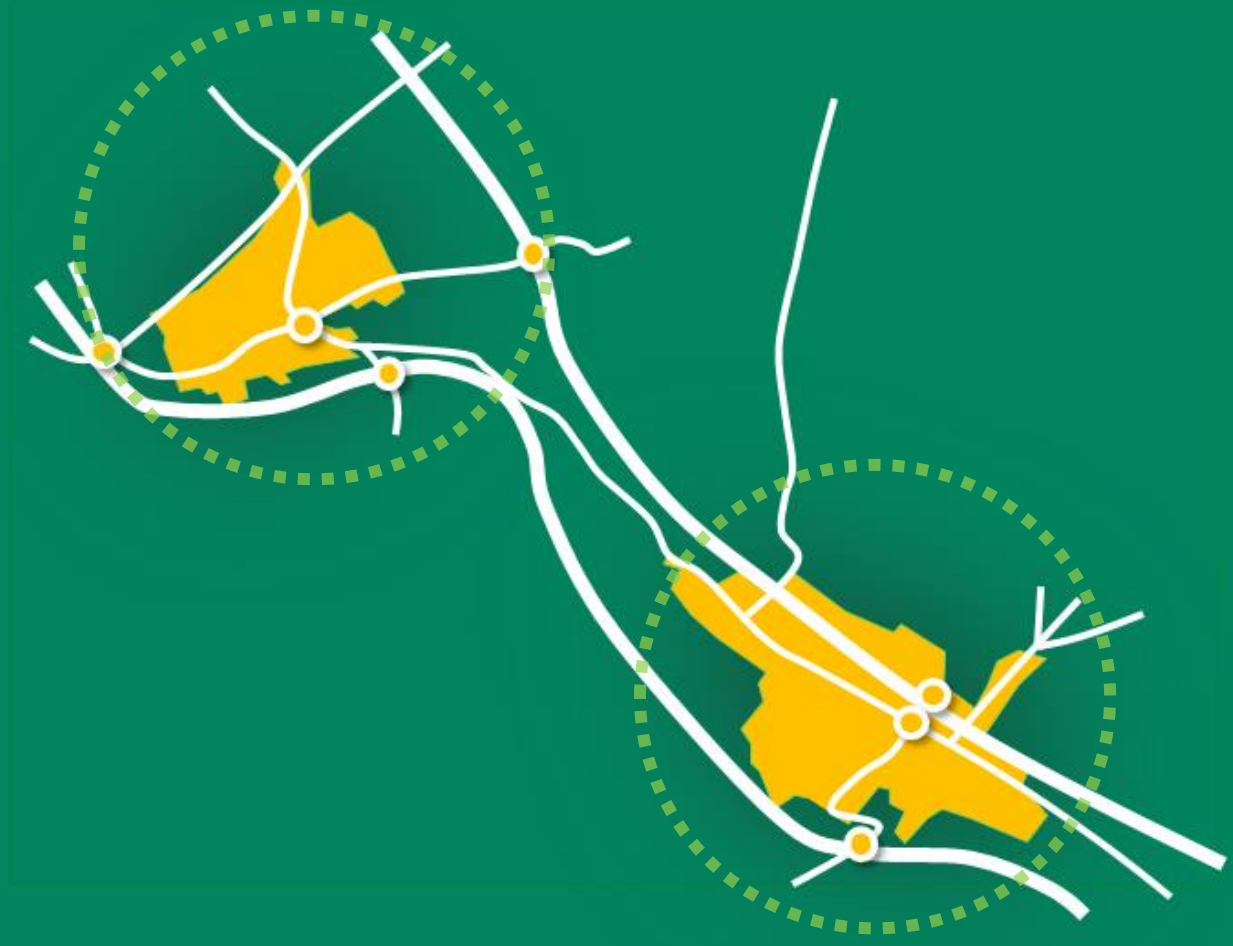
Berkhamsted and Tring
Sustainable Transport Study



Dacorum Borough Council
Supporting Local Plan 2020-2038

Draft for Local Plan Public Consultation - November 2020

DACORUM BOROUGH COUNCIL

Quality information

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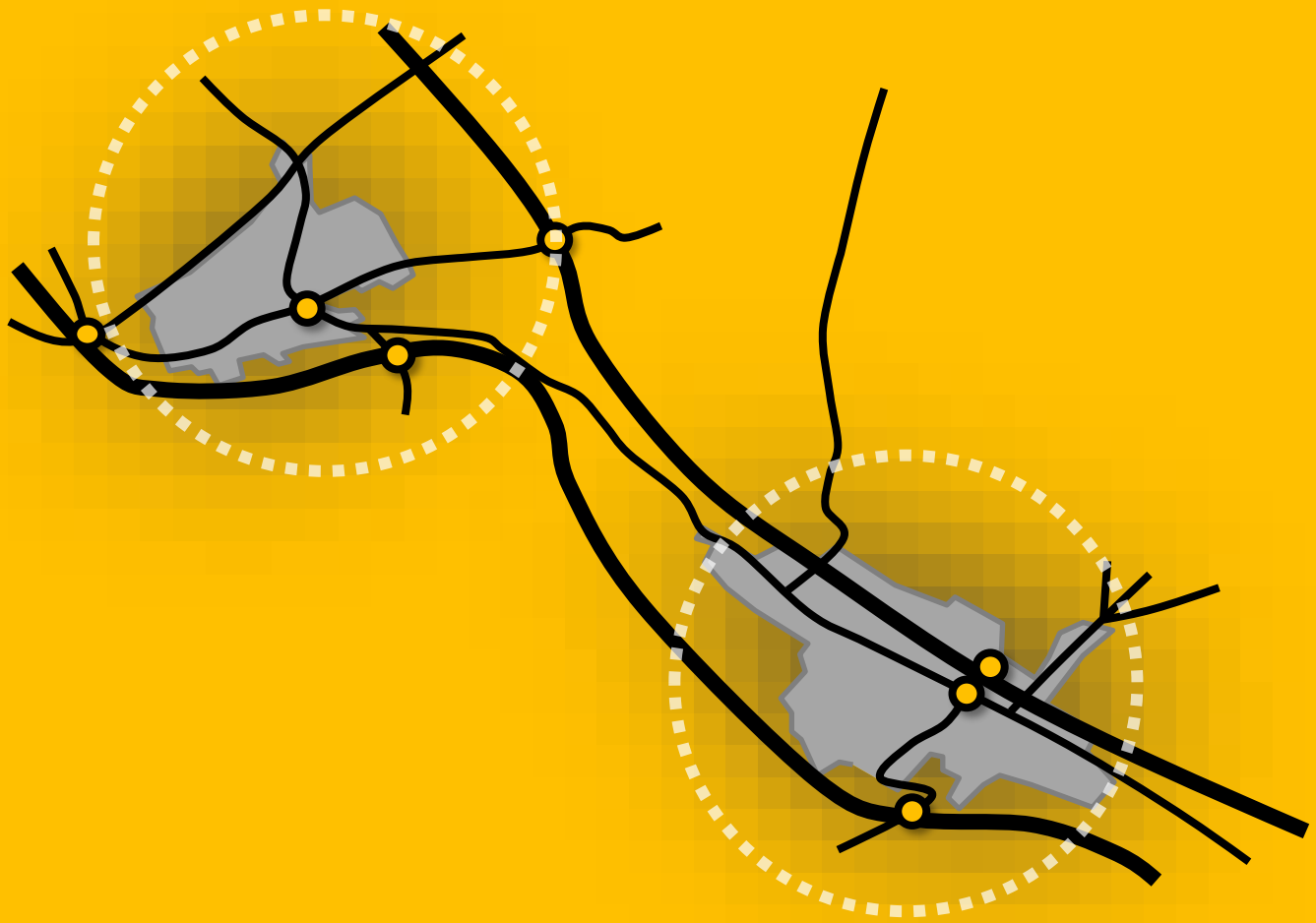


1. Introduction

Introducing Berkhamsted and Tring

1.1 The towns of Berkhamsted and Tring are located in the north-west of Dacorum Borough, which in itself is in the western part of Hertfordshire. The towns lie close to the border between Hertfordshire and Buckinghamshire.

1.2 Berkhamsted is a large historic market town and is the second largest settlement area in Dacorum with a population around 20,500. The town has good inter-urban transport links, being served by London Northwestern railway services south towards Hemel Hempstead, Watford and London, and north towards Milton Keynes and Birmingham. The town is situated adjacent to the A41 which links the town to other parts of the Borough, to Buckinghamshire and to the M25.

1.3 Berkhamsted is an attractive valley town with a rich built heritage, surrounded by the Chilterns Area of Outstanding Natural Beauty. The town's linear settlement pattern has strongly influenced historic growth up and along the valley sides. Key transport links, the River Bulbourne and the Grand Union Canal run along the valley floor.

1.4 Berkhamsted's historic core is densely built-up and contains many high quality and listed properties. The area is served by a town centre that provides an important district, cultural and service centre role and supports a thriving evening economy. A variety of businesses can be found in the town centre, in the employment areas around Billet Lane and at the British Film Institute Archives. The railway station is located fairly centrally within Berkhamsted to the east of the town centre.

1.5 Tring is a small, compact market town on the north-west edge of the borough with a population of around 12,000 and is the third largest settlement in Dacorum.

1.6 The town is surrounded by the Chilterns Area of Outstanding Natural Beauty and set within the Tring Gap foothills, between the low-lying Aylesbury Vale and the northwest face of the Chiltern escarpment.

1.7 Unlike Berkhamsted, Tring's mainline railway station is situated some distance to the east of the town which has a profound impact on the town's connectivity. Like Berkhamsted, Tring is bypassed by the A41, with two junction connections. The Grand Union Canal also runs north east passing close to the Tring Reservoirs Site of Special Scientific Interest (SSSI).

1.8 Tring has a backdrop of architecturally rich buildings. The town centre has a strong individual character with many shops and small businesses along the High Street and alleyways. There is also a variety of employment areas, the largest being Icknield Way Industrial Estate to the west of the town.

Figure 1-1 - Berkhamsted, Tring and the surrounding area

Planned housing and employment – Dacorum's Local Plan

1.9 Berkhamsted and Tring are important local settlements in Dacorum and will each accommodate additional homes and jobs in the future in order to meet local needs.

1.10 Dacorum Borough Council's Local Plan, 'Dacorum Local Plan 2020-2038', sets out the Council's planning framework for the borough. Its role is to establish the overall pattern of development within the borough over the period 2020–2038. The Local Plan outlines how the Council will address local and strategic development needs including housing, employment, leisure, and retail provision. It goes beyond traditional land use planning and considers other plans and strategies that influence the use of land and the way that places around us look and work, including transport.

1.11 The Local Plan covers the physical aspects of location and land use but also addresses other factors that make places attractive, sustainable and successful, such as social and economic matters.

1.12 Around 4,000 new homes and 5 hectares of employment land is proposed across Berkhamsted and Tring.

Why the Sustainable Transport Study is needed

1.13 With additional homes and jobs comes additional travel demand placed upon the local transport network.

1.14 As a supporting evidence base document for the Dacorum Local Plan 2038, the Sustainable Transport Study is needed to ensure there is a robust basis for decision making in Berkhamsted and Tring as part of the Local Plan. The Sustainable Transport Study sits alongside other transport evidence documents including the South West Hertfordshire Growth and Transport Plan and Hemel Hempstead Sustainable Transport Plan.

1.15 The Sustainable Transport Study is pivotal in identifying sustainable and deliverable improvements to the local transport network and services that both help to facilitate the planned new homes and jobs, but also address more cumulative impacts that may occur as more people travel within, between and through both towns in the future.

1.16 Whilst this is a single Sustainable Transport Study document, the distinct characteristics and challenges of Berkhamsted and Tring are fully recognised. The Sustainable Transport Study therefore presents separate analysis and identifies options for each town.

1.17 The provision of high-quality transport infrastructure and services is essential to the functioning of towns, and in the successful delivery of sustainable and well-connected housing and employment development.

1.18 Transport helps facilitate a wide variety of journey purposes, be it people travelling to work, to school, for leisure and for access to vital services such as healthcare.

1.19 Businesses are reliant upon an efficient, safe and reliable transport system in order to attract employees and customers, as well as for the transport of goods and services. In addition to supporting existing requirements, high quality transport or a lack thereof can also help unlock or be a constraint on new opportunities including the development of new communities, for economic growth and for individual wellbeing.

1.20 Having good planning practices in place and involving key local stakeholders can help identify the essential conditions for an efficient and sustainable transport system and to facilitate development growth proposals.

1.21 This has therefore provided the backdrop to developing the Sustainable Transport Study, the aims of which are to outline:

- **The current and future transport challenges in each town, in relation to specific growth and cumulatively;**
- **The impact of planned growth on the transport network;**
- **How the aspirations for how sustainable travel will support sustainable growth; and**
- **The infrastructure and service improvements which will be required to help facilitate growth and effectively address challenges both in relation to specific development sites and cumulatively.**

1.22 It is essential that the Sustainable Transport Study has been developed in line with local and regional policy, including Dacorum Borough Council's Local Plan 2038 and Hertfordshire County Council's Local Transport Plan 4 (LTP). Furthermore, the development of the Sustainable Transport Study follows best practice set by the Department for Transport in the Transport Appraisal Guidance.

1.23 This document is structured as follows:

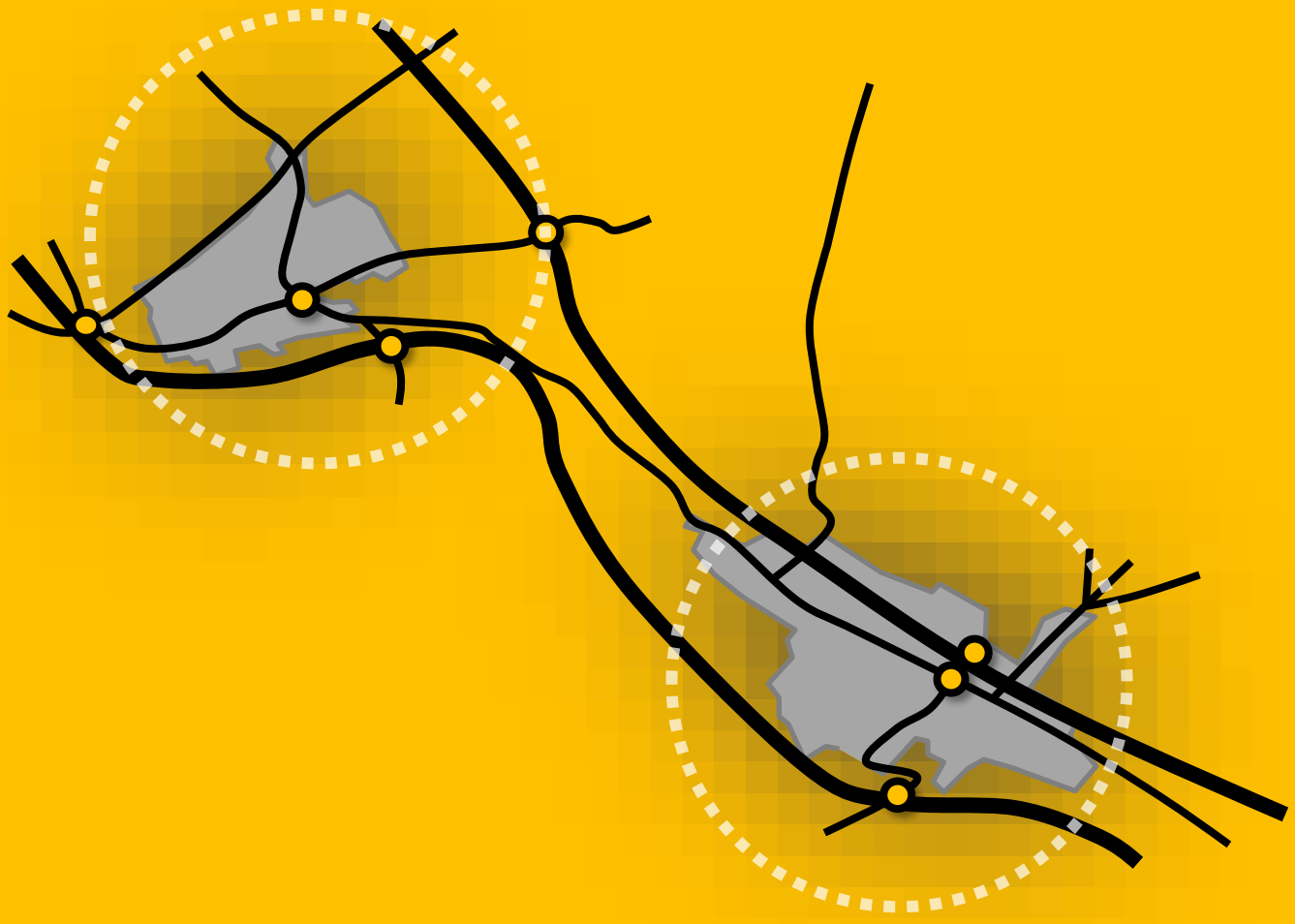
- **Chapter 2** briefly sets out the **Methodology** used to develop the Sustainable Transport Study
- **Chapter 3** provides a **Key Evidence Summary** including existing travel behaviours and patterns;
- **Chapter 4** describes a series of **Objectives** linked to policies which has been developed to help guide the development of the Sustainable Transport Study;
- **Chapter 5** details the **Key Challenges** across Berkhamsted and Tring in relation to the transport network and identifies those which should be addressed
- **Chapter 6** sets out a series of intervention **Options** which seek to increase sustainable travel options and improve the local transport network
- **Chapter 7** considers the **Cost, Delivery and Funding** aspects of bringing forward the intervention options
- **Chapter 8** provides a **Conclusion** to the Sustainable Transport Study

- A set of **Appendices** are provided:

– **Appendix A – Challenge Audits – Berkhamsted**
– **Appendix B – Challenge Audits – Tring**
– **Appendix C – Intervention Proforma - Berkhamsted**
– **Appendix D – Intervention Proforma – Tring**
– **Appendix E – Intervention Proforma – Wider Area**
– **Appendix F – Intervention Assessment Framework**
– **Appendix G – Intervention Cost Estimates**

2

Methodology



2. Methodology

2.1 The Sustainable Transport Study has been developed across five main stages which are described in Figure 2-1 below. The stages broadly align with the Department for Transport's Transport Appraisal Guidance [1].

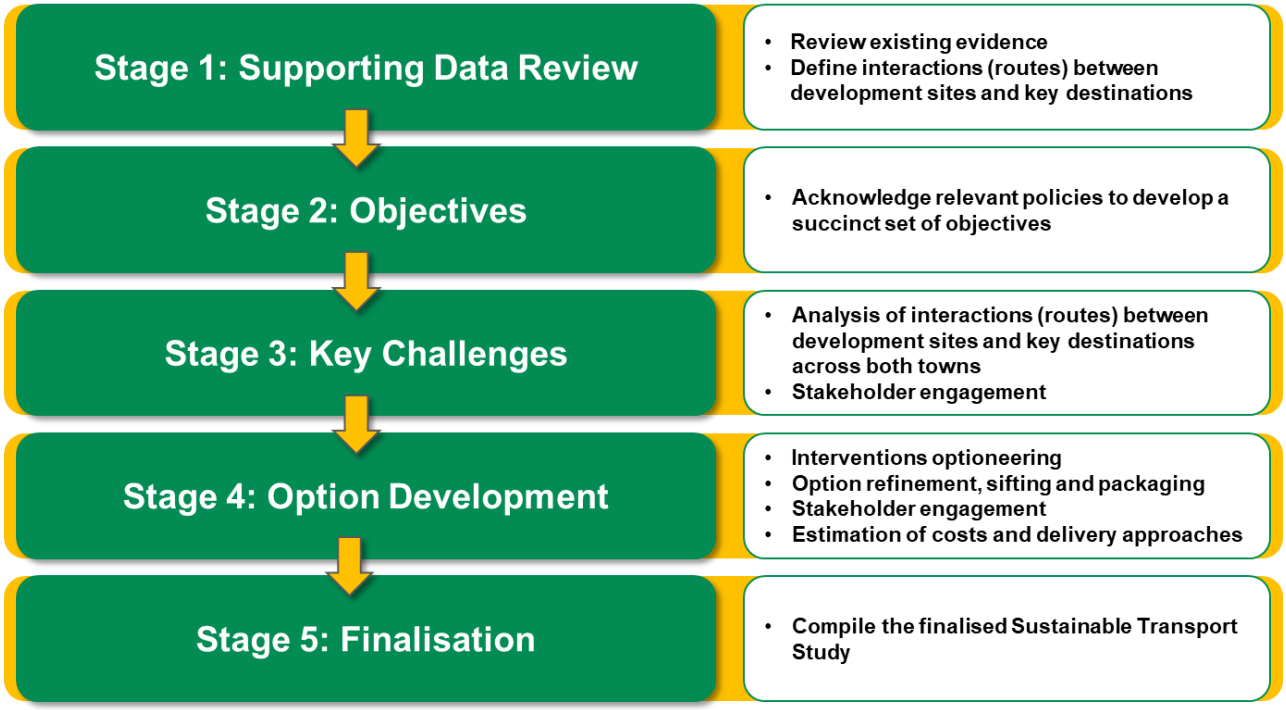


Figure 2-1: Berkhamsted and Tring Sustainable Transport Study Staged Approach

Stage 1

2.2 Stage 1 comprises a review of datasets to confirm the current population; why and how people travel; where people travel to/from; key destinations which generate the need to travel; how travel may change in the future; and planned housing and employment development.

2.3 The analysis looks at Berkhamsted and Tring individually, but also considers how the towns interact with each other and the surrounding area which is influenced by the pattern and availability of transport network and services. This data analysis is important as it establishes what the core transport themes are and types of issues that the Sustainable Transport Study needs to address.

2.4 The culmination of Stage 1 is the definition of Interactions. Interactions are routes that people typically use to travel from one place to another by any mode of travel, for instance on foot, by bike, bus or in a car. The definition of Interactions is mainly governed by the key development locations defined in Dacorum Borough Council's Local Plan and a set of important destinations such as town centres, railway stations, local employment areas and other key sites. These interactions therefore provide the focus for assessing existing conditions of the transport network (Stage 3) and developing future improvements (Stage 4).

2.5 Details of Stage 1 are provided in **Chapter 3**.

[1] TAG transport appraisal process, May 2018 https://www.gov.uk/government/publications/webtag-transport-appraisal-process-may-2018

Stage 2

2.6 It is important not to lose sight of why maintaining and improving the local transport network is important and that it should be done in a way which is sustainable, deliverable and effective. To help ensure this is achieved, and to attain a level of consistency, it is important that the Sustainable Transport Study is guided by important policies which are defined in Dacorum Borough Council's Local Plan and Hertfordshire County Council's Local Transport Plan. Stage 2 involves confirming which policies are important and relevant to the delivery of sustainable development and transport in Berkhamsted and Tring and defining a succinct set of objectives which are relevant to both towns. These objectives have been used to assess the intervention options at Stage 4.

2.7 Details of Stage 2 are provided in **Chapter 4**.

Stage 3

2.8 Having defined the Interactions at Stage 1, the process of auditing the Interactions is carried out at Stage 3. This involves looking at what type of transport network and services are currently provided, and whether these present a constraint and opportunity for improvement so that when planned development comes forward, people will be able to make sustainable travel choices along Interactions to each key destination.

2.9 An interaction can comprise a single route or a set of route options within a corridor between two locations. In the theoretical example below, the interaction is defined by a proposed housing development on the edge of town at one end and the railway station at the other. There are a range of routes people could take to travel between these locations (in either direction), including on foot, by bike, on a bus or by car. Other local destinations could be located in between such as schools and shops.

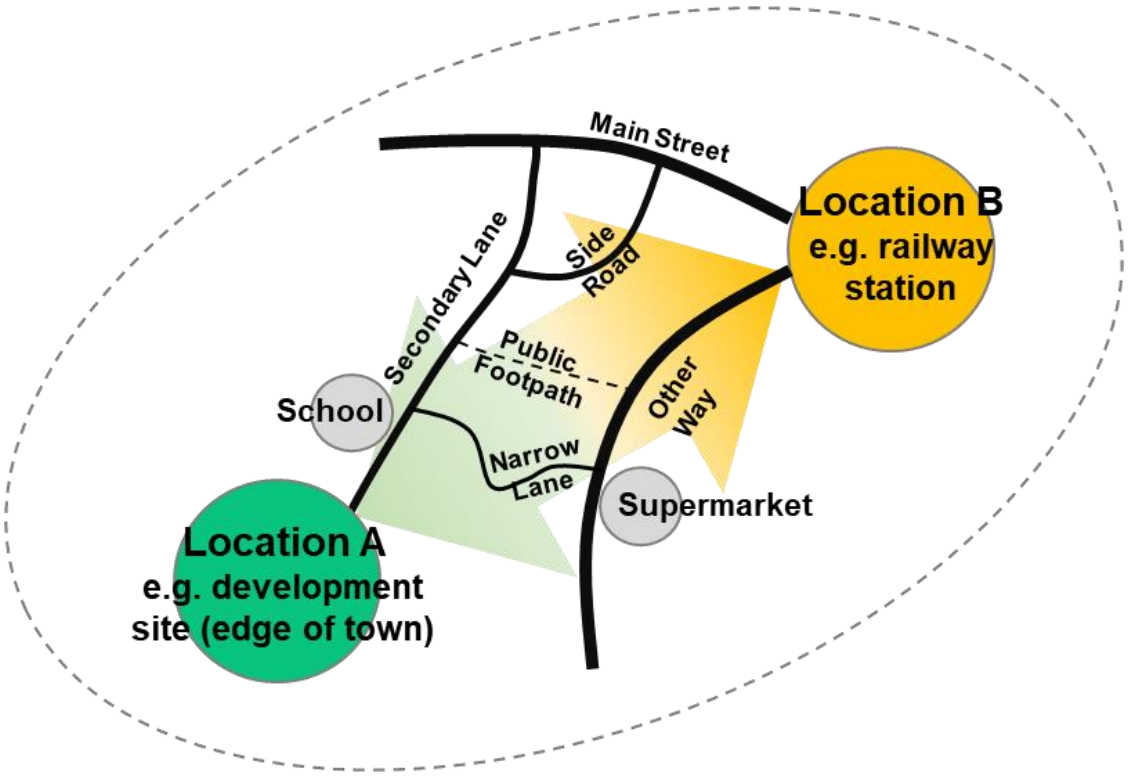


Figure 2-2: Example of an Interaction

2.10 The audit comprises a checklist of key features to observe along the interaction, ranging from the presence and quality of footways (i.e. footway width, surface quality, vehicle pavement parking and any other significant obstructions), the layout of the carriageway (including width, surfacing, road markings, car parking), designated speed limit, street lighting, crossing points for pedestrians (and the form they take, are they quite limited in number creating longer

distances for people to walk, do they follow particular desire lines) and bus stop features to name but a few. A separate audit checklist is used to assess public highways, footpaths (which are off the highway) and key junctions.

2.11 The audits have been undertaken through a combination of using online streetview photography and site-visits[2]. This has been subsequently validated by local knowledge provided by local officers.

2.12 The audit may identify issues with the lack of suitable crossings for pedestrians and cyclists; high traffic volumes; infrequent bus services; or a lack of facilities at key public transport stops and interchanges. It will not be feasible for the Sustainable Transport Study to address all potential challenges identified as part of this analysis however it will provide a reasonably comprehensive understanding of the challenges which exist to varying degrees of severity and importance.

2.13 Alongside the audit of interactions, Hertfordshire County Council's Place and Movement Assessment has been used to consider each interaction's surroundings and its function not only in enabling people to move from one place to another, but also what land uses exist along the interaction which create a sense of place.

2.14 The Hertfordshire network includes a wide variety of different types of roads. The land uses surrounding roads varies, as do the levels of traffic that typically use them as well as the standards of provision for different users including pedestrians, cyclists, private car drivers, buses, emergency vehicles, large freight vehicles. The highway networks in Berkhamsted and Tring are no exception.

2.15 With significant planned levels of housing and employment growth coming forward, the highway network faces a range of challenges in accommodating additional movements between places and along links. Many roads already experience significant levels of traffic congestion and this can have negative implications on surrounding communities. If congestion levels continue to increase, this may force people to find alternative and less suitable routes which can have negative impacts on communities.

2.16 Defining the intended function of highway links can help to inform the process of appraising the appropriateness of proposed infrastructure interventions and identify alternative interventions which can reinforce intended functions or seek to reprioritise routes for the betterment of communities.

2.17 The purpose of defining the network hierarchy is to identify links or junctions where there is considered to be a 'clash' between different functions which could potentially impact on particular users in a positive or negative way.

2.18 A set of nine road types have been defined. These road types sit within a matrix which qualitatively assesses Place and Movement from low significance to high significance (see overleaf).

[2] The Sustainable Transport Study was developed between April and July 2020 and was therefore impacted by the COVID-19 pandemic which restricted people's movements. The intention was to conduct all audits on-site, however greater reliance was placed on on-line tools and supplemented by limited site visits which took place in August 2020.

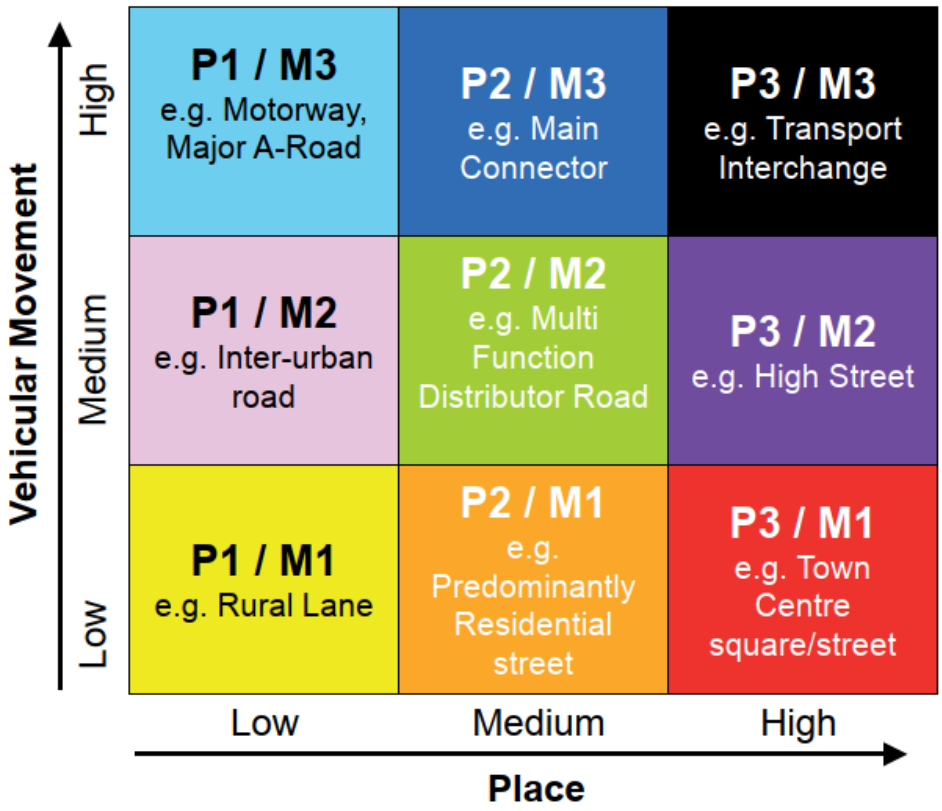


Figure 2-3: Hertfordshire Place and Movement Assessment matrix

2.19 **Place** relates to those functions that are specific to and happen in particular places, including residential and retail. Roads have an impact economically as well as on quality of life, with place-making an increasingly important element in local policy making. Roads are also the foreground to the built environment, and the most successful streets are those that respect and refer to it.

2.20 **Movement** relates to the moving functions across different modes. In the context of the Hertfordshire Place and Movement Assessment, this is orientated around vehicle movements. Roads perform a wide range of movement functions from roads carrying very high volumes and mixes of vehicular traffic as well as people, to more urban streets which only have a local movement function and could give greater priority to the needs of pedestrians and cyclists.

2.21 The Place and Movement Assessment acts as an additional evidence tool for informing the audit of interactions and guiding the development of appropriate interventions which recognise the unique place and movement characteristics along a distinct stretch of highway. When considering the audit's observations in the context of the Place and Movement Assessment, it may be determined that an interaction is not providing the appropriate features to meet the needs of particular users according to its place context.

2.22 Details of Stage 3 are provided in **Chapter 5**.

Stage 4

2.23 Stage 4 develops the intervention options which are required to address the challenges along each Interaction. The development of options has been guided by the Sustainable Transport Study's objectives which in turn align with county and borough policies.

2.24 Developing intervention options has involved planners and engineers working together to identify appropriate and feasible solutions to the challenges, using knowledge of best practice solutions implemented successfully elsewhere. Being guided by the Sustainable Transport Study's objectives has ensured that types of interventions which are less likely to align with the objectives and policies should not be defined, or have been quickly ruled out in early brainstorming prior to interventions being developed in more detail.

2.25 An intervention can encompass physical improvements to the transport network such as a new pedestrian crossing or an improved or new bus service, and 'soft measures' such as an initiative which encourages people to travel more sustainably. In some instances, more than one version of an intervention (i.e. options) has been identified.

2.26 Enabling people to travel more sustainably on foot, by bike or on a bus is the key focus of this Sustainable Transport Study, especially for local journeys made within the towns, which is discussed in more detail in Chapter 4 (Objectives).

2.27 Interventions are defined on detailed maps and in some cases are grouped with other interventions to form packages which recognises important linkages between interventions.

2.28 A cost estimate is provided for each intervention. These estimates are based upon similar interventions developed elsewhere and assume a consistent cost base in terms of inflation, professional fees, design development and construction contingency, as well as a range of exclusions because the Sustainable Transport Study is not defining the intervention in a very detailed way which is proportionate to the level of evidence required to support a Local Plan. Using the cost estimate, consideration has been given to the potential value for money of a proposed intervention. If the cost of a scheme is high and the predicted effects are considered quite small, this has been flagged however the intervention will not necessarily have been rejected.

2.29 The potential delivery route for interventions is also defined, including the bodies responsible for bringing them forward and potential funding options.

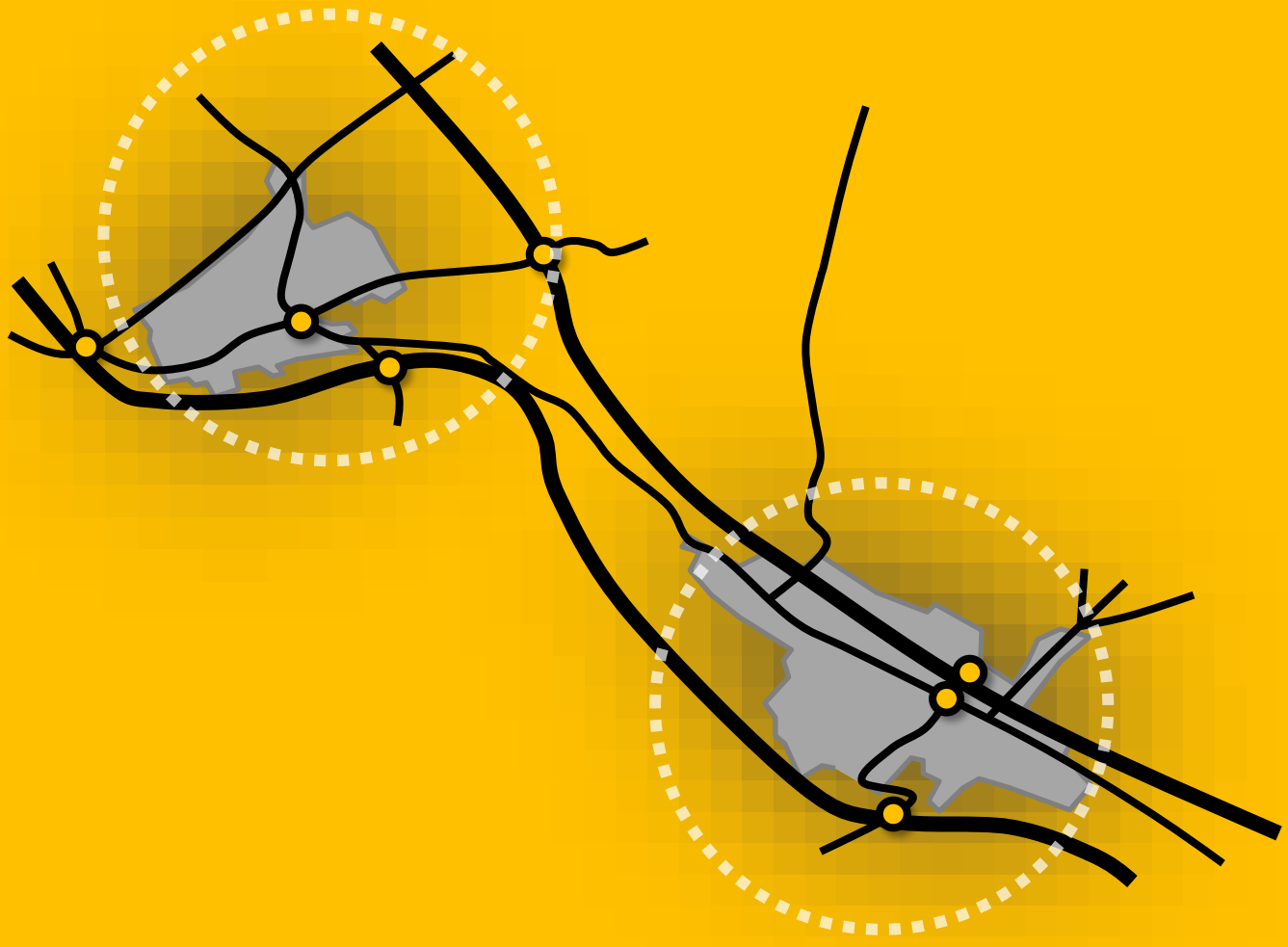
2.30 Details of Stage 4 are provided in **Chapters 6 and 7**.

Stage 5

2.31 The finalised Sustainable Transport Study is then brought together, as presented in this document, at **Stage 5**, having also been through several phases of stakeholder engagement, including Berkhamsted and Tring Town Councils, local bus and train operators, the land owners/promoters of the key development sites coming forward and of course Dacorum Borough Council and Hertfordshire County Council.

3

Evidence Summary



3. Evidence Summary

Introduction

3.1 In order to consider the transport challenges and priorities in Berkhamsted and Tring, it is important to review the current and future local context and conditions. The current local context and, where appropriate the future trends, are briefly discussed in this chapter under the following topic headings:

- **Socio-economic context**
- **Transport and land use**
- **Commuting Pattern**
- **Travel to Education**
- **Place and Movement**
- **Environment**
- **Planned Developments**
- **Defining the Interactions**

Socio-economic context

3.2 Berkhamsted has a population of around 18,600 (mid 2018 estimates[3]) and is almost twice the size as Tring which has a population of around 11,929. Berkhamsted's demographic consists of 60.8% people who are of working age which is lower than the proportion across Hertfordshire of 62.4% and across Dacorum of 62.5%.

3.3 Tring has a population of 12,100 (mid-2018 estimate) and is similarly structured to Berkhamsted, consisting of 60.3% of working age.

Transport and land use

Berkhamsted

3.4 Berkhamsted is a predominantly residential market town, with a busy High Street which runs through the centre of the town in close proximity to the railway station. The town is quite elongated, having expanded within a valley, and is approximately 5km from its north western-most edge to the south eastern-most edge.

3.5 Industrial and employment land uses are mainly concentrated in the western part of Berkhamsted, clustered around Billet Lane which is wedged between the West Coast Main Line and Grand Union Canal.

3.6 The town centre is fairly centrally located, if a little skewed more towards the south of the town, within a maximum distance of around 2.75km from all residential parts of the town. Other than small convenience stores, all major retail facilities are located in the town centre.

3.7 Leisure facilities are mainly in the central area of the town.

3.8 Schools are located across the town, including Berkhamsted Boys School which is located between the river and High Street to the north of the town centre, Berkhamsted Girls School which is located to the south of the High Street and west of the town centre, and Ashlyns School which is a mixed secondary school with a sixth form college which is located on the southern edge of the town.

[3] Herts Insight – http://astlas.hertslis.org

3.9 The railway station is located close to the town centre off Lower Kings Road which connects into the High Street. The main station car park is located on the northern side of the station off of Brownlow Road.

3.10 The town is concentrated around the A4251 Gossoms End / High Street / London Road, which prior to the construction of the A41 bypass, was a main through-route. It still serves a very important function today, facilitating many trips into and out of Berkhamsted, as well as connecting Berkhamsted to the neighbouring towns of Tring and Hemel Hempstead.

3.11 The A41 dual carriageway bypasses Berkhamsted to the south and has limited access points. The nearest junction serving Berkhamsted is accessed via the A416 Kingshill Way / Kings Road corridor which connects into the High Street adjacent to Berkhamsted Library. The A416 extends to the west of the A41 towards Chesham, Buckinghamshire. The A41 can also be accessed further south at Bourne End.

3.12 Other key routes feeding into Berkhamsted include the B4506 which links to the Ashridge Estate, Ringshall and eventually Dunstable. It connects into the A4251 in the north-western part of the town. Gravel Path (which connects into the High Street at Ravens Lane) connects Berkhamsted with a large rural area to the north of the town, including the village of Potten End.

3.13 A more minor route is Shootersway, which connects the southern part of Berkhamsted with a network of rural lanes serving small hamlets, farms/agricultural land and rural businesses including the Champneys Spa.

3.14 An important landscape feature of Berkhamsted to note is that it is situated in a valley with the A4251 Gossoms End / High Street / London Road at the bottom of the valley. Invariably, someone travelling from the southern or northern edges of Berkhamsted towards the town centre will travel downhill at a fairly steep incline, and will inevitably have to travel uphill in the opposite direction.

3.15 Key trip attractors in Berkhamsted include the Town Centre High Street including three medium-sized supermarkets (M&S Food Hall, Waitrose and Tesco Metro), other smaller chain and independent shops, and the railway station.

3.16 The aforementioned schools will attract pupils not only from Berkhamsted but also from surrounding rural areas. Berkhamsted Castle, a local tourist attraction which is operated by English Heritage, is located very close to the railway station. Berkhamsted is also ideally located to explore The Chilterns Area of Outstanding Natural Beauty (AONB). The Grand Union Canal runs through the centre of Berkhamsted and is flanked by a towpath which offers a quiet leisure route for people travelling through the town.

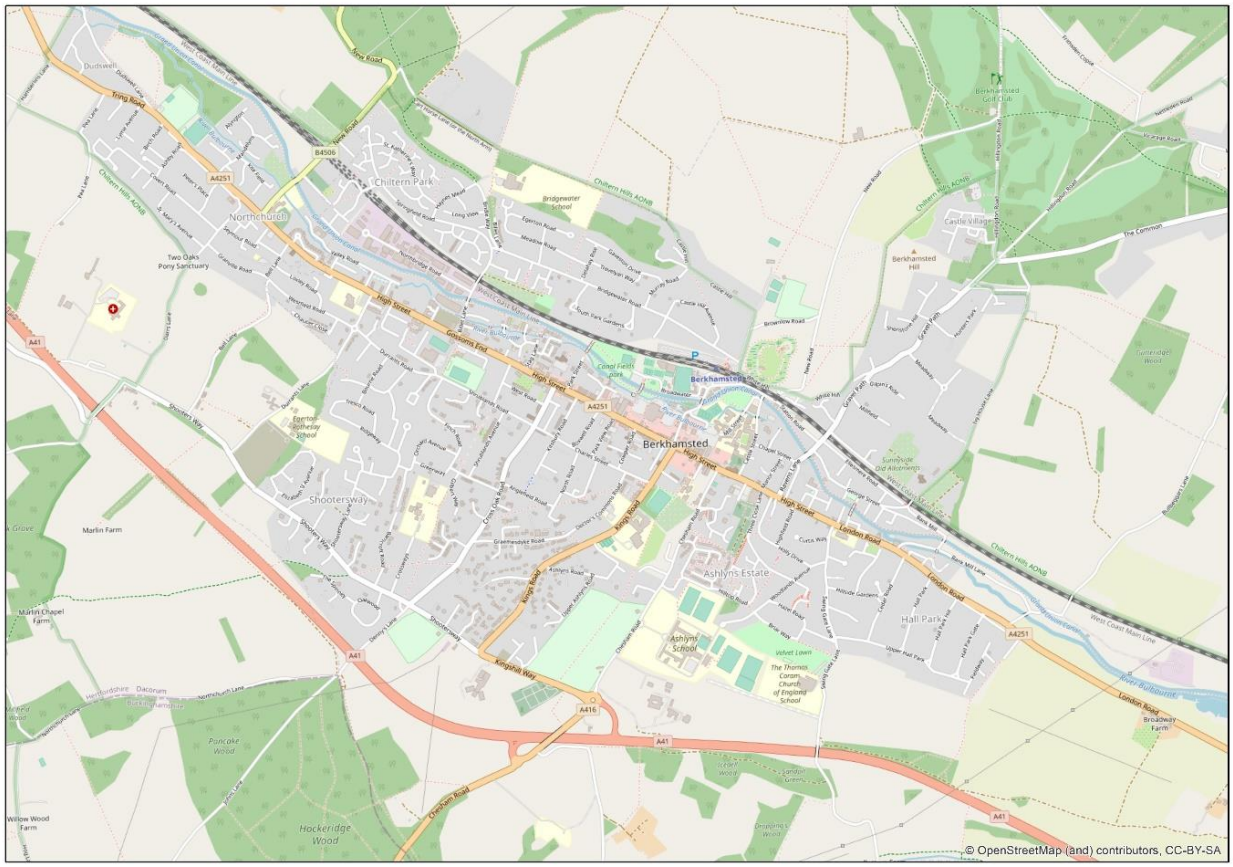


Figure 3-1: Map of Berkhamsted

Tring

3.17 Tring is a smaller market town compared with Berkhamsted but still has a vibrant town centre towards the south of the town. Residential areas are located to the north, west and east of the town centre. There is an industrial estate in the north-west of the town off Icknield Way which is an important employment site in Tring.

3.18 The town is surrounded by green space, notably Tring Park which is to the south of the town.

3.19 Other than the town centre, a large Tesco supermarket is located on the southern edge of Tring off London Road which serves not only Tring, but also surrounding villages including those in neighbouring Buckinghamshire.

3.20 The town centre is concentrated around the B4635 Western Road/High Street corridor which connects to the A41 to the west of Tring (at Tring Hill). High Street leads into Station Road which eventually reaches the railway station. The station is located approximately 1.3km from the edge of town, 2.5km from the town centre and up to 4km from the furthest point within Tring.

3.21 Access to the station is currently limited to cycling, bus services (which are very much geared towards weekday commuter times) and car (as a passenger including taxis and as a driver). Walking the station is less likely to be convenient from many parts of Tring given the long distance.

3.22 Feeding into the town centre is London Road which connects Tring to the A41 to the south.

3.23 Tring is bordered to the north by the B488 Icknield Way which also connects to the A41 to the west of Tring and to the north-eastern tip of Tring at New Mill where Wingrave Road/Brook Street provides another route into the centre of the town.

3.24 Like Berkhamsted, the A41 bypasses Tring thus removing longer distance through traffic. B488 Icknield Way runs along the north-western edge of Tring and connects parts of southern Bedfordshire with the A41. This acts like an informal bypass although it is important to note that houses flank the southern side of the road along much of its length.

3.25 Key trip destinations in Tring include the town centre and Natural History Museum, railway station (for connections to other towns), Tring Park, Tring Sports Centre on Mortimer Hill and the Tesco supermarket.

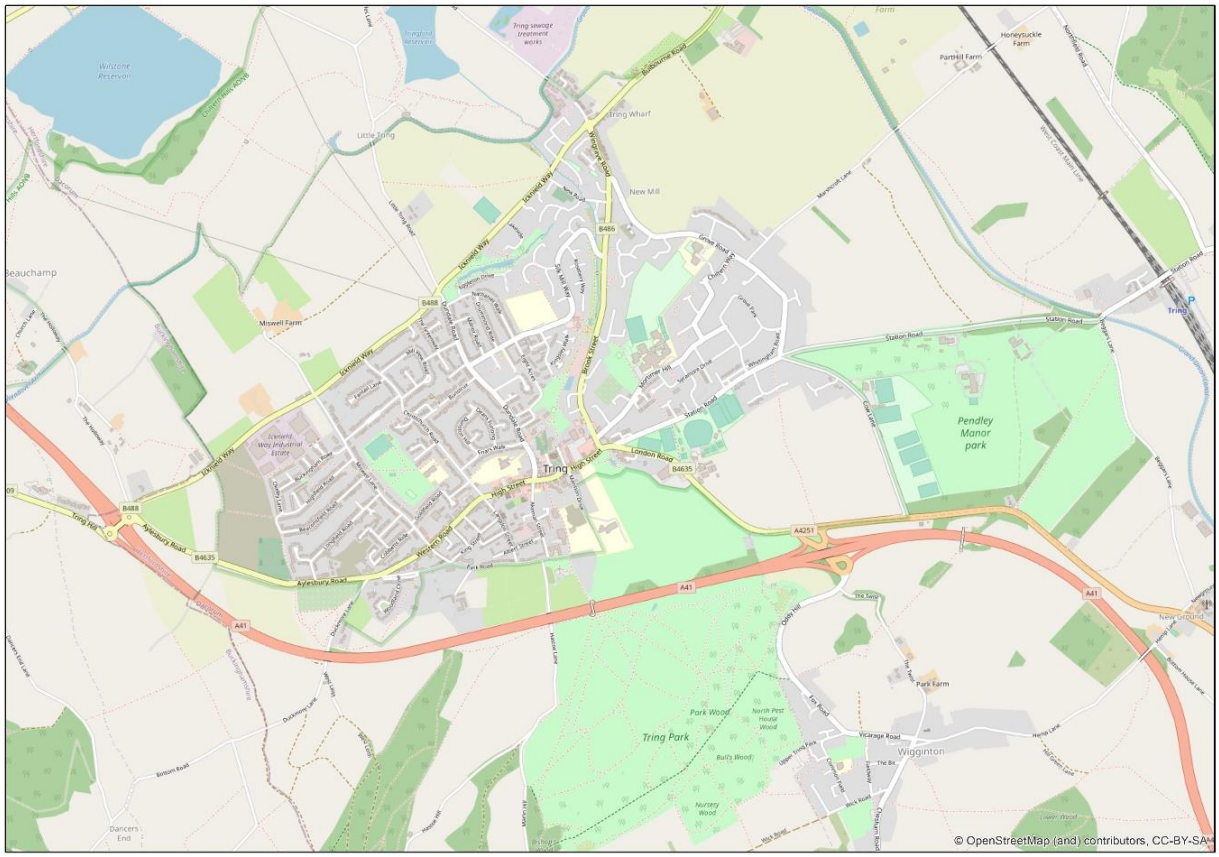


Figure 3-2: Map of Tring

Public Transport – Railway

3.26 Both Berkhamsted and Tring are served by the West Coast Main Line which provides both fast and stopping train services to Leighton Buzzard, Milton Keynes and Northampton to the north, and Hemel Hempstead, Watford and London Euston to the south. London Northwestern Railway is the primary train operator which serves both stations.

3.27 Table 3-1 provides further information on parking at the train stations and Table 3-2 provides information on travel time to the stations.

Table 3-1: Parking at the train stations

Train Station	Number of car parking spaces	Car park daily cost	Number of cycle storage spaces
Berkhamsted	403	£8.50	98
Tring	513	£8.50	120

Table 3-2: Approximate travel time to the train stations

Train Station	Walk travel time from town centre	Cycle travel time from town centre	Bus travel time from town centre	Bus frequency
Berkhamsted	5 minutes	2 minutes	N/A*	N/A*
Tring	36 minutes	10 minutes	8 minutes	Once every 2 hours (off peak)

				and 3-4 per hour (peak)

*Bus travel time and frequency not given for Berkhamsted as the walking distance is very short

3.28 From both Tring and Berkhamsted stations in the peak there are four train services an hour from Tring to London Euston and three northbound, two to Milton Keynes Central and one to Northampton.

3.29 Tring station had an annual passenger footfall of 876,526[4] in 2018/19, making it the twenty sixth busiest station in Hertfordshire. The station had recorded a 2.2% growth in passengers compared with the previous year. People who regularly use Tring station not only live in Tring but also surrounding areas including the villages of Pitstone, Aldbury, Wilstone, Buckland and Aston Clinton (where Stoke Mandeville station on the parallel Chiltern Line, between Aylesbury and London Marylebone, is closer as the crow flies).

3.30 A recent survey undertaken by London Northwestern Railway of passengers at Tring station determined how they would typically travel to/from the station[5].

Table 3-3: Usual travel mode to the station

Car (Parked)	Cycling	Car Drop Off	Walk	Other	Bus
46%	28%	10%	7%	6%	3%
Survey based on 478 full response and 78 partial responses					

3.31 The above proportions are by no means surprising given the remote location of the station, in particular the proportion travelling by car either as a driver or passenger (drop off) which represents just over half of all trips.

3.32 Encouragingly, cycling represents almost a third of all trips, mainly from Tring but some also from the villages of Pitstone and Albury. There is still a notable proportion who walk, most likely from the central and eastern-most end Tring which are around 30 minutes' walk from the station. The proportion travelling by bus however is very small, and this may be reflective of the limited number of services which link the station with Tring and other communities, especially outside of the weekday peak periods.

3.33 Berkhamsted station had an annual passenger footfall of 1,778,774[1] in 2018/19, making it the fifteenth busiest station in Hertfordshire. Equivalent data on the mode of travel passengers would typically use to get to/from Berkhamsted station is not available, however it is assumed that the proportion of people walking and cycling will be greater than in Tring, given the station is more centrally located within the town. Nevertheless, the station is still expected to serve a large catchment area covering villages north/north-east and south/south-west of the station (although given how close Hemel Hempstead station is, passengers travelling by car may have preference to travel here than to Berkhamsted and save some money on the rail fare).

3.34 Whilst most train services are linking Northampton and Milton Keynes with London, there is also an early morning direct service to Liverpool Lime Street which stops both at Tring and Berkhamsted. There is also a once an hour Southern stopping service which goes through west London to Clapham Junction and South Croydon.

3.35 Typical train journey times from Tring and Berkhamsted stations to other key stations is set out below.

Table 3-4: Weekday Peak Period Timetabled Journey Times

From / To	Berkhamsted	Tring	Hemel Hempstead	Watford	London Euston
Berkhamsted	-	4 mins	4 mins	16 mins	36 mins
Tring	4 mins	-	9 mins	21 mins	41 mins

[4] Office of Rail and Road (2020) https://dataportal.orr.gov.uk/statistics/usage/estimates-of-station-usage/
[5] London Northwestern Railway (2020) Tring – Stations as Places Opportunity Prospectus

3.36 It is important to note that Hemel Hempstead station is located away from the town centre and major employment areas, so whilst the train journey time between Berkhamsted/Tring and Hemel Hempstead is quite short, when factoring in the 'first mile' and 'last mile' modes used to get to/from the stations at either end, the overall journey time is likely to be much longer and this may be a factor in persuading people to use a car to travel between Berkhamsted/Tring and Hemel Hempstead.

Public Transport – Bus Service

3.37 Figure 3-3 and Figure 3-4 show bus routes in Berkhamsted and Tring respectively. The 500/501 bus runs through the centre of Berkhamsted and Tring on a route from Aylesbury to Watford three times an hour on weekdays, twice an hour on Saturdays and hourly on Sundays. This provides inter-urban connectivity, including between Tring and Berkhamsted which has a journey time of about 20 minutes. It is understood that there is a small proportion of passengers who would use the Arriva service to travel the full length of the bus route between Watford and Aylesbury, with a larger proportion of passengers typically using the service to travel between two neighbouring towns, for example between Tring and Berkhamsted. Unlike the train, the bus service provides a more direct route between Tring/Berkhamsted and Hemel Hempstead town centre.

3.38 In Berkhamsted, the 354, 502 and 532 run through the town, serving residential areas and the town centre. In Tring the 387/389/397 all provide services within residential areas as well as out towards the station (and onwards to Aldbury village). There are other less frequent bus services which provide local connections to the surrounding villages. There is no long-distance coach (e.g. National Express) stop in either Berkhamsted or Tring with Hemel Hempstead the closest hub. There are no frequent bus connections to Chesham which is around 6km from Berkhamsted.

3.39 Only the 500/501 and 61/61a buses are commercially run. The remainder of the buses in the area are supported either by Hertfordshire Country Council, Buckinghamshire Council or Community Action Dacorum. In Hertfordshire, an Enhanced Partnership has been developed with bus operators which aims at using infrastructure improvement and soft measures to increase attractiveness of bus use, raise patronage and therefore make more routes commercially viable.

3.40 Table 3-5 shows the frequency of the 500 and 354 buses. These are the main bus routes in terms of a combination of both frequency and hours of operation in the towns as they run at least once an hour.

Table 3-5: Bus service frequency

Bus Service	Frequency (Monday-Saturday)	Frequency (Sunday)
500/501 – Berkhamsted and Tring	Every 20 minutes (500)	Once an hour (501)
354 – Berkhamsted	Once an hour (from 7:30am – 6.40pm)	No Service
389 - Tring	Every 25-35 minutes (from 06:13 am – 08:55am and between 6:20pm and 7:45pm)	No Service

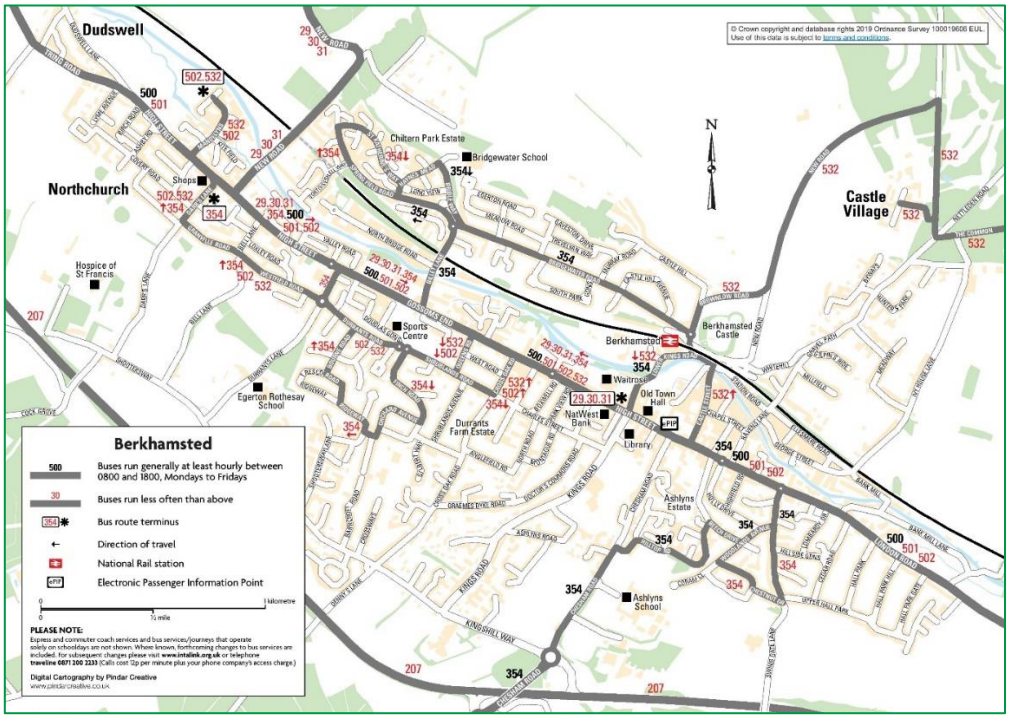


Figure 3-3: Bus routes in Berkhamsted

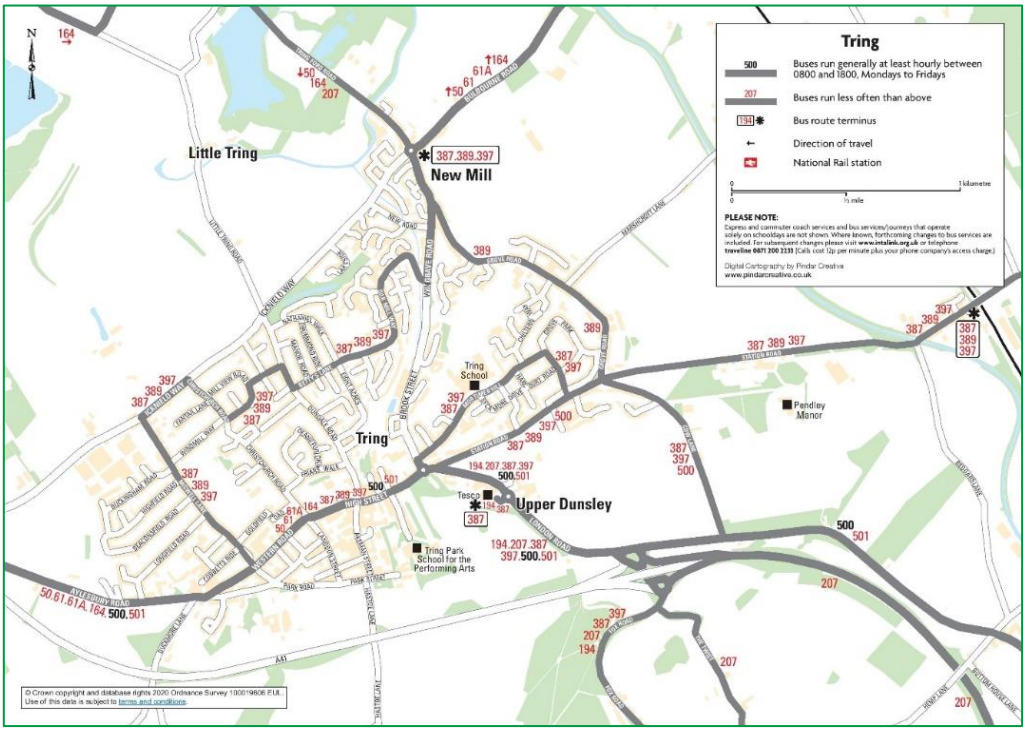


Figure 3-4: Bus routes in Tring

Active Modes

3.41 Cycling infrastructure is sporadic within Berkhamsted and Tring however there are some key commuting and leisure routes.

3.42 There is an off-road cycle route on Station Road from just outside Tring town centre to the railway station which is likely to encourage cycling to the station but does not provide a

complete route currently and stops short of the station. It is also important to note that cyclists mix with pedestrians and the remaining section of route into the station is mixed with traffic.

3.43 In Berkhamsted the Grand Union Canal Tow Path runs through the centre of the town.

3.44 Figure 3-5 and Figure 3-7 show the existing network of Public Rights of Way in Berkhamsted and Tring. Figure 3-6 and Figure 3-8 show the existing cycling network in Berkhamsted and Tring.

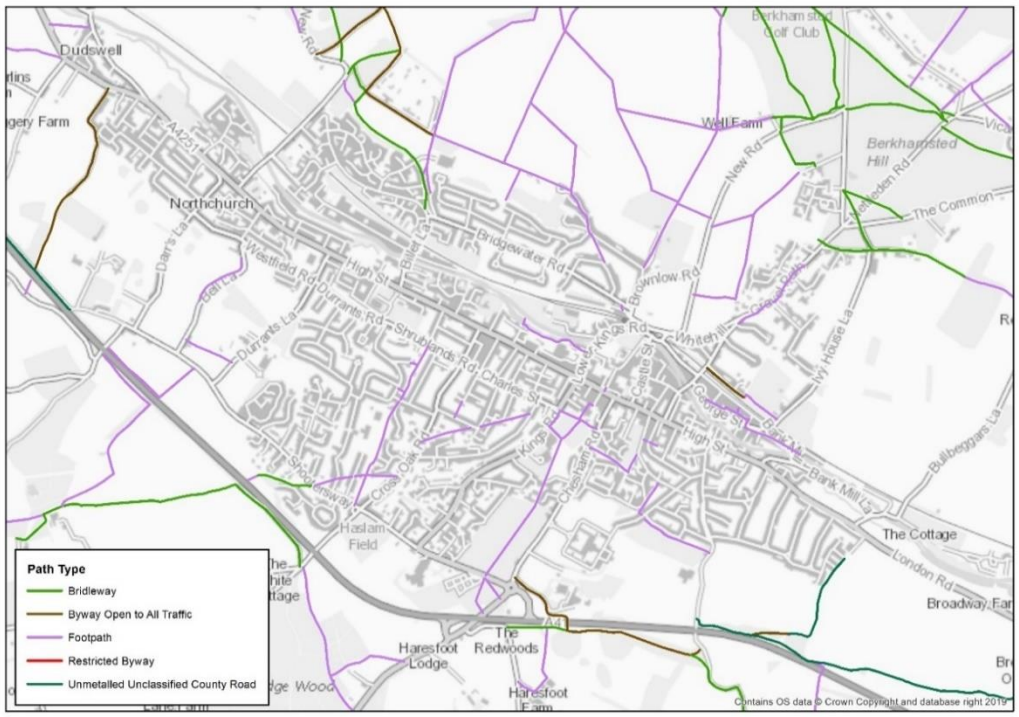


Figure 3-5: Public Rights of Way in Berkhamsted

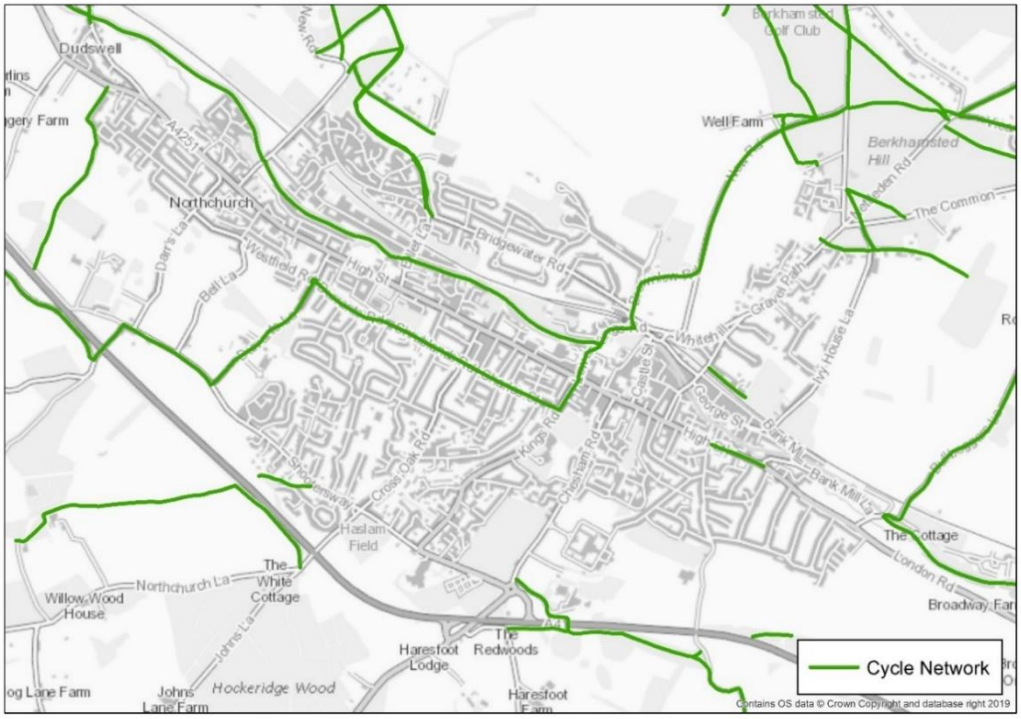


Figure 3-6: Cycle network in Berkhamsted

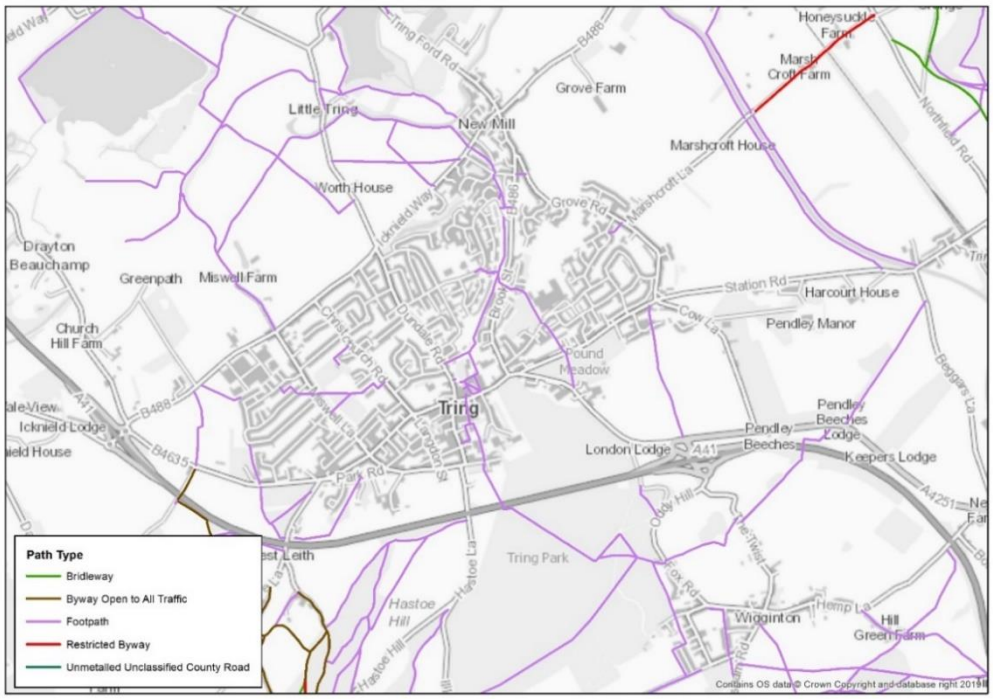


Figure 3-7: Public Rights of Way in Tring

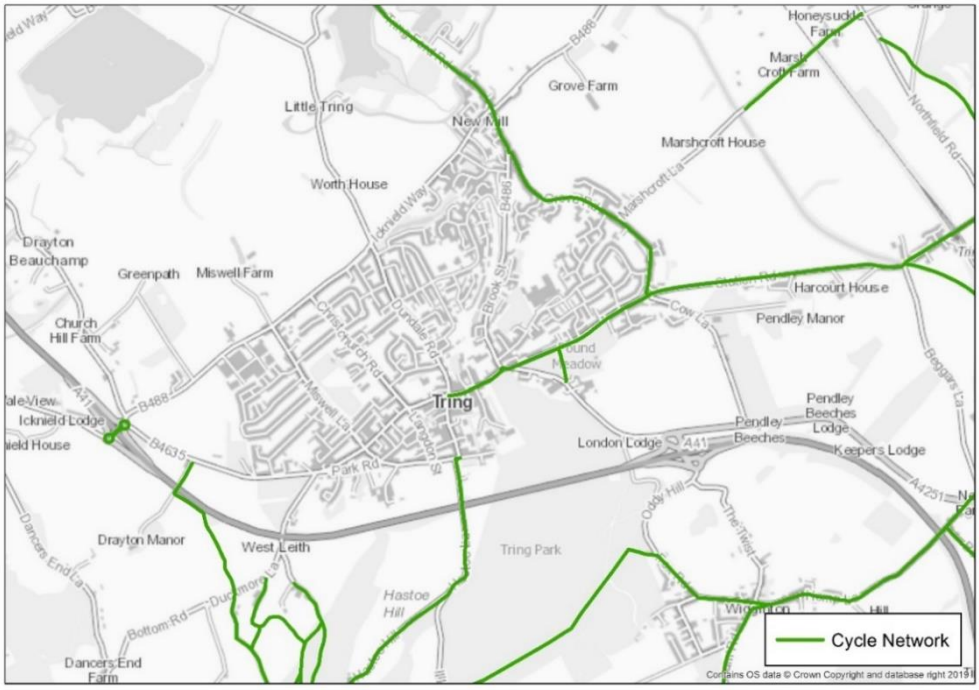


Figure 3-8: Cycle network in Tring

3.45 The Propensity to Cycle Tool [6] provides information on the fastest and quietest routes most used by cyclists, in this case for commuting purposes. The following figures show the key routes used in Berkhamsted and Tring. The thickness of the line provides an indication of relevant level of use. It should be noted that the absolute numbers of people cycling to work in either town is quite low.

3.46 In Berkhamsted, the main High Street corridor offers the fastest route across the town, however the Westfield Road/Durrants Road/Shrublands Road/Charles Street corridor and canal towpath run in parallel with the latter offering a quieter, traffic-free alternative. The canal and high street

[6] Propensity to Cycle Tool https://www.pct.bike/

routes appear to be broadly equal in usage. Many of the key routes cluster around the town centre and especially the railway station. More peripheral roads such as Shootersway and Chesham Road (southern end) are not as well used at present due to the most rural surroundings or dispersed land uses.

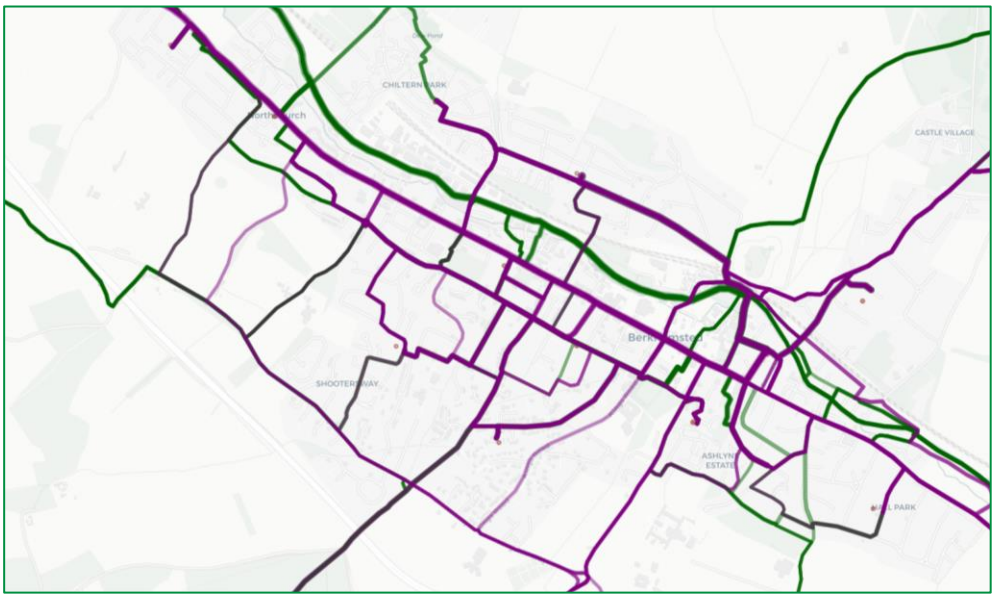


Figure 3-9: Faster (Purple) and Quieter (Green) most used cycle routes across Berkhamsted

3.47 In Tring, all of the town's key distributor roads provide the fastest and most well used routes for commuting cyclists, although Dundale Road/Frogmore Street is not as well used, potentially due to the narrowness of the road compared with other parallel routes. Friars Walk and Goldfield Road offer a fast alternative to the high street. The section of Station road highlighted green indicating that it is faster is likely to be influenced by the fact that this section is served by an off-road cycle route.

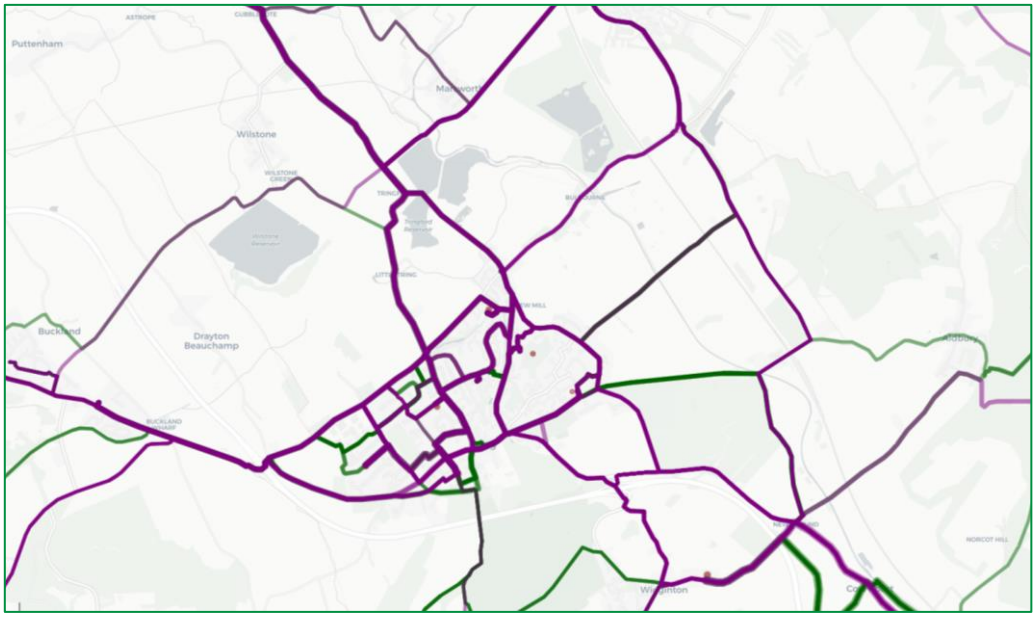


Figure 3-10: Faster (Purple) and Quieter (Green) most used cycle routes across Tring and surrounding area

Car Parks

3.48 Several public and private car parks are provided in both towns as shown in Table 3-6 and Table 3-7 below.

Table 3-6: Berkhamsted Car Parks

Car Park	Public/Private	Number of spaces	Price (2 hours)	Length of stay
Water Lane	Public	96	1.30	Maximum 2 hours
Canal Fields	Public	82	Free	Short stay
St John's Well Lane	Public	104	1.30	Any stay
Berkhamsted Station	Private	495	8.50 (whole day)	Any stay
Waitrose	Private	140	Free (customers only)	Maximum 2 hours
The Moor (temporary)	Public		1.30	Short stay

NB – At the time of writing, Lower Kings Road is currently closed whilst a multi-storey car park is built

Table 3-7: Tring Car Parks

Name	Public/Private	Number of spaces	Price (2 hours)	Length of stay
The Forge	Public	135	1.00	Any stay
Church Yard	Public	43	2.20	Long stay
Frogmore Street (East)	Public	85	1.00	Short stay
Frogmore Street (West)	Public	15	2.20	Long stay
Victoria Hall	Public	6	1.00	Short stay
Old School Yard	Public	40	1.00	Short stay
Tesco	Private	230	Free (customers only)	Maximum 2 hours
Tring Station	Private	508	8.50 (whole day)	Any stay

NB – Tring short stay/any stay car parks are free for up to one hour

Accessibility

3.49 The accessibility to Berkhamsted and Tring town centres and railway stations on foot and by bike are shown in Figure 3-11 to Figure 3-16 overleaf. The maps show journey time isochrones radiating out from the point of destination to the towns and surrounding rural area, therefore providing a visual indication of how long it takes to travel to/from a particular location. Areas shaded red or orange denote a longer journey time and areas shaded yellow and green denote a shorter journey time.

3.50 Figure 3-11 shows bus accessibility in terms of journey time to Berkhamsted town centre (given its close proximity, this plot also provides an indication of accessibility to Berkhamsted railway station).

3.51 The analysis is based on timetabled journey times and may not take account of recent changes to bus timetables (post March 2020). It is important to note that the timetabled hour of 7am-8am was used and therefore does not capture the first morning 354 service from Chesham.

3.52 What the plot clearly shows is that higher level of bus accessibility is largely concentrated along the A41/A4251 corridor and accessibility within the maximum 60 minute journey time sharply tapers off either side of the corridor except for stubs leading to Pitstone and Bovingdon. Given its close proximity, the town of Chesham, in neighbouring Buckinghamshire is not directly

accessible to Berkhamsted within the 60 minute limit specified, whilst areas of Hemel Hempstead, including the Maylands employment area (a key destination for commuting trips) falls within the 40-50 minute range.

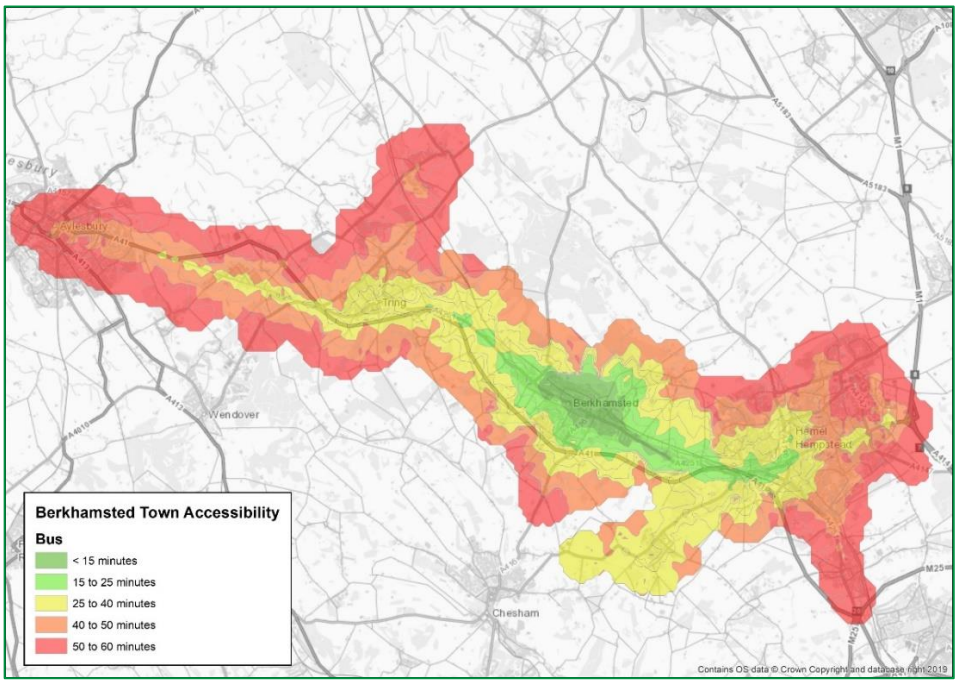


Figure 3-11: Berkhamsted Town Centre Accessibility by Bus

3.53 Figure 3-12 shows cycle accessibility in terms of journey time to Berkhamsted town centre. The analysis assumes that cyclists would have the ability to cycle on any route irrespective of its suitability, for example surface, traffic volumes, on/off-road facilities, topography.

3.54 The plot indicates that a substantial proportion of Berkhamsted is within 10 minutes cycle of the town centre/railway station, although some edge of town areas including Dudswell are between 10-20 minutes cycle. The plot indicates that it would be possible to cycle to Hemel Hempstead town centre within 30 minutes whereas Tring town centre is around 30-35 minutes cycle.

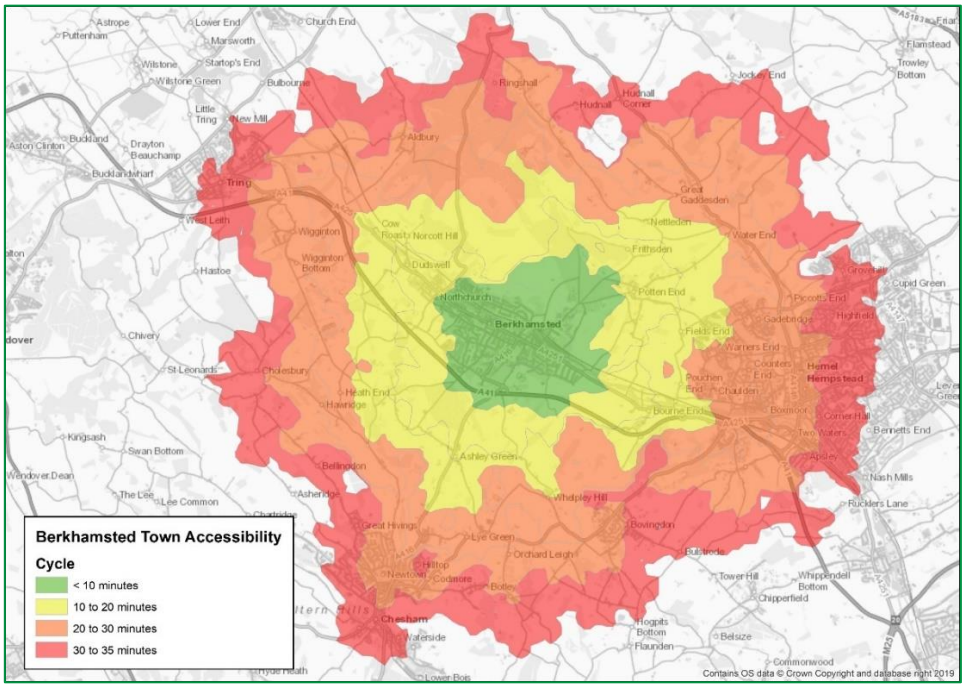


Figure 3-12: Berkhamsted Town Centre Accessibility by Cycle

3.55 Figure 3-13 shows walk accessibility in terms of journey time to Berkhamsted town centre and takes into account public highways and footpaths. As would be expected, compared against the bus and cycle accessibility plots, the area over which can be covered on foot is smaller. Whilst a large part of the town is within a 30-minute walk of the town centre, areas on the edge of Berkhamsted are more than 30 minutes.

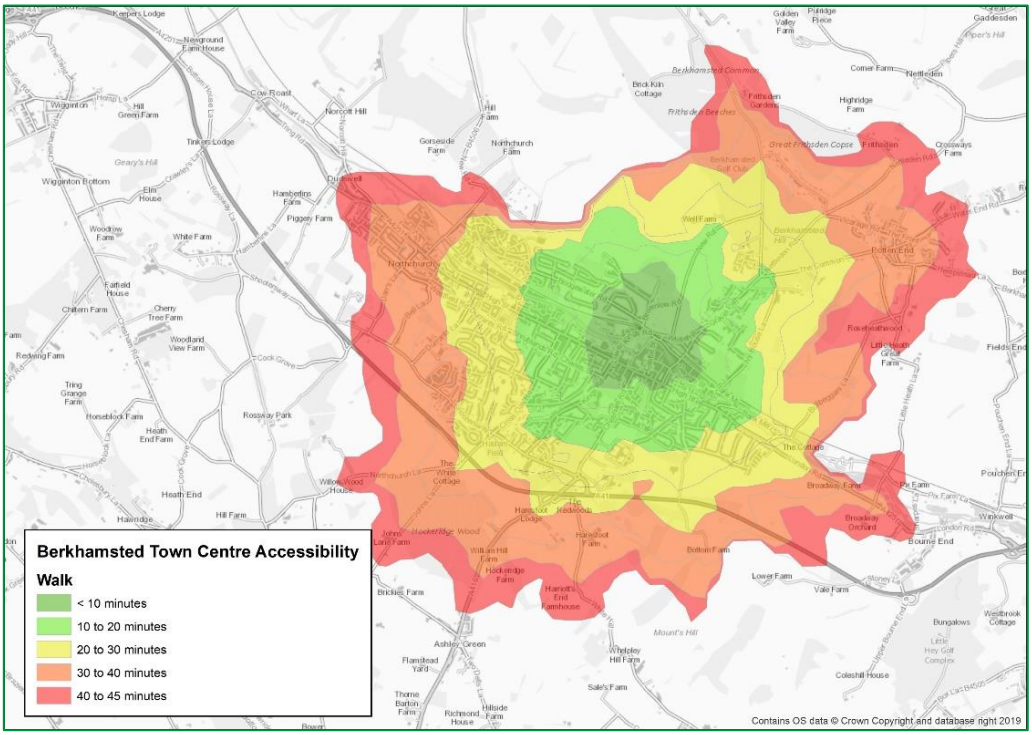


Figure 3-13: Berkhamsted Town Centre Accessibility on Foot

3.56 Figure 3-14 shows bus accessibility in terms of journey time to Tring station. Like the plot for Berkhamsted, bus accessibility is largely concentrated along the A41 corridor but reflecting the rural bus services in operation around Tring, there are pockets of higher accessibility around villages like Pitstone, Wilstone and Marsworth, as well as extending out towards Aylesbury.

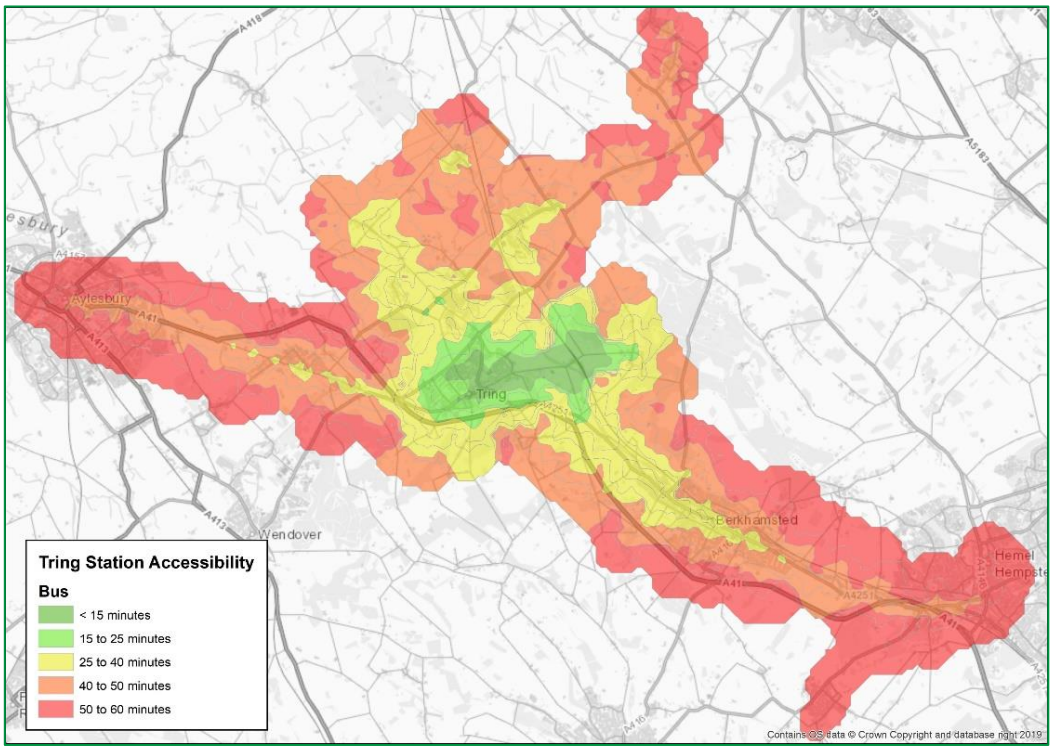


Figure 3-14: Tring Station Accessibility by Bus

3.57 Figure 3-15 shows cycle accessibility in terms of journey time to Tring station. This indicates that the entire town of Tring and its immediate surroundings are within a 20-minute cycle as are the villages of Aldbury and Pitstone. The analysis does not take into account the suitability of roads for cyclists, and clearly the more rural routes to the surrounding villages may not be as attractive to less confident cyclists especially in the presence of fast-moving vehicle traffic.

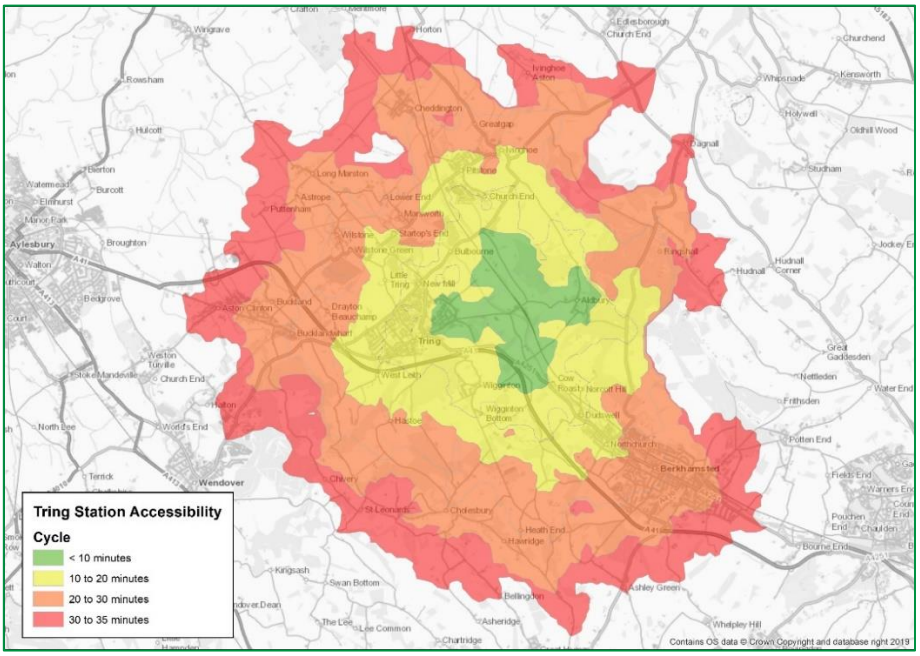


Figure 3-15: Tring Station Accessibility by Cycle

3.58 An equivalent analysis for cycle accessibility to Tring town centre, not shown here, confirms that the entire town is within a 10-minute cycle, and villages including Aston Clinton, Buckland, Wilstone, Marsworth and Wiggington are within a 20-minute cycle.

3.59 Figure 3-16 shows walk accessibility in terms of journey time to Tring town centre. The plot indicates that the majority of the town is within a 20-minute walk of the centre, however some edge of town areas including New Mill and Grove Road are between 20 and 30 minutes' walk.

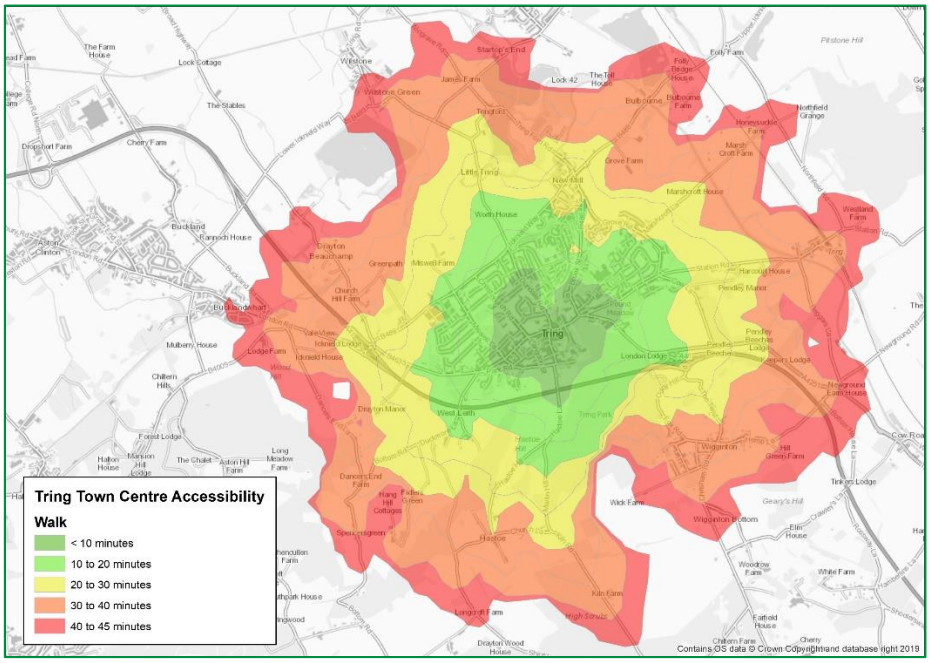


Figure 3-16: Tring Town Centre Accessibility on Foot

Commuting Patterns

3.60 Table 3-8 shows the mode split for journeys to work to and from Berkhamsted and Tring from the 2011 Census (the most recently available data). It shows that the majority of journeys are made by car. There are also relatively high numbers of people who walk to work, suggesting these are local trips within the towns.

3.61 Due to the presence of the West Coast Main Line and frequent services towards major employment locations such as Watford, Milton Keynes and particularly central London, a significant number of residents of Berkhamsted and Tring commute into London. As Table 3-8 shows, 23.5% of Berkhamsted out-commuters and 13% of Tring out-commuters use the train to get to work. A much lower number of people use the train to get to work in Berkhamsted and Tring. Approximately 90% of all rail trips are to Central London and only a small percentage (1-2%) each to Watford, Hemel Hempstead and Milton Keynes.

3.62 It is important to note here that the UK Census records the main mode of travel used for the longest part of the journey in terms of distance rather than the 'first mile/last mile' leg of a longer journey, for example driving or cycling from home to a station to then take a train to London. Given the distances that people typically travel by train, this invariably is recorded as the main mode of commuting. It is possible however that some reporting errors occur and the proportion of journeys by train from Tring could in fact be higher and the car/passenger trips potentially lower for example.

Table 3-8: Mode split for inter-urban trips to work from Berkhamsted and Tring*

% By Mode	Out-commuters		In-commuters	
	Berkhamsted	Tring	Berkhamsted	Tring
Bus	1.70%	1.60%	3.00%	2.50%
Car Driver	61.10%	72.20%	82.60%	84.80%
Car Passenger	3.20%	4.00%	6.00%	6.60%
Cycle	0.90%	1.20%	0.60%	1.10%

% By Mode	Out-commuters		In-commuters	
	Berkhamsted	Tring	Berkhamsted	Tring
Others	1.20%	0.90%	1.00%	0.60%
Train	23.50%	13.00%	4.30%	1.40%
Walk	8.50%	7.10%	2.40%	3.00%

* excludes trips beginning and ending in each town, trips between Berkhamsted and Tring and from each town to other areas

3.63 An important observation from the data shown above is the lower rail mode share for Tring residents commuting to work compared with residents of Berkhamsted. This may be due to a combination of factors, including potential reporting anomalies in the Census regarding the main mode, or more so related to the remoteness of the station which may discourage travelling by train altogether (and instead Tring residents opting to drive) and also the fact that Aylesbury is a key destination for commuting trips (as demonstrated later in this chapter) however it is not directly connected by train to Tring, thus forcing people to commute by car or by bus, although the mode share for the latter is slightly lower than that in Berkhamsted.

3.64 Table 3-9 shows the mode split of internal commuting trips within each town (2011 Census). This has been derived from Census Medium Super Output Area (MSOA) zones which broadly represents the extent of both towns but in some cases the zones extend into surrounding rural areas.

3.65 There are a high number of car journeys to work within the towns: nearly 40% in Berkhamsted and 43% in Tring. This is considered very high especially given the compactness of these towns compared with larger settlements in Hertfordshire and elsewhere.

3.66 Nevertheless, around a similar proportion of journeys are made on foot which does reflect the size of the towns.

3.67 There is a very low percentage of cycling trips, which could reflect the fragmented cycle network within the towns, lack of cycle parking facilities or that walking is seen as a more convenient method of travel. The proportions of cycle trips are not dissimilar to other settlements in Hertfordshire. Providing suitable infrastructure for cyclists could encourage the use of cycling and potentially decrease the use of car.

3.68 It is important to reiterate that this data refers to commuting trips. For other journey purposes, such as leisure, shopping and education, the mode splits will differ.

3.69 ‘First and last mile’ trips between Tring and Tring station are not captured in this data set, as previously discussed.

Table 3-9: Mode split of intra-urban trips to work within each town*

Commuting Mode	Berkhamsted	Tring
Bus	1.5%	0.9%
Car Driver	46.7%	45.2%
Car Passenger	5.5%	6.3%
Cycle	1.8%	3.0%
Others	2.2%	1.7%
Train	N/A	N/A
Walk	42.3%	43.0%

* intra-urban trips are defined by clusters of Census MSOAs

3.70 Table 3-10 and Table 3-11 show the number of commuting trips within Berkhamsted and Tring, from the 2011 Census. Figure 3-17 and Figure 3-18 show the location of MSOAs in the towns.

3.71 As can be seen in Table 3-10, there were 2,219 commuting trips within Berkhamsted. North-Central Berkhamsted, which includes the Billet Lane Industrial Estate, was the destination for almost half of these trips. The greatest number of trips also originate from north-central Berkhamsted, however there was a fairly even split in terms of where trips originate.

3.72 Table 3-12 shows that there were 1,450 commuting trips within Tring. The West and Rural Tring zone had the highest number of in-bound trips which is likely due to the Icknield Way Industrial Estate being located in this area (the zone extends further north and west covering rural areas, including the hotel and restaurant located next to the A41 junction at Tring Hill). More trips originated from west and central Tring than east Tring, suggesting that those in the east of the town work further afield, perhaps travelling by train.

Table 3-10: Internal journey to work trips in Berkhamsted

From/To	Rural Berkhamsted	North-Central Berkhamsted	West Berkhamsted	South-East Berkhamsted	Total
Rural Berkhamsted	119	58	77	52	**306**
North-Central Berkhamsted	192	277	251	297	**1,017**
West Berkhamsted	43	70	86	53	**252**
South-East Berkhamsted	72	198	176	198	**644**
Total	**426**	**603**	**590**	**600**	**2,219**

Note: excludes: 'Work mainly at or from home', 'Underground, metro, light rail or tram' and 'Train' trips.

Table 3-11: Internal journey to work trips in Tring

From/To	West and Rural Tring	Central Tring	East and Rural Tring	Total
West and Rural Tring	316	112	105	**533**
Central Tring	237	185	127	**549**
East and Rural Tring	123	87	158	**368**
Total	**676**	**384**	**390**	**1,450**

Note: excludes: 'Work mainly at or from home', 'Underground, metro, light rail or tram' and 'Train' trips.

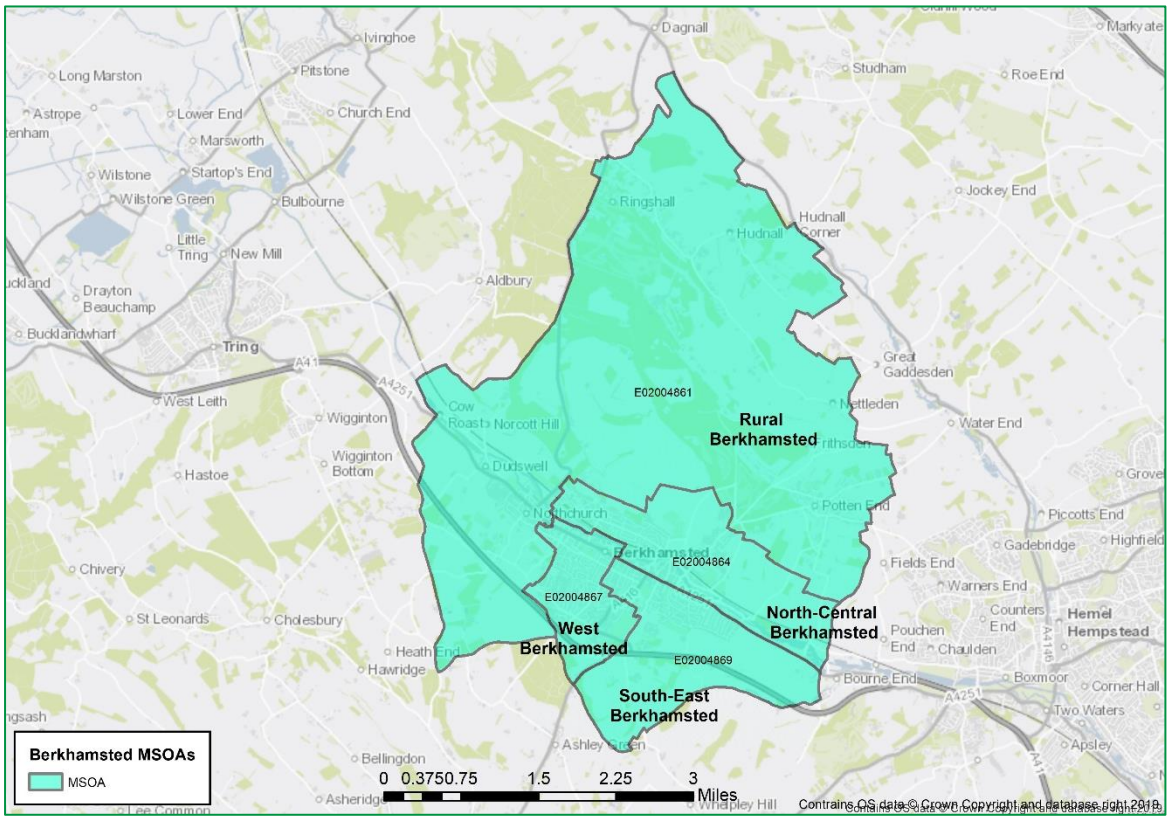


Figure 3-17: Berkhamsted MSOAs

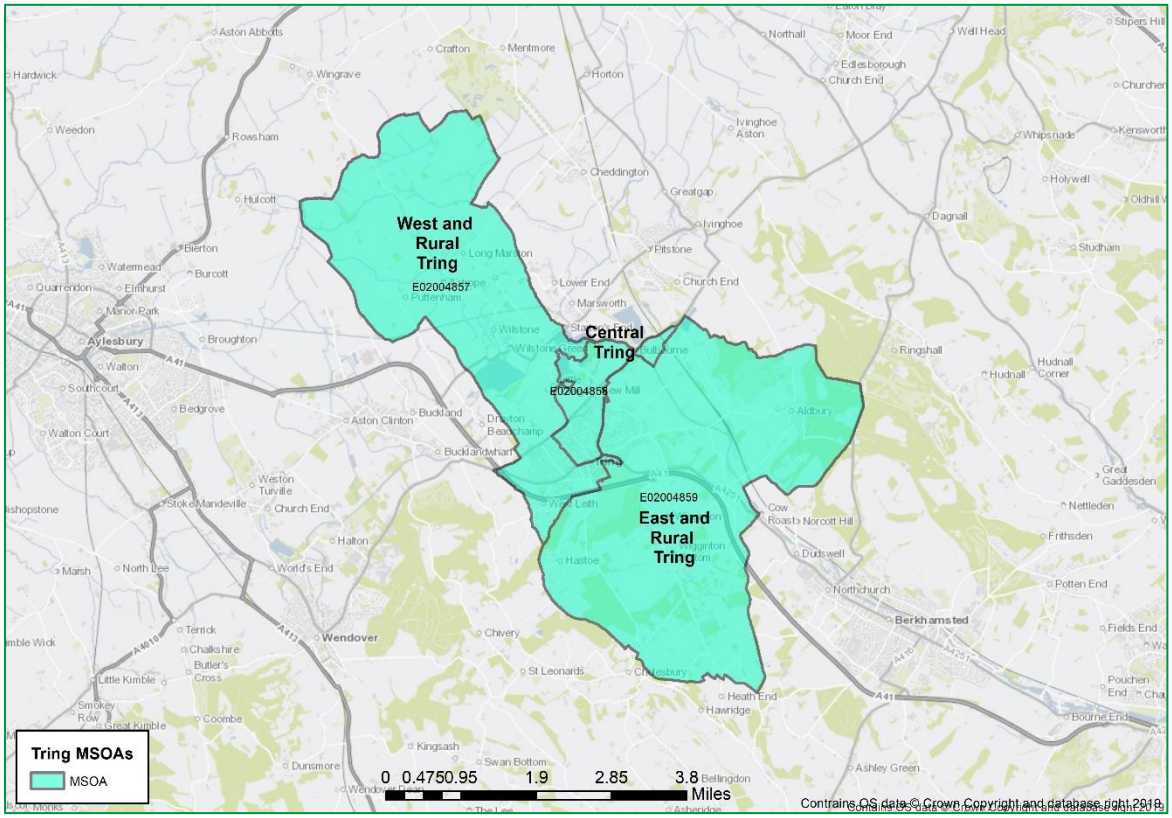


Figure 3-18: Tring MSOAs

3.73 Journey to work trips (by all modes of travel combined) from Berkhamsted can be seen in Figure 3-19. Data is again obtained from the 2011 Census. The warmer shades (reds and oranges) indicate higher numbers of trips and cooler shades (blues and greens) a lower

number of trips. There is no reason to assume the patterns of trips will have changed significantly since 2011 and therefore this analysis should provide a reasonable indication of commuting patterns today.

3.74 This shows that there are high number of commuters who travel to Tring and Hemel Hempstead for work. Significant numbers also travel to Watford, St Albans and Chesham.

3.75 Despite the proximity of Tring and Hemel Hempstead to Berkhamsted, commuters to these towns tend to travel by car. There are far fewer public transport and active travel movements between the towns.

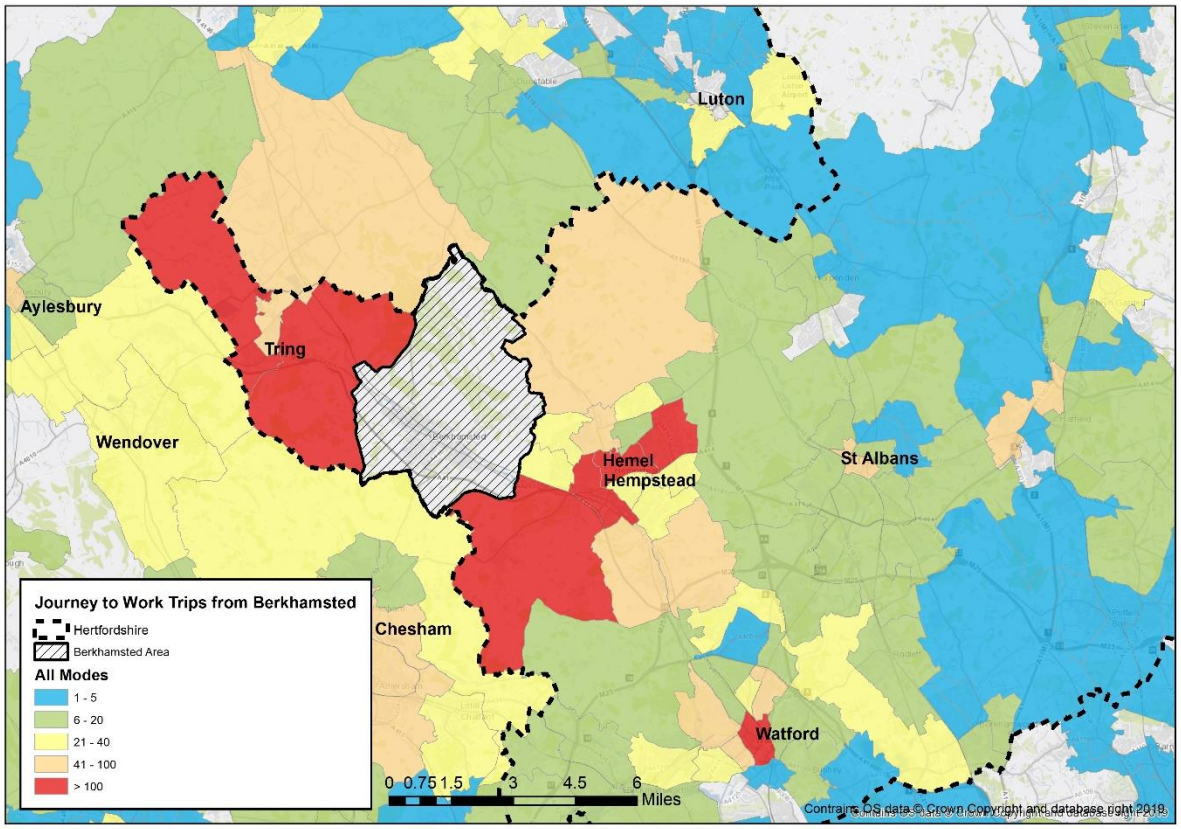


Figure 3-19: Journey to Work patterns from Berkhamsted

Source: AECOM analysis based on Census 2011 data

3.76 Figure 3-20 shows journey to work trips from Tring. Those living in Tring tend to work in Berkhamsted, Hemel Hempstead (including the Maylands Industrial Area) and also Aylesbury, and this journey is typically made by car. There is also a high number of trips to the rural areas surrounding Tring, suggesting people live and work within the local area. Chesham and Wendover are also key areas of employment for Tring residents.

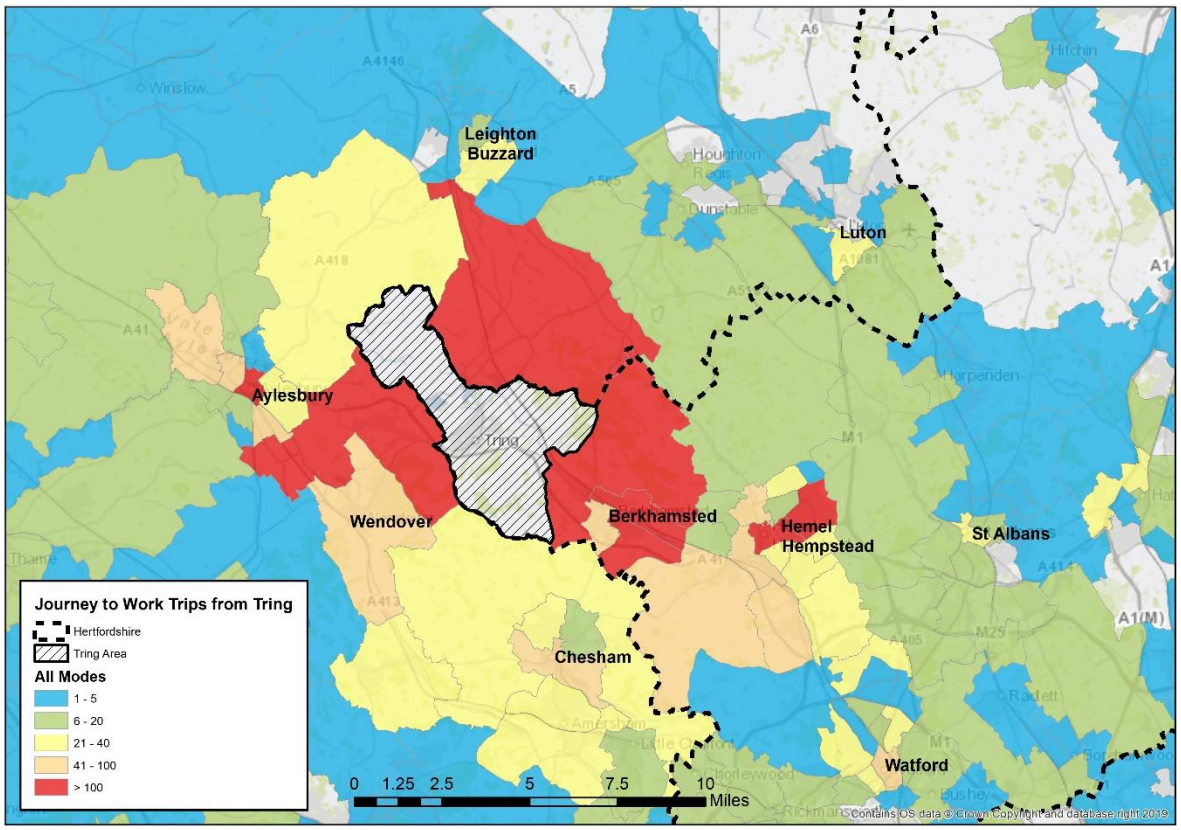


Figure 3-20: Journey to Work patterns from Tring

Source: AECOM analysis based on Census 2011 data

3.77 Figure 3-19 and Figure 3-20 also show there is a key movement corridor between Aylesbury, Tring, Berkhamsted and Hemel Hempstead. This corridor is facilitated by the A41, providing a convenient link between the towns but implies a higher level of car dependence in the absence of a direct rail connections although the corridor is served by the inter-urban 500 bus service.

3.78 There are fewer journeys to work which end in Berkhamsted and Tring, however this is to be expected given neither town hosts a significant level of employment other than the town centres and small industrial estates. In-commuters travel from Hemel Hempstead, Aylesbury, Leighton Buzzard and Dunstable. In-commuters also come from the rural villages which surround the towns. The majority of in-commuters drive, however there is some use of public transport.

Travel for Education

3.79 The location of schools in Berkhamsted and Tring can be seen in Figure 3-21 and Figure 3-22 respectively. In Berkhamsted there are a fair number of primary schools within the town, as well as several secondary schools including Ashlyns School (state) and Berkhamsted School (independent). Secondary schools are located towards the centre of the town and primary schools tend to be within residential areas.

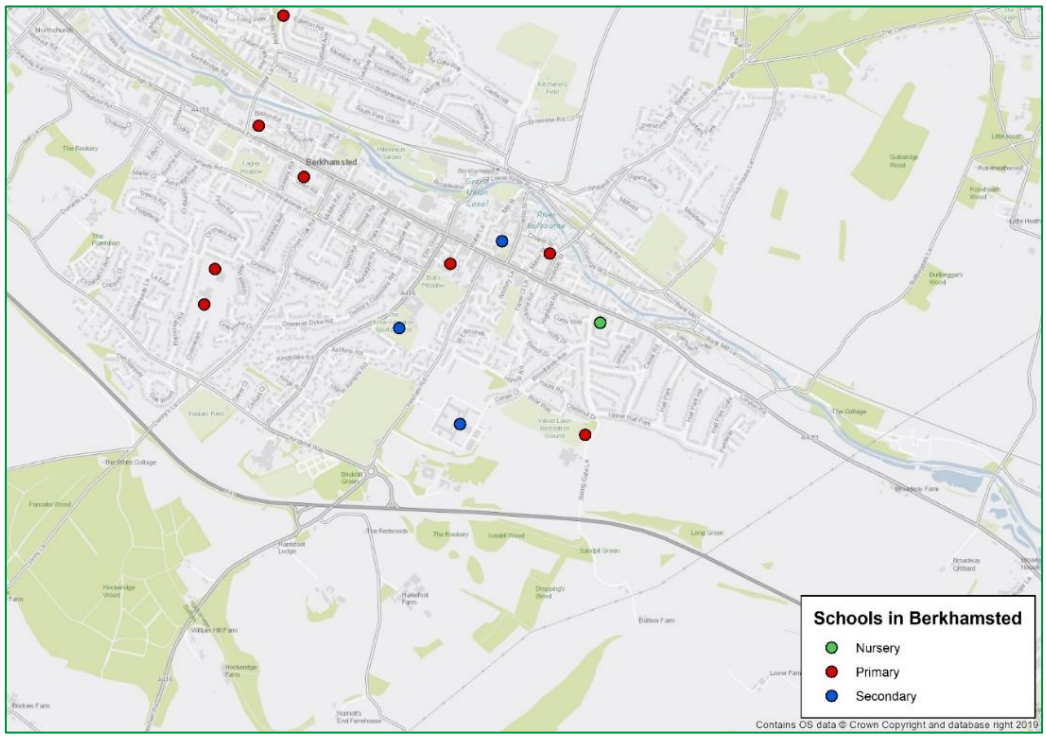


Figure 3-21: Location of schools in Berkhamsted

3.80 In Tring there are four primary schools and two secondary schools: Tring School (state) and Tring Park School for Performing Arts (independent). Primary schools and nurseries are located throughout the town, with some in residential areas, some close to the High Street and some further out of the town.

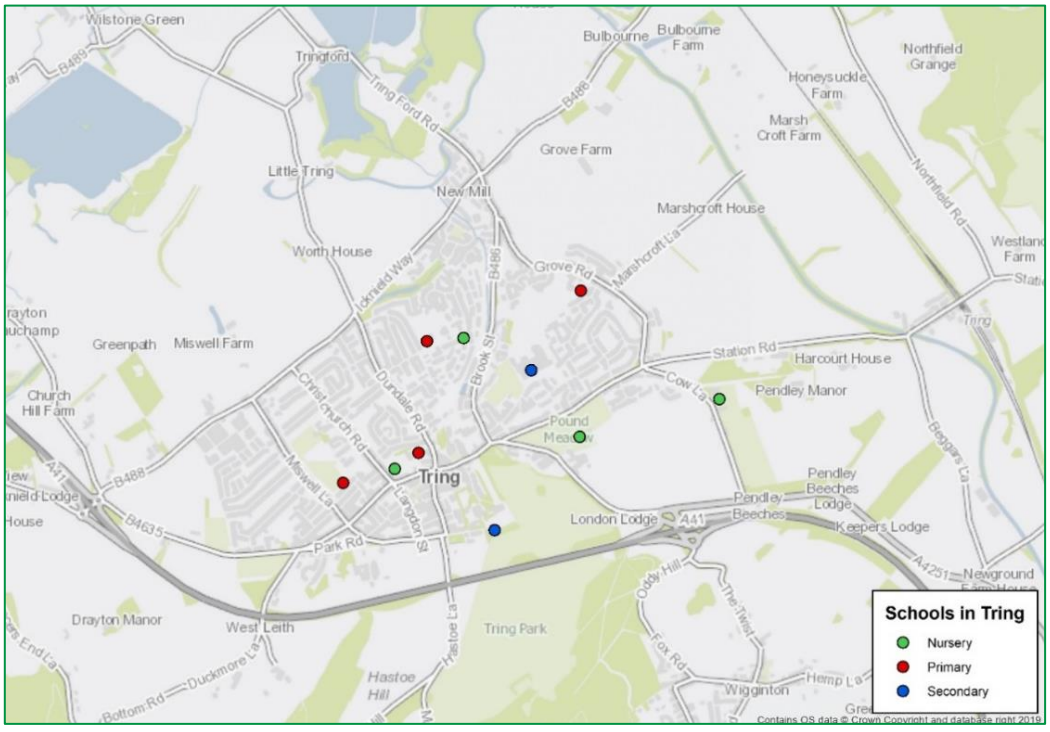


Figure 3-22: Location of schools in Tring

3.81 Table 3-12 presents journey to school data from the Hertfordshire Travel Survey for 2018. It shows that in Dacorum, 47% of children walk to school, 41% reach school by car but only 8%

travel to school by bus and 0% by cycle. Some of these car journeys could be undertaken by sustainable modes, if suitable provision were put in place.

Table 3-12: Main mode to school (district)

Mode	Dacorum
Bus	7.60%
Car/Passenger	41.10%
Cycle	0.00%
Walk	47.00%
Other	4.30%
Total	100%

3.82 A number of schools in Berkhamsted and Tring have a school travel plan and a few of these schools have undertaken surveys to determine the mode used by pupils to get to travel to school. Data for two schools is presented below.

Table 3-13: Main mode to school

Mode	Bishop Wood School, Tring (Junior School)	Bridgewater School Berkhamsted (Primary School)
Walk	73.79%	49.82%
Cycle	3.88%	5.61%
Scooter	2.43%	1.4%
Park and Stride	11.65%	32.46%
Car Passenger	8.25%	10.53%

Source: HCC Modeshift Stars

3.83 There are two 'Gold accredited' (a Modeshift STARS rating) schools in study area - Bishopwood School in Tring and Bridgewater School in Berkhamsted - which signifies the level of work undertaken to encourage more sustainable methods of travel to/from school.

3.84 Dundale Primary and Goldfield Infants schools in Tring have signed up to Modeshift STARS however they are not currently actively working on their travel plans. . Long Marston School is working towards a Bronze accreditation, but there is no survey data at the time of writing. Thomas Coram School in Berkhamsted currently holds a Bronze accreditation.

3.85 The following schools in Berkhamsted have signed up to Modeshift STARS however they are not actively working on their travel plan: Little Gaddesden C of E VA School, Westfield Primary School, Ashlyns, St Thomas More Roman Catholic VA School, St Mary's C of E School, Victoria Infant and Nursey School, Swinggate Primary School, Greenway Primary and Nursery School, Potten End C of E Primary School.

Cumulative Traffic Movements

3.86 The COMET transport model has been developed by HCC to understand the performance of the transport network across Hertfordshire. The model comprises a base year of 2014 (reflecting observed movements recorded at the time) and future years including 2038, which includes estimated traffic growth. The model can be used to test different scenarios, for example how additional population will impact the transport network, for example increasing traffic congestion. COMET is a strategic transport model, therefore it is not intended to be used to assess the transport network in significant detail, especially within towns where not all roads are represented in the model.

3.87 Traffic modelling undertaken in support of DBC's Local Plan 2038 indicates that, generally speaking, key roads in/around Berkhamsted and Tring are predicted to perform reasonably well in the future with planned development, although increases in traffic flows are predicted on A416 Kings Road, Shootersway and sections of the High Street/London Road which could have localised impacts. Additional traffic delays could be expected at the junctions of Kings Road/Kingshill Way/Shootersway and Kings Road/High Street/Lower Kings Road.

3.88 The model also predicts some modest increases in passengers using bus services in Berkhamsted and Tring, particularly in relation to where new developments are planned.

Place and Movement

3.89 As explained in Chapter 2, the Hertfordshire network includes a wide variety of different types of roads. The land uses surrounding roads vary, as do the levels of traffic that typically use them as well as the standards of provision for different users including pedestrians, cyclists, private car drivers, buses, emergency vehicles, large freight vehicles. The highway network in Berkhamsted and Tring is no exception.

3.90 Defining the intended function of highway links helps to consider the appropriateness of proposed infrastructure interventions and identify measures which can reinforce intended functions or seek to reprioritise routes for the benefit of local communities.

3.91 The purpose of defining the network hierarchy is to identify links or junctions where there is considered to be a 'clash' between different functions which could potentially impact on particular users in a positive or negative way.

3.92 As part of the Hertfordshire Place and Movement Assessment, a set of nine road types have been defined. These road types sit within a matrix which qualitatively assesses Place and Movement from low significance to high significance.

3.93 **Place** relates to those functions that are specific to and happen in particular places, including residential and retail. Roads have an impact economically as well as on quality of life, with place-making an increasingly important element in local policy making. Roads are also the foreground to the built environment, and the most successful streets are those that respect and refer to it.

3.94 **Movement** relates to the moving functions across different modes. In the context of the Hertfordshire Place and Movement Assessment, this is orientated around vehicle movements. Roads perform a wide range of movement functions from roads carrying very high volumes and mixes of vehicular traffic as well as people, to more urban streets which only have a local movement function and could give greater priority to the needs of pedestrians and cyclists.

3.95 The Place and Movement Assessment for Berkhamsted and Tring are shown in Figure 3-23 and Figure 3-24 respectively.

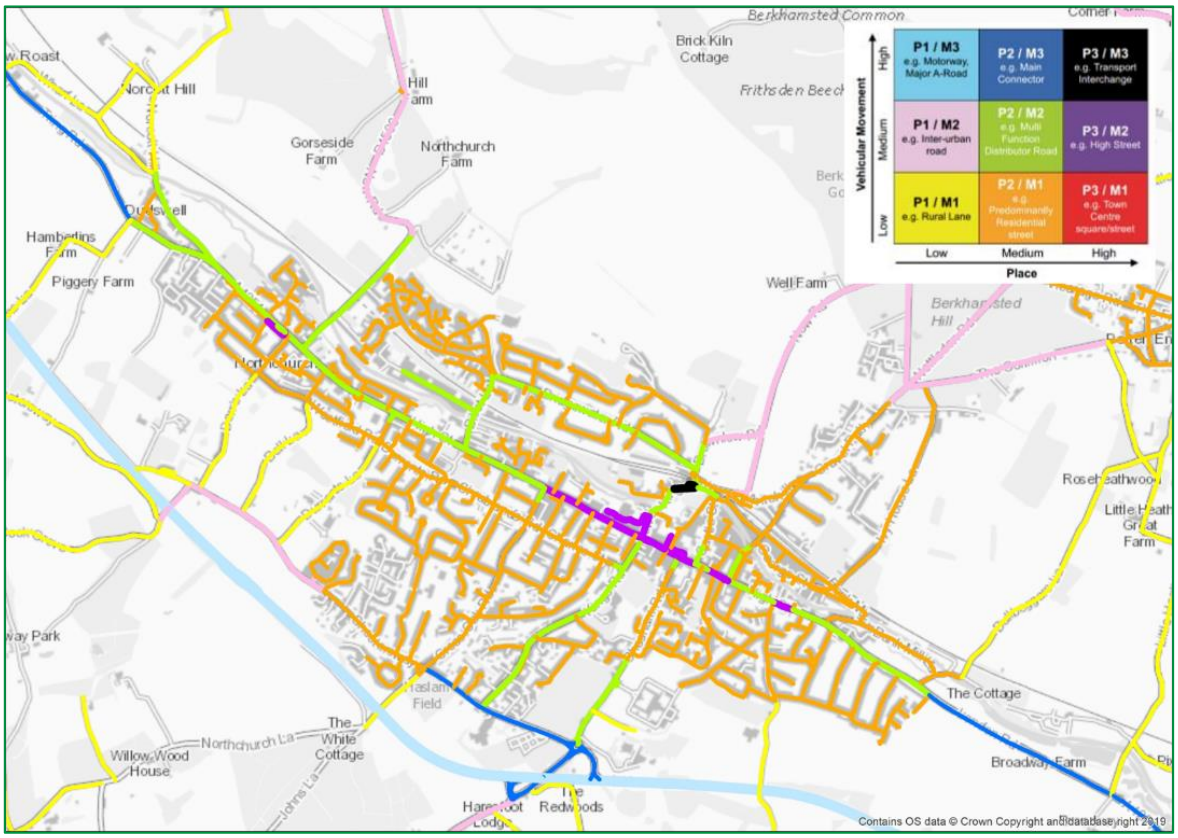


Figure 3-23: Berkhamsted Place and Movement Assessment

Source: Hertfordshire County Council

3.96 Berkhamsted is primarily constituted of **P2/M1** predominantly residential streets. Berkhamsted Train Station is identified as **P3/M3** transport interchange, highlighting its role as a transport interchange providing inter-urban connectivity.

3.97 The A4251 has contrasting place and movement functions along its length. On the outskirts of the town, the A4251 is a **P2/M3** main connector which has a much higher movement function, prioritising motor vehicles over pedestrians and cyclists, and facilitating access to the neighbouring towns of Tring and Hemel Hempstead.

3.98 Through Northchurch and towards Berkhamsted town centre the A4251 is a **P2/M2** multi function distributor road which recognises the higher place function given the mixes of urban land uses on either side of the road. At the junction of A4251 and Cross Oak Road at the start of Berkhamsted town centre the A4251 becomes a **P3/M2** high street, reflecting the presence of shops and restaurants along this section and a much higher place function which emphasises that there are movements of people occurring by a variety of travel modes and conducting different types of journeys alongside the same stretch of road.

3.99 After Rectory Lane the road becomes interspersed with **P2/M2** multi function distributor road and **P3/M2** high street functions as there are small pockets of shops and other commercial activities which increase the place function of the road.

3.100 The A416 which runs north-south across the southern part of Berkhamsted, is a **P2/M2** multi function distributor road between the town centre and the junction with Shootersway. This recognises that it serves both the function of a route feeding into the centre of Berkhamsted from the southern/western edges of town therefore catering for local trips to/from homes, as well as a key route between Berkhamsted and the A41, onwards towards Chesham and the surrounding rural areas.

3.101 A short section of Shootersway and the A416 towards the junction with the A41 is **P2/M3** main connector road and the A41 itself is **P1/M3** major A-road because of the much lower place functions being on the edge of Berkhamsted and being more focused on the movement of vehicle. There are several **P1/M2** inter-urban roads and **P1/M1** rural lanes surrounding

Berkhamsted, providing local road connectivity to surrounding villages but where the place functions are inevitably reduced.

3.102 The Place and Movement Assessment provides a clearer indication of the potential severance which is caused by the A4251 running through the centre of Berkhamsted. It is impossible to move between the two main residential areas (shaded orange) without crossing this corridor which is a combination of P2/M2 multi function distributor road and P3/M2 high street functions. It can be assumed that severance will have a different effect within the town centre where there is a stronger place function however cross from one side of town to the other outside of the town centre, severance is likely to be more significant as these sections of road (shaded green) will have a lower place function and will be more orientated around the movement of vehicle traffic.

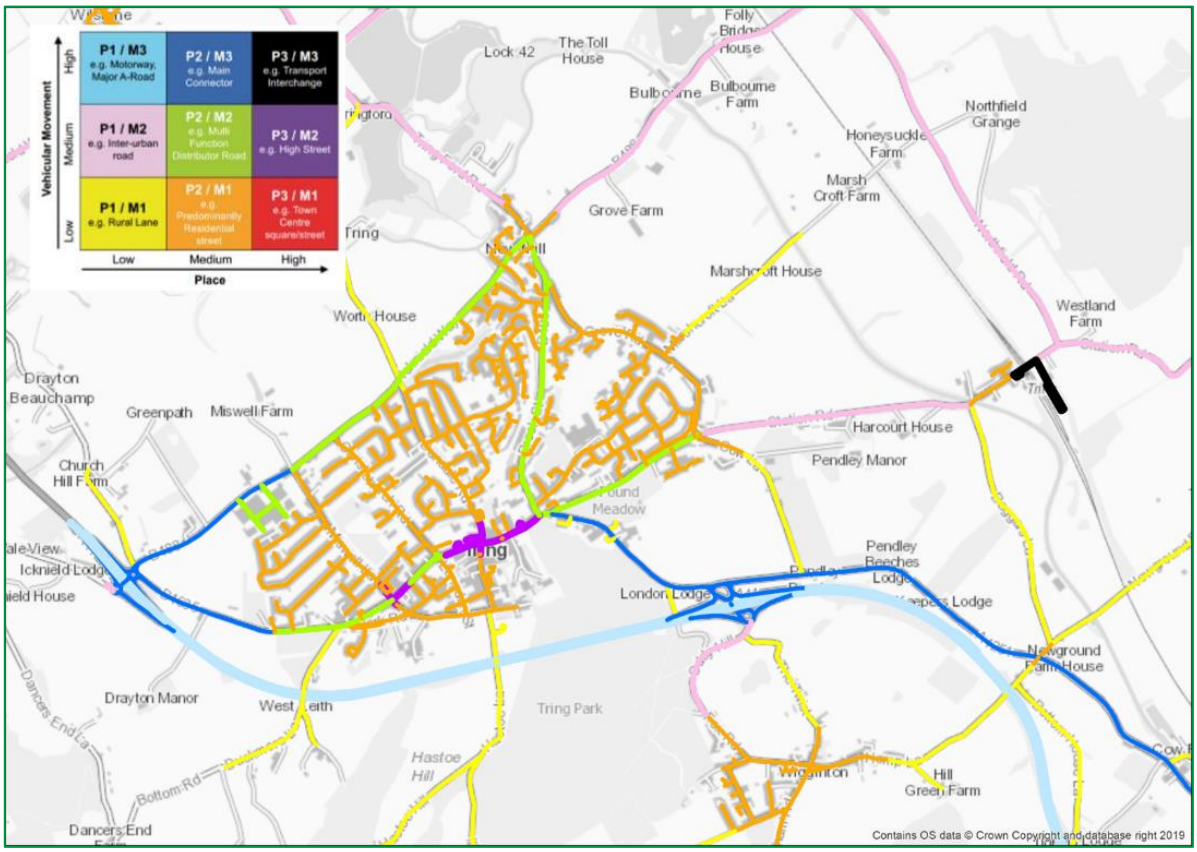


Figure 3-24: Tring Place and Movement Assessment

Source: Hertfordshire County Council

3.103 Tring has a significant number of P2/M1 predominantly residential streets. Tring town centre, along High Street/B4635, is P3/M2 High Street highlighting the high place function the road has on this section.

3.104 Tring railway station has a P3/M3 transport interchange function with a small section of P2/M1 in recognition of the nearby properties. Station Road between the station and Tring function as a P1/M2 inter-urban road, highlighting the reduction in surrounding place function and prioritisation of vehicles.

3.105 Several P2/M2 multi function distributor roads cross Tring, including the B488 Icknield Way along the northern edge of Tring, B488 Brook Street/Wingrave Road which runs north-south in the eastern part of the town, and sections of Station Road and the B4635 Aylesbury Road/Western Road within the urban area.

3.106 Outside of Tring, B488 Icknield Way functions as a P2/M3 main connector road between the Icknield Way Industrial Estate and A41 in recognition of its limited place function and more rural surroundings.

3.107 Similarly, the main road leading out to the A41 to the south of Tring is also defined as a **P2/M3** main connector road in recognition of the current limited land uses present along this section.

3.108 The A41, which bypasses the town to the south, is a **P1/M3** major A-road.

3.109 As with Berkhamsted, Tring is surrounded by a network of **P1/M1** rural lanes beyond the urban boundary including Hastoe Lane running adjacent to the Natural History Museum.

Environment

3.110 Figure 3-25 summarises the main environmental designations in and around Berkhamsted and Tring, whilst Figure 3-26 shows the Sustainable Transport Study area in relation to Environment Agency flood zone classifications. There is an Air Quality Management Area (AQMA) designated in Berkhamsted for (for nitrogen dioxide (annual mean) - the main emissions source is road transport) at the junction of A4251 and B4506, extending from St Mary's Church to the junction with Darr's Lane. There are several Sites of Special Scientific Interest in the region, including:

- **Ashridge Commons and Woods**
- **Oddy Hill and Tring Park**
- **Tring Woodland**
- **Tring Reservoirs**

3.111 The National Trust managed Ashridge Estate is an important and attractive local leisure destination. It is located approximately 5km to the north-west of Berkhamsted and 5km east of Tring town centre (2.5km from Tring railway station). Given the hilly topography across much of the Chilterns, the roads leading up to Ashbridge from either town are quite windy and steep especially Toms Hill (east of Aldbury). This may discourage on-road cycling.

3.112 Various off-road public footpaths are available for people accessing Ashridge on foot, and car parking is also available on site. There are also very irregular bus services operating between Berkhamsted and Ashbridge (3 buses a day each way). There is no bus connection between Tring and Ashbridge, although services extend as far as Aldbury from which there would be a shorter walk up the hill to Ashbridge.

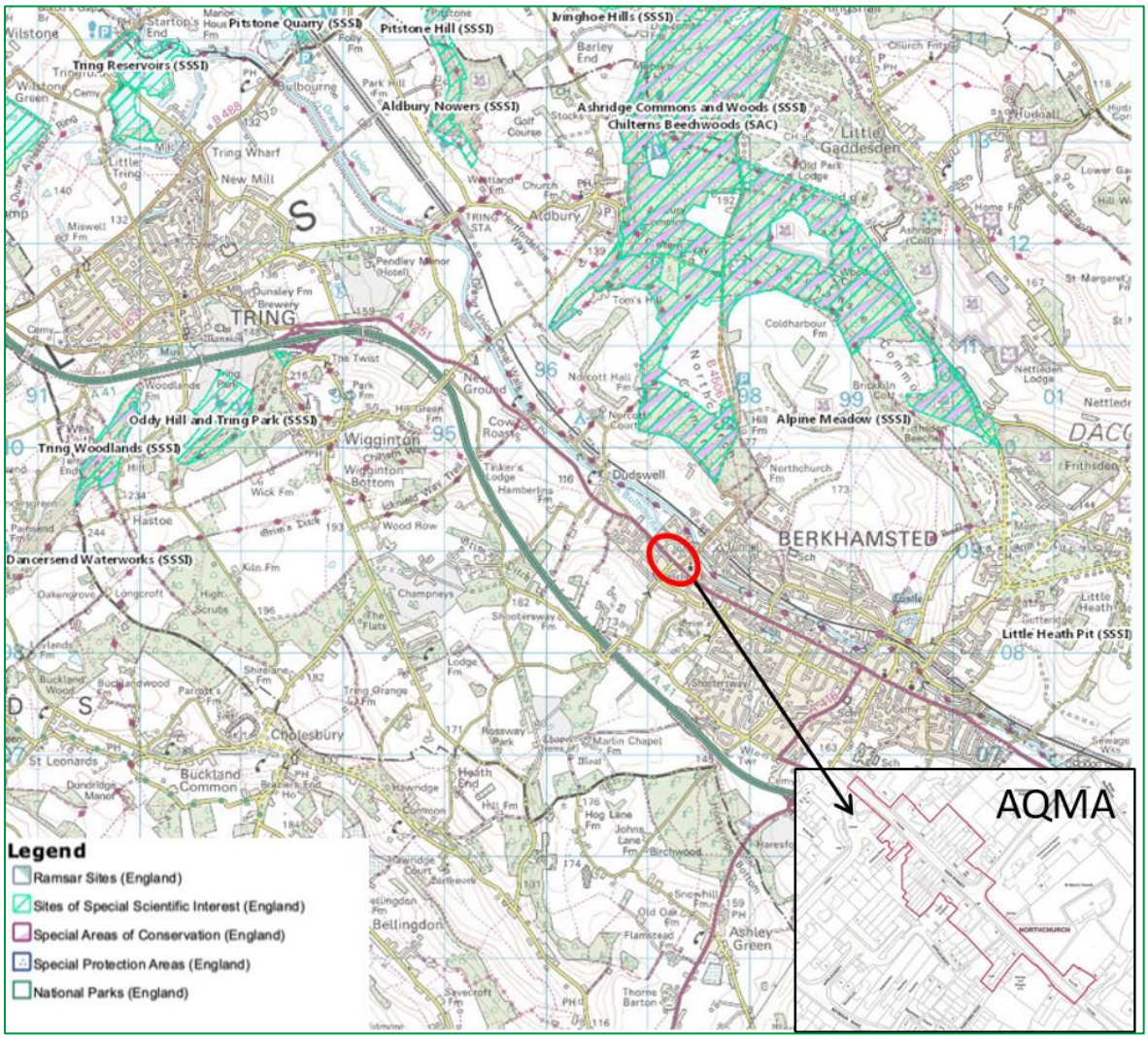


Figure 3-25: Environmental designations

Source: https://magic.defra.gov.uk/MagicMap.aspx; https://uk-air.defra.gov.uk/aqma/details?aqma_ref=1503

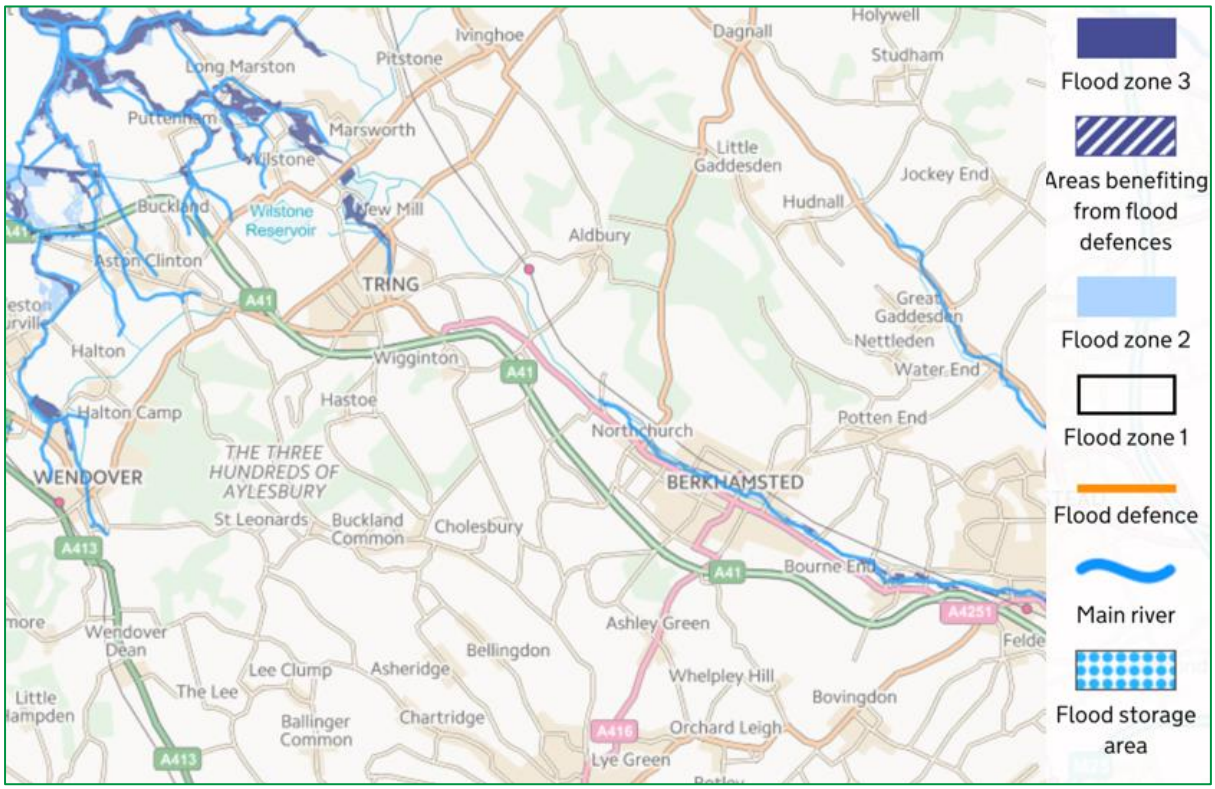


Figure 3-26: Flood zones

Source: flood-map-for-planning.service.gov.uk

3.113 Reference has also been made to flood risk from surface water [7]. In Berkhamsted, this shows areas around the canal to be at higher risk, with numerous channels at varying degrees of risk including roads such as Cross Oak Road, Woodlands Avenue and more significantly Kings Road. As would be expected, the channels flow downhill towards the canal. There appears to be a particular concentration of flood risk on the high street and on Water Lane, Wilderness and Mill Street. Surface water flood risk appears to be lower in Tring with concentrations to the south of Friars Walk, on Goldfield Road and along Miswell Lane as well as (as would be expected) the stream running parallel with Brook Street.

Development Proposals

3.114 The Dacorum Local Plan 2038 is allocating land for development in both Berkhamsted and Tring. By 2038, Berkhamsted is planning for 1,846 additional homes and Tring is planning for 2,274 additional homes across strategic sites. In Tring, the Local Plan is allocating around 5 hectares of land for employment. Table 3-14 outlines the proposed housing and employment growth in Berkhamsted and Tring.

Table 3-14: Proposed Growth in Berkhamsted and Tring

Town		Growth to be delivered by:	
		By 2026	By 2038
Berkhamsted	Housing (number)	195	1,846
	Employment	-	-
Tring	Housing (number)	140	2,274
	Employment (ha)	-	5.4 ha

3.115 In Berkhamsted, not all of the housing required can be achieved within the town boundary as opportunities are limited, especially given its historic and densely built-up core and high

[7] https://flood-warning-information.service.gov.uk/long-term-flood-risk

townscape quality neighbourhoods. Some homes will come forward in the settlement area through identified and windfall sites.

3.116 A significant amount of future housing will be brought forward as urban extensions through a combination of strategic sites:

- South of Berkhamsted (850 dwellings – large site, 70 dwellings - small site) (Fig 3-27 ref. 2)
- British Film Institute (90 dwellings) (Fig 3-27 ref. 3)
- Blegberry Gardens (80 dwellings) (Fig 3-27 ref. 4)
- Haslam Playing Fields (150 dwellings) (Fig 3-27 ref. 10)
- Bank Mill Lane (50 dwellings) (Fig 3-27 ref. 12)
- Rossway Farm (200 dwellings) (Fig 3-27 ref. 16)
- Land east of Darr's Lane (200 dwellings) (Fig 3-27 ref. 18)
- Lock field, Northchurch (60 dwellings) (Fig 3-27 ref. 20)

3.117 The locations of the potential developments in Berkhamsted are shown in Figure 3-27.

3.118 The bulk of development will chiefly be delivered as a planned new neighbourhood to the south of Berkhamsted around the Hall Park estate/Shootersway. The neighbourhood will be located away from the Chilterns AONB which will help protect its immediate landscape setting and character. Nevertheless, the scheme will require the retention and enhancement of landscaping and the careful siting and design of development given the neighbourhood's mainly valley-side/ridge line location.

3.119 Dacorum Borough Council's Employment Land Study recommends that the existing employment areas are safeguarded for this purpose given that these sites are well occupied, and they represent Berkhamsted's main employment locations. However, there may be small-scale employment opportunities within the larger strategic sites as part of proposed local centre hubs (for example small parades of shops, small offices etc).

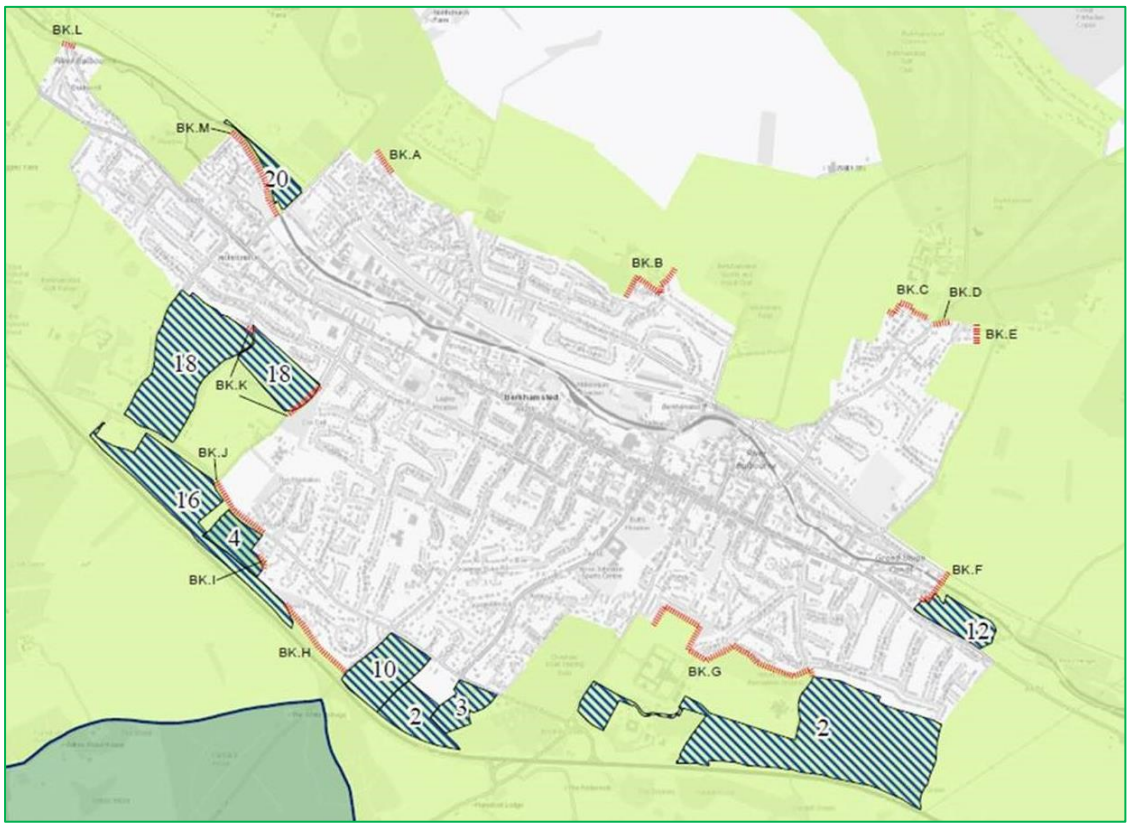


Figure 3-27: Strategic growth sites in Berkhamsted

3.120 In Tring, development is located mainly to the east of the town in an area bounded by Grove Road to the south and the River Bulbourne to the north. The Dunsley Farm development to the south-east of the town is proposed to be mixed-use. There is expected to be 5 hectares of land for employment use, the nature of which is not certain at this time (e.g. warehousing, industrial units, offices). This will be an extension to where the existing businesses are located to the west of the site.

3.121 The locations of the proposed developments in Tring are shown in Figure 3-28.

3.122 Like Berkhamsted, in Tring not all of the housing required can be provided within the existing town boundary as the opportunities are limited, especially given its historic core and lack of significant and available brownfield sites.

3.123 A significant amount of future housing (1,800 homes) will be brought forward as urban extensions through the following strategic sites:

- East of Tring 1 and 2 (Fig. 3-28 ref. 124)
- New Mill (Fig. 3-28 ref. 132)
- Dunsley Farm (Fig. 3-28 ref. 122)

3.124 The majority of housing development will be delivered as a planned new neighbourhood to the east of Tring (some 1,800 dwellings across East of Tring 1 and 2 and New Mill sites) between Station Road and Bulbourne Road. The neighbourhood will adjoin the Chilterns AONB on its eastern and southern boundaries but separated by the Grand Union Canal and Station Road respectively.

3.125 A further planned neighbourhood will be delivered to the south east of Tring at Dunsley Farm (some 400 dwellings) which could include a new secondary school and business hub. It also adjoins the Chilterns AONB on its southern and eastern boundaries, and again will need to be sensitively designed and laid out with significant public open space. There is an existing wildlife site on part of the site that will need to be protected and enhanced, or alternatively translocated to a suitable alternative location.

3.126 With the proposed growth of Tring, there is a need to balance population expansion with new employment floorspace in the town in order to provide local job opportunities and to limit the potential for out-commuting. The release of Dunsley Farm provides the opportunity for a sizable element of employment floorspace (E1) on a part of the site that would help maximise the opportunity for employee trips to the town centre, helping to bolster the centre's vitality and viability.

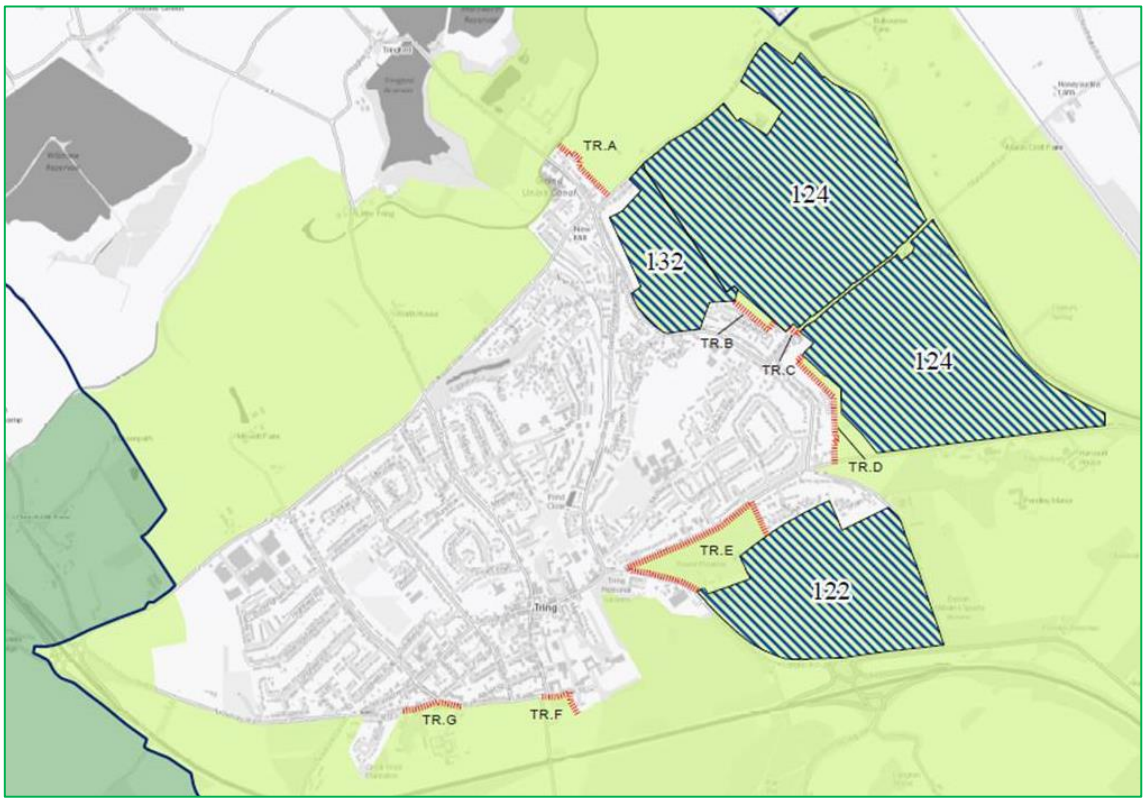


Figure 3-28: Strategic growth sites in Tring

3.127 The strategic sites, in both Berkhamsted and Tring will be of a scale to enable the delivery of a full range of housing, including a significant number of much needed affordable homes, specialist accommodation for the elderly, and a traveller site. The housing will be supported by other local facilities for the new residents, such as a neighbourhood centre, new schooling, open space, and allotments.

3.128 As set out in the Local Plan, strategic sites will come forward in a comprehensive, cohesive and co-ordinated manner. Their scale offers benefits for infrastructure co-ordination and delivery, enabling a fuller range of site and town-wide infrastructure needs to be considered and planned for, especially the need for two 2 Form Entry (FE) primary schools, a 6FE secondary school and significant levels of formal and informal open space. They present a greater opportunity in terms of sustainable travel, either by having the critical mass to support new bus services or comprising a mix of land uses which could reduce the need to travel off site. The strategic sites also offer an opportunity to provide additional facilities for the new and existing residents through the creation of a community hub and in dual/community use of the associated new schools and their playing fields.

Salient Points

3.129 The analysis of evidence in this chapter has revealed a great deal in terms of how and where people travel to, from and within Berkhamsted and Tring.

- The remoteness of Tring station has a significant influence on how people get to/from the station, with over half of all trips made by car. Whilst cycling represents a significant proportion of trips, those travelling by bus represents only a small proportion of trips. With planned developments coming forward in the future, travel patterns may change and where some developments are reasonably close by (East of Tring for example) which could increase walking and cycling to the station, other sites including West of Tring are much further away and without sufficient infrastructure, future residents travelling to the station may be more inclined to use the car. The station also serves a large rural catchment therefore providing non-car facilities to a myriad of locations is challenging but nearby

villages of Aldbury and Pitstone and not well connected in terms of footways and cycle routes.

- Both Berkhamsted and Tring are reasonably compact making walking and cycling feasible although the steep hills in Berkhamsted especially will put people off. Travelling by bus within the towns may not be an attractive option based on cost and convenience, especially compared with the car, although as these towns expand, bus could become a more attractive option if future residents consider it is too far to walk or cycle and local roads become a bit more congested.
- The A4251 High Street/London Road corridor in Berkhamsted is a major severance point for people walking and cycling. The road serves multiple purposes, including facilitating some through movements, therefore a 'one-size-fits-all' solution which favours one travel mode may not be appropriate and consideration needs to be given ensuring the reliability of bus movements, the safety and comfort of people walking and cycling as well as ensuring that any changes to the corridor would not result in motorists diverting onto surrounding quieter residential streets.

Interactions

3.130 The concept of interactions is introduced in Chapter 2. Interactions represent key movement corridors, book-ended by important destinations such as town centres, railway stations, the proposed Local Plan development sites and employment areas.

3.131 Each interaction is composed of one or more routes that people are likely to take by any available mode of travel between the key destinations at either end. It is also important to note that there will be other local destinations between the key destinations, including schools, local convenience stores and key services.

3.132 Based on a review of the number of development sites, online journey planning tools and a review of evidence set out earlier in this chapter, a set of ten interactions have been formulated. These were sifted down from a wider selection that reflected every possible combination of key origins and destinations:

Berkhamsted

- Interaction B1 – South-east Berkhamsted to Town Centre and Berkhamsted Station
- Interaction B2 - South-west Berkhamsted to Town Centre and Berkhamsted Station
- Interaction B3 - South-east Berkhamsted to Billet Lane Industrial Estate; Town Centre and Berkhamsted Station to Billet Lane Industrial Estate
- Interaction B4 - South-west Berkhamsted to Billet Lane Industrial Estate

Tring

- Interaction T1 - East Tring to Tring Station
- Interaction T2 - West Tring to Town Centre to Tring Station
- Interaction T3 – East Tring to Town Centre
- Interaction T4 – East Tring to Icknield Way Industrial Estate
- Interaction T5- West Tring (LA5) to Icknield Way
- Interaction T6 - Tring Station to Icknield Way Industrial Estate

3.133 These interactions form the basis of more detailed spatial analysis of the key transport challenges as described in Chapter 5.

3.134 Figure 3-29 to Figure 3-38 show the interactions defined within Berkhamsted and Tring. What follows is a brief introduction to each interaction in turn. It is important to note that the maps highlight what have been determined as being the key routes people are more likely to use. The

interactions do not explicitly cover all roads for example quieter cul-de-sacs leading onto busier roads.

Berkhamsted Interactions

Interaction B1 – South-east Berkhamsted to Town Centre and Berkhamsted Station

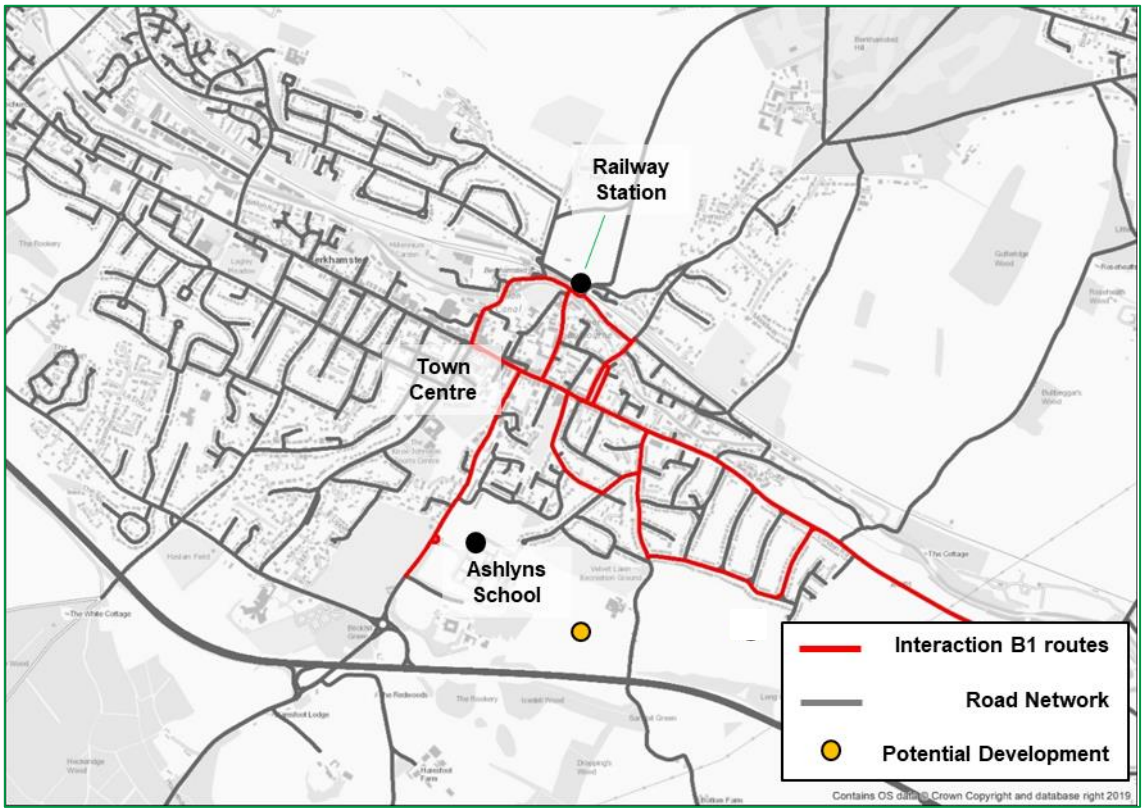


Figure 3-29: Interaction B1 - South-east Berkhamsted to Town Centre and Berkhamsted Station

3.135 Figure 3-29 above shows Interaction B1 – South-east Berkhamsted to Town Centre and Berkhamsted Station. This interaction is centred on movement between the proposed South of Berkhamsted (large site) development and the town centre and train station.

3.136 Key roads in this interaction are:

- A4251 London Road/High Street, Station Road, Swing Gate Lane, Beech Drive/Three Close Lane, Chesham Road and Castle Street.
- For the South of Berkhamsted (large site) development there are proposed accesses onto Swing Gate Lane and Chesham Road, which can both be used to access the town centre.

3.137 There are some footpaths in this area, but no continuous paths from the proposed development locations to the town centre and train station. There is a footpath just north of the South of Berkhamsted (large site) development, and another to the west of Chesham Road. Both provide some off-road access to the town centre.

3.138 The 500 bus runs along London Road and currently provides access to the town centre and train station. There are proposed bus stops to the north of South of Berkhamsted (large site) development, however these would not be located within the 400m of the site required for accessibility standards. HCC have stated that they will be seeking that bus services run through the development site.

Table 3-15: Key locations in Interaction 1

Planned Developments	Key Destinations		
South of Berkhamsted (large site)	Berkhamsted Boys School	Ashlyns School	Swing Gate School
-	Victoria Infant and Nursery School	Town centre/high street	Berkhamsted Castle
-	Berkhamsted Library	-	-

Interaction B2 - South-west Berkhamsted to Town Centre and Berkhamsted Station

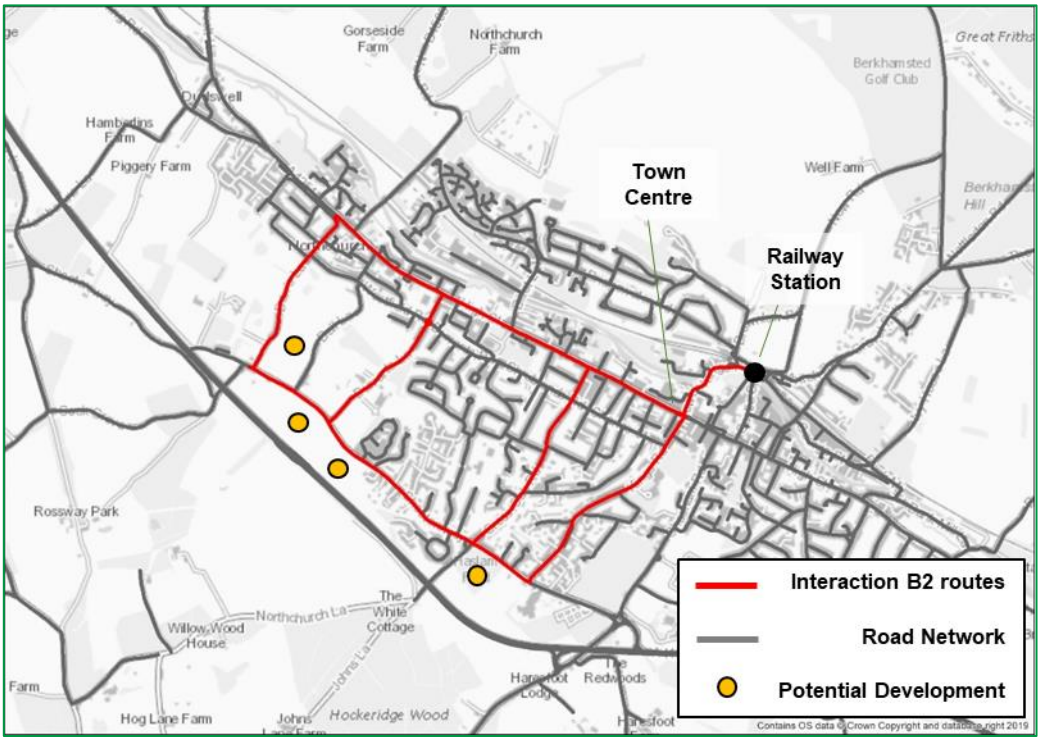


Figure 3-30: Interaction B2 - South-west Berkhamsted to Town Centre and Berkhamsted Station

3.139 Figure 3-30 above shows Interaction B2 – South-west Berkhamsted to Town Centre and Berkhamsted Station. This interaction is focussed on movements between the South Berkhamsted, Haslam Playing Fields, Rossway Farm, Blegberry Gardens, British Film Institute and Land east of Darr's Lane development sites and the town centre and railway station.

3.140 Key roads in this interaction are:

- A4251, A416, Chesham Road, Cross Oak Road, Durrants Lane, Shootersway and Darr's Lane.
- There are new accesses onto Shootersway proposed as part of Blegberry Gardens, Rossway Farm, Haslam Playing Fields, British Film Institute and Land east of Darr's Lane sites, which can be used to access the town centre and train station.

3.141 Footpaths in the south-west of Berkhamsted are discontinuous. There are several footpaths towards the town centre, such as the footpath parallel to Cross Oak Road. Queen's Road and Shrublands Road can then be used to access the town centre and train station for pedestrians. Doctor Common's Road/Graemes Dyke Road and Charles Street can also be used to access

the town centre and train station. The footpath between Durrants Lane and Darr's Lane could be used to access the town centre. There do not appear to be any plans for proposed developments to provide new footpaths.

3.142 The 500 bus runs along London Road and the stop at Durrants Lane can be accessed. However the journey time by walking (30 minutes) is equivalent to getting the bus. The 354 bus and the 502/532 buses serve stops on Westfield Road and Granville Road. Very limited bus service in this area.

Table 3-16: Key locations in Interaction 2

Planned Developments	Key Destinations		
Land east of Darr's Lane	Berkhamsted Station	Waitrose	M&S Simply Food
Rossway Farm	Berkhamsted Boys School	Berkhamsted Girls School	Egerton-Rothesay School
South of Berkhamsted (small site)	Berkhamsted Prep School	Town centre/high street	Berkhamsted Castle
British Film Institute	Berkhamsted Library	Berkhamsted Leisure Centre	Westfield School and Nursery
Blegberry Gardens	St Thomas More Primary School	Greenway Primary School	-
Haslam Playing Fields	-	-	-

Interaction B3 - South-east Berkhamsted to Billet Lane Industrial Estate; Town Centre and Berkhamsted Station to Billet Lane Industrial Estate

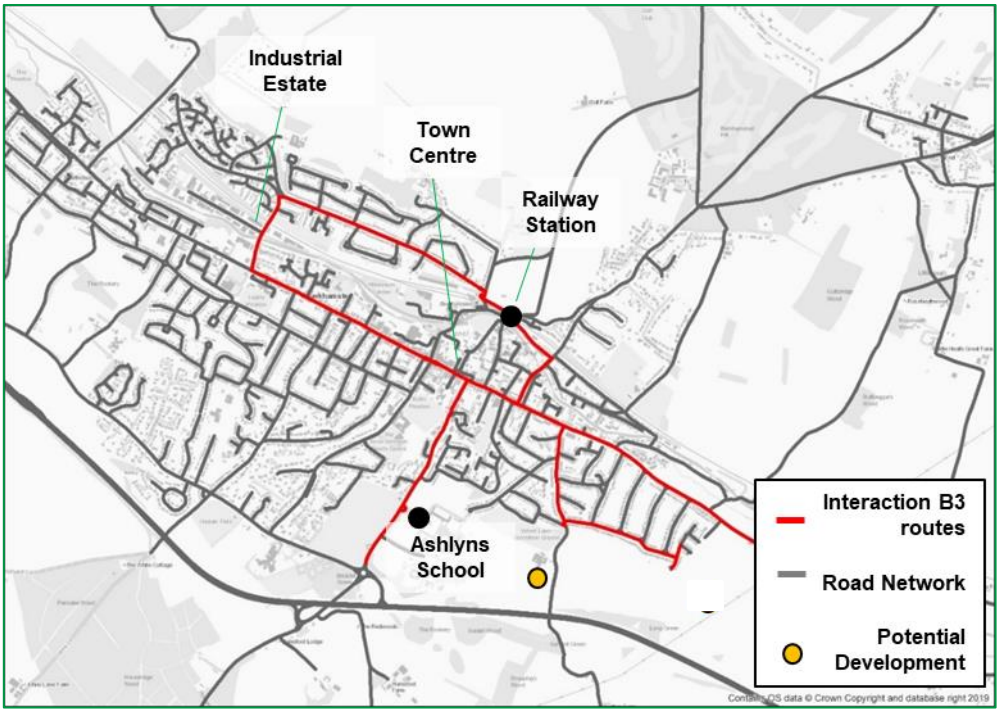


Figure 3-31: Interaction B3 - South-east Berkhamsted to Billet Lane Industrial Estate; Town Centre and Berkhamsted Station to Billet Lane Industrial Estate

3.143 Figure 3-31 above shows Interaction B3 – South-east Berkhamsted to Billet Lane Industrial Estate; Town Centre and Berkhamsted Station to Billet Lane Industrial Estate. This interaction

is centred on movement between the proposed South of Berkhamsted (large site) development and Billet Lane Industrial Estate. It also encompasses movements between the town centre and railway station and Billet Lane Industrial Estate.

3.144 Key roads in this interaction are:

- A4251, Billet Lane, Castle Street, Bridgewater Road, Swing Gate Lane, Chesham Road, A416, Shootersway, Cross Oak Road and Upper Hill Park.
- There are new accesses proposed vehicular access to developments) Swing Gate Lane and Chesham Road (South of Berkhamsted), which provide access towards Billet Lane Industrial Estate.

3.145 Several paths could be used, including the footpath to the west of Chesham Road and the tow path along the River Bulbourne. The tow path is useful for accessing Billet Lane Industrial Estate from the train station and town centre. The existing footpath from Swing Gate Lane to Beech Drive followed by a short section of Beech Drive and Three Close Lane to access High Street.

3.146 There are two new shared use paths being promoted as part of the East Berkhamsted development which can be used to begin the journey to the town centre.

3.147 The 354 bus route serves the eastern part of the town and the industrial area, but only runs approximately hourly. The 500 bus runs along London Road and there are stops near planned developments and Billets Lane. However, a significant amount of walking may be required to reach these stops. There are proposed new bus stops to the north of South of Berkhamsted (large site) development.

Table 3-17: Key locations in Interaction B3

Planned Developments	Key Destinations		
South of Berkhamsted (large site)	**Berkhamsted Boys School**	**Ashlyns School**	**Swing Gate School**
-	**Victoria Infant and Nursery School**	**Town centre/high street**	**Berkhamsted Castle**
-	**Berkhamsted Library**	**Waitrose**	**Berkhamsted Leisure Centre**
-	**M&S Simply Food**	**Westfield Primary School**	**-**

Interaction 4 - South-west Berkhamsted to Billet Lane Industrial Estate

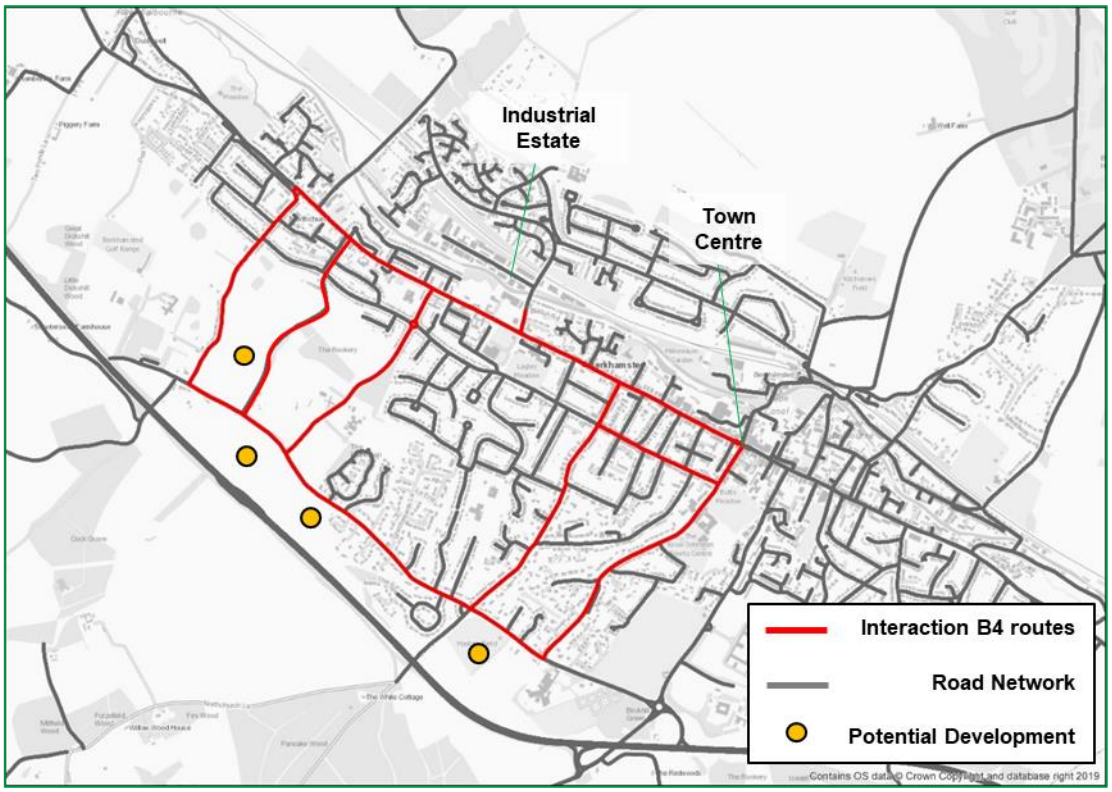


Figure 3-32: Interaction B4 - South-west Berkhamsted to Billet Lane Industrial Estate

3.148 Figure 3-32 above shows Interaction B4 – South-west Berkhamsted to Billet Lane Industrial Estate. This interaction is centred on movement between the South Berkhamsted, Durrants Lane and Darr's Lane developments and Billet Lane Industrial Estate.

3.149 Key roads in this interaction are:

- Shootersway, Cross Oak Road, Durrants Lane, A416, Charles Street, A4251, Billet Lane and Darr's Lane.
- There are new accesses onto Shootersway proposed as part of Blegberry Gardens, British Film Institute site and Darr's Lane site, which can lead towards Billet Lane Industrial Estate.

3.150 The footpath to the west of Cross Oak Road provides off-road access. Queen's Road and Shrublands Road can then be used to access the A4251 and Billet Lane Industrial Estate. The footpath alongside Darr's Lane could also be used. There do not appear to be any plans for developments to provide new footpaths.

3.151 The 500 bus runs along London Road which provides access to Billet Lane. However, the walk to access these stops is often further than the bus journey itself. The 354 service has bus stops that area closer to this area, however this service is less frequent. In general, south-west Berkhamsted is not well served by public transport.

Table 3-18: Key locations in Interaction 4

Planned Developments	Key Destinations		
Land east of Darrs Lane	**Billet Lane Industrial Estate**	**Waitrose**	**M&S Simply Food**
Rossway Farm	**Berkhamsted Leisure Centre**	**Berkhamsted Girls School**	**Egerton-Rothesay School**

South of Berkhamsted	**Berkhamsted Prep School**	**Town centre/high street**	**Berkhamsted Castle**
British Film Institute	**Berkhamsted Library**	**Greenway Primary School**	**Westfield School and Nursery**
Haslam Playing Fields	**St Thomas More Primary School**	**-**	**-**
Blegberry Gardens	**-**	**-**	**-**

Tring Interactions

Interaction T1 - East Tring to Tring Station

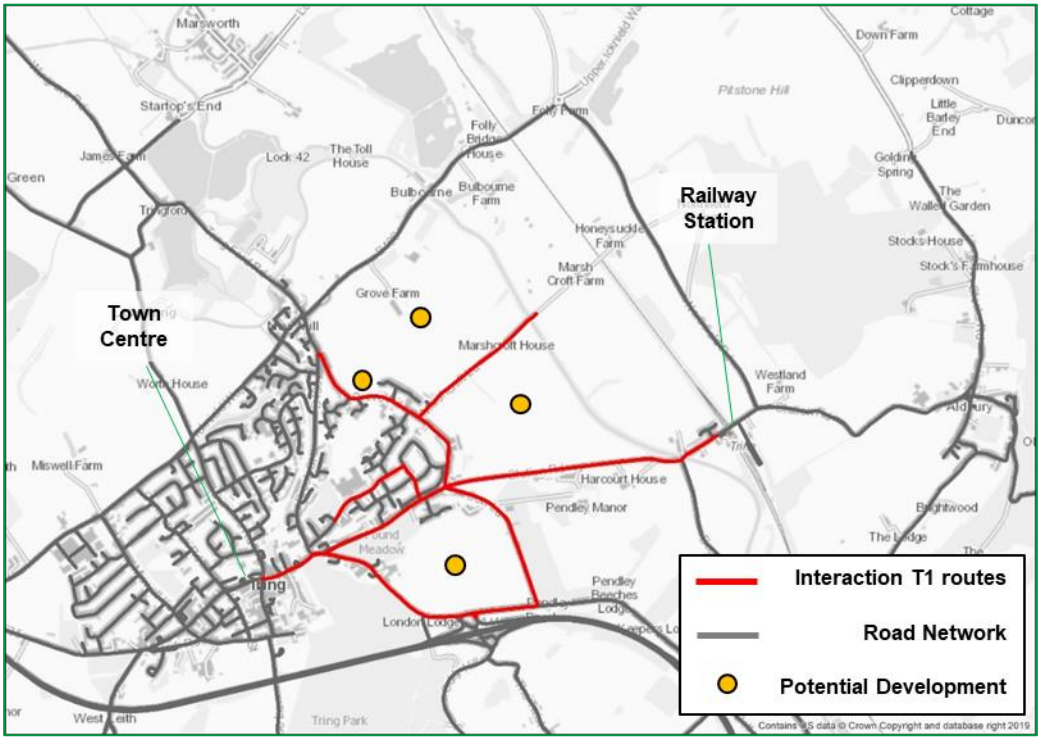


Figure 3-33: Interaction T1 - East Tring to Tring Station

3.152 Figure 3-33 above shows Interaction 5 – East Tring to Tring Station. This interaction is centred around the proposed development at East of Tring.

3.153 Key roads in this interaction are:

- Marshcroft Lane, Grove Road, Station Road, Cow Lane and London Road.
- For the East of Tring developments there is an access on Station Road for access to the railway station.
- For the Dunsley Farm development there are accesses proposed on London Road, Cow Lane and the A4251 which can be used to access the railway station.

3.154 There is an existing shared use path alongside Station Road towards the station. There is also an existing footpath alongside the Grand Union Canal. As part of the East of Tring development there is a proposed shared use path through the centre of the development towards the train station. As part of Dunsley Farm development, there is a proposed pedestrian route to the north of the site and along Cow Lane.

3.155 The 387 and 397 bus services run along Station Road. Passengers can alight at the junction of Grove Road and Station Road to access the development. The bus loops in down Mortimer Hill, and provides access to Tring School. There is a proposed bus route as part of the East of Tring

development from town centre, past the development to Tring Station. Additionally, the bus stops on Station Road could be used to access the East of Tring development.

Table 3-19: Key locations in Interaction T1

Planned Developments	Key Destinations	
East of Tring (1) & (2)	**Tring Station**	**Tring School**
Dunsley Farm	**Tesco Superstore (London Road)**	**Tring Sports Centre**
New Mill	**Grove Road Primary School**	**Town centre**

Interaction T2 - West Tring to Town Centre to Tring Station

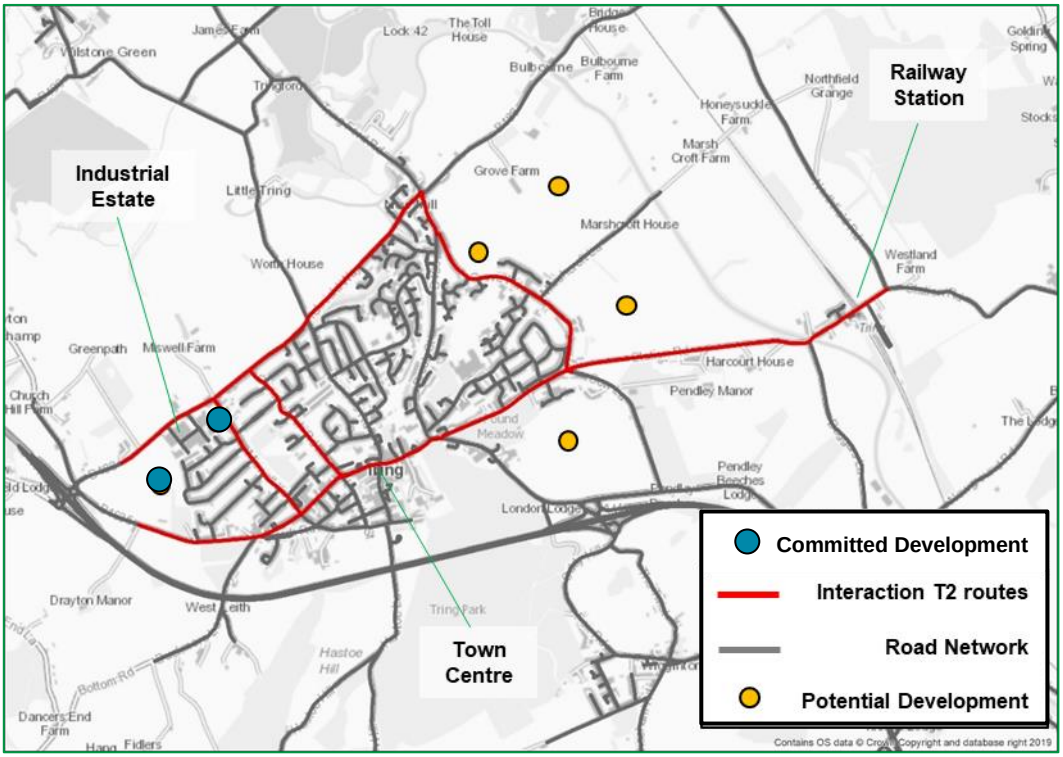


Figure 3-34: Interaction 2 - West Tring to Town Centre to Tring Station

3.156 Figure 3-34 above shows Interaction T2 – West Tring to Town Centre to Tring Station. This interaction is centred on the permitted LA5 development towards Tring Station.

3.157 Key roads in this interaction are:

- B4635, High Street, Station Road, Icknield Way, Miswell Lane and Christchurch Road.

3.158 There is an existing footpath running through the proposed development location. There is a pedestrian footway alongside Aylesbury Road/B4635 towards the town centre. This becomes a shared use path on Station Road.

3.159 There is also an extensive network of footpaths to the north of Tring, however these are mainly leisure routes.

3.160 The 500 bus service from Aylesbury to Watford runs to the south of the proposed development on Aylesbury Road to the Town Centre. The 387/398/397 to Tring Station go from the Town Centre, so an interchange can be made between the buses. Alternatively, the 387/398/397 run direct from Fantail Lane (a stop on Christchurch Road, marked with a star) and from Miswell Lane to the train station.

Table 3-20: Key locations in Interaction T2

Planned Developments	Key Destinations	
-	Tring Station	Tring Library
-	Goldfield Infants and Nursery School	M&S Simply Food
-	Grove Road Primary School	Town centre/high street

Interaction T3 – East Tring to Town Centre

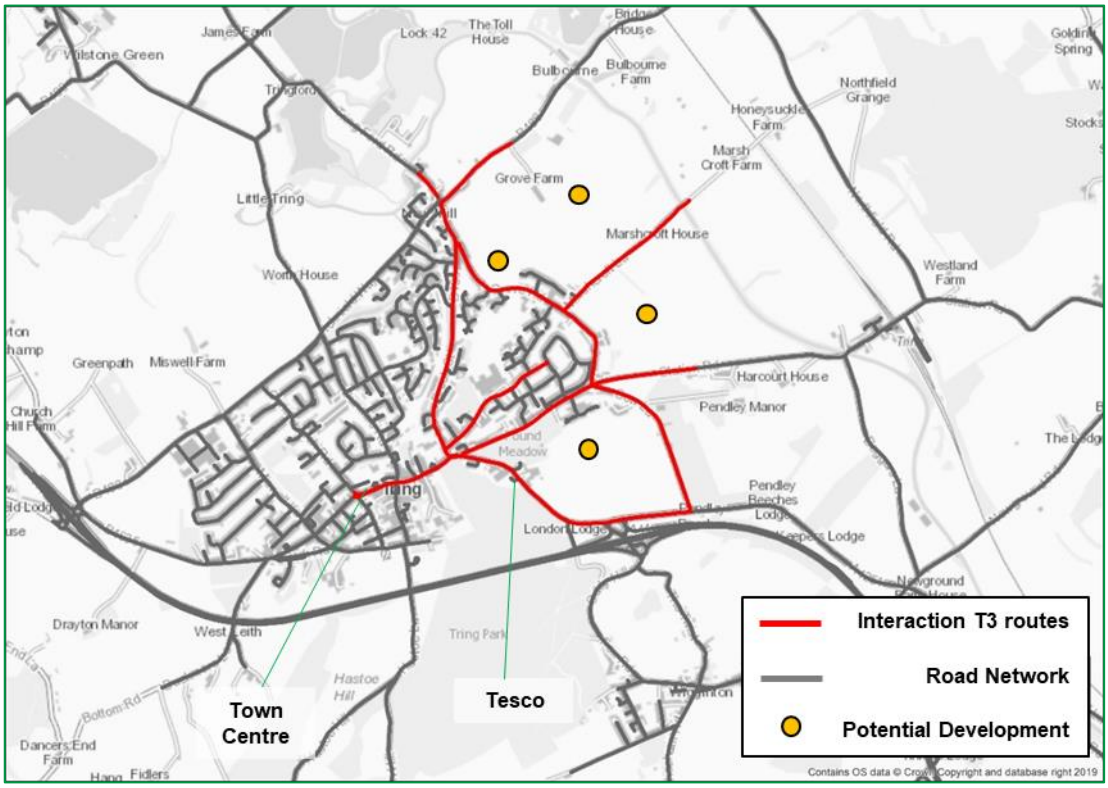


Figure 3-35: Interaction T3 - East Tring to Town Centre

3.161 Figure 3-35 above shows Interaction T3 – East Tring to Town Centre. This interaction is pivoted from the proposed East of Tring, New Mill and Dunsley Farm developments towards the town centre.

3.162 Key roads in this interaction are:

- Wingrave Road/Brook Street, Marshcroft Lane, Grove Road, Station Road, London Road and Mortimer Hill.
- As part of the East of Tring development there are proposed accesses on Bulbourne Road and Station Road, both can be used to access the town centre
- For the Dunsley Farm development there are accesses proposed on London Road, Cow Lane. The London Road access is likely to be used for the town centre.

3.163 There is an existing footpath alongside Brook Street from north Tring towards the town centre. As part of the East of Tring development plan, there is a proposed walking and cycling route along Mortimer Hill, past Tring School to the town centre. There are also several pedestrian access points on the west boundary of the development.

3.164 There is a proposed pedestrian route through the Dunsley Farm development, and along Cow Lane, which could be used to access Station Road towards the town centre.

Table 3-21: Key locations in Interaction T3

Planned Developments	Key Destinations		
East of Tring (1) & (2)	**Tesco Superstore**	**Tring Library**	**Grove Road Primary School**
Dunsley Farm	**Tring School**	**M&S Simply Food**	**-**
New Mill	**Tring Sports Centre**	**Town centre/high street**	**-**

Interaction T4 – East Tring to Icknield Way Industrial Estate

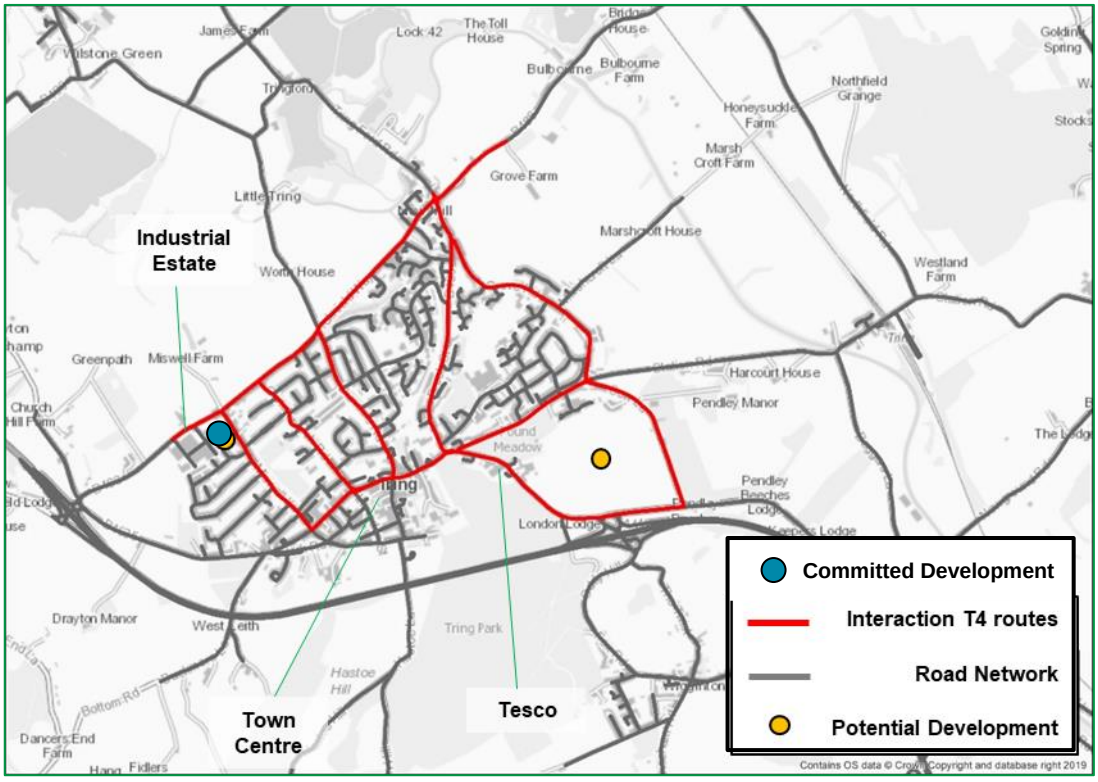


Figure 3-36: Interaction T4 - East Tring to Icknield Way Industrial Estate

3.165 Figure 3-36 above shows Interaction T4 – East Tring to Icknield Way Industrial Estate. This interaction is centred on the proposed East of Tring development and its connections to Icknield Way Industrial Estate.

3.166 Key roads in this interaction are:

- Grove Road, Wingrave Road, Icknield Way, London Road, B4635, Dundale Road and Christchurch Road.
- There is a proposed access from East of Tring development onto Bulbourne Road which leads to Icknield Way.
- At the Dunsley Farm development there are proposed accesses on London Road, A4251 and Cow Lane. The London Road access would likely be used.

3.167 Footpaths between East Tring and Icknield Way Industrial Estate are discontinuous with no clear route. There are no development proposals to increase footpath or shared use path provision between the development and the industrial estate.

3.168 The 387, 389 and 397 bus services all provide access towards Icknield Way (at different times of the day) but the closest bus stop to the Industrial Estate is on Miswell Lane, a 5-minute walk away. The 389 operates during the AM and PM peak periods only with up to 4 services in these periods. The 387 runs off-peak and operates with a two-hourly frequency. Both the 387 and 389 link to the station. The 397 is also infrequent, operating every 2 hours between 10:32 and 16:32 on Miswell Lane. The closest bus stops to the East of Tring development are on Station Road and Wingrave Road, neither of which are within 400m from all dwellings.

Table 3-22: Key locations in Interaction T4

Planned Developments	Key Destinations		
Dunsley Farm	**Icknield Way Industrial Estate**	**Bishop Wood Junior School**	**Grove Road Primary School**
-	**Tring Library**	**M&S Simply Food**	**Tesco Superstore**
-	**Town centre/high street**	**Goldfield School**	**-**

Interaction T5 - West Tring (LA5) to Icknield Way

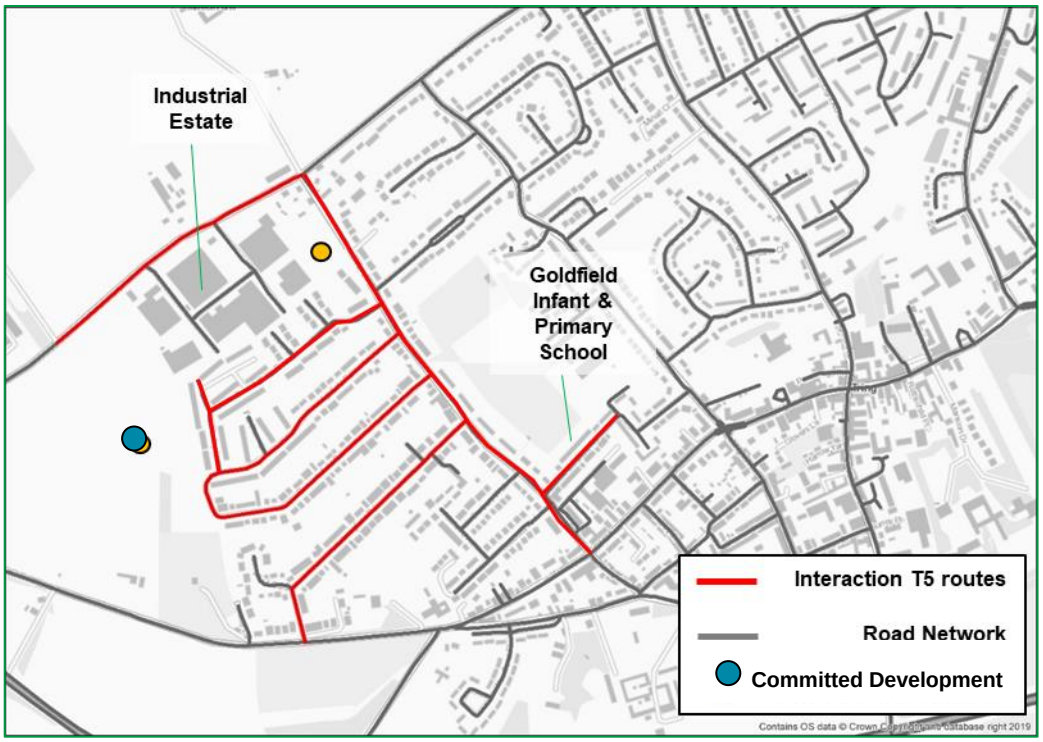


Figure 3-37: Interaction T5 - LA5 Development to Icknield Way Industrial Estate

3.169 Figure 3-37 above shows Interaction T5 – West Tring LA5 development site to Icknield Way Industrial Estate. This interaction is primarily concerned with active travel and sustainable transport options due to its small scale.

3.170 Key roads in this interaction are:

- Icknield Way, Miswell Lane and residential roads such as Buckingham Road, Highfield Road, Beaconsfield Road and Longfield Road.

3.171 The LA5 committed development site is close to the Icknield Way Industrial Estate, therefore it is quite accessible by walking and cycling. It is around a 10-15 minute walk or a 5 minute cycle between the two locations.

3.172 As the Industrial Estate is so close to the western edge of Tring, it is not that well served by bus routes. The 387, 389 and 397 bus services travel close to the industrial estate, with the stop at Fantail Lane on Christchurch Road being the closest. The bus stops on Miswell Lane would be closer if there were a pedestrian route to the industrial estate from the road. In combination with Interaction 8, the routes between the West of Tring site and town centre are covered.

Table 3-23: Key locations in Interaction T5

Planned Developments	Key Destinations	
-	Icknield Way Industrial Estate	Miswell Lane Park
-	Goldfield Infants and Nursery School	-

Interaction T6 - Tring Station to Icknield Way Industrial Estate

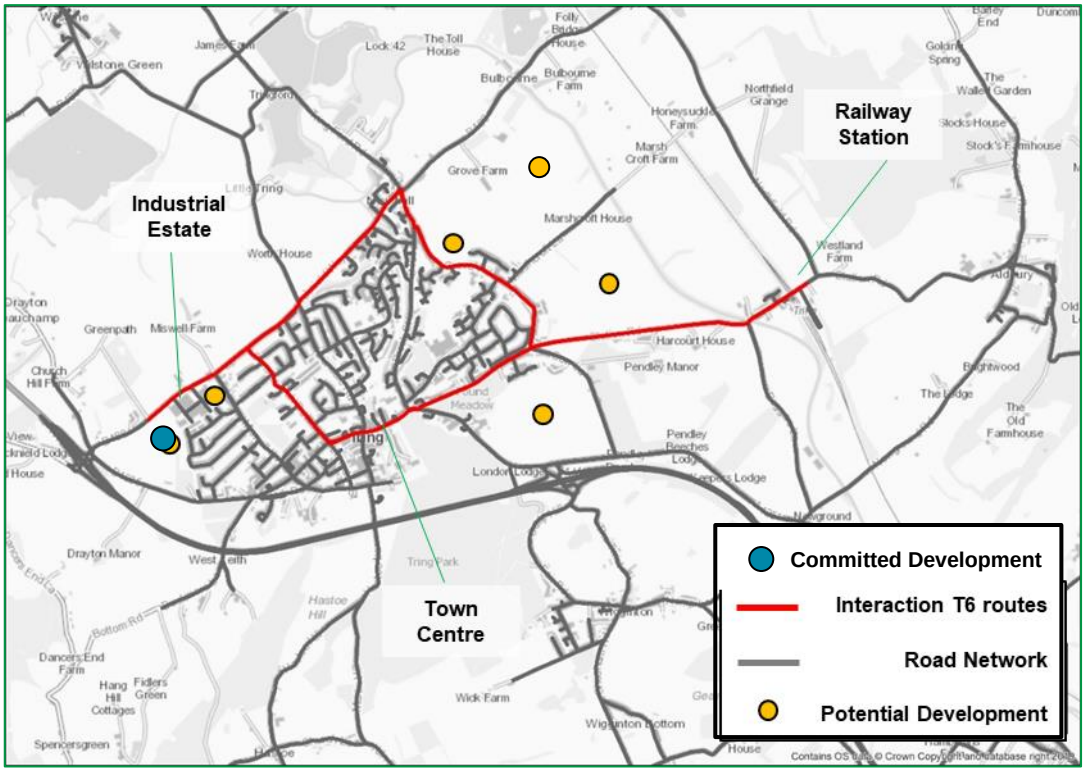


Figure 3-38: Interaction T6 - Tring Station to Icknield Way Industrial Estate

3.173 Figure 3-38 above shows Interaction T6 – Tring Station to Icknield Way Industrial Estate. This interaction is centred around accessibility between Icknield Way Industrial Estate and the railway station.

3.174 Key roads in this interaction are:

– Station Road, High Street, Christchurch Road, Grove Road, Wingrave Road and Icknield Way.

3.175 Footpaths between Tring Station and Icknield Way Industrial Estate are discontinuous. There is a shared use path alongside Station Road from the station, but this becomes pavement along the B4635/High Street. There are several footpaths near Icknield Way Industrial Estate but these link to roads and residential areas in the west of Tring. Goldfield Road and a short section of Christchurch Road provide a short cut for pedestrians and cyclists to the High Street.

3.176 There is no direct bus route from Tring Station to Icknield Way Industrial Estate, but the 389 runs once every two hours from the station to the stop at Fantail Lane on Christchurch Road. It runs slightly more frequently in peak times.

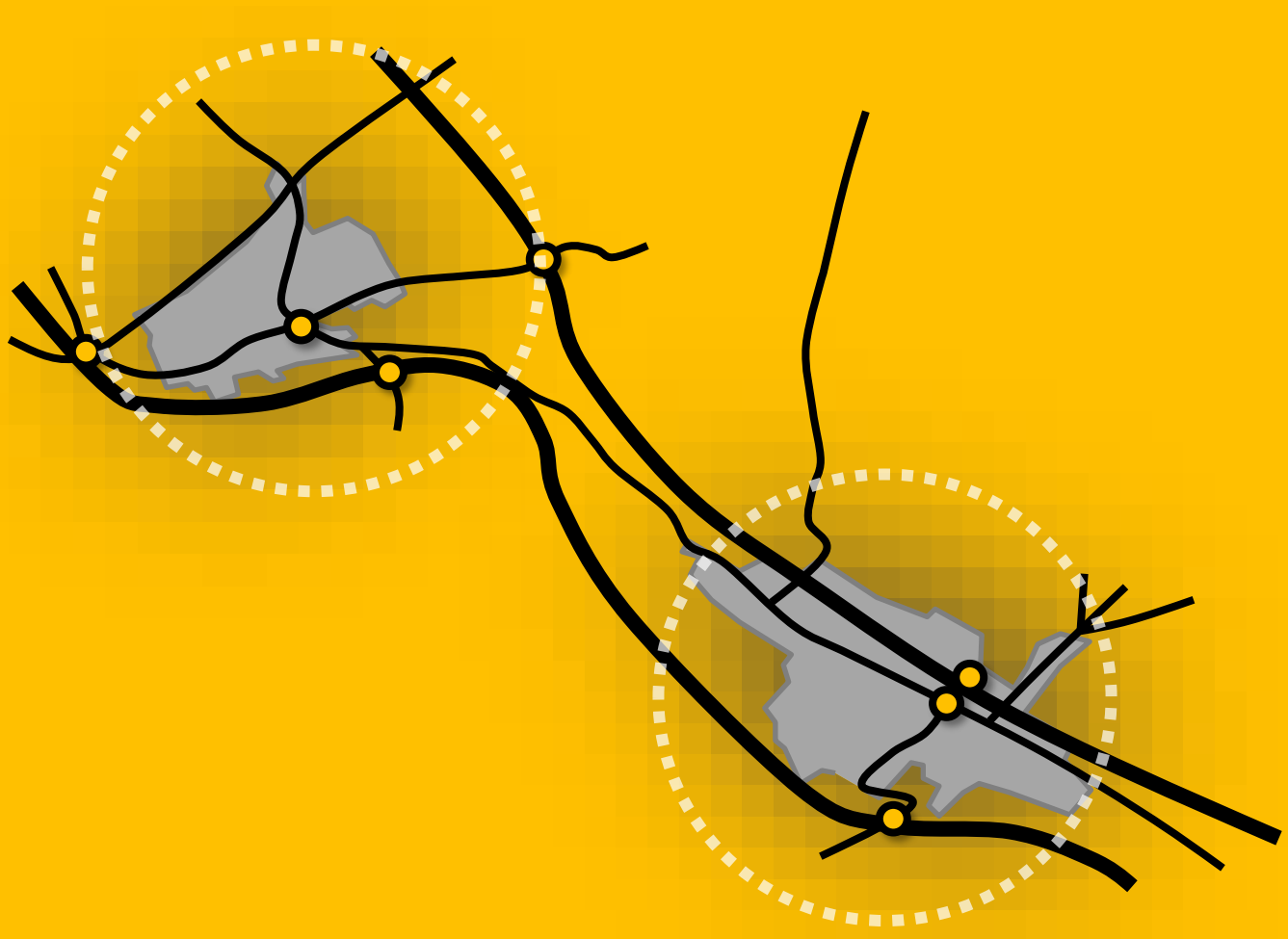
Table 3-24: Key locations in Interaction T6

Planned Developments	Key Destinations		
Mill Lane	**Icknield Way Industrial Estate**	**Bishop Wood Junior School**	**Grove Road Primary School**
-	**Tring Library**	**M&S Simply Food**	**Tring Station**
-	**Town centre/high street**	**Goldfield Infants and Nursery School**	**-**

3.177 In conclusion to this chapter, the ten interactions form the basis for audits of the highway network which are described in Chapter 5.

4

Objectives



4. Objectives

4.1 It is important that the Sustainable Transport Study is aligned with local, regional and national policies to ensure that the intervention options identified achieve the broader aims of the local authorities and are consistent in approach to achieving sustainable development.

4.2 The process of developing objectives has involved a series of steps. The first step has been to identify relevant objectives in the Dacorum Local Plan and Hertfordshire County Council's Local Transport Plan. The second step is to consider the common themes which cut across the objectives in the Local Plan and LTP. Following this, the most common objectives which are considered relevant to the aims and purpose of Sustainable Transport Study, and the local situation in Berkhamsted and Tring, have been identified. Finally, a succinct set of objectives are formulated to capture the themes, tailored to local circumstances.

Relevant Policies and Objectives in Dacorum's Local Plan

4.3 Dacorum's Local Plan, to 2038, sets out a comprehensive vision for the borough. Key extracts which are particularly relevant to the Sustainable Transport Study are presented below:

> *The market towns of Berkhamsted and Tring and the large villages will be providing all the necessary services for their communities and surroundings. They will have been enhanced by appropriate growth that delivers local homes supported by* ***appropriate infrastructure*** *and ensures* ***a high quality environment for all residents****.*
>
> *Growth in Dacorum is environmentally sustainable in its minimisation of the borough's contribution to climate change through location and design in the built environment, the promotion of reducing, reusing and recycling as a way of life, encouraging energy efficiency and using renewable energy, and* ***by using and promoting sustainable travel modes and patterns.***
>
> *Dacorum has a network of cycle lanes and secure bike parks,* ***encouraging greater levels of cycling and walking****, while also* ***promoting the use of public and greener transport****.*
>
> ***Sustainable transport is a real option*** *as public transport is more* ***reliable, rapid, flexible, convenient and widely used****. Places are better* ***connected****, and there are greater opportunities to walk and cycle.*

4.4 The vision is underpinned by a series of strategic outcomes that have guided the direction of Local Plan policies.

4.5 '**Delivering Dacorum's future with homes for everyone'** focuses on the provision of a mix of new homes; meeting 2020-2038 housing requirements; providing affordable homes and meeting the needs of older people.

4.6 '**Generating a vibrant economy with opportunities for all'** considers the importance of maintaining commercial enterprise and employment opportunities in the Borough's market town including Berkhamsted and Tring.

4.7 **'Mitigating and adapting to climate change'** seeks to promote use of renewable resources, reduce carbon emissions, protect natural resources and reduce waste; ensure the effective use of land; and reduce the impacts of new development on air quality. This is relevant to the Sustainable Transport Study transport which will play a role in reducing the impacts on air quality within and around planned developments in Berkhamsted and Tring.

4.8 **'Conserving and protecting the natural environment'** looks to protect and enhance Dacorum's distinctive landscape character, open spaces, biological and geological diversity; and to maintain and enhance networks of habitats and green infrastructure. It is important therefore that the proposals put forward in this Sustainable Transport Study will not adversely impact and where possible enhance the natural environment.

4.9 **'Ensuring an attractive and valued Urban Environment'** considers the need for creating safe and attractive environments through high quality design and to conserve and enhance the function and character of the market towns such as Berkhamsted and Tring. Transport can play a significant role in preserving and enhancing the urban environment but can also impact it in a negative way if transport proposals do not fully recognise the value of place.

4.10 **'Promoting and facilitating sustainable transport and connectivity'** looks to enable convenient access between jobs, homes and facilities, minimising the impact of traffic and reducing the overall need to travel by car. In reasonably compact towns such as Tring and Berkhamsted, there is strong opportunity to meet this strategic outcome. In addition, there is a need to harness the opportunity of technology and improve digital connectivity, which can mean providing greater travel choice and flexibility; a more optimised and efficient transport system and more opportunities for people to work from home rather than travel.

4.11 **'Supporting community health, wellbeing and cohesion'** focuses on promoting high quality of life; providing for a full range of social, leisure and community facilities and services; and enabling and supporting active lifestyles. Transport can play a key role in all of these, for example people walking and cycling to work builds exercise into their daily routines.

4.12 Finally, **'Enabling the delivery of infrastructure'** aims to coordinate the timely delivery of infrastructure to support development. This is highly relevant to the outcome of this Sustainable Transport Study which is to identify key transport infrastructure and services which are required to support new development coming forward in Berkhamsted and Tring.

Relevant Policies and Objectives in Hertfordshire's Local Transport Plan

4.13 The Local Transport Plan (LTP) sets out how transport can help deliver a positive future vision of Hertfordshire, focussed around the themes of people, place and prosperity. Under the overarching vision that is "We want Hertfordshire to continue to be a county where people have the opportunity to live healthy, fulfilling lives in thriving, prosperous communities", the three themes explore the varied aspects in which transport affects people's lives.

4.14 The **Prosperity** theme is concerned with improving linkages between towns but also reducing the need to travel (for example more people working from home); reducing people's dependency on the car and making sustainable transport more integrated and accessible; as well as increasing business and tourism opportunities.

4.15 The **People** theme is focused on improving quality of life; establishing and maintaining vibrant and healthy communities; and providing active and inclusive transport opportunities.

4.16 Finally, the **Place** theme aims to limit the impacts of climate change; to improve the local environment; and ensure heritage and places of character are retained.

4.17 The LTP defines nine objectives across these themes, and four supporting principles. The LTP's policies support delivery of the LTP objectives, and transport measures including those identified through this Sustainable Transport Study should be in accordance with these policies. The objectives are shown in Figure 4-1.

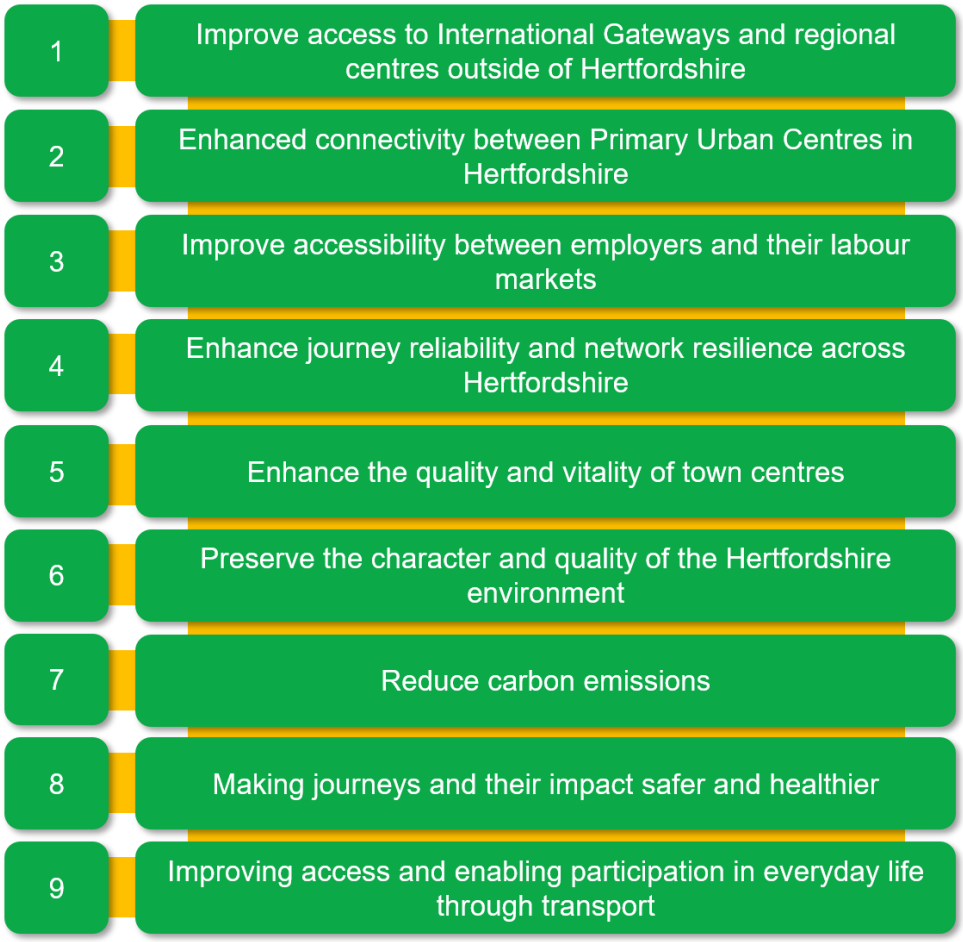


Figure 4-1: LTP Objectives

Common Themes

4.18 The Local Plan and LTP cover a wide range of outcomes and themes, including some overlapping, which are relevant to the provision of sustainable development and transport in Berkhamsted and Tring. Figure 4-1 presents broad topics, which are not presented in any particular order of priority, have been distilled from the Local Plan and LTP.

Environmental Impacts	**Settlement Character**	**Journey Time and Resilience**
Protecting and Strengthening the Economy	**Places for People**	**Safety and Security**
Travel choice	**Sustainable Development Growth**	**Access to Jobs**
Social impacts	**Technology**	**Active Travel**
Accessibility to key services	**Connectivity within and between places**	**Healthy Lifestyles**

Figure 4-2: Common Themes extracted from the Local Plan and LTP relevant to the Sustainable Transport Study

Sustainable Transport Study Objectives

4.19 The aim has been to derive a concise list of objectives, the purpose of which is to ensure the Sustainable Transport Study remains quite tightly focused but also to ensure there is reduced and unnecessary duplication of the more detailed and thorough set of outcomes and objectives described in the Local Plan and LTP. Seven objectives have been defined which are aligned with the most common themes identified from both the Local Plan and Local Transport Plan and capture the important and relevant aspects to Berkhamsted and Tring. These objectives are shown in Figure 4-3 below.

Figure 4-3: Berkhamsted and Tring Sustainable Transport Study Objectives

4.20 These objectives are intended to capture the common themes amassed from the Local Plan and LTP. They are considered to present a robust and relevant basis for guiding the development, evaluation and prioritisation of suitable intervention options which can ultimately support the key policies for Dacorum Borough Council and Hertfordshire County Council.

4.21 Table 4-1 provides further detail on each of the proposed objectives.

Table 4-1: Detailed explanation of the Berkhamsted and Tring Sustainable Transport Study Objectives

Objective	Detail
1. Deliver positive environmental outcomes	This objective will help ensure that the transport network as a whole and any proposed interventions provide positive environmental outcomes. This includes both the existing transport network and any new infrastructure proposed as part of planned housing and employment developments.
2. Support sustainable growth in Berkhamsted and Tring	This objective supports development at key sites in Berkhamsted and Tring. This encompasses housing and employment growth and seeks to ensure development is appropriate to and considerate of the existing surroundings. As part of this, it is necessary that the transport network supports

	proposed developments and in turn these developments contribute to improvements required.
3. Expand and enhance the existing sustainable transport network throughout the towns, including new developments	This objective seeks to ensure existing transport infrastructure is better utilised and improved to encourage use of sustainable transport and make sustainable transport the preferred option. The aim is to create an interconnected network of public transport and active travel routes which will encourage modal shift. This is especially important for shorter distance local trips either within or between the towns, as well as trips to key destinations and the local surrounding area.
4. Improve accessibility to key locations in Berkhamsted and Tring	This objective ensures safe, sustainable access to key destinations within the town. This includes the train stations (especially pertinent for Tring), employment areas (Billet Lane Industrial Estate and Icknield Way Industrial Estate), schools, town centres, health facilities including GP surgeries and other key services. Improvements can build on existing infrastructure to ensure accessibility to key locations within the towns.
5. Protect and enhance the natural and built environment within these historic market towns	This objective seeks to maintain and enhance the character of Berkhamsted and Tring as historic market towns, including the town centres. This can be achieved by ensuring access to these locations is not reliant upon the car. Development should be sympathetic to the natural and built environment.
6. Utilise technology to improve the transport network	This objective seeks to use technology to enhance the existing transport network and embedding technology within new developments. This could include, but is not limited to, infrastructure to support electric vehicles, electric bikes and (further into the future) autonomous vehicles, real time information and encouraging sustainable ravel. Increasing access to technology could help inform residents of alternative sustainable choices, such as electric vehicles and shared ownership/shared access (e.g. by subscription to car clubs and Mobility as a Service operations). New technologies could help residents identify the most appropriate route for their journey.
7. Enhance the health and wellbeing of the communities in Berkhamsted and Tring	This objective recognises the importance of providing health and wellbeing benefits to the residents of Berkhamsted and Tring. This can be achieved alongside the development of a sustainable transport network as this will lead to many health and wellbeing benefits.

4.22 Table 4-2 and Table 4-3 highlight which Local Plan strategic outcomes and LTP objectives link to the seven Sustainable Transport Study objectives. It is demonstrated that at least one Sustainable Transport Study objective is aligned with each of the Local Plan outcomes and LTP objectives therefore indicating a strong, policy-driven basis for the Sustainable Transport Study's proposals.

Table 4-2: Linkages between the Sustainable Transport Study Objectives and Local Plan Strategic Outcomes

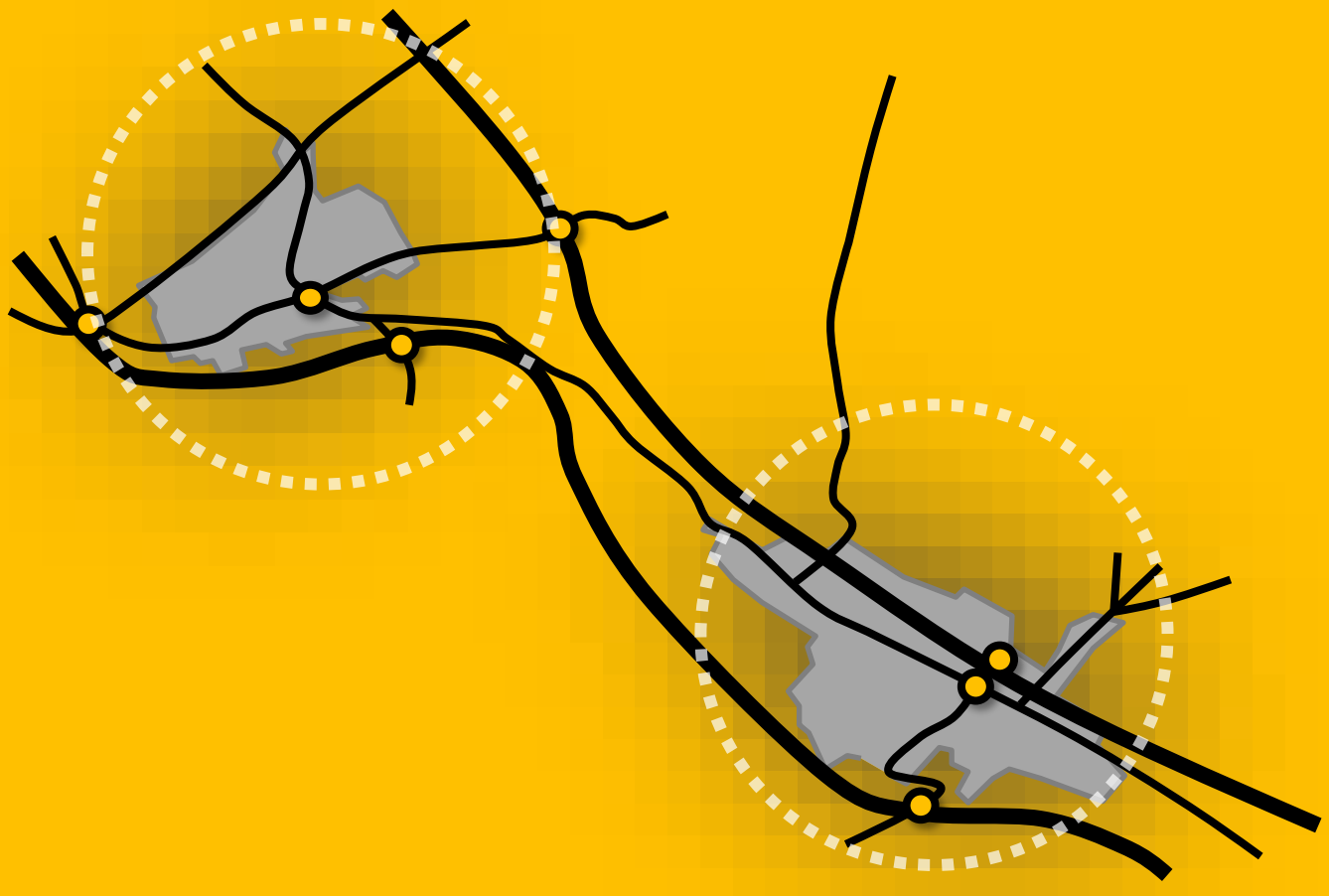
	Sustainable Transport Study Objectives						
Local Plan Strategic Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**
To protect people and property from flooding	✓				✓		
To recognise the wider benefits from natural capital and ecosystem services	✓				✓		
To provide a biodiversity net gain (NPPF170)	✓				✓		
To maintain and enhance networks of habitats and green infrastructure	✓				✓		
To conserve and enhance the landscape scenic beauty of the CAONB	✓				✓		
To create safe and attractive environments through high quality design	✓	✓			✓	✓	✓
To promote Hemel Hempstead as the Borough's focus for homes, jobs and strategic services, reinforcing the role for the neighbourhoods in the town		✓					
To conserve and enhance the function and character of the market towns, villages and countryside			✓	✓	✓		
To protect and enhance Dacorum's distinctive historic environment	✓				✓		
To enable convenient access between jobs, homes and facilities, minimise the impact of traffic and reduce the overall need to travel by car			✓	✓		✓	
To harness the opportunity of technology and improve digital connectivity						✓	
To promote healthy and sustainable communities and a high quality of life	✓			✓	✓		✓
To provide for a full range of social, leisure and community facilities and services				✓			✓
To promote social inclusion and cohesiveness, embrace diversity and reduce inequalities				✓			✓
To enable and support active lifestyles through the provision of open space, sports and recreation facilities			✓	✓			✓
To co-ordinate the timely delivery of new infrastructure with development		✓				✓	
To ensure that all development contributes appropriately to local and strategic infrastructure requirements		✓			✓	✓	

Table 4-3: Linkages between the Sustainable Transport Study Objectives and LTP Objectives

	Sustainable Transport Study Objectives						
LTP Objectives	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1_Improve access to International Gateways and regional centres outside of Hertfordshire						✓	
2_Enhanced connectivity between Primary Urban Centres in Hertfordshire			✓				
3_Improve accessibility between employers and their labour markets		✓	✓	✓		✓	
4_Enhance journey reliability and network resilience across Hertfordshire			✓	✓			
5_Enhance the quality and vitality of town centres	✓		✓	✓	✓		
6_Preserve the character and quality of the Hertfordshire environment	✓	✓			✓		
7_Reduce carbon emissions	✓	✓	✓			✓	
8_Making journeys and their impact safer and healthier	✓		✓	✓		✓	✓
9_Improving access and enabling participation in everyday life through transport				✓		✓	✓

5

Key Challenges



5. Key Challenges

5.1 The purpose of Stage 3 of developing the Sustainable Transport Study is to identify the key transport and growth challenges that are present in Berkhamsted and Tring which could affect all users of the local transport network. The approach taken to identifying issues 'on the ground' has been structured around the ten interactions which were introduced in Chapter 3.

5.2 It should be noted that the Sustainable Transport Study has been prepared between April and July 2020 during the current Covid-19 pandemic which imposed restrictions in terms of people's movements. The methodology of this analysis had therefore been adapted, replacing on-site observations made in person in each towns with desktop analysis conducted using online aerial and 'streetview' photography as a tool to understand the existing situation in the towns. It is acknowledged that whilst it is considered the alternative approach is as sufficiently robust as possible, there are some more detailed observations and measurements that are more difficult to obtain using online tools.

5.3 Desktop audits have been supplemented by local knowledge provided by council officers and representatives, including a workshop which was held on 20th May 2020 with a range of key stakeholders, including representatives from the town, borough and county council, bus and rail operators, as well as the National Trust. The purpose of this workshop was to update the stakeholders with the work conducted at this stage thus far, and to also obtain any relevant information on the challenges and issues faced in the towns as a validation check to ensure as much as possible was gained through this exercise.

5.4 An audit proforma comprising a series of questions probing different aspects of the transport network has been followed. The proforma ensures a consistent and thorough approach has been taken to consider existing conditions from different transport users' perspectives.

5.5 A different set of questions have been followed for public rights of way (i.e. alleyways and footpaths off the main highway network); streets (i.e. public highway of any type covered within the interaction, comprising footways and main carriageway) and junctions (distinguished from streets because of the higher likelihood that different users of the transport network will converge and interact at these points, e.g. cars turning and pedestrians crossing).

5.6 Issues and challenges identified during the audit have been appraised and marked as either Red (a notable issue), Amber (a potential issue) or Green (unlikely to be an issue). The categorisation of issues has been based on professional judgement according to whether the existing facilities meet at least one of the following:

- *It is considered to be sub-standard;*
- *It could potentially cause difficulty or risk the safety of pedestrians, cyclists and bus users; or*
- *It may discourage users from travelling by sustainable modes of travel along the interaction, i.e. it may reduce the attractiveness of a route and existing, less sustainable travel behaviours, for example travelling by car, may persist.*

5.7 It is not intended, or realistic within the timescales, for the Sustainable Transport Study to directly address every issue identified, even where they are categorised as Red. However, issues could be addressed indirectly. How issues can be addressed is considered in the next chapter.

5.8 The remainder of this chapter is structured as follows:

Challenges in Berkhamsted

- Summary of key challenges across the town
- Summary of challenge audits on Interaction B1-B4

Challenges in Tring

- Summary of key challenges across the town

- Summary of challenge audits on Interactions T1-T6

5.9 The full challenge audits are contained in Appendix A (Berkhamsted) and Appendix B (Tring). As discussed earlier, due to COVID-19 lockdown restrictions, on-site observations have been replaced by desktop checks using on-line tools. A series of Google Streetview photography images are presented in this chapter which were obtained during the audits.

Challenges in Berkhamsted

Summary of key challenges in Berkhamsted

5.10 In general, the challenges faced in Berkhamsted demonstrate that there is a lack of provision for movements from the residential areas in the south of the town to the retail and employment areas in the town centre and the north of the town, as well as the railway station. The A4251 London Road/High Street causes the most severance as it is a more heavily trafficked road which may cause more difficulties for people to cross. It also causes local disruption.

5.11 Some key destinations are not directly served by buses or only by infrequent services that run outside of peak periods. This is the same for many of the residential areas, which are up steep hills which flank the main high street and therefore less desirable for walking and cycling trips too even though distances are reasonably short. Other key destinations, such as Billet Lane industrial estate, are served by limited peak time services, in this instance the 354 service.

5.12 The shape of the town and how it has expanded over the decades is quite elongated along the A4251, creating quite long distances to reach central destinations with movements larger concentrated within a busy corridor used by different modes within what is quite a constrained space (at least on some section). There have been measures introduced to calm traffic within the town centre area, including a 20mph speed limit, contrasting road surface materials and refuge islands for pedestrians which are likely to have had some benefit in reducing severance however motorised traffic still dominates particular outside of the town centre area and at key junctions including the A4250 High Street/A416 Kings Road/Lower Kings Road crossroads. Although not far in distance terms, areas of the town along the ‘ridge tops’ feel more remote because of the topography.

5.13 This all leads to increased dependence on the car even for perhaps short trips beginning and ending within the town. There is also a lack of cycling infrastructure, particularly dedicated lanes and secure storage. Whilst there are some traffic calming measures, including the aforementioned 20mph speed limit on the high street and other 20mph areas including within the Shrublands area, this is fairly limited and disjointed and congestion on the high street also leads to traffic rat running on quieter residential streets such as Charles Street and Shrublands Road.

5.14 At Berkhamsted railway station there is a small parking area off of Lower Kings Road on the southern side of the station which is designated for drop-offs and pick-ups. A larger parking area is located to the north of the station and is accessible from Brownlow Road. In total, there are 395 parking spaces with nine accessible parking spaces.

5.15 There are no electric vehicle charging points at the station. Car parking is free to disabled users, but there is a £8.50 daily charge during the week for all other car users, and a lower charge during weekends and the off-peak. The station has step-free access coverage. There are also 98 unsheltered cycle storage stands located on the station forecourt and within the station car park adjacent to the Platform 1 small entrance. There is a bus stop located on the station frontage on Lower Kings Road which is served by the 354 and 532 services.

Interaction B1

5.16 The areas of Berkhamsted covered by Interaction B1, which focuses on the high street, primary roads out towards the east, quieter residential roads, and the train station, are mapped below in Figure 5-1.

5.17 Berkhamsted town centre lies in the bottom of the valley. The A4251, which forms a central spine road for this interaction, which includes the main High Street of Berkhamsted, is relatively

flat. However, the roads leading off from it are on steep slopes, particularly towards the south where they become steeper.

5.18 The area to the south is largely residential, so the streets, footpaths and junctions are likely to be utilised by a range of users. The roads to the north (Lower Kings Road, Castle Street, Ravens Lane, Holliday Street, and Station Road) lead to Berkhamsted railway station, are therefore have potential to be regularly used by commuters travelling into London or other destinations along the railway line. The A4251 to the west of this section forms the High Street of the town, which is likely to be utilised by shoppers and people socialising, as well as employees of the various offices, shops, pubs and restaurants. There are also multiple schools in this area, including Berkhamsted Boys School, Berkhamsted Sixth Form, and Swing Gate School, implying that the interaction area will be used by school children and their parents/guardians dropping them off.

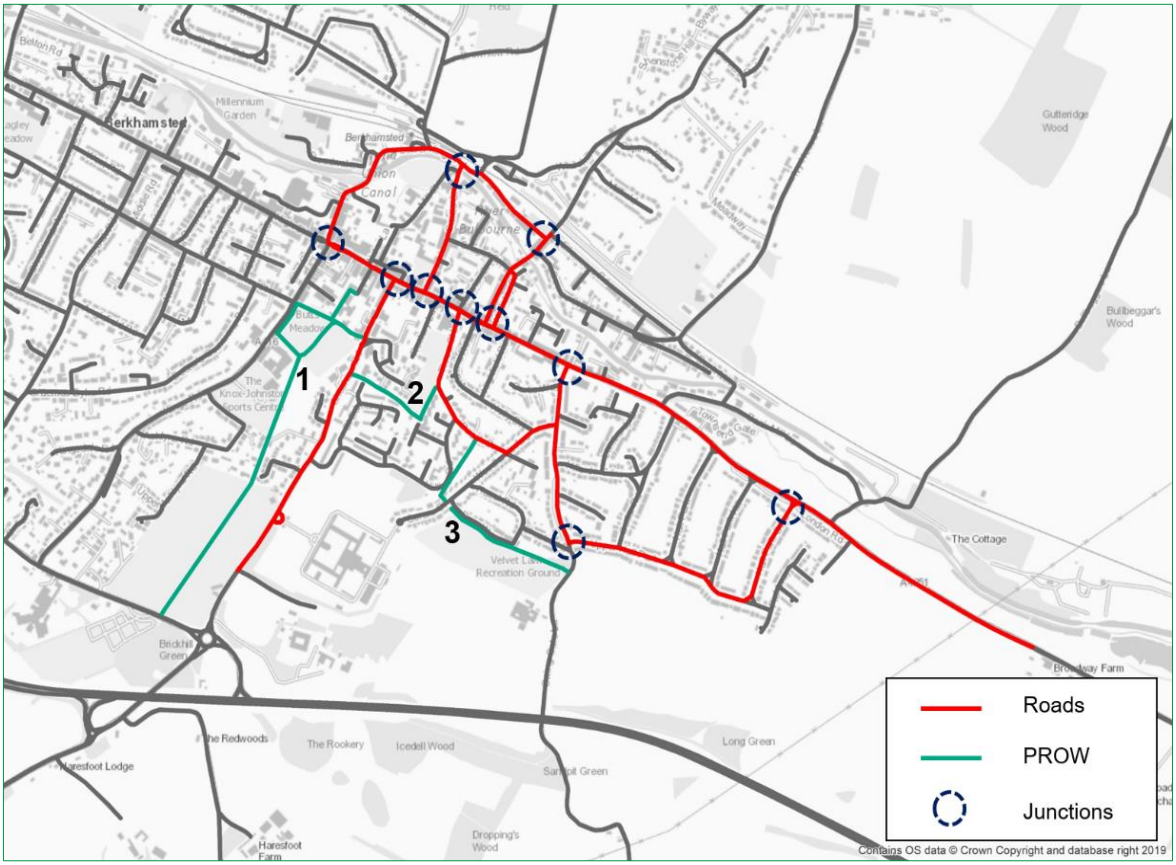


Figure 5-1: Map of area included in Interaction B1

5.19 A general theme across this interaction for cyclists is that there is an absence of cycling facilities in the area. Whilst there is some cycle parking at the station, there are limited facilities elsewhere. Additionally, there appears to be limited on-street infrastructure for cyclists, such as off-street cycle tracks, cycle priority at junctions, and bicycle lockers. The exception for this is a short section of a segregated (by markings) on-street cycleway on London Road (A4251) near the Esso Petrol Station, as shown in Figure 5-2.

Figure 5-2: On-street cycleway on London Road (A4251)

5.20 Similarly, there is a lack of pedestrian crossings in the interaction, particularly formal signalised crossings, and the ones that are there are informal and potentially less visible. Vehicles can be seen parked fully on the footway in places (see figure below) however this may not be a regular occurrence. Pavement parking also occurs along Station Road and Lower Kings Road towards the station, narrowing the footway for pedestrians and enhancing the sense of a car-dominated environment.

Figure 5-3: Pavement parking on London Road (A4251)

5.21 Off-highway public footpaths in the interaction also demonstrated to be in places inaccessible for some users, such as those in wheelchairs or pushchair users, with some only accessible via steps or on sharp slopes, with there being instances of road signs blocking the footway, as shown in Figure 5-4.

Figure 5-4: Road signs on footway on Station Road

Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google

5.22 Some forms of traffic calming are in evidence along the A4251 although of a specification which allows buses to pass over unimpeded. Whilst the A4251 has a number of bus services, the roads coming off it are either served by infrequent services, or not at all. All bus routes are in the main carriageway mixed with other vehicles, with narrows sections of roads and no instances of bus priority lanes on roads or at junctions. This is likely to increase journey time and potentially reduce reliability of buses travelling through the town.

5.23 For car users, there is very little traffic calming measures in the interaction, although as noted there are some shallow speed bumps on the A4251, and many incidences of on-street parking, which blocks the carriageway and creates informal chicanes. Whilst this may create localised congestion, as well as potentially worsening the air quality in the area, it may help to reduce traffic speeds. Prevalence of parking on the road may create difficulties for pedestrians to cross safely, and also reduces carriageway widths which could cause difficulties for cyclists. Road markings appear to be faded in some places, such as near to the Esso Petrol Station on the A4251, although this could be subject to renewal.

Interaction B2

5.24 The areas of Berkhamsted covered by Interaction B2, which focuses on the area to the south of the A4251 towards the west of Berkhamsted and the railway station, are mapped below in Figure 5-5.

5.25 This interaction focuses on the area to the west of Berkhamsted, including the main section of High Street, the railway station, and residential areas to the west, including Northchurch. This interaction forms a sort of grid, with the A4251 and Shootersway being connected by five connecting roads of varying character and provision (Kings Road, Cross Oak Road, Durrants Lane, Bell Lane and Darr's Lane), as well as Lower Kings Road off of the A4251 to Berkhamsted railway station. Bell Lane is a very narrow country lane and not covered in-depth within this interaction.

5.26 In this interaction, there are a number of key destinations, particularly to the north of the area, with the High Street (A4251) having many of them including Berkhamsted Library, and a number of pubs, restaurants and shops. Additionally, the railway station is located to the north on Lower Kings Road. The majority of the other key destinations are situated on Kings Road, including Butt's Meadow Recreation Ground, Knox Johnston Sport Centre, Berkhamsted Girls School, and access to Berkhamsted Prep School, all of which are located towards the northern end of the road, close to the High Street. Therefore, the majority of trips in this interaction will likely be travelling from the residential areas in the south to the destinations in the north for work, school, and leisure.

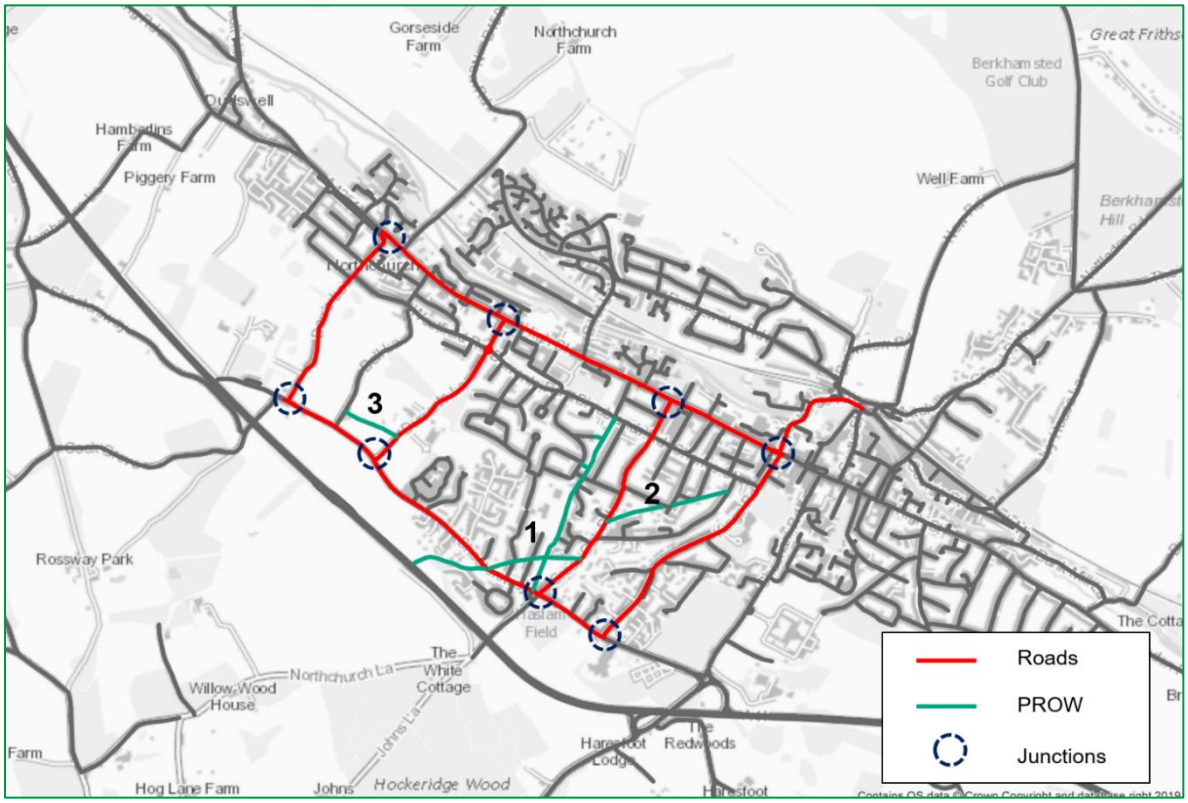


Figure 5-5: Map of area included in Interaction B2

5.27 The cycling provisions in this interaction is limited, with there being no dedicated cycle lanes and evidence of cyclists cycling on the footway, as shown in Figure 5-6. It is uncertain if this is a regular occurrence but is likely to represent a wider issue that some cyclists do not feel safe cycling along this busy road. There are some Sheffield cycle stands in the town centre along the High Street (A4251), although there are no secure bike lockers provided.

Figure 5-6: Cyclist on footway on the A4251 between Kitsbury Road and St John's Well Lane

5.28 There is a fair amount of street furniture including benches and planters along the High Street which obstructs space for passing pedestrians, although it does create a sense of place. There are various parking laybys, some formal and others which are raised for more intermittent use including deliveries, in contrasting block paving which reduces pavement widths. Towards the station on Lower Kings Road there is a significant amount of pavement parking by cars, which also causes a constraint for pedestrians. This continues to happen on the more residential roads to the south, such as on Cross Oak Road, as shown in Figure 5-7. Further away from the town centre, on roads such as Shootersway, vegetation in some places encroaches onto the footway, narrowing the paths further. Additionally, particularly on the four connecting roads in sections further away from the town centre, the footways can become constrained or only on one side of the road.

Figure 5-7: Pavement parking on Cross Oak Road

5.29 There is a notable lack of bus routes that serve the residential areas, particularly the five roads perpendicular to the south of the A4251 (Darr's Lane, Bell Lane, Durrants Lane, Cross Oak Road, and Kings Road), which are either only served for a small section closest to the A4251, or not at all in the case of Kings Road. These roads are less suitable for bus provision than other roads such as Chesham Road, which are outside of this interaction.

5.30 There is a lack of north to south public transport connections across the town, which, as mentioned above, is likely to be the main direction of movement in this interaction and could become more relevant as new development sites come forward. Notably, these roads are on significant slopes, which means that residents either have to walk or cycle up a steep hill to get home from locations such as the High Street and the railway station, or drive.

5.31 The bus stops on the A4251 are in laybys, whereas on the High Street, most are on the main carriageway. There are no dedicated bus lanes or bus priority lanes at junctions, and on-street car parking and narrow lane widths also have potential to cause delays to bus services within this interaction. In addition to the lack of bus service provision in residential areas, the 500 service is the only fairly frequent service in the interaction, and that only serves the A4251 corridor.

5.32 There are some traffic calming measures in this interaction, most notably along the A4251 where there is a radar speed sign near the junction with The Meads which is shown in Figure 5-8, as well as shallow speed tables along the town centre. Cross Oak Road has a number of traffic calming measures, including a section of single lane traffic and priority over incoming vehicles, as well as some hard-paved speed bumps. There are also a couple of raised extended hard-paved speed tables near to the junction with the A4251 along the same road.

Figure 5-8: Speed radar sign on the A4251

5.33 However, the traffic calming measures on the other roads are limited, particularly on Darr's Lane and Durrants Lane, which are known rat runs to avoid traffic lights in the town centre. Additionally, there are also sections of road with worn out road markings (at the time streetview photography was obtained), such as on Kings Road where a school warning sign is faded as shown in Figure 5-9, and in other places the markings have almost completely faded away. Where the roads become more like rural lanes, the width of the road reduces, and the visibility is constrained in places. More importantly, footways either become narrow, occur on only one side of the road or are absent altogether.

Figure 5-9: Faded school sign on carriageway on Kings Road

Interaction B3

5.34 The areas of Berkhamsted covered by Interaction B3, which focuses on the area to the south east of Berkhamsted up towards Billet Lane Industrial Estate to the north west, are mapped below in Figure 5-10.

5.35 This interaction looks at the residential areas to the south east of the town and their connections to the town centre, railway station, and Billet Lane Industrial Estate to the north west. Therefore, it is likely that the predominant movements in this interaction will be from residential areas in the south east travelling up to the town centre, railway station, and Billet Lane Industrial Estate in a diagonal movement, as well as some movements from the railway station to Billet Lane Industrial Estate. In the residential areas there are also a number of schools, including Swing Gate School and Ashlyns School, which will likely involve more local movements. This will involve a range of users, such as those using the High Street (A4251) for leisure, school children, and those travelling to work. The Grand Union Canal towpath also runs through this interaction.

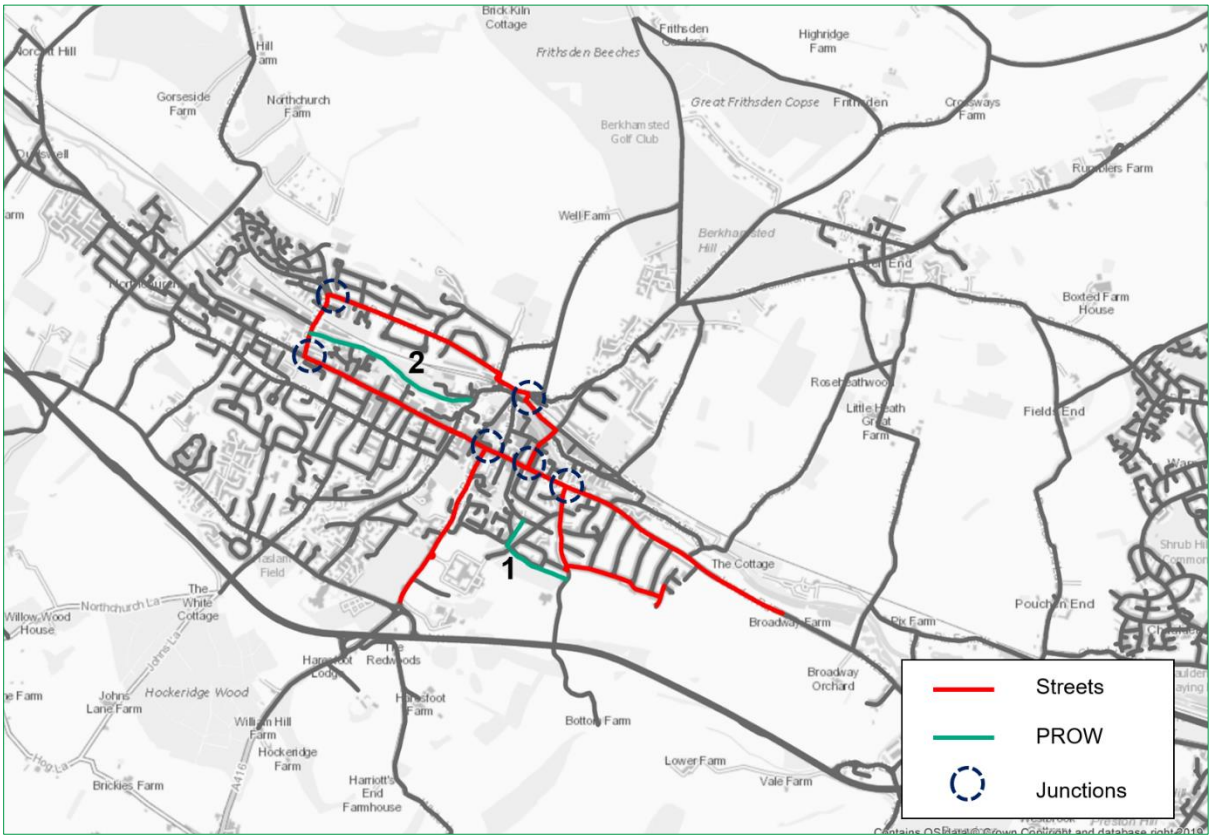


Figure 5-10: Map of area included in Interaction B3

5.36 Whilst there are some Sheffield cycle stands on the High Street, there are no on-street cycle parking at the Billet Lane Industrial Estate or near the schools although provision may be available within commercial properties and schools. There is also cycle storage at the station. However, there are no dedicated or shared-use cycle lanes towards these destinations, nor in the residential areas, meaning cyclists have to share the carriageway with other vehicles.

5.37 Footway provision in some places in this interaction is worn and there are areas where there is an absence of dropped kerbs in residential areas. There is also a lack of formal pedestrian crossings, particularly outside key destinations such as the Industrial Estate as shown in Figure 5-11, and in places along Billet Lane there is a footway on only one side of the road. The Industrial Estate in particular is car-dominant, with limited provisions for pedestrians, cyclists, or public transport users. It is recognised however that the road needs to be provide sufficient space for turning heavy goods vehicles.

Figure 5-11: Lack of formalised pedestrian crossing outside Billet Lane Industrial Estate

5.38 Billet Lane Industrial Estate is not directly served by a bus service. Whilst the 354 bus service runs along Billet Lane, there are no marked bus stops on the road, and therefore anyone wishing to travel to the Industrial Estate by bus would have to get off at the stop on the A4251. This bus stop is within 400m walking distance from parts of the Industrial Estate, but for areas particularly towards the west it is greater than this, and up to around a 10-minute walk away. Additionally, this service only runs once every hour and 10-20 minutes during the week leaving little flexibility for commuters. The same service is one of two routes serving the railway station, again meaning that those living beyond walking distance from it would be required to travel by car to access the station. The other bus route serving the station is the 532. Consultations HCC had with Arriva highlighted that there is a lack of a suitable route to the station for double decker buses, which could prevent services such as the 500 accessing the station.

5.39 Some of the road markings have been worn, although in some places they appear to have been recently repainted (when the streetview images were obtained). On Swing Gate Lane, in places the road surface has deteriorated. Traffic calming measures are in place along the A4251, particularly along the High Street, as well as on Chesham Road, as shown in Figure 5-12.

Figure 5-12: Traffic calming measures on Chesham Road

Interaction B4

5.40 The areas of Berkhamsted covered by Interaction B4, which focuses on the area to the south of the A4251 towards the west of Berkhamsted, are mapped below in Figure 5-13.

5.41 This interaction focuses on the area to the south west of Berkhamsted in a grid formation, with the A4251 (including the High Street) and Shootersway forming two sides of the grid, and the two roads are connected by Kings Road, Cross Oak Road, Durrants Lane, Bell Lane and Darr's Lane. This interaction has similarities to Interaction B2, however Interaction B4 does not include the railway station but looks more at the connections within the town.

5.42 The High Street (A4251) has a number of key destinations in this Interaction, including Berkhamsted Library, and a number of pubs, restaurants and shops. Other key destinations are on the northern end of Kings Road, including Butt's Meadow Recreation Ground, Knox Johnston Sport Centre, Berkhamsted Girls School, and access to Berkhamsted Prep School. Therefore, the majority of trips in this interaction will likely be travelling from the residential areas in the south to the destinations in the north for work, school, and leisure as well as some through trips (motorists entering/exiting the town via Shootersway crossing over the A41.

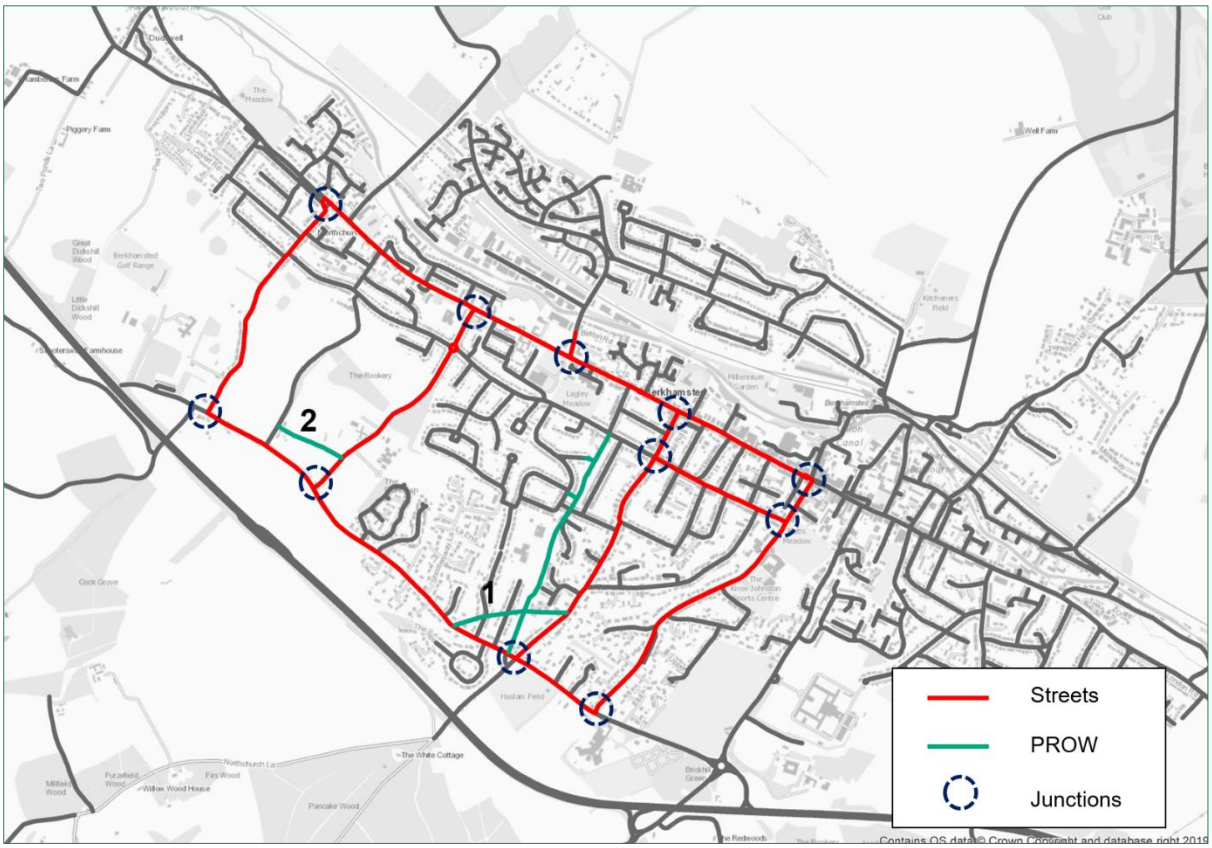


Figure 5-13: Map of area included in Interaction B4

5.43 There are some Sheffield cycle stands and other bollards which appear to be used to lock bicycles to located on the A4251, particularly when this road forms the town centre High Street. However, there are no secure bike lockers and no dedicated cycle lanes on any of the streets.

5.44 For pedestrians, whilst the High Street has wide sections of footway in places, street furniture in places can obstruct pedestrian movement. There also appear to be a myriad of parking bays, some raised, which creates varying footway widths and pinch points for pedestrians. Additionally, on the connecting residential roads running north to south, there are sections where there is only a footway on one side of the road. On Shootersway, the footway is constrained in places due to encroaching vegetation. There are instances of traffic calming

signage and bollards obstructing the footway, as shown in Figure 5-14 on Cross Oak Road, where the footway is only on one side of the road.

Figure 5-14: Signage and bollards obstructing the footway on Cross Oak Road

Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google

5.45 There is a lack of bus services in the town that run north to south, disconnecting the residential areas to the south including areas along the valley ridge tops to the main High Street and town centre to the north. This is enhanced by the town's topography, with these further away areas being located up steep hills. The A4251 is the only road served regularly by a bus service – the 500 – although the 354 runs at a frequency which is close to hourly. Not all roads are suitable for bus operation, particularly the narrower, more residential roads, however there is a clear disconnect from public transport in locations further away from the town centre.

5.46 Rat-running is known to happen along the four connecting roads, particularly Durrants Lane and Darr's Lane, to avoid traffic lights on the main High Street. The High Street also has number of traffic calming measures, which could further enhance rat-running elsewhere in the interaction. In some cases, the road markings are worn and the width of the road narrows which reduces visibility.

Challenges in Tring

Summary of Challenges in Tring

5.47 Major employment sites such as parts of Icknield Way Industrial Estate are not served by public transport, although the bus stop of Christchurch Road would enable a small part of the Industrial Estate to be within 400m of a bus stop. The employment sites also have limited cycling and pedestrian infrastructure, leading to a dominance of the car for employees of Tring. Vehicles parking on the pavement appears to occur throughout the town, blocking the pavement and the road, causing a range of issues.

5.48 Footway and road surfaces are worn, and road markings are faded in places, including on pedestrian crossings at the time that observations made using streetview photography was undertaken. There is a lack of public cycle storage facilities, notably on the High Street and in residential areas. In places where there are bus routes, the roads can be too narrow to enable a bus to stay in its lane, therefore encroaching into the opposing lane.

5.49 Cycle infrastructure connecting the town to the station is limited, with the shared use cycle- / footway being narrow in places, therefore less attractive for some users, particularly in the

winter months. Public transport along the same route is limited to services that run along the High Street to the station, but with there being many residential areas without a direct service to the station, which most likely increases car dependency, although there are some areas served by the 387/389/397 route.

5.50 There are no instances of dedicated bus lanes or other measures to enhance bus service provision such a deterring on-street parking and most bus stops are in the main carriageway, with the exception of some on the High Street.

5.51 Tring railway station is situated away from the town in a rural location approximately 2.5km from the town centre. To the south of the railway line off of Station Road there is a smaller car park with an informal drop-off and pick-up area, a small number of car parking spaces, a motorbike parking area and cycle storage. Adjacent to this is a bus-layby for services heading towards Tring town.

5.52 The pedestrian route through the forecourt is not defined therefore pedestrians will most likely be prone to mix with turning vehicles and cyclists. Furthermore, it is unclear whether cyclists approaching the station from the town are supposed to enter via the signed vehicle entry, although it is more likely they will enter via the vehicle exit which could be potentially unsafe. The small station ticket office building itself if located immediately adjacent to the forecourt.

5.53 To the north of the railway line off of Station Road there is a much larger car parking area. In total there are 506 car parking spaces with seven accessible parking spaces (part of the car park is decked). Parking is free to disabled users but there is a daily charge of £8.50 a day for all other users during the week, and a lower charge at weekends and off-peak.

5.54 There are no electric vehicle charging points at the station. The station does not have step-free coverage and this is particularly significant as the station comprises two island platforms (numbered 1 to 4) and one ‘edge’ platform on the station ticket office side. The station car park has step free access to the ticket office but not to the platforms. There are 120 unsheltered cycle storage stands at the station. There are bus stops immediately outside the station on Station Road which are served by the 387/389/397 services.

Interaction T1

5.55 The areas of Tring covered by Interaction T1, which focuses on the area to the east of Tring out towards the railway station, are mapped below in Figure 5-15.

5.56 This interaction covers the eastern edge of the town, the High Street, and the more rural areas to the east including the Grand Union Canal towpath and Tring railway station. Users in this interaction will include commuters travelling to work by train, a range of users on the high street including those using it for leisure and those using it for work, and more rural routes for leisure. School children and their parents / guardians will also likely be users in the area, with Grove Road Primary School and Tring School being covered by this area.

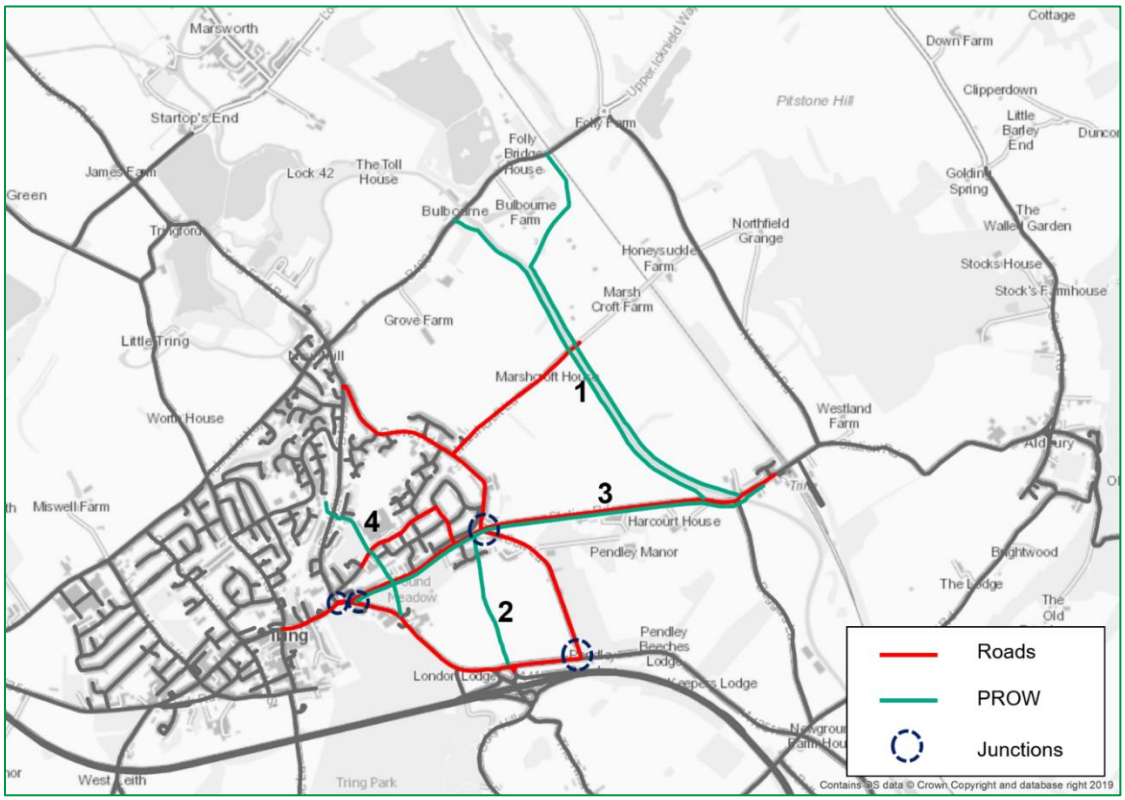


Figure 5-15: Map of area included in Interaction T1

5.57 Station Road is the main road that links Tring town centre to Tring railway station. Tring railway station is located in a significantly out of town location. There is a shared used path that runs along one side of the road for both cyclists and pedestrians. However, whilst in some parts it has a central line running through it, in others it is narrow and would not accommodate both cyclists and pedestrians on both sides if used regularly. The route is also unlit for the most part, which would likely reduce perceptions of safety along the route and would likely be unattractive for commuters travelling to the station by foot or bike, particularly in the winter months.

5.58 Similarly, the Grand Union Canal towpath which runs along the eastern section of this interaction between Bulbourne Road, Marshcroft Lane, and Station Road, is also unlit and isolated. The towpath is constructed from dirt and gravel, and therefore would be unsuitable for wheelchair users and pushchairs, particularly when muddy after adverse weather, although this could be considered to be in keeping with a rural canal setting.

5.59 In general, the pedestrian and cyclist facilities are limited in this area, with no cycle parking provisions in the town centre. There is also no pedestrian crossing outside the station, as shown in Figure 5-16, which is notable as the shared use path is on the other side of the road.

Figure 5-16: Lack of pedestrian crossing across Station Road outside Tring railway station

5.60 A number of bus services serve the High Street in Tring, however the 500 is the only service that runs hourly or more. The 387/389/397 is the only route that serves the railway station, with the 389 running up to four times an hour during the peaks. There are limited pedestrian and cyclist facilities at the station, which could result in users being more likely to travel by car to the station. The other streets in the interaction, apart from London Road which is also served by the 500 and 501, are either not served at all or are served less than hourly by bus services, with the exception of Mortimer Hill which is served by the 387/389/397.

5.61 In some instances, cars parking on the side of the road are observed to block both the footway and the carriageway. There are limited traffic calming measures, although there is an island crossing by the Tesco superstore. In some of the more rural streets and junctions the road surfaces and markings are worn and degraded (at the time streetview images were obtained).

Interaction T2

5.62 The areas of Tring covered by Interaction T2, which focuses on the area to the west of Tring, as well as more strategic routes to the east, are mapped below in Figure 5-17.

5.63 This interaction forms a grid, with Icknield Way and Aylesbury Road / Western Road / High Street / Station Road forming the two outer routes, and Miswell Lane, Dundale Road, and Wingrave Road / Grove Road forming the three connecting roads running between the two. The interaction also goes beyond this and includes Station Road up to the Northfield Road junction, consequently including the railway station.

5.64 In Interaction T2 there are likely to be a range of users due to there being many types of land use in the area. There are a number of schools, including Grove Road Primary School, Goldfield Infants and Nursery School, and Bishops Wood Church of England Junior School, which are located primarily on the three connecting roads. There are multiple destinations along the high street including restaurants, shops, coffee shops, market, the library, pharmacies, police station and the Town Council offices. Commuters will likely use the railway station, as well as there being work trips to Icknield Way Industrial Estate and offices in the town centre.

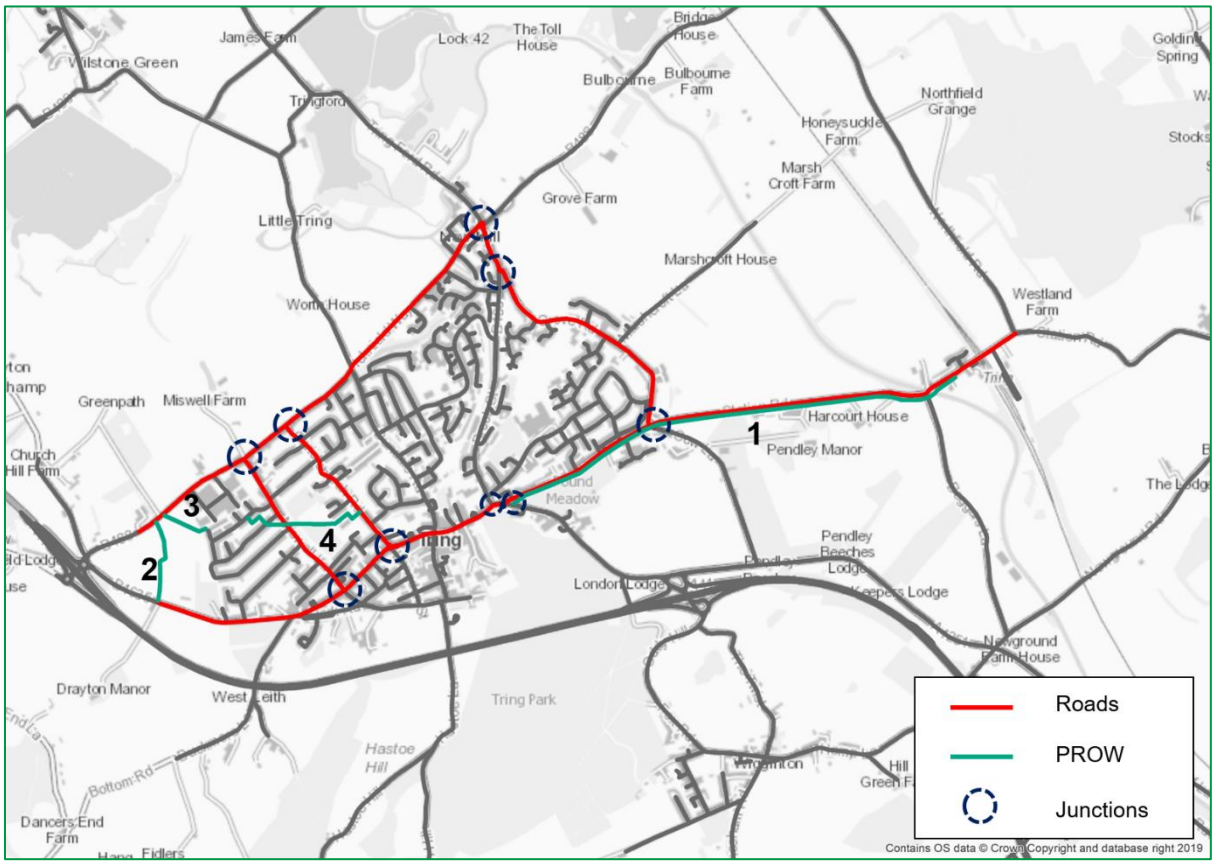


Figure 5-17: Map of area included in Interaction T2

5.65 Footpaths 2 and 3, the locations of which are shown in Figure 5-17, do not have metalled surfaces but instead consist of grass and gravel. This could limit some users' ability to use the footpaths, such as wheelchair users or those with pushchairs, particularly during or after adverse weather. In some places, vegetation encroaches onto the footway too, thus narrowing it. Pedestrian crossings are limited and often only consist of dropped kerbs, and as mentioned earlier, there is no formal pedestrian crossing outside of Tring railway station. The crossings that are available are in some cases in poor condition with faded markings, as show in Figure 5-18.

Figure 5-18: Faded markings on zebra crossing on the B4635 (Western Road/Aylesbury Road)

5.66 Additionally, it appears that cars are parking on the pavement in multiple locations across the interaction, as demonstrated below in Figure 5-19 and Figure 5-20. This blocks both the footway and the carriageway, potentially restricting movement for some users, and could cause queuing and congestion.

Figure 5-19: Pavement parking blocking footway and road on the B4635 (Western Road/Aylesbury Road)

Figure 5-20: Designated pavement parking on Wingrave Road (short section between Grove Road and Icknield Way)

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5.67 Whilst the High Street has some regular bus services, other key destinations, such as Icknield Way Industrial Estate, are only partially served by bus services, or in some cases not at all. Particularly in the case of the Industrial Estate, which is situated in an out-of-town location on a busy road (Icknield Way), it is likely that many trips made to it will therefore be by car. In places, road markings and surfaces are faded and of a poor quality, for example the traffic calming "dragon teeth" markings on Icknield Way near to the Industrial Estate are faded, as shown in Figure 5-21. As mentioned above, car parking blocks the carriageway in some places, likely leading to congestion.

Figure 5-21: Faded dragon's teeth on Icknield Way to reduce speed to 40mph outside Icknield Way Industrial Estate

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Interaction T3

5.68 The areas of Tring covered by Interaction T3, which focuses on the area to the east of Tring including the High Street, are mapped below in Figure 5-22.

5.69 This interaction focuses on the eastern section of the town, with the High Street / Station Road (although not as far as the station) acting as the key spine road running through the middle of the interaction, with Brooke Street / Wingrave Road and Grove Road coming off it to the north, and London Road and Cow Lane to the south, as well as some other roads and footpaths within this area.

5.70 There are a number of key destinations in the interaction, including Pendley Manor, Tring Rugby Football Club, Tesco Superstore, Tring Brewery Co, Silk Mill Industrial Estate, as well as a range of destinations along the High Street including restaurants, shops, coffee shops, the market, Tring Library, pharmacies, the police station and Tring Town Council. Additionally, both Grove Road Primary School and Tring School are located in this interaction. This results in a range of users in the interaction, ranging from employees at the Industrial Estate and locations along the High Street, to school children, to retail shoppers, to those using the High Street for leisure.

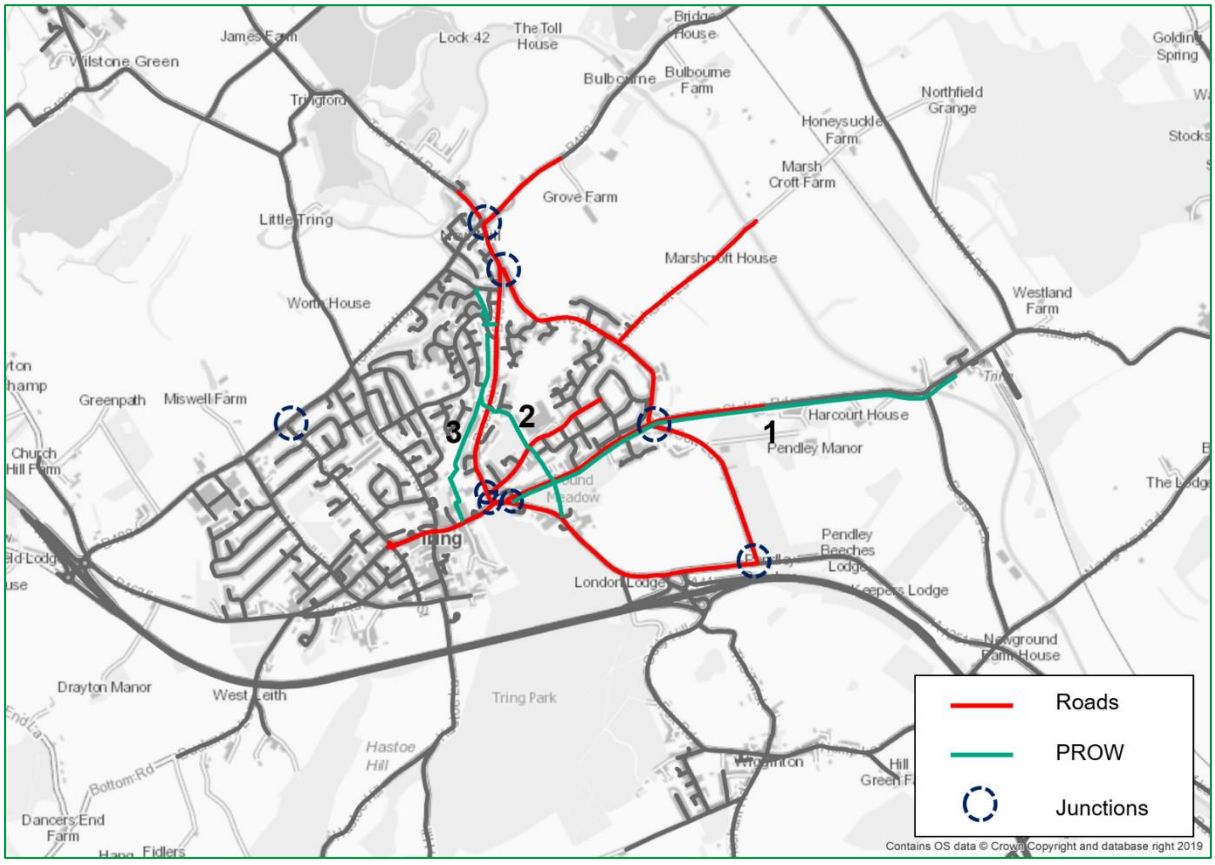

Figure 5-22: Map of area included in Interaction T3

5.71 There is a significant lack of cyclist facilities in this interaction, with no public parking stands or storage facilities near key destinations, and no dedicated cycleways apart from on the section along Station Road which is shared use with pedestrians. In places, some roads such as Mortimer Hill are on slopes, which may be a barrier to some users, particularly less confident cyclists. Similarly, to other interactions, there is a lack of formal pedestrian and cyclist crossings across this interaction. Of those that exist, the road markings are faded in places, such as the crossing shown below at Tring School in Figure 5-23.

Figure 5-23: Faded markings on zebra crossing outside Tring School

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5.72 Vegetation encroaches onto the footway in places, making sometimes already narrow footways even more constrained, such as on the section of London Road shown in Figure 5-24. This image also shows a bus stop on the highway verge on the other side of the road where there is no footway on this section, and no pedestrian crossing provided from the footway across. The section of the road is at the national speed limit, and therefore would be unsafe for pedestrians to cross the road. This is not only a barrier to pedestrians, but to bus users too, which would be enhanced if Dunsley Farm is developed as part of a redevelopment of Tring Secondary School.

Figure 5-24: Narrow footway on one side of the road and no footway or crossing at the bus stop on London Road

Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google

5.73 Of the bus services available, with the exceptions of the 500 and 387/397.389 services, most are fairly infrequent, and some key destinations are not served regularly by buses at all. In places, some of the roads are narrow and perhaps unsuitable for buses. For most of the more strategic and higher speed roads the quality of the infrastructure is of a good standard, however in places the road quality is poorer.

Interaction T4

5.74 The areas of Tring covered by Interaction T4, which focuses on the area from Icknield Way Industrial Estate to the east of Tring, are mapped below in Figure 5-25.

5.75 This interaction focuses predominantly on the High Street / Aylesbury Road (B4635) and Icknield Way as the two east to west routes, as well as the key roads that run north to south to connect the two, including Grove Road, Brook Street / Wingrave Road, Dundale Road, Christchurch Road, as well as London Road.

5.76 Key destinations in Interaction T4 include Tring Rugby Football Club, Tesco Superstore, Icknield Way Industry Estate, Silk Mill Industrial Estate, Tring Brewery Co, as well as retail and leisure destinations on the High Street. There are also a number of schools in the interaction, including Bishops Wood Church of England Junior School, Grove Road Primary School and Goldfield Infants and Nursery School. There is likely to be a range of users, from school children to those making their daily commutes. The connecting streets are particularly residential, so there will likely be predominantly residential to work / school trips, as well as some leisure trips.

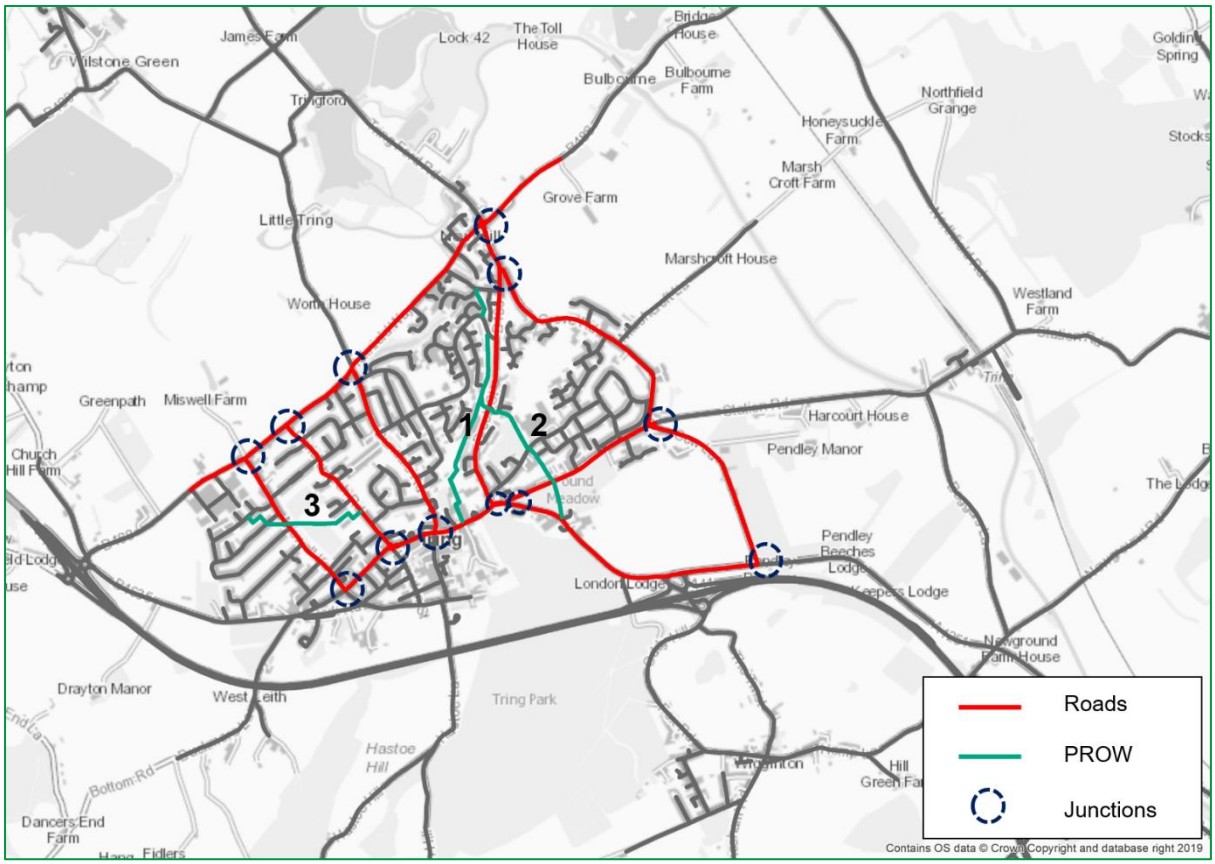


Figure 5-25: Map of area included in Interaction T4

5.77 Cycle facilities in this interaction are limited. There are no dedicated cycleways or cycle parking/storage facilities.

5.78 In places the footway is encroached by vegetation, such as on Bulbourne Road which is shown in Figure 5-26. Along this section of the road the footway is narrow and only on one side of the road. The encroaching vegetation make the footway unsuitable for many users including those in wheelchairs and using pushchairs, and unsafe for those with young children among others.

Figure 5-26: Highway verge encroaching onto footway on Bulbourne Road

5.79 There are also instances of pavement parking in multiple places across the interaction, as shown in Figure 5-27 and Figure 5-28. In many of these instances the footway is as a result only wide enough for people to walk single file, and too narrow for wheelchairs and buggies.

Figure 5-27: Pavement parking blocking the footway opposite New Road on Wingrave Road / Brook Street

Figure 5-28: Pavement parking on Frogmore Street

5.80 Some key destinations, such as parts of Icknield Way Industrial Estate, are not served by bus routes at all. Additionally, as shown in Figure 5-29, some sections of roads in which bus routes travel along, such as the northern section of Miswell Lane, are too narrow for a bus to fit comfortably along (with space for traffic travelling in the opposite direction). Where the road is wider towards the southern section of Miswell Lane, car parking on the road also creates difficulty for buses. Figure 5-29 shows a bus queuing on the minor arm of the T-junction with Icknield Way and taking up space in the lane in the opposite direction. This could cause queuing on the main carriageway on Icknield Way, which has potential to impact visibility and be unsafe.

Figure 5-29: Narrow lane with bus blocking other lane on Miswell Lane at junction with Icknield Way

Interaction T5

5.81 The areas of Tring covered by Interaction T5, which focuses on the area to the west of Tring around Icknield Way Industrial Estate, are mapped below in Figure 5-30.

5.82 This interaction focuses on the western section of Tring to the west of Miswell Lane, consisting of Icknield Way, Highfield Road, Beaconsfield Road, and Longfield Road, as well as two off-road footpaths. The area is largely residential, with the exception of Icknield Way Industrial Estate, and therefore users in this area will be local residents and employees at the Industrial Estate.

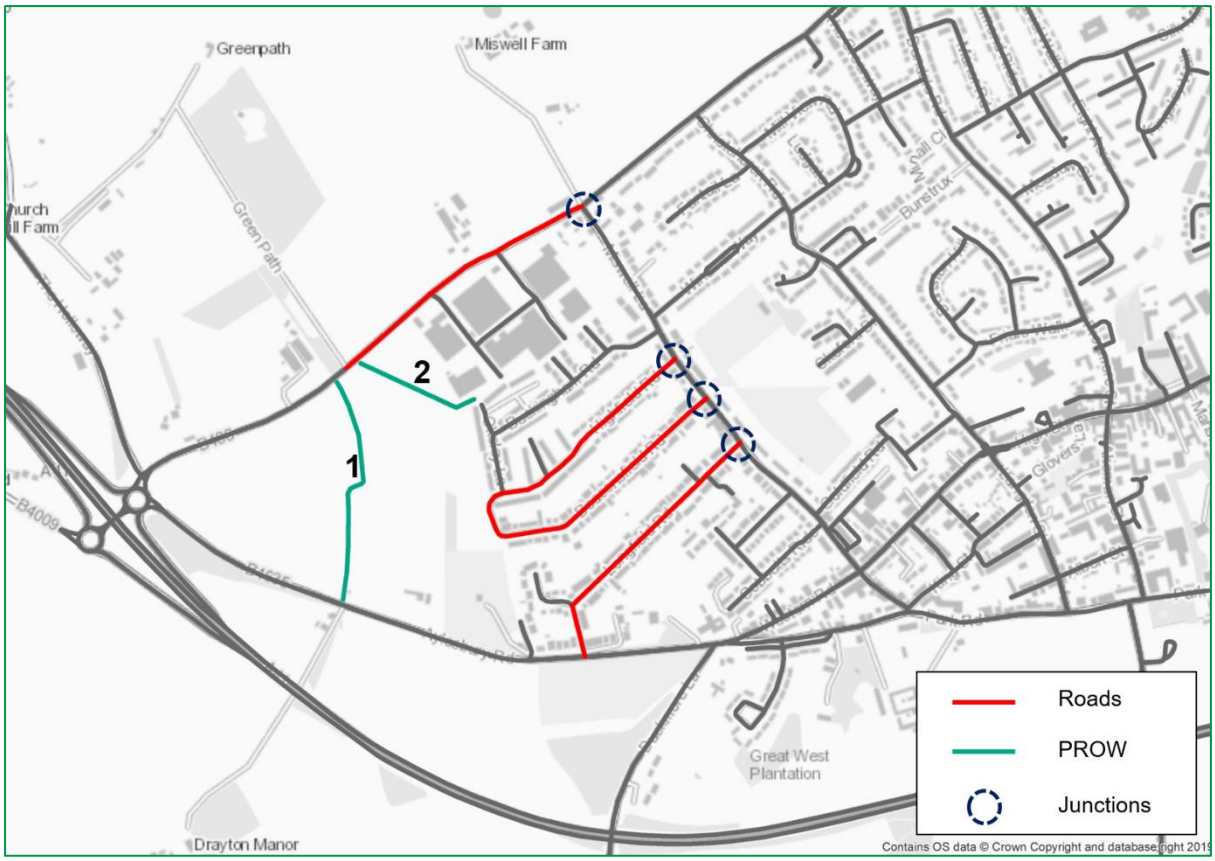


Figure 5-30: Map of area included in Interaction T5

5.83 The pedestrian infrastructure in the interaction is of a varying standard. Whilst some footways are narrow or encroached by vegetation, others are paved and of a good standard, but often blocked by parked cars, such as in the image in Figure 5-31.

Figure 5-31: Parking on both sides of the pavement along Longfield Road

5.84 There is no infrastructure for cyclists, meaning cyclists are forced to cycle on busy carriageways, such as Icknield Way shown in Figure 5-32. The lack of infrastructure has potential to deter less confident cyclists from travelling to places such as the Industrial Estate by bike, although there are cycle parking facilities at the Industrial Estate.

Figure 5-32: Cyclists having to travel on the carriageway along Icknield Way

5.85 There are no bus services in this Interaction, with the nearest stops located on Miswell Lane and Aylesbury Road.

5.86 The parking on both sides of the road demonstrated above will also limit vehicle movement in places, causing queuing and congestion. Additionally, the road surface in places is uneven, with road markings at junctions faded, including give-way lines.

Interaction T6

5.87 The areas of Tring covered by Interaction T6, which covers the route between Icknield Way Industrial Estate to Tring railway station, are mapped below in Figure 5-33.

5.88 The streets covered in this interaction are mainly distributor routes, including Station Road, High Street, Christchurch Road, Grove Road, Wingrave Road, and Icknield Way. The interaction is spread over a large, town-wide area, and has perhaps three focus areas: Tring railway station, the High Street, and Icknield Way Industrial Estate.

5.89 It is likely that most users in this interaction would be those working on the High Street, the Industrial Estate, or are heading to the station to catch trains to other towns, as well as those using the High Street for recreation. There are also a number of schools, including Grove Road Primary School, Bishops Wood Church of England Junior School and Goldfield Infants and Primary School, adding another user group to the interaction.

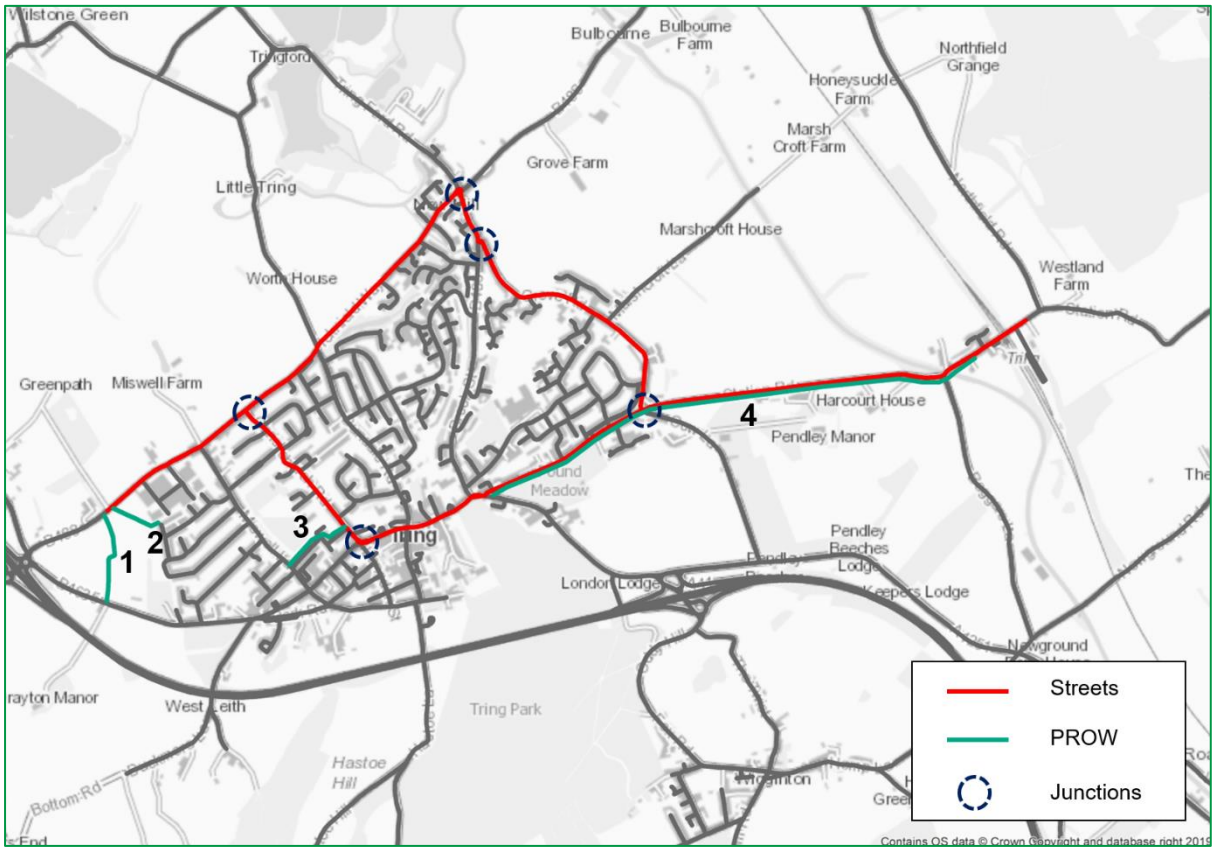


Figure 5-33: Map of area included in Interaction T6

5.90 There is a lack of pedestrian infrastructure at Tring railway station and Icknield Industrial Estate, the two ends of this interaction, both being designed for and around car-users. Pavements in many locations are blocked by parked cars, as demonstrated earlier in this chapter on Wingrave Road in Figure 5-20, which could block the pavement completely for some users, as well as causing congestion in places where vehicles have to stop for on-coming traffic.

5.91 As mentioned in earlier interactions, whilst there are some regular bus services along the High Street, the majority of the rest of the interaction is poorly served by bus services, if at all. There are no bus-only lanes, meaning buses are unable to provide a faster service than cars, and key destinations such as parts of the Icknield Industrial Estate are not served directly by buses.

5.92 There are some instances of traffic calming in the interaction, such as the dragon teeth markings near the Icknield Way Industrial Estate shown in Figure 5-21.

Key challenges for Berkhamsted and Tring

5.93 This chapter has given an overview of the key challenges across Berkhamsted and Tring, across each interaction. Some common issues which exist across both towns have been identified. This includes lack of segregated, safe cyclist facilities, insufficient public transport and a subsequent dependence on the car.

5.94 In both Berkhamsted and Tring, there is a lack of cycling infrastructure including dedicated lanes, secure storage and priority at junctions. In Tring, where off-road cycling infrastructure is present it can be in poor condition, unlit or narrow in places which makes it less attractive to users. In Berkhamsted, active modes are not always an option, due to the hilly topography of the town. In any case, the lack of suitable facilities further discourages the use of cycling within the towns. Across both towns, footways and road surfaces can be worn and road markings are faded in places although observations are reliant on desktop checks using online streetview photography.

5.95 Public transport services are of varied quality and frequency within the towns. In Berkhamsted, regular bus services are found in the centre and along the main A4251 high street corridor, which makes those living at the edges of the town more dependent on the car. A local stopping service does exist but the frequency is quite low. In Tring, there is a local bus route which provides a loop within the town however this is infrequent outside of peak hours. The out of town location of Tring train station coupled with an infrequent bus service and disconnected cycle route (especially at the station end) most likely contributes to a large number of commuters choosing to drive and park at the train station.

5.96 It is understood that a significant barrier to providing public transport provisions is that currently patronage is low, however this is possibly due to low frequency of service. Both of these factors combined make it hard for increasing service frequencies to be a financially viable solution unless patronage significantly increases, which suggests that there are other barriers in relation to perceptions of public transport that also need to be overcome including potentially affordability/value for money relative to alternative modes, or perceptions of reliability and comfort.

5.97 Vehicles parking on the pavement is commonplace in both Berkhamsted and Tring. This leads to a narrowing of the footway, making them unsafe, and in some cases impassable, for those with mobility issues, wheelchairs or prams. Pavement parking also narrows the road, and if cars are parked on both sides, which is the case in some locations, the road becomes only wide enough for one car to pass. This can often occur in more densely built-up areas, especially those where there is less off-road parking at residential properties and those which are closer to town centres (where it would be free to park up and feasible to walk into the town centre).

5.98 There are some key pinch points in both towns, which can lead to congestion and longer journey times. The A4251/Lower Kings Road/Kings Road crossroads in Berkhamsted is the most prominent example of this. In Tring, narrow junctions with limited visibility can also increase journey times, such as the Miswell Lane/Icknield Way T-junction which causes issues for buses and leads to cars mounting the pavement.

5.99 Across both towns, there is a lack of designated, safe crossing points. In many cases the only provision for crossing is dropped kerbs and tactile paving. However, in some locations there is no tactile paving or even dropped kerbs present. Provision of safe crossing points is especially important for those who have mobility issues, wheelchair users and prams. Along the A4251 in Berkhamsted there are several signalised crossing points which reduce severance, but throughout the town overall there is a lack of safe crossing points. In Tring, there are multiple Zebra crossings, but fewer signal controlled Pelican, Puffin or Toucan crossings.

Impact of proposed developments

5.100 As proposed developments come forward, this will impact upon interactions and the transport network. In all cases, development will lead to an increase of trips both within and beyond the town. It is therefore imperative to ensure that as many of these trips as possible are made using sustainable transport options.

5.101 In Berkhamsted, development is proposed around the southern edges of the town which. Given the town's steep topography, this will lead to issues for future residents accessing the town centre. This could exacerbate further the town's reliance on the car and dissuade use of more sustainable modes. In some areas where development is proposed, there is currently little or no bus services, footways or cycle routes.

5.102 As part of the South of Berkhamsted developments, there are likely to be impacts on all Berkhamsted interactions. As part of the proposals, several accesses are proposed onto the surrounding roads, including on Shootersway, Chesham Road and the A416. The access proposed on Chesham Road may increase traffic along this route, which may impact upon safety for students of the nearby Ashlyn's School.

5.103 Interactions B2 and B4 will be impacted by the proposed West of Berkhamsted developments. Increased traffic from these developments would likely exacerbate existing issues such as poor quality junctions. Bell Lane, in both B2 and B4, is a narrow rural lane which has limited visibility in places which makes it unsuitable for high volumes of traffic. Darr's Lane is similarly quite narrow, whilst Durrants Lane is wider but with a narrow footway on one side of the road. There are several other local roads which would face substantial increases in traffic as a result of proposed developments, especially Shootersway which facilitates onward access to the town centre and A41. Shootersway is currently an edge of town road with patchy provision for pedestrians and cyclists and high traffic speeds especially where the roads lead out of the town.

5.104 Further development in Berkhamsted is also likely to increase dependence on the A4251 which runs through the centre of the town, increasing congestion and journey times. To avoid this, a focus on sustainable transport and use of local walking and cycling routes must be encouraged.

5.105 Interaction B3, which includes Billet Lane Industrial Estate, will likely be affected by developments within Berkhamsted as this is a key employment site within the town which may see an increase in trips. In addition, interactions B1, B2 and B3 which include Berkhamsted railway station will see an increase in movements as residents of new developments travel from their homes to the station for onward journeys beyond the town.

5.106 In Tring, development is proposed mostly to the east and south east of the town, with a small development in the west. The infilling proposed by the East of Tring and New Mill developments will bring Tring closer to the remote railway station. This comes with an opportunity to use this development to improve the existing issues which pertain to accessing the station and attempt to minimise use of the private car to access key destinations.

5.107 In interactions T1 and T3, as a result of the East of Tring, New Mill and Dunsley Farm developments there will be many more trips using the local roads, such as Grove Road, Cow Lane, London Road and Marshcroft Lane, the latter of which is not designed for high volumes of traffic. As part of the developments proposed in Tring there is likely to be a new food store and a new secondary school which would increase the number of trips (externally and internally). However, if located within a proposed development, many trips to a new food store or school could be undertaken using sustainable modes of transport, lessening the impact on the road network.

5.108 Additionally, Dunsley Farm development is a mixed-use development which will incorporate five hectares of employment land. This will lead to an increase in in-bound trips for interaction T1 and T3, which may put pressure on the existing transport network and create congestion and queueing if travel is not sustainable.

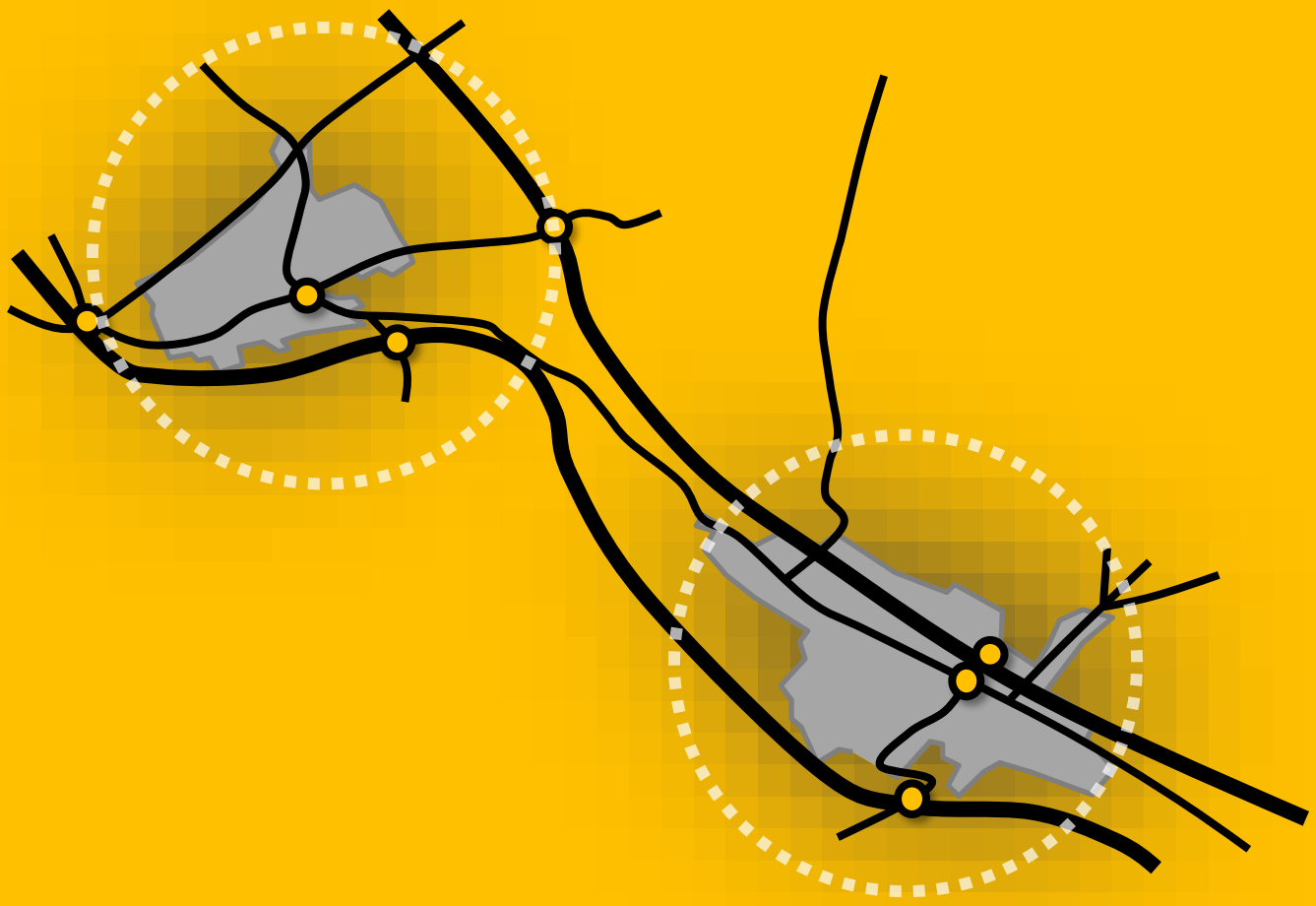
5.109 At the existing employment site in Tring, Icknield Way Industrial Estate, there may be an increase in movements to and from the site as a result of new development. This may lead to an increase in traffic flow along Icknield Way, a key route in interactions T2, T4 and T6.

5.110 Interaction T5 will be impacted by development at the LA5 site, leading to increased trips in the area. Whilst many of these trips would likely use active modes, there is the risk of increased traffic on both Icknield Way and Aylesbury Road which could lead to localised congestion.

5.111 The following chapter will identify a series of interventions which aim to address key challenges identified.

6

Proposed Interventions



6. Proposed Interventions

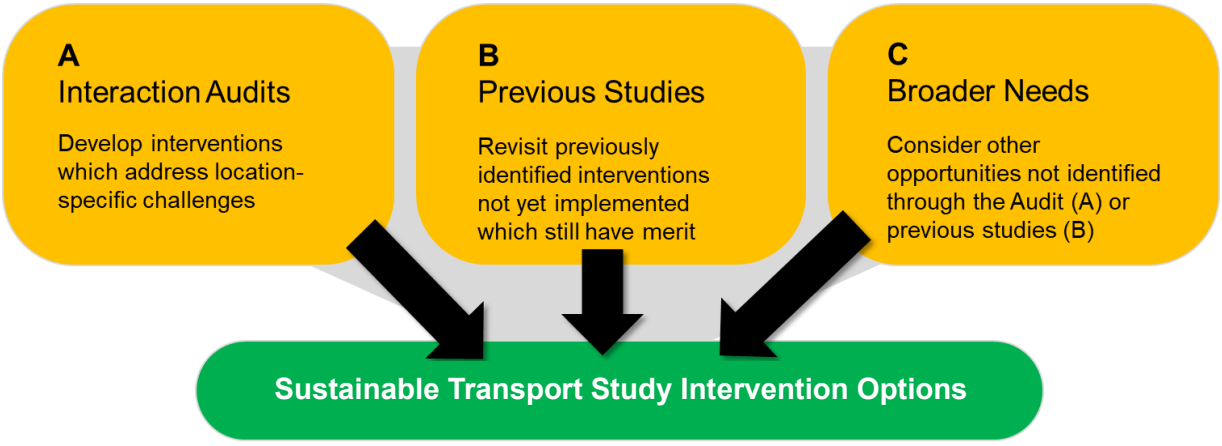
6.1 This chapter sets out the proposed interventions in Berkhamsted and Tring.

6.2 The process of identifying interventions has been informed by the review of Evidence (set out in Chapter 3) which has identified the context for where, how and why trips are made; the Objectives which align with the key local policies of Dacorum Borough Council and Hertfordshire County Council (described in Chapter 4) and seek to achieve a more sustainable transport network and healthier communities; and the audit and identification of challenges along the Interactions (Chapter 5).

6.3 The process of optioneering different types of interventions does not start with a blank sheet of paper and in fact previous studies have put forward proposals to improve the local transport network, some of which have since been implemented but others have not which are likely to have merit in the context of this Sustainable Transport Study and have therefore been revisited.

6.4 The Tring, Berkhamsted and Northchurch Urban Transport Plan (HCC, 2013) put forward a wide range of measures.

6.5 There have been three main approaches to developing intervention options in this Sustainable Transport Study:



6.6 As part of reviewing the outputs of the interaction audits (A), consideration has been given to whether key challenges need to be addressed (i.e. it would help meet the objectives) and, if so, whether or not it would be feasible to do so (i.e. there may be instances where it is physically constrained and problematic to make an effective change).

6.7 For the review of measures which had been proposed but not yet implemented in the Urban Transport Plan and other studies (B), consideration has been given to whether or not they still have merit and therefore can be subsumed into the Sustainable Transport Study.

6.8 For the consideration of other broader needs (C) which are not specifically raised as part of the interaction audits or have not been considered in previous studies, this has involved taking a step back to consider if there are any gaps not addressed by steps A and B, and whether or not there are other opportunities to improve the local transport network.

6.9 Interventions can comprise ‘hard measures’ which include physical changes to the transport network which may involve construction, or changes to local passenger transport services (e.g. routes, frequencies of services). They can alternatively comprise ‘soft measures’ which more

typically do not require capital investment but more likely will need revenue support, such as Travel Plans and other initiatives to encourage sustainable travel behaviour.

6.10 Types of interventions considered as part of this Sustainable Transport Study include the following.

Table 6-1: Example Types of Interventions

Types of Interventions	Description
Cycle Facilities	This includes interventions that aims to increase and improve cycle facilities, including additional and enhanced cycle parking (including secure bike lockers and sheltered parking) and electric charging points for e-bikes
Walking and Cycling Network Improvement	This includes interventions that comprises improvements to the existing and/or the creation of new footways and cycle routes across a network, including cycling and pedestrian friendly street infrastructure such as dropped kerbs, improved surfacing and way-finding.
Junction and Crossing Improvement	This includes interventions that are intended to improve connectivity for pedestrians and cyclists across roads, in particular where the safety of pedestrians and cyclists could be at some level of actual or perceived risk by motorised traffic. It could comprise a new bridge, priority signals, at-grade crossings including zebra, puffin and toucan crossings, informal crossings including refuge islands.
Highways junction improvement	This includes interventions that comprises junction improvement to improve the efficiency and operational performance of the highway, such as installation of new traffic signals, improvement of junction layout which could include changing lane markings, incorporating better facilities for pedestrians and cyclists.
Bus Network Improvements	This may include introducing a new bus service, re-routeing an existing bus service, increasing the frequency of an existing service or implementing bus priority measures to improve bus journey times as well as the improvement of supporting infrastructure such as bus stops. These types of measures would potentially increase bus patronage and have a positive impact on air quality if there is a significant mode shift to bus. However, they may also have a negative impact on existing traffic conditions.
Traffic calming and Urban Realm	This includes interventions that comprises reduction in traffic speeds including revised speed limits and creating extra space for landscaping and planting.

6.11 Interventions vary in scale from small-scale improvements from dropped kerbs with tactile paving which help people cross the road at suitable locations, to new footways, signalised pedestrian crossings and cycle parking.

6.12 Some interventions are grouped into packages. This is intended to reflect situations where interventions would potentially benefit from each other or are dependent on each other, for example a new footway which leads to a new pedestrian crossing.

6.13 Interventions or packages of interventions are described later in this chapter in the form of proforma which summarise key information including the location of the intervention(s), the envisaged form of the intervention(s), estimated cost, associated development (in cases where a strong link could be made to a planned development).

6.14 It is vital that interventions put forward align with the Sustainable Transport Study objectives. In the context of the Dacorum Local Plan 2038, it is also important that interventions are affordable and deliverable, and therefore less likely to present key risks that may be difficult to overcome and could therefore disrupt the implementation of sustainable developments in Berkhamsted and Tring.

6.15 The approach has been to consider and prioritise types of interventions which best align with the objectives and policies of DBC and HCC, over less appropriate or unrealistic interventions. There is a discussion at the end of this chapter which describes broad interventions which were not developed as part of this Sustainable Transport Study. This chapter is structured as follows:

- **Berkhamsted town overview** – this captures the general flavour of the types of interventions being considered across the town.
- **Berkhamsted Interventions** – proposed interventions, arranged in packages, in Berkhamsted are described in a table and presented in a series of proforma within Appendix C.
- **Tring town overview** – this captures the general flavour of the types of interventions being considered across the town.
- **Tring Interventions** – proposed interventions, arranged in packages, in Tring are described in a table and presented in a series of proforma within Appendix D.
- **Wider area** – proposed interventions which sit outside of Tring and Berkhamsted and presented in proforma within Appendix E
- **Intervention Assessment Framework** – a summary of assessment of interventions against the objectives and other criteria (full assessment framework is provided in Appendix F)

Berkhamsted town overview

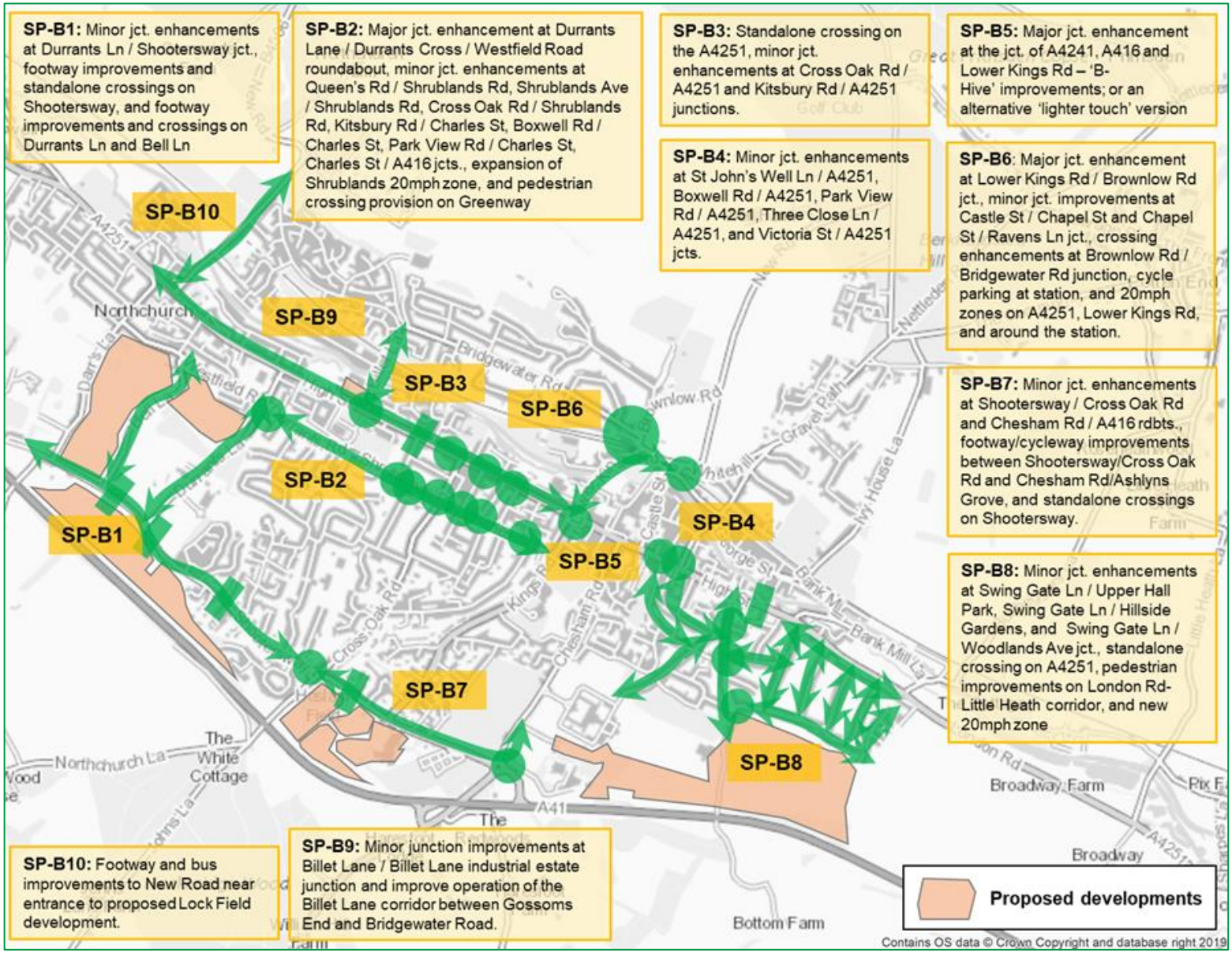
6.16 The evidence analysis and challenge audits along the interactions identified a wide range of potential issues affecting how the transport network is used in Berkhamsted. It would not be feasible or cost effective to address all of the issues identified. Some characteristics of the town, most notably its location within a deep valley and more historic and physically constrained network of roads, will continue to create barriers for people making trips on foot or by bike as there may be fewer opportunities to introduce high-quality interventions.

6.17 The proposed Local Plan developments on the edges of the town, including along the ridge top valleys, whilst as the crow-flies will be reasonably close to the town centre and railway station, will also pose a significant challenge in encouraging sustainable travel behaviour. Many of these developments will be conveniently located close to the A41 and travelling up or down a steep hill to/from the town centre or railway station will be unavoidable.

6.18 The primary areas of focus for identifying transport interventions in Berkhamsted have been to consider how the Local Plan developments will need to connect with their surroundings and to address locations on routes towards the town centre and along key roads across the town where there needs to be an improvement to pedestrian and cyclists facilities. Opportunities for reducing the priority of vehicle traffic has also been reviewed including a wider introduction of 20mph speed limits across the town.

6.19 A wider range of measures had been considered however in some cases it has been determined that there is insufficient space within the highway boundary to provide an acceptable solution, or there are safety concerns which would be too difficult to overcome.

Figure 6-1 - Summary of Proposed Spatial Packages - Berkhamsted



Berkhamsted – Schedule of Interventions

6.20 A series of interventions are proposed across Berkhamsted as detailed in the following table. In the majority of cases, interventions are broken down into two or more component parts which would, typically, need to be delivered in combination in order to achieve the overall envisaged benefit of the intervention.

6.21 Each intervention is given a unique ID, starting 'Bi'. They are not numbered in order of priority. Also, some IDs are missing which is due to interventions having been defined earlier in the process of optioneering but later dismissed or subsumed into another intervention.

6.22 Interventions are arranged into a series of spatial packages, starting 'SP-B'. These are intended to highlight where even greater benefits could be achieved if groups of interventions are brought forward together although they could still be delivered in isolation. Benefits include connectivity, for example pedestrian crossing improvements at both ends of a road. These are merely suggestions for how interventions could be brought forward but other factors will likely influence when and what (if any) combination of interventions are brought forward, including for example the build-out of planned housing and employment developments which in many cases could be fully or partly funding some of the interventions.

6.23 Finally, for interventions where the ID is highlighted red, this refers to interventions originally put forward in the Tring, Berkhamsted and Northchurch UTP which have not yet been implemented but are recommended again in this Sustainable Transport Study. Interventions highlighted in green are those which are currently being developed or recently implemented by HCC and are presented in the Sustainable Transport Study as they provide context for other interventions proposed.

6.24 In summary, **45 Interventions** are proposed in Berkhamsted which have been arranged into **10 Spatial Packages**.

Table 6-2: Berkhamsted Schedule of Interventions

(Intervention proforma contained in Appendix C)

Spatial Package	Intervention ID	Intervention Name	Description
SP-B1 - Spatial Package Berkhamsted 1 - West of Berkhamsted Shootersway Corridor The purpose of this package is to provide enhancements to walking and cycling facilities along Shootersway, in particular to connect the proposed West of Berkhamsted development options with the rest of Berkhamsted; to provide a more coherent network for pedestrians and cyclists; and to minimise any impacts of traffic on the quieter routes of Darr's Lane and Durrants Lane.			
SP-B1	**Bi6**	Minor junction enhancement at the junction of Durrants Lane and Shootersway	**Bi6.a** Add a 2m wide footway on the southern side of Shootersway along the extents of the new development. **Bi6.b** Include an informal crossing point east of the junction in order to connect the new southern footway with the existing footway on the eastern side of Durrants Lane. Another informal crossing west of the junction could be added in order to connect the new southern footway with the existing northern path along Shootersway (which would also have to be built into a proper footway). Dropped kerbs and tactile paving to be provided at crossing points. Crossings to be 2.4m wide.

SP-B1	**Bi69**	Standalone crossings on Shootersway near West of Berkhamsted development	**Bi69.a** Provide a 3.2m wide Puffin crossing on Shootersway east of the junction with Bell Lane. Provide tactile paving, dropped kerbs and roads signs. This crossing will connect the existing footway with a proposed 2m wide footway on the southern side of Shootersway.
SP-B1	**Bi74**	Shootersway Corridor Intervention	**Bi40.a** Existing footway to be widened and turned into a shared use facility from the junction with Cross Oak Road until the junction with Oxfield Close. From the junction with the A416 until the roundabout with Chesham Road, widen existing footway on the northern side of Shootersway and provide a shared use facility. **Bi40.b** Provide a new uncontrolled crossing at Tower Close. **Bi40.c** Provide a new 2m wide footway on the southern side of Shootersway from the junction with Cross Oak Road and just west of Tower Close junction. **Bi68.a** Provide a 3.2m wide Puffin crossing on Shootersway west of the junction with Tower Close. Provide tactile paving, dropped kerbs, roads signs and signals apparatus. **Bi74.a** Provide an informal crossing just east of the roundabout with Cross Oak Road (dropped kerbs and tactile paving required). **Bi74.b** Provide a new footway along the northern side of Shootersway between Bell Lane and Durrants Lane.
SP-B1	**Bi75**	Durrants Lane Corridor Intervention	**Bi75.a** Widen the existing footpath on the eastern side of Durrants Lane. There are currently some maintenance issues - grass to be cut back to maximise footway width. **Bi75.b** Provide dropped kerbs and tactile paving at the entrance of Egerton-Rothesay School to create an informal crossing. To be 2.4m wide **Bi75.c** Add give way markings and refresh existing ones. *Observation: Radii could be tightened but would depend on whether buses/coaches turn into the school.*
SP-B1	**Bi76**	Bell Lane Corridor Intervention	**Bi76.a** Provide a footway on the western side of Bell Lane to provide access to new developments and create a pedestrian corridor, e.g. Quietway **Bi76.b** New uncontrolled crossing at Bell Lane, next to junction with Shootersway (dropped kerbs and tactile paving required). 1.2m wide as absolute minimum.
SP-B2 - Spatial Package Berkhamsted 2 - Durrants Road-Shrublands Road-Charles Street Corridor The purpose of this package is to make the route less attractive for rat-running traffic which is avoiding the main high street as well as improve facilities for pedestrians and cyclists crossing the road particularly in instances where crossing points are obstructed or obscured by prevent roadside parking.			
SP-B2	**Bi8**	Major junction enhancement at the Durrants Lane, Durrants Road and Westfield Road roundabout	**Bi8.a** Remove the roundabout and provide a signalised junction. Provide 3.2m wide formal crossings on all arms (dropped kerbs and tactile paving). Kerbline to be moved to create more footway space and reduce junction area.

SP-B2	**Bi12**	Minor junction enhancement at the junction of Queen's Road and Shrublands Road	**Bi12.a** Add tactile paving at the crossing along Queens Road. To be 1.2m wide as absolute minimum. **Bi12.b** Add give way markings at Queen's Road. **Bi12.c** Surface public footpath between Shrublands Road and Greenway, improve lighting and drainage - create a safer environment for pedestrians and change the look and feel of it. **Bi12.d** Add small kerbed footway buildouts on Shrublands Road (just at the junction so as to retain parking) and provide informal crossing across Shrublands Road. Tactile paving and dropped kerbs required. New crossing to be 2.4m wide.
SP-B2	**Bi13**	Minor junction enhancement at the junction of Shrublands Avenue and Shrublands Road	**Bi13.a** Remove 30mph and 20mph zone road signs on Shrublands Avenue (at junction), as Shrublands Road will be included within the 20mph zone. **Bi13.b** Provide a 5.75m carriageway at Shrublands Avenue and build-out the rest with an uncontrolled crossing (tactile paving and dropped kerbs required). Crossing to be 2.4m wide. Repave existing footway.
SP-B2	**Bi18**	Minor junction enhancement at junction of Cross Oak Road and Shrublands Road	**Bi18.a** Add informal crossing points at Shrublands Road (west of the junction), Cross Oak Road (south of the junction) and at Charles St (east of the junction). Provision of dropped kerbs and tactile paving at these locations is required. Existing constraints include Church access. Crossings to be 2.4m wide. (1.2m as absolute minimum)
SP-B2	**Bi20**	Minor junction enhancement at junction of Kitsbury Road and Charles Street	**Bi20.a** Provide informal crossing points at Kitsbury Road (both sides of the junction). Dropped kerbs and tactile paving to be provided. Crossings to be 2.4m wide. (1.2m as absolute minimum). **Bi20.b** Refresh road markings.
SP-B2	**Bi23**	Minor junction enhancement at junction of Boxwell Road and Charles Street	**Bi23.a** Add kerbed footway buildout on western side of junction as radius is very large and this will narrow crossing distances for pedestrians. **Bi23.b** Add an uncontrolled crossing across Boxwell Road with tactile paving and dropped kerbs. Crossings to be 2.4m wide. (1.2m as absolute minimum). **Bi23.c** Add double yellow lines at junction (tight road if vehicles are parked on both sides) **Bi23.d** Refresh road markings at junction
SP-B2	**Bi25**	Minor junction enhancement at junction of Park View Road and Charles Street	**Bi25.a** Provide tactile paving on existing crossing point at Park View Road. Crossings to be 2.4m wide. (1.2m as absolute minimum). **Bi25.b** Provide double yellow lines at junction. Extend single yellow line from junction to the west on Charles St (vehicles parking on top of existing footway leave no space for pedestrians). **Bi25.c** Refresh road markings at junction

SP-B2	**Bi26**	Minor junction enhancement at the junction of Charles Street and A416	**Bi26.a** Provide an entry treatment at Charles St. with build-outs (increase footway width at junction) including tactile paving and a central refuge. **Bi26.b** Remove guard-railing to maximise footway width. **Bi26.c** Provide a footway build-out on the eastern side of the A416, along the existing hatching area (extra space for pedestrians entering / exiting the park and pushchairs/wheelchairs and provide some cycle stands). Maintain guardrail close to the park's entrance for safety. **Bi26.d** Add 20mph zone road sign on the entry to Charles St from the A416. Add 30mph road sign on Charles St at the exit lane into the A416. **Bi26.e** Raise crossing at Kings Road onto speed table.
SP-B2	**Bi89**	Expansion of Shrublands 20mph zone	**Bi89a** Expand the existing 20mph zone which covers the Shrublands residential area to incorporate Durrants Road east of Durrants Lane, Douglas Gardens, Shrublands Road, Queen's Road, West Road, Cross Oak Road, Charles Street, Kitsbury Road, Boxwell Road, Park View Road, North Road, Anglefield Road, Montague Road, Cowper Road, Torrington Road, Doctor's Common Road, Graemes Dyke Road, Greystoke Close, Kilfillan Gardens and any additional minor side roads and cul-de-sacs within this area. *This would be subject to recorded vehicle speeds falling below the required threshold for implementing 20mph speed limits as specified in HCC's Speed Management Strategy.*
SP-B2	**Bi67**	Provide Pedestrian Crossing facilities on Greenway, Berkhamsted	***UTP scheme no.43***
SP-B3 - Spatial Package Berkhamsted 3 - A4251 North West of Town Centre This purpose of this package is to improve facilities for pedestrians and cyclists along the A4251 to the north west of the town centre, for example making it easier and safer to cross the road and creating additional space for pedestrians.			
SP-B3	**Bi15**	Standalone road crossing on the A4521 between Queens Road and Stag Lane	**Bi15.a** Reduce guard-railing to maximise footway width. **Bi15.b** Existing crossings on the A4251 and on Stag Lane to be changed to a Toucan crossing. This would require widening existing crossings to a minimum of 4m. **Bi15.c** Kerbed buildout at junction with Stag Lane to increase footway width (existing radius are too large). **Bi15.d** Resurface carriageway and remove metallic studs.
SP-B3	**Bi17**	Minor junction enhancement at junction of Cross Oak Road and A4251	**Bi17.a** Side road entry treatment using block paving. Add tactile paving at the uncontrolled crossing at Cross Oak Road. **Bi17.b** Wide radius at entry/exit points from Cross Oak Road - could add footway build-outs to increase footway width.
SP-B3	**Bi19**	Minor junction enhancement at junction of Kitsbury Road and A4251	**B19.a** Entry treatment. Add tactile paving at existing crossing.
SP-B4 - Spatial Package Berkhamsted 4 - Town Centre High Street The purpose of this package is to build-upon measures already in place to create a more welcoming environment for pedestrians crossing side roads along the high street.			

SP-B4	**Bi21**	Minor junction enhancement at junction of St John's Well Lane and A4251	**Bi21.a** Provide tactile paving at the existing crossing at St. John's Well Lane (including at the central refuge island). Crossings to be 2.4m wide. **Bi21.b** Provide tactile paving and dropped kerb for a new informal crossing on the A4251, just west of the roundabout. Crossings to be 2.4m wide. **Bi21.c** Add another crossing point east of the roundabout on the A4251, including a central refuge, bollards, tactile paving and dropped kerbs. Crossings to be 2.4m wide. **Bi21.d** Refresh road markings.
SP-B4	**Bi22**	Minor junction enhancement at junction of Boxwell Road and A4251	**Bi22.a** Provide tactile paving at the existing crossing point on Boxwell Road. **Bi22.b** Refresh road markings.
SP-B4	**Bi24**	Minor junction enhancement at junction of Park View Road and A4251	**Bi24.a** Entry treatment using block paving. Provide tactile paving at the existing crossing point on Park View Road. **Bi24.b** Remove 30mph and 20mph zone road sign on Park View Road, south of the junction.
SP-B4	**Bi34**	Minor junction enhancement at junction of A4251 and Three Close Lane	**B34.a** Entry treatment by providing block paving at the crossing on Three Close Lane.
SP-B4	**Bi35**	Minor junction enhancement at A4251 and Victoria Street roundabout	**Bi35.a** Entry treatment by providing block paving at the crossing on Victoria Street.
SP-B5 - Spatial Package Berkhamsted 5 - Town Centre Crossroads The purpose of this package is to build-upon measures already in place along the high street through the town centre by enhancing pedestrian facilities at the town centre crossroads which is currently very car dominated and a critical severance point making it harder for people to cross from one side of the road to the other. *The following two options are proposed. These could be considered alternatives to one another, or could be introduced in a phased approach with 'lighter touch' measures introduced in the short term (Bi28) and larger-scale measures introduced in the longer term (Bi27)*			
SP-B5	**Bi27**	Major junction enhancement at the junction of A4241, A416 and Lower Kings Road – '*B-Hive' improvements*	*The following is akin to the 'B-Hive' scheme commissioned by the Town Council* **Bi27.a** Widen footways or islands (widen footway on the northern side of the A4152, east of the junction). **Bi27.b** Improve crossing provisions (entry treatments on all arms). **Bi27.c** Condense the junction by moving signal stoplines and crossings towards the centre of junction - subject to vehicle tracking. *Observation: Right turn movement from High St into Lower Kings Road could be banned for vehicles larger than 7.5T.*

SP-B5	**Bi28**	Major junction enhancement at the junction of A4241, A416 and Lower Kings Road - alternative 'lighter touch' version of Bi27 including removal of some road space to widen footways on junction corners	**Bi28.a** Entry treatment at Lower Kings Road and the A416 (block paving construction).
SP-B6 - Spatial Package Berkhamsted 6 - Station Area The purpose of this package is to enhance pedestrians and cycle facilities at and around Berkhamsted station, including reducing traffic speeds to make cycling on-road feel safer.			
SP-B6	**Bi29**	Major junction enhancement at junction of Lower Kings Road and Brownlow Road (nr Berkhamsted Station)	**Bi29.a** Provide 2 new uncontrolled crossings to create a more direct and safe route to the train station for pedestrians. Remove existing tactiles. Crossings to be 2.4m wide. (1.2m as an absolute minimum). **Bi29.b** Provide dropped kerbs and tactile paving at existing crossing points at the station's forecourt. Crossings to be 2.4m wide. (1.2m as absolute minimum).
SP-B6	**Bi30**	Crossing enhancements at Brownlow Road and Bridgewater Road Roundabout	**Bi30.a** Widen existing crossings at the junction to provide clearer and safer routes to/from train station. Crossings to be 1.2m wide minimum.
SP-B6	**Bi31**	Cycle Parking at Berkhamsted Station	**Bi31.a** Buildout the footway on the south-eastern corner of the White Hill junction with Brownlow Road; narrow the Brownlow Road carriageway towards the northern side of the tunnel and investigate providing an uncontrolled crossing to aid crossing movements between White Hill (Berkhamsted Castle) and the railway station. Remove some of the parking spaces on the southern side of White Hill (opposite Berkhamsted Castle). Investigate split level cycle parking.
SP-B6	**Bi32**	Minor junction enhancement at junction of Castle Street and Chapel Street	**Bi32.a** Add tactile paving at the existing crossings (dropped kerbs) on Chapel St. Crossing to be 2.4m wide. (1.2m as absolute minimum). **Bi32.b** Provide a 2.4m raised zebra crossing south of the junction for better access to Berkhamsted Boys School, including dropped kerbs, belisha beacon, tactile paving and corresponding road markings.
SP-B6	**Bi33**	Minor junction enhancement at junction of Chapel Street and Ravens Lane	**Bi33.a** Provide dropped kerbs and tactile paving at Ravens Lane for an informal crossing (just north of the junction). Provide another informal crossing on Chapel St. (just west of the junction). Crossings to be 2.4m wide. (1.2m as absolute minimum).

SP-B6	**Bi52**	20mph zone bounded by A4251 N, Mill Street Castle Street, Station Road, Ellesmere Road, Bank Mill Lane	*This scheme is already in development by Hertfordshire County Council* **Bi52.a** Provide the following road signs at the following locations: - entry to Castle St and Station Road from Lower Station Road: provide 20mph road signs and 30mph road signs for the exit into Lower Kings Road; - south of St. Michaels Church in Ivy House Lane (after entrance to private property): provide 20mph road signs for vehicles travelling southbound and 30mph road signs for the northbound direction; - just north of the existing bridge on Gravel Path: provide 20mph road signs for vehicles travelling southbound and 30 mph road signs for vehicles travelling northbound; - entry to Bank Mill Lane from London Road: provide 20mph road signs for traffic entering Bank Mill Lane and 30mph road signs for traffic getting into London Road.
SP-B6	**Bi53**	20mph zone along a short section of A4251 and Lower Kings Road	**Bi53.a** Provide an entry treatment at the junction of Lower Kings Road and Waitrose entrance to car park. Include an uncontrolled crossing with dropped kerbs and tactile paving. **Bi53.b** Provide an entry treatment at the junction of Lower Kings Road and Broadwater **Bi53.c** Provide speed cushions before and after the bridge. **Bi53.d** Provide an uncontrolled crossing with a pedestrian refuge island west of Berkhamsted Station. Dropped kerbs, tactile paving and bollards required. Crossings to be 2.4m wide. *This would be subject to recorded vehicle speeds falling below the required threshold for implementing 20mph speed limits as specified in HCC's Speed Management Strategy.*
SP-B7 - Spatial Package Berkhamsted 7 - South of Berkhamsted - Shootersway Corridor The purpose of this package is to improve walking and cycling facilities along the corridor in relation to the proposed South of Berkhamsted 2-4 developments, therefore providing better connectivity to the rest of Berkhamsted.			
SP-B7	**Bi36**	Minor junction enhancement at Shootersway and Cross Oak Road roundabout	**Bi36.a** Add a crossing point at Cross Oak Road with a central refuge, dropped kerbs and tactile paving. **Bi36.b** Add a 20mph zone road sign on the entry lane to Cross Oak Road and a 30mph sign on the exit lane on Cross Oak Road. **Bi36.c** Refresh road markings.
SP-B7	**Bi37**	Minor junction enhancement at Chesham Road and A416 roundabout	**Bi37.a** Widen existing uncontrolled crossing on Chesham Road and provide tactile paving, just north of the roundabout. Improve signage to warn drivers of cyclists crossing. **Bi37.b** Refresh road markings.

SP-B7	**Bi40**	Footway/Cycleway route improvement between Shootersway/Cross Oak Road and Chesham Road/Ashlyns Grove	**Bi40.a** Existing footway to be widened and turned into a shared use facility between the junction with Cross Oak Road and the junction with Oxfield Close. Between the junction with the A416 and the roundabout with Chesham Road, widen existing footway on northern side of Shootersway and provide a shared use facility. **Bi40.b** Provide a new uncontrolled crossing at Tower Close junction (1.2m wide minimum). **Bi40.c** Provide a new 2m wide footway on the southern side of Shootersway from the junction with Cross Oak Road and just west of Tower Close junction. **Bi40.d** Footway build-out to tighten the existing kerbline at Tower Close.
SP-B7	**Bi68**	Standalone crossings on Shootersway near southern Berkhamsted development sites	**Bi68.a** Provide a 3.2m wide Puffin crossing on Shootersway west of the junction with Tower Close. Provide tactile paving, dropped kerbs, roads signs and signals apparatus. This crossing will connect the existing footway with the proposed 2m wide footway on the southern side of Shootersway (**Bi40**).
SP-B8 - Spatial Package Berkhamsted 8 - Southern Berkhamsted The purpose of this package is to improve walking and cycling facilities in the southern part of Berkhamsted and to improve active mode connections between the proposed South of Berkhamsted 1 development and the wider settlement.			
SP-B8	**Bi41**	Minor junction enhancement at junction of Swing Gate Lane and Upper Hall Park	**Bi41.a** Entry treatment on Upper Hall Park and maintain existing uncontrolled crossing. Provide block paving. **Bi41.b** Refresh road markings.
SP-B8	**Bi42**	Minor junction enhancement at junction of Swing Gate Lane and Hillside Gardens	**Bi42.a** Raised table across whole junction. Swing Gate Lane is very steep at this point, so a raised table will encourage drivers to reduce their speed, increasing safety for pedestrians in the area. **Bi42.b** Provide an informal crossing point at Hillside Gardens, including tactile paving. Crossing to be 2.4m wide. (1.2m as absolute minimum). **Bi42.c** Provide footway build-outs at junction to aid the speed reduction.
SP-B8	**Bi43**	Minor junction enhancement at junction of Swing Gate Lane and Woodlands Avenue	**Bi43.a** Raised table across whole junction. Swing Gate Lane is very steep at this point, so a raised table will encourage drivers to reduce their speed, increasing safety for pedestrians in the area. **Bi43.b** Provide an informal crossing point at Woodlands Avenue, including tactile paving. Crossing to be 2.4m wide. (1.2m as absolute minimum). **Bi43.c** Provide footway build-outs at junction to aid the speed reduction. Vehicle tracking required.
SP-B8	**Bi44**	Standalone road crossing on A4251 outside Swing Gate School	**Bi44.a** Provide a 3.2m wide puffin crossing on the A4251, east of the roundabout and west of the bus stop. Provide dropped kerbs, tactile paving and pedestrian crossing signs.

SP-B8	**Bi90**	New 20mph speed limit area covering southern Berkhamsted residential area	**Bi90a** New 20mph speed limit area covering Hall Park Gate, Hall Park Hill, Hall Park, Upper Hall Park, Fieldway, Cedar Road, Hillside Gardens, Swing Gate Lane, Lombardy Drive, Woodlands Avenue, Briar Way, Hazel Road, Cheshunt Drive, Coram Close, Holly Drive, Curtis Way, Greene Walk, Victoria Road, Highfield Road, Beech Drive, Three Close Lane *This would be subject to recorded vehicle speeds falling below the required threshold for implementing 20mph speed limits as specified in HCC's Speed Management Strategy.*
SP-B8	**Bi92**	30mph speed limit along London Road between Broadway Farm and Esso Fuel Garage (reduced from 40mph)	**Bi92.a** Convert area to 30mph zone, consisting of the length of the Bank Mill development north-west of Bullbeggars Lane with new gateway marked by signs and road markings. Section of 40mph to remain to the south west as a buffer. **Bi92b** Remove existing 40/30mph road sign gateway outside Esso Fuel Garage (consideration could be given to 30mph repeater signs if permitted **Bi92.c** Widening the non-controlled crossing across London Road at Hall Park to 2.4m on both directions and relocate the lighting column. Extend the ped refuge island. **Bi92.d** Widening the footway into the grassed verge to accommodate a 3m min shared path from Esso Garage to Bourne End. **Bi92.e** Provide tactile paving on across Hall Park Hill and island. LC possibly require relocation. **Bi92.f** New 2.4m wide uncontrolled crossing south of Hall Park Hill at the splitter island position. Provide 2.4m crossing with tactile and dropped kerbs. Extend the ped refuge island. **Bi92.g** New 2.4m wide uncontrolled crossing south of Hall Park Gate, at splitter island south of position. provide 2.4m crossing with tactile and dropped kerbs. Extend the ped refuge island. **Bi92.h** Widening the crossing to 2.4m at Bank Mill Lane and Townsend Gate. **Bi92.i** Widening the crossing to 2.4m at Bullbeggars Lane and cut back vegetation.
SP-B9 - Spatial Package Berkhamsted 9 - Billet Lane The purpose of this package is to improve access for pedestrians to the Billet Lane industrial estate.			
SP-B9	**Bi9**	Minor junction enhancement at the junction of Billet Lane and Billet Lane industrial estate	Large radius at the crossing creates a large crossing distance for pedestrians. **Bi9.a** The northern footway at the junction could be extended a bit further into Billet Lane Industrial Estate to reduce crossing distance (increase safety) - Highway boundary to be checked as private land might be required for this. Consideration will need to be given to swept paths for large goods vehicles. **Bi9.b** Tactile paving at the crossing and dropped kerbs would be required. Crossing to be 2.4m wide. **Bi9.c** Improve footway paving on western side of the bridge as it appears to be very damaged.
SP-B9	**Bi64**	Improve operation of Billet Lane corridor between Gossoms End and Bridgewater Road	***UTP scheme no.19***

SP-B10 - Spatial Package Berkhamsted 10 - New Road The purpose of this package is to improve pedestrian and public transport access to the proposed Lock Field development.			
SP-B10	**Bi91**	Footway and bus improvements to New Road near entrance to proposed Lock Field development	**Bi91.a** Improved footway (length and width to be determined based on location of development access). **Bi91.b** Move back the give-way line to accommodate informal crossing in front, approximately 1-2m. **Bi91.c** Uncontrolled pedestrian crossing on raised speed table (suitable for buses) approximately 2m wide incorporating tactile pavings. **Bi91.d** Informal crossing with dropped kerb incorporating tactile pavings on southern side (opposite entrance to the canal towpath). **Bi91.e** Potential extra bus stops to be located adjacent to Lock Field development. Location and feasibility dependent upon new footway being constructed on the northern side of New Road along frontage of the development and further discussion with HCC. **Bi91.f** New widened footway on both sides, removing central hatched area and removing some parking spaces to accommodate a new uncontrolled 2m wide crossing incorporating tactile pavings on raised table (suitable for buses). **Bi91.g** New widened footway on both sides, removing central hatched area and removing some parking spaces to accommodate a new informal crossing on raised table (suitable for buses).

Tring town overview

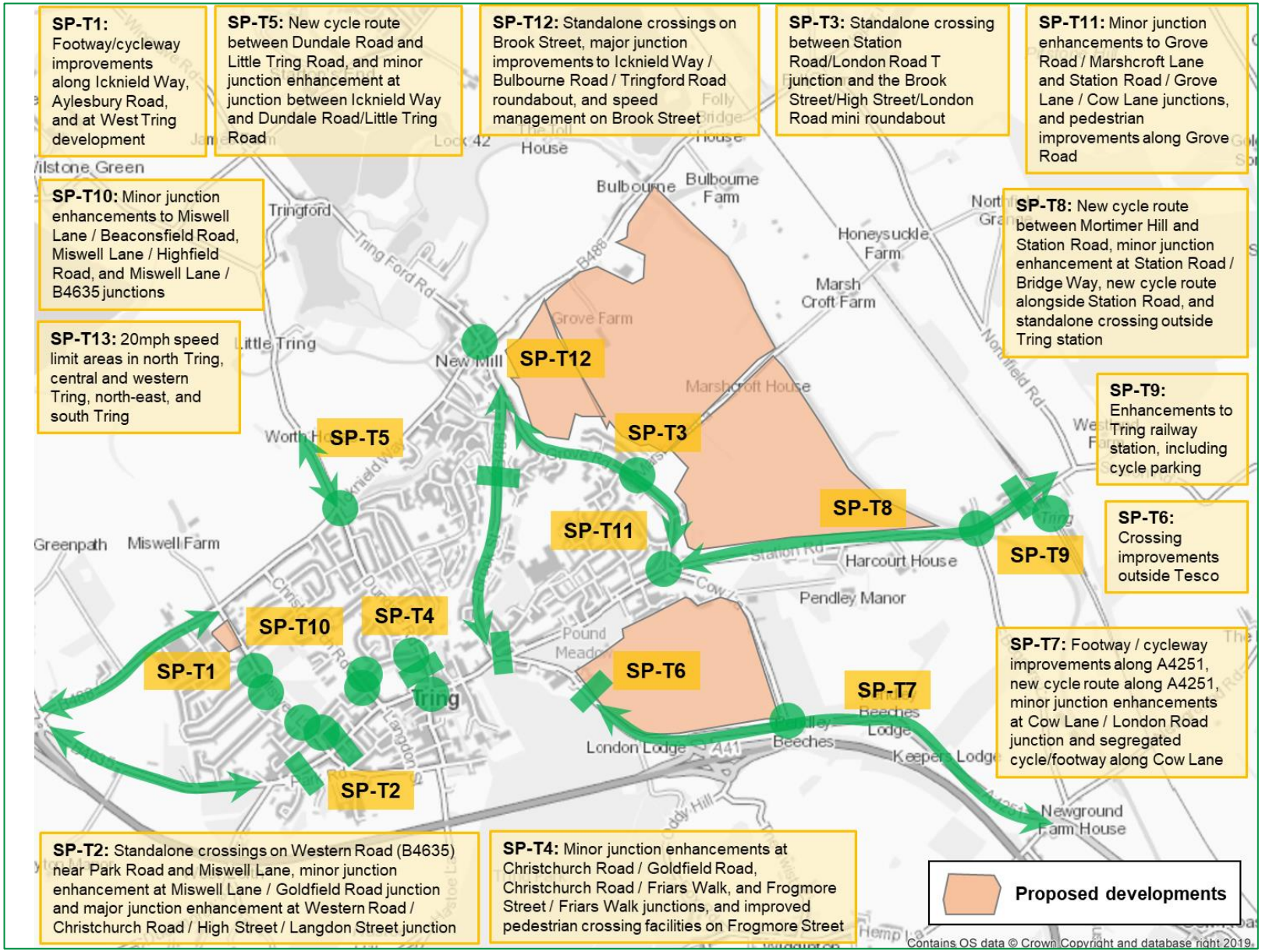
6.25 The evidence analysis and challenge audits along the interactions identified a range of potential issues affecting how the transport network is used in Tring. It would not be feasible or cost effective to address all the issues identified. Some characteristics of the town, most notably its more historic and physically constrained network of roads in the centre of the town and the remoteness of the railway station, will continue to create barriers for people making trips on foot or by bike as there may be fewer opportunities to introduce high-quality interventions.

6.26 The proposed Local Plan developments on the edges of the town whilst as the crow-flies will be reasonably close to the town centre (and in the case of East of Tring (2) the railway station) will also pose a significant challenge in encouraging sustainable travel behaviour. Some of these developments will be conveniently located close to the A41 which could encourage car travel.

6.27 The primary areas of focus for identifying transport interventions in Tring have been to consider how the Local Plan developments will need to connect with their surroundings and to address locations on routes towards the town centre and along key roads across the town where there needs to be an improvement to pedestrian and cyclists facilities. Opportunities for reducing the priority of vehicle traffic has also been reviewed including a wider introduction of 20mph speed limits across the town.

6.28 A wider range of measures had been considered however in some cases it has been determined that there is insufficient space within the highway boundary to provide an acceptable solution, or there are safety concerns which would be too difficult to overcome.

Figure 6-2 - Summary of Proposed Spatial Packages - Tring



Tring – Schedule of Interventions

6.29 A series of interventions are proposed across Tring as detailed in the following table. In the majority of cases, interventions are broken down into two or more component parts which would, typically, need to be delivered in combination in order to achieve the overall envisaged benefit of the intervention.

6.30 Each intervention is given a unique ID, starting 'Ti'. They are not numbered in order of priority. Also, some IDs are missing which is due to interventions having been defined earlier in the process of optioneering but later dismissed or subsumed into another intervention.

6.31 Interventions are arranged into a series of spatial packages, starting 'SP-T'. These are intended to highlight where even greater benefits could be achieved if groups of interventions are brought forward together although they could still be delivered in isolation. As with Berkhamsted, these are suggestions for how interventions could be brought forward but other factors will likely influence when and what (if any) combination of interventions are brought forward, including for example the build-out of planned housing and employment developments which in many cases could be fully or partly funding some of the interventions.

6.32 Finally, for interventions where the ID is highlighted red, this refers to interventions originally put forward in the Tring, Berkhamsted and Northchurch UTP which have not yet been implemented but are recommended again in this Sustainable Transport Study. Interventions highlighted in green are those which are currently being developed or recently implemented by HCC and are presented in the Sustainable Transport Study as they provide context for other interventions proposed.

6.33 In summary, **36 Interventions** are proposed in Tring which have been arranged into **13 Spatial Packages**.

Table 6-3: Tring Schedule of Interventions

(Intervention proforma contained in Appendix D)

Spatial Package	Intervention ID	Intervention Name	Description
SP-T1 - Spatial Package Tring 1 - West of Tring The purpose of this package is to improve footways and cycle routes on the western outskirts of Tring, providing better connections to the Buckinghamshire walking and cycling network across the A41 junction. This will be especially important when the proposed West of Tring development comes forward which will create additional demand for people wanting to walk and cycle, including people wanting to make trips to the nearby industrial estate, to the town centre and into the Buckinghamshire countryside to the west of the A41. Interventions put forward in this package are closely associated with the West of Tring development which has planning permission subject to conditions, including a S106 agreement associated with provisions for new foot/cycleway, Rights of Way improvement and bus stop contributions. The interventions presented in this package are therefore to broadly indicate the type of improvements which may be brought forward.			
SP-T1	**Ti1**	Footway/cycleway route improvement along Icknield Way between the A41 roundabout and Icknield Way Industrial Estate	**Ti1.a** Widen the existing sections of cycle lane between The Holloway and Icknield Way and Aylesbury Road to 3m and provide a shared use facility. This is to provide continuity for users. **Ti1.b** Provide an informal crossing for pedestrians/cyclists where the two existing cycle tracks end, just north-east of the A41 roundabout. Add tactile paving and dropped kerbs. Crossings to be 2.4m wide. **Ti1.c** Provide a new 2m wide footway along Icknield Way on the south-western side (where the existing path is) up to the junction with Icknield Way Industrial

			Estate. **Ti1.d** Provide an informal crossing just north of the junction with Icknield Way Industrial Estate to connect with the existing footway on the eastern side of Icknield Way. Crossings to be 2.4m wide. *This section of road is expected to accommodate a vehicle access to the West of Tring development. This could take the form of a priority T-junction or roundabout. Ti1 proposals may therefore need to be amended to tie in with new junction arrangements and there will need to be suitable crossing provision for pedestrians and cyclists at the new junction.*
SP-T1	**Ti2**	Footway/cycleway route improvement along Aylesbury Road between the A41 roundabout and Donkey Lane	**Ti2.a** Refresh road markings for the shared use facility close to the A41 roundabout. **Ti2.b** Widen existing footway to 2m on the northern side of Aylesbury road (maintenance issue). **Ti2.c** Provide a new 2.4m wide uncontrolled crossing where the Drayton Manor Lodge bus stop is (northbound direction). A new section of 2m wide footway is required on the southern side to accommodate the new crossing and provide access to the westbound bus stop. **Ti2.d** Widen existing footway to 2m on the southern side of Aylesbury road between the Drayton Manor Lodge bus stop and the existing uncontrolled crossing just south of the junction with Donkey Lane. **Ti2.e** Provide new tactiles for the uncontrolled crossing just south of the junction of Aylesbury road and Donkey Lane. Crossings to be 2.4m wide. *This section of road is expected to accommodate a vehicle access to the West of Tring development. This could take the form of a priority T-junction or roundabout. Ti1 proposals may therefore need to be amended to tie in with new junction arrangements and there will need to be suitable crossing provision for pedestrians and cyclists at the new junction. Furthermore, it is recommended that bus stops (served by the 500 and 61 services) are upgraded as part of the West of Tring development*
SP-T1	**Ti58**	Improvements to existing footway alongside Icknield Way between Miswell Lane and Icknield Way industrial estate	**Ti58.a** Widen to 2m (or 1.5m if 2m is not possible) and repave existing footway along the southern side of Icknield Way, between the northern and southern accesses to Icknield Way Industrial State. **Ti58.b** Widen existing uncontrolled crossing to 2.4m on the northeastern entrance to Icknield Way Industrial State. **Ti58.c** Widen to 2m and repave existing footway between the northern access to Icknield Way Industrial State and Miswell Lane. There are maintenance issues - grass growing on the footway. Cut back vegetation to maximise footway width.

SP-T1	**Ti60**	West Tring Development Corridor Intervention - Icknield Way	A new off-road route to link with the footway/cycleway in Tring Hill, Bucks **Ti60.a** Provide a 1.5m wide off-road cycle track along the southern side of Icknield Way between the A41 roundabout and Icknield Way Industrial Estate. **Ti60.b** New uncontrolled crossing across the southern access to Icknield Way Industrial State (dropped kerbs required for cyclists). Crossing to be 2.4m wide. *This section of road is expected to accommodate a vehicle access to the West of Tring development. This could take the form of a priority T-junction or roundabout. Ti1 proposals may therefore need to be amended to tie in with new junction arrangements and there will need to be suitable crossing provision for pedestrians and cyclists at the new junction.*
SP-T2 - Spatial Package Tring 2 - Gateway to Tring Town Centre West The purpose of this package is to improve pedestrian facilities on a key corridor entering Tring town centre from the west.			
SP-T2	**Ti6**	Standalone crossing on Western Road (B4635) near Park Road junction	**Ti6.a** Provide a 2.4m wide raised zebra crossing on Western Road, outside house number 129, just west of the bus stop. Provide tactile paving, dropped kerbs, road markings and belisha beacons.
SP-T2	**Ti7**	Standalone crossing on Western Road (B4635) near Miswell Lane junction	**Ti7.a** Remove existing informal crossing on B4635, just north of the junction with Miswell Lane and provide a zebra crossing (tactile paving, dropped kerbs and belisha beacons to be provided).
SP-T2	**Ti8**	Minor junction enhancement at the junction of Miswell Lane and Goldfield Road	**Ti8.a** Entry treatment at Goldfield Road. Provide an informal crossing at Goldfield Road with dropped kerbs and tactile paving.
SP-T2	**Ti14**	Major junction enhancement at the Western Road, Christchurch Road, High Street and Langdon Street roundabout	**Ti14.a** Signalise existing junction. Existing uncontrolled crossings to be replaced by formal crossings (tactile paving and dropped kerbs required). **Ti14.b** Remove existing island on High St. and provide a 1m footway build-out on the northern side. Recommendation: Pavement condition survey on all arms.
SP-T3 - Spatial Package Tring 3 - Gateway to Tring Town Centre East The purpose of this package is to improve pedestrian facilities on a key corridor entering Tring town centre from the east.			
SP-T3	**Ti75**	Standalone crossing between Station Road/London Road T junction and the Brook Street/High Street/London Road mini roundabout	**Ti75.a** Replace the existing uncontrolled crossing which is situated between the Station Road T-junction and the Brook Street roundabout with a Puffin crossing. Tactile paving and dropped kerbs required (minimum width 3.2m).
SP-T4 - Spatial Package Tring 4 - Town Centre Fringe The purpose of this package is to improve pedestrian facilities on routes around the edge of the town centre which could offer a quieter 'back road' alternative to people routeing along the main high street.			

SP-T4	**Ti15**	Minor junction enhancement at the junction of Christchurch Road and Goldfield Road	**Ti15.a** Provide entry treatment and maintain the uncontrolled crossing.
SP-T4	**Ti16**	Minor junction enhancement at the junction of Christchurch Road and Friars Walk	**Ti16.a** Entry treatment at Friars Walk (block paving). Replace damaged tactile pavings with new ones. **Ti16.b** Refresh road markings **Ti16.c** Provide small kerb footway build-outs to tighten the radii for traffic.
SP-T4	**Ti17**	Minor junction enhancement at the Frogmore Street/Dundale Road and Friars Walk	**Ti17.a** Side road entry treatment and new uncontrolled crossing at Friars Walk (tactile paving required). Crossing to be 1.2m wide minimum. **Ti17.b** Provide another crossing point across Frogmore St north of the junction to connect the existing pub. Crossing to be 2.4m wide. **Ti17.c** Refresh road markings on Friars Walk.
SP-T4	**Ti55**	Provide improved Pedestrian Crossing facilities on Frogmore Street Tring	***UTP scheme no.45***
SP-T5 - Spatial Package Tring 5 - Dundale Road-Little Tring Road The purpose of this package is to provide a new cycle route and better crossing facilities through the northern part of Tring.			
SP-T5	**Ti18**	New cycle route between Dundale Road and Little Tring Road	**Ti18.a** Provide a 1.5m wide one-way segregated cycle lane (southbound direction) between the junction of Little Tring Road with B488 and the entrance to the fields (approximately 265m north from the B488 junction) - along the existing neglected footpath. Appropriate signs and markings required.
SP-T5	**Ti19**	Minor junction enhancement at the junction between Icknield Way and Dundale Road/Little Tring Road - informal crossing including dropped kerbs (some existing provision)	**Ti19.a** Provide an uncontrolled crossing for cyclists across Icknield Way to connect with Little Tring Road (include dropped kerbs). Crossing to be 2.4m wide.
SP-T6 - Spatial Package Tring 6 - Sustainable Modes Access to Tesco The purpose of this package is to improve improved connections into Tesco for people walking. This will be even more important when the proposed Dunsley Farm development comes forward on land opposite Tesco.			

SP-T6	**Ti26**	Standalone crossing outside Tesco Superstore in Tring	**Ti26.a** Remove existing uncontrolled crossing on B4635 and provide a new 3.2m wide puffin crossing (no central reserve). This would require dropped kerbs, tactile paving and widening the footways. **Ti26.b** Footway on the northern side of B4635 to be widened to 2m to accommodate the new formal crossing. *Consideration could be given to implementing a Toucan crossing which would tie in with the cycle route across Pound Meadow and if additional cycle parking was provided at Tesco. Cyclists would however need to dismount if entering via the existing pedestrian ramp access as this would not be suitable for shared use. Alternatively, a section of shared use footway/cycleway could be designated between the crossing and Tesco vehicle access however a suitable and safe crossing facility that would enable cyclists to join/exit the road entrance to Tesco would be required. There may not be sufficient visibility around the bend of the road to provide a suitable crossing.*
SP-T7 - Spatial Package Tring 7 - Southern Gateway to Tring The purpose of this package is to improve cycle facilities around the southern edge of Tring where existing off-road facilities are limited, especially in anticipation of additional demand that may arise from the proposed Dunsley Farm development.			
SP-T7	**Ti34**	Footway/cycleway route improvement along the A4251 between Tesco Superstore and London Road/Cow Lane junction	**Ti34.a** Provide a segregated shared facility on the northern side of the A4251 from the junction with Cow Lane and along the existing path - widen to 2.5-3m. Provide appropriate shared use signs and road markings (surface colour treatment for cycle lane). **Ti34.b** Provide a 4m wide toucan crossing across B4635 just east of the eastbound bus stop "Tesco". Dropped kerbs, tactile paving and road markings required. **Ti34.c** Turn the existing footway on the southern side of the B4635 up to Tesco Superstores into a shared use facility.
SP-T7	**Ti35**	New cycle route along the A4251 between London Road/Cow Lane junction to Newground Road/Beggars Lane	**Ti35.a** Provide a shared use facility along the northern side of the A4251. Existing road signs might be a constraint. Provide appropriate shared use signs and road markings. **Ti35.b** Provide dropped kerbs and tactile paving at the junction with Newground Road for both a new uncontrolled crossing. Include a 2m wide refuge island. Crossing to be 1.2m wide as absolute minimum. *This would form an introductory phase of a new inter-urban cycle route – please see Wider Area Package 2 (**WAP-2**)*
SP-T7	**Ti57**	Minor junction enhancements at Cow Lane/London Road junction	**Ti57.a** Dropped kerbs for both footways either side of Cow Lane and tactile paving (new uncontrolled crossing point). Crossing to be 2.4m wide.
SP-T8 - Spatial Package Tring 8 - Active Mode Route to the Station The purpose of this package is to improve facilities for pedestrians and cyclists routeing to/from the station over and above the existing off-road shared use route alongside Station Road. *This package should be considered in conjunction with SP-T9 but can be delivered separately.*			

SP-T8	**Ti24**	New cycle route between Mortimer Hill and Station Road	**Ti24.a** Widen existing footway to 2.5-3m along the path to provide a shared use space. Signs and markings required.
SP-T8	**Ti36**	Minor junction enhancement at the junction of Station Road and Bridge Way	**Ti36.a** Provide an uncontrolled crossing point across Station Road for better access to Bridge Way from the southern footway. Crossing to be 2.4m wide. **Ti36.b** Repave existing footway at the entrance of Bridge Way (Current paving is very damaged).
SP-T8	**Ti38**	New cycle route alongside Station Road (within East of Tring 2 development) between Grove Road junction and the Grand Union Canal	**Ti38.a** Enhance existing shared use facility on the northern side of Station Road - repave existing facility, provide colour surface treatment for cycle lane, provide road markings to differentiate pedestrian side and cycle lane (incl. cycle logos). *This section of road is expected to accommodate at least one vehicle access to the East of Tring development. Junctions could take the form of a priority T-junction or roundabout. Ti38 proposals may therefore need to be amended to tie in with new junction arrangements and there will need to be suitable crossing provision for pedestrians and cyclists at the new junction. Consideration could be given to providing a 'Copenhagen Crossing' which gives priority to pedestrians and cyclists when crossing the minor side road at a junction.*
SP-T8	**Ti56**	Crossing and footway enhancements adjacent to Tring station forecourt	**Ti56.a** Extended speed table approximately 20m in length (designed to allow buses to pass over easily) incorporating two 4m wide uncontrolled crossing points at either end, marked with contrasting surface. **Ti56.b** Slight relocation of the bus cage further east, approximately 3-5m. **Ti56.c** Small kerbed build-out on the corner of the station forecourt exit, providing additional protection for pedestrians entering and exiting the forecourt area, and incorporating a dropped kerb. The exit width will be reduced slightly, however there should remain sufficient width for buses and other vehicles to safely exit. **Ti56.d** Investigate localised widening of the footway if there is space within the highway boundary.
SP-T9 – Spatial Planning Tring 9 – Tring Station Enhancements The purpose of this package is to enhance Tring Station with additional and improved facilities for passengers, creating a more welcoming gateway to Tring and the Chilterns.			
SP-T9	**Ti43**	Enhancements to Tring Railway Station	• Short, Medium and Long Term proposed improvements to the station and surrounding routes as put forward in London North Western Railway's Prospectus for Tring station.
SP-T10 - Spatial Package Tring 10 - Miswell Lane The purpose of this package is to improve crossing facilities for pedestrians along Miswell Lane. This is important where there may currently be a lack of facilities and in the context with potential development at the northern end of Miswell Lane and the committed development at West of Tring (LA5) as it will function as a key route into Tring town centre and to local schools.			

SP-T10	**Ti9**	Minor junction enhancement at the junction of Miswell Lane and Beaconsfield Road	**Ti9.a** Side road entry treatment.
SP-T10	**Ti12**	Minor junction enhancement at the junction of Miswell Lane and Highfield Road	**Ti12.a** Provide a side roads entry treatment with block paving. Add tactile pavings for a new uncontrolled crossing.
SP-T10	**Ti59**	Minor junction enhancement at the junction of Miswell Lane and B4635	**Ti59.a** Entry treatment using block paving. Tactile paving to provide an uncontrolled crossing.
SP-T11 - Spatial Package Tring 11 - Grove Road The purpose of this package is to improve crossing facilities for pedestrians routeing along Grove Road. This is important as the road function as a key route towards Tring railway station and could be more intensively used in the future when the proposed New Mill development comes forward.			
SP-T11	**Ti31**	Minor junction enhancement at the junction of Grove Road and Marshcroft Lane	**Ti31.a** Entry treatment at Marshcroft Lane and informal crossing with tactile paving. Crossing to be 1.2m wide minimum. **Ti31.b** Refresh road markings.
SP-T11	**Ti32**	Minor junction enhancement at the crossroads of Station Road, Grove Road and Cow Lane	**Ti32.a** Provide tactile paving at central refuge and crossing points on Grove Road. **Ti32.b** Refresh road markings. **Ti32.c** Add 20mph and 30mph signs at Station Road, just west of the junction with Grove Road. **Ti32.d** Provide an informal crossing point across Station Road west of the junction with Grove Road. Crossing to be 2.4m wide.
SP-T11	**Ti68**	Grove Road Corridor Intervention	**Ti68.a** Provide an uncontrolled crossing across Grove Road between Grove Gardens and Bunyan Close to create a safer access onto the footway on the northern side of Grove Road. Dropped kerbs and tactile paving required. Crossing to be 2.4m wide. **Ti68.b** Widen existing footway to 2m on the northern side of Grove Road (maintenance issue - cut back vegetation to maximise footway width) between Grove Gardens and house number 30.
SP-T12 - Spatial Package Tring 12 - Brook Street The purpose of this package is to improve pedestrian crossing facilities on what is a heavily used corridor for traffic. The network is physically constrained, therefore limiting what can be achieved in terms of widening footways.			
SP-T12	**Ti28**	Standalone crossing on Brook Street near Hunters Close	**Ti28.a** Provide a 2.4m zebra crossing next to the entrance/exit to Hunters Close. Tactile paving, dropped kerbs, belisha beacons and appropriate road markings and signs to be provided.
SP-T13 - Spatial Package Tring 13 - 20mph speed limit The purpose of this package is to build upon existing/proposed 20mph speed limits across Tring, the purpose of which is to improve safety and create a more welcoming environment for people to walk and cycle around different parts of Tring.			

SP-T13	**Ti41**	20mph speed limit in north Tring, along New Road and on Morefields/Fields End	**Ti41.a** Add 20mph zone signs on the entry to New Road from B488. Add 30mph road sign on the exit to B488. Two new posts. **Ti41.b** Side road entry treatment at the junction of New Road/ B488. Provide tactile paving for uncontrolled crossing. Crossing to be 1.2m wide minimum. **Ti41.c** Add 20mph zone signs on the entry to New Road from New Mill Terrace and 30mph road sign on the exit to New MIll Terrace. Two new posts. **Ti41.d** Side road entry treatment at the junction of New Mill Terrace / New Road. Provide tactile paving for uncontrolled crossing. Crossing to be 1.2m wide minimum. *This would be subject to recorded vehicle speeds falling below the required threshold for implementing 20mph speed limits as specified in HCC's Speed Management Strategy.*
SP-T13	**Ti42**	20mph speed limit area in central and western Tring	*This scheme is already in development by Hertfordshire County Council* **Ti42.a** Implement a 20mph speed limit area covering a large area of central and western Tring incorporating Miswell Lane, Christchurch Road (and all roads leading off these two roads including Ash Road and The Greenway), Aylesbury Road east of its junction with Park Road, Woodland Close, Park Road and High Street (and all roads leading off these two roads), Frogmore Street and a section of Dundale Road south of St Peters Hill.
SP-T13	**Ti74**	20mph speed limit in north-east Tring, east of Dundale Road to Brook Street in the west, bounded just inside Icknield Way in the north and High Street in the south.	**Ti74** Extension of the HCC-developed 20mph speed limit area to cover the remaining section of Dundale Road, Silk Mill Way, Nathanial Walk, Eight Acres, Drummond Ride, Manor Road, Faversham Close, St Peter's Hill, Meadow Close, Kingsley Walk. *This would be subject to recorded vehicle speeds falling below the required threshold for implementing 20mph speed limits as specified in HCC's Speed Management Strategy.*

Wider area

6.34 The interventions considered above focus on the towns' transport network networks. Some of the interventions are intended to influence travel choices not only for trips taking place within each town but also to other places, for instance making trips to the railway stations easier on foot, by bike or by bus.

6.35 Consideration has also been given to improvements outside the towns' boundaries with a focus on cycle improvements.

6.36 Two Wider Area Packages have been formulated as part of this study which are shown in the following figures and tables, in addition to a scheme originally identified in the Tring, Berkhamsted and Northchurch Urban Transport Plan which comprised a new footway/cycleway alongside Northfield Road between Tring Station and Pitstone.

Figure 6-3- Wider Area Package 1 - Wilstone

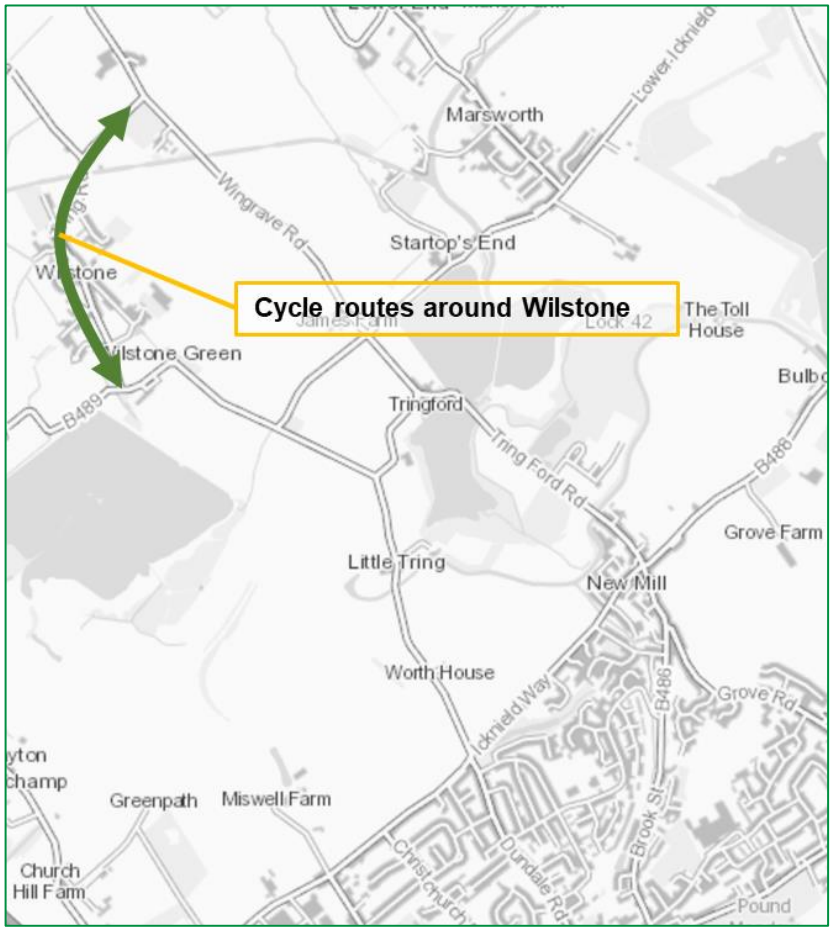


Figure 6-4 - Wider Area Package 2 - Tring to Northchurch, Berkhamsted

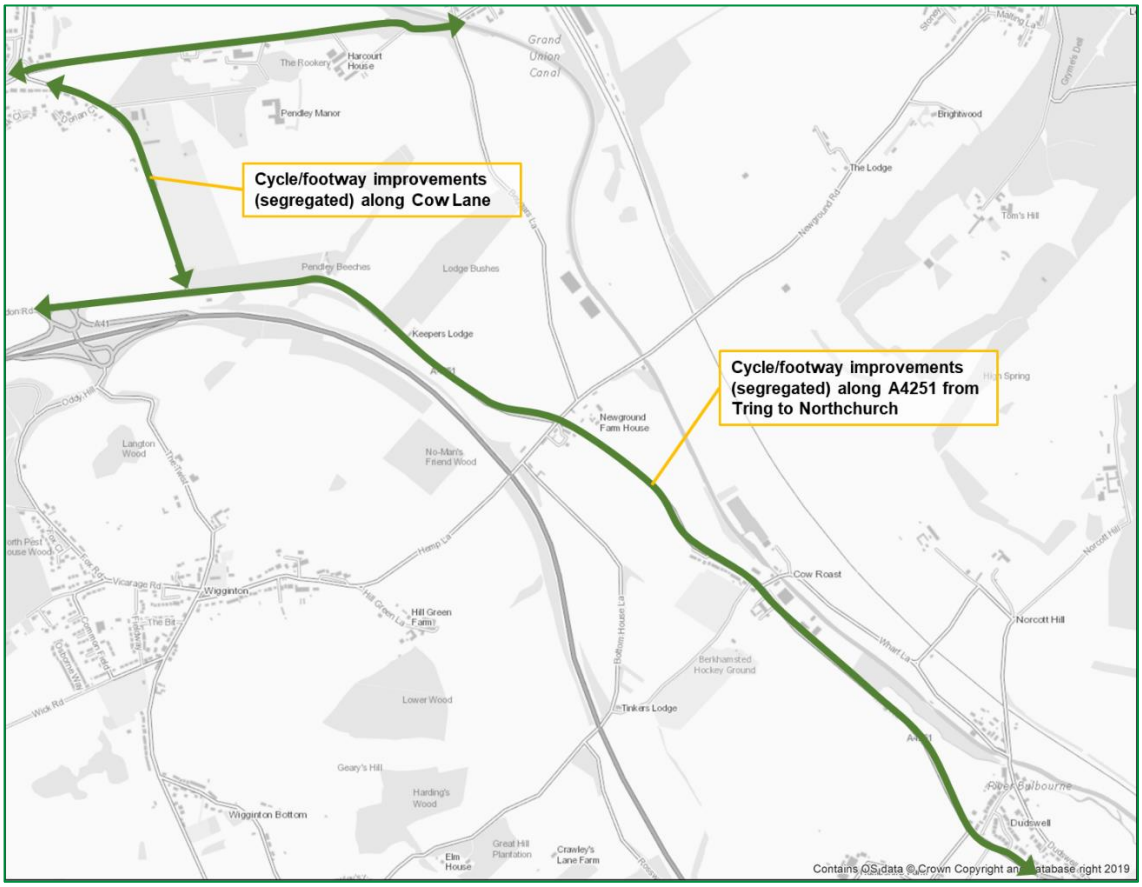


Table 6-4: Wider Area Packages

(Intervention proforma contained in Appendix E)

Spatial Package	Intervention ID	Intervention Name	Description
WAP-1 – Wider Area Package 1 - Wilstone Active Mode Connection The purpose of this package is to address a severance point on the network where there are currently no pedestrian or cyclist facilities. Although not a very busy road, the B489 provides an alternative east-west route across to the A41 which avoids Tring. The road is in a rural environment where motorists would not necessarily be expecting to see pedestrians or cyclists. This improvement would therefore provide a new link between Wilstone village and Tring.			
WAP-1	**Ti64**	Active Mode connection to Wilstone	**Ti64.a** New off-road cycle track on the northern side of B489 between access to houses east of P E Mead and Sons Farmshop and Wiggles Lane, for cyclists travelling southbound. Cyclists would then travel on-road along quieter country lanes within Wilstone village and between Wilstone Cemetery and Icknield Way via Little Tring Road.
WAP-2 – Wider Area Package 2 – Tring-Northchurch Cycle Route The purpose of this package is to provide inter-urban connectivity for cyclists by providing a safer off-road route alongside the A4251 between Tring and Berkhamsted.			
WAP-2	**Ti61**	Segregated cycle/footway along A4251 from Tring to Northchurch along existing neglected footway	**Ti61.a** Widen to 2.5m-3m existing segregated footway on the southern side of the A4251 from the junction with Newground Road and convert it into a shared use facility. **Ti61.b** Buildout and reduce speed limit to accommodate shared path (2.5-3m) where the exisitng path becomes non-segregated until the Cow Roast Inn old pub. Reduce central hatching on main carriageway to accommodate the shared use facility. **Ti61.c** New uncontrolled crossing 4m wide. Dropped kerbs and tactile paving required. **Ti61.d** Build-out at junction with Newground Road. Vehicle tracking required. **Ti61.e** - New uncontrolled crossing to connect with the southern proposed shared use facility. Dropped kerbs and tactile paving required. Crossing to be 2.4m wide. **Ti61.f** - Build-out and reduce speed limit to accommodate shared path (2.5-3m wide). Reduce central hatching on main carriageway to accommodate the shared use facility. **Ti61.g** - New uncontrolled crossing to connect with the proposed shared use facility. Dropped kerbs and tactile paving required. Crossing to be 2.4m wide. (1.2m as absolute minimum). **Ti61.h** - Build back from the kerb and remove vegetation to accommodate shared path (2.5-3m wide). **Ti61.i** - New uncontrolled crossing to connect with the proposed shared use facility. Dropped kerbs and tactile paving required. Crossing to be 2.4m wide. (1.2m as absolute minimum). **Ti61.j** - New non-standard shared use facility.

WAP-3 – Wider Area Package 3 – Tring Station to Pitstone cycle route The purpose of this package is to provide cycle facilities along Northfield Road between Tring Station and Pitstone.			
WAP-3	**UTP 12**	Cycle Route from Tring Station to Pitstone	***UTP scheme no.12***

Broad Principles

6.37 Both Berkhamsted and Tring interventions are supported by a series of Principles which focus on:

- **Influencing Travel Behaviour in new developments**
- **Bus improvements**
- **Local Electric Bike Network**

6.38 These themed principles will complement the Interventions described above but are not defined in detail as part of this Sustainable Transport Study because they either require further dialogue with landowners/developers and local businesses; require more detailed feasibility checks; or that it is potential premature to define measures in detail because they are susceptible to market forces.

Table 6-5: Broader Supporting Principles

Principle: Influencing Travel Behaviour

This principle applies in particular at the proposed new Local Plan developments across both Tring and Berkhamsted where there will be greatest opportunity to influence the travel behaviour of new residents and employees from 'day one'. A range of measures will need to be considered as part of each development with the aim of influencing travel behaviour and encouraging the use of more sustainable travel modes – walking, cycling and bus as well as to a lesser extent car sharing.
 	
Consideration will need to be given to both hard measures which involve physical alterations to the transport network and soft measures which can involve programmes and initiatives to encourage people to travel more sustainably.
 	
A series of core principles are recommended below for planned new residential developments. Additional principles are also laid out in the Dacorum Local Plan, Roads in Hertfordshire, and Dacorum Strategic Site Design Guide which has recently been out to consultation.
 	
Hard measures:
- Sufficient storage space for bicycles within properties and at other suitable locations such as local centre, key destinations, and transport interchanges
- Safe, legible and prioritised routes for pedestrians and cyclists throughout development sites, connected to existing facilities outside of the development
  o Clearly signed and well-lit
  o Providing safe routes to destinations including to public transport stops
  o Suitable and safe 'training' routes for children learning to cycle
  o Pedestrians and cyclists get priority over traffic, e.g. 'Copenhagen Crossings' and Home Zones.
- Where buses route through developments, bus stops should comprise bus shelter, real time information panels, seating and step-free access especially on higher-frequency routes

- Bus stops should be within 400m of all dwellings or 200m in town centres, educational establishments or where there is a significant elderly population.
- Step-free access should be provided at all bus stops not just higher frequency routes – this relating both to pedestrian routes to the stop and design of stops themselves.
- Where buses route adjacent to developments on nearby roads, clear and safe routes for pedestrians must be provided, including suitable crossing facilities. Developers may be asked to contribute to bus stop infrastructure or improvements to the design of the stop so that existing stops reach the standard expected of new stops in developments.
- A highway layout that enables an efficient routeing of buses through the site or with an appropriate terminus and turn around point is needed where buses will operate within the site and highway design should be appropriate in terms of width, alignment, gradients, traffic calming and design of any on street parking.
- New developments should be designed in a way that encourages low speeds, with 20mph speed limits throughout
- For larger developments, providing a layout of roads which discourages vehicular through-traffic without affecting any bus routes through the site
- Electric car charging points
- Reduced resident and visitor car parking where appropriate, but only in instances where this won't lead to inappropriate parking on site or on surrounding roads
- Access to green open space

More specific principles that would apply to some of the key planned developments include:

- Creation of a sustainable transport spine through the South of Berkhamsted 1 development option, comprising a high-quality segregated cycle route with priority over traffic at any intermediate junctions, and (if applicable) a bus-only section of road, i.e. there will be no linkage between the two developments for general traffic.
- Creation of a sustainable transport spine through the East of Tring development sites comprising a high-quality segregated cycle route with priority over traffic at any intermediate junctions. This spine road is also likely to be a bus route to enable stops to be within 400m of all dwellings and would therefore be required to be designed to enable buses to use the route.
- Creation of a sustainable transport spine through Dunsley Farm development which prioritises cycling over cars. Depending on the scale of the development this could also incorporate a bus route to enable bus stops to be within 400m of all dwellings.

Soft measures:
Travel Plans are defined in HCC's Travel Plan guidance as "a long-term management

strategy for an organisation or site which seeks to deliver sustainable transport objectives". Travel Plan comprising a series of measures including, but not limited to, the following:

- Publicise and encourage use of public transport
- Incentives for using public transport, e.g. 1-2 months bus travel vouchers for 2 adults per property.
- Publicise health benefits of walking and cycling and provide walking and cycling maps and providing appropriate web-based information and links to relevant sites e.g. local cycling groups, cycle shops, walking groups, Sustrans etc.
- Bike vouchers to be redeemed against the purchase of a bike or bicycle equipment.
- Travel welcome pack for new residents
- Travel information boards within the development
- Personalised journey planning either provided online or at larger sites in person by the travel plan coordinator
- Appointment of a travel plan coordinator

HCC's updated Travel Plan guidance provides more detail on the County Council's specific requirements, including examples of Travel Plans for workplaces, residential sites, visitor sites, and educational establishments.

Many of the above principles could also apply to employment developments which will require their own Workplace Travel Plans (potentially under a Framework Travel Plan covering a wider mixed-use site). This will most apply to the Dunsley Farm development. Consideration would also need to be given to ensuring there is suitable cycle parking and e-bike charging facilities. The thresholds of developments that require Travel Plan Statements or a Full Travel Plan can be found in Appendix A of HCC's Travel Plan guidance document. Appendix E of the guidance identifies some example measures to be included in Travel Plans. For Workplace Travel Plans, these included measures on creating policy to enable flexible working to reduce the need to travel, creating pedestrian and cycle friendly routes and cycle parking, improvements to local bus and rail infrastructure, and promoting car sharing.

Education Travel Plans

The Active and Safer Travel Team within HCC works with schools to encourage uptake of travel plans and on their implementation. HCC's updated Travel Plan guidance (see www.hertfordshire.gov.uk/travelplans) now covers schools with details of potential measures covered in Appendix E of that document.

Education travel plans involve the implementation of a package of initiatives to promote active, safe and sustainable travel to education settings and encourage the whole school community to consider road safety, environmental and health issues. They include road safety initiatives such as pedestrian skills and cycle training, in addition to Safer Routes to Schools walking and cycling infrastructure improvements. Programmes to build new schools and to redevelop or expand existing ones are an opportunity to ensure sites are well designed to support active and sustainable travel. All educational establishments are encouraged to create a Travel Plan using the Modeshift STARS – National Accreditation Scheme online system on a voluntary basis at any time.

Particular attention should be given to engaging with secondary schools, including those with large catchment areas, to determine how the proportion of pupils travelling to/from school on foot, by bike, by bus as part of a car share (as opposed to travelling individually by car) can be encouraged and linked to the educational programme.

Travel Plans could also be considered alongside measures such as increased parking restrictions, banned turns for vehicles during school opening and closing times etc (see LTP Policy 3: Travel Plans and Behavioural Change).

Principle: Bus Improvements

Despite being reasonably compact-sized towns, buses will continue to play an important role in Berkhamsted and Tring in connecting residents and visitors to key destinations such as the towns' railway stations and town centres. Many of the planned housing and employment developments in Berkhamsted and Tring are located on the edges of town, further away from key destinations. This will make travelling by sustainable modes, including bus, more challenging, especially where developments are located in areas not currently well-served by bus. It should be noted that the bus principles are aspirational in nature. There are a number of restrictions that apply in asking for section 106 funding from developers for funding for bus improvements, and this requires discussions between developers, operators, and HCC on the adequate bus service provision to new developments.

Attention should be drawn to the Intalink Bus Strategy and Enhanced Partnership which establishes HCC's approach to working closely with bus operators and local authorities to improve bus services and encourage travel by bus in the county. The five objectives of the Intalink Bus Strategy are as follows:

- Prioritising bus services in traffic;
- Improving the image of bus travel;
- Upgrading bus infrastructure;

- Closer integration of the bus network; and
- Smarter use of data and information.

The principles established in this study aim to align with the Intalink Bus Strategy and particularly focus on bus provision for new developments.

The following core principles for bus services in new developments are recommended:

- All households should be less than 400m from a bus stop, and there should be bus stops within 200m of town centres and places of education
- All bus stops to be provided with a shelter, real time information, seating, step-free access, easy access kerbing, and to be connected via direct footpaths and cycleways to the surrounding development
- A direct bus service or services to at least one mainline railway station which provides direct rail services to London with at least a 20 to 30-minute service frequency at least during weekday peak commuting periods.
- A direct bus service or services to the nearest town centre, with at least a 20 to 30-minute service frequency at least during weekday peak commuting periods.
- A direct bus service or services to the nearest large-scale employment centre (if different from the principal town) operational during weekday peak periods
- Developers to subsidise services for an agreed period of time during and after build-out of the development to help ensure services become commercially sustainable.

A range of options for changing bus services in Berkhamsted and Tring have been considered. The aim has been to identify how it could be possible to link the proposed Local Plan developments by bus. The focus has been on exploring how changes could be made to existing services as opposed to introducing new services.

In discussion with HCC, it has been highlighted that bus services are susceptible to change over the period in which new Local Plan developments will come forward, therefore whilst it is helpful to put forward suggested bus options, those considered here are merely ideas which will require further investigations in discussion with HCC, bus operators and developers at the appropriate time. The bus service changes put forward in this Sustainable Transport Study are ideas subject to more detailed investigations. Bus operators have not been consulted on them and are not necessarily endorsed by HCC.

Berkhamsted

Berkhamsted Town Council has undertaken investigations for a establishing a town hopper bus service under a pilot project with the aim of introducing a permanent service. Much of the following information has been provided by the Town Council.

The overall aim of the bus service would be to reduce private car traffic in the town centre, especially at peak times, with a positive impact on congestion, air quality and carbon emissions.
The service would initially be aimed at reducing the number of short journeys that are made into and around the town centre.

The service would potentially target the following:

- commuters using the station
- school run traffic
- people who both live and work within the town i.e. with a very short commute

The service would be provided in partnership with Community Action Dacorum; it would be not for profit in the first instance if using S19 or S22 licence (see below); it would need to be affordable and accessible to make it a sustainable service; and complement rather than compete with established local commercial services.

Several options for operating the hopper service have been under consideration, including whether to operate it under a Section 19 permit which would mean the service not for profit and would only exist to serve a defined member group. Section 19 permit vehicles can't be used to carry members of the general public. Alternatively, the service could operate under a Section 22 permit which would mean it is a scheduled bus route with set bus stops and times. The service will need to be registered with the traffic commissioner. Passengers would pay a set fare. The criteria for HCC support of bus services is set out in Appendix A of the Intalink Bus Strategy.

Key issues to be resolved include whether a hopper service could operate to a scale sufficient to make an impact, sufficient funding to support a service, and finding volunteer drivers if it is a not-for-profit service.

The route of the hopper service is not certain, however it would have the potential to infiltrate parts of Berkhamsted which are not currently well-served by bus, for example the Shrublands and Shootersway areas of the town. It could also play a role in linking planned new developments.

Changing existing local bus services

Several key developments are proposed around Berkhamsted and these areas of the town are in some cases not currently served by bus. This is most relevant to the West of Berkhamsted development options.

The nearest services route along the A4251 corridor (including route 500) Shrublands Avenue/Durrants Road corridor (route 502/532) and Chesham Road corridor (route 354). Most of the proposed developments are located on the ridge tops of the valley therefore making walking up and down the steep hill towards existing bus service routes within Berkhamsted more challenging and inevitably less desirable.

It may be feasible to amend existing bus service routes so that they extend to new development sites.

New bus services have not been considered in this Sustainable Transport Study. However, there may be opportunities with the larger-scale developments that can provide the critical mass in terms of potential new passengers to sustain new services. Any new service would require forward funding (pump-priming) services before they become self-sustaining and profitable, and this could involve purchasing new bus vehicles.

Attention would also need to be given to where new routes may clash with existing routes and reduce patronage on those existing routes, which in compact towns like Berkhamsted and Tring, may be difficult to avoid.

In Berkhamsted, it is considered that only the South of Berkhamsted 1 development option has the potential to support a new service, subject to further investigations. In Tring, the East of Tring and New Mill developments (in combination or just the East of Tring development) could provide the critical mass for a new service. Although a large development, the Dunsley Farm development is close to existing bus services such as the 500.

A key challenge will be the timing of bus service improvements with proposed developments. Not all the developments will come forward at the same time, however some service changes or new services will only become viable in the long term once the majority of developments are in place.

Principle: Local Electric Bike Network

Electric bikes (E-Bike) offer the freedom and benefits of conventional cycling but with a little extra assistance. Electric bikes use a motor to provide assistance as users pedal, therefore providing extra assistance to go the distance without as much effort. W wide range of E-bikes are on the market including those designed for riding on roads (including fold-up versions for commuting) and also off-road tracks. There is the opportunity to reduce reliance on motorised transport as E-bikes allow

cyclists to travel further with minimal effort. This will be especially relevant in Tring given the distance between the town and the railway station.

The extra assistance of an E-Bike will reduce obstacles of hills which will be especially relevant in Berkhamsted but also in Tring.

E-bike specifications vary however to fully charge an electric bike battery can take 3.5 and 6 hrs although some battery manufacturers promise a full charge can be achieved in less time and a 50% charge could take only an hour.

E-bikes can be charged at home through a conventional plug socket (the battery detaches from the bike) or there are a range of charging points on the market, some allowing one bike to charge at a time and others providing charging stations with secured lockers allowing as many as six batteries to be charged at the same time [8].

An E-bike's range can vary depending on terrain, weather conditions, mode selection on the bike, battery size and other factors. As with electric cars, there is potential range anxiety that may put people off using an e-bike.

E-bikes are more expensive than conventional bikes however costs are gradually reducing as more manufacturers enter the market and some retailers offer monthly repayments.

Some tourism regions in the UK are promoting the benefits of e-bikes including the Lake District and Northumberland. Charging stations have been introduced in key riding locations across Europe and the UK [9]

Cycling is already promoted locally in the Chilterns Area of Outstanding Natural Beauty with a series of trails and on-road cycle routes, including Tring Route 5 which goes via Aldbury, Wiggington, Hastoe and Wilstone, and Berkhamsted Route 6 which also goes via Albury but also to Little Gaddesden and the Ashbridge Estate [10].

E-Bikes are not currently promoted locally for exploring the Chilterns, however additional infrastructure would be required as a catalyst for encouraging more cycling.

As noted under the Influencing Travel Behaviour principle, the provision of bike vouchers for new developments and sufficient space for safely storing bikes within properties can encourage the uptake in e-bikes. In addition, a network of e-bike charging stations would be required which would reduce range anxiety. These charging stations could be located in a variety of places:

- 'On Street' in particular on high streets in central locations, adjacent to shops, adjacent to where there is currently cycle parking or opportunity to increase the number of cycle parking spaces.
- Within public car parks (if safe access routes can be provided), where 1-2 car parking spaces could be given over to a charging station and cycle parking.
- In shops, cafes or key service locations such as libraries, i.e. locations where people are travelling to and likely to spend time in
- At cultural or leisure destinations, which in the local area could include the Natural History Museum in Tring, Ashridge Estate (National Trust) and Berkhamsted Castle (although the latter could be served by a facility at the nearby railway station).
- At transport hubs such as the towns' railway stations
- At key employment locations (if situated away from town centres)
- At dedicated cycle hubs where additional facilities could be provided in addition to e-charging and parking, including cycle repairs.

For occasional users or visitors to either town, consideration could be given to establishing an electric bike hire network, and such schemes are in operation particularly in tourism regions including the Lake District, Suffolk and Sussex [11]. Coordination between the local authorities and organisations

[8] The following are just a few examples of e-bike charging facilities: https://www.bosch-ebike.com/en/service/powerstations/ https://turvec.com/product/electric-bike-charging-station
[9] https://ebike-mtb.com/en/bosch-powerstation-uk/
[10] https://www.chilternsaonb.org/explore-enjoy
[11] https://www.ebike-hire.com/

include the National Trust, English Heritage and the Natural History Museum will be pivotal to develop, implement and maintain a successful e-bike hire scheme.

Further investigations will be required to determine which of the above location options would be feasible to host a charging station, and to determine likely determine which would indicate the number and specifications of charging stations.

It is considered that the railway stations would be the highest priority because they represent both key destinations for commuting trips but also 'gateways' for visitors/tourists entering the towns to explore the local area. Cultural or leisure destinations would also be a high priority therefore discussions with the Natural History Museum and National Trust at the Ashridge Estate would be required to determine if it would be feasible to location a charging station within their properties. If it was determined that the Natural History Museum in Tring was not a feasible location, given it is so close to the town centre an alternative location for example outside the town's library on the High Street or Tring Local Museum off Brook Street could represent suitable alternative options.

In Berkhamsted, given the town is quite elongated, consideration could be given to a charging station in the Northchurch area, potentially adjacent to the small parade of shops on High Street South.

Any location for a charging facility would need to be visible, not be an obstruction to pedestrian movement, and can be accessed easily and safely, i.e. a dedicated route for cyclists direct to the charging station/parking, or an area where cyclists can safely dismount and walk with their bikes to the charging station.

Consideration could also be given to employment locations in Berkhamsted and Tring, primarily the Billet Lane (River Park) industrial estate and Icknield Way industrial estate. Where there is sufficient space within the highway, a charging station with cycle parking could be installed. There appears to be limited opportunities to accommodate such a facility on Billet Lane, however consideration could be given to implementing a kerb build-out within the carriageway to accommodate a charging station and cycle parking, as long as this does not cause an obstruction to turning vehicles. The roads within the Icknield Way industrial estate in Tring are not public highway, therefore negotiations with employers or landowners would be required.

Major retail destinations which are situated away from town centres could also offer a viable location for e-bike charging. Whilst in Berkhamsted the majority of retail land uses are concentrated along the high street, in Tring, consideration could be given to improved cycle parking and a charging station at the Tesco supermarket. Investigations in discussion with the retailer could determine a suitable location within the car park area or within the store to location a charging station. Alternatively, a new cycle parking area and ramp access could be provided within the grass verge area adjacent to the supermarket alongside London Road.

Consideration could also be given to locating cycle charging points within proposed developments. Clearly, residents of those developments will be able to charge their e-bikes at home, however where developments are located on or adjacent to a cycle route or gateway to the town, there may be opportunity to negotiate with the developer to install a charging point as part of a local mini travel hub. This will be especially relevant to developments located on the edges of town away from any other potential e-charging station.

Intervention Assessment Framework

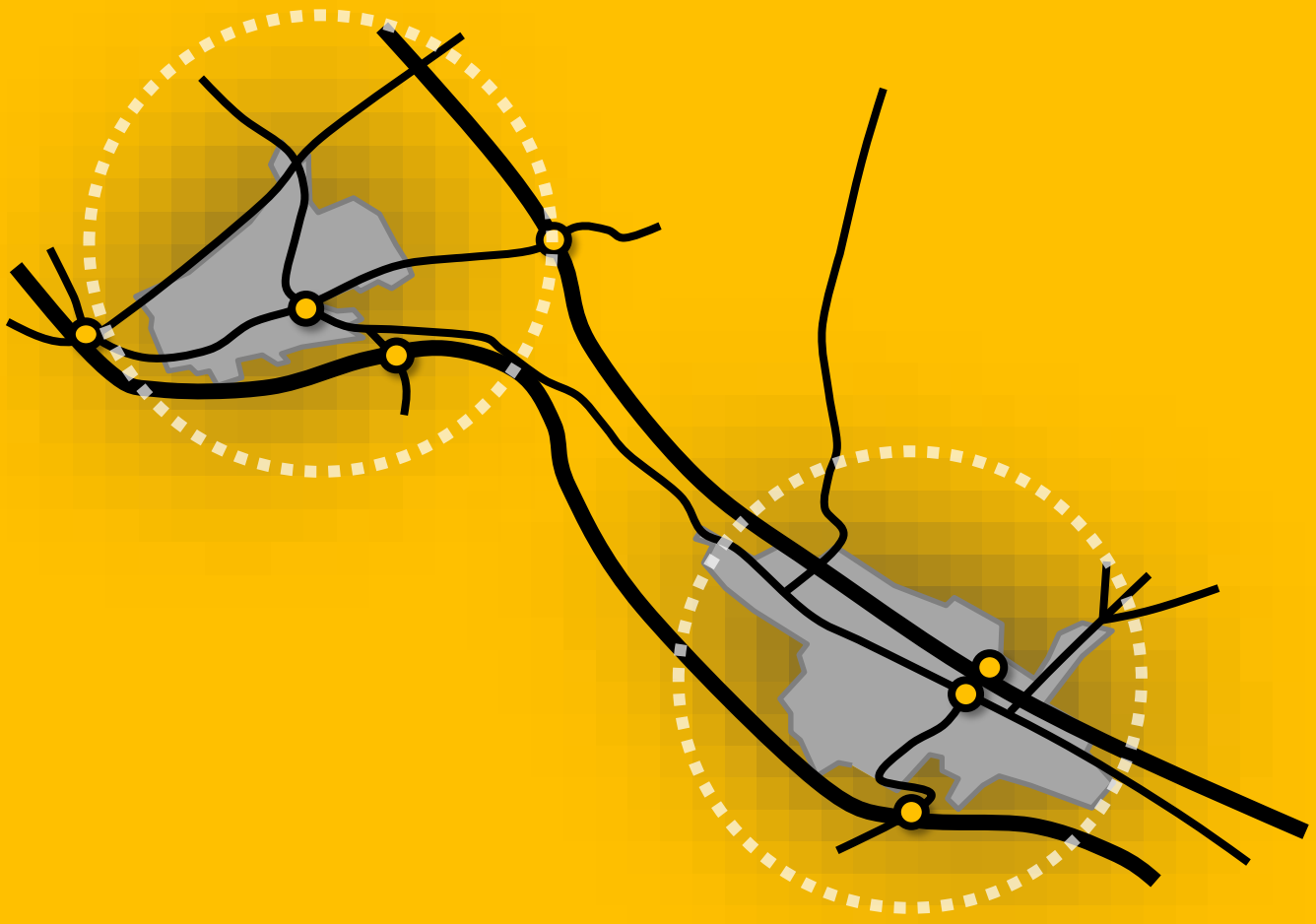
6.39 The proposed interventions have been assessed against the seven Sustainable Transport Study objectives (introduced in Chapter 4) and two additional criteria, one looking at affordability and the other on feasibility. The assessment is qualitative rather than quantitative, based on professional judgement as to how well (or poorly) an intervention is expected to perform against each objective and the two additional criteria. A scoring range of -2 to +2 has been defined. The scores against each objective and the additional criteria have then been combined to form a total score.

6.40 It is clear that the majority of proposed interventions score favourably against the objectives. This is to be expected, as types of interventions have been developed which align with the objectives and principles of the Sustainable Transport Study which in turn reflect the County Council's Local Transport Plan and overarching sustainability agenda. Neutral scores have been assigned where there is expected to be very little or no impact or where there is some uncertainty around impacts. More negative scores have been assigned to interventions against the two additional criteria. Scores could improve once there is greater certainty on funding and feasibility, and this can only occur once interventions are developed in more detail following adoption of the Sustainable Transport Study.

6.41 A ranking of scores is presented in Appendix F. This is by no means a recommendation of which order the interventions should be provided in however it does provide a broad indication of which interventions are predicted to align better with the Sustainable Transport Study's objectives.

7

Costs, Delivery & Funding



7. Costs, Delivery and Funding

7.1 The interventions proposed in this study have been developed to non-detailed level. It is intended that more detailed investigations and development of interventions will take place after adoption of the Local Plan, including when development sites come forward as planning applications (if specific sites are to be required to develop and deliver off-site transport improvements, which will be determined through further discussions between the local authorities and development promotors) and by Hertfordshire County Council as local highway authority.

7.2 As such, interventions have been costed to reflect the level of detail available at this time. Cost estimates have been prepared by qualified quantity surveyors with experience of preparing estimates for a wide range of transport and non-transport infrastructure to inform transport studies and strategies, detailed masterplans, Infrastructure Delivery Plans and planning applications. By drawing from a wide range of experience of how much different types of transport interventions may typically cost, a set of estimates have been prepared for the proposed interventions, considering broad dimensions and type/scale of works and apparatus that could be involved.

7.3 The costs are all as at July 2020 prices and also include allowance for traffic management (at 25% of the base cost), main contractor preliminaries and overheads and Profit (at 30% of the base cost), professional fees (i.e. those incurred for developing an intervention to a sufficient level of detail in order to gain approval from the relevant parties for implementation (at 10% of the base cost) and contingencies (i.e. to account for risks and uncertainties, at 15% of the base cost). These percentages have been applied consistently on all costed interventions.

7.4 The cost estimates do however exclude the following:

- Inflation from July 2020
- Value Added Tax (VAT)
- Land Acquisition
- Client's direct costs
- Any adoption fees and commuted sums that would be payable
- Utilities / drainage diversions (as these are unknown)

7.5 Many of the above exclusions could vary significantly and there is not sufficient information available at this time to account for them.

7.6 The intention of this study has been primarily to consider the combined impacts of growth which includes the development sites put forward in the Local Plan in addition to background growth in travel demand and the impacts this will have on the transport network. Many of the proposed interventions will help to manage combined impacts of growth. The study has not considered how the costs can be apportioned to a particular development site, or where impacts can be associated with multiple sites or a combination of sites and background growth. This will need to be investigated at a later stage, including through future planning applications.

7.7 The study has however identified broad associations between interventions and proposed development sites and this has been based simply on the geographical location of interventions in relation to development sites, and not a more sophisticated analysis of where travel demand may arise from proposed development sites. This broad association should therefore be considered as a starting point for future discussions and investigations.

7.8 The tables below summarise the total cost estimate for each intervention in Berkhamsted and Tring. A more detailed breakdown of cost estimates is presented in Appendix F.

Table 7-1 - Costed Interventions in Berkhamsted

IMPORTANT NOTES 'Associated Local Plan development' denotes broadly the nearest development site or sites which may generate a need for the intervention. The development site or sites may be required to support the implementation of the intervention by way of a monetary contribution or directly as part of off-site mitigation works agreed through planning permission. However, this will be determined through more detailed investigations as interventions are developed further

'Cumulative' refers to instances where there is no clear association with a particular development site or sites, however development sites may contribute towards the need for the intervention and there may therefore be a need to make a monetary contribution, subject to more detailed investigations.

Spatial Package	Intervention (i) no.	Intervention Name	Associated Local Plan development	Development delivery timeframe	Total Cost at July 2020 Price
SP-B1	**Bi6**	Minor junction enhancement at the junction of Durrants Lane and Shootersway	Land East of Darr's Lane, Rossway Farm	2026-2032	£75,853
SP-B1	**Bi69**	Standalone crossings on Shootersway near West of Berkhamsted development	Land East of Darr's Lane, Rossway Farm, Blagberry Gardens	2025-2032	£123,338
SP-B1	**Bi74**	Shootersway Corridor Intervention	Land East of Darr's Lane, Rossway Farm, Blagberry Gardens	2025-2032	£129,504
SP-B1	**Bi75**	Durrants Lane Corridor Intervention	Land East of Darr's Lane, Rossway Farm, Blagberry Gardens	2025-2032	£82,225
SP-B1	**Bi76**	Bell Lane Corridor Intervention	Land East of Darr's Lane, Rossway Farm, Blagberry Gardens	2025-2032	£278,332
SP-B2	**Bi8**	Major junction enhancement at the Durrants Lane, Durrants Road and Westfield Road roundabout	Cumulative		£1,161,428
SP-B2	**Bi12**	Minor junction enhancement at the junction of Queen's Road and Shrublands Road	Cumulative		£238,247
SP-B2	**Bi13**	Minor junction enhancement at the junction of Shrublands Avenue and Shrublands Road	Cumulative		£133,616
SP-B2	**Bi18**	Minor junction enhancement at junction of Cross Oak Road and Shrublands Road	Cumulative		£92,503
SP-B2	**Bi20**	Minor junction enhancement at junction of Kitsbury Road and Charles Street	Cumulative		£46,252

SP-B2	**Bi23**	Minor junction enhancement at junction of Boxwell Road and Charles Street	Cumulative		£61,669
SP-B2	**Bi25**	Minor junction enhancement at junction of Park View Road and Charles Street	Cumulative		£35,973
SP-B2	**Bi26**	Minor junction enhancement at the junction of Charles Street and A416	Cumulative		£107,920
SP-B2	**Bi89**	Expansion of Shrublands 20mph zone	Cumulative		£46,252
SP-B2	**Bi67**	Provide Pedestrian Crossing facilities on Greenway, Berkhamsted	Cumulative		Refer to UTP
SP-B3	**Bi15**	Standalone road crossing on the A4521 between Queens Road and Stag Lane	Cumulative		£328,900
SP-B3	**Bi17**	Minor junction enhancement at junction of Cross Oak Road and A4251	Cumulative		£61,669
SP-B3	**Bi19**	Minor junction enhancement at junction of Kitsbury Road and A4251	Cumulative		£20,556
SP-B4	**Bi21**	Minor junction enhancement at junction of St John's Well Lane and A4251	Cumulative		£102,781
SP-B4	**Bi22**	Minor junction enhancement at junction of Boxwell Road and A4251	Cumulative		£25,695
SP-B4	**Bi24**	Minor junction enhancement at junction of Park View Road and A4251	Cumulative		£25,695
SP-B4	**Bi34**	Minor junction enhancement at junction of A4251 and Three Cl Lane	Cumulative		£20,556
SP-B4	**Bi35**	Minor junction enhancement at A4251 and Victoria Street roundabout	Cumulative		£20,556
SP-B5	**Bi27**	Major junction enhancement at the junction of A4241, A416 and Lower Kings Road – *'B-Hive' improvements*	Cumulative		£195,284

SP-B5	**Bi28**	Major junction enhancement at the junction of A4241, A416 and Lower Kings Road - alternative 'lighter touch' version of Bi27 including removal of some road space to widen footways on junction corners	Cumulative		£195,284
SP-B6	**Bi29**	Major junction enhancement at junction of Lower Kings Road and Brownlow Road (nr Berkhamsted Station)	Cumulative		£102,781
SP-B6	**Bi30**	Crossing enhancements at Brownlow Road and Bridgewater Road Roundabout	Cumulative		£61,669
SP-B6	**Bi31**	Cycle Parking at Berkhamsted Station	Cumulative		£183,978
SP-B6	**Bi32**	Minor junction enhancement at junction of Castle Street and Chapel Street	Cumulative		£143,894
SP-B6	**Bi33**	Minor junction enhancement at junction of Chapel Street and Ravens Lane	Cumulative		£61,669
SP-B6	**Bi52**	20mph zone bounded by A4251 N, Mill Street Castle Street, Station Road, Ellesmere Road, Bank Mill Lane	Cumulative		Being Implemented
SP-B6	**Bi53**	20mph zone along a short section of A4251 and Lower Kings Road	Cumulative		£143,894
SP-B7	**Bi36**	Minor junction enhancement at Shootersway and Cross Oak Road roundabout	South of Berkhamsted (small site), British Film Institute, Haslam Playing Fields	2025-2033	£30,834
SP-B7	**Bi37**	Minor junction enhancement at Chesham Road and A416 roundabout	South of Berkhamsted (small site), British Film	2025-2033	£46,252

			Institute, Haslam Playing Fields		
SP-B7	**Bi40**	Footway/Cycleway route improvement between Shootersway/Cross Oak Road and Chesham Road/Ashlyns Grove	South of Berkhamsted (small site), British Film Institute, Haslam Playing Fields	2025-2033	£524,184
SP-B7	**Bi68**	Standalone crossings on Shootersway near South of Berkhamsted developments	South of Berkhamsted (small site), British Film Institute, Haslam Playing Fields	2025-2033	£123,338
SP-B8	**Bi41**	Minor junction enhancement at junction of Swing Gate Lane and Upper Hall Park	South of Berkhamsted Development (large site)	2025-2033	£25,695
SP-B8	**Bi42**	Minor junction enhancement at junction of Swing Gate Lane and Hillside Gardens	South of Berkhamsted Development (large site)	2025-2033	£195,284
SP-B8	**Bi43**	Minor junction enhancement at junction of Swing Gate Lane and Woodlands Avenue	South of Berkhamsted Development (large site)	2025-2033	£182,437
SP-B8	**Bi44**	Standalone road crossing on A4251 outside Swing Gate School	South of Berkhamsted Development (large site)	2025-2033	£123,338
SP-B8	**Bi90**	New 20mph speed limit area covering southern Berkhamsted residential area	Cumulative, South of Berkhamsted Development (large site)	2025-2033	£51,391
SP-B8	**Bi92**	30mph speed limit along London Road between Broadway Farm and Esso Fuel Garage (reduced from 40mph)	Cumulative, South of Berkhamsted Development (large site), Bank Mill development	2025-2033	£792,000
SP-B9	**Bi9**	Minor junction enhancement at the junction of Billet Lane and Billet Lane industrial estate	Cumulative		£41,935
SP-B9	**Bi64**	Improve operation of Billet Lane corridor between Gossoms End and Bridgewater Road	Cumulative		Refer to UTP
SP-B10	**Bi91**	Footway and bus improvements to New Road near entrance to proposed Lock Field development	Lock Field development	2025-2028	£106,650

Table 7-2 - Costed Interventions in Tring

IMPORTANT NOTES 'Associated Local Plan development' denotes broadly the nearest development site or sites which may generate a need for the intervention. The development site or sites may be required to support the implementation of the intervention by way of a monetary contribution or directly as part of off-site mitigation works agreed through planning permission. However, this will be determined through more detailed investigations as interventions are developed further

'Cumulative' refers to instances where there is no clear association with a particular development site or sites, however development sites may contribute towards the need for the intervention and there may therefore be a need to make a monetary contribution, subject to more detailed investigations.

Spatial Package	Intervention (i) no.	Intervention Name	Associated Local Plan development	Development delivery timeframe	Total Cost at July 2020 Price
SP-T1	**Ti1**	Footway/cycleway route improvement along Icknield Way between the A41 roundabout and Icknield Way Industrial Estate	West Tring	2024-2026	£338,150
SP-T1	**Ti2**	Footway/cycleway route improvement along Aylesbury Road between the A41 roundabout and Donkey Lane	West Tring	2024-2026	£356,651
SP-T1	**Ti58**	Improvements to existing footway alongside Icknield Way between Miswell Lane and Icknield Way industrial estate	Miswell Lane	2026-2028	£163,052
SP-T1	**Ti60**	West Tring Development Corridor Intervention - Icknield Way	West Tring	2024-2026	£203,507
SP-T2	**Ti6**	Standalone crossing on Western Road (B4635) near Park Road junction	West Tring	2024-2026	£30,834
SP-T2	**Ti7**	Standalone crossing on Western Road (B4635) near Miswell Lane junction	West Tring	2024-2026	£30,834
SP-T2	**Ti8**	Minor junction enhancement at the junction of Miswell Lane and Goldfield Road	West Tring	2024-2026	£51,391
SP-T2	**Ti14**	Major junction enhancement at the Western Road, Christchurch Road, High Street and Langdon Street roundabout	Cumulative		£61,669
SP-T3	**Ti75**	Standalone crossing between Station Road/London Road T junction and the Brook Street/High Street/London Road mini roundabout	East of Tring (1)	2027-2038	£123,338
SP-T4	**Ti15**	Minor junction enhancement at the junction of Christchurch Road and Goldfield Road	Cumulative		£20,556
SP-T4	**Ti16**	Minor junction enhancement at the junction of Christchurch Road and Friars Walk	Cumulative		£46,252

SP-T4	**Ti17**	Minor junction enhancement at the Frogmore Street/Dundale Road and Friars Walk	Cumulative		£87,364
SP-T4	**Ti55**	Provide improved Pedestrian Crossing facilities on Frogmore Street Tring	Cumulative		Refer to UTP
SP-T5	**Ti18**	New cycle route between Dundale Road and Little Tring Road	Cumulative		£81,711
SP-T5	**Ti19**	Minor junction enhancement at the junction between Icknield Way and Dundale Road/Little Tring Road - informal crossing including dropped kerbs (some existing provision)	Cumulative		£20,556
SP-T6	**Ti26**	Standalone crossing outside Tesco Superstore in Tring	Cumulative		£61,669
SP-T7	**Ti34**	Footway/cycleway route improvement along the A4251 between Tesco Superstore and London Road/Cow Lane junction	Dunsley Farm	2024-2031	£781,138
SP-T7	**Ti35**	New cycle route along the A4251 between London Road/Cow Lane junction to Newground Road/Beggars Lane	Cumulative		£41,113
SP-T7	**Ti57**	Minor junction enhancements at Cow Lane/London Road junction	Dunsley Farm	2025-2032	£20,556
SP-T8	**Ti24**	New cycle route between Mortimer Hill and Station Road	Cumulative		£118,404
SP-T8	**Ti36**	Minor junction enhancement at the junction of Station Road and Bridge Way	Cumulative		£41,113
SP-T8	**Ti38**	New cycle route alongside Station Road (within East of Tring 2 development) between Grove Road junction and the Grand Union Canal	East of Tring (2)	2027-2038	£10,278

SP-T8	**Ti56**	Crossing and footway enhancements adjacent to Tring station forecourt	Cumulative		£61,669
SP-T9	**Ti43**	Enhancements to Tring Railway Station	West Tring	2024-2026	Refer to UTP
SP-T10	**Ti9**	Minor junction enhancement at the junction of Miswell Lane and Beaconsfield Road	West of Tring, Miswell Lane	2024-2028	£20,556
SP-T10	**Ti12**	Minor junction enhancement at the junction of Miswell Lane and Highfield Road	West of Tring, Miswell Lane	2024-2028	£20,556
SP-T10	**Ti59**	Minor junction enhancement at the junction of Miswell Lane and B4635	West of Tring, Miswell Lane	2024-2028	£20,556
SP-T11	**Ti31**	Minor junction enhancement at the junction of Grove Road and Marshcroft Lane	East of Tring 1 and 2, New Mill	2025-2038	£25,695
SP-T11	**Ti32**	Minor junction enhancement at the crossroads of Station Road, Grove Road and Cow Lane	East of Tring 1 and 2, New Mill	2025-2038	£61,669
SP-T11	**Ti68**	Grove Road Corridor Intervention	East of Tring 1 and 2, New Mill	2025-2038	£89,214
SP-T12	**Ti28**	Standalone crossing on Brook Street near Hunters Close	New Mill	2025-2033	£30,834
SP-T13	**Ti41**	20mph speed limit in north Tring, along New Road and on Morefields/Fields End	Cumulative		£102,781
SP-T13	**Ti42**	20mph speed limit area in central and western Tring	Cumulative	Being Implemented	Being Implemented
SP-T13	**Ti74**	20mph speed limit in north-east Tring, east of Dundale Road to Brook Street in the west, bounded just inside Icknield Way in the north and High Street in the south.	Cumulative		£15,417

Table 7-3 – Wider Area Packages

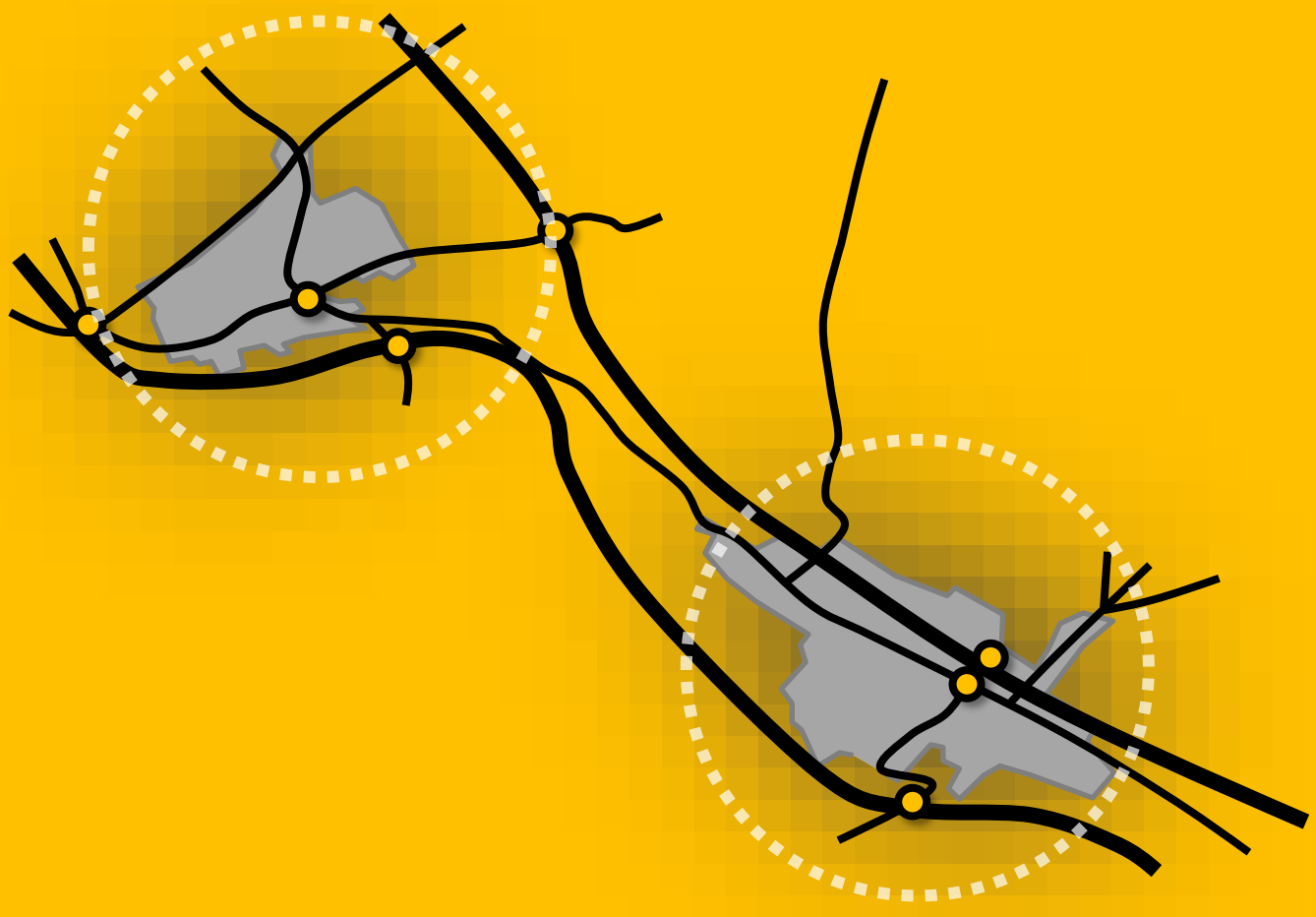
Spatial Package	Intervention ID	Intervention Name	Associated Local Plan development	Development delivery timeframe	Total Cost at July 2020 Price
WAP-1	**Ti64**	Active Mode connection to Wilstone	Cumulative		£82,636

WAP-2	**Ti61**	Segregated cycle/footway along A4251 from Tring to Northchurch along existing neglected footway	Cumulative		£898,308
WAP-3	**UTP 12**	Cycle Route from Tring Station to Pitstone along Northfield Road	Cumulative		Refer to UTP

7.9 The current assumption is that where, through more detailed work, it can be demonstrated with evidence that there is a definitive link between a proposed development and an intervention, then development contributions could be sought towards implementing the intervention either by way of a S106 monetary contribution which will be passed to the local authorities to help fund the improvement, or through a S278 agreement whereby the developer/promotor of a site is required to fund and implement an intervention in its entirety. Other sources of funding may need to be sought to help support the delivery of intervention, certainly where contributions from developers may fall short.

8

Conclusion



8. Conclusion

8.1 The towns of Berkhamsted and Tring are located in the north-west of Dacorum Borough, Hertfordshire.

8.2 Berkhamsted is a large historic market town and is the second largest settlement area in Dacorum with a population around 20,500. The town has good inter-urban transport links, being served by London Northwestern railway services south towards Hemel Hempstead, Watford and London, and north towards Milton Keynes and the Midlands. The town is situated adjacent to the A41 which links the town to other parts of the Borough, to Buckinghamshire and to the M25. The railway station is located fairly centrally within Berkhamsted to the east of the town centre.

8.3 Tring is a small, compact market town on the north-west edge of the borough with a population of around 12,000 and is the third largest settlement in Dacorum. Tring's mainline railway station is situated some distance to the east of the town which has a profound impact on the town's connectivity.

8.4 Both towns are bypassed by the A41 which links Buckinghamshire with London. The Grand Union Canal also runs north east of Tring and through the centre of Berkhamsted.

8.5 Berkhamsted and Tring are important local settlements in Dacorum and will each accommodate additional homes and jobs in the future in order to meet local needs.

8.6 Dacorum Borough Council's Local Plan, 'Dacorum Local Plan 2038', sets out the Council's planning framework for the borough. Its role is to establish the overall pattern of development within the borough over the period 2020–2038. The Local Plan outlines how the Council will address local and strategic development needs including housing, employment, leisure, and retail provision. Around 4,000 new homes and 5 hectares of employment land is proposed across Berkhamsted and Tring at new strategic development sites.

8.7 With additional homes and jobs comes additional travel demand placed upon the local transport network as people need to travel to work, to schools, to shop etc. As a supporting evidence base document for the Dacorum Local Plan 2038, the Berkhamsted and Tring Sustainable Transport Study is needed to ensure there is a robust basis for deciding how transport can be improved in both towns as part of the Local Plan. The Transport Study sits alongside other transport evidence documents including the South West Hertfordshire Growth and Transport Plan and Hemel Hempstead Sustainable Transport Plan.

8.8 The Transport Study puts forward a wide range of sustainable transport interventions across both towns. These interventions align with the policies of Dacorum's Local Plan and Hertfordshire County Council's Local Transport Plan which prioritise sustainable travel including walking, cycling and public transport over private motorised transport.

8.9 Interventions range from new and improved footways and road crossings making it easier and safer to walk between key locations within each town; new cycle routes enabling people to cycle off road in areas where there is more traffic; and reduced speed limits on urban roads to make crossing the road or cycling along roads safer.

8.10 The Transport Study has also put forward suggestions for how bus services could be altered and improved to better link planned new developments with key destinations such as the town centres and railway stations; a Local Electric Bike Network comprising charging stations at key locations where people can charge-up their electric bikes; and measures to influence travel behaviour at the proposed new developments as well as designing these new developments in such a way which makes sustainable travel a priority, and the easiest and most attractive way into and out of these developments.

8.11 Interventions have been arranged into packages. These packages are suggestions for how groups of interventions could be brought forward an implemented at the same time and could therefore deliver even greater benefits. However, in all instances, individual interventions should be able to be implemented in isolation.

8.12 The delivery of interventions put forward in this Sustainable Transport Study will be dependent on when planned housing and employment developments come forward. In many instances the build-out and occupation of new developments will trigger the need for transport improvements including those presented as interventions in this study. Some interventions are required irrespective of planned development, i.e. they will cater for broader needs either because they are addressing challenges which exist today or will be required to address future increases in the wider population (not just in the two towns) and demand for travel across both towns.

8.13 The Sustainable Transport Study deliberately avoids putting forward large-scale, expensive and complex infrastructure such as new road links and junctions, and major new public transport routes. The evidence which has been used to inform the development of this study, including the County Council's transport model COMET, does not indicate that there is a requirement for such large-scale interventions.

8.14 The emphasis therefore has been on building upon and improving existing provision to enable people to walk, cycle, take a bus and access the stations to take a train in the easiest and most sustainable way. This approach is considered proportionate to the level of growth proposed, and also reflects the relative compactness of both Berkhamsted and Tring, which are of a size where it should be possible to make local journeys on foot, on a bike or by bus, rather than use a car.

8.15 The successful delivery of the interventions put forward will be linked with the implementation of planned housing and employment development which will provide some of the funding for making improvements across the transport network. Other sources of funding will also be required. The nature of funding infrastructure is uncertain, and whilst the County Council has an ability to fund and implement its own small-scale improvements, many transport interventions are reliant upon monetary contributions from external sources, including private developers, or for developers to entirely fund and implement off-site mitigation works themselves if it is demonstrated as being necessary for development.

8.16 Whilst the Transport Study has identified how a large proportion of interventions could be associated with Local Plan developments, there will be a need for more detailed investigations to develop the interventions further, to better understand the scale of works, to refine the cost estimates and to determine what level of contribution from developments is required.

8.17 At that point in time, it is likely there will be opportunities to seek and obtain funds for example through funding competitions managed by the Department for Transport. It is considered that because the overall theme of the Sustainable Transport Study is on sustainable travel, with a strong emphasis on walking and cycling, then this will chime well with broader Government initiatives and therefore should align with future government funding priorities.

Appendices

Appendix A – Challenge Audit – Berkhamsted
Appendix B – Challenge Audit – Tring
Appendix C – Intervention Proforma – Berkhamsted
Appendix D – Intervention Proforma – Tring
Appendix E – Intervention Proforma – Wider Area
Appendix F – Intervention Assessment Framework
Appendix G – Intervention Cost Estimate