Dacorum Local Plan
Transport Evidence Base

Transport Topic Paper

November 2020

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Version 3-0

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1. Introduction

1.1 Integrated Transport Planning Ltd. (ITP) was appointed by Dacorum Borough Council in June 2020 to provide consultancy support to develop the transport evidence base for the Dacorum Local Plan.

1.2 Based on a review of the existing transport strategy documents across the district and wider county, as well as analysis of movement patterns, a transport vision has been developed supported by a package of high-level transport interventions that will help ensure growth can be delivered sustainably. More generally the package of interventions identified have the potential to encourage greater use of sustainable modes, such as walking, cycling and public transport, across the district, particularly in the main towns of Hemel Hempstead, Berkhamsted and Tring where significant growth is anticipated to 2036.

1.3 This transport topic paper provides a summary of the transport evidence base prepared to date for the Dacorum Local Plan, including the package of transport interventions developed to support it. It is anticipated that the transport interventions, and the evidence base supporting it, will evolve following the Regulation 18 public consultation and stakeholder engagement and further evidence to be collected.

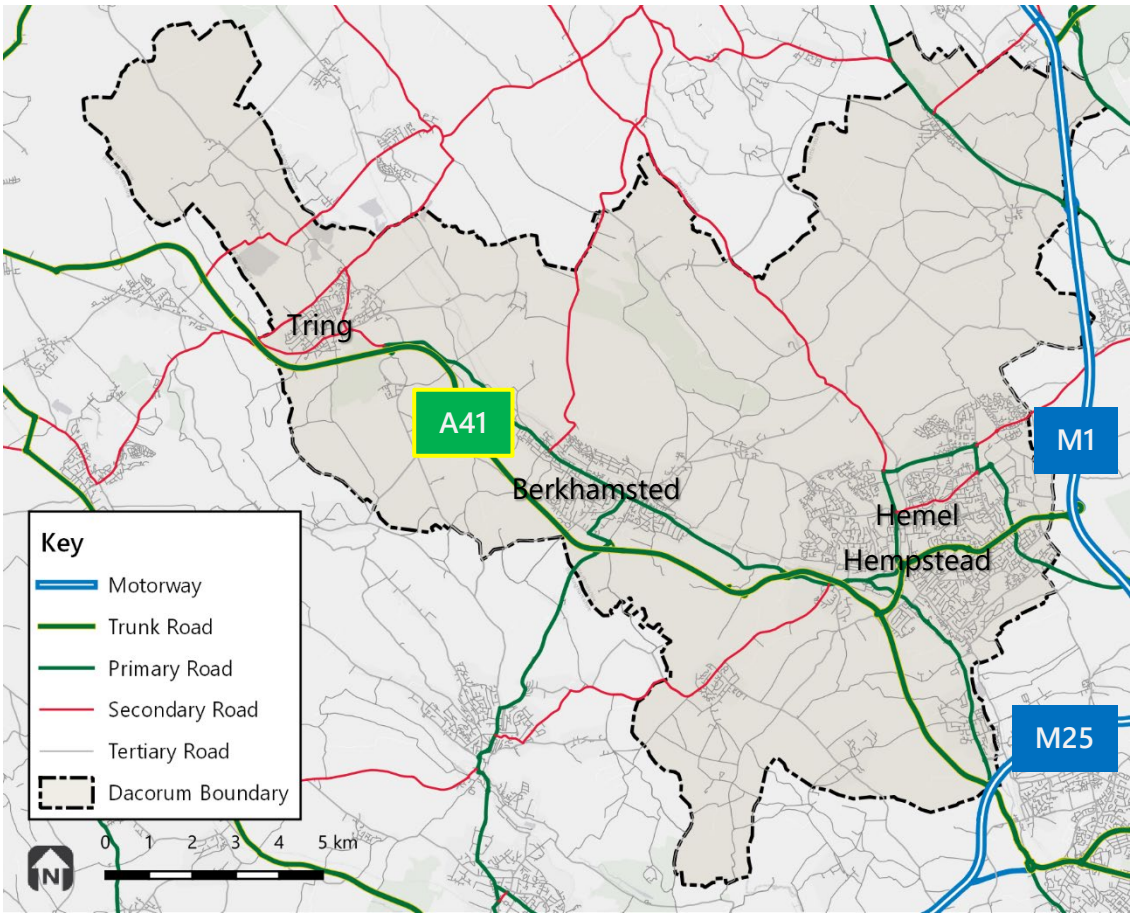
1.4 The remainder of the report is set out into the following sections:

- Section 2 sets the scene and provides the high-level Dacorum context
- Section 3 presents the transport vision for Dacorum, which has been developed to reflect existing strategy documents and the level of ambition within the district
- Section 4 describes current movement patterns across the district and the key issues that flow from these
- Section 5 introduces the planned growth sites across Dacorum to 2038, including the major allocated sites
- Section 4 sets out the implications of growth with a focus on the three main towns in the district
- Section 6 reviews the existing transport schemes and strategies in the context of the proposed vision
- Section 7 presents the proposed package of sustainable transport interventions that are led by the need to achieve vision
- Section 8 sets set out how the sustainable transport interventions, and subsequently the vision, can be achieved

2. Context

2.1 Dacorum has an established transport network, which is largely defined by the A41 trunk road that runs east-west across the District, and the M1, which roughly follows the eastern boundary of the District. The southeast of the District touches the M25 at junction 20. These routes strengthen the District's connection to London, the Chilterns and the Midlands, the results of which can be seen in the movement patterns described in Section 4.

Figure 2-1: Dacorum's road network



2.2 Together with the A414, the M1 and A41 form the main axis for movement through the borough and link the three main settlements of Hemel Hempstead, Berkhamsted and Tring. Externally the location of the borough close to the M1, M25 and A41 has proved popular for logistics and industry, with benefits for large employment sites close to the strategic road network.

2.3 The borough also has good rail connections with the West Coast Main Line railway calling at all three main settlements. To the north, although outside of the borough, there is connection to the Midland Main Line railway at Luton. The county is therefore well-placed to shift longer strategic journeys onto rail.

Figure 2-2: Tring railway station

Source: Andrew Bowden (CC BY-SA 2.0)

2.4 The three main settlements also benefit from their position on the Grand Union Canal, which provides a pleasant green link parallel to the A41 and West Coast Main Line railway. Infrastructure such as the bridge shown in Figure 2-3 has been provided to open this route to walkers and cyclists.

Figure 2-3: Apsley canal and cycle bridge

Source: Peter O'Connor (CC BY-SA 2.0)

2.5 The A41, West Coast Main Line and Grand Union Canal all approximately follow the River Bulbourne valley through the Chilterns. Hemel Hempstead is located at the confluence of the River Bulbourne and River Gade with the town split across three higher points with the town centre at a lower point centrally. Berkhamsted follows the river valley flanked by hills on both sides. Tring sits on the north-western edge of The Chilterns. While influencing and informing the unique character of each of the main settlements and providing quick access into countryside, these topographical factors do present challenges, particularly when seeking to encourage trips on foot or by bicycle.

3. Transport Vision for Dacorum

3.1 The main towns in Dacorum will be undergoing significant growth up to 2038 and there are high ambitions in terms of its quality and for sustainable transport mode share. A consistent, clear vision is required to realise ambitious mode share targets across the Borough.

3.2 The purpose of this section is to set out a clear vision for the future of transport in Dacorum, drawing upon related visions that are presented in existing policy documents for Dacorum and the wider Hertfordshire area.

3.3 The primary objective of the new vision is to improve the quality of transport interventions brought forward in the local authority area, ensuring a stronger focus on sustainability credentials aligned to policy objectives, whilst recognising the scale of growth proposed across the Borough and the need for deliverable solutions to underpin a sound Local Plan.

Policy

3.4 A transport vision for Dacorum will need to fit within the existing policy framework and wider policy aspirations for the South West Hertfordshire area, including on the economy, public health, the environment and climate change. As such, it is vital to reflect upon the visions presented in complementary policy documents.

Hertfordshire Local Transport Plan 2018-2031

3.5 The Hertfordshire Local Transport Plan 2018-2031 (LTP4) sets out how transport can help deliver a positive future vision of Hertfordshire, focussed on the themes of people, place and prosperity.

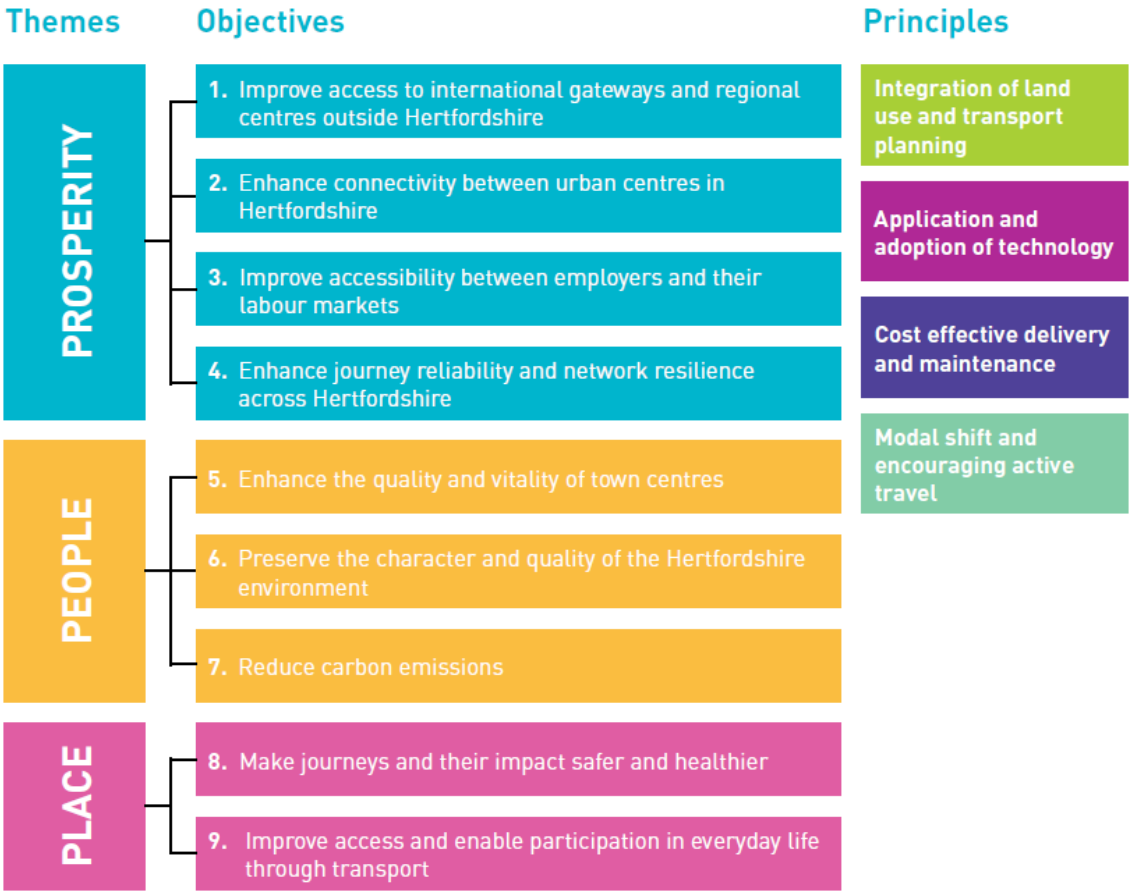
3.6 It aims to deliver a 'blended approach' of improvements in highways, passenger transport, walking and cycling which seeks to manage a transition away from a focus on highway capacity improvements, whilst preparing the transport system for a period of significant change enabled by technological advances.

3.7 It will guide transport and land use decisions in the county of Hertfordshire to 2031 and beyond and presents the following vision:

> *'We want Hertfordshire to continue to be a county where people have the opportunity to live healthy, fulfilling lives in thriving, prosperous communities.'*

3.8 Expanding on this vision, the LTP4 identifies nine objectives and four principles for the future of transport aligned to the three themes of: prosperity, people and place which aim to bring the vision to life.

Figure 3-1: Themes, objectives and principles of the LTP4



Source: Hertfordshire LTP4

3.9 Core Policy 1 sets out a Transport User Hierarchy with the aim of supporting 'the creation of built environments that encourage greater and safer use of sustainable transport modes.' It goes on to say that this will be applied to all schemes and transport strategies.

3.10 The adopted hierarchy is:

1) Opportunities to reduce travel demand and the need to travel (Consider first)
2) Vulnerable road user needs (such as pedestrians and cyclists)
3) Passenger transport user needs
4) Powered two-wheeler (mopeds and motorbikes) user needs
5) Other motor vehicle user needs (Consider last)

Dacorum Growth & Infrastructure Strategy to 2050

3.11 The Dacorum Growth & Infrastructure Strategy presents a series of visions aligned to seven themes of: housing, the economy, health and wellbeing, tourism, the environment, travel, and technology. The Strategy outlines the role of infrastructure in enabling Dacorum to respond to growth in employment and housing not seen in the borough since the 1970s.

3.12 It presents the following vision for travel:

> *'An area where people can travel easily and sustainably, and move between their homes, jobs and leisure activities within the borough and further afield. A transport network that has a positive influence on our quality of life, where people feel connected to shops, parks, schools, their place of work or worship – and to one another. This will require new approaches to reduce the reliance on cars.'*

Hemel Garden Communities Charter

3.13 Hemel Garden Communities is an ambitious development programme that will transform Hemel Hempstead and create attractive and sustainable new neighbourhoods and communities to the north and east of Hemel Hempstead, through the delivery of more than 11,000 new homes and 10,000 new jobs by 2050.

3.14 The Hemel Garden Communities Charter sets out how Dacorum Borough Council is working with St Albans City District Council and other public and private sector partners to deliver the programme following the Town and Country Planning Association (TCPA) Garden City Principles.

3.15 The Charter identifies three themes of: place and design, engagement, and delivery, in addition to nine principles that underpin each. Principle 2 is 'transformative mobility improvements' which provides a vision for movement within the Hemel Garden Communities:

> *'The Garden Communities will be planned around a step change in integrated and sustainable transport system in the town, which will use new technologies to put walking, cycling and public transit systems at the heart of Hemel Garden Communities.'*

Dacorum Local Plan Issues & Options Consultation Paper

3.16 Dacorum Borough Council is currently consulting on a new vision for its Local Plan which would supersede the vision provided within its Core Strategy. This vision does

not specifically relate to transport but is rather positioned from the perspective of place and community which transport plays a key role in promoting. It is designed to cover the period to 2038 and is set out 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.

Hemel Garden Communities Transport Plan

3.17 Hemel Garden Communities Transport Plan (HGCTP) is being prepared to guide the growth of the Hemel Garden Communities Programme.

3.18 The HGCTP is intended to establish the framework for making positive policy and infrastructure changes to the town that will enable it to accommodate successfully substantial future development and growth arising from, for example, the Hemel Garden Communities Programme. In doing so, the Strategy encourages more widespread uptake of active and sustainable mobility options for local journeys in and around Hemel Hempstead.

3.19 The HGCTP will be focussed on achieving both mid-term and long-term goals, and on equipping the town with the necessary tools to deliver against them. We anticipate that these goals will be closely aligned to the Garden City Principles for the 21st Century set out by the TCPA, which state that design should seek to enable at least

50% of trips originating in the new settlement to be made by non-car means, with a goal to increase this over time to at least 60%.[1]

3.20 The objectives determined as part of the Hemel strategy are also likely to be appropriate in broad terms for the new growth proposed in Berkhamsted and Tring. While place-specific goals will need to be determined, noting the differences in respect of the scale of place and growth aspirations for each, these will need to be ambitious if the challenges of delivering substantial growth in a way that responds to the climate emergency and improving the health and wellbeing of all residents are to be met.

Defining a Transport Vision for the Local Plan

3.21 The visions presented above embrace the common theme of readying Dacorum for the significant growth planned for the local authority area within the lifetime of the Local Plan and responding accordingly. There is a recognition within each of the visions of the vital role that sustainable transport modes will play in the future mobility landscape of the area and in the realisation of common threads such as economic growth, environmental protection, public health and quality of place.

3.22 Considered in this context, the Local Plan's growth allocations, and the strategic improvements that it helps to fund and deliver, have a significant role to play in helping to shift the pattern of travel behaviours onto a more sustainable long-term trajectory. This is an important opportunity that should not be missed since it otherwise jeopardises the deliverability of the Garden Community vision and other policy documents set out above.

[1] TCPA (2017). Garden City Standards for the 21st Century Guide 3: Design and Masterplanning (see section 4.1)

3.23 Having reflected upon the various visions and identified their common themes, strengths and weaknesses, the following vision for transport has been agreed:

Proposed Vision for Transport

By 2038 Hemel Hempstead will have a transport network that delivers a safer, healthier and more prosperous town where walking, cycling and public transport is prioritised. To achieve this vision, we have adopted the following objectives:

- Walking and cycling becomes the natural first choice for local trips by better connecting people to places of work, facilities and services via a high-quality network of pleasant, safe and accessible traffic-free walking and cycling routes.
- Public transport is as convenient and affordable as the private car for journeys both within Hemel and to nearby towns.
- Car ownership is no longer a necessity for most people making trips within the town, and car sharing becomes a mainstream form of car use, surpassing ownership in time.
- Streets are no longer dominated by parking with parking spaces repurposed to create new amenity and/or economic value in the town centre and where children are safe to play outside their homes.
- The potential of technology and innovation is leveraged to create a zero-emission transport system that drives progress towards achieving (and exceeding) the town's ambitious mode share targets, with a potential Mass Rapid Transit system running through the town and connection it with St Albans and beyond at its core.

4. Current Movement Patterns

4.1 This section sets out current movement patterns across the District. It is important to understand how people currently get around as this will determine where interventions may be most successful and where gaps exist in the current networks. We have identified where current movement patterns create pressures on the network (see section 6) and how growth should respond positively to these issues (see sections 7 and 8).

4.2 Travel to work data from the 2011 census at a localised level were used to analyse walking and cycling trips. It should be noted that since this just counts commuting trips made solely by these modes, the figures are likely to be a significant underestimation of demand. They will not, for example, include people who cycle to the train station, where the rail journey is declared as the primary mode of transport, nor will they count journeys made for any other purpose, such as for education, leisure or shopping.

4.3 Combined zones from Hertfordshire's countywide transport model, 'COMET', were used to analyse motorised trips (public transport and private car). This COMET baseline is 2014, which is what this analysis is based on. Unlike the census data, the COMET model considers all types of journey, not just commutes, and therefore it cannot be directly compared to the walking and cycling data.

Walking

Tring and Berkhamsted

4.4 Both Berkhamsted and Tring's walking trips are very localised within town, with most trips starting and finishing in within the same towns. This is quite understandable given the distances involved. It should be noted that Census data only includes journeys to work and this data does not include trips made within the same zone. Both factors are likely to result in an underestimate of walking trips in the towns.

4.5 Mapping of the OD trip destinations is shown in Figure 4-1 as lines. It should be noted that the OD lines do not relate to actual walking trips but rather link to the centre of the zones, which tends to visually exaggerate trip lengths. The longer trips out of town shown are likely to be miscoded trips or misunderstanding by those completing the census. The circles indicate the number of trips starting and ending within each zone. Despite the limitations of the data the diagrams are nonetheless useful to identify the scale of movements in the towns, albeit only for journey to work trips as noted above.

Figure 4-1: Tring (left) and Berkhamsted (right) walk to work trips

4.6 The Berkhamsted and Tring Transport Strategy, prepared by AECOM, provides more detail on travel conditions within the towns.

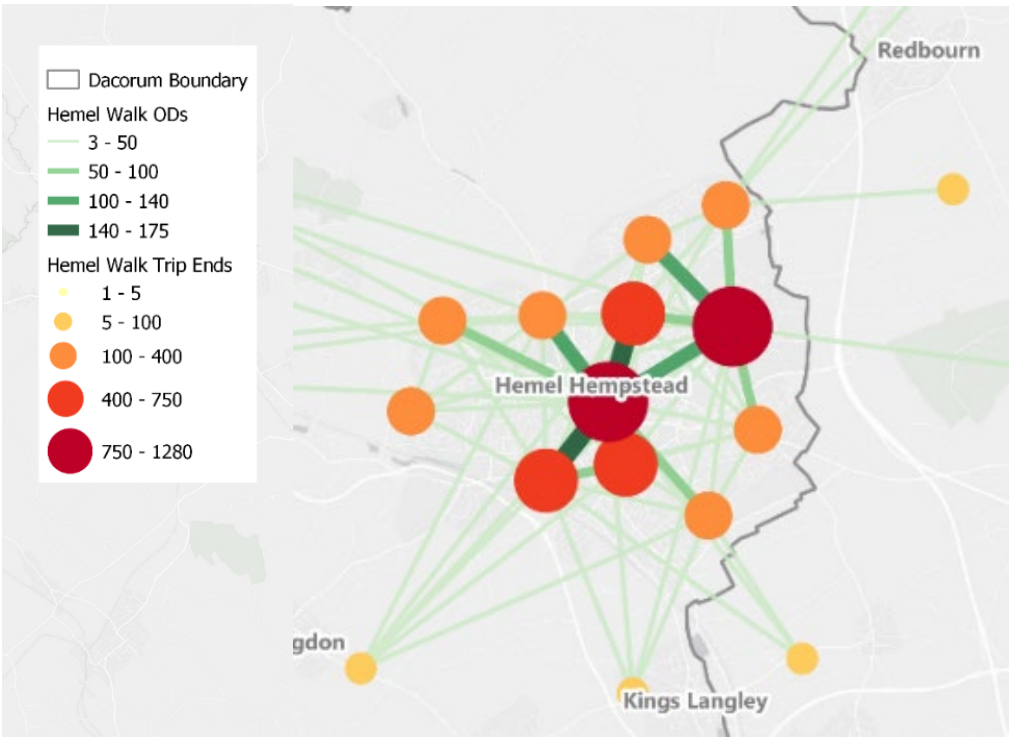
Hemel Hempstead

4.7 Hemel Hempstead's much larger population size is reflected in the numbers of walking trips made within the town. Maylands was the second most popular hub for Hemel walking trips as part of a commute, attracting 780 trip ends, reflecting its importance as the main employment centre for the town. It is noted, however, that the figures are obtained from data relating to commuting trips, therefore may be skewed towards areas of employment.

Table 4-1: Hemel Hempstead walk to work trips

Rank	Origin	Destination	Walk Trips
1	Central Hemel	Corner Hall	175
2	Central Hemel	Boxmouth & Apsley	169
3	Central Hemel	Highfield	167
4	Maylands	Central Hemel	127
5	Central Hemel	Gadebridge	120
6	Maylands	Grovehill	109
7	Maylands	Woodhall Farm	96
8	Maylands	Highfield	94
9	Central Hemel	Maylands	69
10	Central Hemel	Nash Mills	66
		Total	2,920

Figure 4-2: Hemel Hempstead walk to work trips

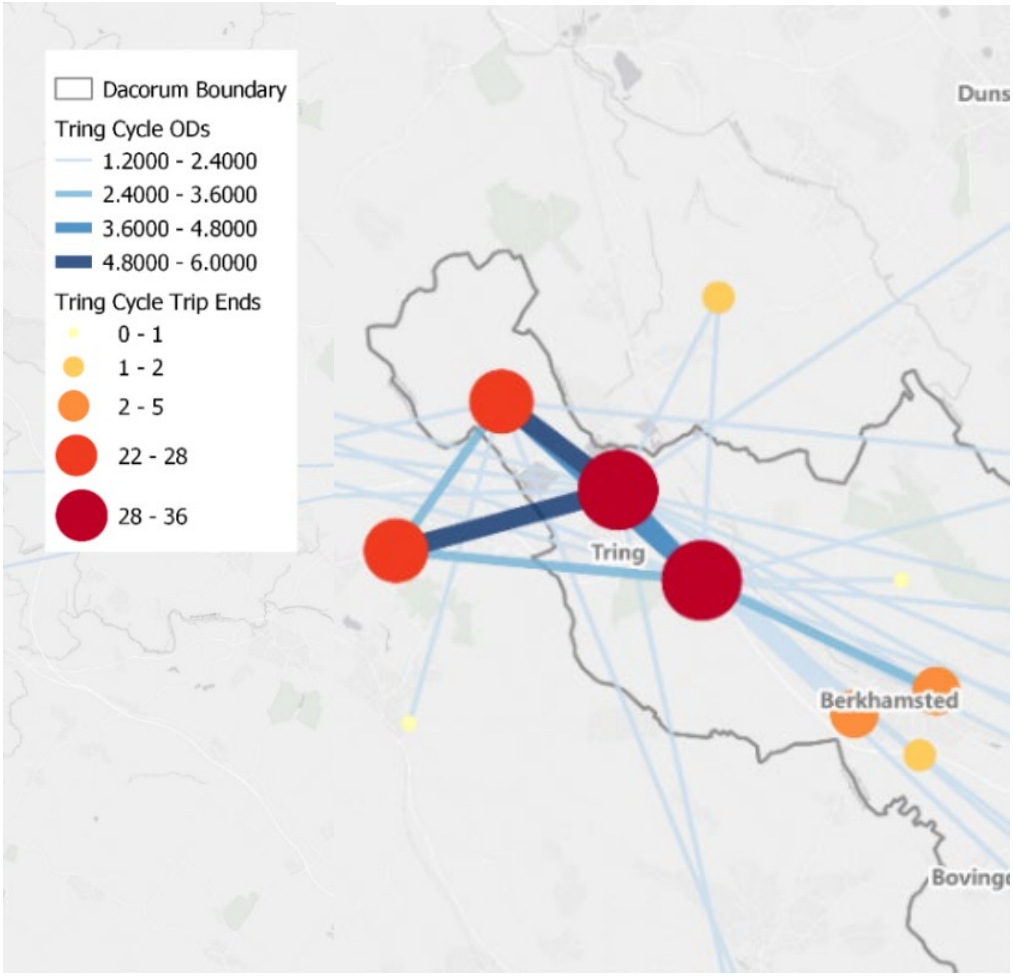


Cycling

Tring

4.8 Very few people (just 74 in total) travelled to work by bicycle in Tring. Most of the commutes that were made by bike were made within Tring itself although a few very long journeys were recorded, such as from Amersham and Harpenden. Again, it should be noted that this data only includes journeys to work and a greater number of cycle trips, and perhaps a different distribution, may be seen if other purposes of trips were included. The recorded trips will also not include cycle trips that were secondary to another mode of transport, such as cycling to the railway station.

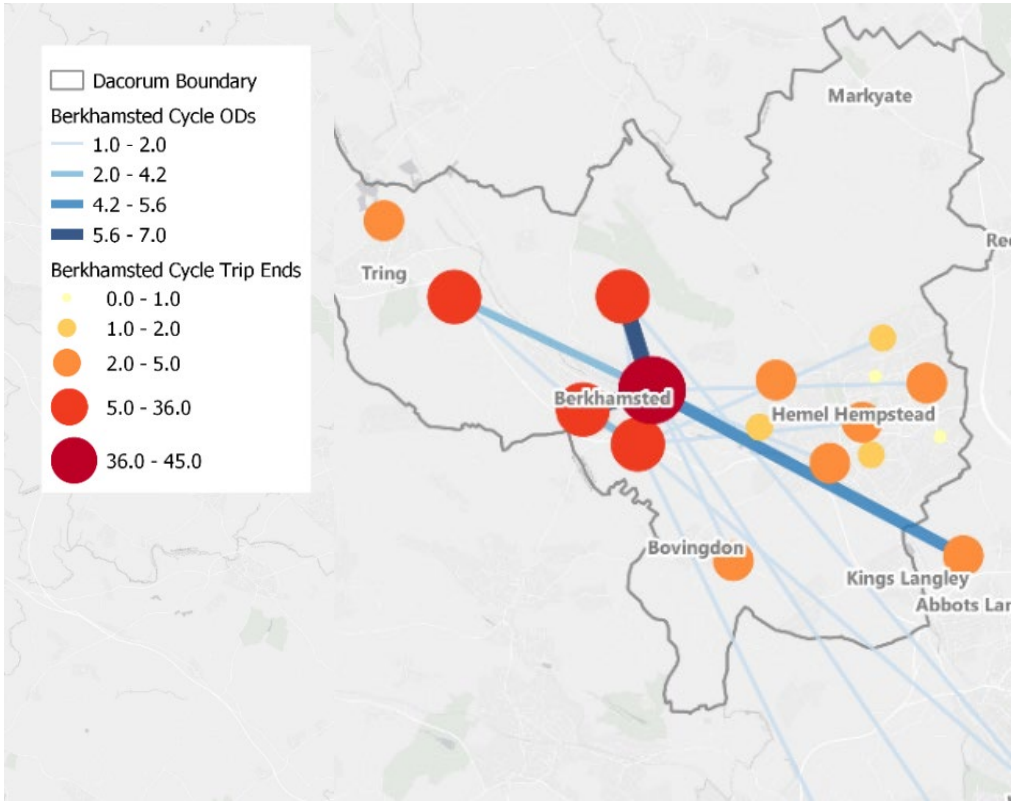
Figure 4-3: Tring cycle to work trips



Berkhamsted

4.9 The number of people commuting in Berkhamsted is low at around 95 cycling trips, likely reflecting the challenging topography around the town and lack of cycling infrastructure. As with Tring a few longer distance trips were noted for example from Abbots Langley.

Figure 4-4: Berkhamsted cycle to work trips



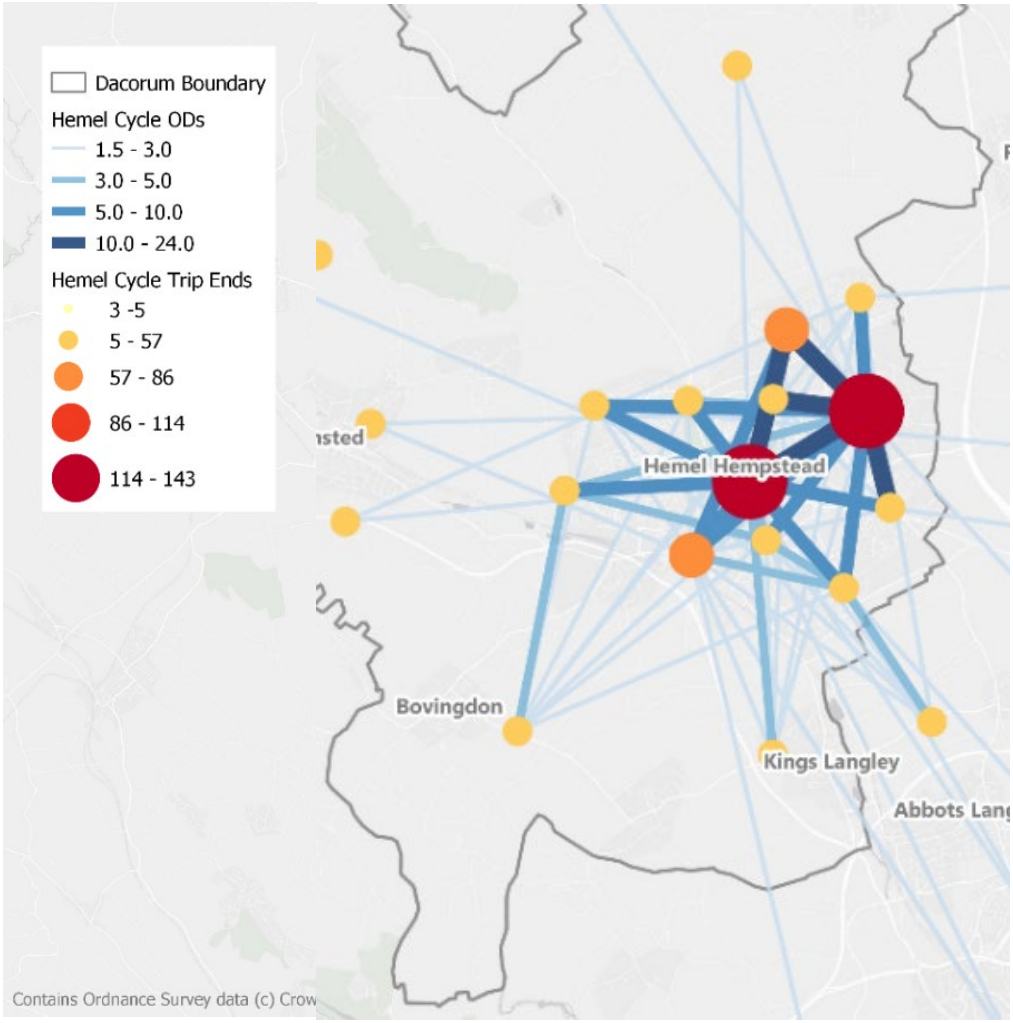
Hemel Hempstead

4.10 A larger number of people (nearly 500) cycle in Hemel Hempstead for work, reflecting its larger population. Displaying a similar picture to its walking distribution, Hemel's cycling trips were not only focussed on its city centre, but also the Maylands area to the east. It is noted, however, that the figures are obtained from data relating to commuting trips, therefore may be skewed towards areas of employment.

Table 4-2: Hemel Hempstead cycle to work trips

Rank	Origin	Destination	Bicycle Trips
1	Maylands	Central Hemel	24
2	Maylands	Leverstock Green	14
3	Central Hemel	Grovehill	14
4	Maylands	Grovehill	13
5	Maylands	Highfield	11
6	Central Hemel	Maylands	11
7	Central Hemel	Gadebridge	10
8	Maylands	Woodhall Farm	9
9	Central Hemel	Nash Mills	9
10	Central Hemel	Warners End	9
		Total	470

Figure 4-5: Hemel Hempstead cycle to work trips



Motorised trips

4.11 It should be noted that the COMET model from which this data is drawn considered all types of journey by car and on public transport, not just commutes. While this means it cannot be directly compared to the walking and cycling data analysis above it still provides a useful understanding of movement patterns within the district. Additional analysis of rail and bus trips are provided later in this section, along with analysis if Census data for journey to work mode share to help put this work in a proper context.

Tring

4.12 Unsurprisingly, longer-distance trips are much more popular using motorised transport than active travel. Particularly, the connected nature of the three main towns in the

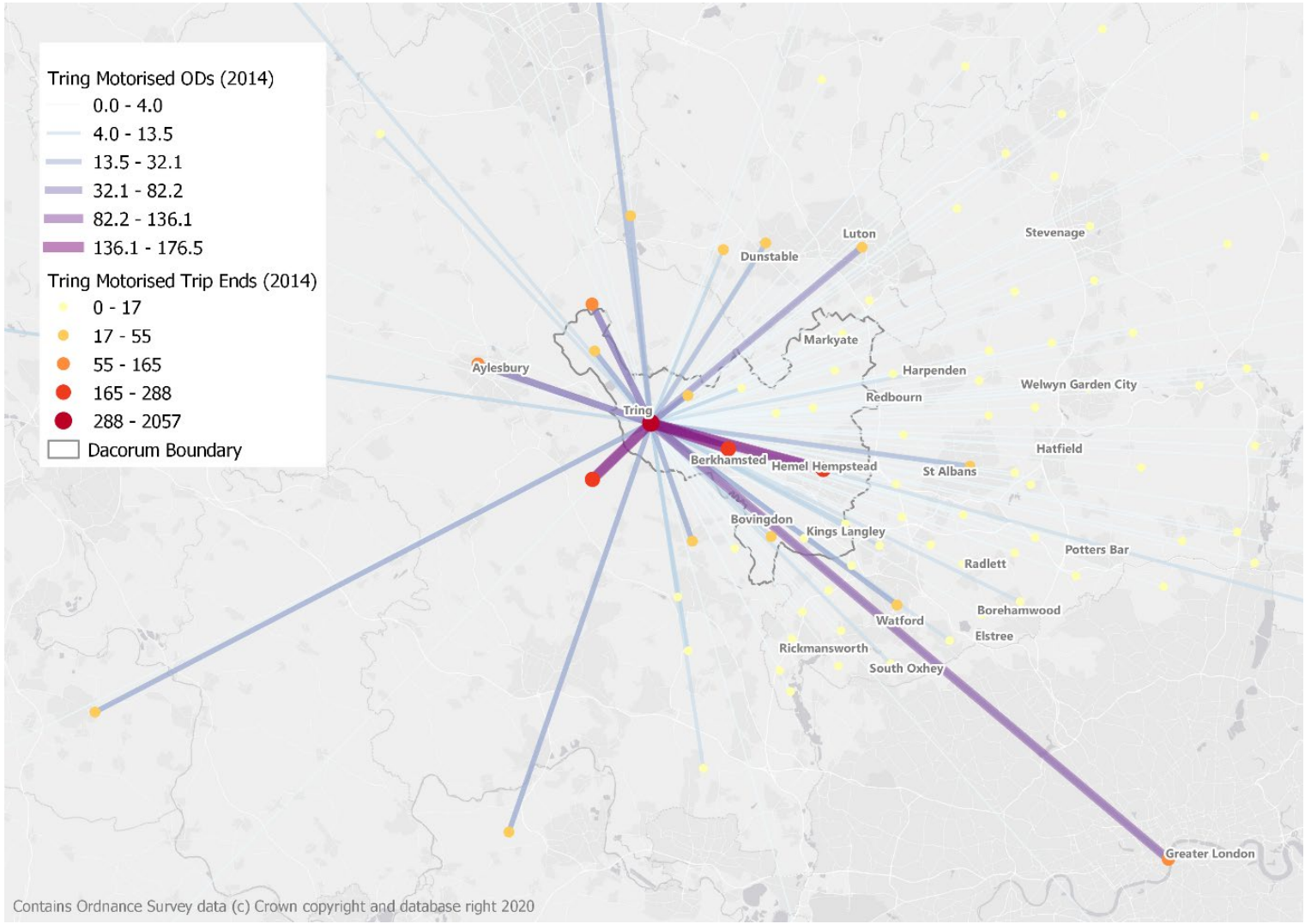
study area is more strongly highlighted by motorised trips, with ODs to Berkhamsted and Hemel Hempstead taking the top two OD spots and all movements between the towns representing 26% of all trips.

4.13 Tring also has reasonably strong connections to the North. London's connection with the region is made apparent. Tring has relatively weak motorised connections to the east of Hemel, with St Albans-Tring only attracting 31 trips.

Table 4-3: Motorised trips between areas around Tring

Rank	Origin	Destination	Motorised Trips
1	Hemel Hempstead	Tring	176
2	Berkhamsted	Tring	165
3	Wendover & Great Missenden	Tring	157
4	Tring	Greater London	136
5	Tring	Wendover & Great Missenden	131
6	Tring	Berkhamsted	101
7	Tring	Hemel Hempstead	99
8	Tring	Aylesbury	82
9	Aylesbury	Tring	77
10	Pitstone & Cheddington	Tring	68
		Total	2,057

Figure 4-6: Motorised trips between areas around Tring



Berkhamsted

4.14 Berkhamsted is the focus of about twice as many motorised trips as Tring is, which is comparable to the ratio for walking. Its cycling rate is proportionally lower than would be expected with its higher population, which suggests that the challenging terrain around the town is one of the key factors suppressing cycling trips.

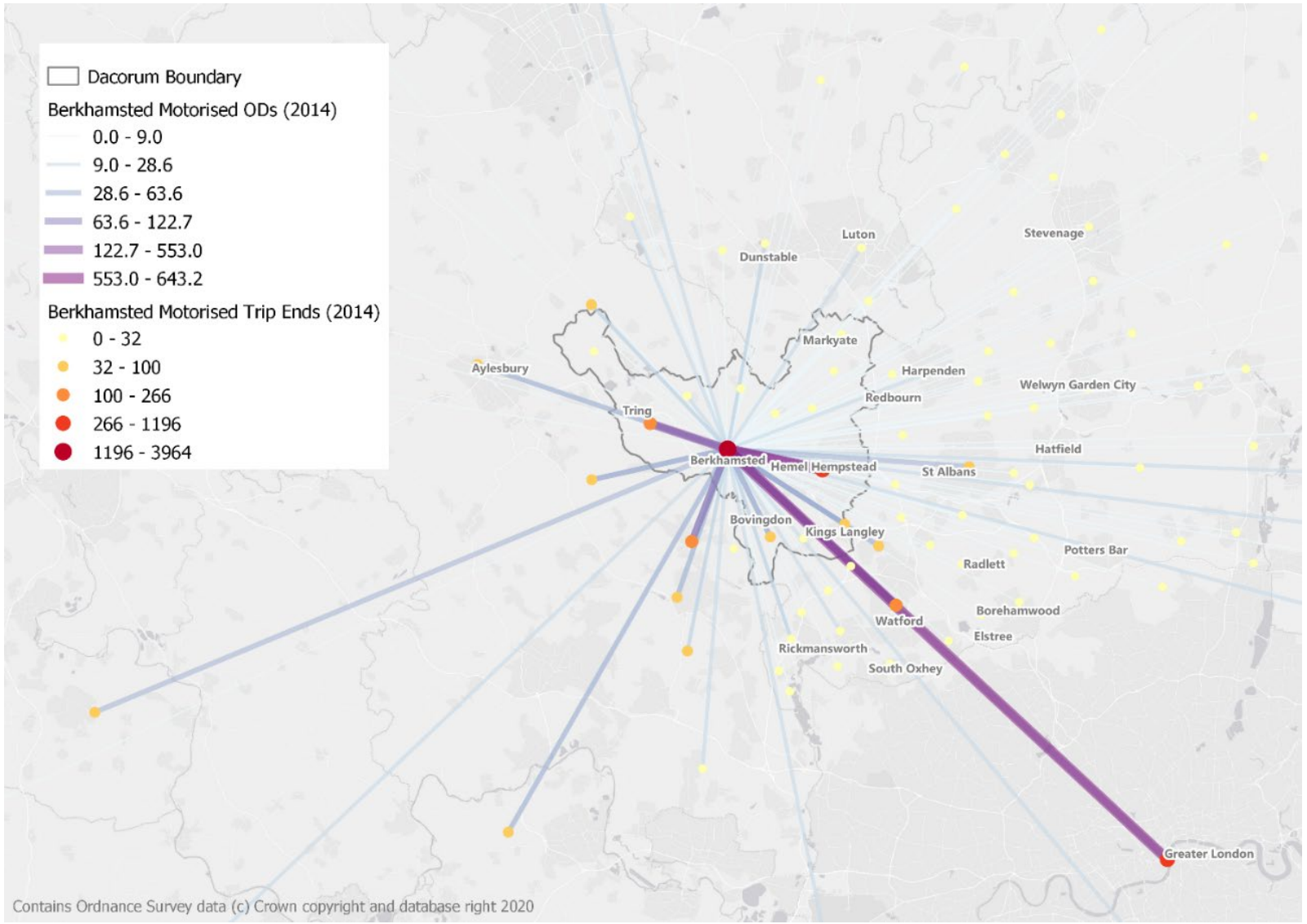
4.15 Berkhamsted's most popular motorised connection is with Hemel Hempstead, which is to be expected given their populations and proximity to one another. Taken together, trips between Hemel, Berkhamsted and Tring represent 37% of all trips.

4.16 Berkhamsted's connection with London is stronger than Tring's, with the Berkhamsted-Greater London OD recording almost the same number of trips as the Hemel Hempstead-Berkhamsted OD. As with Tring, Berkhamsted's connections to the east of Hemel Hempstead are relatively weak, with the Berkhamsted-St Alban's OD attracting only 39 motorised trips.

Table 4-4: Motorised trips between areas around Berkhamsted

Rank	Origin	Destination	Motorised Trips
1	Hemel Hempstead	Berkhamsted	643
2	Berkhamsted	Greater London	640
3	Berkhamsted	Hemel Hempstead	553
4	Berkhamsted	Tring	165
5	Berkhamsted	Watford	123
6	Chesham	Berkhamsted	106
7	Tring	Berkhamsted	101
8	Watford	Berkhamsted	100
9	Greater London	Berkhamsted	92
10	Berkhamsted	Chesham	91
		Total	3,964

Figure 4-7: Motorised trips between areas around Berkhamsted



Hemel Hempstead

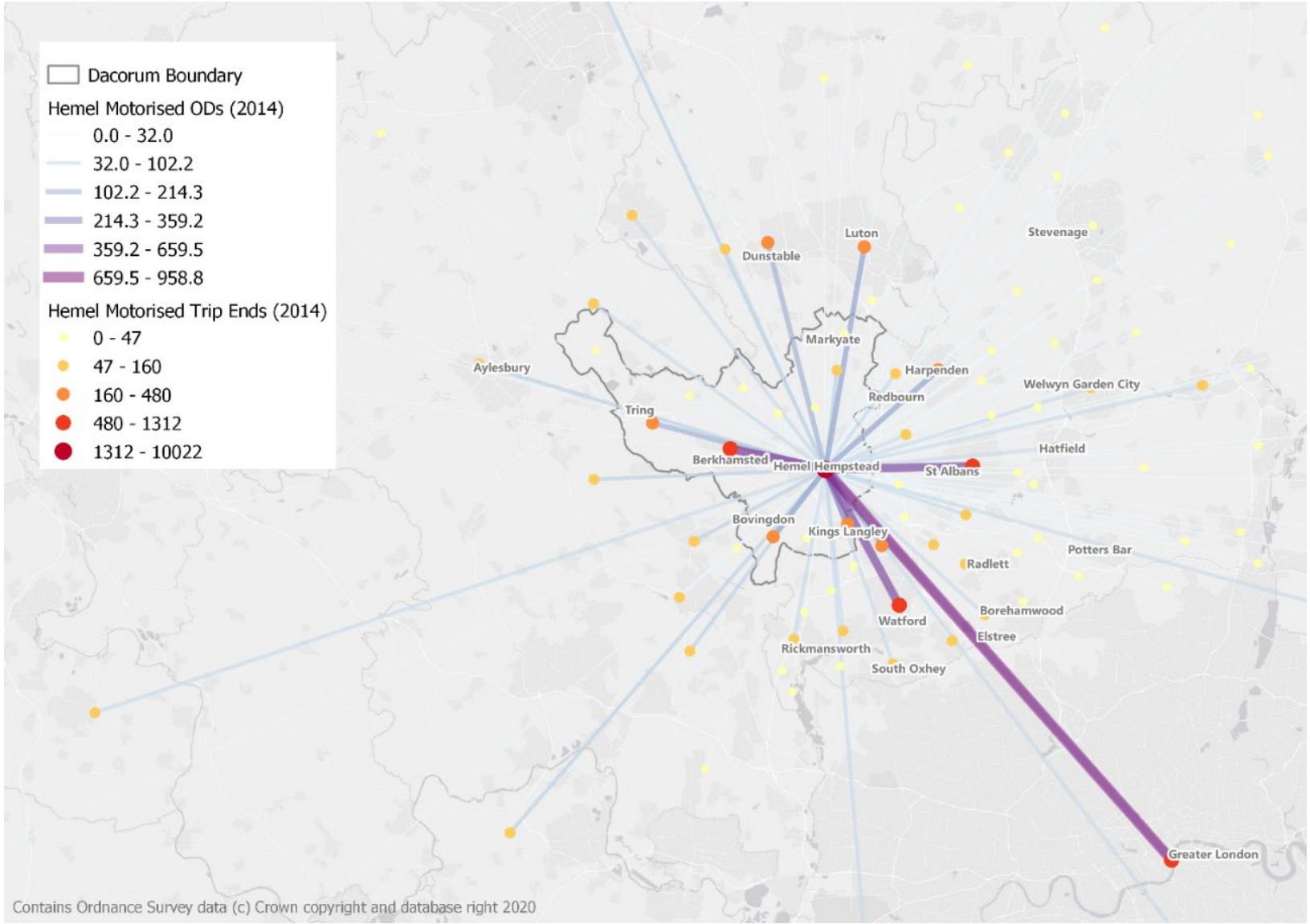
4.17 The most popular motorised connection by far is to Greater London, which is over a third bigger than the next most popular OD, at 959 trips. Hemel's connections seem to be more externally focussed than the other two towns, with Tring not featuring at all in its Top 10, whilst Watford, St Albans, and Luton feature, alongside London.

4.18 The connections to Berkhamsted and Tring only make up 15% of all trips involving Hemel. This is a much lower proportion than the other towns, highlighting its greater variety of destinations. However, its local connection with Berkhamsted is still pivotal, accounting for 1,213 trips when both directions are considered.

Table 4-5: Motorised trips between areas around Hemel Hempstead

Rank	Origin	Destination	Motorised Trips
1	Hemel Hempstead	Greater London	959
2	Hemel Hempstead	Berkhamsted	660
3	Hemel Hempstead	Watford	643
4	Berkhamsted	Hemel Hempstead	553
5	Hemel Hempstead	Kings Langley	485
6	Hemel Hempstead	St Albans	359
7	St Albans	Hemel Hempstead	353
8	Greater London	Hemel Hempstead	348
9	Watford	Hemel Hempstead	333
10	Luton	Hemel Hempstead	214
		Total	10,022

Figure 4-8: Motorised trips between areas around Hemel Hempstead



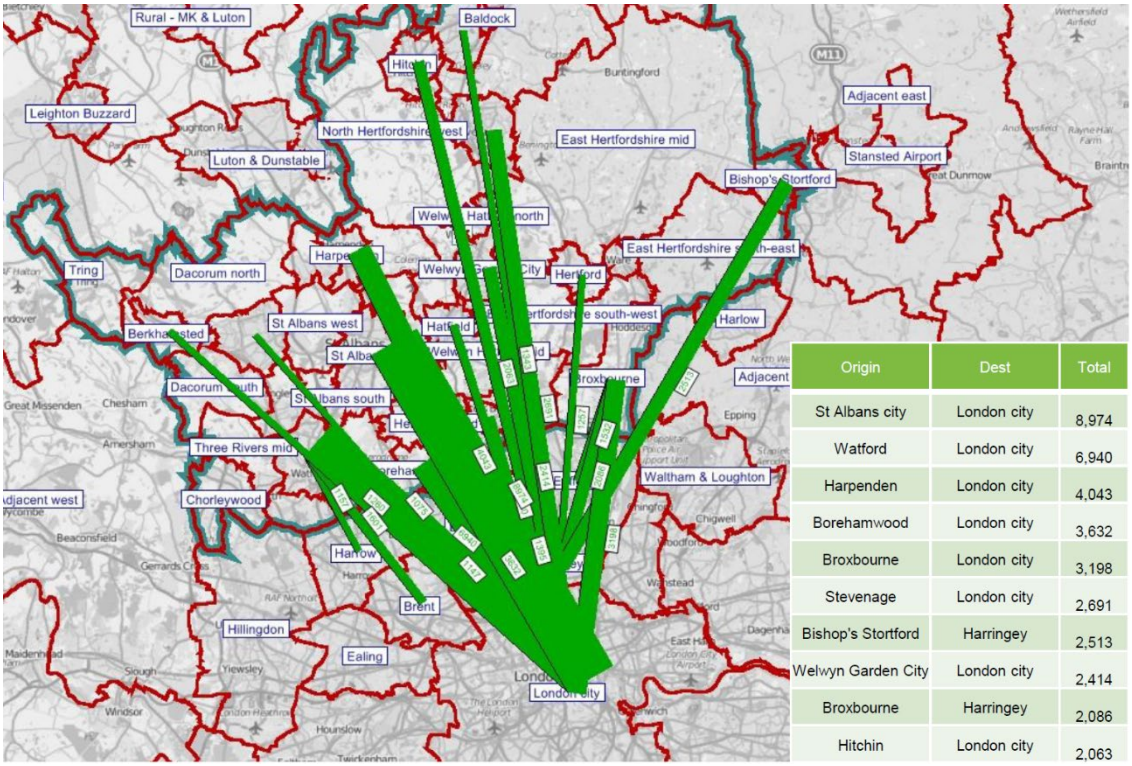
4.19 The analysis above suggests a significant movement between the three main town in Dacorum, representing around 3,000 two-way trips in the AM peak or around 20% of trips overall.

LENNON rail data

4.20 LENNON is the central ticketing system for the rail network and contains data on the majority of rail tickets purchased. Its primary purpose is to allocate revenue from ticket sales to rail operators but it also represents a rich source of information regarding movements across the country by rail.

4.21 Analysis by AECOM for the county of Hertfordshire tends to support the analysis set out above, which shows significant movements by rail to central London, particularly within Dacorum from Berkhamsted and Hemel Hampstead. It is noticeable that total volumes of movement from Dacorum are significantly lower than from other centres in the county such as St Albans and Watford. This reflect the better levels of rail connectivity from these locations to London.

Figure 4-9: Rail journeys (24hrs) from Hertfordshire to external destinations



Origin	Dest	Total
St Albans city	London city	8,974
Watford	London city	6,940
Harpenden	London city	4,043
Borehamwood	London city	3,632
Broxbourne	London city	3,198
Stevenage	London city	2,691
Bishop's Stortford	Harringey	2,513
Welwyn Garden City	London city	2,414
Broxbourne	Harringey	2,086
Hitchin	London city	2,063

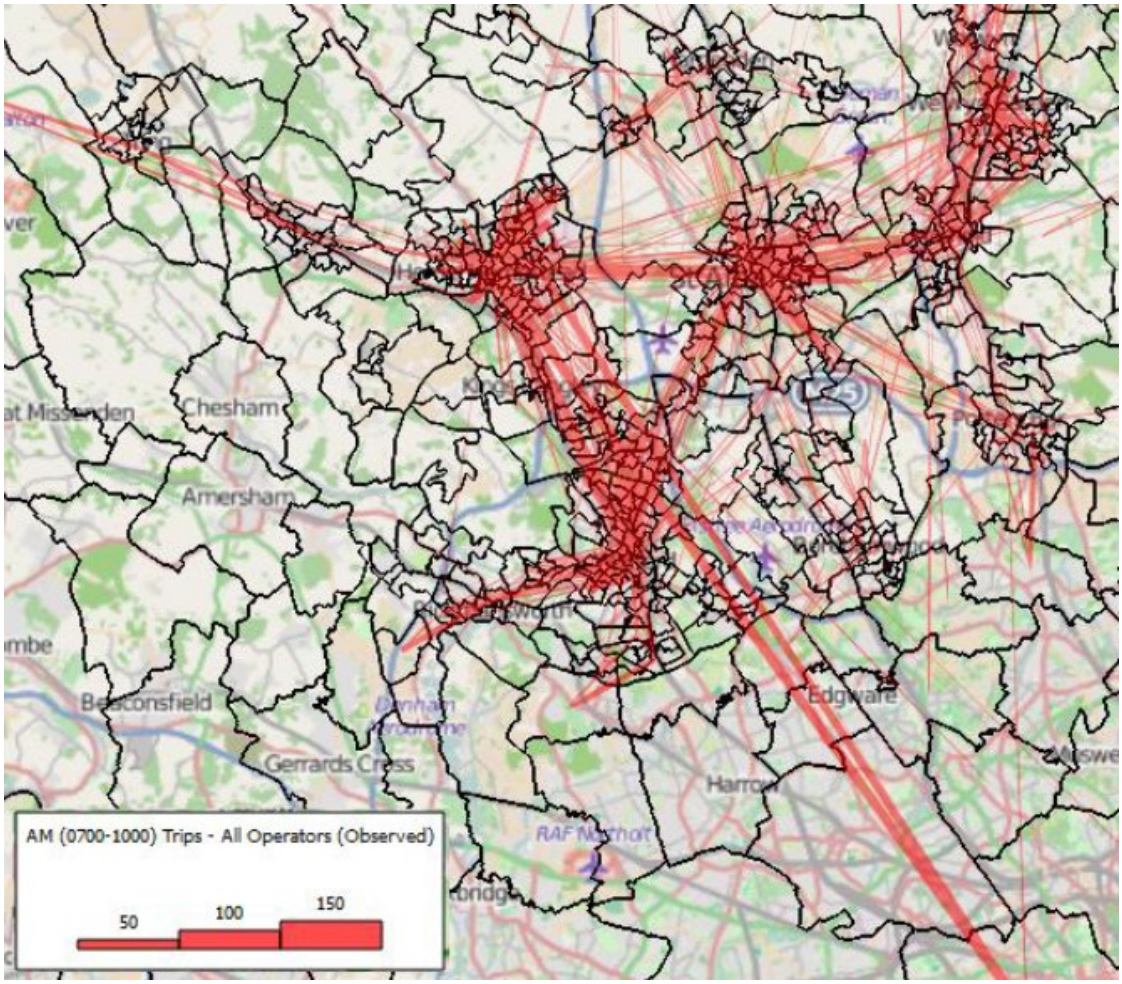
Source: AECOM (2015) TN07 Pattern of Travel

Bus Electronic Ticket Machine Data

4.22 In order to provide a picture of bus travel within Dacorum Electronic Ticket Machine (ETM) has been investigated. This data captures digital tickets across the four major bus operators in Hertfordshire (at the time of data collection in 2015) of Arriva, Uno, Centre Bus and Metroline. These operators account for around 50% of all services with the ETM data providing an idea of overall patterns and level of bus use.

4.23 The analysis of data, completed by AECOM, tends to support the wider analysis set out above and shows a pattern of significant movements within the main towns. Movements are also seen between the main towns, in particular Hemel Hampstead south to Kings Langley and Watford, east to St Albans and at lower volumes north west to Berkhamsted.

Figure 4-10: ETM data for Hertfordshire (07.00-10.00)



Source: AECOM (2015) TN07 Pattern of Travel

4.24 The analysis of movement patterns identified several key movement corridors within the district. These are locations with a high concentration of movements currently based on the OD flows that currently exist. These key movement corridors include along the key rail lines into London and the A4251 and M1 corridors to west and east, and east-west along the A414 corridor.

4.25 An further analysis of the COMET model outputs has also been undertaken to determine where there is congestion on the network currently. By combining the OD and trip end data with the model output data we can see where on the network there are pressure points and where there should be a focus for potential interventions that can bring about mode share, as well as where targeted increases in capacity are required.

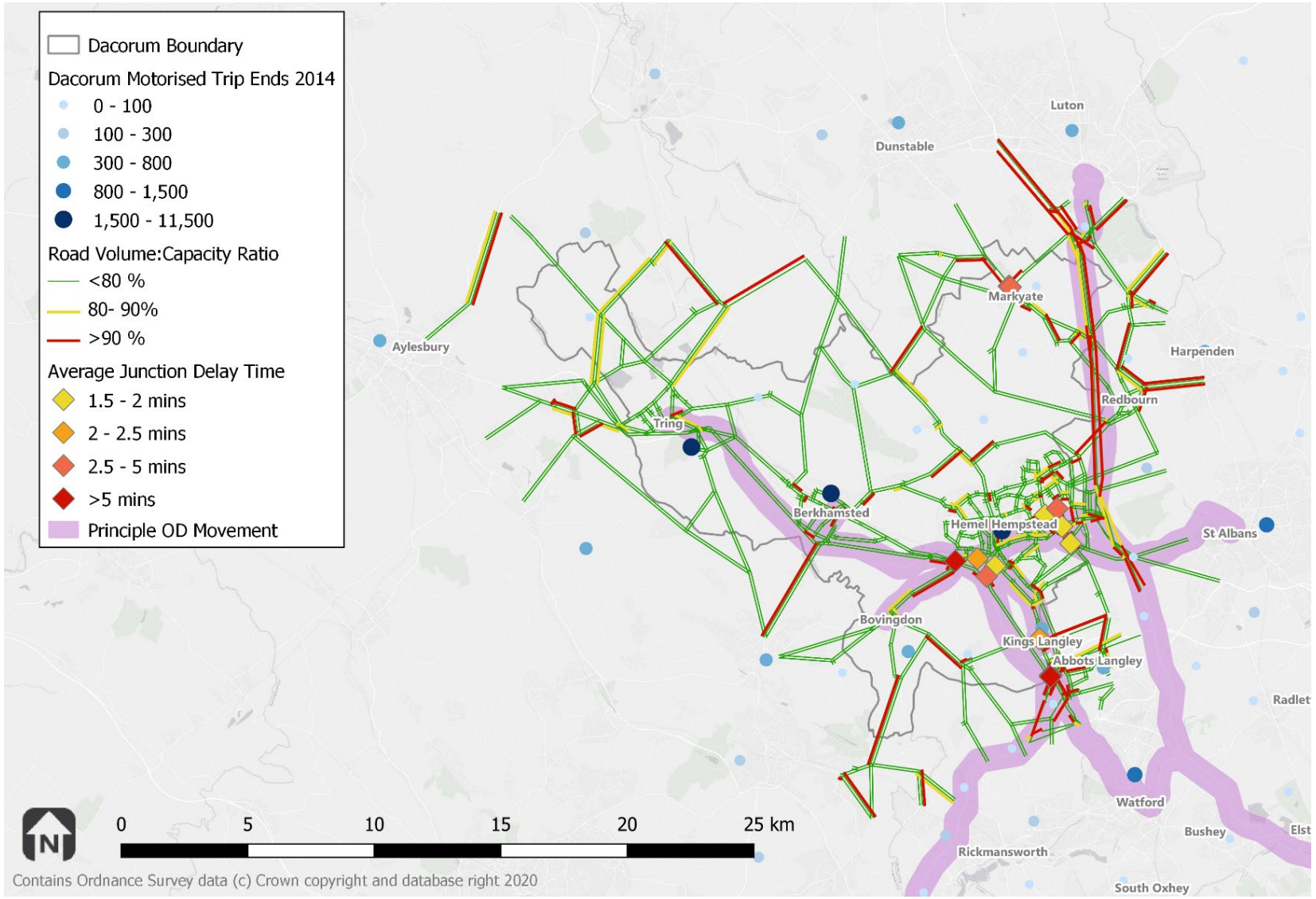
4.26 The output of this exercise is shown overleaf (Figure 4-11). The highway network is shown diagrammatically based on the network coded into the COMET model. Highway links with traffic volumes likely to lead to congestion (i.e. over 90% of capacity) are shown in red. Similarly, junctions with high levels of delay are shown. The key movement corridors are shown in pink.

4.27 The diagram shows that are there key movement corridors converge around Hemel Hempstead on the A414 corridor and, to the south, around Kings Langley on the approach to the M25. As might be expected this is also where a cluster of junctions with high levels of delay can be seen. Away from Hemel Hempstead and Kings Langley, congestion can be seen on links into the main towns and along the M1. The remainder of the district operates with reasonable capacity in highway terms.

4.28 This analysis suggests that a key area of focus should be around the A414 corridor between the A41 and M1 particularly focused on measures that can help reduce demand for car use (around 21% of trips here are shorter than 5km[2] and could be made by most people relatively easily by other modes), with additional highway capacity on the approach to the M25 at J20 to provide relief to the A414.

[2] A414 Corridor Strategy

Figure 4-11: Key movement corridors , key points of demand on the network and highway network performance



Mode share

4.29 As well as the analysis of movement patterns a review of mode share data was undertaken, based on Census data.

Hemel Hempstead

4.30 Table 4-6 shows the mode share of inbound and outbound commuter trips from Hemel Hempstead. Private cars are the dominant mode of transport for commuting. Outbound trips have a slightly lower car mode share, as would be expected given that there is a large commuting flow to London, however the rail mode share is significantly lower than in other towns in the wider area such as St Albans, Borehamwood and Watford. Our analysis indicates that commuting to northern London boroughs such as Enfield is predominantly undertaken by car.

Table 4-6: Hemel Hempstead mode share

	Private Car	Car Passenger	Train	Bus	Walk	Cycle
Inbound	83%	5%	3%	4%	2%	1%
Outbound	73%	6%	5%	5%	8%	1%

Source: HCC Evidence Packs

4.31 Table 4-7 shows the mode share of internal commuter trips within Hemel Hempstead using Census data. Whilst there is still a high private car mode share, walking accounts for a much larger proportion of trips compared with inbound / outbound commuter trips. Private car remains dominant however, perhaps in part due to the relatively larger distances to the main area of employment in Maylands and the poor walking and cycling infrastructure available. Nonetheless, given that these trips will be short the scope to dramatically increase the walking, cycling and bus or East-West Priority Transport (EWPT) mode share is significant.

Table 4-7: Hemel Hempstead mode share of internal commuter trips

	Private Car	Car Passenger	Train	Bus	Walk	Cycle
Internal commuter trips	58%	8%	<1%	5%	24%	2%

Source: HCC Evidence Packs

4.32 Maylands is a major employment centre to the east of Hemel. Work undertaken as part of the Maylands Prospectus has identified that around 29% of trips to Maylands are less than 5km in length but despite this nearly 80% are undertaken by car. This suggests there is significant opportunity to bring about modal shift to more sustainable modes.

Berkhamsted

4.33 Table 4-8 shows the mode share of inbound and outbound commuter trips from Berkhamsted. Private cars are the dominant mode of transport for commuting. Outbound trips have a significantly lower car mode share as there is a large commuting flow to London and given the central location of the rail station within the town more trips are made by rail.

Table 4-8: Berkhamsted mode share

	Private Car	Car Passenger	Train	Bus	Walk	Cycle
Inbound	83%	6%	4%	3%	2%	<1%
Outbound	61%	3%	24%	2%	8.5%	1%

4.34 Table 4-9 shows the mode share of internal commuter trips within Berkhamsted using Census data. Private car mode share is substantially lower, with walking accounting for a large proportion of trips. Cycling remains low, potentially due to the compact nature of the town, the lack of segregate

4.35 d cycle routes and the hilly topography.

Table 4-9: Berkhamsted mode share of internal commuter trips

	Private Car	Car Passenger	Train	Bus	Walk	Cycle
Internal commuter trips	47%	6%	-	2%	42%	2%

Tring

4.36 Table 4-10 shows the mode share of inbound and outbound commuter trips from Tring. Private cars are the dominant mode of transport for commuting. Outbound trips have a somewhat lower car mode share as there is a large commuting flow to London, however given the location of the rail station some way out of the town centre relatively few trips are made by rail.

Table 4-10: Tring mode share

	Private Car	Car Passenger	Train	Bus	Walk	Cycle
Inbound	85%	7%	1%	2%	3%	1%
Outbound	72%	4%	13%	2%	7%	1%

4.37 Table 4-11 shows the mode share of internal commuter trips within Tring using Census data. Private car mode share is substantially lower, with walking accounting for a large proportion of trips. This is not surprising given the compact nature of the town. Cycling remains low, potentially due to the compact nature of the town where walking is a convenient option as well as the lack of segregated cycle routes.

Table 4-11: Tring mode share of internal commuter trips

	Private Car	Car Passenger	Train	Bus	Walk	Cycle
Internal commuter trips	45%	6%	-	1%	43%	3%

Summary of Key Mobility Issues

4.38 Based on a review of various data sources, including existing modelling, census and other statistical sources, a summary of key issues influencing current movement patterns in Dacorum has been outlined below:

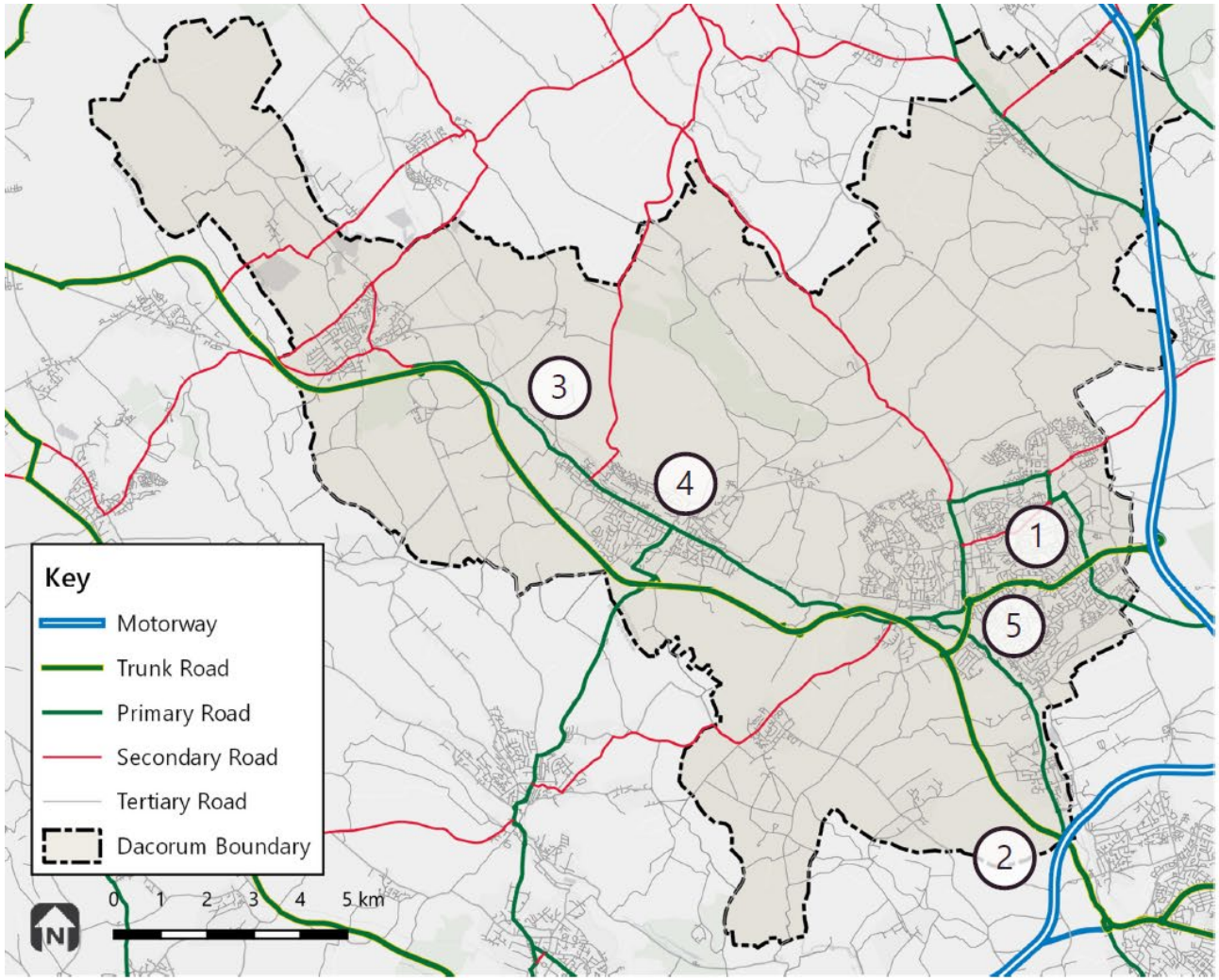
- **Towns are poorly connected by public transport** – east-west connections by public transport do not compete in convenience or cost with the car
- **Employments sites are in areas more easily accessible by car** – such as Maylands which relates more easily to the M1 than to the rest of Hemel Hempstead
- **Rail journeys are geared towards London-bound commuting** – high rail fares, the need to accommodate faster non-stopping services and the location of the stations on the outskirts of the towns limit the attractiveness of rail for local journeys
- **The A414 through Hemel Hempstead creates severance** – there are limited opportunities to cross on foot or by bike and this creates poor connectivity between the station, town centre and Maylands
- **The topology presents challenges for walking and cycling** – particularly to the east of Hemel and around Berkhamsted

4.39 In turn, this has led to:

- **High levels of car ownership** – and high-levels of cross-boundary commuting across the district, as well as for short internal trips. Car is by far the dominant mode for both inter-urban and intra-urban trips (trips into central London an exception)
- **Walking is largely limited to small / dense urban areas** – the proportion trips on foot is considerably higher for intra-urban trips
- **Bus mode share is relatively low for commuting trips** – it is more convenient to travel by car to out-of-centre employment sites
- **Congestion on the highway network at key points –** congestion is seen around Hemel Hempstead along the A414, A41 and M1 and Kings Langley on the approach to the J20 of the M25 on the A41 (see section 6)
- **High mode share for car-based trips along rail corridors** – despite access to this rail corridor, services cannot compete with car journeys for local travel

4.40 Some of the issues, focused on the highway network are set out in Figure 4-12 overleaf.

Figure 4-12: Key highway issues



Issues

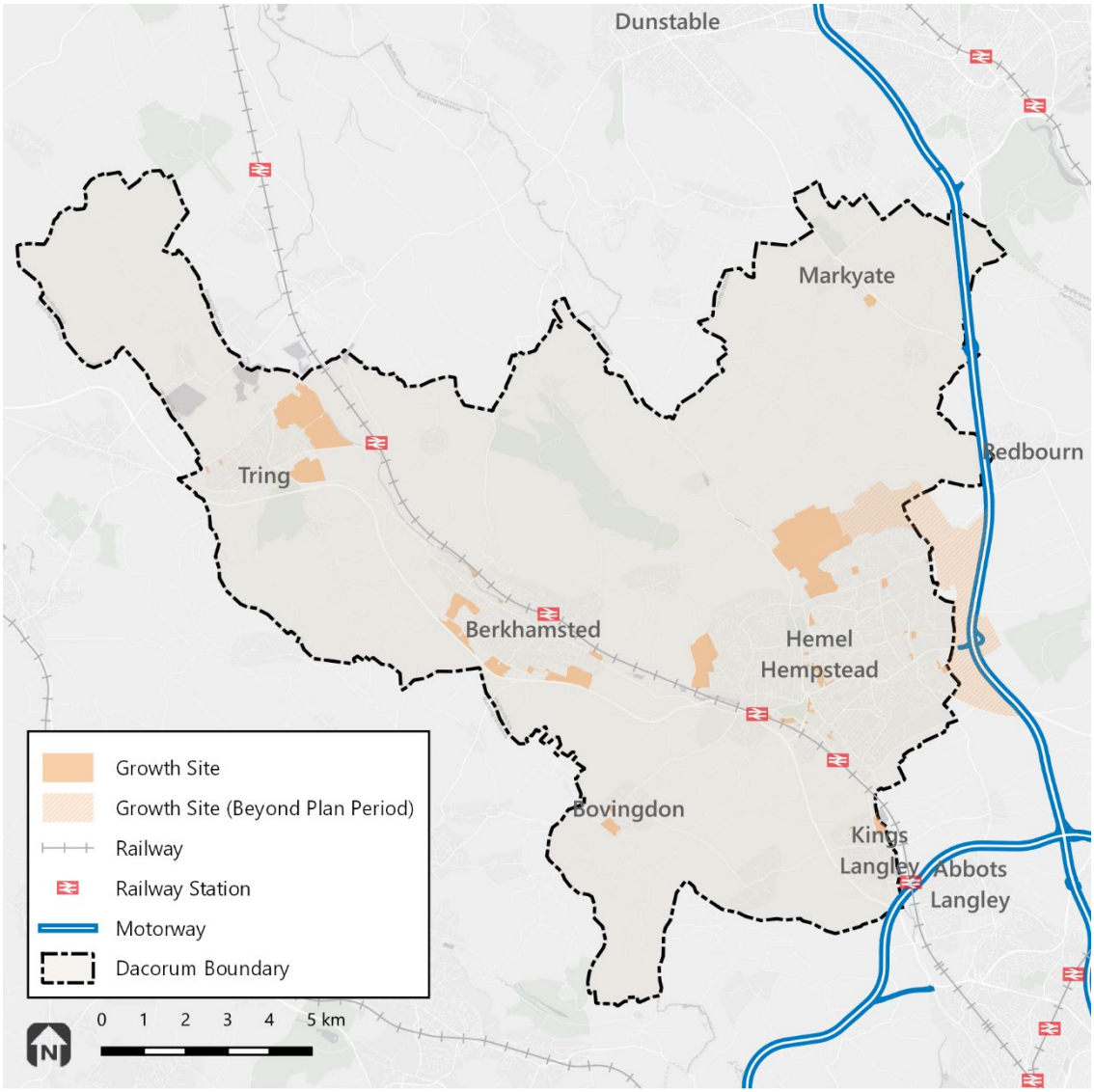
1. The strategic role of the A414 makes it hard to distinguish between local and through trips and therefore challenging to set policy that will result in mode shift
2. Capacity constraint at M25 J20 makes it more likely that eastbound drivers on the A41 will choose to route via A414 instead
3. A4251 retains primary road characteristics despite parallel A41 meaning that it is an attractive route for drivers whilst being hostile to vulnerable road users
4. A4251 passes through the centre of Berkhamsted presenting conflict with vulnerable road users and exacerbating air quality issues
5. Significant severance presented by the A414 and Magic Roundabout particularly for pedestrians and cyclists

5. Planned Growth Sites

5.1 This section set out the geographic spread of the anticipated major growth sites across the District. Since a large proportion of new infrastructure will be linked to growth, it is important to understand where this is located in relation to existing and proposed transport networks.

5.2 The proposed growth sites in the district are shown in Figure 5-1.

Figure 5-1: Proposed growth sites



Source: Open Street Map contributors

5.3 The Dacorum Local Plan 2020-2038 is allocating land for around 16,900 homes across the Borough. A significant proportion of this growth is proposed around the main towns of Hemel Hempstead, Berkhamsted and Tring. The allocations by 2038 include around 10,600 homes and 10,000 jobs in Hemel Hempstead, 2,200 homes in Berkhamsted, and 2,700 house and 5ha of employment land in Tring.

Hemel Hempstead

5.4 Hemel Hempstead is to expand with new development areas to the North and East of the town being delivered as part of the Hemel Garden Communities Programme. These include site allocations for around 7,000 homes in North Hemel (1,500 between 2020 and 2038) and further land (providing c.4,000 homes) safeguarded to meet needs beyond the Plan period. This is in addition to c.4,000 homes to be provided in East Hemel, within St Albans district. As well as new housing, the Hertfordshire Innovation Quarter (Herts IQ) Enterprise Zone is developing an employment cluster to the East of Maylands, within the East Hemel site, expected to create around 10,000 new jobs.

5.5 Growth is also planned within the town centre, Two Waters, West Hemel Hempstead (~900 homes) and Marchmont Farm (~300 homes).

Berkhamsted

5.6 In Berkhamsted the opportunities for densification are relatively limited given its historic and built-up core, although the Local Plan identifies some windfall sites. Therefore, the largest contribution for growth in housing of around 1,750 homes will be in urban extensions at the following strategic sites:

- Land south of Berkhamsted – GUI land (850 homes)
- Haslam Fields, Shootersway (150 homes)
- British Film Institute site, Kingshill Way (90 homes)
- Blegberry Gardens (80 homes)
- Rossway Farm (200 homes)
- Land east of Darrs Lane (200 homes)
- Bank Mill Lane (50 homes)
- Other GUI land between LA4 and the A41 (70 homes)
- Lockfield, Northchurch (60 homes)

Tring

5.7 In Tring, as in Berkhamsted, the opportunities for densification are relatively limited given its historic and built-up core. Therefore, the largest contribution for growth in housing of around 2,200 homes will be in urban extensions at the following strategic sites:

- East of Tring and New Mill – two linked sites (1,800 homes)
- Dunsley Farm (400 homes)

5.8 Dunsley Farm would also provide around 5ha of employment floorspace. This will help provide additional jobs, alongside the proposed new homes, and along with its location close to the town centre represents the opportunity for employment needs of residents of Tring to be met within the town and therefore through more sustainable modes if the right infrastructure is provided.

6. Implications of Growth

Introduction

6.1 As set out above, substantial growth is proposed across Dacorum to 2038, reflecting its attractiveness as a place to live and invest. The County Council have developed a Countywide Model of Transport (COMET) to provide a basis for considering the impact of growth on the road networks across the county, including within Dacorum. It should be noted that the model runs to 2036, rather than 2038.

6.2 This section considers:

- the outputs of COMET LP5 model run
- a separate Dacorum specific LP5 run, that includes a series of sensitivity tests relevant to Dacorum including the impact of additional growth and the proposed new link road.

6.3 A summary is provided of these outputs and what they mean for the main towns. An additional COMET run is also being conducted to identify the impacts of growth on the strategic highway network. This will then inform the discussion on transport interventions that follow in Sections 7 and 8.

6.4 The COMET LP5 Hertfordshire model run includes growth of 151,449 homes and 61,648 jobs across Hertfordshire from 2014 to 2036 (noting that COMET runs over a different period than the Local Plan). Of those, 21,183 homes and 6,157 jobs are in Dacorum. The model also includes all proposed transport schemes within Hertfordshire (as of Autumn 2019) regardless of certainty, including those within the A414 strategy and South West Hertfordshire Growth and Transport Plan but does not include the package of sustainable transport interventions set out in this topic paper.

6.5 The COMET modelling suite includes a public transport model and variable demand model (VDM) as well as a highways model. In common with other large strategic transport models however there is a tendency to predict significant growth in car traffic and more modest change in mode share for a range of reasons, some of which are set out below.

- **Focus on motorised modes** – the COMET model does not include cycling and walking networks and therefore the role such modes may play for shorter trips, including for zones within the larger growth areas (i.e. movements within zones) will be underestimated

- **Modest assumptions regarding mode shift** – a 5% mode shift away from car driver has been assumed in Hemel Hempstead to reflect travel planning measures, but the package of interventions proposed in this paper and the level of mode share ambition likely to be developed for Garden Communities (in line with TCPCA Garden City principles) is not captured at this stage, therefore representing a robust assessment of likely impacts on the highway network
- **Assumes increased public transport costs and reduced costs of driving** – a VDM is used within the model to adjust movements and mode share to take account of changes within the transport network. The assumptions informing this model are based on a series of economic parameter changes based on DfT TAG guidelines that calculate the generalised cost of travel. If the cost of travel increases, demand will tend to reduce all else being equal. The model assumes that public transport becomes more expensive (fares increase by 27%) with driving becoming cheaper (greater electrification of vehicle fleet reducing cost, more efficient vehicles (21-28% reduction in fuel consumption) and modest (~2%) increase in fuel costs).
- **Focus on maximising efficiency of the highway network** – to reduce delay, this tends to improve conditions for travelling by car in comparison to the baseline.
- **Limited allowance for reduced capacity reducing demand** – the model will, to an extent, retime and reassign vehicle trips in response to congestion. However, as it will operate with a fixed demand matrix it is unlikely to be sensitive to the concept of 'disappearing traffic', whereby reducing highway capacity has been shown to result in a reduction in overall demand[3].

6.6 As a result of the limitations above, which are a common feature of strategic transport models, the forecasts produced are likely to lead to highway-focused recommendations with a risk of those leading to 'business as usual' solutions focussed on improving highway capacity and making it more convenient to drive.

6.7 Using the results of the COMET model *alone* risks making compromises in the delivery of key objectives. Therefore, while the COMET model is an important component of understanding the possible impacts of growth, it is likely to underestimate the active travel and public transport. Therefore, the model outputs should not be the sole means for identifying future transport measures and should be used as part of a 'vision and validate' approach, whereby the vision is set, and the necessary interventions are developed to meet the vision. This is the approach we have adopted for this work.

[3] Cairns S, Atkins S, Goodwin P (2002), Disappearing Traffic? The story so far *Proceedings of the ICE, Municipal Engineer* Issue 1, PP13-22

6.8 As within any strategic model, the COMET model should be used as an aide to decision making, particularly when coming to conclusions regarding the impact of growth on the network and travel behaviour some way into the future.

Modelling Observations – Growth to 2036 (LP5)

6.9 The section sets out the outputs of the highway and public transport components of the COMET LP5 run.

Headlines

6.10 Notwithstanding the limitations set out above, an increase in total travel demand on the highway network of approximately 13% (at a 24 hour level) is forecast between 2014 and 2036 across Hertfordshire, with travel distance increasing by between 23% and 36% (depending on time period), and travel time increasing by between 44% and 50%. Average network speeds are forecast to decrease by around 15% in the PM peak and, being an average, these will likely mask more significant reductions in network speeds in specific more-congested locations. These indicators suggest that, with the 'business as usual' assumptions informing the model, there will be increasing road network congestion.

Highway

6.11 Compared to other towns in Hertfordshire; Hemel Hempstead, Berkhamsted and Tring experience lower levels of congestion. The model indicates that the A414 broadly operates within capacity with reduced flows through central Hemel Hempstead, due to a direct access being modelled from M1 junction 8 into eastern Hemel, the modelling of the new link road within the North Hemel Garden Community and the reduction of the A414 to one lane for general traffic in each direction in order to allow for improved public transport and active travel connections.

6.12 It should be noted that in this model scenario the new link road allows an unrestricted connection from Leighton Buzzard Road to Redbourn Road and down to the A414 and M1. The final routeing and form of this link, known as the Northern Link Route, is yet to be finalised.

6.13 The following key points are concluded with regards to Dacorum in the COMET LP5 summary report produced by AECOM:

- A new routeing choice is created through Hemel for traffic. This is based on a combination of measures, including a junction improvement at the M1 Junction 8

allowing direct access into the Maylands area, a new link road through the proposed East Hemel development and a new link road connecting the proposed North Hemel development with Leighton Buzzard Road and Redbourn Road.

- Traffic avoids the A414 through central Hemel Hempstead. This is due to a combination of the new routeing choices described above and the assumption that the A414 would be repurposed to a sustainable transport route, reducing the capacity available for general traffic.
- Increased flows around Maylands, linked to development assumed in the area. These result in increased delays at M1 Junction 8 and at junctions along St Albans Road.
- The new link road modelled in North Hemel is predicted to be used by traffic from Tring and Berkhamsted accessing the M1 rather than travelling 'through Hemel' via the A414/A41.
- Traffic conditions on the A41 are affected by the significant growth planned in the Aylesbury area.
- Proposed junction improvements in the St Albans have an influence on the routeing of traffic into Hemel Hempstead from the east.
- Increased flows on A41 from Tring to the M25 will be experienced, contributing to delays at M25 Junction 20 in the AM peak.
- Increased delays at Junction 20 (longest delays >5 min) is likely to result in traffic diverting to more local routes in the area to avoid delays.

Public transport

6.14 Across Hertfordshire, rail trips increase up to 180% between 2014 and 2036, with bus trips increasing by up to 50%. The growth in travel distances is in large part due to growth in non-commuting trips in the inter-peak period. It should be noted that the COMET model assumes that there is unlimited capacity (inside vehicles) on bus and rail networks. The scale of growth forecast, particularly for rail, is likely to require capacity beyond that planned within current strategies.

6.15 Within Hemel Hempstead increases in bus passenger flows are observed along the A414, due to its coding as a sustainable transport corridor with faster more frequent bus services and a reduction in capacity for other vehicles which makes bus services more attractive.

6.16 Where there is highway congestion and bus and rail compete along corridors, the relative attractiveness of rail within the model results in trips being switched to rail

from bus, as well as car. Of particularly relevance in Dacorum is the north-south West Coast Mainline corridor, where there is increased demand for trips to London as well as congestion on parallel highway routes.

Modelling Observations – Additional Dacorum LP Run with Growth to 2036

6.17 As well as the Hertfordshire-wide COMET LP5 run referred to above, a Dacorum specific model run was commissioned to consider the likely scale and distribution of housing across Dacorum in the nascent Local Plan and to test different scenarios for the link roads making up the Northern Link Route to the north of Hemel.

Headlines

6.18 In comparison to the main LP5 run the additional Dacorum Local Plan growth is not predicted to adversely affect junction delays or congestion in Berkhamsted or Tring. Berkhamsted and Tring are modelled with little existing congestion, and the addition of developments is not predicted to generate significant issues in these locations. It should however be noted that at this stage standard assumptions have been used in relation to trips from these developments and further more detailed work will be required to fully assess the impact of these developments.

Provision of a new road to the north of Hemel Hempstead

6.19 Analysis was also undertaken to understand the impact of the new link road or Northern Link Route, planned as part of the North Hemel Garden Community development. It should be noted that at this stage no formal decisions have been taken on the form of link road.

6.20 Local Plan Run 5 assumed that the link road would run via Leighton Buzzard Road and Redbourn Road through to the A414 and would provide a more strategic through route for traffic. This was forecast to reroute traffic between the areas to the west and north of Hemel towards M1 junction 8 and lead to localised re routeing on east west routes within Hemel Hempstead.

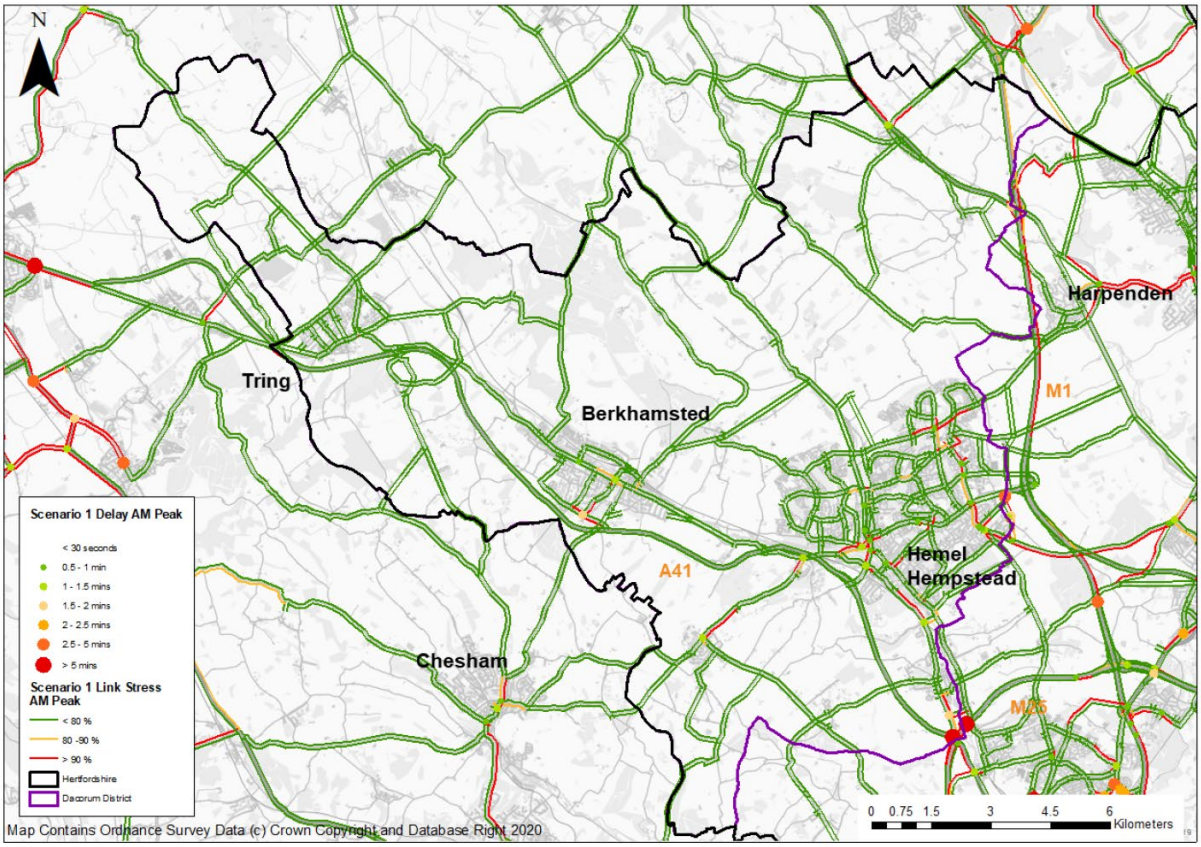
6.21 An alternative scenario was modelled with a shorter link road (i.e. no through route from Leighton Buzzard Road to the A414), which indicated that such a link would be used for local movements without creating a significant new route choice for traffic from outside Hemel. A shorter link is however predicted to lead to flow increases on the A4147 Link Road and existing routes through the Maylands area such as Boundary

Way as traffic from the North Hemel development uses these routes to access the M1. It should be noted that this test assumed the A414 St Albans Road / Breakspear Way has no reduction in capacity for general traffic.

6.22 A comparison of the network performance (link and junction) between the 2036 Baseline (without development in Dacorum) (Figure 6-1) and the model run with a shorter link in North Hemel (Figure 6-2) indicates a similar pattern of congestion and delay.

Figure 6-1: Baseline (no development) full link road 2036 AM peak traffic conditions

Figure 6-2: Baseline (no development) short link road 2036 AM peak traffic conditions



Modelling Observations – Impact of Growth (2036) on the Strategic Road Network

6.23 An additional COMET LP5 run is underway that is focussing on the impacts of growth on the strategic highway network. This is beginning to identify in more detail the impacts at key points on the network, most notably Junction 8 of the M1 and Junction 20 of the M25. While there are schemes being developed to provide additional capacity at Junction 8, work is less developed at Junction 20. It should be noted that these links are accommodating significant growth in districts outside of Dacorum including Aylesbury and St Albans.

The Challenges

6.24 Drawing together the findings highlighted in the COMET outputs and considering these in the wider context of the vision described in Section 3 a brief outline of the challenges in Dacorum, both existing and as a result of future growth, are provided

below. These are the challenges that the package of transport interventions developed to support the Local Plan should respond to.

Hemel Hempstead

6.25 The locations of the proposed Hemel Garden Communities new development areas are to the east and north of the town and some distance from both Hemel Hempstead and Apsley rail stations, as well as the town centre. Existing bus routes, such as routes 3 and 4, are relatively indirect and infrequent. They also have limited priority into the town centre and therefore suffer from being routinely caught-up in general traffic congestion. Unless bus services are provided into the development areas, the new neighbourhoods would be poorly connected by existing public transport services.

6.26 Walking and cycling infrastructure is sub-optimal currently, with many of the connections to nearby Maylands dominated by traffic, including HGVs. Connections by walking and cycling to the town centre are limited and, although the Nickey Line provides a useful connection, at present it becomes disjointed as it passes through Maylands business park, is of variable quality and has poor access in parts.

6.27 Routes through quieter residential areas are possible, but these are indirect. The most direct routes exist on main roads, such as Queensway, but these are traffic-dominated environments and, although there are shared use paths at the verges of the roads, these are relatively narrow and not given priority at junctions - reducing their safety and attractiveness.

6.28 The proximity of the North and East Hemel Growth Areas to the M1 also create issues in that some pressure is likely to be placed on J8 of the M1, which currently suffers from congestion during the AM and PM peak periods and, along with the A414, poses a barrier to north south movement by active modes.

Berkhamsted

6.29 There are currently relatively poor connections to the centre of Berkhamsted from the proposed development sites by walking, cycling and public transport. This is in large part due to the location of the town within a valley, but also reflects that the development locations are (necessarily) to the town's periphery. This means the town is elongated along the valley, making walking less attractive by virtue of the distances/times involved when making some journeys. The location of the town in a valley also means that many of the streets surrounding the town centre are steep, which tends to discourage walking and cycling.

6.30 A further constraint is that there are relatively limited road connections through the town, with the main north south routes being the A4251 (London Road) and the A41. The A4251 is also the High Street. The high volumes of traffic it carries means that the High Street is dominated by traffic, which reduces the quality of the place, represents a barrier to walking and cycling and causes congestion, which reduces the attractiveness of bus services.

6.31 Connections to the rail station, which is north of the town centre and High Street, are poor by walking and cycling. Billet Lane Industrial site, which is a key employment site, is poorly served by buses and is some way from the larger growth locations to the east of the town.

6.32 There is very limited cycling infrastructure in the town, with no segregated cycle lanes and limited cycle parking within the town centre. There are some 20mph zones within the town, including on the High Street and the Shrublands area, but overall, there is limited traffic calming of restraint within the town. This makes it is relatively hostile environment to walk or cycle with and will tend to encourage car use over other modes. The congested nature of the A4251 leads to rat running on parallel streets such as Charles Street and Shrublands Road, which further deters travel by walking or cycling from these areas.

6.33 If high levels of sustainable travel are to be achieved in the town these challenges will need to be resolved, which will require greater investment in walking, cycling and public transport and likely reallocation of road space or changes to access. The Berkhamsted and Tring Transport Strategy, prepared by AECOM, considers these challenges, alongside the measures set out in Section 8.

Tring

6.34 As with Berkhamsted, there are limited walking, cycling and public transport facilities within the town. There are no bus lanes, which means that buses are caught in congestion with general traffic. The road network is also narrow for the most part, which provides limited opportunity to provide additional road space for buses, or cycle lanes. The coverage of bus services is also limited, partly because of the need to run buses along appropriate roads, with many residential areas and key employment locations such as Icknield Way Industrial Estate not served. The overall impact of this is for cars to dominate the public realm, making walking and cycling less attractive.

6.35 The train station is some way from the town centre and relatively poorly served by buses for existing residents, although the 389 bus runs to the station during the peak

periods with a frequency of four buses per hour. The development proposed to the east of the town will be well located to the station.

6.36 If high levels of sustainable travel are to be achieved in the town these challenges will need to be resolved, which will require greater investment in walking, cycling and public transport and likely reallocation of road space or changes to access. The Berkhamsted and Tring Transport Strategy, prepared by AECOM, considers these challenges, alongside the measures set out in Section 8.

Opportunity Presented by Growth

6.37 The scale of growth proposed, particularly around Hemel, provides the opportunity to fund significant sustainable transport infrastructure, as well as delivering growth at a scale and in a form that will encourage day to day trips to be undertaken locally on foot or by bike. The Hemel Garden Community programme priorities already includes infrastructure that will be needed including improvements to the Nickey Line, improved walking and cycling routes and multi-modal interchanges. These are discussed in more detail in Sections 7 and 8.

6.38 Sustainable transport infrastructure is, in turn, critical to delivering 'good growth'. This will not only benefit the quality of life of those that live in the new communities but also the wider existing community who will be able to take advantage of improved facilities. In this way the challenges identified can be addressed with significant investment in walking, cycling and public transport options – ideally supported by the reallocation of existing road space to these more sustainable modes.

7. Review of Emerging Transport Schemes

7.1 This section provides a review of some of the existing emerging transport schemes to determine how far they go to delivering the set goals and objectives. In doing so it can be determined where additional interventions may be required.

7.2 A review of existing transport schemes has been undertaken before developing the transport interventions that form part of this topic paper. The existing transport schemes have been drawn from the following strategies:

1) Hertfordshire LTP4 (and supporting modelling work)
2) Major Schemes Option Development
3) A414 Corridor Strategy
4) Vectos' Greater Hemel Strategy
5) Maylands Prospectus
6) South West Hertfordshire Growth and Transport Plan
7) Hemel Garden Communities Transport Plan

7.3 The schemes detailed within the strategies set out above have been reviewed against the vision provide in Section 3, with the analysis shown in Table 7-1. This is followed by a discussion regarding the implications of this review for the development of the Local Plan and its transport evidence base.

Table 7-1: Review of emerging transport schemes

Scheme	Source	Relative Certainty	Targeted mode				Fit with goals and objectives
			Walk	Cycle	PT	Road	
Sustainable Travel Town Package (Hemel)	1, 2	Low	✓	✓	✓	✗	Crucial to delivery of goals and objectives, the Tring and Berkhamsted Transport Strategy is considering measures to encourage walking and cycling in those towns
East Hemel Link Road	3, 4, 5	High	✓	✓	✓	✓	The modelling work reviewed above demonstrates that is the link road is designated as a strategic link, it is likely to attract traffic from the wider district, requiring additional highway capacity. This has the potential to reduce its attractiveness as a walk, cycle and public transport route, possibly undermining delivery of the goals and objectives unless designed with high quality walk and cycle facilities
A414 East-West Priority Transport (EWPT)	1, 3	Medium	✗	✓	✓	✗	Crucial to delivery of goals and objectives for Hemel

Scheme	Source	Relative Certainty	Targeted mode				Fit with goals and objectives
			Walk	Cycle	PT	Road	
M1 Junction 8 update	2, 4, 5	High	✗	✗	✗	✓	Providing additional highway capacity may undermine goal and objectives, unless it is targeted in order to provide critical capacity for the operational needs of Maylands and so that it releases capacity for public transport and active travel across the network, while not inducing additional demand for private vehicle trips
Enhanced Hemel Hempstead station	1, 3	Low	✗	✗	✓	✗	Crucial to delivery of goal and objectives for Hemel
Magic roundabout cycle bridge and bus priority	3, 4	Low	✗	✓	✓	✗	Crucial to delivery of goal and objectives for Hemel
A4251 London Road Pedestrian / Cycle Enhancement	3, 4	Low	✓	✓	✗	✗	Crucial to delivery of goal and objectives for Hemel and should be extend to Berkhamsted and Tring
Two Waters / A4251 London Road simplification and pedestrian / cycle enhancement	3	Low	✓	✓	✓	✓	Crucial to delivery of goal and objectives for Hemel, improvements should be focused on enhancing priority for walking, cycling and public transport
Extension of Nickey Line and enhanced access to it from Maylands	3, 5	Low	✗	✓	✗	✗	Supports delivery of goal and objectives

Scheme	Source	Relative Certainty	Targeted mode				Fit with goals and objectives
			Walk	Cycle	PT	Road	
East Hemel Multi Modal Interchange	6, 5, 4, 7	Low	✓	✓	✓	✗	Supports goals and objectives.
Strategic Movement Corridors	7	Low	✓	✓	✓	✗	Supports goals and objectives.
E-bike / scooter hire (Hemel)	7	Low	✗	✓	✗	✗	Supports delivery of goal and objectives, applied more widely would be appropriate for longer journeys and hillier terrain (e.g. along A4215 and in Berkhamsted)
Fare and branding integration for buses and EWPT / MaaS (Hemel)	7	Low	✗	✗	✓	✗	Already underway (through Hemel BUSnet ticket and Intalink branding) and supports delivery of goal and objectives
Demand Responsive Transport (Hemel)	7	Low	✗	✗	✓	✗	Supports delivery of goal and objectives
Parking restraint in existing Hemel (price/capacity/location/time/workplace parking levy)	7	Low	✓	✓	✓	✗	Supports delivery of goal and objectives

Scheme	Source	Relative Certainty	Targeted mode				Fit with goals and objectives
			Walk	Cycle	PT	Road	
EV charging network	7	Low	✗	✗	✗	✓	Supports decarbonisation of vehicle fleet but does not respond to wider objectives regarding congestion, quality of place or promoting healthier lives through activity
Quietway Green Corridor	5	Low	✓	✓	✗	✗	Supports goal and objectives but more likely to be used as leisure routes given lack of natural surveillance in places, would need to be supported by high quality urban routes
Wood Lane End – Boundary Way Link Road	5, 3	Low	✗	✓	✗	✓	As part of delivering green corridor and cycle routes support goal and objectives
Lorry Parking and Routeing	5	Low	✓	✓	✗	✓	Supports goal and objectives if carefully designed to reduce impact of lorries on streets into and within Maylands, thereby helping to encourage walking and cycling
A414 and A4147 Cycleways	3	Low	✗	✓	✗	✗	Supports delivery of goal and objectives and need to improve interurban connections to key destinations

Scheme	Source	Relative Certainty	Targeted mode				Fit with goals and objectives
			Walk	Cycle	PT	Road	
A414 J8 Cycle Bridge	3	Medium	✗	✓	✗	✗	Supports deliver of goal and objectives and crucial if J8 is not to remain a barrier to movement by active modes
A414 Highway Improvements	1, 3, 2	Medium	✗	✗	✗	✓	Providing additional highway capacity may undermine goal and objectives, unless it is targeted so that it releases capacity for public transport and active travel across the network, while not inducing additional demand for private vehicle trips
Quality Interurban Cycle Routes	2	Low	✗	✓	✗	✗	Crucial to delivery of goal and objectives
Hemel Hempstead east-west cross-town corridor (Package 1)	6	Low / Medium	✓	✓	✓	✓	Elements developing A414 into PT and walk / cycle corridor crucial, as above highway capacity upgrades must be targeted if not to undermine goal and objectives
Maylands access upgrades (Package 2)	6	Low / Medium	✓	✓	✓	✓	Delivery of East Hemel multi-modal transport interchange crucial, J8 capacity upgrades must be targeted, spine road should be local / bus access

Scheme	Source	Relative Certainty	Targeted mode				Fit with goals and objectives
			Walk	Cycle	PT	Road	
Hemel Hempstead – Luton Corridor (Package 3)	6	Low / Medium	✗	✓	✓	✓	Delivery of East Hemel multi-modal transport interchange crucial, J8 capacity upgrades must be targeted, enhanced interurban PT services support goal and objectives
Watford – Hemel Hempstead Corridor (Package 6)	6	Low / Medium	✗	✓	✓	✓	J20 capacity upgrades must be targeted, enhanced interurban PT services and cycle infrastructure support goal and objectives

Sources: 1 = HCC LTP4; 2 = Major Schemes Option Development; 3 = A414 Corridor Strategy; 4 = Vectos' Great Hemel Strategy; 5 = Maylands Prospectus; 6 = South West Herts Growth and Transport Plan; 7 = HHITS

Key Review Outcomes

Highway schemes and Junction 8 of the M1

7.4 The two elements of this strategy that are critical to delivering the largest areas of housing around the north and east of Hemel Hempstead and employment growth at Maylands are the improvements to Junction 8 of the M1, with associated improvements to the A414 / Green Lane junction, and the new link road or Northern Link Route.

7.5 If delivered as a through route north of Maylands, the link road could have a detrimental impact on the quality of place within the Hemel Garden Communities sites and attract strategic traffic. Although this could relieve the A414 and allow for greater sustainable transport interventions there, the link road would need to be carefully designed if it were to be a through route in order to avoid severance.

7.6 Additional capacity on at J8 is needed but should be targeted to provide reliability and journey time advantage for public transport and essential operational capacity to Maylands. It is important that any new infrastructure provides prioritisation to public transport and active modes to achieve the ambitious mode share aspirations.

Sustainable transport proposals

7.7 A range of sustainable transport schemes have previously been proposed connecting the Hemel Garden Communities that includes:

- Three pedestrian links into the existing Grovehill and Woodhall Farm communities for connections to bus routes
- Off-site walking routes on Link Road (A4147) and Leighton Buzzard Road (A4146)
- Walking, cycling and bus route along the new link road
- Walking and cycling route along Dodds Lane
- Extension of existing bus route 2 into the North Hemel Growth Area
- Public transport corridor along the A414 to serve the East Hemel Growth Area, connected by a multi-modal interchange
- New bus route along Queensway and Bunkers Lane via Apsley Station

7.8 These schemes rely in part on existing public transport connections into the town centre, which in the case of buses are currently afforded limited priority and run at

relatively low frequencies – harming their overall attractiveness relative to car-based options.

7.9 The lack of high-quality walking and cycling routes from the northern outskirts of Hemel into the town centre, with many of the main roads running east-west across the town represent barriers to active travel trips.

7.10 For reference, active and sustainable travel modes carry just 20% of commuting trips for the existing communities of Grovehill and Woodhall Farm[4]. Without significant improvements to walking, cycling and public transport infrastructure it is logical to expect similarly low levels of active and sustainable travel, which suggests the need for additional sustainable transport interventions.

7.11 Hertfordshire's LTP4 sets out a Transport User Hierarchy with the aim of supporting 'the creation of built environments that encourage greater and safer use of sustainable transport modes.' It goes on to say that this will be applied to all schemes and transport strategies.

7.12 The adopted hierarchy is:

1) Opportunities to reduce travel demand and the need to travel (Consider first)
2) Vulnerable road user needs (such as pedestrians and cyclists)
3) Passenger transport user needs
4) Powered two-wheeler (mopeds and motorbikes) user needs
5) Other motor vehicle user needs (Consider last)

7.13 This approach should be at the centre of the transport interventions developed as part of this topic paper.

7.14 The A414 Corridor Strategy includes a comprehensive package of measures, many of which are drawn from the South West Herts Growth and Transport Plan. These include improvements to walking and cycling, as well as the provision of EWTP.

7.15 The walking and cycling measures, including improved connections along the A414 itself and on to St Albans, as well as bridges over the 'magic roundabout' and J8 are all welcome and are consistent with the Strategic Movement Corridors referred to above.

7.16 Turning to the EWTP component, the intention is for it to form the spine of a new sustainable transport system with connections to the wider cycle, walk and bus network via a series of multi modal transport hubs.

[4] Census 2011

7.17 There is strong evidence to suggest that the vision set out is achievable. The movement analysis undertaken as part of the South West Herts Multi-Modal Study, alongside that undertaken as part of the A414 Corridor Strategy, demonstrate that a significant proportion of the trips undertaken in Hemel are very short in distance. With the right infrastructure in place there is substantial scope to bring about modal shift.

7.18 To remove a significant proportion of potential car trips from the network and for them to be undertaken by other modes, a range of transformational measures, some already identified, will need to be prioritised ahead of purely highways-focused schemes.

8. Sustainable Transport Interventions

8.1 This section presents a compilation of sustainable transport interventions seeking to deliver on the ambitious goals and objectives associated with travel in Dacorum over the Local Plan Period. In some cases, these amalgamate existing schemes into complimentary packages, and elsewhere these are new schemes developed to address the challenges identified through the previous sections.

8.2 The proposed scale of growth, and the relatively small number of major sites, presents significant movement opportunities. These can be summarised as:

8.3 Scope to fund a step-change in sustainable transport provision (both through development funding and from government grant focused on unlocking growth)

- Potential to use the additional demand from development to bolster existing sustainable movement patterns and improve the viability of public transport services as well as the business case for investment in walking and cycling infrastructure
- Through the above, deliver significant benefits for existing residents and precipitate a modal shift towards more sustainable modes

8.4 Our proposed package of sustainable transport interventions seeks to capitalise on these opportunities.

Future Modes and Travel

8.5 Evolving technology may greatly impact the future of travel in Dacorum, the behaviour of individuals, and importantly, *how*, *when*, and by *which modes* they choose to travel. The Coronavirus pandemic has been an extreme example, but highlights that *predictions* looking forward several years are just that and should not be taken as given.

8.6 Changing lifestyles and working practices, for example the development of flexible co-working hubs, could see significant changes in the conventional 'rush hour' concept. Similarly, the way family units are established, evolving household/working responsibilities, the changing importance of proximity to family networks, and the sharing economy, could all exert tangible influence on the rationale people apply when choosing where to live and work.

8.7 It is also important to recognise that travel demand by mode is not fixed. People choose where to live and how to travel based on what is available to them. Provide

better access to public transport and it is likely that this mode share will increase, and the area will attract new residents keen to benefit from greater connectivity. Equally, make it easier for people to drive by increasing highway capacity and more people will do so, creating more traffic.

8.8 Social factors should also be considered. In Dacorum, the proportion of older people is due to increase significantly over the next 25 years[i], requiring increased access to public transport to maintain their independent access to society and active travel opportunities to promote health and well-being.

The 'Big Moves'

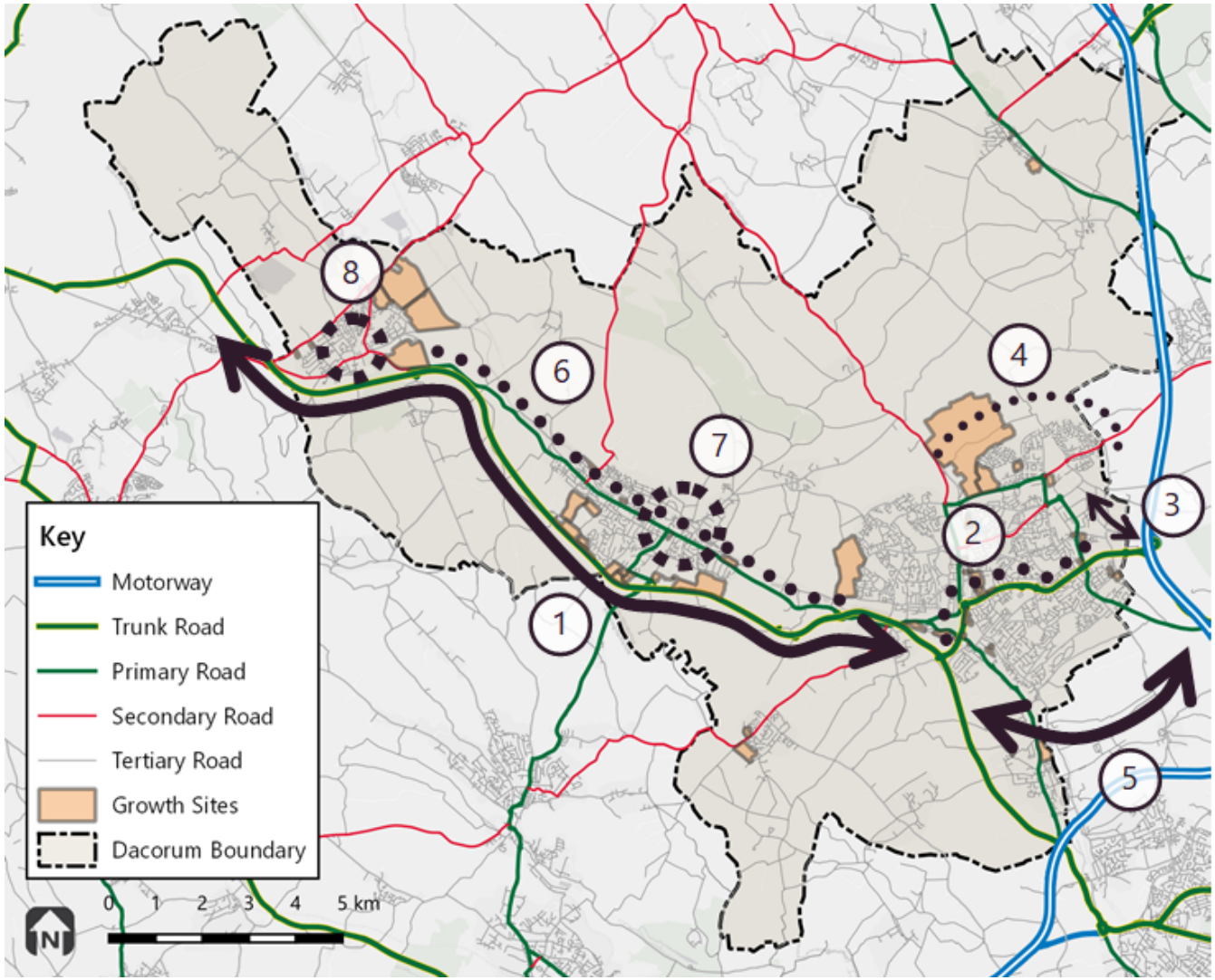
8.9 Drawing on the analysis above, including OD data, modelling and the appraisal of issues within the main towns we have developed a series of 'big moves'. These are intended to suggest the broad framework within which the transport interventions should be considered and how the challenges above may be addressed. The big moves reflect and respond to the key highway issues set out in Figure 4-12.

8.10 Further discussion will be required with key stakeholders such as Highways England and other key stakeholders such as public transport operators. These big moves and the interventions that flow from them are proposed as options and therefore require further development and optioneering, following public consultation.

8.11 The modelling undertaken to date has highlighted where this strategy is likely to place pressure on the highway network, particularly on the A41 and J20 of the M25. It is likely that additional modelling will be required to test impacts. It will be important to ensure that this modelling is undertaken from a 'vision and validate' perspective – the approach we have adopted for this work.

8.12 The big moves are set out in in Figure 8-1.

Figure 8-1: The big moves



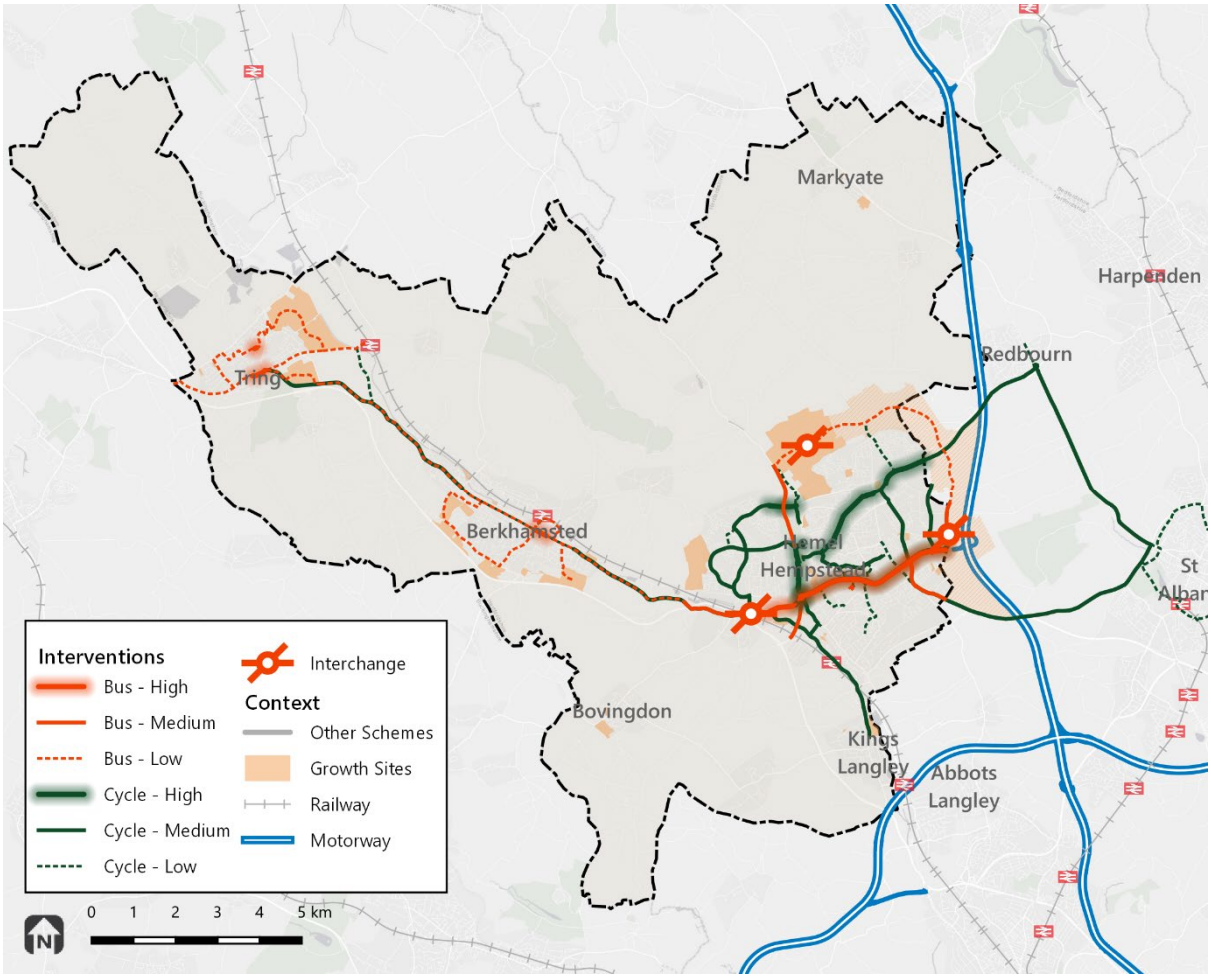
Big Moves

1. Ensure that east-west trips are focussed on the A41
2. Consider providing greater priority to active travel and public transport along the A414 between A41 and M1
3. Upgraded M1 J8 and eastern link road to provide additional capacity for Maylands and Garden Community
4. Consider prioritising the Northern Link Route for access by the Garden Communities rather than as a strategic link
5. Need to consider capacity along M25 between A41 and M1
6. Transformed A4251, including steps to discourage through trips and enable active travel modes
7. Prioritise bus movements through Berkhamsted town centre, with improvements for pubic realm
8. Prioritise bus movements through Tring town centre, with improvements for public realm

Proposed Schemes

8.13 Clearly the detailed opportunities, as well as the challenges, arising from each of the major growth locations will be different. Drawing on the understanding of current movement patterns set out in Section 4, and the potential impacts of growth described in Section 6, the proposed interventions for each growth location are set out at a high level in Figure 8-2.

Figure 8-2: Extent of schemes across Dacorum



Source: Open Street Map contributors

8.14 The following sections set out in more detail the interventions around the three main towns, with a focus on Hemel Hempstead.

Hemel Hempstead

8.15 The growth to the east and north of Hemel will be close to the existing employment area of Maylands and the new jobs proposed as part of the Hertfordshire IQ Enterprise Zone. This presents the opportunity to satisfy a proportion of the commuting travel demands of new residents locally. This presents great opportunities to secure the aspiration for HGC of 60% of trips being by walking, cycling and public transport in the long run. To achieve this, high-quality walking and cycling links must be provided within the new Garden Communities and, crucially, into and within the Maylands area. Similarly, high levels of priority must be provided for public transport.

8.16 The scale of the proposed growth within Hemel Garden Communities provides the opportunity to promote significant improvement to the transport network beyond Hemel Hempstead. As well as improving connections to Maylands, as described above; links into Hemel, the train station and to nearby towns must also be improved for those that are commuting further. This will involve identifying key movement corridors and prioritising walking, cycling and public transport along them. Inevitably this will mean reallocating road space away from the private car. Encouraging the most efficient modes of transport will be essential to make use of the limited network capacity given the scale of proposed growth.

8.17 Nationally only around 15% of trips are related to commuting[5]. Therefore, most trips undertaken are for other purposes. This provides a great opportunity for these trips to be made by walking and cycling and local public transport services. Therefore, the masterplanning of the North and East Hemel Growth Areas to ensure that this opportunity is realised will involve building at an appropriate density, providing a mix of uses and day to day facilities within proximity of homes and ensuring that the layout of the street network prioritises walking, cycling and public transport.

8.18 As described above, the scale of growth provides a great opportunity to promote high quality walking, cycling and public transport links across Hemel Hempstead, to the train station and to nearby towns. Through this process, and alongside the provision of public transport priority as part of the A414 Corridor Strategy, the existing bus network within the town will be improved. This could include improved infrastructure or better ticketing, for example. This will provide benefits to new and existing communities.

[5] National Travel Survey, 2018

8.19 The range of high-level potential schemes for Hemel Hempstead are set out in the pages that follow and include:

1) East-West Public Transport Corridor
7) Cycle Improvements along A414
8) North / Northwest to Town Centre cycle links
9) South / Southeast to Town Centre cycle links
10) Northern Link Route and East Hemel Link Road
11) Local Cycle Links to Transport Corridors
12) Northern Growth Site Multi-Modal Transport Interchange
13) Maylands Multi-Modal Transport Interchange
14) Hemel Hempstead Town Centre Multi-Modal Transport Interchange
15) Hemel Hempstead Railway Station Multi-Modal Transport Interchange
17) Cycle Improvements at Maylands
23) Improvements to the Nickey Line
26) Redbourn and St Albans Cycle Loop

8.20 The proposals are set out in **Appendix A**.

Berkhamsted

8.21 The scale of growth proposed, particularly to the east of Berkhamsted, presents opportunities to address many of the issues identified in Section 4. In particular, the identification of key movement corridors into the town centre and train station will give a focus for the provision of walking, cycling and public transport services. As well as physical provision of infrastructure, the demand generated by additional growth could pump prime bus services that can serve the wider town.

8.22 These points are being address in detail as part of the Berkhamsted and Tring Sustainable Transport Strategy being developed by AECOM and we have not sought to repeat that work, however we have considered more strategic matters in the context of the big moves set out above. Detail of localised interventions can be found in AECOM's study.

8.23 Opportunities to reduce the volumes of traffic along the A4251 and improve priority for public transport could be investigated to improve the quality of the High Street. These would need to happen alongside measures to reduce rat running in parallel streets. Taken together this would create a higher quality town centre and make walking and cycling more attractive. Such measures could be considered on a 'corridor' basis considering the volume of growth proposed along the A4251.

8.24 Reducing the potential for rat running in streets parallel to the A4251 will also be important to ensure there are attractive walking and cycling routes into the town centre and rail station from the development sites to the west of the town, as well as to discourage travel by car. In combination the measures above would help to bring benefits to existing residents, as well as to the existing communities.

8.25 The range of potential high-level schemes proposed for Berkhamsted are set out in the pages that follow and include:

2) East-West Bus Priority

11) Local Cycle Links to Main Transport Corridors

8.26 As noted above the detailed package of measures for Berkhamsted are set out in the Berkhamsted and Tring Sustainable Transport Strategy being developed by AECOM.

8.27 The proposals are set out in **Appendix A**.

Tring

8.29 The proposed growth to the east of Tring presents a significant opportunity to better connect the town with the rail station, which is located someway from the town centre on a rural road. This can be achieved through the provision of high-quality walking and cycling routes through the sites themselves, as well as through the provision of bus services that connect the sites with the town centre, as well as the rail station.

8.30 These points are being address in detail as part of the Berkhamsted and Tring Sustainable Transport Strategy being developed by AECOM and we have not sought to repeat that work, however we have considered more strategic matters in the context of the big moves set out above. Detail of localised interventions can be found in AECOM's study.

8.31 To enhance walking and cycling more generally into the town, the identification of key movement corridors will be an important tool to focus the investment that will be generated by growth. These will provide greater priority for walking, cycling and public transport.

8.32 The High Street is currently dominated by traffic, which reduces the attractiveness of walking and cycling, generates congestion and slows the relatively limited bus services that currently serve the town. The provision of significant growth presents the opportunity to consider alternative access arrangements to the town that might remove much of the through traffic.

8.33 The range of high-level potential schemes proposed for Tring are set out in the pages that follow and include:

3) East-West Bus Priority

11) Local Cycle Links to Main Transport Corridors

8.34 As noted above the detailed package of measures for Tring are set out in the Berkhamsted and Tring Sustainable Transport Strategy being developed by AECOM.

8.35 The proposals are set out in **Appendix A**.

Interurban opportunities

8.36 There is a significant daily movement of people between the towns of Tring, Berkhamsted and Hemel (over 3,000 movements in the AM peak – around 20% of all movements). Currently these journeys are largely completed by car, due to the relatively disconnected locations of rail stations and the lack of bus prioritisation and attractiveness that could partially accommodate this demand. This means the car remains the most attractive mode for completing these journeys. These movements therefore tend to be focused on the A41 and A4251.

8.37 The additional demand generated by the growth in Tring and Berkhamsted, to the west of Hemel Hempstead, as well as the potential funding from development and other grant funding secured to unlock growth, could all be harnessed to improve conditions for bus services along the A4251 (between the growing towns) that also help improve the quality and vibrancy of the town centres. This could be supported by considering measures to reduce through-traffic and provide quicker and more reliable journeys by bus.

8.38 These measures would make the existing services more reliable, quicker and provide more direct links to the town centres than is currently possible by rail, helping strengthen and improve connectivity between the towns. Improvements to local bus services, as well as to active travel networks, can connect the key bus routes and rail stations for longer on-ward journeys (including commuter travel to London, Milton Keynes and Watford). This would reduce the need for people to drive to local stations when starting/ending their journeys. As noted above the detailed package of measures for Berkhamsted are set out in the Berkhamsted and Tring Sustainable Transport Strategy being developed by AECOM.

8.39 As well as improved connections by bus, the existing cycle route along the A4251 could be upgraded to better serve demand between the towns. In tandem with managing traffic flows along the A4251 this would make this route more attractive. It would also provide improved access to the railway stations by active modes.

8.40 The schemes proposed to meet this inter-urban demand are set out in the pages that follow and include:

4) Cycle Improvements along the A4251
5) Redbourn and St Albans Cycle Loop

8.41 The proposals are set out in **Appendix A**.

9. Delivering the Vision

9.1 The preceding sections has set out the analysis of challenges within Dacorum, the 'big moves' that may begin to address them as well as a package of high-level interventions that support the 'big moves' and put the Local Plan on the right footing to achieve the level of ambition that is being developed for the Garden Communities and growth across the borough. This section provides some guidance on how the vision set out in Section 3 may be delivered.

Funding requirements

9.2 Preliminary costings for each scheme have been estimated using per kilometre rates for corridor interventions and per unit costs for point interventions. These are based on Department for Transport guidance and previous case studies. The total cost of the full package is estimated at between £247 to £420m, excluding the cost of the Northern Link Route which has not been estimated at the current time.

9.3 A spreadsheet showing these figures is included in **Appendix B**.

9.4 It is likely that the full package of interventions will not be delivered during the lifetime of the Local Plan and therefore a prioritisation exercise has been undertaken to identify the schemes that will have the biggest impact in terms of delivering the vision. This exercise has been based on the DfT's EAST appraisal tool, which is designed to identify schemes that are likely to have the greatest positive impacts and deliver best value for money. The EAST approach also sets out the consideration that are important when developing Strategic Outline Business Cases and therefore its use early on can help demonstrate which schemes are likely to be most successful in attracting DfT funding.

9.5 This prioritisation exercise is set out in in **Appendix C**.

Sources of Funding

9.6 It is highly likely that a range of funding sources will need to be drawn upon if the package of sustainable transport interventions is to be delivered successfully. These will include developer contributions and government grant but might also include consideration of more innovative forms of raising funding such as land value capture, harnessing additional tax receipts or raising funds from transport demand management measures. The most appropriate forms of funding infrastructure for

Dacorum will be explored in the next stages of work, as the infrastructure package is developed and more consideration is given to the phasing of growth.

Securing the vision through Travel Plans

9.7 As set out above, the Hemel Garden Communities Transport Plan that is under development will define mode share ambitions that are likely to reflect the TCPA Garden City Principles for the 21st Century, which state that design must enable at least 50% of trips originating in the new settlement to be made by non-car means, with a goal to increase this over time to at least 60%.

9.8 The Travel Plan's associated with the Garden Communities should be secured with a longer-term vision on the trajectory towards this target. Whereas a standard travel plan will be implemented within five years post full occupation the Garden Community sites will most likely require a much longer timescale of at least 10 to 15 years post full occupation to allow for the more complex range of measures, the need to monitor performance and evolve measures accordingly to maximise sustainable travel. This longer implementation timescale will need to be funded by growth.

9.9 It is imperative that all future developments planned as part of the Hemel Garden Communities Programme are legally required to work towards the targets that are set as part of Hemel Garden Community Transport Strategy. This should also be an ambition for other large allocations elsewhere to achieve the overall mode shift targets for the District. Given the long build out times of the Garden Communities the targets set out in the initial travel plans will need to reflect the phased mode share targets referred to above. This reflects the expectation that sustainable mode share increases over time as facilities (on-site amenities, as well as the transport interventions) improve.

9.10 For strategic sites such as the North and East Hemel Growth Areas, an overarching site wide Framework Travel Plan, covering residential, employment, education and leisure sectors should be developed, with a Sitewide Travel Plan Coordinator appointed to oversee progress, ensure implementation of site-wide infrastructure and measures and work with developers/occupiers to develop their site specific travel plan strategies.

9.11 The Sitewide Framework Travel Plan should have set overall outcomes, targets and indicators for the entire site. In line with the Sitewide Framework Travel Plan, Full Travel Plans will then need to be prepared for each business, residential developer and educational establishments (in line with Hertfordshire County Council Travel Plan Guidance). The Sitewide Travel Plan Coordinator should work alongside the developers

and occupants to ensure their Travel Plans support the wider principles and targets pf the Sitewide Framework Travel Plan.

Travel planning measures

9.12 The full range of travel planning measures to be incorporate in the Framework Travel Plan would be developed along with more detailed masterplanning of the Hemel Garden Communities and in response to local context and development needs for other sites. The kinds of measures that might be included are set out below:

- Marketing measures – these will raise awareness of the infrastructure and services provided and encourage sustainable travel and could include:
  - Appointment of a Sitewide Travel Plan Coordinator
  - Appointment of Occupier Travel Plan Coordinator for employment sites
  - Travel information webpages containing a wide range of site specific travel information and advice, and where appropriate will provide direct links to external sources of information
  - Travel Hubs (potentially linked to the Multi Modal Interchanges and ongoing promotion of the Travel Plan
  - Personalised Travel Planning (PTP) providing a mechanism for engaging with residents (and staff where appropriate) on a one-to-one basis to provide travel information and advice.
  - Travel information packs for residents introducing residents to the travel plan and its associated sustainable travel initiatives, and provide contact details
  - Involvement in national travel related events
  - High impact marketing campaign
- Walking and cycling measures – complementing the interventions set out in Sections 7 and 8 and including:
  - Provision of appropriate well lit, safe walkways / footpaths on approach within the development
  - Provision of traffic-free cycle connections within the development
  - Provision of adequate short term and long term cycle parking provision
  - Production and dissemination of local walking + cycle maps (part of welcome packs)
  - Establishing a Bike User Group

    - Bike hire trial (eg free access to bike hire scheme)
- Public transport measures – complementing the interventions set out in Sections 7 and 8 and including:
    - Purchase and distribution of tickets to new residents and (where appropriate) staff
    - Provision of travel information via real time URL
    - Production and dissemination of public transport maps and information to include bus and rail (part of welcome packs)
- Measures to minimise car use
    - Promote car share, for example via https://wy.liftshare.com/ or a local car share database
    - Provision of high density of car club vehicles
    - Free trial car club membership and usage for residents
    - Consideration of access to parking (eg off-plot, leased not owned)
    - Provision of electric charging points

Securing proper obligations

9.13 Hertfordshire County Council has recently updated its Travel Plan Guidance (March 2020) which includes the development thresholds requiring a Travel Plan in Appendix A. A sample of the thresholds for various uses are reproduced below. It should be noted that larger developments are required to use TRICS SAM monitoring methodology.

Table 9-1: Travel Plan threshold for developments

Land Use	Measure	Travel Plan Statement	Full Travel Plan
A1 Food Retail	GFA	250-800 sq.m	>800 sq.m
A3 Restaurants and Cafes	GFA	300-2500 sq.m	>2500 sq.m
B1 Business	GFA	1500-2500 sq.m	>2500 sq.m
B2 General Industry	GFA	2500-4000 sq.m	>4000 sq.m
C3 Dwelling House	Unit	50-80 units	>80 units

Table 9-2: TRICS SAM monitoring threshold for larger developments

Strategic sites	Threshold
C3 Dwelling houses	>250 units
A1 food retail	>2000 sq.m

9.14 The guidance notes in Para 3.10:

'A planning obligation is the most appropriate mechanism for securing a Travel Plan, because obligations:

- *Allow for a greater level of detail to be agreed than could reasonably be achieved by a planning condition, for example the timetable for implementation and monitoring of the plan*
- *Support the need to secure specific objectives, targets and commitments including details of survey methods, responsibilities for funding these, and commitment to engage and involve third parties*
- *Are the only mechanism to secure Travel Plan Evaluation and Support Contributions.'*

9.15 Travel Plans must be secured via Section 106 agreements in order to ensure that all the key elements of the approved travel plan are effectively protected and to facilitate monitoring and compliance with the outcomes anticipated.

9.16 Para 3.14 also states that,

'While there is no specific Evaluation and Support Contribution associated with Framework Travel Plans themselves, each Full Travel Plan within the site framework will be expected to contribute a separate Evaluation and Support Contribution.'

9.17 In addition to securing an Evaluation and Support Contribution, it is expected that the following aspects of a travel plan are specified within the Section 106 agreement:

- A timetable for the preparation, implementation, monitoring and review of all stages of the travel plan
- The appointment and funding of a Travel Plan Coordinator to be responsible for the management and maintenance of the travel plan, including the relationship with the local planning authority and/or other key stakeholders

- The overall outcomes to be achieved by the travel plan, the performance indicators and targets
- Details of travel planning requirements for occupiers and future occupier; the process for the monitoring and review of targets and measures
- The measures to be implemented, such as the provision of transport infrastructure or services, or contributions with respect to their provision, parking controls and management and contributions towards other measures such as car clubs and cycle hire schemes
- A monitoring and review programme, detailing the survey methods to be used and who is responsible for funding the surveys, undertaking and reporting results
- Any sanctions where the targets and indicators are not being met, and how and when they should be applied
- Any procedure for the variation by means of amendment, substitution or addition of targets or measures

Targets

9.18 For target setting, the HCC guidance outlines example Travel Plan targets in Appendix F for different types of Travel Plans i.e. workplaces, residential developments, visitor sites and educational establishments.

9.19 In relation to future development, the sitewide Framework Travel Plan document must state the wider targets that the strategic development site is required to achieve as a whole and these targets must be carried through to the site specific travel plans developed by developers and occupiers. Monitoring data from the site-specific travel plans can be combined to review the wider impacts of the Travel Plan activity against the strategic site wide targets.

Monitoring

9.20 HCC uses the Modeshift STARS – National Accreditation Scheme online scheme for monitoring education travel plans.

9.21 Hertfordshire County Council maintain a bespoke database system with a Travel Plan monitoring system built in allowing the county council to monitor the number, status and effectiveness of Travel Plans in Hertfordshire.

9.22 Hertfordshire County Council recognises the need for a standardised approach to monitoring and has historically used the TRICS Standard Assessment Methodology for

Travel Plan monitoring ("SAM"), however it acknowledges that "SAM" is not always financially proportionate, particularly for smaller, non-strategic sites.

9.23 Hertfordshire County Council will require annual multi-modal traffic count to be conducted, with the option to support/supplement with questionnaire surveys. The methodology is designed to show the number of trips generated in a typical day by a given development.

Existing development

9.24 The wider vision for increased levels of sustainable travel needs to be shared and promoted with the existing business community and local population through borough wide communication channels. Existing businesses can be encouraged to develop voluntary workplace travel plans through which monitoring activity can provide a good indication of commuting and travel trends. Local engagement activities, e.g. attitudinal surveys, with the population can also probe into individuals travel habits. Census data is a solid longer-term indicator but sporadic in nature and so lends itself to a longer-term monitoring tool.

9.25 Corroborative data, such as public transport patronage, cycle counter sites and air quality monitoring station data can all provide indicators to decipher trends in sustainable travel usage.

Alignment with Long-Term Garden Communities Vision

9.26 It is recognised that the Hemel Garden Communities Transport Plan is under development and that this will guide the form and transport infrastructure supporting Hemel Garden Communities. That strategy will consider the needs of the Hemel Garden Communities to 2050, beyond the 2036 timeframe of the local plan. As noted above that strategy is likely to include an ambitious set of mode share targets.

9.27 It is also clear that how people travel is changing dramatically. This was taking place before the impact of COVID and included demographic changes, changes to perceptions in relation to car ownership and use, greater sharing of transport and development of new technologies including micro-mobility, more connected transport through Mobility As A Service, Demand Responsive Transport, electrification and, in the longer term, autonomy.

9.28 COVID has added additional uncertainties and instability in terms of the ability to plan transport needs of a community and may fundamentally change how people travel in the longer term. People may choose to work from home more, commuting less. This

may reduce demand for travel in terms of individual trips but could result in longer commutes overall as people choose to relocate further from their offices. In that scenario it is likely to result in more demand for local travel, as a lot of the day to day needs that would have been met in city centres are met more locally. Furthermore, some evidence suggests that people feel more reliant on their cars and are likely to have on-going concerns about returning to public transport.

9.29 While acknowledging these uncertainties the discussion above highlights the need to plan for more active travel and safer, more reliable public transport to ensure that people feel confident in making more of their trips by these modes. The Hemel Garden Communities create an enviable opportunity to build in the conditions that will ensure future-proofed and flexible places and places that allow people to make more of their day to day trips locally and sustainably.

9.30 The package of measures set out here for Hemel Garden Communities, and for the wider growth across Dacorum, will ensure that the infrastructure delivered as part of the Local Plan to 2038 supports the longer-term 2050 HHISTS vision.

Next Steps

Delivering a robust Local Plan

9.31 The work set out in this topic paper is the first stage in setting out how the growth proposed in the Local Plan will be delivered sustainably. The evidence base set out so far will continue to develop iteratively, drawing on parallel workstreams, further stakeholder engagement and public consultation. The key next steps towards the Reg 19 Local Plan submission include:

- Testing of the challenges and big moves identified in this topic paper through stakeholder engagement and public consultation and refining and updating as necessary
- Further development of the package of interventions, responding to the engagement above, and providing more detail as necessary regarding their design detail, phasing and relationship with growth across the borough
- Consideration of the need for additional modelling, including developing a set of model scenarios that can be tested that draw on the aspirations set out in this paper and reflect the 'vision and validate' approach. This may make use of the COMET model or local models, such as Paramics.
- An updated Transport Topic Paper, reflecting the revisions outlined above

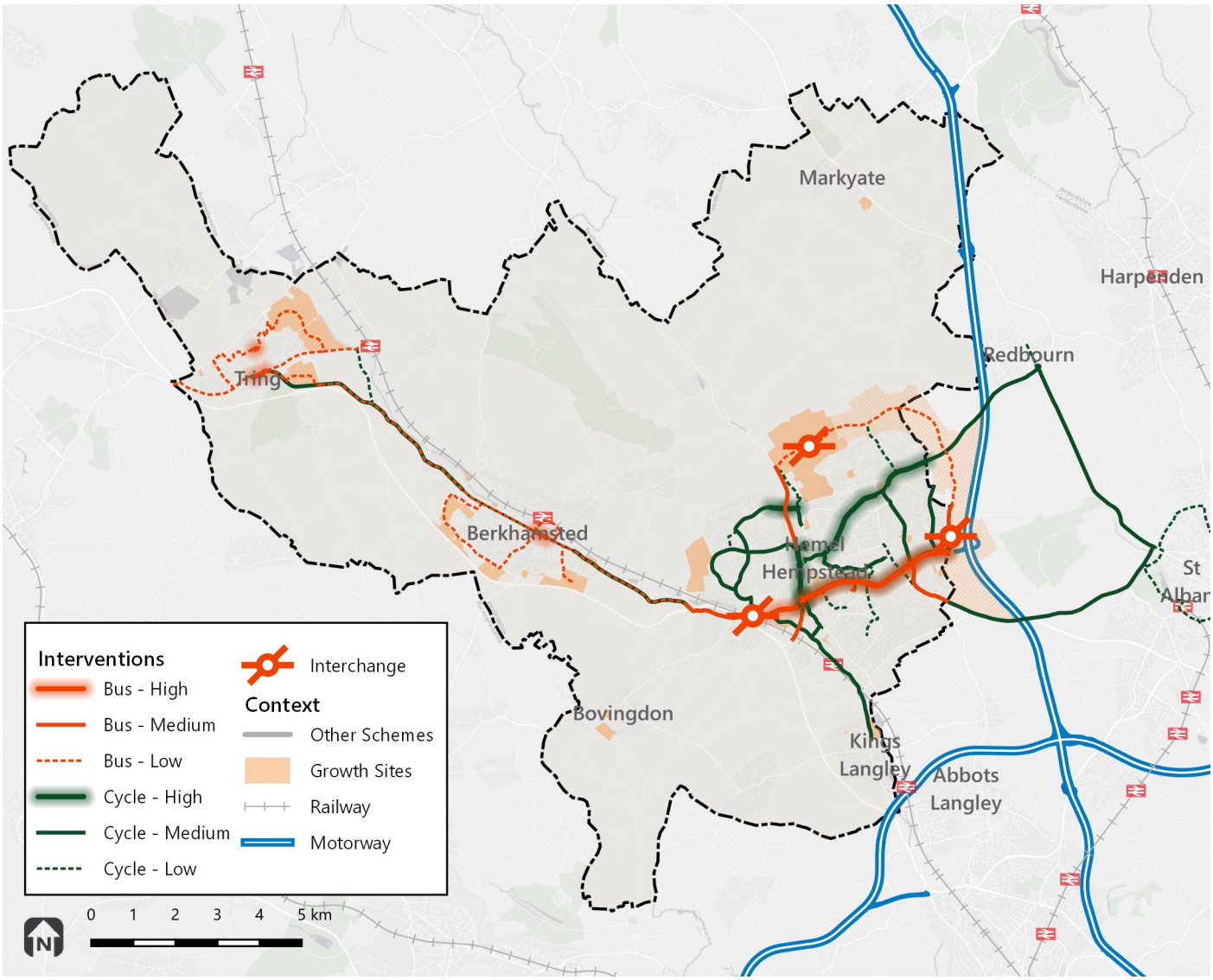
Appendix A

Transport Interventions

Dacorum

Overview

Supporting Transport Package



ID	Title
1	East-West Public Transport Corridor (Hemel
2	East-West Public Transport Corridor (Berkhamsted)
3	East-West Public Transport Corridor (Tring)
4	Cycle Improvements along A4251
7	Cycle Improvements along A414
8	North / Northwest to Town Centre cycle links
9	South / Southeast to Town Centre cycle links

ID	Title
10	Northern Link Route and East Hemel Link Road
11	Local Cycle Links to Main Transport Corridors
12-15	Multi-Modal Transport Interchange
17	Cycle Improvements at Maylands
23	Improvements to the Nickey Line
26	Redbourn and St Albans Cycle Loop

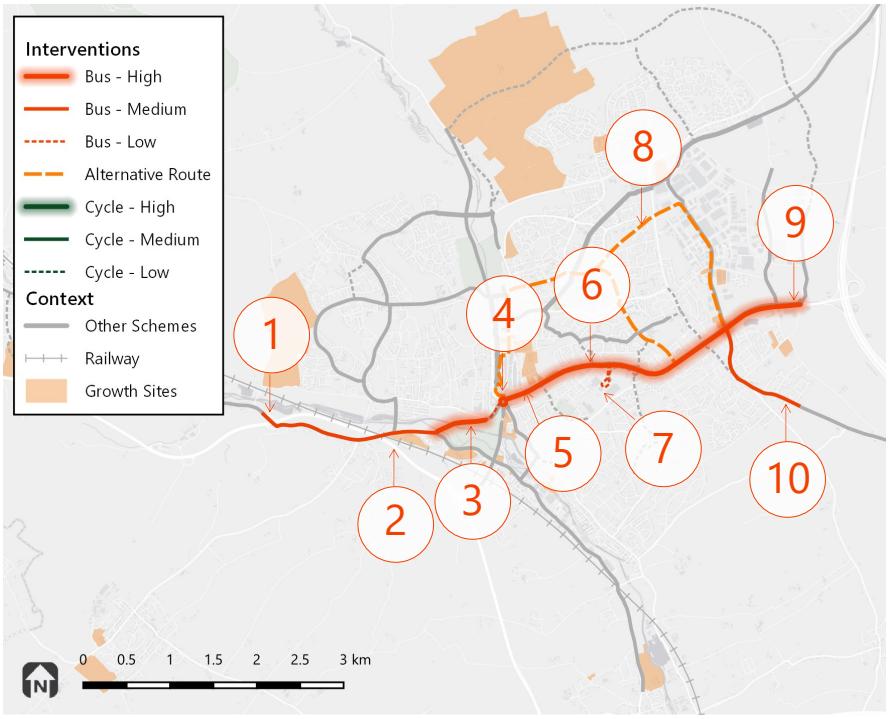
Note on key

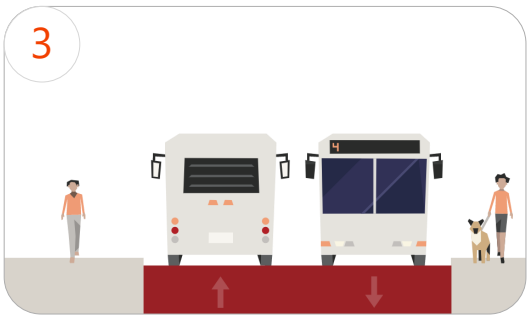
Low, medium and high interventions refer to the scale of intervention required and have informed the costing of the interventions. Low interventions— modest infrastructure investment such as light segregation. Medium interventions— larger inventions such as changes to car parking and some road space reallocation. High interventions— substantial changes such as major junctions upgrades and significant road space reallocation.

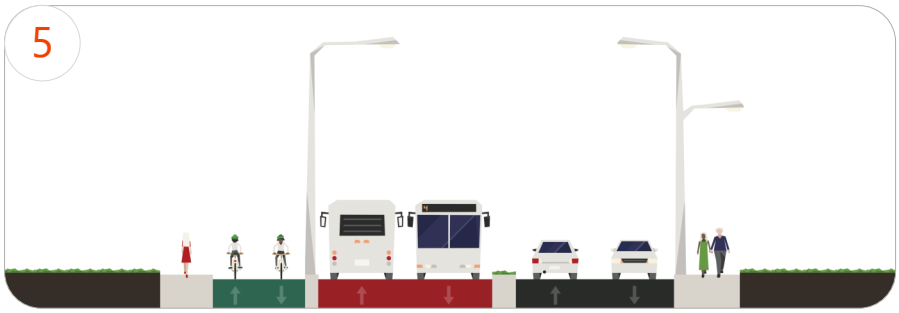
Hemel Hempstead

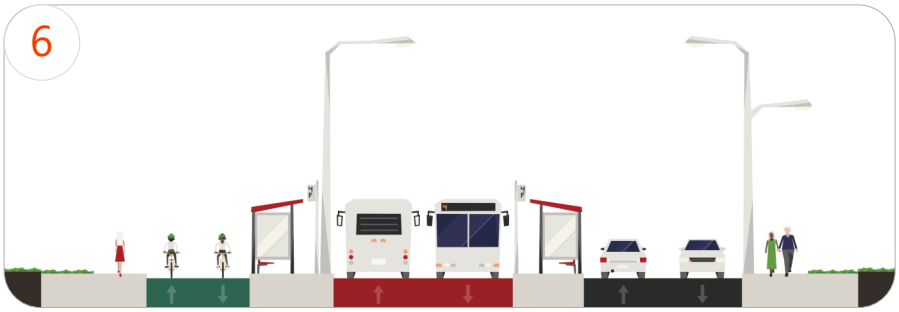
1: East-West Bus Priority

Supporting Transport Package









Overview

Public transport corridor through Hemel Hempstead, forming part of a longer route across Hertfordshire.

The route would resemble a metro service, making it an attractive and efficient option for trips across the county that can compete with private cars.

The proposals set out here are indicative and subject to further.

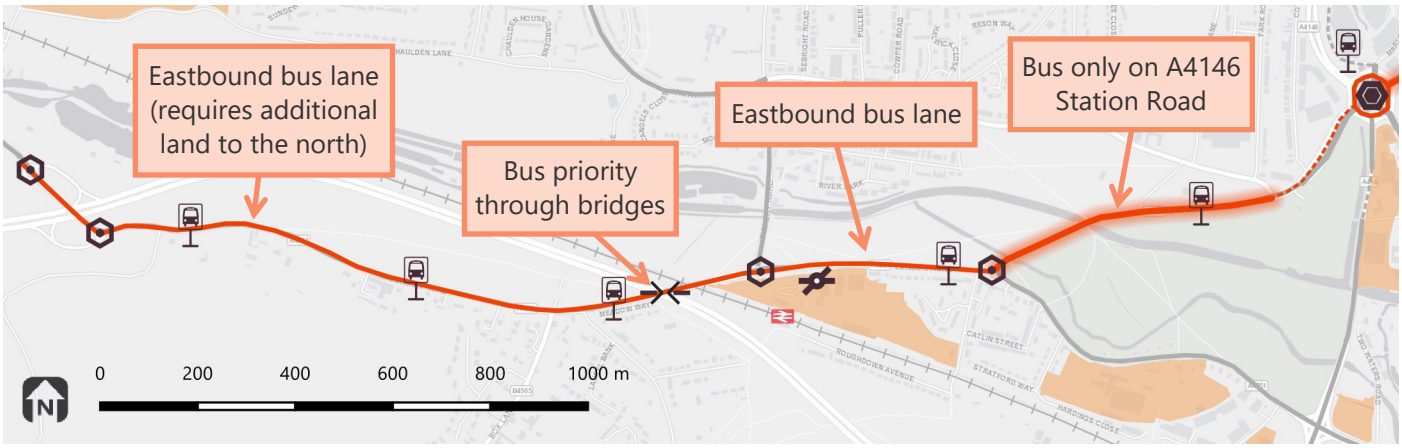
Details

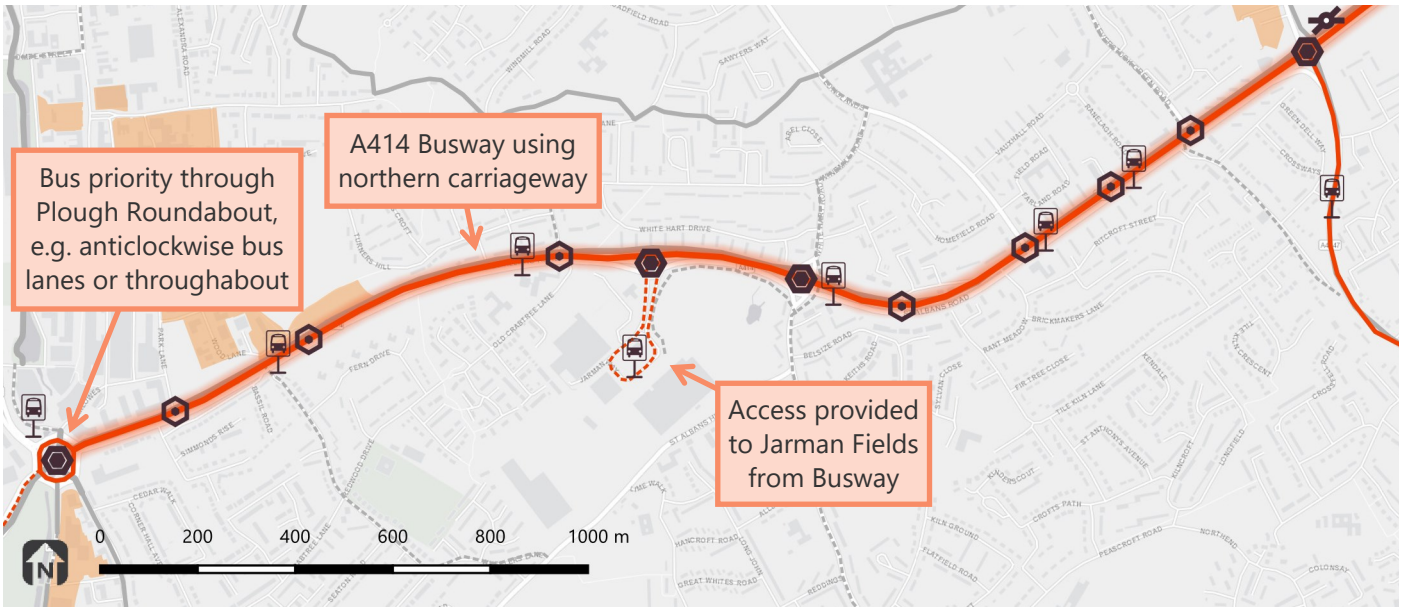
1. Onward route to Berkhamsted and Tring via A4251 (see sheet ref: 2, 3)
2. Improved multi-modal interchange at station (see sheet: 12)
3. A4146 Station Road with potential bus gate to west of Heath Lane. Access retained to all properties
4. Bus priority through Plough Roundabout. This could be delivered by making anti-clockwise bus-only
5. Busway priority along the A414 St Albans Road. This could be delivered by converting northern carriageway to dedicated two-way bus lanes or retaining southern carriageway as single carriageway two-way road. Width constrained at western end between Plough Roundabout and Park Lane, which would require stops to start beyond this point
6. Busway along A414 St Albans Road by converting northern carriageway to dedicated two-way bus lanes and retaining southern carriageway as single carriageway two-way road
7. Connection to Jarman Fields as a major leisure and retail destination, potentially either by shuttle / connecting local bus services and / or improved walking connections
8. Potential alternative routes (not costed)
9. Onward route to St Albans via Maylands (south) and A414, integrating with Breakspear scheme at appropriate point (ref: 5)
10. Alternative onward route to St Albans via Leverstock Green and A4147, potential reaching a greater frontage catchment

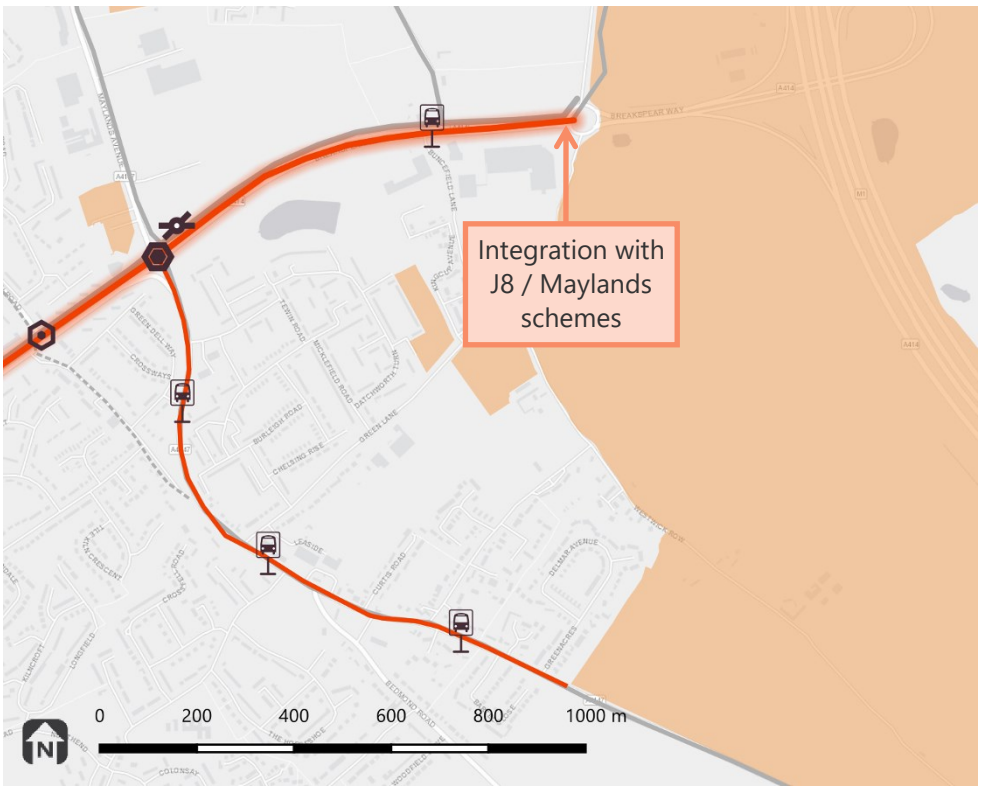
Hemel Hempstead

1: East-West Bus Priority

Supporting Transport Package







- Bus - High
- Bus - Medium
- Bus - Low
- Cycle - High
- Cycle - Medium
- Cycle - Low
- Junction Upgrade - Major
- Junction Upgrade - Minor
- Pinch-Point Scheme
- Transport Interchange
- Bus Stop Upgrade
- Pedestrian/Cycle Bridge
- Pedestrian Crossing

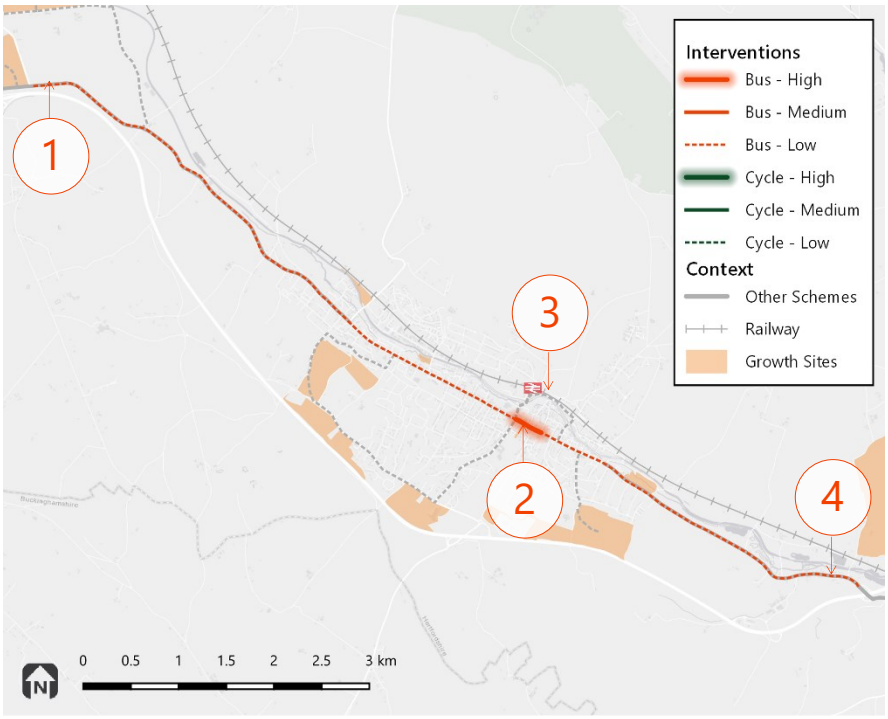
Context

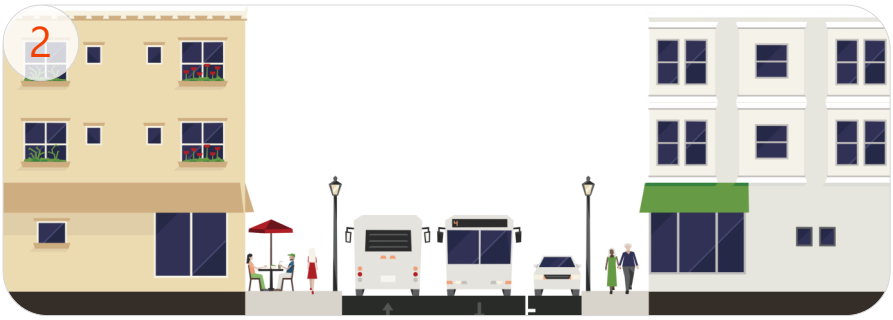
- Other Schemes
- Railway
- Growth Sites

Berkhamsted

2: East-West Public Transport Corridor

Supporting Transport Package





Overview

Bus corridor through Berkhamsted, forming part of a longer route across Hertfordshire.

The route would provide bus priority for existing services making it an attractive and efficient option for trips across the borough, driving demand. The majority of the route would be shared with local traffic.

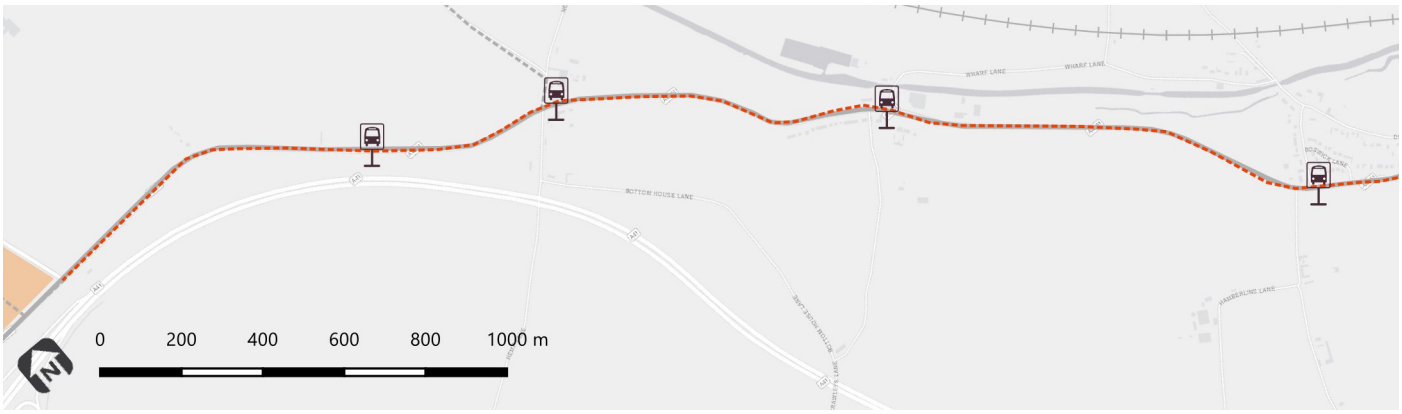
Details

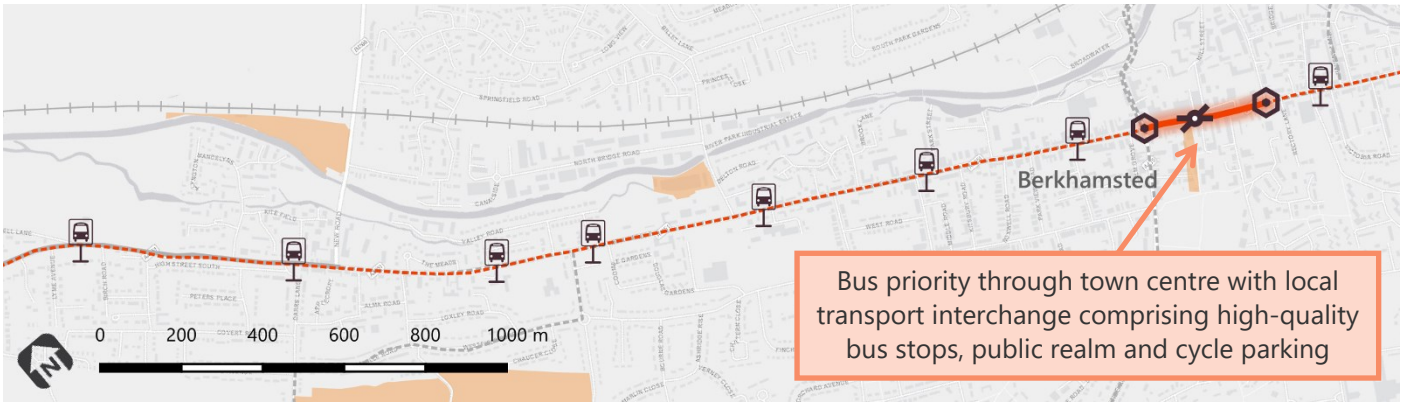
1. Onward route to Tring via A4251, with bus priority measures at key junctions and improved bus stops
2. Potential for road space reallocation through centre of Berkhamsted with increased space for pedestrians and bus priority. Example of improved public realm and bus facilities shown in the precedent image below.
3. Bus priority corridor offers parallel and higher frequency service to the railway, with better connections to the town centres. Therefore limited need for interchange to rail for local trips. Complementary connections outlined in sheet ref: 11
4. Onward route to Hemel Hempstead via A4251, with bus priority measures at key junctions and improved bus stops

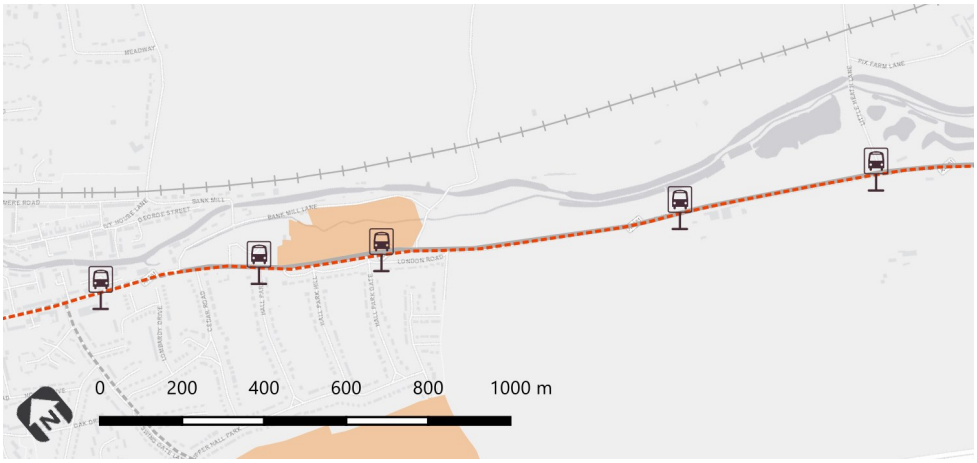
Berkhamsted

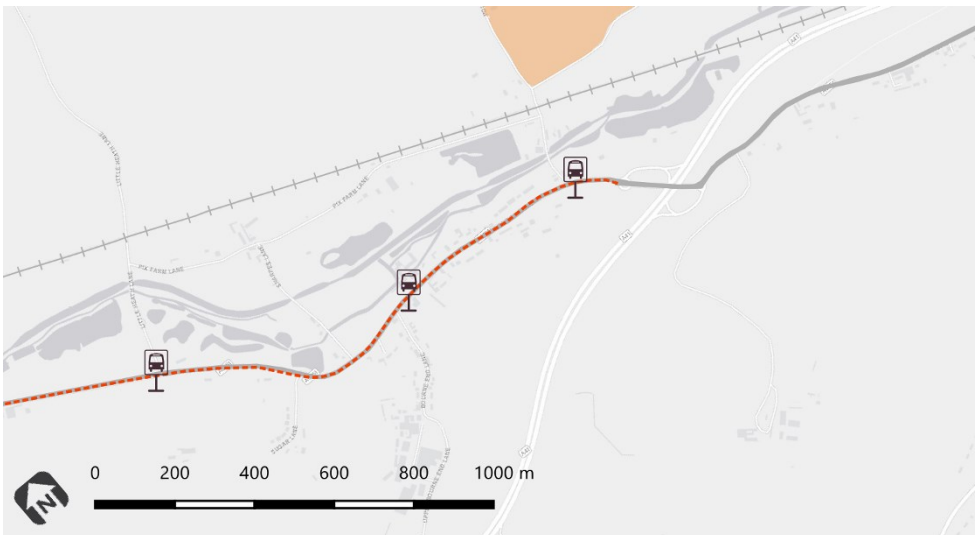
2: East-West Public Transport Corridor

Supporting Transport Package









- Bus - High
- Bus - Medium
- Bus - Low
- Cycle - High
- Cycle - Medium
- Cycle - Low
- Junction Upgrade - Major
- Junction Upgrade - Minor
- Pinch-Point Scheme
- Transport Interchange
- Bus Stop Upgrade
- Pedestrian/Cycle Bridge
- Pedestrian Crossing

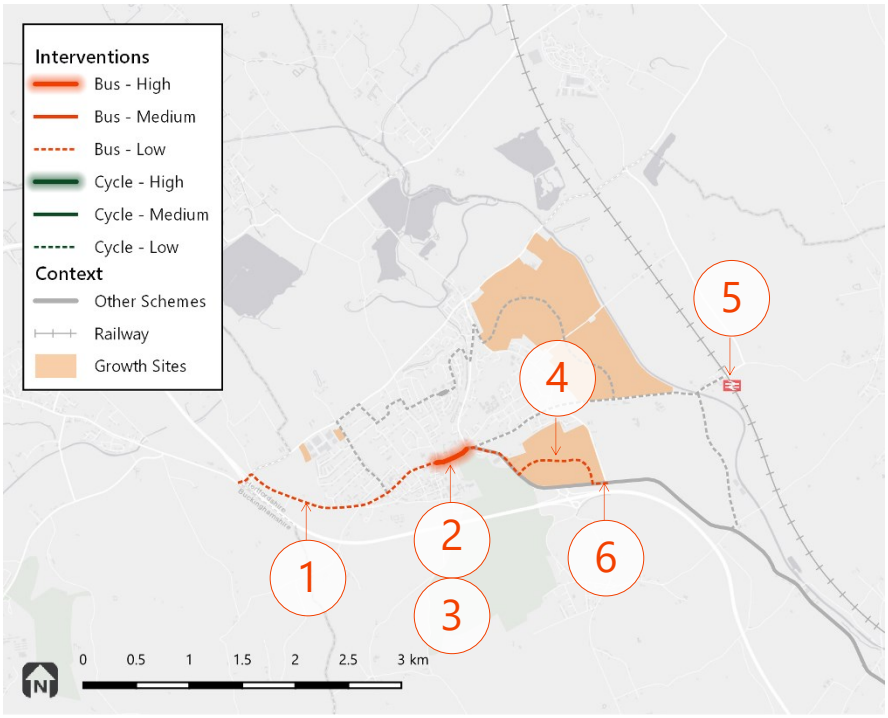
Context

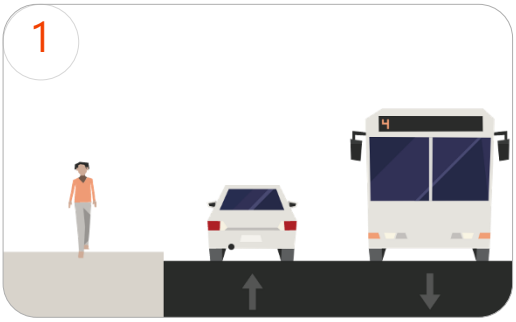
- Other Schemes
- Railway
- Growth Sites

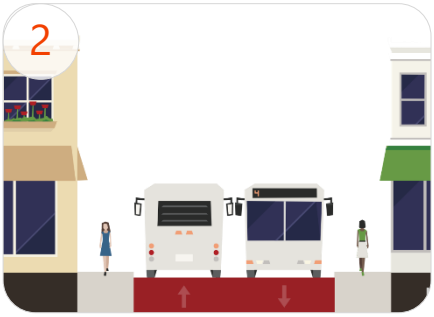
Tring

2: East-West Public Transport Corridor

Supporting Transport Package







Overview

Bus corridor through Tring, forming part of a longer route across Hertfordshire.

The route would provide bus priority for existing services making it an attractive and efficient option for trips across the borough, driving demand. The majority of the route would be shared with local traffic.

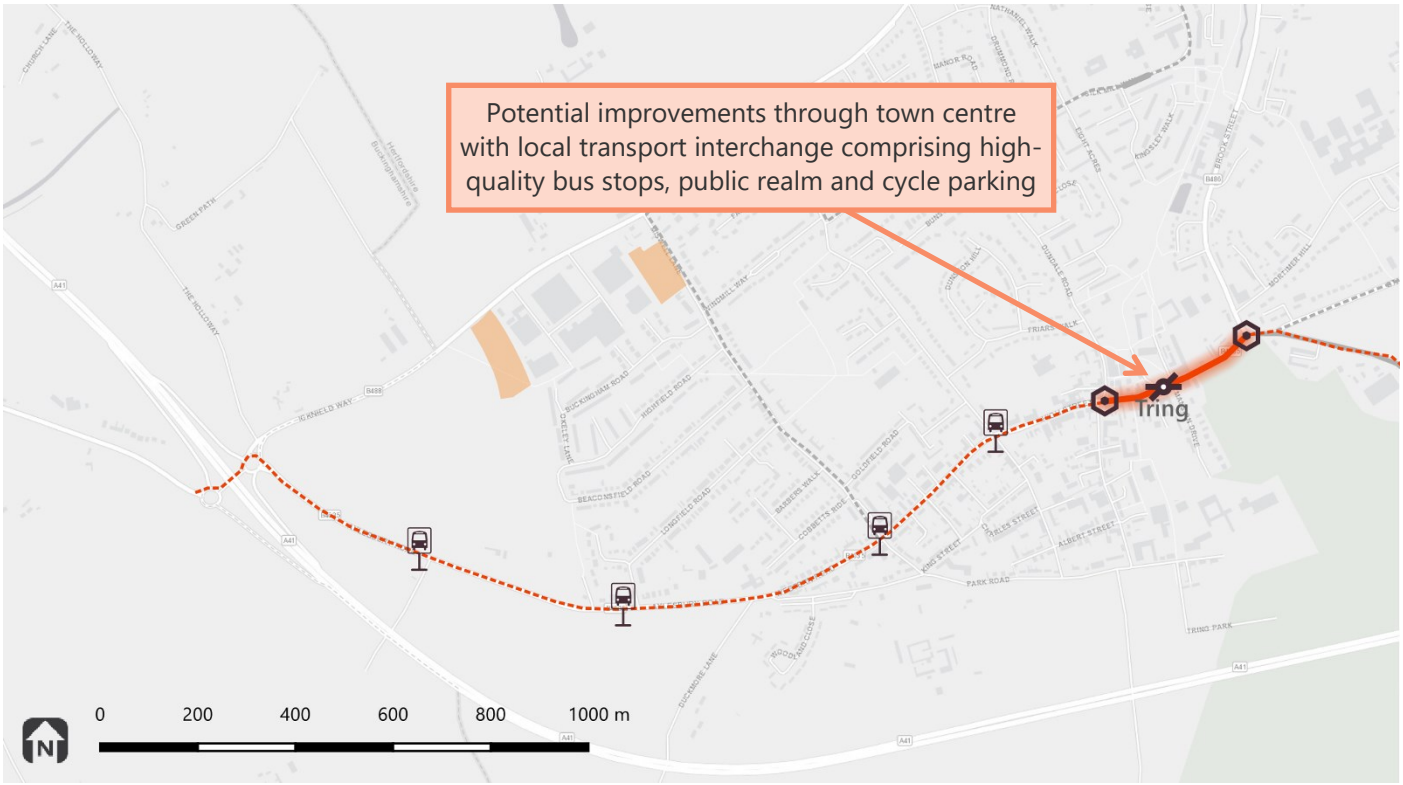
Details

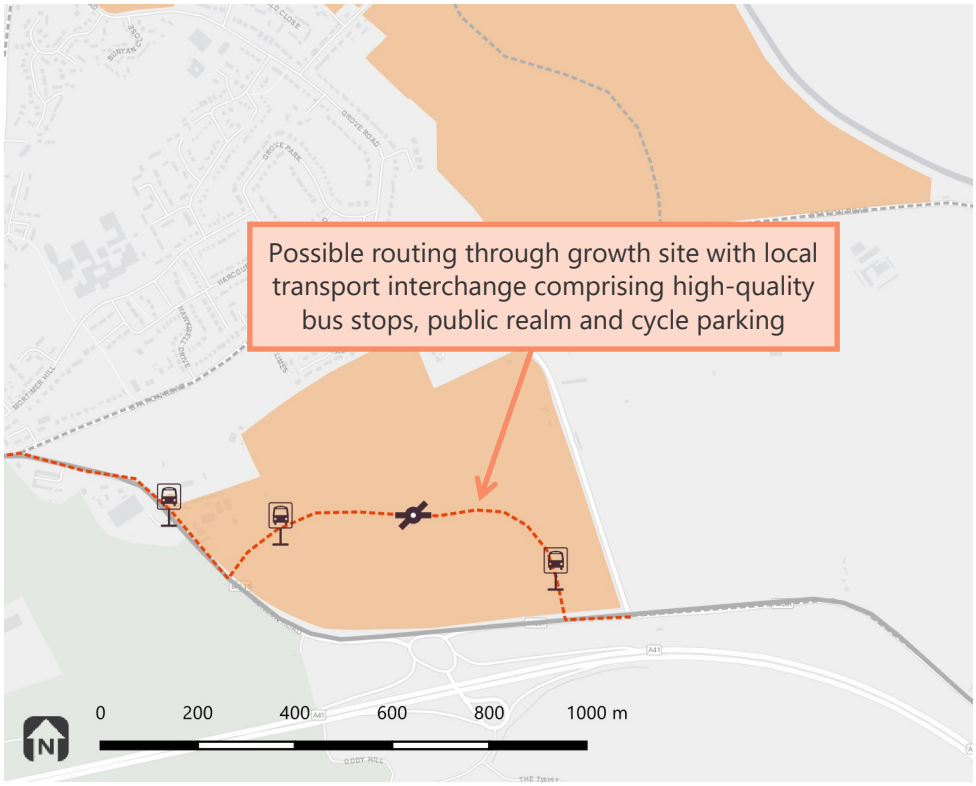
1. Potential for onward route to Aylesbury via Aston Clinton
2. Prioritisation for bus services, potentially including restricted access for private cars maintain access to car parking and businesses; or
3. Single-track working with traffic signal controls to provide additional space for pedestrians
4. Potential for route to divert through growth site assuming a fast and direct path can be maintained, possibly via a dedicated busway through the development
5. Bus priority corridor offers parallel and higher frequency service to the railway, with better connections to the town centres. Therefore limited need for interchange to rail for local trips. Complementary connections outlined in sheet ref: 11
6. Onward route to Berkhamsted and Hemel Hempstead via A4251, with bus priority measures at key junctions and improved bus stops

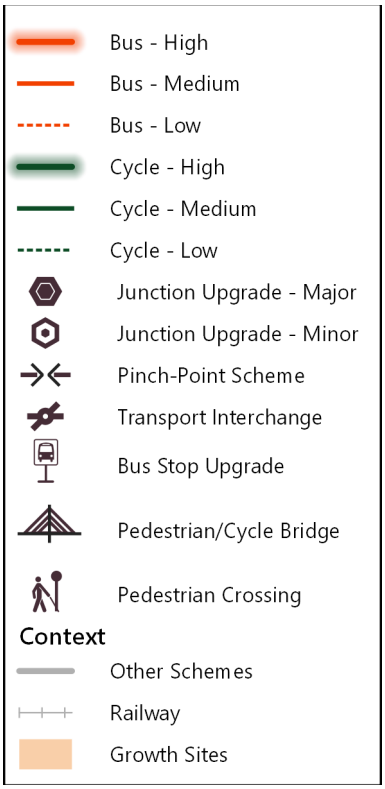
Tring

2: East-West Public Transport Corridor

Supporting Transport Package



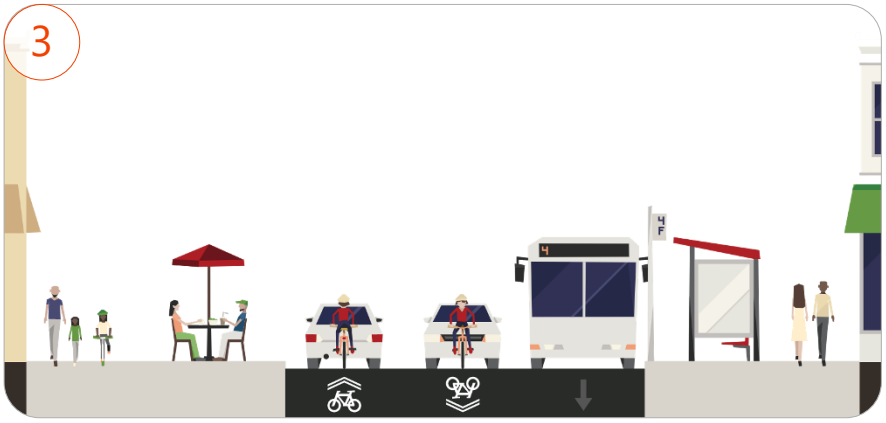


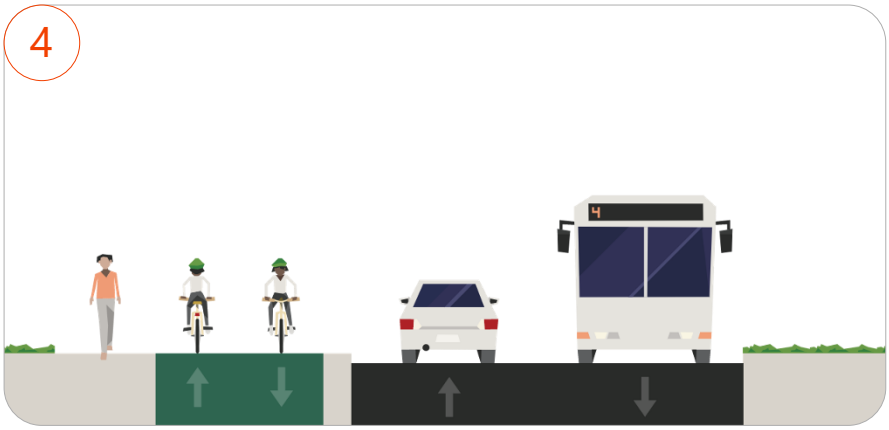


Dacorum

4: Cycle Improvements along A4251

Supporting Transport Package





Overview

High-quality cycle route between Hemel Hempstead and Tring following the A4251.

Extending the existing shared path from the town centre, the existing footway would be widened to form a shared foot/cycleway. Through Berkhamsted traffic calming would allow for on-carriageway riding due to constrained widths.

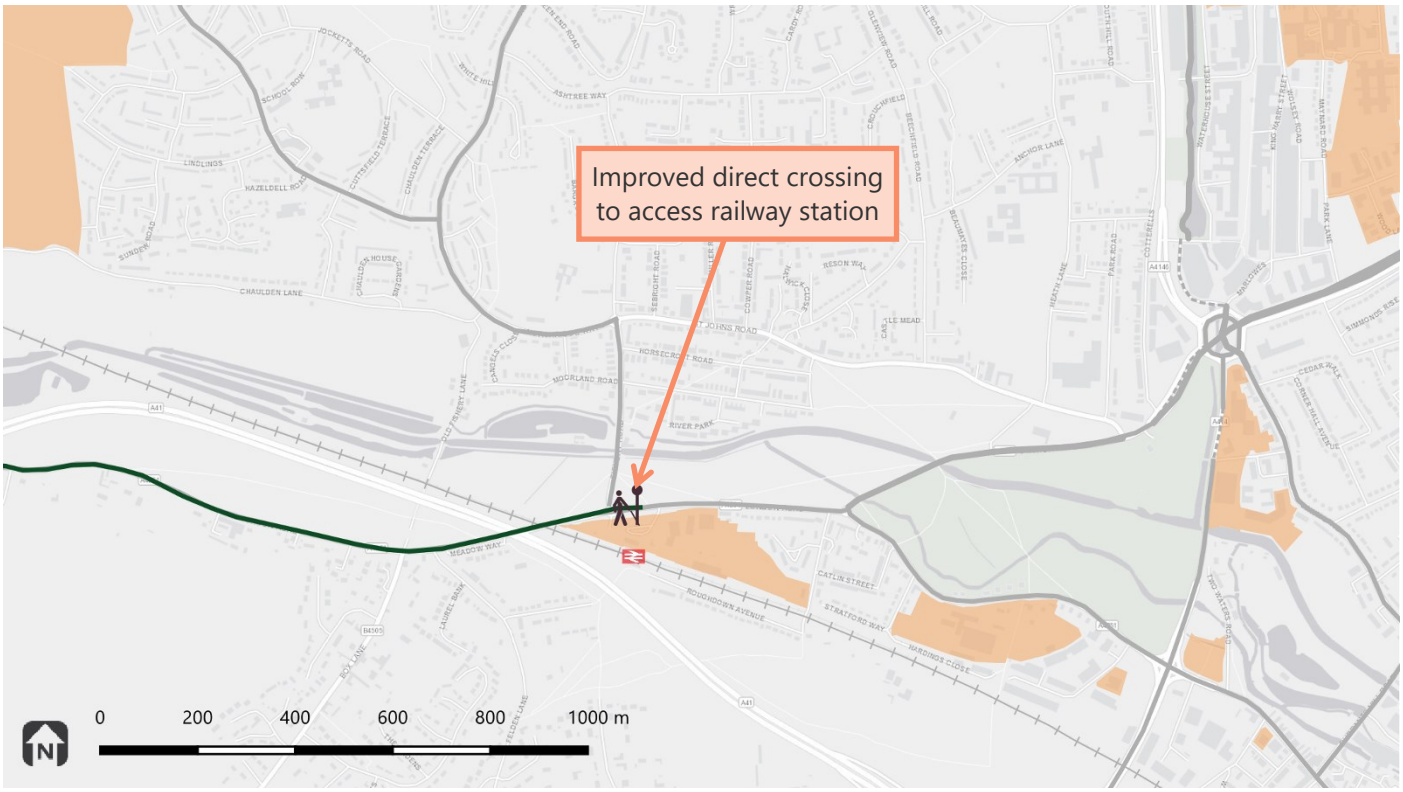
Details

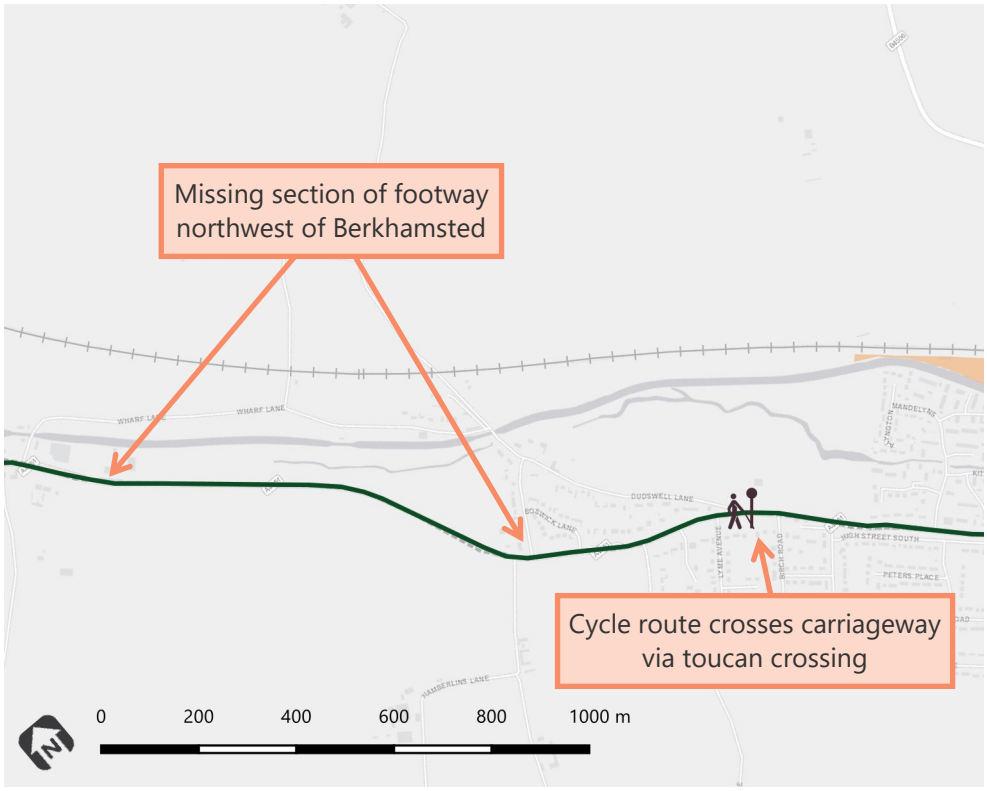
1. Route originates from Tring High Street
2. Widened footway within existing highway verge in rural areas to create a shared foot/cycleway (>3m wide) given relatively low pedestrian numbers
3. Cyclists use carriageway through Berkhamsted supported by measures in sheet ref 2 and package of supporting measures (see Berkhamsted and Tring Transport Strategy)
4. Widened footway within existing highway verge in rural areas to create a shared foot/cycleway (>3m wide) given relatively low pedestrian numbers
5. Route joins existing shared foot/ cycleway opposite Hemel Hempstead railway station with onward links to the town centre

Dacorum

4: Cycle Improvements along the A4251

Supporting Transport Package





- Bus - High
- Bus - Medium
- Bus - Low
- Cycle - High
- Cycle - Medium
- Cycle - Low
- Junction Upgrade - Major
- Junction Upgrade - Minor
- Pinch-Point Scheme
- Transport Interchange
- Bus Stop Upgrade
- Pedestrian/Cycle Bridge
- Pedestrian Crossing

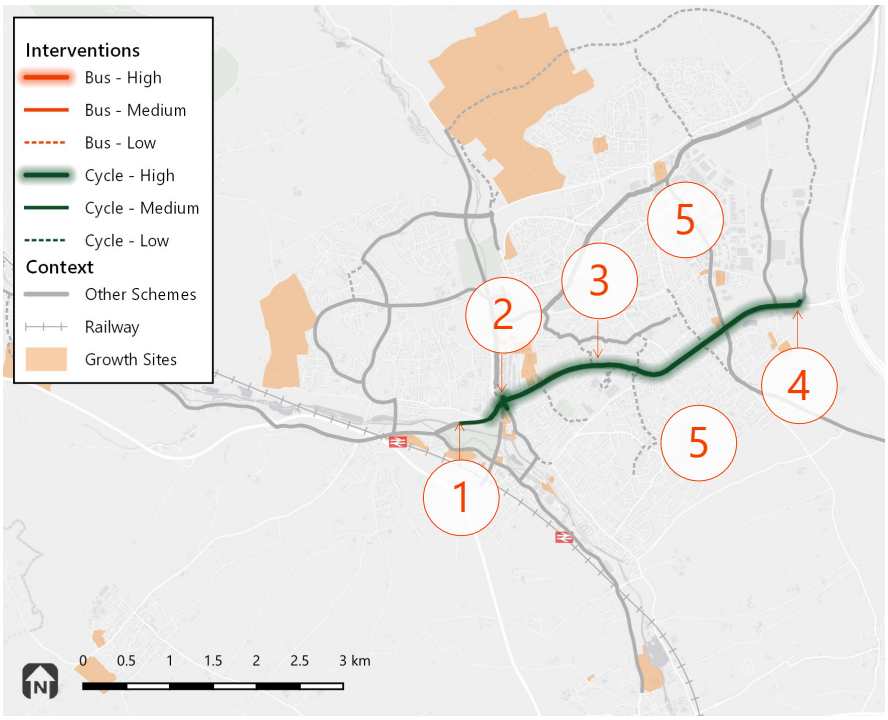
Context

- Other Schemes
- Railway
- Growth Sites

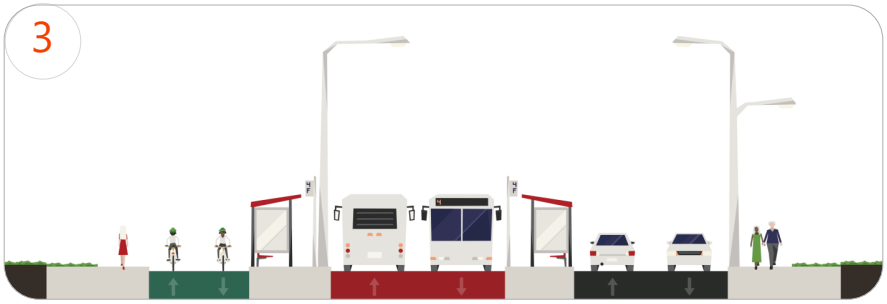
Hemel Hempstead

7: Cycle Improvements along A414

Supporting Transport Package



Picture credit: Cyclists Federation of Europe (Creative Commons licence)



Overview

High-quality cycle route following the A414 linking the railway station, town centre and Maylands with potential to extend into the Garden Community.

Improvement to the Plough Roundabout (potentially a pedestrian and cycle flyover) will provide a continuous high-quality route and additional crossings will reduce the severance of the current A414

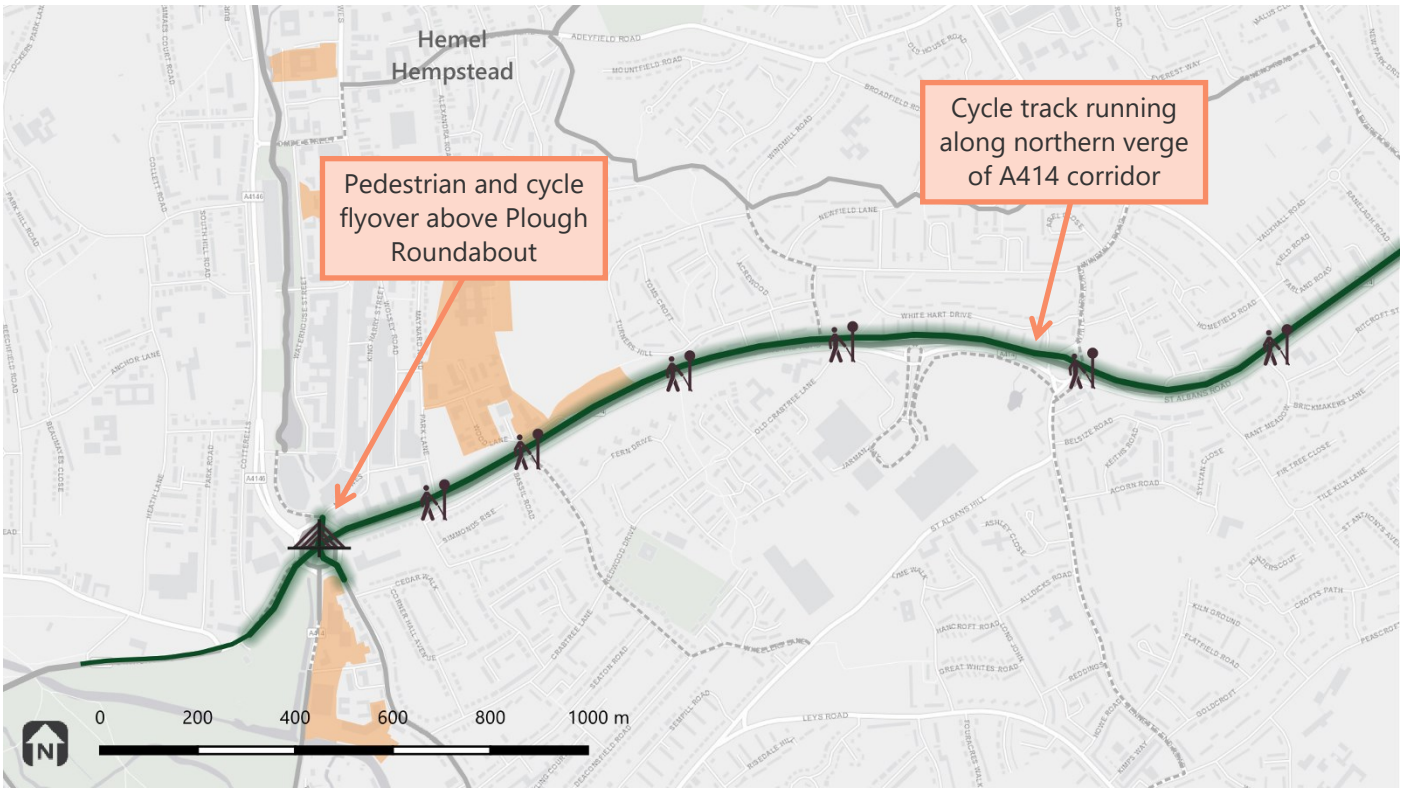
Details

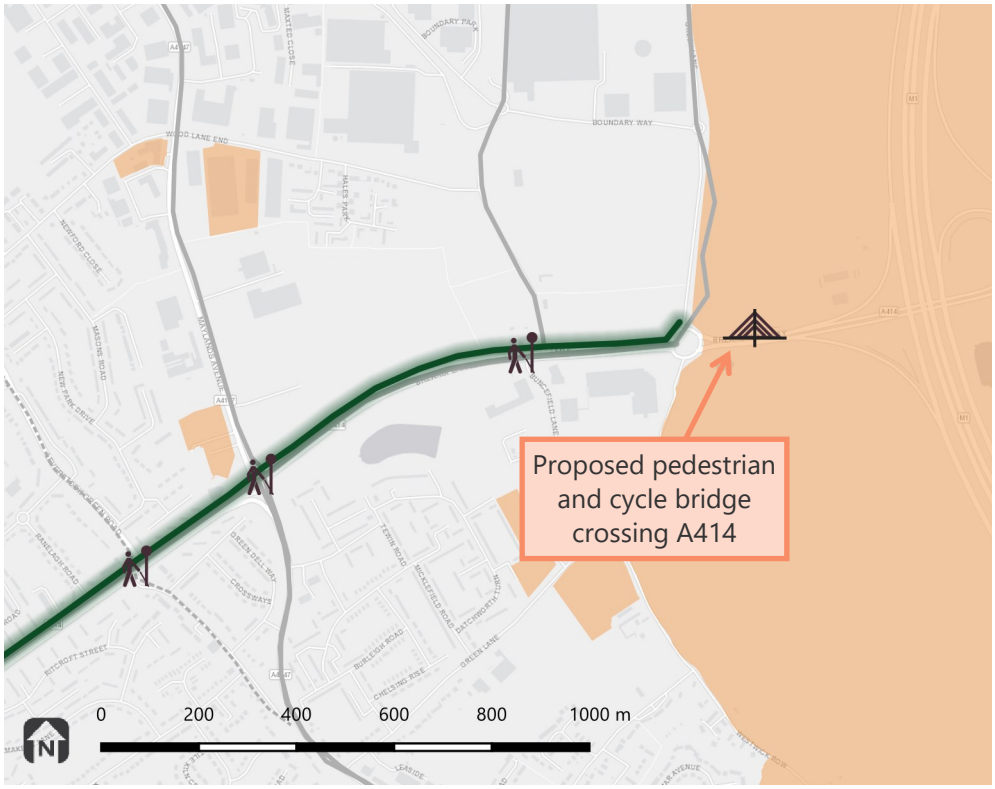
1. Cyclists benefit from potential bus gate and reduced traffic volumes (see sheet ref. 1)
2. Potential pedestrian and cycle flyover above the Plough Roundabout dealing with key desire lines along and across corridor
3. Segregated two-way cycle track running along the northern verge with increased opportunity to cross the carriageway at-grade to access surrounding neighbourhoods (see sheet ref. 1 re public transport enhancements)
4. Route to be integrate with proposed link road and works around Maylands, including Multi Modal Interchange (see sheet ref 12) bridge over the A414 to create a continuous link to the Garden Community
5. Potential for a series of Low Traffic Neighbourhoods that remove through traffic in residential areas, ensuring there is no displacement of traffic from changes to priority along A414

Hemel Hempstead

7: Cycle Improvements along A414

Supporting Transport Package





Bus - High
Bus - Medium
Bus - Low
Cycle - High
Cycle - Medium
Cycle - Low
Junction Upgrade - Major
Junction Upgrade - Minor
Pinch-Point Scheme
Transport Interchange
Bus Stop Upgrade
Pedestrian/Cycle Bridge
Pedestrian Crossing

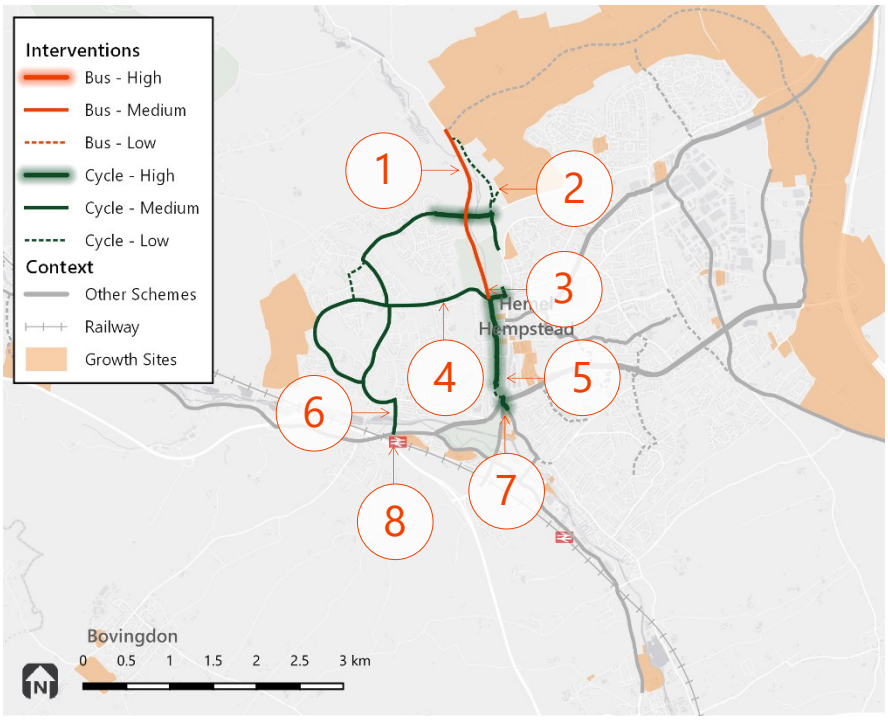
Context

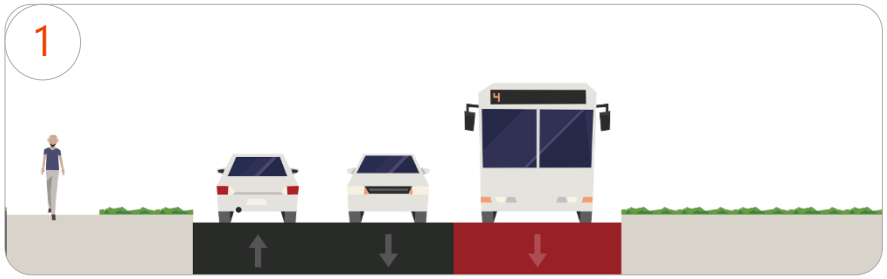
Other Schemes
Railway
Growth Sites

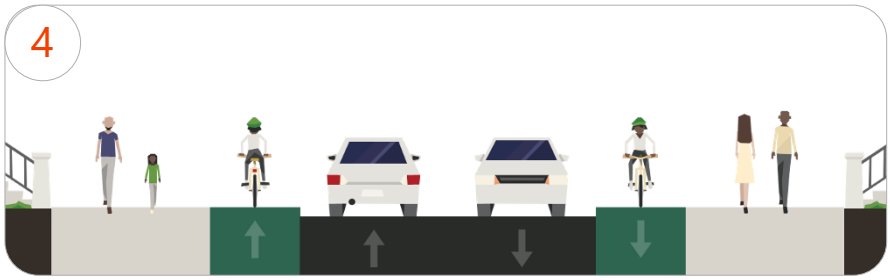
Hemel Hempstead

8: North / Northwest to Town Centre

Supporting Transport Package







Overview

Bus and cycle improvements to provide comprehensive coverage of the north west quadrant of Hemel Hempstead.

Increased bus priority on Leighton Buzzard road and high-quality segregated cycle lanes link to the town centre from growth sites and existing neighbourhoods.

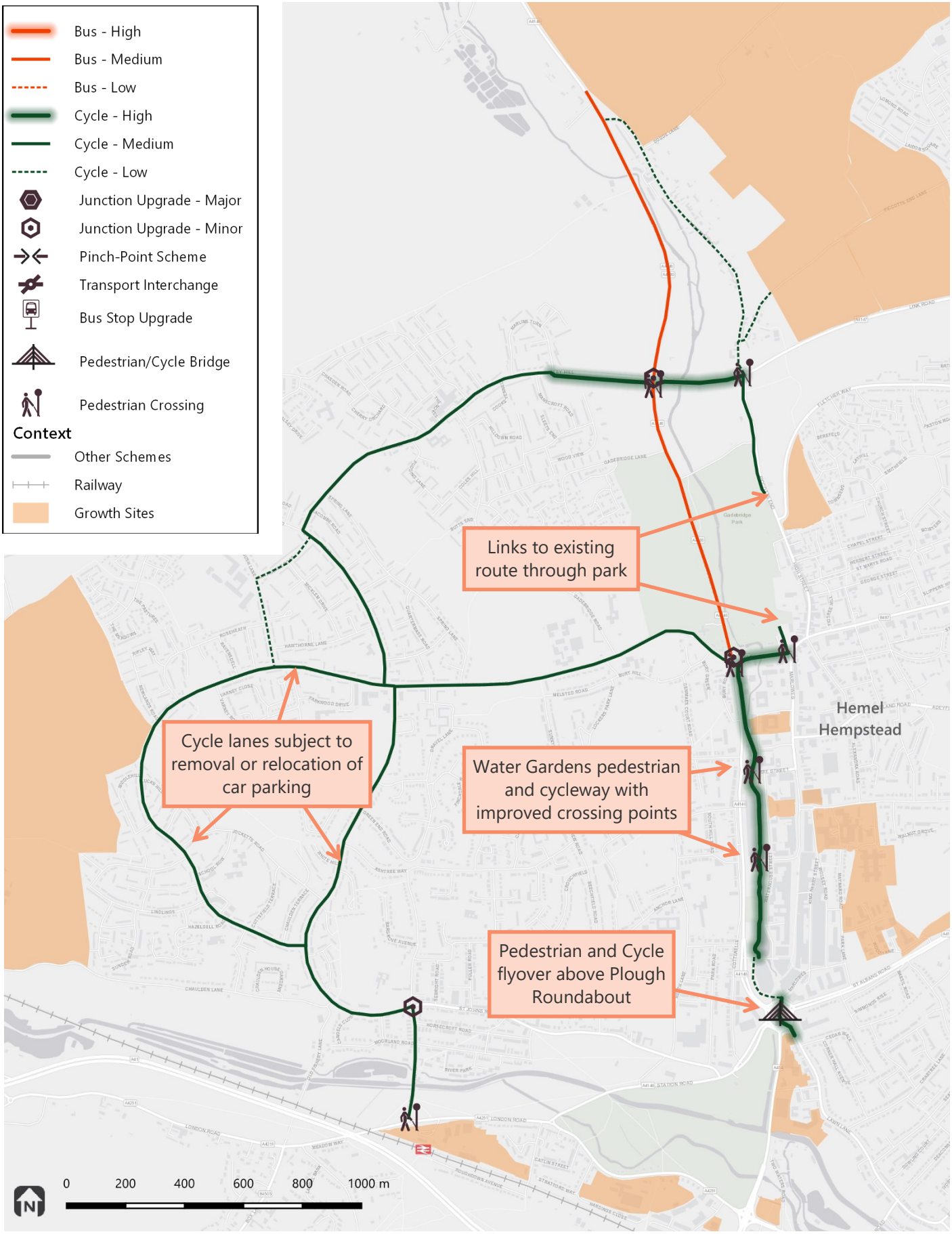
Details

1. Southbound 24hr bus lane formed by widening into existing verge, providing for buses and confident cyclists
2. Traffic calming of rural lanes through to link with growth site, with potential to limit private vehicle to access only
3. Bus lane terminates at Queensway with buses turning left to access Marlowes via existing priority route and bus gates
4. Lightly segregated cycle lanes on both sides of the carriageway, potentially displacing existing footway parking into defined on-carriageway bays
5. Widened pedestrian and cycle route along Water Gardens providing an alternative route through the town centre avoiding busy pedestrian areas
6. Enhanced cycle links on Fishery Road linking Warners End / Gadebridge area with the Station. Segregated cycle link over the river close to Fishery Road with new/improved link across Boxmoor.
7. Pedestrian and cycle flyover above the Plough Roundabout dealing with key desire lines along and across corridor
8. Route joins existing shared foot/ cycleway opposite Hemel Hempstead railway station with onward links along the A4251

Hemel Hempstead

8: North / Northwest to Town Centre cycle links

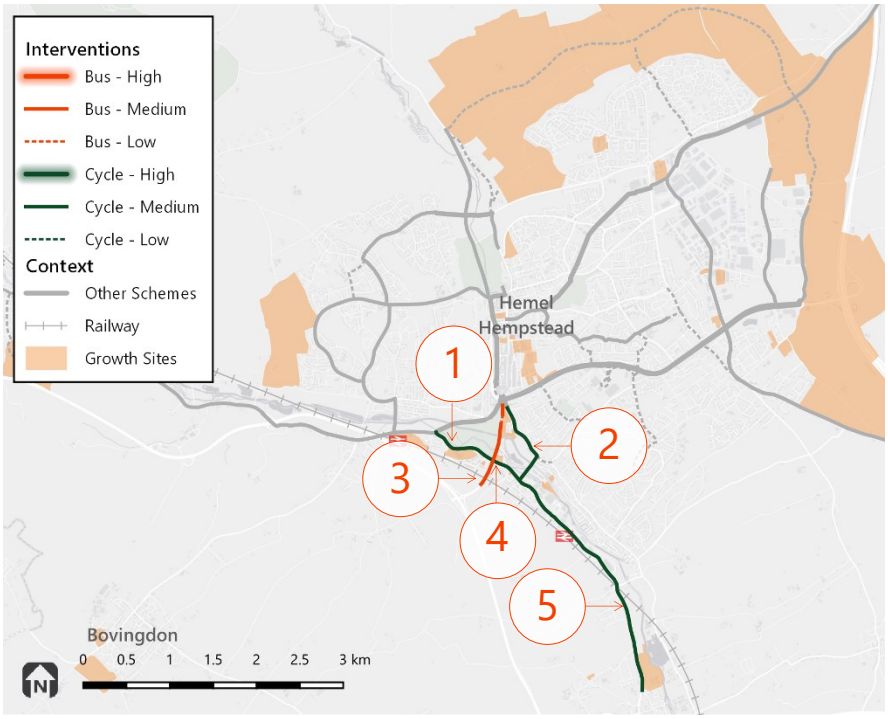
Supporting Transport Package

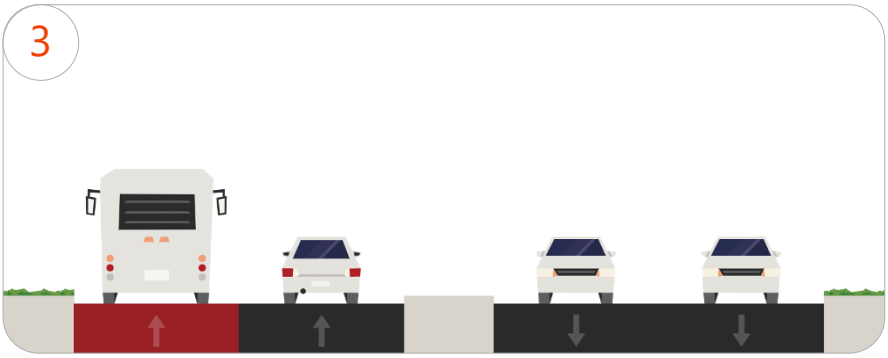


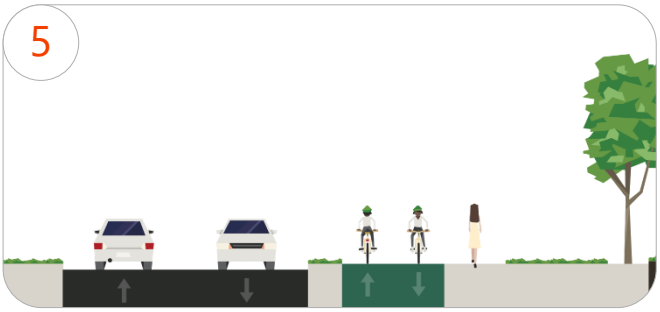
Hemel Hempstead

9: South / Southeast to Town Centre

Supporting Transport Package







Overview

Bus and cycle improvements to provide comprehensive coverage of the south east quadrant of Hemel Hempstead, Apsley and Kings Langley.

Increased bus priority on Two Waters Road and high-quality segregated cycle lanes link to the town centre from growth sites and existing neighbourhoods.

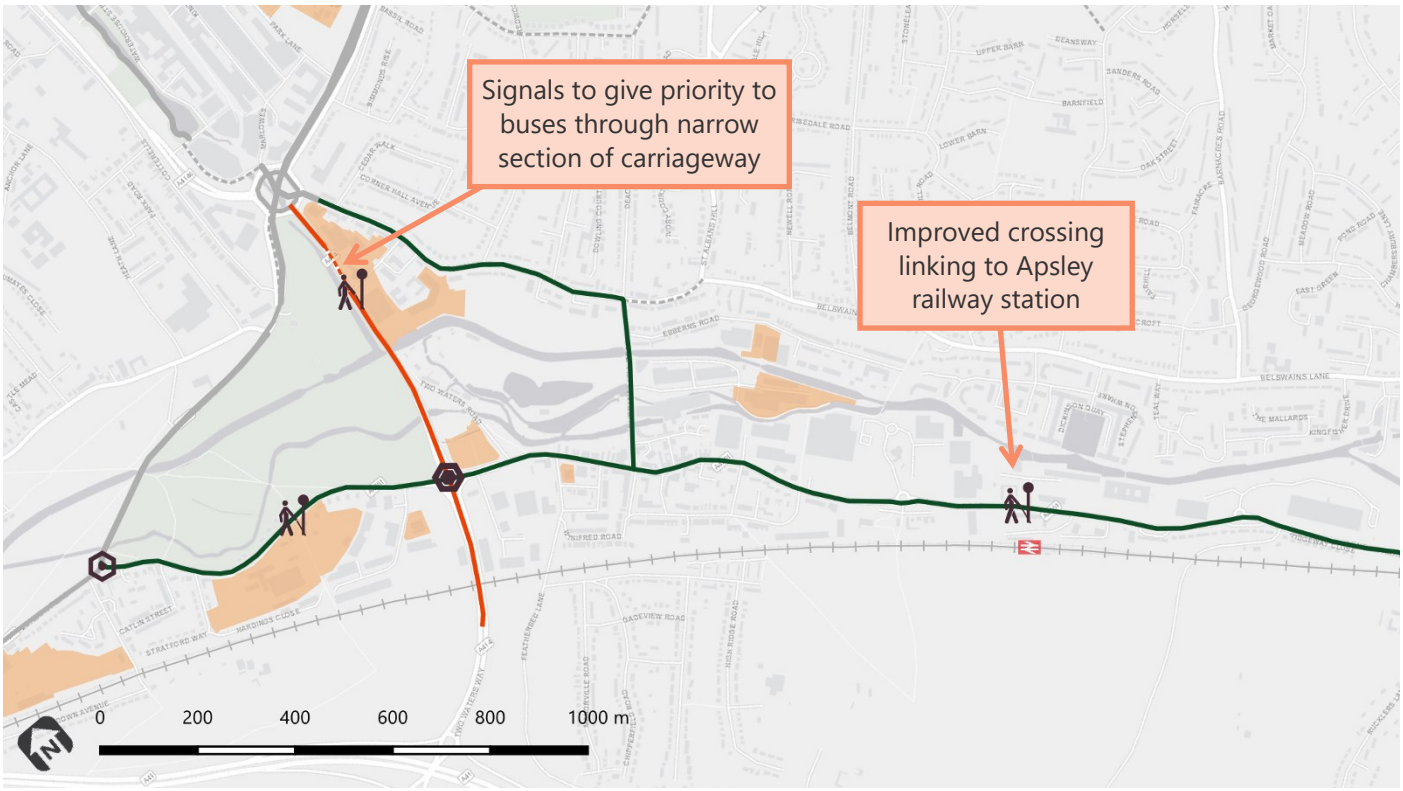
Details

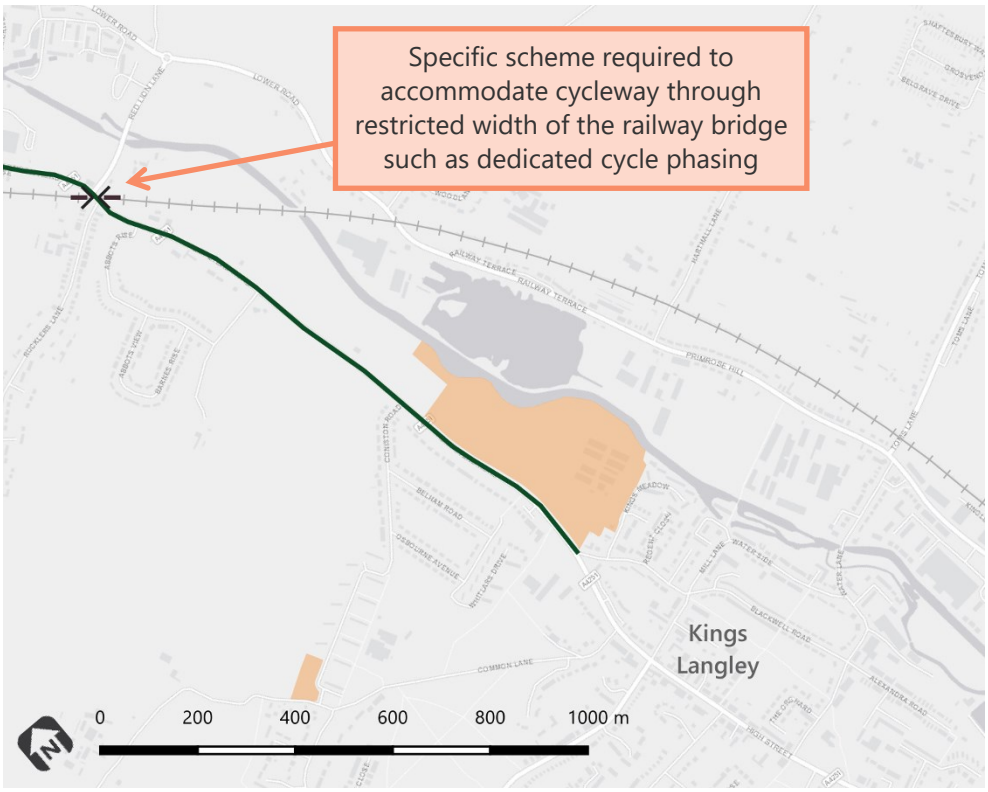
1. Link to existing shared foot/cycleway created by widening footway along northern edge into the carriageway
2. Lawn Lane access restricted at northern end for bus and cycle only to create higher quality cycle environment while maintaining access to property (access maintained via Corner Hall and Durrants Hill Road / London Road)
3. Northbound bus lane on Two Waters Road created by reallocating one of two existing traffic lanes and removing central hatching. Bus signals at Corner Road to give bus priority through narrow section on approach to Plough Roundabout.
4. Amendments to Two Waters Road / London Road junction (reduced crossing widths and straight across crossings) to provide a better environment for pedestrians and cyclists and introduce bus priority measures
5. Widened footway within existing highway verge in rural areas to create a shared foot/cycleway (>3m wide) given relatively low pedestrian numbers or segregated cycle track where width permits

Hemel Hempstead

9: South / Southeast to Town Centre cycle links

Supporting Transport Package





Bus - High
Bus - Medium
Bus - Low
Cycle - High
Cycle - Medium
Cycle - Low
Junction Upgrade - Major
Junction Upgrade - Minor
Pinch-Point Scheme
Transport Interchange
Bus Stop Upgrade
Pedestrian/Cycle Bridge
Pedestrian Crossing

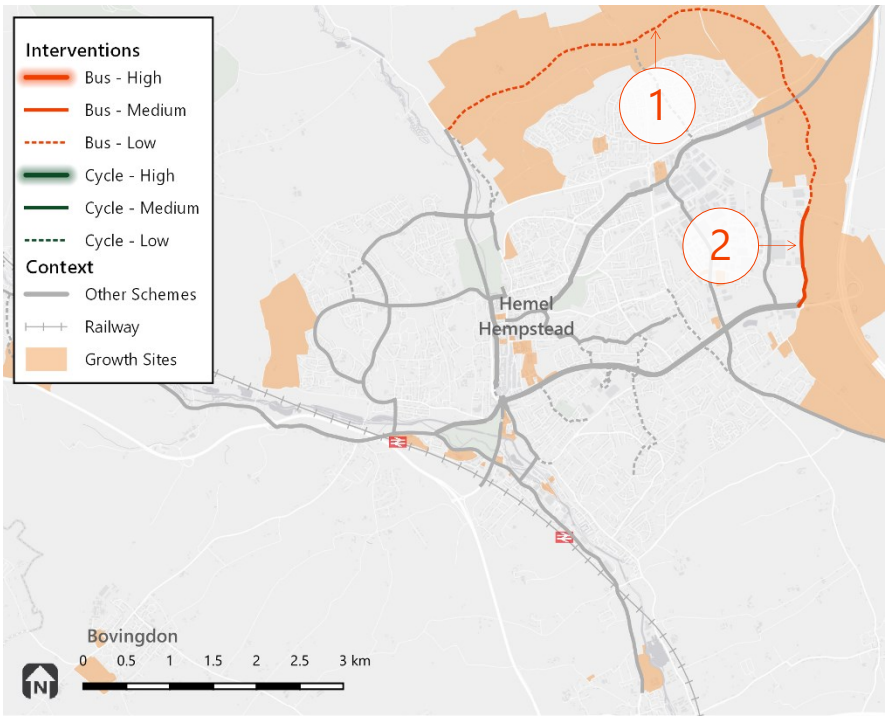
Context

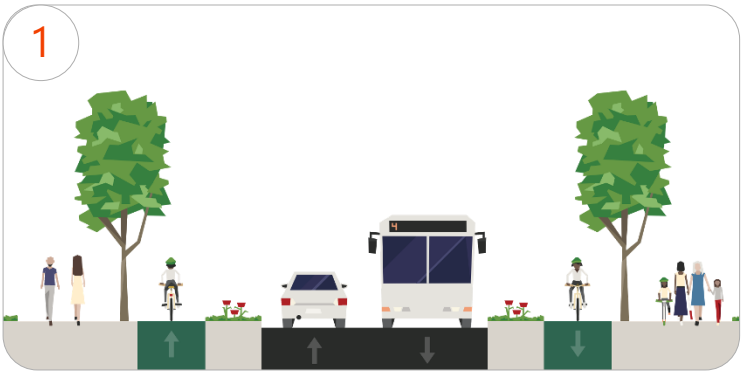
Other Schemes
Railway
Growth Sites

Hemel Hempstead

10: Northern Link Route and East Hemel Link Road

Supporting Transport Package





Overview

Schematic route of a northeast link road proposed as part of the Maylands Prospectus and Hemel Garden Community.

Included for reference but subject to separate masterplanning activity and decision regarding form of Northern Link Route

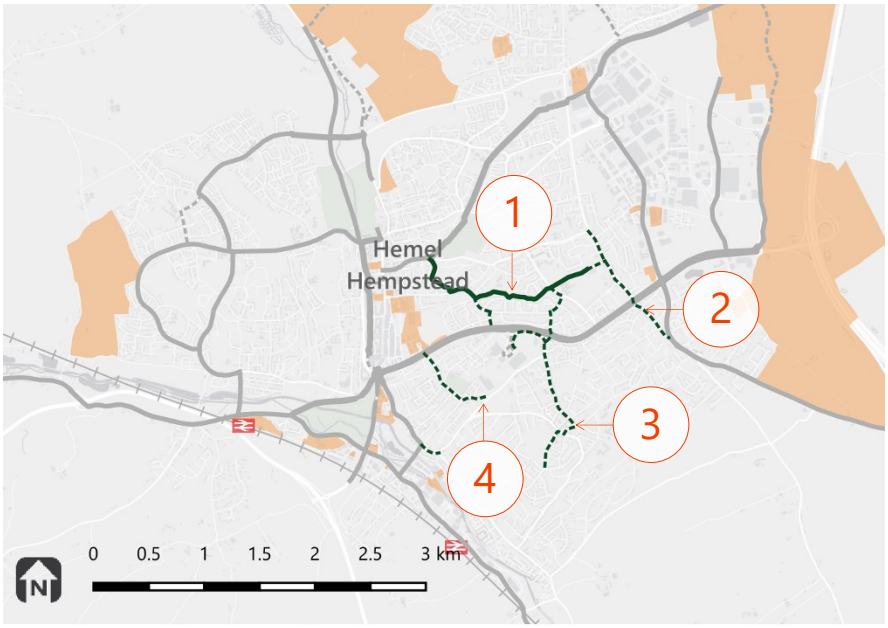
Details

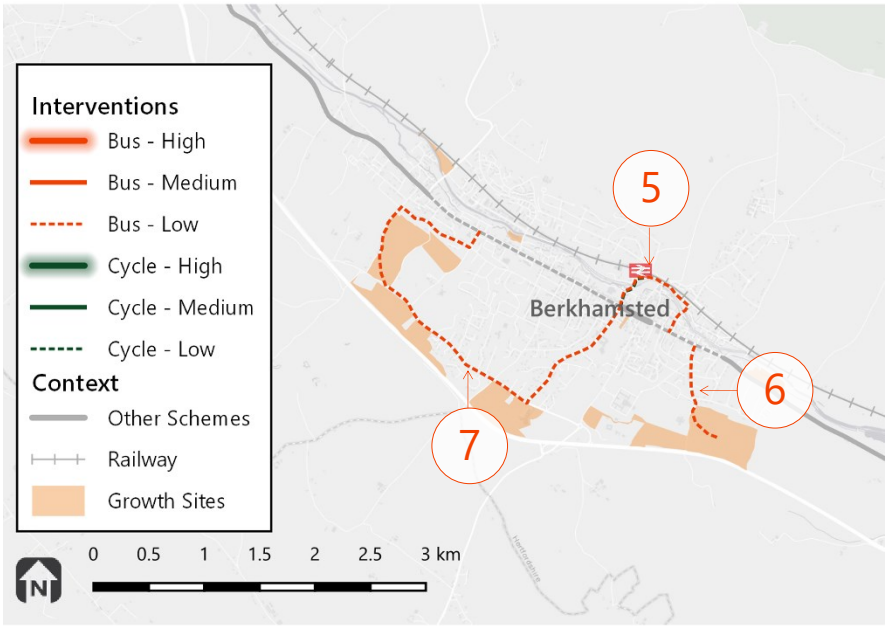
1. Assumed light bus priority along the route with the link road not fulfilling a strategic role - controlled with bus gates and through masterplan (potential cross-section shown)
2. Possible bus lanes provided through Maylands on approach to M1 J8 scheme where traffic volumes are likely to be higher

Dacorum

11: Local Cycle Links to Main Transport Corridors

Supporting Transport Package





Overview

Local measures that provide important links to local services and interchange with other transport modes.

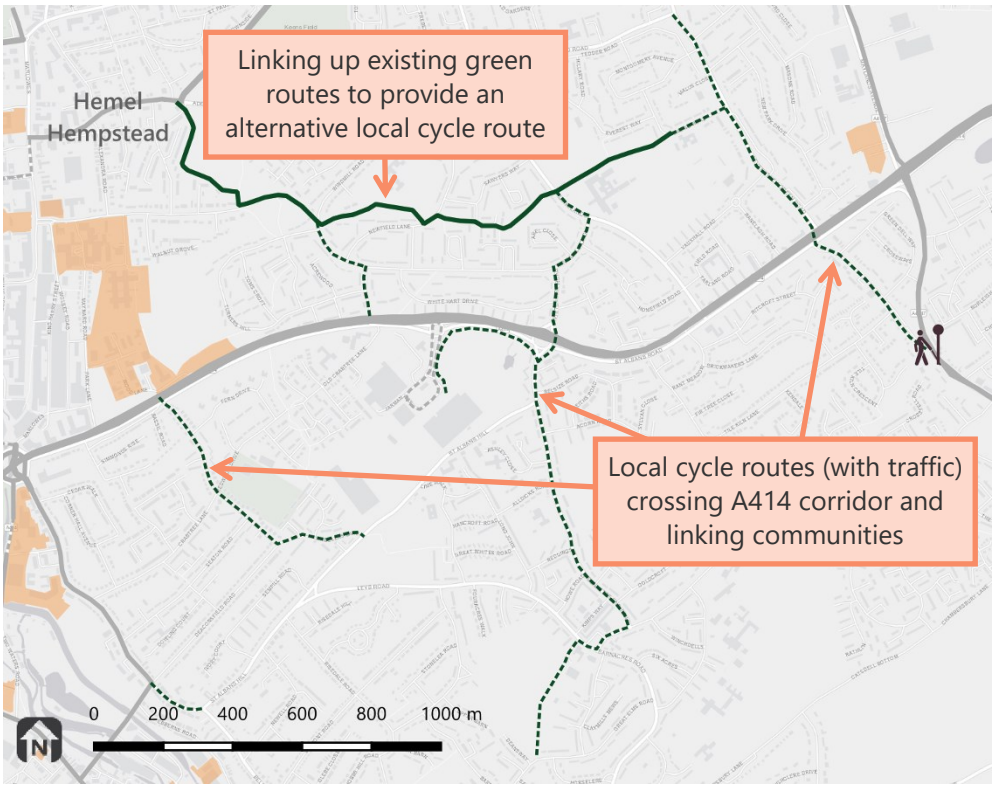
Details

1. Pedestrian and cycle link formed by linking existing footpaths and other low-traffic routes to create a link between the town centre and Maylands
2. Cycle link provided to cross the A414 corridor, joining neighbourhoods and feeding into the corridor route
3. Cycle link provided to cross the A414 corridor, joining neighbourhoods and feeding into the corridor route
4. Cycle link provided to cross the A414 corridor, joining neighbourhoods and feeding into the corridor route
5. Bus loop serving Berkhamsted railway station with improved bus stops facilities
6. Local bus link to growth site and feeding into the A4251 bus priority route
7. Local bus link to growth site and feeding into the A4251 bus priority route
8. Local bus link to growth site and feeding into the A4251 bus priority route and railway station
9. Potential measures to restrict through traffic and provide bus priority, used in conjunction with the town centre improvements, private vehicles potentially required to use the B488 to cross the town
10. Cycle link between A4251 corridor and Tring railway station

Dacorum

11: Local Links to Transport Corridors

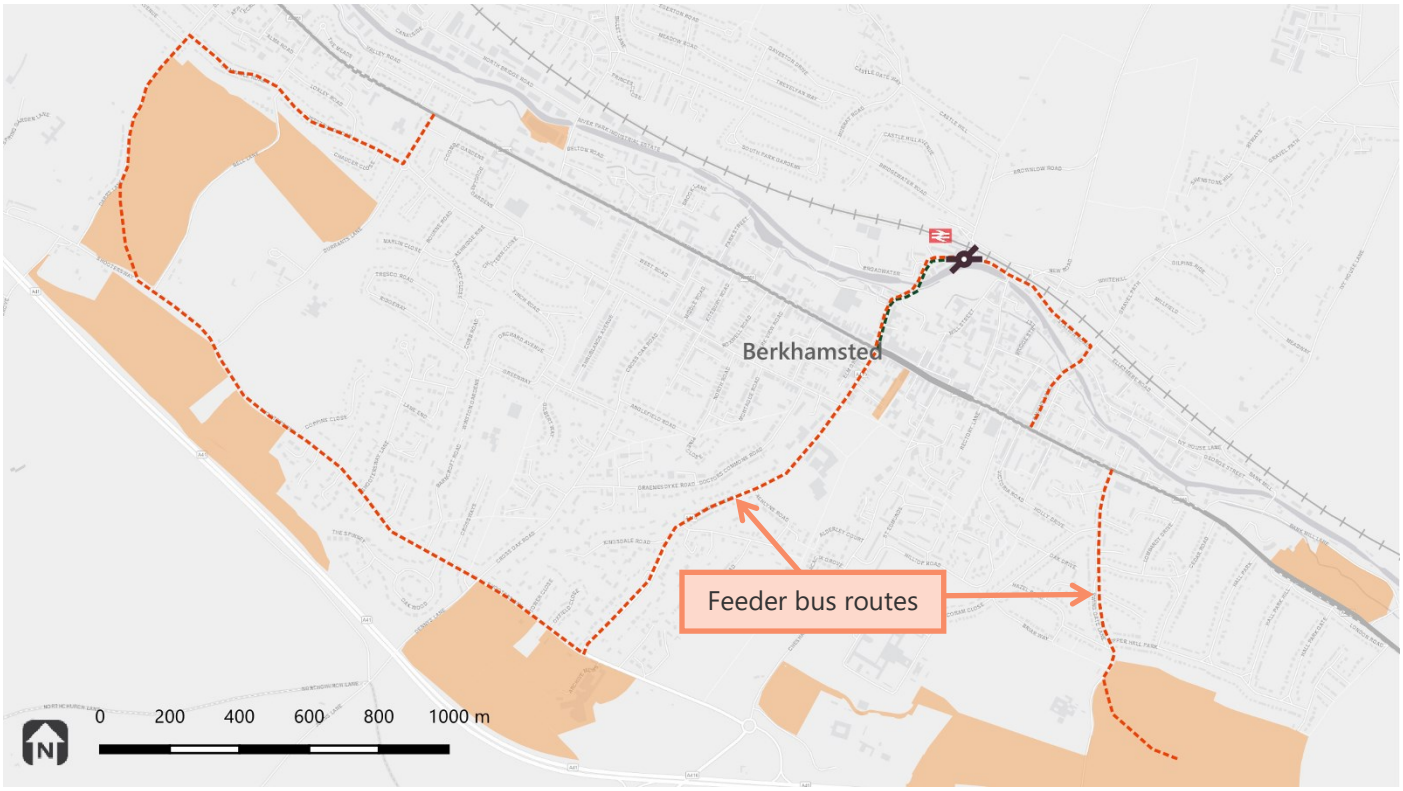
Supporting Transport Package



- Bus - High
- Bus - Medium
- Bus - Low
- Cycle - High
- Cycle - Medium
- Cycle - Low
- Junction Upgrade - Major
- Junction Upgrade - Minor
- Pinch-Point Scheme
- Transport Interchange
- Bus Stop Upgrade
- Pedestrian/Cycle Bridge
- Pedestrian Crossing

Context

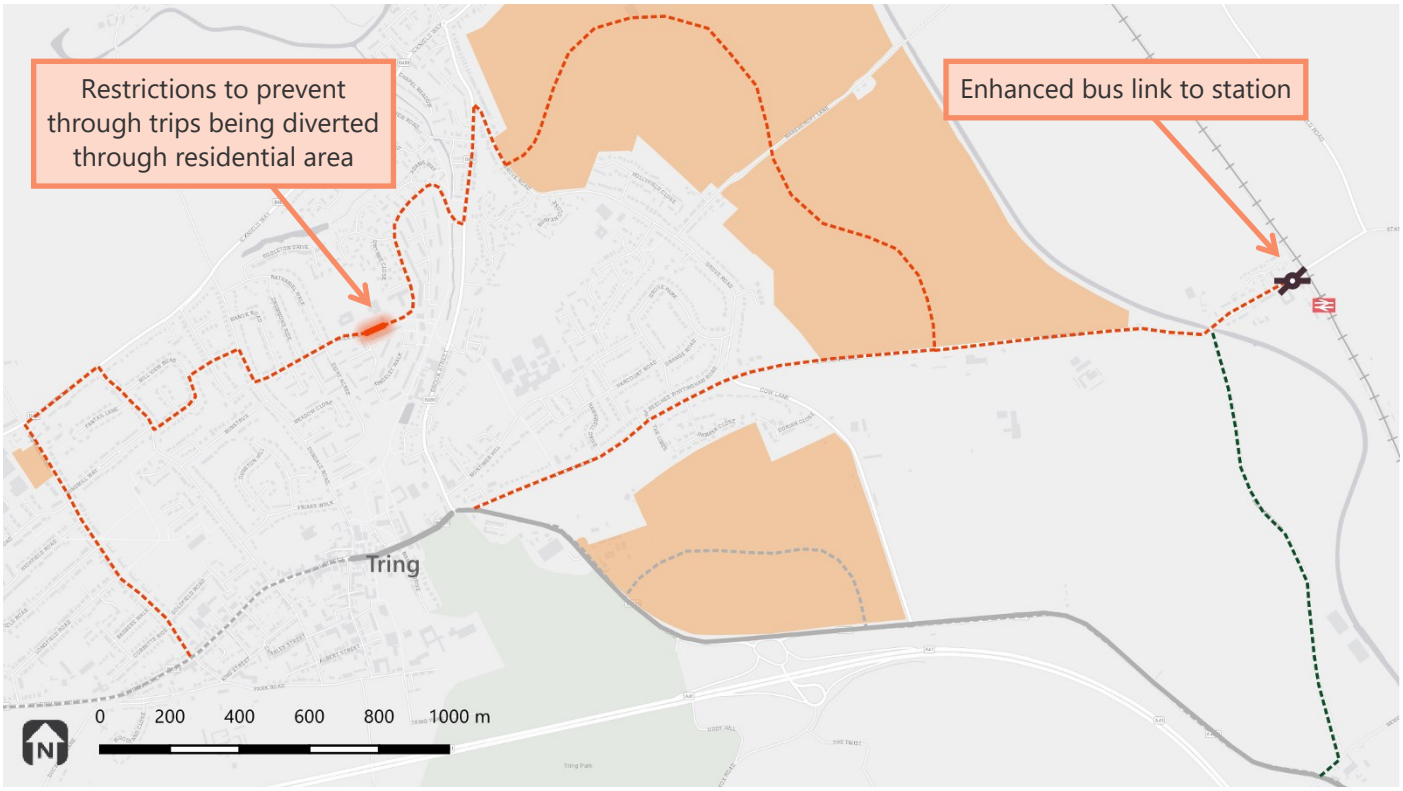
- Other Schemes
- Railway
- Growth Sites



Dacorum

Supporting Transport Package

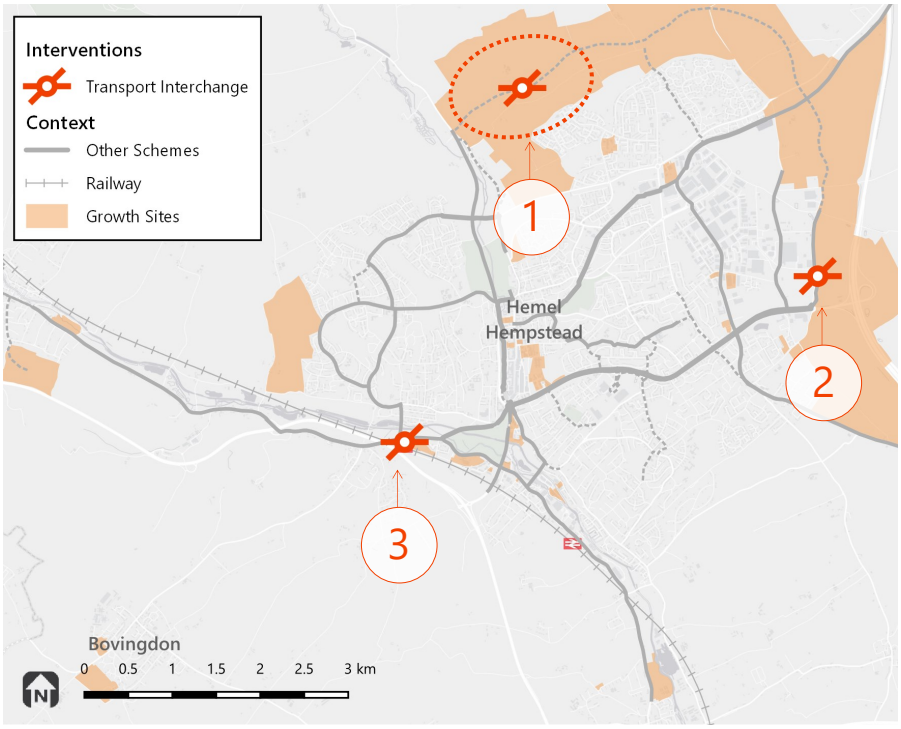
11: Local Links to Transport Corridors



Hemel Hempstead

12/13/14/15: Multi Modal Transport Interchanges

Supporting Transport Package



Overview

Strategic transport interchanges providing for a full range of modes, including bus, rail, walking, cycling, park and ride, car share and potential future autonomous vehicles.

Other smaller interchanges have also been included in individual schemes.

Details

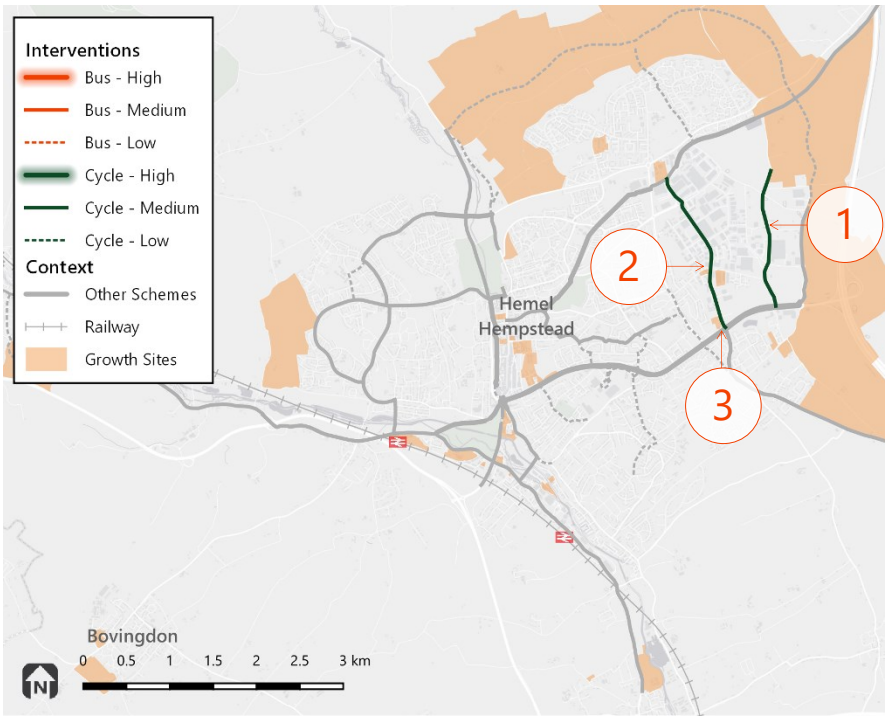
1. Northern Growth Site (exact location TBC) - likely to take the form of a local interchange between bus, walking and cycling
2. Maylands—East Hemel MMTI
3. Hemel Hempstead railway station

Picture credit: Vectos

Hemel Hempstead

17: Cycle Improvements at Maylands

Supporting Transport Package



Overview

Cycle connections through Maylands, linking the A414 cycleway and the Nickey Line, as well as providing for local journeys.

Twin parallel routes would join existing east-west low-traffic cycle routes to create good coverage across Maylands.

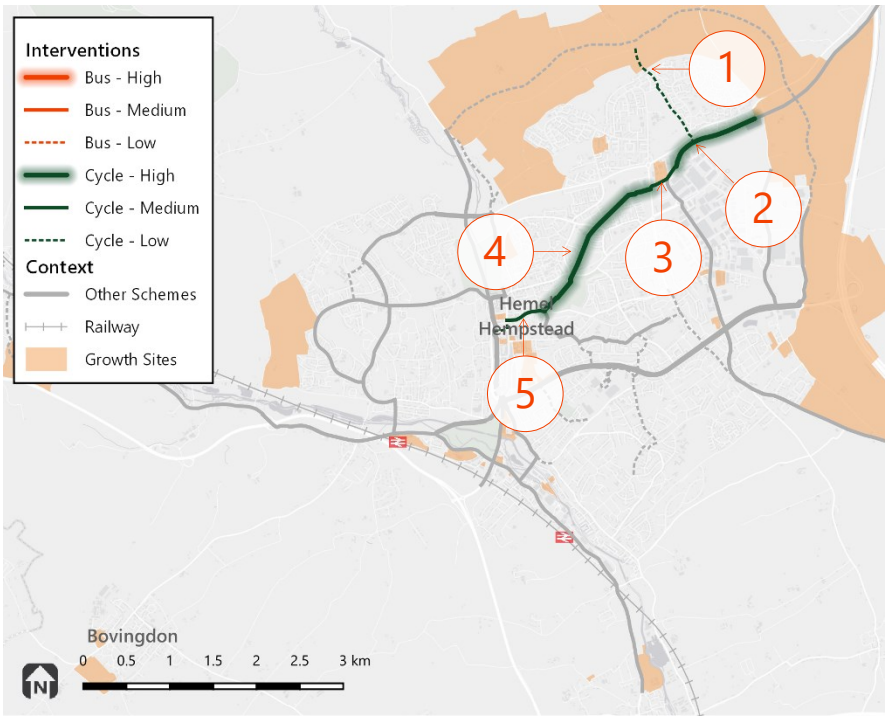
Details

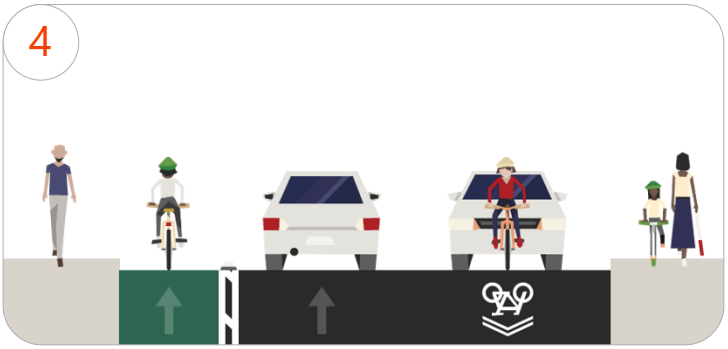
1. Pedestrian and cycle greenway created by downgrading several lanes to prioritise active travel (shown to Dacorum boundary but with potential to extend north into the Garden Community and the Nickey Line)
2. Upgrade existing shared cycle track created widening into verge and giving priority at junctions
3. Improvements at the Hemel Hempstead Gateway roundabout to introduce at-grade pedestrian and cycle crossing and links to the A414 cycleway

Hemel Hempstead

23: Improvements to the Nickey Line

Supporting Transport Package





Picture credit: Bristol 24/7

Overview

Whilst the Nickey Line is an existing cycleway, the extent of improvements proposed including resurfacing, introduction of lighting and joining up missing links means that this is a relatively high level intervention.

The route does, however, provide an important traffic free link to the north east of Hemel Hempstead

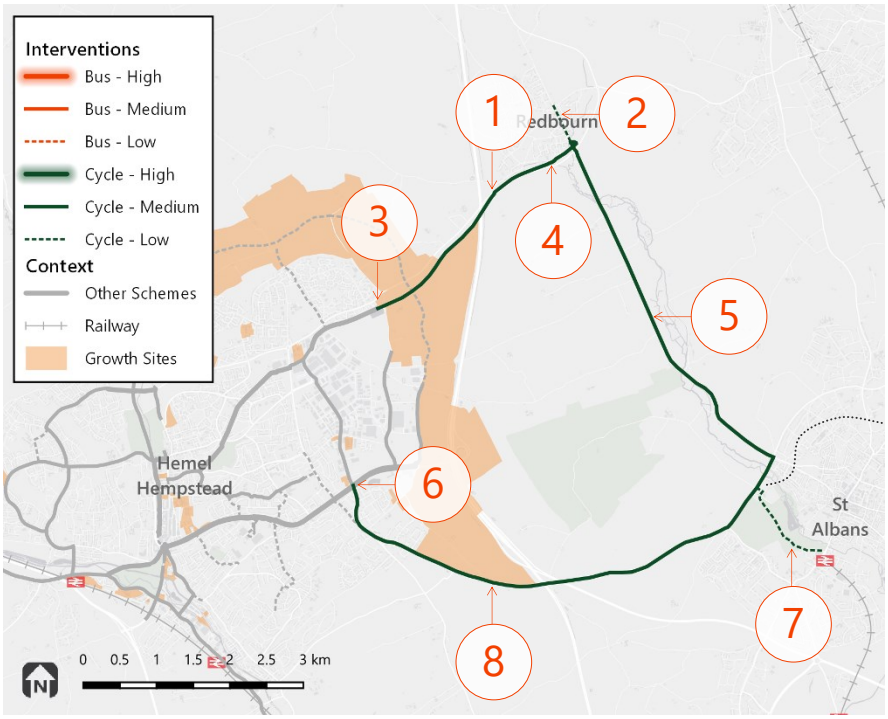
Details

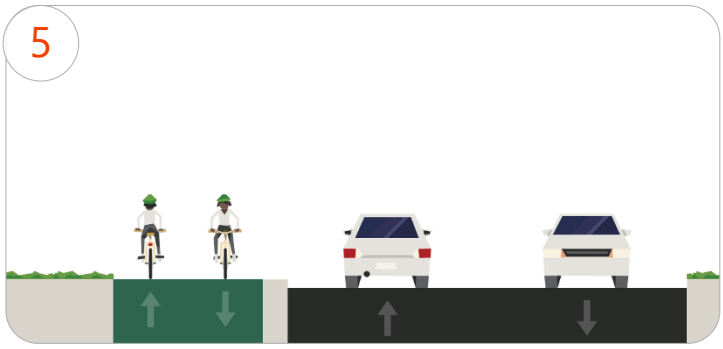
1. Potential link to Garden Community using upgraded footpaths and low-traffic streets
2. Replacement foot and cycle bridge to replace existing life-expired railway bridge over Three Cherry Trees Lane
3. Improved connection on Eastman Way with segregated cycle path and priority at side roads
4. Upgraded surfacing, widened where possible to a minimum of 3m, installation of street lighting and improved visibility of access points
5. Segregated route between the end of the line and the town centre through reallocated road space or verge to create a two-way cycle track, particularly assisting those travelling up hill

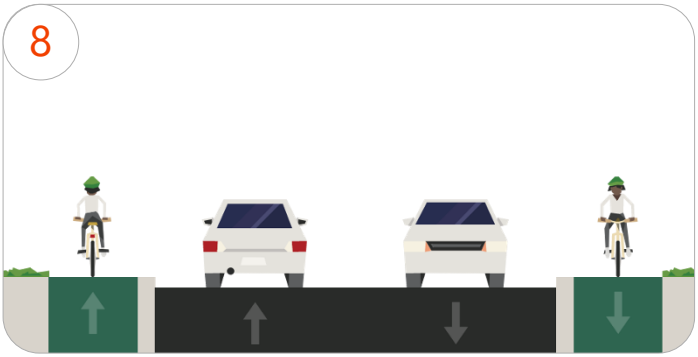
Dacorum

26: Redbourn and St Albans Cycle Loop

Supporting Transport Package







Overview

Circular cycle route between Hemel Hempstead, Redbourn and St Albans, providing a leisure and commuting route.

Making use of the Nickey Line and existing wide verges along much of the road, there is potential to deliver a highly visible and attractive traffic-free cycle route.

Details

1. Improved crossing of B487 by pedestrian / cycle bridge or signalised crossing
2. Link to Redbourn village centre
3. Link to Nickey Line within Dacorum
4. Pedestrian / cycle bridge using existing embankments to cross Chequer Lane
5. Shared foot/cycleway along existing verge
6. Link to A414 cycleway and Maylands
7. Link to St Albans town centre using existing Green Ring
8. Shared foot/cycleway along existing verge

Appendix B

Transport Interventions Cost Schedule

Summary

Ref	Measure	Description	Budget Cost (Lower) / £m	Budget Cost (Upper) / £m
1	East-West Public Transport Corridor (Hemel Hempstead)	Public Transport Corridor across Hemel including a high degree of segregation from general traffic and repurposing the A414. Part of a longer cross-Hertfordshire route.	£ 58.2	£ 65.8
2	East-West MRT Public Transport Corridor (Berkhamsted)	Bus priority on A4251, including bus only access in Berkhamsted town centre. Part of a longer cross-Hertfordshire route.	£ 9.1	£ 20.6
3	East-West Public Transport Corridor (Tring)	Bus priority access in Tring town centre. Part of a longer cross-Hertfordshire route.	£ 13.3	£ 34.6
4	Cycle improvements along A4251	Completion of existing shared cycleway for whole of A4251	£ 2.7	£ 2.7
5	Capacity enhancements at J8, focused on access to Maylands	Reconfiguration of Junction 8, provide improved access to the Maylands Enviro-Tech Enterprise Zone and the wider East Hemel Hempstead Garden Community from within Hemel Hempstead	£ 62.2	£ 82.5
6	Link Road (A414 to Redbourne Road)	New spine road from B487 Rebourn Road to A414 St Albans Rd - dual carriageway up to new link from M1	£ -	£ -
7	Cycle improvements along A4251	Package of improvements for walking and cycling along the A414 and parallel routes to better link the station (HH), town centre and garden community	£ 8.7	£ 16.8
8	North / Northwest to Town Centre	Package of improvements for walking, cycling and buses along Fishery Lane, Leighton Buzzard Road, Link Road and adjoining routes to better link the station (HH), growth to the west of Hemel, the town centre and garden community	£ 16.2	£ 26.0
9	South / Southeast to Town Centre	Package of improvements for walking, cycling and buses along London Road, Two Waters Road and within Apsley to better link the stations (HH and Apsley), growth to the south of Hemel and the town centre	£ 6.6	£ 7.9
10	North and East Hemel Link Road	A new link road to the north of Hemel within the Garden Community that provides through access by bus, walking and cycling and local access for general traffic	£ -	£ -
11	Local Links to Transport Corridors	A package of local cycle improvements, connecting local centres and residential areas with the strategic corridors	£ 12.9	£ 32.9
12	Hemel Hempstead (station) Multi-Modal Transport Interchange	A package of improvements to the station including forecourt, access enhancements, car park capacity increase, new south-eastern platform access and parallel footway to Two Waters Road and Boxmoor, as well as a multi-modal interchange hub with enhanced bus access, e-bike docking, cycle parking, car club, drop off points and shopping pick up lockers.	£ 5.0	£ 15.0
13	East Hemel (Maylands) Multi-Modal Transport Interchange	A multi-modal interchange hub with bus stops and information, e-bike docking, cycle parking, car club, drop off points and shopping pick up lockers.	£ 5.0	£ 15.0
14	Hemel Garden Communities Multi-Modal Transport Interchange	A multi-modal interchange hub with bus stops and information, e-bike docking, cycle parking, car club, drop off points and shopping pick up lockers.	£ 5.0	£ 15.0
15	Hemel Hempstead (town centre) Multi-Modal Transport Interchange	A multi-modal interchange hub connecting MRT to local bus services, bus information, e-bike docking, cycle parking, car club, drop off points and shopping pick up lockers.	£ 5.0	£ 15.0
17	Cycle Improvements at Maylands	Closing the existing narrow country lanes within the industrial area of Cherry Trees Lane, Buncefield Lane (north) and Buncefield Lane (south) to through traffic and new pedestrian / cycle crossings in Maylands area	£ 3.0	£ 4.0
19	Boundary Way to Wood Lane End Link Road	New link between Boundary Way and Wood Lane End (assume single carriageway with 3 way traffic and 30mph. Buncefield Lane north of Boundary Way (between Boundary Way and Cherry Tree Lane and between the A414 and Green Lane will become a quietway so does not need to be added)	£ 0.8	£ 1.0
20	A414/Greenway Lanes junction signalisation	Junction improvement to be implemented prior to the changes to M1 junction 8 to improve access into Maylands and the Garden Community	£ 0.3	£ 0.3
21	Berkhamsted sustainable measures (under development by AECOM)	A package of sustainable transport measures focused on better connecting growth with the town centre, other key points of demand and station	£ 5.6	£ 5.6
22	Tring sustainable measures (under development by AECOM)	A package of sustainable transport measures focused on better connecting growth with the town centre, other key points of demand and station	£ 3.4	£ 3.4
23	Improvements to the Nickey Line	Improvements to access to the Nickey Line, as well as improvements to its quality such as resurfacing and lighting within the urban area of HH and to Redbourne	£ 5.1	£ 8.3
24	A41 bus priority measures	Bus priority lanes on the A41 from the A414 through M25 J20 to M25 J19 spur (Hunton Bridge Roundabout) reallocating one lane to buses only, or construction of additional bus lane with bus priority signals	£ 2.5	£ 5.0
25	M25 J20 capacity improvements	M25 junction 20 capacity improvements to provide more capacity on A41 and to allow improvements to A4251 and A414 for sustainable modes	£ 5.0	£ 10.0
26	Redbourn and St Albans Cycle Loop	Circular cycling route between Hemel Hempstead, Redbourn and St Albans	£ 8.3	£ 25.5
28	M1 Junction 10 capacity improvements	M1 Junction 10 Southbound Onslip	£ 1.0	£ 2.5
29	E-bike cycle hire	An e-bike cycle hire scheme with HH, serving the town, Maylands and the Garden Community	£ 0.2	£ 0.6
30	Low Traffic Neighbourhoods	Point road closures in residential areas to remove through traffic, encouraging more walking and cycling, connecting to enhanced routes on strategic roads while maintaining residential access	£ 2.1	£ 4.2
			£ 247	**£ 420**

Note:
The above costing are based on outturn costs of similar interventions but are not based on developed schemes and therefore should be treated with a high level of caution

Appendix C

Transport Interventions Prioritisation

APPRAISAL CRITERIA

Strand	Criterion	Basis for comparison	Red	Amber	Green
Strategic	**Fit with Vision**	Relationship to Dacorum's transport vision	Poor fit	Some fit	Good fit
	Scale of Impact	Scale relative to other proposed schemes	Small	Typical	Large
	Degree of Consensus over Outcomes	Propensity for political stakeholders to be aligned on the case for the scheme	Disagreement among political stakeholders as to whether the scheme will deliver intended benefits	Some agreement among stakeholders, but with differing views as to the extent to which intended benefits will be obtained	Consensus agreement among political stakeholders that the scheme will deliver on the intended benefits
Economic	**Economic Growth**	Capability to improve connectivity, reliability, resilience, deliver wider economic impacts and unlock land for housing	Net negative or neutral impact	Limited net positive impact	Strong positive impact
	Carbon Emissions	Impact on transport-related carbon impacts	Likely to result in increased carbon emissions	Limited or no reduction in carbon emissions	Linkely to result in reduced carbon emissions
	Socio-Distributional Impacts	Capability to reduce inequality and deprivation and address regional imbalance	Net negative or neutral impact	Limited net positive impact	Strong positive impact
	Local Environment	Capability to improve local air quality, reduce noise and enhance the quality of the natural and build environment	Net negative or neutral impact	Limited net positive impact	Strong positive impact
	Wellbeing	Capability to increase physical activity, reduce risk of injury/death, reduce risk of crime or terrorism, reduce severance and improve access to facilities and services	Net negative or neutral impact	Limited net positive impact	Strong positive impact
Managerial	**Speed to Implementation**	Speed relative to other schemes	Slower	Typical	Quicker
	Public Acceptability	Level of public support	Strong opposition	Broad mix of support and opposition	Good consensus support
	Practical Feasibility	Risk of non-delivery due to practical / engineering issues - relative to other schemes	Scheme has risky elements	Risk is comparable to most other schemes	Scheme appears low risk
Financial	**Capital Cost**	CAPEX required relative to other schemes and scale of impact	High CAPEX	Moderate CAPEX expenditure	Limited or no CAPEX expenditure
	Revenue Cost	Revenue expenditure required relative to other schemes and scale of impact (including OPEX)	High revenue expenditure	Moderate revenue expenditure	Limited or no revenue expenditure
Commercial	**Flexibility of Option**	Ease at which scheme could be adapted, repurposed or put to other uses	Very limited scope	Some scope, but limited	Easily adapted to other uses and at limited cost
	Income Generated	Income generation potential of scheme	Net income loss	No impact on income, or negligible net loss or gain	Net income gain

SCHEMES

APPRAISAL

Source	ID	Scheme type	Location	Location Details	Scheme Description	STRATEGIC			ECONOMIC					MANAGERIAL			FINANCIAL		COMMERCIAL	
						Fit with Vision	Scale of Impact	Degree of Consensus over outcomes	Economic Growth	Carbon Emissions	Socio-Distributional Impacts	Local Environment	Wellbeing	Speed to Implementation	Public Acceptability	Practical Feasibility	Capital Cost	Revenue Cost	Flexibility of option	Income Generated?
ITP1: Hemel Hempstead - East-West Corridor																				
ITP	1	**Hemel Hempstead East-West Corridor**	Hemel Hempstead	A414	Form an east-west, cross-town corridor which facilitates attractive and convenient journeys on foot, by bike, by bus and also by car between Hemel Hempstead railway station, the Town Centre, Jarman Park and	3	2	3	3	2	2	2	2	2	3	3	1	3	2	2
ITP	14	**Hemel Hempstead-Park Street-St Albans Connectivity**	Hemel Hempstead	A414 / A4147	Maintain the A414 's role as an inter-urban corridor facilitating medium and longer distance trips, and providing greater mode choice across both the A4147 and A414 to help mitigate the effects of increased traffic, including that arising from planned housing and employment growth in the surrounding area.	3	2	3	3	2	3	2	2	2	3	3	2	3	2	2
ITP	37	**A414 multi-modal street & bus priority w/o bypass**	Hemel Hempstead	A414	Convert St Albans Road (A414) from Green Lane to the Plough (Magic) Roundabout to better provide for different travel modes, with reduced speed limit, some road capacity reduction, more at-grade (surface-level) crossings, public realm enhancements for pedestrians and cyclists, and bus priority lanes on the A414 providing more attractive journey times for buses running between Hemel Hempstead station, town centre	3	3	3	2	2	3	2	3	2	2	3	2	3	3	2
ITP	38	**Magic Roundabout - bus focused improvements**	Hemel Hempstead	A414	Bus priority lanes on the Magic Roundabout to improve journey times between Hemel Hempstead station and the eastern part of the town including Maylands	3	2	3	3	3	3	3	3	3	2	3	2	3	3	3
Summary	39	**Junction reconfiguration**	Hemel Hempstead	A414 Breakspear Way / Maylands Lane, Hemel	Lane reallocation	3	2	3	2	2	3	2	2	3	2	3	3	3	3	2
ITP	60	**A4147 Cycleway**	Dacorum	A414 / A4147	Planned off-road route alongside part of the A414 (M1 J7-8) and connecting to the A4147, the running off road alongside the A4147 to St Albans	3	3	3	3	3	3	2	3	3	3	3	2	3	1	1
ITP	67	**A414 J8 cycle bridge**	Hemel Hempstead	A414 / M1 J8	High quality cycle bridge over the A414 Breakspear Way near M1 J8, to improve cycle routes to areas north and south of the A414 (strongly linked to the East Hemel Hempstead urban extension).	3	3	3	3	3	3	3	3	3	3	3	2	3	3	1
ITP	69	**Wood Crescent-Runham Rd-Wheelers Lane cycle and Pedestrian Improvements**	Hemel Hempstead	A414 corridor	New cycle routes mainly on roads which cross the A414. New at-grade crossings on the A414 will be required. Provide linkages to neighbourhood centres such as Adeyfield and Bennetts End.	3	2	3	3	3	3	3	3	3	2	3	2	3	3	1
ITP	70	**Lower Yott - Windmill Road Cycle and Pedestrian**	Hemel Hempstead	A414 corridor	New cycle routes mainly on roads which cross the A414. New at-grade crossings on the A414 will be required. Provide linkages to neighbourhood centres such as Adeyfield and Bennetts End.	3	2	3	3	3	3	3	3	3	2	3	2	3	3	1
ITP	71	**Jarman Park Cycle and Pedestrian Improvements**	Hemel Hempstead	A414 corridor	New cycle routes mainly on roads which cross the A414. New at-grade crossings on the A414 will be required. Provide linkages to neighbourhood centres such as Adeyfield and Bennetts End.	3	2	3	3	3	3	3	3	3	2	3	2	3	3	1
ITP	72	**Bennetts End Road Cycle and Pedestrian Improvements**	Hemel Hempstead	A414 corridor	New cycle routes mainly on roads which cross the A414. New at-grade crossings on the A414 will be required. Provide linkages to neighbourhood centres such as Adeyfield and Bennetts End.	3	2	3	3	3	3	3	3	3	2	3	2	3	3	1
ITP	73	**Leverstock Green Rd Cycle and Pedestrian Improvements**	Hemel Hempstead	A414 corridor	New cycle routes mainly on roads which cross the A414. New at-grade crossings on the A414 will be required. Provide linkages to neighbourhood centres such as Adeyfield and Bennetts End.	3	2	3	3	3	3	3	3	3	2	3	2	3	3	1
ITP	74	**White Hart Rd Cycle Link**	Hemel Hempstead	A414 corridor	New cycle routes mainly on roads which cross the A414. New at-grade crossings on the A414 will be required. Provide linkages to neighbourhood centres such as Adeyfield and Bennetts End.	3	2	3	3	3	3	3	3	3	2	3	2	3	3	1
ITP	92	**Hemel Hempstead Rail-Bus Interchange**	Hemel Hempstead	Hemel Hempstead station		3	3	3	3	3	3	3	3	2	3	3	2	3	2	3
ITP	97	**Substantial enhancement to Hemel Hempstead station**	Hemel Hempstead	Hemel Hempstead station	Substantial enhancement to Hemel Hempstead station at its existing location; forecourt, access enhancements, car park capacity increase, new south-eastern platform access and parallel footway to Two	3	3	3	3	3	3	3	3	1	3	3	1	3	1	3
A414 Corridor Strategy	127	**A414 Cycleway**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2
ITP	139	**Hemel Hempstead East-West Strategic Corridor**	Hemel Hempstead	Hemel Hempstead	general traffic access restrictions, walking, cycling and public transport infrastructure	3	3	3	3	3	3	3	3	1	2	2	2	3	3	2
ITP	159	**Inter-Urban Routes between Tring and HH (A4251)**	Dacorum	A4125 corridor	Infrastructure for public transport and supporting measures	3	3	3	3	3	3	3	3	2	2	3	2	3	3	2
ITP	160	**Inter-Urban Routes between Tring and HH (A4251)**	Dacorum	A4125 corridor	Infrastructure for cycling and supporting measures	3	2	3	3	3	3	3	3	3	2	3	2	3	3	2
ITP	162	**Potential amendments to bus services in HH and integration**	Hemel Hempstead	Hemel Hempstead		3	2	3	3	3	3	3	3	3	2	3	3	3	3	3
COMET	a	**Ped / cycle improvement**	Hemel Hempstead	Lawn Lane arm of Plough Roundabout	Model closure of this link to vehicles and diversion of vehicles to Durrants Hill Road / London Road (scheme assumes diversion of vehicles to Corner Hall but this isn't in model so assume all vehicles divert to Durrants Hill Road instead and take account of this in any analysis.	3	2	2	2	3	3	3	3	3	2	2	3	3	3	2
COMET	b	**Bus priority**	Hemel Hempstead	Fishery Road, Hemel Hempstead	Model closure of this link to non bus vehicles. NB :Replaces previous LP3 scheme D/34 (signalisation of London Rd /Fishery Road)	3	2	2	2	3	3	3	3	3	2	3	3	3	3	2
Summary-PT	a	**New bus service**	Hemel Hempstead	A414 corridor	New high frequency bus service running along A414 corridor	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3
A414 Corridor Strategy	122	**Peascroft Road/Leys Road/Lawn Lane Cycle Route**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2

A414 Corridor Strategy	123	**Bennetts End Road Cycle Route**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2
A414 Corridor Strategy	124	**Maylands Avenue Cycle Route**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2
A414 Corridor Strategy	126	**HH Old Town to Gadebridge Cycling Link**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2
A414 Corridor Strategy	129	**Highfield Local Centre Cycling Connectivity Improvements**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2
A414 Corridor Strategy	130	**Marnham Rise Missing Link**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2
A414 Corridor Strategy	131	**Gadebridge Local Centre Cycling Connectivity**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2
A414 Corridor Strategy	132	**Warners End Local Centre Cycling Connectivity**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2
A414 Corridor Strategy	133	**Chaulden Cycling Route to Fishery Road**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2
A414 Corridor Strategy	134	**Fishery Road Cycling Route**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2
A414 Corridor Strategy	135	**Nash Mills Cycling Route**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2
A414 Corridor Strategy	136	**Durrants Hill Road Cycling Connectivity Improvements**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2
A414 Corridor Strategy	137	**Piccotts End Road Cycle Link**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2
A414 Corridor Strategy	138	**Woodhall Farm to Grovehill Local Centre Cycling Link**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2

ITP2: Hemel Hempstead - North-South Corridor

ITP	76	**Two Waters - A4251 / A414 junction reorganisation**	Hemel Hempstead	Two Waters	A4251/A414 junction reorganisation to reduce junction footprint and improve crossing facilities for pedestrians and cyclists. Turning movements from the A414 to the A4251 towards Apsley will be de-prioritised. Consider opportunities for incorporating bus priority at the junction.	3	2	3	2	2	3	2	3	2	2	3	2	3	3	2
Summary	a	**Public realm enhancements**	Hemel Hempstead	Apsley / Two Waters Road	Ped / cycle improvement.	3	2	3	3	3	3	3	3	2	2	3	2	3	2	2

ITP3: Hemel Hempstead - Maylands and Garden Community

ITP	9	**Maylands and East Hemel Hempstead**	Hemel Hempstead	Mayland / HGC	Provide improved access to the Maylands Enviro-Tech Enterprise Zone and the wider East Hemel Hempstead Garden Community from within Hemel Hempstead and outside of the town by all modes of	3	2	3	3	2	2	2	2	2	3	3	1	3	2	2
Summary	15	**Link Road**	Hemel Hempstead	Between Boundary Way and Wood Lane End	New link between Boundary Way and Wood Lane End (assume single carriageway with 3 way traffic and 30mph. Buncefield Lane north of Boundary Way (between Boundary Way and Cherry Tree Lane and between the A414 and Green Lane will become a quietway so does not need to be added).	2	3	2	3	2	1	1	1	2	3	3	2	3	2	2
Summary	26	**Junction reconfiguration**	Hemel Hempstead	M1 junction 8	Junction 8 - Major reconfiguration to provide direct access into Maylands	1	3	2	3	1	1	1	1	2	3	3	1	3	1	2
Summary	27	**Link road**	Hemel Hempstead	A414 to B487 Redbourn Road	New spine road from B487 Rebourn Road to A414 St Albans Rd - dual carriageway up to new link from M1. Single carriageway north of here	1	3	2	3	1	1	1	1	1	3	3	1	3	1	2
ITP	36	**East Hemel (Maylands) Multi-Modal Transport Interchange**	Hemel Hempstead	A414 / M1	A bus and coach interchange near to Maylands with access to the A414/M1. Served by existing or new express coach services along the M1 (e.g. Greenline and National Express) and local express buses to neighbouring towns including a potential cross-county express bus service. Opportunity for associated cycle	3	3	3	3	3	3	3	3	2	3	3	2	3	1	3
ITP	40	**M1 dedicated coach service connecting Luton and Hemel Hempstead (or Greenline**	Dacorum	M1	A new express coach service along the M1 connecting Hemel Hempstead to Luton or potential to divert existing Greenline services from Luton to London via Hemel Hempstead (Maylands). Would complement East Hemel (Maylands) Multi-modal Transport Interchange (LP2).	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3
COMET	89	**Junction Improvement**	Hemel Hempstead	M1 Jct 8a additional junction	Provision of an additional M1 Junction 8a (potential north-facing slip roads only) in conjunction with enhanced links to Maylands/East Hemel Hempstead (SM6 - see Package 2).	1	3	2	2	1	1	1	1	1	2	2	1	2	1	2
A414 Corridor Strategy	128	**HGC Spinal Cycling Corridor**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2
ITP	150	**Hemel Hempstead Orbital Corridor**	Hemel Hempstead	Hemel Hempstead	Sustainable transport focused corridor through HGC	3	3	3	3	3	3	3	3	1	2	2	2	3	3	2
ITP	155	**HGC Multi-Modal Interchange**	Hemel Hempstead	Hemel Hempstead		3	3	3	3	3	3	3	3	2	3	3	2	3	2	3
Summary	b	**Quietways**	Hemel Hempstead	Cherry Trees Lane and Buncefield Lane quietways	Closing the existing narrow country lanes within the industrial area of Cherry Trees Lane, Buncefield Lane (north) and Buncefield Lane (south) to through traffic	3	2	2	2	3	3	3	3	3	2	3	3	3	3	2
Summary	c	**Pedestrian crossing**	Hemel Hempstead	Maylands Area	New pedestrian / cycle crossings in Maylands area - Maylands Growth Corridor study SC3-6 Options Report 080416	3	1	3	2	2	3	2	3	3	3	3	3	3	2	2
Summary	d	**Link Road**	Hemel Hempstead	North Hemel	New link road serving North Hemel development between Redbourn Road and Leighton Buzzard Road	1	3	2	3	1	1	1	1	2	3	3	2	3	2	2

Summary-PT	b	**Bus service enhancements**	Hemel Hempstead	Maylands Area	Improvement of Maylands bus services	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3
COMET	d	**Junction Signalisation**	Hemel Hempstead	A414 / Green Lanes	Key scheme associated with East Hemel development. This is a major junction improvement which would be implemented prior to the changes to M1 junction 8 to improve access into the development. Detailed design and costing work is underway	1	3	2	2	1	2	1	1	2	3	3	1	2	1	2
Summary	d	**junction improvement - capacity enhancement**	Hemel Hempstead	M1 Junction 10 Southbound Onslip	Capacity Improvement	1	2	2	3	1	1	1	1	2	3	3	1	3	1	2
ITP4: Berkhamsted - Sustainable Links																				
Summary	10	**Traffic calming**	Berkhamsted	High Street Corridor	Extension of 20mph zone and pedestrian crossing facilities	3	2	3	2	3	3	3	3	3	2	3	3	3	2	2
ITP	93	**Berkhamsted Rail-Bus Interchange**	Berkhamsted	Berkhamsted station		3	3	3	3	3	3	3	3	2	3	3	2	3	2	3
ITP	156	**Amendments to bus services in Berkhamsted**	Berkhamsted	Berkhamsted		3	2	3	3	3	3	3	3	3	2	3	3	3	3	3
ITP	163	**Package of sustainable and active travel measures in Berkhamsted**	Berkhamsted	Berkhamsted	Input from AECOM	3	1	2	2	2	3	3	3	3	3	3	2	3	3	2
ITP5: Tring - Sustainable Links																				
Summary	12	**New access**	Tring	Icknield Way, Tring	New junctions to development with associated highway improvements, including new cycle and pedestrian routes in line with the site master plan. New layout plans available. Assume priority junction at highlighted T	2	3	2	3	2	2	2	2	2	3	3	2	3	2	2
ITP	94	**Tring Rail-Bus Interchange**	Tring	Tring station		3	3	3	3	3	3	3	3	2	3	3	2	3	2	3
ITP	157	**Package of sustainable and active travel measures in Tring**	Tring	Tring	Input from AECOM	3	1	2	2	2	3	3	3	3	3	3	2	3	3	2
ITP	158	**Amendments to bus services in Tring**	Tring	Tring		3	2	3	3	3	3	3	3	3	2	3	3	3	3	3
HCC	a	**Tring cycle routes**	Tring			3	2	2	2	3	3	3	3	3	2	3	3	3	3	2
ITP6: Hemel Hempstead - Orbital Active Corridors																				
ITP	62	**A4251 London Rd Pedestrian and Cycle Enhancement**	Dacorum	A4251	Pedestrian and cycle enhancements along London Road (A4251) to enhance safety and attractiveness of non-car travel. Consideration of cycle lanes and wider footpaths with the intention of promoting healthier method of travel through the Two Waters area of the town, alongside opportunities to improve bus facilities	3	2	3	3	3	3	3	3	2	2	3	2	3	3	2
ITP	63	**Fishery Lane Cycle Link**	Hemel Hempstead	Fishery Lane	Improved cycling and pedestrian connectivity along Fishery Road towards the station, to better link residential areas in the west of Hemel Hempstead with the station, and create a safer environment for all	3	2	3	3	3	3	3	3	2	2	3	2	3	3	1
ITP	68	**Magic roundabout cycle flyover**	Hemel Hempstead	A414	A cycle bridge over the Magic Roundabout that primarily connects routes on St Albans Road to Station Road and Two Waters Road, providing a safe, attractive and user-focused facility	3	3	3	3	3	3	3	3	3	3	3	2	3	3	1
ITP	146	**Hemel north / north-west to town centre strategic corridor**	Hemel Hempstead	Hemel Hempstead	general traffic access restrictions, walking, cycling and public transport infrastructure	3	3	3	3	3	3	3	3	1	2	2	2	3	3	2
ITP	152	**Hemel south / south-east to town centre strategic corridor**	Hemel Hempstead	Hemel Hempstead	general traffic access restrictions, walking, cycling and public transport infrastructure	3	3	3	3	3	3	3	3	1	2	2	2	3	3	2
ITP7: Hemel Hempstead - Northeast Active Corridor																				
ITP	75	**Nickey Line North-South extension**	Dacorum	Nickey Line	An off-road cycle route that connects to the Nickey Line and A4147 through the proposed East Hemel Hempstead development area to improve cycle connectivity and facilitate walking & cycling trips across the	3	3	3	3	3	3	3	3	3	3	3	2	3	2	1
ITP	7	**Improved step free access from Cherry Tree Lane**	Hemel Hempstead	Nickey Line	Replacement of current steep steps with a ramp structure suitable for cyclists and people with impaired mobility	3	1	3	2	2	3	2	3	3	3	3	3	3	3	2
ITP	78	**Nickey Line - New lighting on entire route within urban area**	Hemel Hempstead	Nickey Line	Enhance the Nikey Line cycleway by installing additional lighting to improve perception of safety, improved signage to make navigation easier day and night. To cover both the urban section within Hemel Hempstead	3	2	2	2	2	3	2	3	3	3	3	2	3	2	2
A414 Corridor Strategy	125	**Nickey Line Missing Link**	Hemel Hempstead			3	1	2	2	3	3	3	3	3	2	3	3	3	3	2
ITP8: South of Hemel Hempstead - A41 to M1 Links																				
ITP	41	**A41 bus priority measures**	Dacorum	A41	Bus priority lanes on the A41 from the A414 through M25 J20 to M25 J19 spur (Hunton Bridge Roundabout) reallocating one lane to buses only, or construction of additional bus lane with bus priority signals.	3	3	3	3	3	3	3	3	2	2	3	2	3	3	3
COMET	146	**Other**	Kings Langley	M25	M25 junction 20 capacity improvements	1	2	1	3	1	1	1	1	2	3	3	1	3	1	2
Other Schemes																				
ITP	161	**Package of sustainable and active travel measures in HH**	Hemel Hempstead	Hemel Hempstead	Supporting vision and strategy, policy 1 of HCC LTP4 including measures such as changes to parking (location, price, quantum), changes to general traffic access, reallocation of roadspace to non-car modes, improved cycle parking,	3	3	3	3	3	3	3	3	1	2	3	2	3	3	2
ITP	113	**A4147 & Redbourn Road Circular Route**	Dacorum	Hemel	Circular cycling route between Hemel Hempstead, Redbourn and St Albans	3	3	3	3	3	3	3	3	2	2	3	2	3	2	1
COMET	344	**Bus / Rail**	Dacorum	WCML	Post HS2 timetable changes on WCML	3	1	3	2	2	2	2	2	3	3	3	3	2	3	2
Summary-VDM	a	**Sustainable travel**	Hemel Hempstead	Hemel Hempstead urban area	Area wide interventions - school travel planning, workplace travel planning, sustainable access to developments, car clubs etc	3	2	3	3	3	3	3	3	3	2	3	3	1	1	3

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