

Local Plan Technical Report

2018/2019 Infrastructure Delivery Plan Appendices

Part 1: Transport – East Hemel Hempstead (North, Central and South) and North Hemel Hempstead

Appendices 1 to 8

Transport

Appendix 1: Transport Extract of East Hemel Hempstead Landowner/Developer Engagement Stage 2 Presentations and follow up report (PPC November 2015)



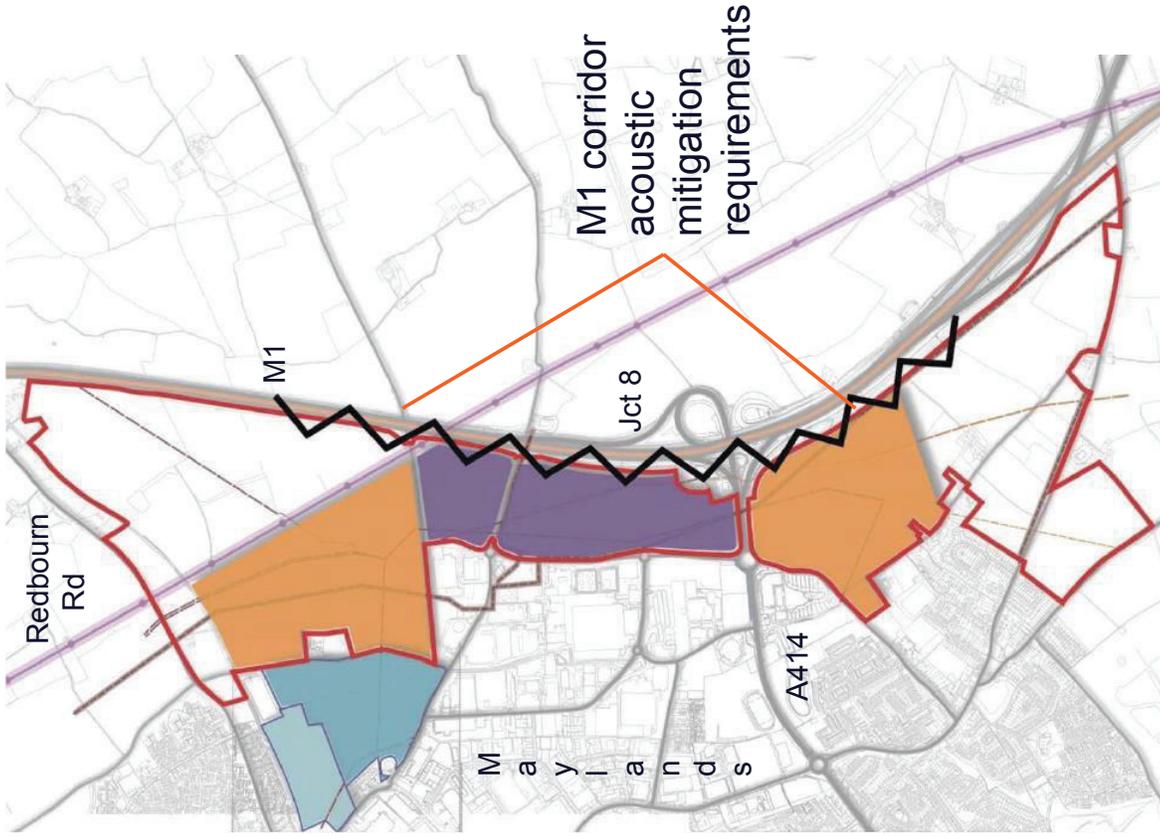
Your Objective:

“To provide a major urban extension of Hemel Hempstead to meet the needs of the St Albans housing market area and sub regional economic development objectives for growth in the M1 corridor.”

Draft SLP Policy 13

The objective

East Hemel

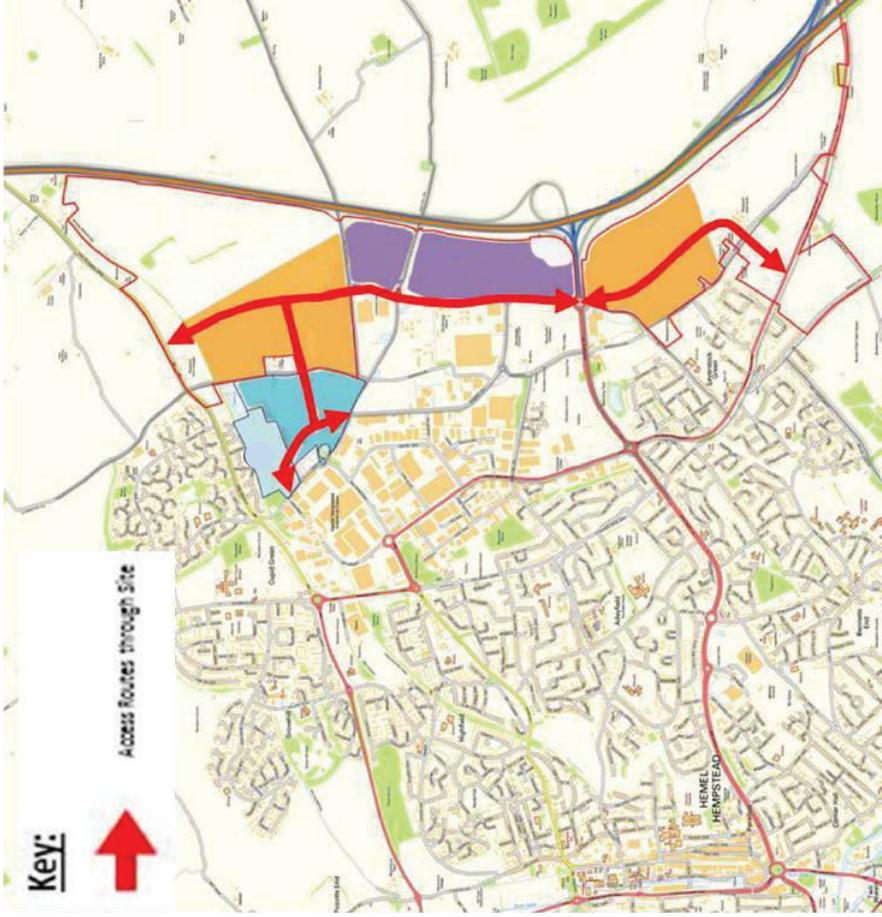


M1 Motorway

- M1 noise and air quality issues recognised and addressed
- Mix of bunding, fencing and buildings
- Operations under review
- Mitigation forms part of landscape concept
- There are no showstoppers

Main influences

East Hemel

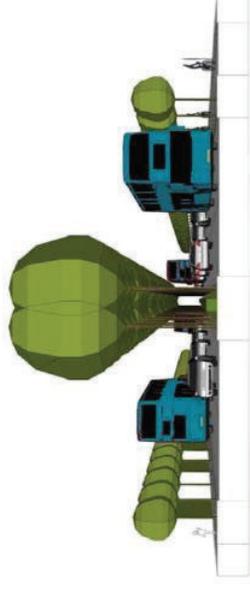
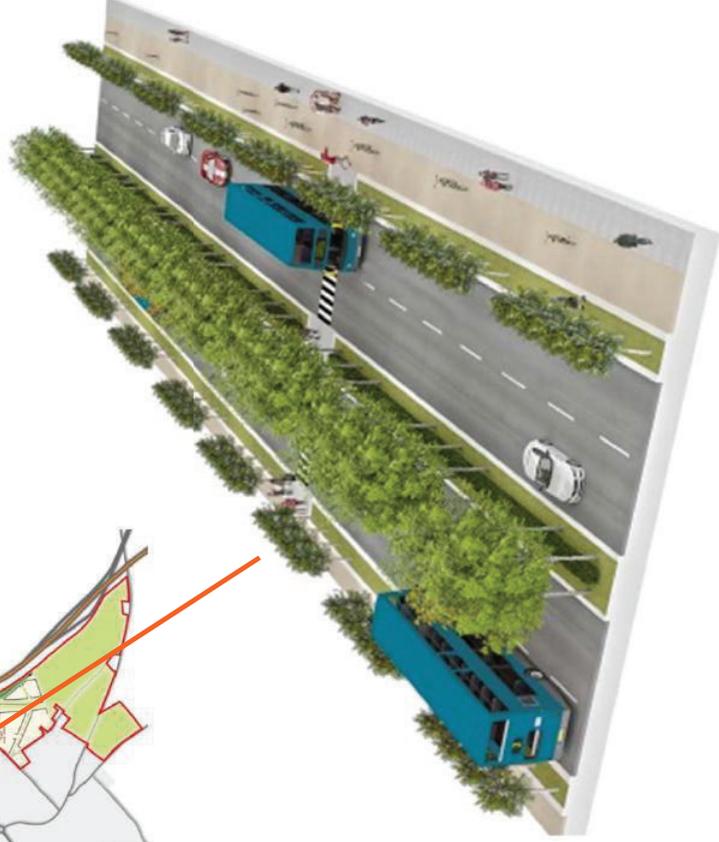
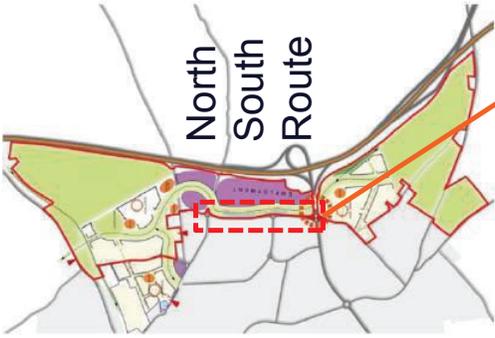


- Good highway links
- A414 - links to Hemel Hempstead & St Albans
- North / South spine road with Maylands links
- Significant employment locally means people can live & work in the area, reducing impact on M1
- East Hemel's transport proposals will benefit St Albans & Hemel Hempstead residents
- No Show Stoppers

Local highway network

East Hemel

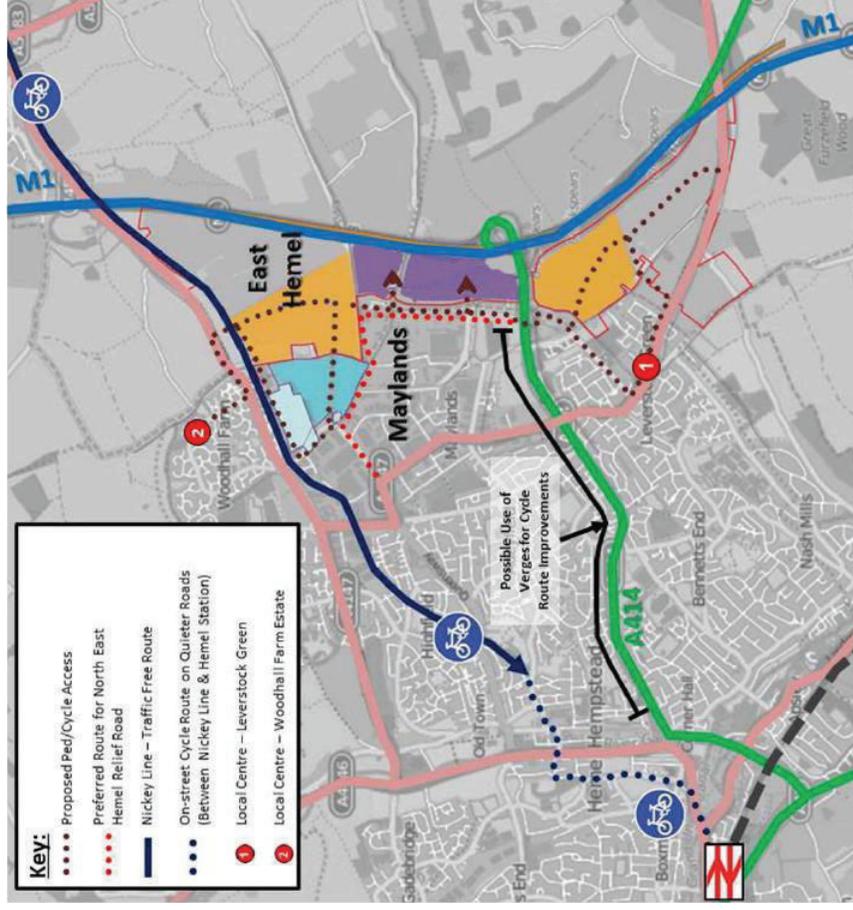
- An enhanced road link will improve connections between A414, Maylands & new residential areas
- A new high quality front door to the proposed commercial plots
- A greatly improved connection to the new homes
- Green link for safe cycle & pedestrian connectivity



The north / south route

East Hemel

New Walking and Cycling Links

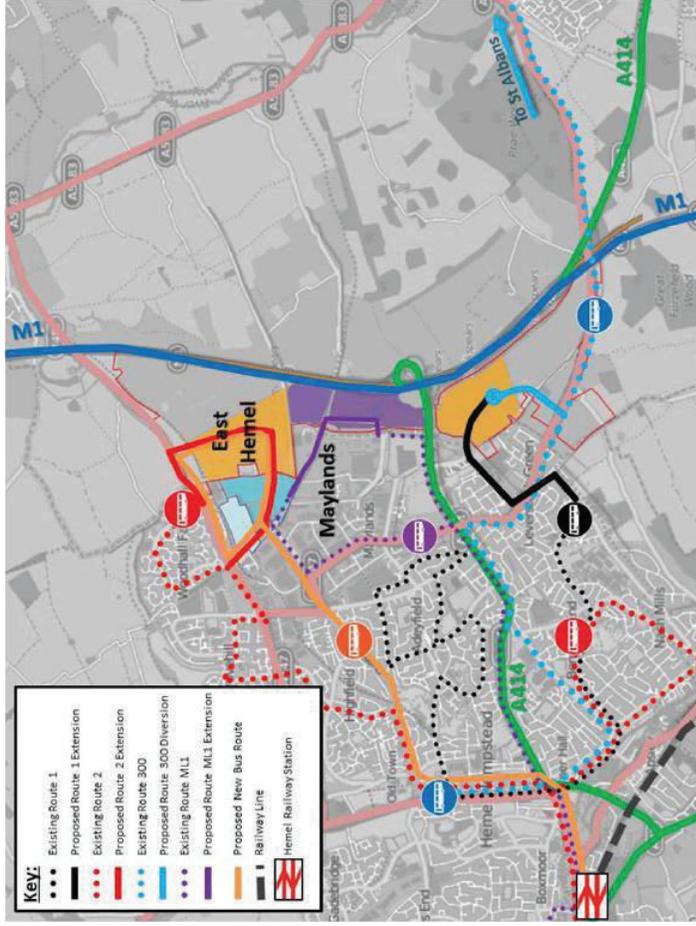


- Creation of key desire lines for pedestrians and cyclists
- Enables linkages to the Nickey Line through to the railway station & town Centre
- Creates a hierarchy of routes through the site
- Potential cycle route within grass verges along the A414

Sustainable transport strategy

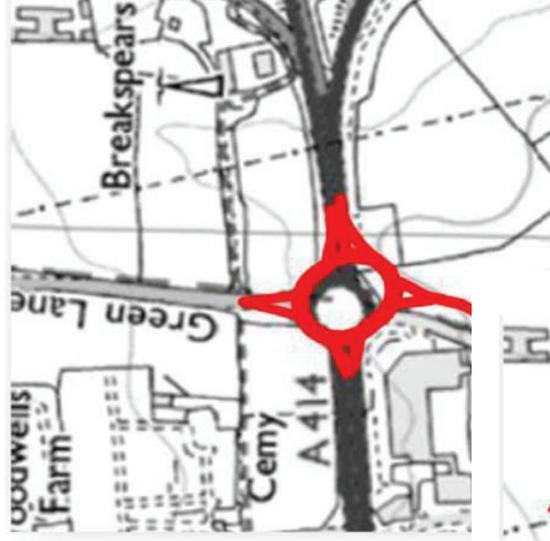
East Hemel

New Public Transport Links

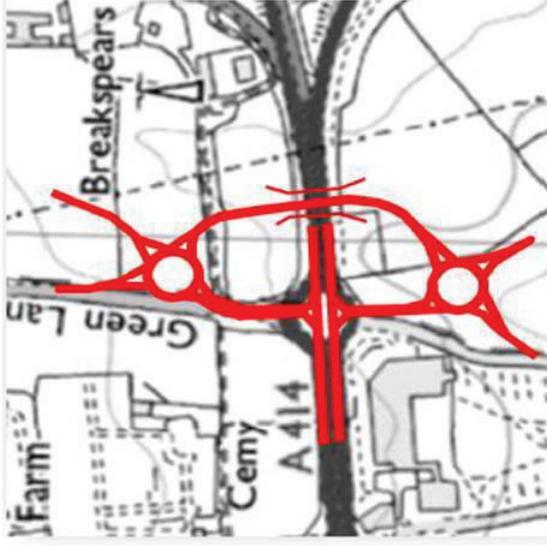


- Creates a wide range of bus routes serving the site:
 - **New routes**
 - **Diverted existing routes**
 - **Improved frequency**
- Creates enhanced links to Hemel Hempstead train station and to St Albans
- **Improved bus services are also a benefit to the existing community**

- TCE are working with both the Hertfordshire LEP and HCC to examine transport improvements in the Maylands area
- AECOM (for the LEP) options as part of the Maylands Growth Corridor Study
- The options require further testing and discussion with stakeholders
- The proposed improvements will address existing congestion issues thus providing community benefit.



Breakspears roundabout improvement options



Potential highways improvements

East Hemel

- Preliminary Ecological Appraisal Report
(May 2015) Wardell Armstrong
- Archaeological and Cultural Heritage Appraisal
(May 2015) Wardell Armstrong
- Preliminary Ground Conditions Assessment
(May 2015) Wardell Armstrong
- Soil and Agricultural Land Classification
(May 2015) Wardell Armstrong
- Noise Feasibility Report [draft]
(August 2014) Wardell Armstrong
- Consultation Distance Report [re. HSE] Update
(November 2014) RPS Group
- Baseline Utilities Report
(May 2015) M-EC
- Economic Benefits Reports [draft]
(September 2013) Nathaniel Lichfield & Partners

Technical reports

East Hemel

 – Master planners

 – Highways & Transport

 – Noise, Air quality, Ecology,
Ground conditions, Services &
Infrastructure

 – PR

 – Landscape

 – Sustainability

 – Community Management
Advisor



Client

 – Planning

 – Project management &
Commercial Advice

 – Legals

East Hemel Team

East Hemel

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This information has been prepared for presentation on 12 October 2015

29 October 2015

Ref: RMS/CRO/GOR/15008

C Briggs
St Albans City and District Council
Civic Centre
St Peters Street
St Albans
Hertfordshire AL1 3JE

Email

Dear Mr Briggs

SLP : Stage 2 Presentation : East Hemel Hempstead

Thank you for the opportunity to present to your Members on the 12th October 2015. At the end of the meeting we were invited to review some of the points raised. This letter summarises the response of The Crown Estate (TCE).

TCE is happy to reconfirm all of its commitments contained in its Stage 2 presentation. In addition, this letter sets out how the package of proposals has been further enhanced to reflect Member concerns. The aim of this letter is to provide your Members with complete confidence that, if East Hemel Hempstead is allocated, the wider planning benefits will be delivered.

The Unique Selling Points of East Hemel

Whilst this was covered in our Stage 2 presentation, these are

- the scale of East Hemel (a total of 1,325 ha west of the M1)
- the benefits of the involvement of TCE, as sole landowner.

Looking at each of these in turn,

Scale

- allows the provision of a wide mix of land uses. This helps build a sustainable and walkable community that can minimise external vehicle trips
- creates 'financial muscle' to fund and deliver the social and physical infrastructure
- delivers a planning package which provides benefits to both the new and existing communities.

The Crown Estate (TCE)

- Ethos of long term management and social responsibility
- All profits returned to the Treasury
- A commitment to high quality and innovation in design and technology
- Control over all the land necessary to deliver the scheme
- The creation of a Community Management Organisation (CMO) as a common thread which binds the new community together and gives the community long term control over the quality and maintenance of their environment.

Wider Community Benefits

We take the provision of 40% affordable housing (in a variety of tenures), a mix of housing tailored to meet the local needs set out in the SHLAA and the prospect of creating up to 8,000 jobs as pre requisites of the development of East Hemel. In view of this, the remainder of this letter focusses on other parts of the planning package which should be reflected in the adopted Policies 13 (a) and (b).

The main elements of The East Hemel package delivered by The Crown Estate are set out below.

Education

- Providing the site and funding the buildings to accommodate an 8FE Secondary School. TCE would like to work with St Albans and HCC to link the new school with the Green Triangle initiative.
- Providing the sites and funding the buildings to accommodate one 2FE and one 3FE Primary School. It is suggested that the site for the 2FE school is large enough to be expanded to 3FE, to provide long term flexibility.

Community

- Providing mixed use local centres in both East Hemel North and South. TCE would like to investigate with you the creation of multi use buildings capable of providing education, community hall space and health (doctors, dentists and associated health professionals). The nature of these facilities will be such that they can benefit a wider area than just EHH. There would also be a local level of 'A' class floorspace and small office provision in the local centres.

Employment

- Providing a hub building in the employment area providing retail and business support for the employment area. This could be linked to the CMO controlled incubator space (see below) and provides a focus for the new business community.

- TCE will speculatively construct some starter units / incubator space as part of the first phase of the employment area. This will form part of the CMO 'dowry' and will be managed by the CMO.

Open Space/Community Food Park

- A range of open spaces from local areas of play to playing fields and parkland which will also serve existing residents.
- The creation of a community food zone (including orchards, vegetable growing areas, informal recreation and education / interpretation) in the Green Belt north of East Hemel. This would be owned and managed by the CMO.

Affordable Housing

- In conjunction with St Albans Council, investigate the potential for some of the 1,000 affordable homes to be rural exception housing (or its equivalent) and for some affordable housing to be vested in the CMO.
- The provision of 600 rented affordable homes. Of these, 200 would be provided to the Council (or Registered Provider) at a nil land cost. This will maximise the opportunity for these properties to be offered for social rent rather than affordable rent.
- As an illustration, if it was assumed that the value of each completed affordable home was £150,000, the value of the 1,000 affordable homes would be £150m.

Transportation

- New footpath and cycle links into both Hemel Hempstead and east into St Albans, including improvements to the Nickey Line.
- Improvements to the A414 and a new north / south vehicular route through the whole of East Hemel. This will both provide for the development proposals and improve access for existing residents and businesses in St Albans, Hemel Hempstead and Redbourn.
- New / extended bus routes and increased frequencies which will both serve the development and existing communities.

Gypsy and Travellers

- Two, fifteen pitch Gypsy and Traveller sites which will make a significant contribution to meeting identified G&T needs in the plan period to 2031.

Dacorum Uses

- Actively investigate the inclusion of uses sought by Dacorum Core Strategy, and supported by St Albans Council, such as a ‘Green Energy Park’ and a community sports facility.

Other Uses

Other elements such as the TCE commitment to high quality design and innovative low carbon / renewable energy solutions were set out in the Stage 2 presentation. In combination, these should deliver lower running costs for the occupiers of both market and affordable homes at East Hemel.

Community Management Organisation

It will be apparent from the above that the CMO is a central focus of TCE’s concept for East Hemel. The role and constitution of the CMO was set out in the Stage 2 slides. However, it may be of assistance to spell out in more detail the scope of the organisation. It would

- manage all open space
- manage and own all community buildings
- part of its funding will come from a service charge on businesses and homes
- the CMO will receive a dowry of assets from TCE. This is likely to focus on commercial assets in the employment area that will generate a long term and stable income. Part of this will include the first phase starter units / incubator space in the employment area
- the CMO will be responsible for liaison with businesses to foster an East Hemel Apprenticeship scheme
- CMO staff to act as ‘community initiators’ in the early years of the development
- whilst the legislative and policy basis for the provision of “affordable” housing is evolving at present, TCE is willing to investigate the potential for the CMO to be vested with some affordable housing which it could manage on behalf of the community.

Although it is not yet possible to put a value on the total TCE package for East Hemel, it will include

- Secondary School (estimated cost £35m)
- Two Primary Schools (estimated cost £15m)
- Affordable housing (£150m based on the assumption that the completed value of the average affordable home is £150,000).

Even without costing the remainder of the package, this has a value which approaches £200m.

In realising these benefits, both your Council and TCE is constrained by the CIL Regulations. This means that any S106 obligation must meet the three legal tests for it to be lawful and be given any weight in a planning determination. Obligations which do not meet the tests risk being challenged in the Courts.

Having said this, TCE is sympathetic to the objectives of your Members which is to ensure that any strategic allocations also generate benefits for the wider community. Having carefully considered how this can be achieved within the constraints imposed by the CIL tests, we consider that the best way forward would be to specify your Council's full requirements in Policy 13(a) and (b). Once the SLP is adopted, any planning application would need to comply with the terms of the statutory policies applying to the site. Such an approach would ensure that wider community benefits are achieved within a lawful statutory policy framework.

We consider that your current Policy 13(a) and 13(b) wording, as amended by the suggestions set out above, will ensure that the East Hemel proposal is CIL compliant.

Please do not hesitate to contact me if you have any queries on the above.

Yours sincerely

R M Sellwood
Sellwood Planning Ltd

Appendix 2: Vectos East Hemel Hempstead Transport Strategy and Evidence Base
(July 2016)

The Crown Estate

East Hemel Hempstead

Transport Strategy and Evidence Base

July 2016

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1 INTRODUCTION

- 1.1 This document sets out the Transport Strategy for the development of the land located to the east of Hemel Hempstead, Hertfordshire. It has been prepared to summarise the work undertaken to date to support the evidence base for the St Albans Strategic Local Plan (SLP).
- 1.2 The Crown Estate owns a large area of land to the west of the M1 and to the east of Hemel Hempstead. The broad area that forms part of the draft SLP allocation is shown at **Figure 1** and **Figure 2**.
- 1.3 This strategy considers:
- The Transport Benefits of Locating Development at East Hemel;
 - Consultation with Stakeholders;
 - The Policy Background
 - The Proposed Development
 - The Sustainable Transport Strategy
 - Highway Impact
 - Summary and Conclusions
- 1.4 In developing the strategy we have actively engaged with a number of stakeholders including Hertfordshire LEP (LEP); Hertfordshire County Council (HCC); St Albans District Council (SDC); Dacorum District Council (DCC) and Highways England.

2 THE TRANSPORT BENEFITS OF LOCATING DEVELOPMENT AT EAST HEMEL

2.1 The Draft Local Plan explains that the objective of the East Hemel Allocation is:

“To provide a major urban extension of Hemel Hempstead to meet the needs of the St Albans housing market area and sub-regional economic development objectives for growth in the M1 corridor.”

2.2 From a transport perspective, the East Hemel site will act as an urban extension of Hemel Hempstead and will integrate well with existing facilities within Hemel Hempstead including the Maylands Industrial Estate and surrounding residential areas. In particular, the proposals would combine with the proposals for Spencer’s Park (Phase 1 and 2) creating a larger residential community to the north of Hemel Hempstead. It would also support local economic and employment growth aspirations of the Maylands Industrial Estate and Maylands Enterprise Zone (EZ). The employment area of the East Hemel development itself forms part of the recently created EZ.

2.3 The following paragraphs set out five of the key transport advantages of having additional housing at East Hemel:

- It is located adjacent to one of Hertfordshire’s Strategic Employment Site’s – Maylands Industrial Estate;
- Facilities including primary and secondary education, significant employment land and local centres will be provided on site;
- It is located close to the Nickey Line with excellent walking and cycling connections towards Hemel Hempstead town centre and Harpenden;
- The balance of residential and employment allows efficient bus services to be run; and
- Infrastructure can be provided in a planned and phased manner.

Located close to Employment

2.4 A key advantage of locating development close to an existing urban area such as Hemel Hempstead rather than in more dispersed locations is that it minimises overall trip making and trip distance. There is a significant quantum of employment within Hemel Hempstead, particularly within the Maylands Industrial Estate.

- 2.5 Existing travel to work patterns, based on local census data, are shown at **Figure 3** and demonstrate that some 50% of trips are contained in the local area with circa 20% of existing residents in the local area working in the Maylands area.
- 2.6 This local trip making will be enhanced with the creation of an additional up to circa 8,000 new jobs within the East Hemel sites which will provide existing and future residents with local employment opportunities.

On-Site Facilities

- 2.7 The scale of the development is such that both primary and secondary education provision will be made on site. Census Data and National Travel Survey Data show that some 23% of trips in the morning peak hour are for education purposes. Containing a proportion of these trips within the site will lead to a reduction of car trips on the local highway network compared with a more dispersed development strategy.
- 2.8 In addition to education, local retail and community facilities will be provided, further enhancing the self-containment.

Located close to the Nickey Line

- 2.9 **Figure 4** shows that the site is ideally located next to the Nickey line which is a dedicated footway cycleway which runs from Harpenden in the north east towards Hemel Hempstead Town Centre.

A Mix of Uses

- 2.10 The mix of uses assists in providing efficient bus services. For example, in the morning peak bus services between the site and the railway station can take residents to the station and employees from the station to the site.

Management of Infrastructure Delivery

- 2.11 Development of a major scheme under one landownership allows infrastructure and service improvements to be provided in a planned and co-ordinated way, phased in step with progress of the development.

3 CONSULTATION WITH STAKEHOLDERS

3.1 Vectos, on behalf of the Crown Estate, have undertaken extensive consultations with key transport stakeholders in formulating the strategy set out within this document.

3.2 A significant proportion of the liaison and engagement has taken place through meetings of the Maylands Growth Corridor Project Group. This comprises:

- Hertfordshire Local Enterprise Partnership (LEP)
- Hertfordshire County Council
- St Albans District Council
- Dacorum Borough Council
- Highways England
- AECOM (undertaking study)
- Vectos (on behalf of the Crown Estate)

3.3 The study is examining the need for infrastructure to support the planned growth in the Maylands Area, at East Hemel and within the wider Hemel Hempstead area. A number of options have been developed which have been subject to strategic testing using a Paramics model of Hemel Hempstead developed by HCC. This initial testing has shown that there are a range of options available to provide additional capacity in the area. One of these is reported in more detail within Section 7 of this report.

4 POLICY BACKGROUND

4.1 This section sets out a brief summary of the key transport policies relevant to the development proposals.

National Policy

National Planning Policy Framework (NPPF)

4.2 The NPPF sets out the Government's planning policies for England and how these are expected to be applied.

4.3 One of the 12 core land-use principles within the NPPF includes:

"[to] actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations where it can be made sustainable."

4.4 Section 4 of the NPPF deals with 'Promoting Sustainable Transport.' Paragraph 29 states that:

"the transport system needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel. However, the Government recognises that different policies and measures will be required in different communities and opportunities to maximise sustainable transport solutions will vary from urban to rural areas."

4.5 In addition, Paragraph 30 states that developments should facilitate the use of sustainable modes *"where reasonable to do so."*

4.6 Paragraph 32 sets out the transport issues which should be addressed within Development Plans and when making decisions on applications. It states that *"all developments that generate significant amounts of movements should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:*

- *the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major infrastructure;*
- *Safe and suitable access to the site can be achieved for all people; and*

- *Improvements can be undertaken within the transport network that cost-effectively limits the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.”*

4.7 The benefits of providing mixed-use sites are also identified within the NPPF. At Paragraph 37 it is stated that “planning policies should aim for a balance of land uses within their area so that people can be encouraged to minimise journey lengths.” In particular, Paragraph 38 states that “for larger scale residential developments... planning policies should promote a mix of land uses in order to provide opportunities to undertake day-to-day activities, including work, on site. Where practical, key facilities such as primary schools and local shops should be located within walking distance of most properties”

4.8 In relation to car parking, Paragraph 39 states that:

“In setting local parking standards for residential and non-residential development, local planning authorities should take into account:

- *The accessibility of the development;*
- *The type, mix and use of development;*
- *The availability of and opportunities for public transport;*
- *Local car ownership levels; and*
- *An overall need to reduce the use of high-emission vehicles.”*

Planning Practice Guidance (PPG)

4.9 On 6 March 2014, the Department for Communities and Local Government (DCLG) launched the National Planning Practice Guidance (NPPG) web-based resource. One section relates specifically to Transport and is titled ‘Travel Plans, Transport Assessments and Statements in decision-taking’ and this provides the overarching principles of Travel Plans, Transport Assessments and Statements.

4.10 The guidance explains the role of Transport Assessments and Statements as: *“ways of assessing the potential transport impacts of developments (and they may propose mitigation measures to promote sustainable development. Where that mitigation relates to matters that can be addressed by management measures, the mitigation may inform the preparation of Travel Plans)”*.

- 4.11 The guidance also states that Travel Plans are *“long term management strategies for integrating proposals for sustainable travel into the planning process. They should be brought forward in parallel with development proposals and should be integrated in to the design of developments.”*
- 4.12 The guidance demonstrates that Transport Assessments and Statements and Travel Plans can positively contribute in the following ways:
- *“encouraging sustainable travel;*
 - *lessening traffic generation and its detrimental impacts;*
 - *reducing carbon emissions and climate impacts;*
 - *creating accessible, connected, inclusive communities;*
 - *improving health outcomes and quality of life;*
 - *improving road safety; and*
 - *reducing the need for new development to increase existing road capacity or provide new roads.”*

Regional Policy

Hertfordshire Local Transport Plan 3 (2011 – 2031)

- 4.13 Hertfordshire’s Local Transport Plan 3 (LTP3) sets the framework for achieving a better transport system for the county over a plan period of 20 years (2011 – 2031). LTP3 sets out five goals, based on national policy. These are:
- Support economic development and planned dwelling growth;
 - Improve transport opportunities for all and achieve behavioural change in mode choice;
 - Enhance quality of life, health and the environment for all residents;
 - Improve the safety and security of residents and other road users;
 - Reduce transport’s contribution to greenhouse gas emissions
- 4.14 A number of challenges have been determined which relate to each goal. With regards to the goal of supporting economic growth and housing development, it is stated that the council will

provide support through delivery of transport improvements and where necessary, enhancement of the network capacity.

- 4.15 It is noted within LTP3 that the design of new developments will impact on the connectivity of new development and the degree that sustainable modes can take the place of car journeys.
- 4.16 The LTP3 provides strong support for locating developments near to passenger transport links with access to key services and major interchanges. The intention of the Plan is to *“realise every opportunity for new residential developments to be served by sustainable modes.”* The provision of up to date and comprehensive information to users (including new residents, for example through residential travel plans) is identified as a significant part of promoting sustainable travel.
- 4.17 It is also stated that the council will *“require new developments to include sustainable infrastructure including cycle and pedestrian routes and these should be funded by the developer.”*
- 4.18 Specific transport policies are included within Volume 2 of the LTP3. The relevant policies are set out below.

Policy 3.1 Access to Services

- 4.19 The county council will *“promote liaison between planners and developers to ensure that residents in existing and proposed residential developments can access key services using sustainable modes of transport.”*

Policy 3.8 Development Control

- 4.20 The county council will:

“Examine development proposals to establish whether their effects on the transport systems can be accepted and to ensure that the access arrangements are constructed to an adequate and safe standard;

Ensure the transport and safety implications of development proposals are considered; and

Assess development with regard to reducing the need to travel and ensure that alternative modes of transport such as walking, cycling and public transport are promoted”

Policy 3.15 Parking

4.21 In relation to parking, it states that the *“provision and standards for car parking will be determined by Local Planning Authorities in the context of Local Development Frameworks.”*

4.22 It also goes on to state that:

“Parking for residential development should reflect the local circumstances of the development and where appropriate, the parking policy of the district council. Normally, full parking needs should be met on site but reduced provision in locations with good access to passenger transport may be allowed.”

Local Policy

St Albans District Local Plan Review: Saved Policies (1994)

4.23 Following a formal Direction from the Secretary of State, a number of policies of the District Local Plan Review 1994 were ‘saved.’ These are formally recognised as part of the development plan for St Albans.

4.24 Policy 34 ‘Highways Considerations in Development Control’ states that *“development likely to generate a significant amount of traffic or which involves the creation or improvement of an access onto public highway will not normally be permitted unless acceptable in terms of road safety, environmental impact of traffic, road capacity, and car parking provision.”*

4.25 Policy 36A ‘Location of New Development in Relation to Public Transport Network’ states that *“in considering the impact of new development, account will be taken of its proximity to the public transport network and whether facilities will be provided within the development to cater for use of the network.”*

4.26 With regards to parking provision at new development, the Council requires that sufficient parking spaces are provided to meet existing and likely future demand. Subsequently, a set of parking standards were prepared for new developments.

4.27 Policy 39 lists a number of criteria that should be accorded with when providing parking for new development. It notes that parking proposals must *“be acceptable in terms of visual impact, landscaping and amenity of adjoining properties”* and that *“access roads and parking areas must not detract from the setting of listed buildings and conservation areas.”*

St Albans Draft Strategic Local Plan 2011-2031

4.28 The St Albans Draft Strategic Local Plan (SLP) 2011-2031 was published in January 2016 for consultation. The SLP is the principal Development Plan Document (DPD) and establishes the Council's long term spatial planning strategy for delivering development and infrastructure from 2011 to 2031

4.29 Within the Draft SLP there are two key policies which are relevant to the East Hemel sites, namely SLP 13 (a) – East Hemel North and SLP 13 (b) - East Hemel South.

4.30 Policy 13 (a) states that the objective of the allocation is as follows:

“To provide a major urban extension of Hemel Hempstead to meet the needs of the St Albans housing market area and sub-regional economic development objectives for growth in the M1 corridor.”

4.31 The policy sets out the key requirement of the proposals and the key land use/transport policies are set out below:

- Substantial urban extension – minimum capacity circa 1,500 dwellings
- Countryside access links including improved off-road paths;
- A new primary school and secondary school (either in north or south area);
- Transport network (including walking and cycling links) and public transport services upgrades / improvements;
- New neighbourhood and local centres, including commercial development opportunities; and
- Recreation space and community facilities.

4.32 Policy 13 (b) states that the objective of the allocation is as follows:

“To provide a major urban extension of Hemel Hempstead to meet the needs of the St Albans housing market area and sub-regional economic development objectives for growth in the M1 corridor. Potential for inclusion of non-housing land uses as required to support Dacorum's Plan and the development of Hemel Hempstead.”

4.33 The policy sets out the key requirement of the proposals and the key land use/transport policies are set out below:

- A substantial urban extension – minimum capacity circa 1,000 dwellings;
- A new primary and secondary school (either in north or south area);
- Significant scale employment provision for a range of uses including: offices, research and development, light industrial and logistics; broadly within the 55 Ha area north of Breakspear Way and south of Punchbowl Lane;
- Transport network (including walking and cycling links) and public transport services upgrades/improvements, particularly to A414 corridor;
- New or improved existing neighbourhood and local centres - linked to Leverstock Green neighbourhood;
- Recreation space and community facilities.

Dacorum Core Strategy 2006-2031 (Adopted 2013)

- 4.34 The Dacorum Core Strategy was adopted on 25th September 2013 and replaces the Dacorum Borough Local Plan (1991 – 2011). It should be noted however, that not all policies contained within the Local Plan have been replaced. Many policies have been saved and will continue to form part of the Development Plan for Dacorum Borough Council (DBC) until they are formally superseded or cancelled.
- 4.35 The strategy states that Hemel Hempstead will be “the main centre for development and change in the borough and the focus for new homes, jobs and infrastructure”.
- 4.36 East Hemel Hempstead (Maylands Business Park) is promoted within the strategy as a sub-regional business centre. The strategy states, “*It will be the focus for high quality, energy efficient development, with improved access to open space and local services and facilities*”.
- 4.37 Policy CS8 of the Core Strategy addresses sustainable transport:
- “All new development will contribute to a well-connected and accessible transport system whose principles are to:*
- (a) give priority to the needs of other road and passenger transport users over the private car in the following order:*
- *pedestrians*
 - *cyclists*
 - *passenger transport (buses, trains and taxis)*
 - *powered two wheeled vehicles*

- other motor vehicles;
- (b) ensure good access for people with disabilities;
- (c) ensure passenger transport is integrated with movement on roads, footways and cycleways;
- (d) create safer and continuous footpath and cycle networks, particularly in the towns;
- (e) maintain and extend the rural rights of way network;
- (f) improve road safety and air quality;
- (g) strengthen links to and between key facilities (bus and railway stations, hospitals, main employers and town centres); and
- (h) provide sufficient, safe and convenient parking based on car parking standards: the application of those standards will take account of the accessibility of the location, promoting economic development and regeneration, supporting shopping areas, safeguarding residential amenity and ensuring highway safety.

Development proposals will also contribute to the implementation of the strategies and priorities set out in the Local Transport Plan and local Urban Transport Plans.”

4.38 Policy CS9 of the Core Strategy discusses “*Management of Roads*”:

“All new development will be directed to the appropriate category of road in the road hierarchy based on its scale, traffic generation, safety impact, and environmental effect.

The traffic generated from new development must be compatible with the location, design and capacity of the current and future operation of the road hierarchy, taking into account any planned improvements and cumulative effects of incremental developments.

Improvements to the network and all traffic management measures will be designed to channel long distance through traffic onto the motorway and primary roads (i.e. M1, M25, A5 and A41).

In Hemel Hempstead road improvements will focus on relieving congestion in and around the Maylands Business Park, including the delivery of a new north-eastern relief route, and improving the capacity and safety of the Plough Roundabout. Elsewhere, small-scale improvements will be undertaken to tackle local environmental and safety problems.

Other new road capacity will only be justified for local environmental, air quality (including any declared Air Quality Management Areas), safety reasons, or for accommodating local access requirements.

Local road space will be shared and designed to allow the safe movement of all users.

In villages and the countryside, special regard will be paid to the effect of new development and traffic on the safety and environmental character of country lanes.”

Dacorum Local Plan 1991-2011: Saved Policies (2004)

4.39 The Dacorum Local Plan was replaced by the Dacorum Core Strategy. However, as stated above, many policies have been saved and will continue to form part of the Development Plan for Dacorum Borough Council (DBC) until they are formally superseded or cancelled. The following policies, which have been saved, are of relevance to the proposed development.

4.40 Policy 51 looks at “Development and Transport Impacts”:

“Overall capacity in the main road network will be regarded as an important constraint on development proposals which would have a significant transport impact... Development must be compatible in locational and general highway planning, design and capacity terms with the current and future operation of the defined road hierarchy and road improvement strategy”

4.41 Policy 58 (Private Parking Provision) is within the list of saved policies from the Local Plan. It provides guidance on parking provision for new development in the borough, with specific parking standards set out in Appendix 5. These are presented below in **Table 4.1**.

4.42 In addition, the council requires the identification of ‘Accessibility Zones’ at the local level. This enables the practical application of a demand-based approach to parking provision. The site is located within Zone 4, where it is considered the maximum parking provision is required.

4.43 The Accessibility Zones and the proportions of the relevant maximum parking standards are presented in **Table 4.2**.

Policy Compliance

- 4.44 A key aim of local and national transport policy is to integrate land use planning and transport for new development and to promote accessibility by non-car modes of transport wherever possible. New developments should ensure that high quality provision is made for pedestrians and cyclists, and connections to public transport facilities should be maximised. Car and cycle parking should be provided in accordance with relevant local standards, and be well designed and conveniently located. Proposals should also be supported by a Travel Plan.
- 4.45 The Proposed Development has been designed to comply with these policy objectives and this is demonstrated throughout the remainder of this report.

5 PROPOSED DEVELOPMENT

Introduction

- 5.1 The land parcels associated with the draft allocation for the East Hemel area are shown at **Figure 5**.

Access Strategy

- 5.2 The details of the access strategy for the area are still to be finalised but the currently envisaged strategy is shown at **Appendix A**. And is described below.
- 5.3 A spine road will be formed that connects the A414 to Redbourn Road. This will be partly new road and partly an upgrade of Green Lane.
- 5.4 The northern part of the development will also link through to the highway network being formed as part of the Spencer's Park development and thereby to Three Cherry Trees Lane.
- 5.5 To the south of the A414 a new spine road will be formed that links through to the A4147 St Albans Road.
- 5.6 As described later in this report it is likely that enhancement of access to the East Hemel and Maylands area will be required over time. A number of options for improvement have been considered in terms of modelling and engineering feasibility. One option is illustrated at **Appendix A**. This involves the upgrading of Junction 8 of the M1 and the introduction of a new access route into the Maylands area that will also serve the new employment area at East Hemel. The existing Breakspear roundabout is also assumed to be upgraded.
- 5.7 The phasing of these improvements is still to be determined and will depend on the progress of developments in the area and elsewhere in Hemel Hempstead.
- 5.8 The analysis of this option is described in Section 6 of this report.

6 SUSTAINABLE TRANSPORT STRATEGY

- 6.1 The Sustainable Transport Strategy (STS) forms an integral part of the proposals for East Hemel.
- 6.2 The strategy should be seen in the context of a development area which is likely to take a number of years to be fully built out and occupied. During this time government policies are likely to evolve to give further encouragement to the use of sustainable means of transport.
- 6.3 The elements of the strategy are described below.

Masterplan Design

- 6.4 As set out earlier in this report many trips can be contained within the masterplan area and local area. The masterplan design will reflect this with high quality routes created for pedestrians and cyclists to link the various areas of the masterplan. In particular the masterplan will include:

- A network of footways and cycleways linking the various parts of the site;
- Footway and cycle links to surrounding areas (including Spencer's Park);
- Relevant routes designed to accommodate buses;
- Local Centres and schools designed to be accessible to all units by walking;
- A hierarchy of roads: primary, secondary and tertiary; and
- Alignments of roads to avoid through traffic.

Walking & Cycling

- 6.5 The proposed local walking and cycling strategy is shown at **Figure 6**. The key elements of the strategy are:

- Direct links to the Nickey Line allowing access to this off road route;
- Access over the Nickey Line with a controlled crossing over Redbourn Road to give access to Woodhall area local centre;
- Creation of quiet ways on some local roads (e.g. Cherry Tree lane);
- Good links to Spencer's Park;
- Links via local roads to the Maylands Industrial area; and
- Links to Leverstock Green local centre.

- 6.6 The masterplan will ensure that key desire lines are created for both pedestrians and cyclists throughout the site. These routes will permeate through the site boundaries and connect with local centres at Leverstock Green to the southwest and Woodhall Farm Estate to the northwest as well as employment opportunities in Maylands Industrial area. Both of these existing communities contain retail, education, leisure facilities which will supplement the proposals that will be included within the East Hemel development.
- 6.7 A catchment showing a 2km walking distance from the centre of the site is included at **Figure 7**.
- 6.8 The site benefits from being close to the Nickey Line, which runs in an east-west direction to the north of the proposed development. The Nickey Line is a 12km route provided from Harpenden in the north towards Hemel Hempstead Town Centre. The route was a former railway line and now forms part of National Cycle Route (NCR) 57. A green corridor with a rural aspect forms much of its length providing an attractive walking and cycle route with traffic-free access to schools and employment areas, including the Maylands Employment Area, within Hemel Hempstead. A number of Public Rights of Way (PROW) also intersect the Nickey Line and provide onwards connectivity to destinations within Hemel.
- 6.9 A large number of facilities are within a 5 km of the site, including the town centre, whilst Hemel Hempstead Railway Station is located within an 8km catchment of the site. A catchment showing a 5km and 8km distance from the centre of the site is included at **Figure 8**.

Public Transport

Bus Strategy

- 6.10 A development of circa 2,500 residential units and around 8,000 new jobs provides the critical mass of development to deliver an extensive enhancement of existing bus services. The patronage generated by the development would enhance the viability and quality of existing services and provide new services within in East Hemel.
- 6.11 **Figure 9** demonstrates the potential for existing routes to be diverted or extended via the proposed development parcels and includes the following:
- A new bus route is proposed connecting both residential development parcels and the new employment area with Hemel Hempstead town centre and railway station;

- Extension of existing bus routes 1 and 300/301 via the A4147 into the southern residential development.

6.12 TCE will work in partnership with the highway authorities and local bus operators and by engaging local communities, the development will facilitate attractive and viable bus routes. Bus services will be delivered in a phased manner responding to increased demand. However, it is proposed to ensure that services are provided early in the life of the development in order to encourage establishment of sustainable habits.

Rail Strategy

6.13 The closest rail station to the Site is Hemel Hempstead station which is located approximately 5km west of the Site. The station is managed by London Midland and direct services are provided to destinations in the south including London Euston and in the north such as Milton Keynes and Northampton.

6.14 At present, several bus services provide connections from the Hemel Hempstead railway station to bus stops along B487 Redbourn Road, Three Cherry Trees Lane and the A4147 within the vicinity of the development site. Some of the services to be extended along with the potential new service can serve the rail station.

6.15 Furthermore, cyclists are able to travel via the Nickey Line towards the centre of Hemel Hempstead in the direction of the railway station. Although the Nickey Line does not extend the full commuting distance, there are opportunities for cyclists to continue their journey beyond the Nickey Line towards the station via quieter, on-road routes. Hemel Hempstead railway station currently provides 64 cycle parking spaces.

6.16 In addition to the main rail station at Hemel Hempstead, there is a second station located to the south of Hemel Hempstead at Apsley which is on the same line as Hemel Hempstead. This station is located approximately 4.5km to the south west of the southern parcel of land and may provide a more convenient connection than Hemel Hempstead station for some residents.

Innovation

6.17 A scheme such as East Hemel will take many years to fully build out and transport provision will change and evolve over that time. It is therefore important to design for these innovations. Some of the potential measures are:

- Home Delivery: It is likely that home delivery will continue to grow and retailing will continue to evolve. Therefore, distance to traditional shopping may become less of an issue and management of home deliveries will become more important;
- Journey planning: Journey planning will be a key feature as congestion continues to be a realistic aspect of life in the United Kingdom and as other forms of transport continue to grow in prosperity such as cycling, car sharing etc.
- Electric bikes, scooters etc. This is a growth area and could provide for trips within the site as well as linking to nearby areas. A cycle hire scheme is a possibility and cycle hire schemes have been actively promoted in areas throughout the UK including Glasgow, Belfast, Bath, Stirling and most notably in London. Cycle hire schemes offer the flexibility to combine journeys at a relatively low cost and could create effective links within a community.

6.18 Continued growth in alternative fuelled cars are also likely to result in reducing emissions from private vehicles which will be a significant long term benefit for any development.

Travel Patterns

6.19 **Figure 3** demonstrates existing travel patterns for East Hemel based on 2011 Census Travel to Work data extracted from Nomis. Of the usual residents living in Dacorum Middle Super Output Area (MSOA) 013 during 2011, 19.3% worked within the Maylands Employment Area to the west of the site, whilst 14% of the population worked within the centre of Hemel Hempstead. A further 13.2% of usual residents worked within the remaining areas of the Hemel Hempstead and 3.3% worked within St Albans to the east.

6.20 These travel patterns demonstrate that approximately 50% of the population already work within distances that would readily facilitate sustainable commuting methods including walking, cycling and public transport.

Travel Planning – A holistic Approach

6.21 Research undertaken for the DfT's Sustainable Travel Towns (STTs) project has demonstrated that a town-wide approach can reduce traffic levels by 7 to 10%. However, these results are for existing towns. The aim is to do better than that and reduce traffic levels by a higher percentage. This is because a new community created within East Hemel would be capable of

instilling the right culture and attitudes from the start and it is hoped this will positively influence the surrounding areas.

6.22 The experience of the three STTs of Darlington, Peterborough and Worcester is that it is important to understand each town's unique local characteristics, but that successful travel planning requires certain key elements including:

- The importance of planning for a long-term programme;
- Engagement with stakeholders and elected members;
- Clear strategic direction;
- The right governance structure;
- Complementary measures for traffic reduction;
- Targeting specific modes;
- School travel planning for primary and secondary schools;
- Workplace travel planning; and
- Soft measures accompanied by infrastructure improvements.

6.23 The STTs indicate that the right governance structure is vital. Working with partners in the local community including local business, education establishments, health organisations, local transport operators and relevant sector groups, has been valuable in targeting travel planning at appropriate groups.

6.24 It is considered that there is a real opportunity for the proposed development to act as a catalyst for change not only in the new community but also within existing communities in Hemel Hempstead, through providing strong leadership.

6.25 Adopting this approach to travel planning for the proposed development will require the local authorities and the other key stakeholders to 'buy in' to the concept and work in partnership with The Consortium.

Summary

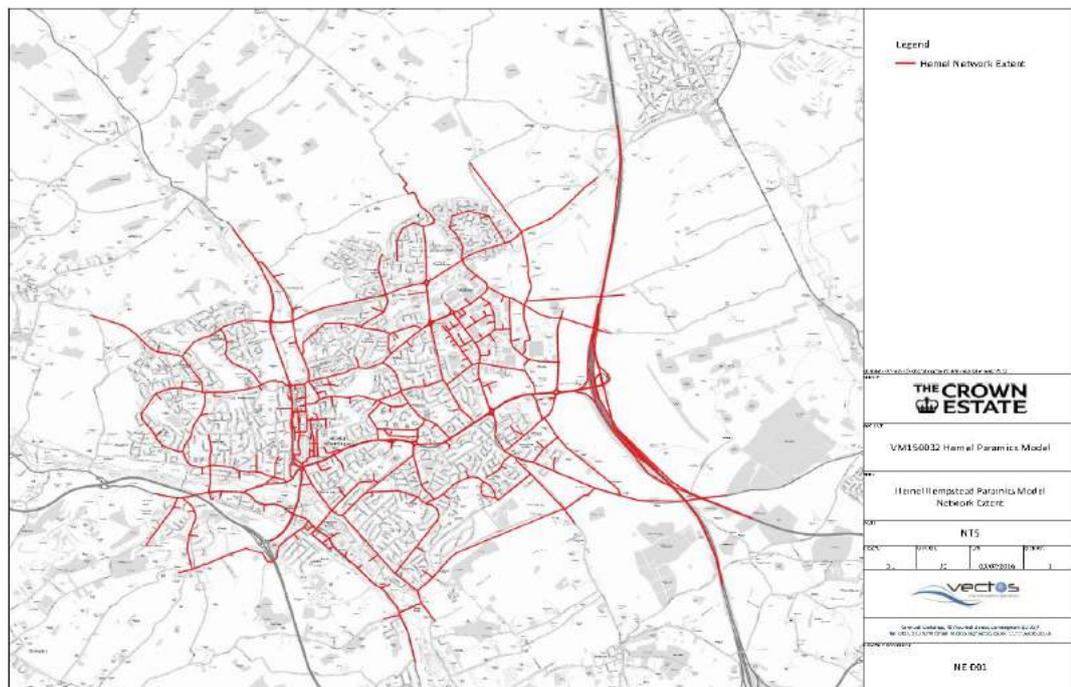
6.26 Because of its size and single ownership, development at East Hemel is capable of supporting a comprehensive Sustainable Transport Strategy. This strategy will not only serve those living and working on the site but also bring forward benefits for the existing communities in Hemel Hempstead.

- 6.27 The strategy accords with the objectives set out in national and local planning guidance to provide sustainable transport solutions.

7 HIGHWAY IMPACT

- 7.1 Significant work has been undertaken at a strategic level to develop and test the highway network in the area of East Hemel and Maylands and the wider Hemel Hempstead area. The work has considered growth due to planned developments in the Hemel Hempstead area as a whole and has also considered potential highway improvement schemes. This has been undertaken using a Paramics microsimulation model. Testing has been undertaken by AECOM as part of the Maylands Growth Corridor Study (LEP) and by Vectos on behalf of The Crown Estate.
- 7.2 An illustration of the area covered by the Hemel Hempstead Paramics Model (HHPM) is presented at **Image 1** below.

Image 1: HHPM Model Extent



- 7.3 The existing model has been used to undertake a strategic assessment suitable for the SLP. The most recent update to the model utilises traffic flow information obtained in 2015 and has been undertaken by AECOM acting on behalf of the Hertfordshire Local Enterprise Partnership (LEP) and Hertfordshire County Council (HCC). This work was undertaken as part of the Maylands Growth Corridor Study (MGCS).

- 7.4 In parallel, the model is in the process of being updated in order to undertake more detailed analysis in due course to support detailed infrastructure planning. It is anticipated that this updated evidence will be available prior to public examination of the Local Plan.

Methodology

- 7.5 The first stage of the assessment involved refining the forecast demands within the model network in order that the growth accords with the factors identified via interrogation of the TEMPRO database. Using these demands a series of model tests were then undertaken to test the performance of the network assuming certain levels of highway mitigation.
- 7.6 The assessment has been undertaken for the end of the Local Plan period ie 2031. The AM peak period has been assessed since this is normally the most congested period.

Forecast Demand Adjustments

- 7.7 It is readily acknowledged that the TEMPRO database is out-dated insofar as the housing numbers contained within the database frequently need to be adjusted to ensure that the growth projections reflect a level of increase which takes cognisance of the likely housing delivery numbers.
- 7.8 Therefore, prior to undertaking the model runs, adjustments were made to the demands to produce a set of forecast HHPM scenarios in which the growth accords with TEMPRO projections after being adjusted to reflect the revised housing number.
- 7.9 This involved a review of the growth projections within the current HHPM as well as the TEMPRO predictions for the same period with a manual adjustment incorporated to account for the revised housing number.
- 7.10 The following **Table 7.1** identifies the Dacorum housing delivery schedule for the two scenario years assessed whilst **Table 7.2** details the quantum of housing assumed in the East Hemel area during the same period. **Table 7.3** reveals the resultant growth within applied the HHPM forecast scenarios in line with the updated TEMPRO projections. The revised factors represent the growth in light vehicles assigned to the model as a result of the forecasting update.

Table 7.1: Dacorum Housing Delivery Projections

Year	2021	2031
Dwellings	3,082	9,256

Table 7.2: East Hemel Development Assumptions

Year	2021	2031	Cumulative
East Hemel (North)	136	1,360	1,496
East Hemel (South)	91	910	1,001
Total	227	2,270	2,497

Table 7.3: Updated HHPM Growth Levels

Forecast Period	2015 to 2021	2015 to 2031
AM	5.22%	15.56%
PM	5.31%	16.41%

- 7.11 The growth levels identified within **Table 7.3** represent those which have been assigned within the updated HHPM forecast model scenarios to inform the review of the network performance.
- 7.12 The pattern and distribution of growth has been based on the existing pattern contained within the current HHPM forecast scenarios as used to inform the Maylands Corridor study.
- 7.13 The growth forecasts have only been applied to the light vehicle demand matrices. Growth associated with the HGV assignment matrices has been retained at a higher level which is consistent with the original Maylands corridor assessment.
- 7.14 It is believed that the above growth forecasts closely accord with those used by HCC within their COMET strategic modelling.

Model Scenarios Definition

- 7.15 A series of model scenarios has been defined to enable an assessment of the network operation to be undertaken under various circumstances. As a result, there were 3 core scenarios defined:
- **Do Minimum** – Changes to the assigned demands only (i.e. no additional network interventions)
 - **Do Something** – Network amendments which have been derived from initial modelling and engineering assessments undertaken by AECOM and Vectos. The strategic

infrastructure is just one option amongst a number that have been developed and considered.

- **Do Something Plus** – The previous scenario with additional network changes included to reflect the delivery of scheme proposals in other areas of the model which were perceived to constrain the network performance through a failure to accommodate the required traffic volumes.

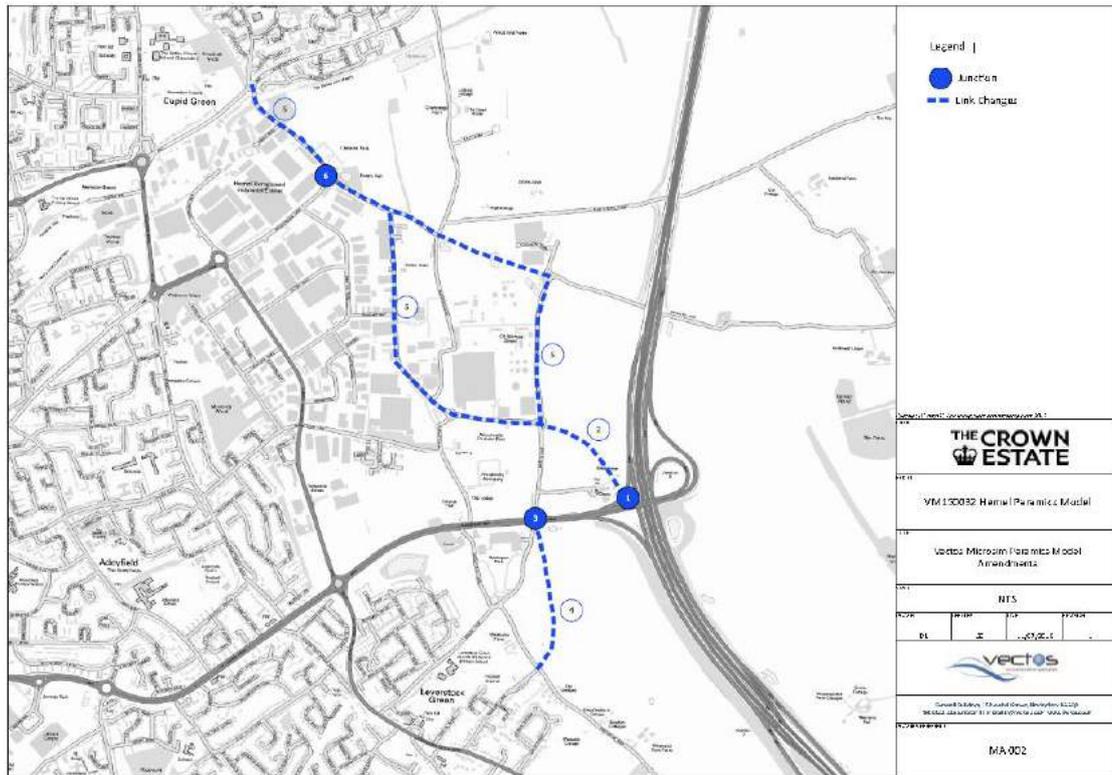
Do Something Network Improvements

7.16 The following is a list of schemes within the Do Something network:

- Reconfiguration of M1 Junction 8 (Scheme 1).
- A new link from M1 J8 to Boundary Lane (Scheme 2).
- Widening and enhancements of Breakspear roundabout (Scheme 3).
- Introduction of a new link from the Breakspear Way roundabout to Westwick Row/A4147 to the east (Scheme 4).
- Update to Green Lane, Boundary Way and Three Cherry Tree routes inclusive of junction improvements along the route (Scheme 5).
- Signalisation of the Swallowdale Lane/Three Cherry Lane junction (scheme 6).

7.17 An overview of the scheme locations is provided within the **Image 2** below.

Image 2: Do Something Scheme Locations



Do Something Plus Network Amendments

- 7.18 Following model runs with the Do Something network improvements included, the areas where residual congestion was most severe were identified. In response to the impacts within these areas the network was amended in order that the vehicle flows could be better accommodated.
- 7.19 The changes applied within the model network ranged from identifying and incorporating a physical change in the model network to reflect the delivery of scheme proposals to the reconfiguration of model calibration parameters within specific areas to ascertain the likely impact that will occur on the rest of the network as a result of delivering focussed mitigation.
- 7.20 Changes to the calibration parameters focused on either the introduction of visibility and/or lower gap acceptance parameters, both of which increase throughput and enable the ‘objectives’ of a scheme to be incorporated within the model without, at this stage, having to fully determine the precise composition of every scheme. This is common practice at this stage of strategic assessment for a SLP.

7.21 The locations in which schemes have been proposed has been illustrated within **Image 3** whilst an overview of the principles behind the proposals and/or network changes has also been documented within the accompanying **Table 7.4**.

Image 3: Proposed Scheme Locations



Table 7.4: Scheme Proposals

Ref	Location	Scheme Principles
1	Three Cherry Lane to B487 Hemel Hempstead Road	Delivery of a Northern Link Road.
2	New link/B487 Hemel Hempstead Junction	New junction to facilitate improved access to the sites to the north as well as connecting the northern link road to the existing highway network.
3	A414 Breakspear Way/Green Lane Roundabout	Widening of A414 approaches to increase throughput.
4	Swallowdale Lane/Three Cherry Lane	Further signal optimisation compared to the Do Something scenario. Most likely triggered by the change in traffic patterns induced by the inclusion of the northern link road.
5	A4251 London Road/Fishery Road	Improving capacity for Fishery Rd SB traffic, most likely deliverable through signalisation.
6	Boundary Way/Maxted Road	Improving capacity for traffic approaching via Boundary Way, potentially achievable via reconfiguration to mini-roundabout, alternatively measures to improve visibility may be sufficient. Signalisation may be considered as a last resort.
7	Marlowes/Queensway	Measures required to prevent junction blocking in part due to junction configuration but also due to nearby pedestrian crossings, possible consideration towards full signalisation. Likely to be delivered in unison with schemes 10 and 13.
8	B487 Redbourn Road/Shenley Rd	Improving capacity for traffic approaching via Shenley Road and improved facility for traffic turning right into Shenley Road. Most likely achieved through signalisation.
9	Heath Lane/St Johns Lane	Right turn ban from St Johns Lane to prevent 'rat-running' in response to queue propagation back from the Magic roundabout junction.
10	Warners Road/Leighton Buzzard Rd	Improving capacity for traffic approaching via Leighton Buzzard Rd via junction widening to allow two lanes straight on, introduction of yellow boxes on B487 (W) to prevent queues blocking back into junction, scheme linkage to 7 and 13 is essential.
11	A414 St Albans Rd/Bennetts End Rd	Improving capacity for vehicles approaching from Bennett's End Rd, initially achieved via delivery of segregated left turn lane from Bennetts End Rd to A414 to improve throughput.
12	Shenley Road/Redbourn Road	Improving provision for traffic travelling NB across the junction via two lanes and widening of approach from Shenley Rd.
13	High Street/Queensway	Widening to enable better provision for right turn into High street from Queensway. If schemes 7 or 10 result in signalisation then consideration may be given to signalising this junction and/or restricting movements from Alexandra Road.
14	Heath Lane/Station Road	Improving capacity for Heath Lane SB traffic via junction widening to provide left and right turn lane, possible ban of left turn from Heath Lane to prevent rat running to avoid queue on St Johns Road.
15	Link Road/Redbourn Road widening	Improving junction capacity through widening where possible
16	A414 St Albans Road/Maylands Avenue	Junction widening and potential enhancements via the provision of signal control.

7.22 The amendments to the model within the Do Something Plus are, at this stage, intended only to replicate the principles/concepts behind the delivery of schemes. The precise details of the schemes will be developed in due course.

Model Scenarios

7.23 Upon completion of the scenario amendments and demand forecasting, the following HHPM scenarios were assessed:

- 2021 HHPM Do Minimum
- 2031 HHPM Do Minimum
- 2031 HHPM Do Something
- 2031 HHPM Do Something Plus

7.24 It was not considered necessary to assess the Do something or Do Something Plus schemes within the 2021 scenario network since it is highly unlikely that the need for these schemes will emerge by 2021.

Results Analysis

7.25 The reporting of results has focussed on two key performance indicators, specifically:

- **Average Journey Time** – The average time it takes for a trip to be completed within the model period
- **Trip Completion Ratio** – The proportion of the assigned demand that results in a completed trip within the model period.

7.26 Average journey time provides a sensible benchmark for comparing the performance of different scenarios. However, the trip completion information should also be assessed as this provides an indication of how many trips contributed to the calculation of the average delay.

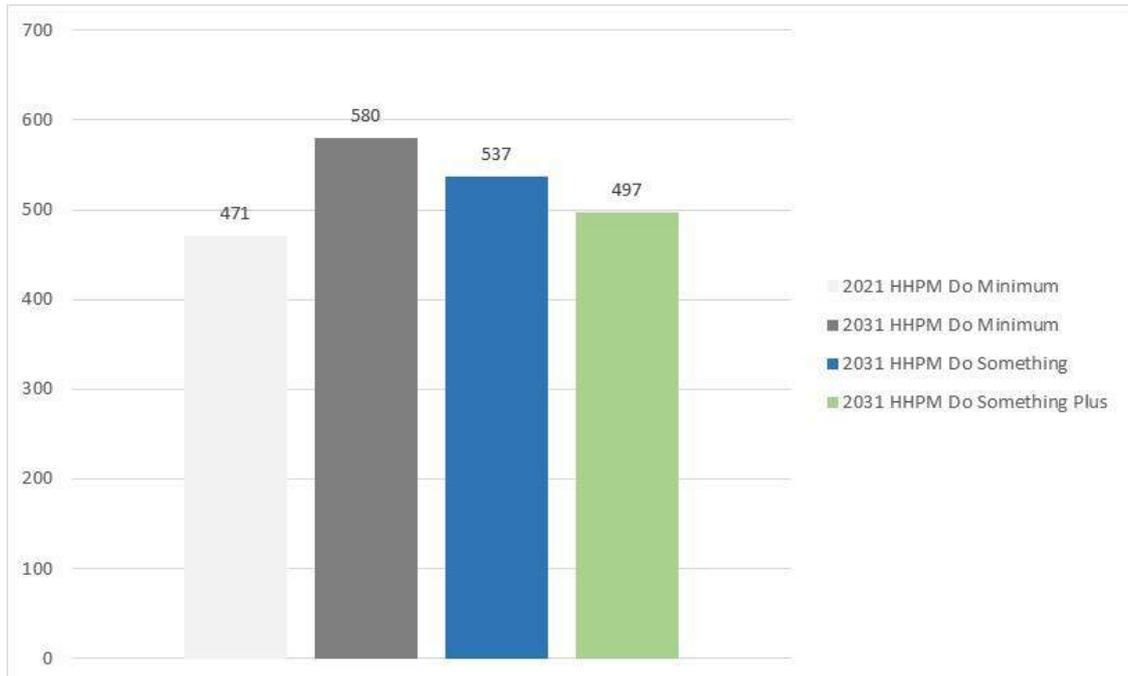
7.27 The average journey times for the AM period, extracted for all modelled scenarios, has been illustrated within **Graph 1** on the following page.

7.28 The results presented within **Graph 1** indicate that, in the 2031 Do Something Scenario, there are increases in journey time across the network although it is questionable whether

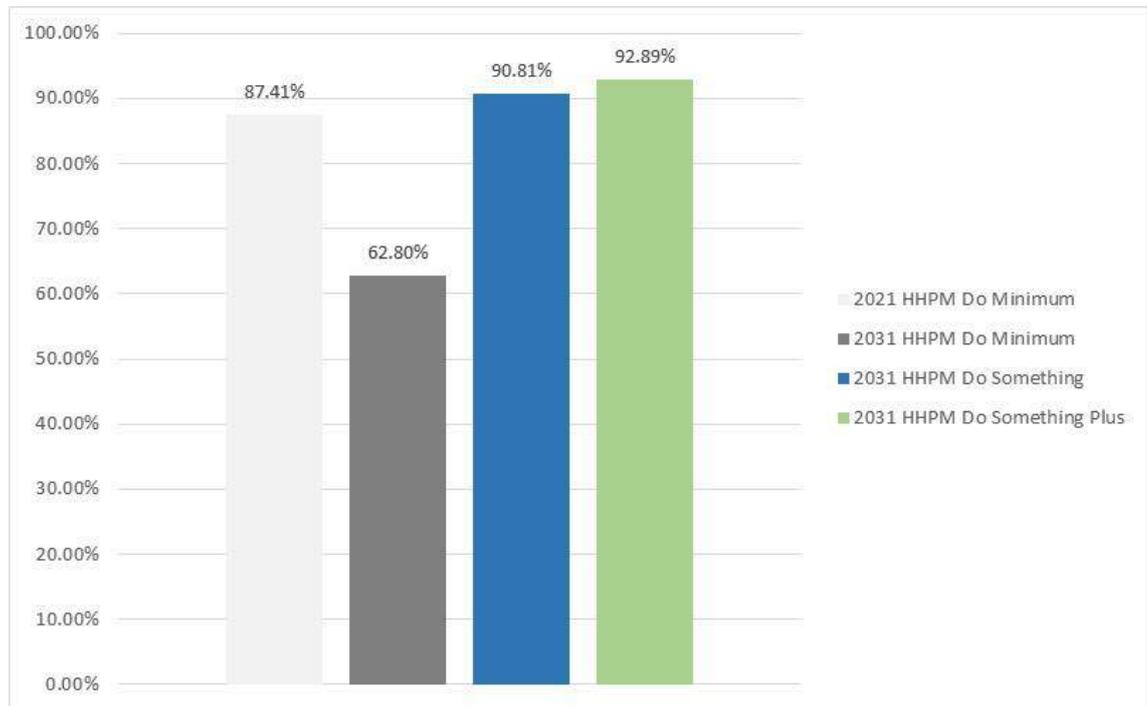
an increase of circa 14% would be considered severe. Nevertheless, introduction of the Do Something Plus measures allow the overall level of network performance to be maintained with only a marginal (5%) increase in journey times.

7.29 The analysis of the completed trips that have been calculated within each of the model scenarios is presented within **Graph 2** on the following page.

Graph 1: Average Journey Time (seconds) HHPM 2021 vs. 2031



Graph 2: Trip Completion Ratio 2021 vs. 2031



7.30 **Graph 2** indicates that within the Do Something and Do Something Plus scenarios the trip completion remains at 90% or higher in the 2031 scenarios. When reviewing the trip completion ratio within the Do Something Plus scenarios, there is an additional 2% demand accommodated within the 2031 network as a result of the extra schemes included within the model network.

Summary

- 7.31 Analysis of the average delays extracted from the model scenarios reveals that there are likely to be significant increases in journey times experienced within the study area if the developments are not accompanied by a highway mitigation strategy.
- 7.32 Analysis of the Do Something and the Do Something Plus scenario performance reveals that the mitigation measures included within the model networks will increase the volume of trips which can be accommodated within the period and minimise the increase in delays that will be experienced as the additional developments are included within the model network.
- 7.33 Analysis of the Do Something Plus scenario performance reveals that by 2031 there will be only a minor residual impact on the model network (5%).

Conclusions

- 7.34 Based on the analysis completed using the HHPM model thus far it is reasonable to conclude the following:
- That the highway mitigation measures included within the analysis of the Do Something scenario, and specifically the reconfiguration of M1 Junction 8, will significantly improve the network conditions and serve to accommodate a substantial element of the growth in traffic volumes predicted as a result of the proposals within the St Albans SLP at east Hemel and other growth proposed within Hemel Hempstead (inclusive of approximately 8500 jobs predicted to occur between 2015 and 2031 as identified within the TEMPRO database).
 - That the additional measures identified within the Do Something Plus scenario will likely ensure that the housing levels identified for delivery up to 2031 can be accommodated with minimal additional impacts.
- 7.35 The assessments reported above will continue to be refined using further enhancements to the HHPM and this will allow the detail of the junction improvements and their timing to be confirmed. However it is considered that at a strategic level the analysis within this report demonstrates that the SLP in the Hemel Hempstead area is sound from a transport perspective.

8 SUMMARY AND CONCLUSIONS

8.1 This strategy report has considered proposals for a residential led, mixed use, scheme of up to 2,500 units and circa 200,000 sqm of employment space on land to the east of Hemel Hempstead known as east Hemel.

A Suitable Location

8.2 There are significant benefits to locating a residential led, mixed use development at East Hemel. In particular:

- It is located adjacent to one of Hertfordshire's Strategic Employment Site's – Maylands Industrial Estate;
- Facilities including primary and secondary education, significant employment land and local centres will be provided on site;
- It is located close to the Nickey Line with excellent walking and cycling connections towards Hemel Hempstead town centre and Harpenden;
- The balance of residential and employment allows efficient bus services to be run; and
- Infrastructure can be provided in a planned and phased manner.

A Transport Vision

8.3 The transport vision for East Hemel is as follows:

"To create a development where people have the opportunity to undertake many day to day activities within the site and the choice of sustainable transport modes for travel within and outside the site. To provide transport infrastructure and service enhancements that bring forward improvements that benefit local communities in St Albans and Dacorum. To introduce travel planning that acts as a catalyst to shape the habits of the local community."

A Sustainable Transport Strategy

8.4 East Hemel will deliver a comprehensive Sustainable Transport Strategy. The primary elements will be:

8.5 **Walking and Cycling Links:** Good quality links will be provided both within the site and to the main origins/destinations within Hemel Hempstead and St Albans. The site is located

adjacent to The Nickey Line, an off road National Cycle Route. There are wider studies in progress to improve cycle connections to St Albans.

8.6 **Bus Strategy:** Given the size of the proposals and the balance between residential and employment uses it will be possible to provide a comprehensive bus service to and within the site. Much of this provision will be through extension of the services. Services will be able to carry employees and residents of the site which will assist in providing demand in both directions.

8.7 **Rail Strategy:** The station is 5km from the east Hemel area. Links will be provided by bus routes and cycle routes (including the Nickey Line).

An Access and Highway Improvement Strategy

8.8 A comprehensive access strategy has been developed for the site which involves a north-south spine road and connections to the existing highway network to the west as well as to the planned Spencer's Park development.

8.9 A number of options have been examined to provide additional highway capacity in the area including enhancements to the Breakspear roundabout and creating a new link into the Maylands/East Hemel area. Strategic testing has demonstrated that there are a range of solutions to cater for development through to the end of the plan period

Stakeholder Consultation

8.10 Extensive discussions have been held with the transport stakeholders in part through the Maylands Growth Corridor Study Project Group and Vectos will continue to work with them to refine the transport strategy and assess the impacts in greater detail.

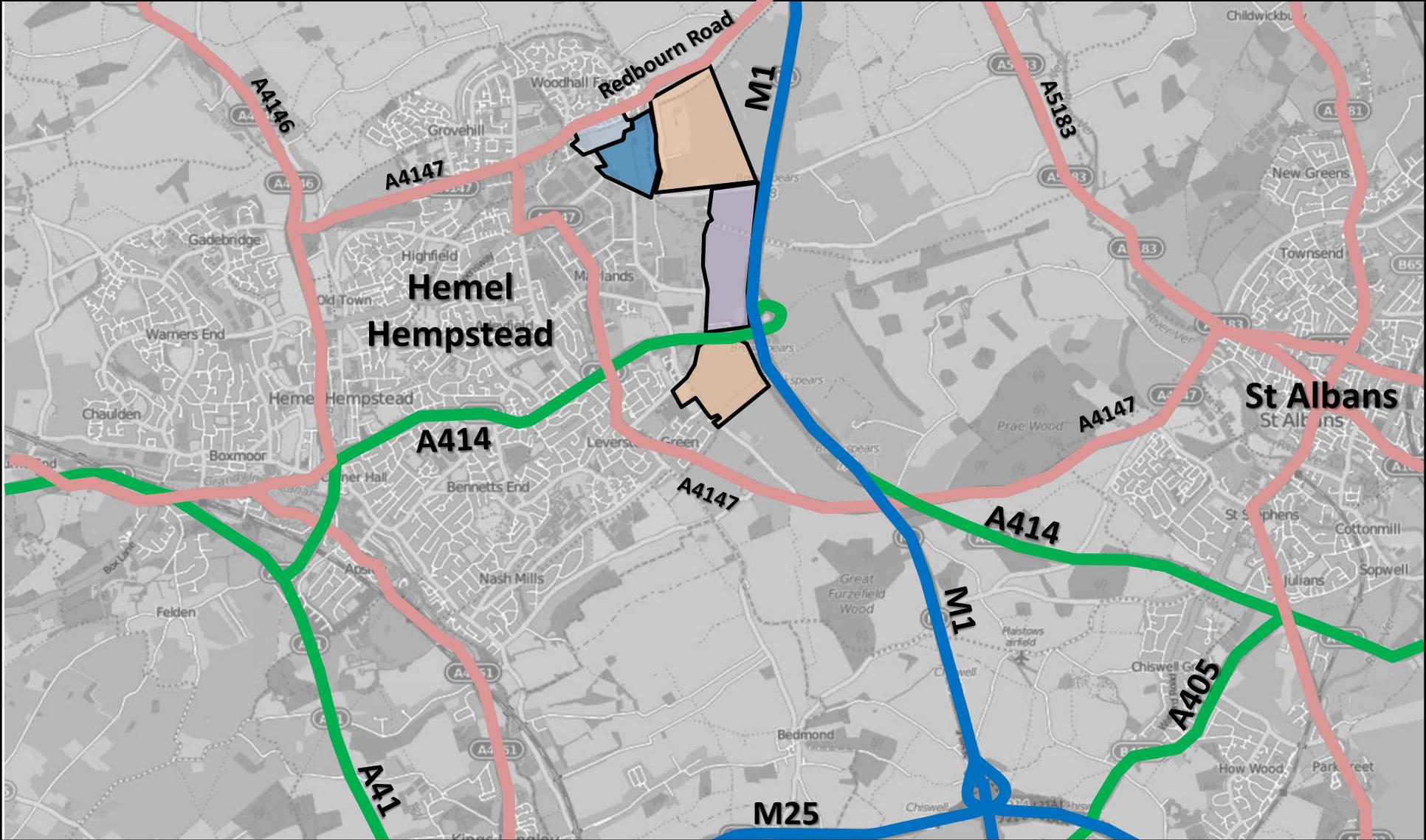
8.11 None of the stakeholders has raised any fundamental issues with the allocation of East Hemel for a mixed use development or of the emerging transport strategy.

Conclusions

8.12 This report demonstrates that East Hemel is a suitable location for a major residential led, mixed use development on account of its proximity to employment, the proposed Sustainable Transport Strategy and the potential for planned and co-ordinated highway

infrastructure improvements. From a transport perspective, taking into account the evidence available, the site is suitable for allocation in the St Albans Local Plan.

FIGURES



Key:

- Residential Development Parcels
- Commercial Development Parcels
- Spencer's Park Phase 1
- Spencer's Park Phase 2

The Crown Estates

East Hemel Hempstead

Site Location Plan (Strategic Context)



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DATE:

SCALE:

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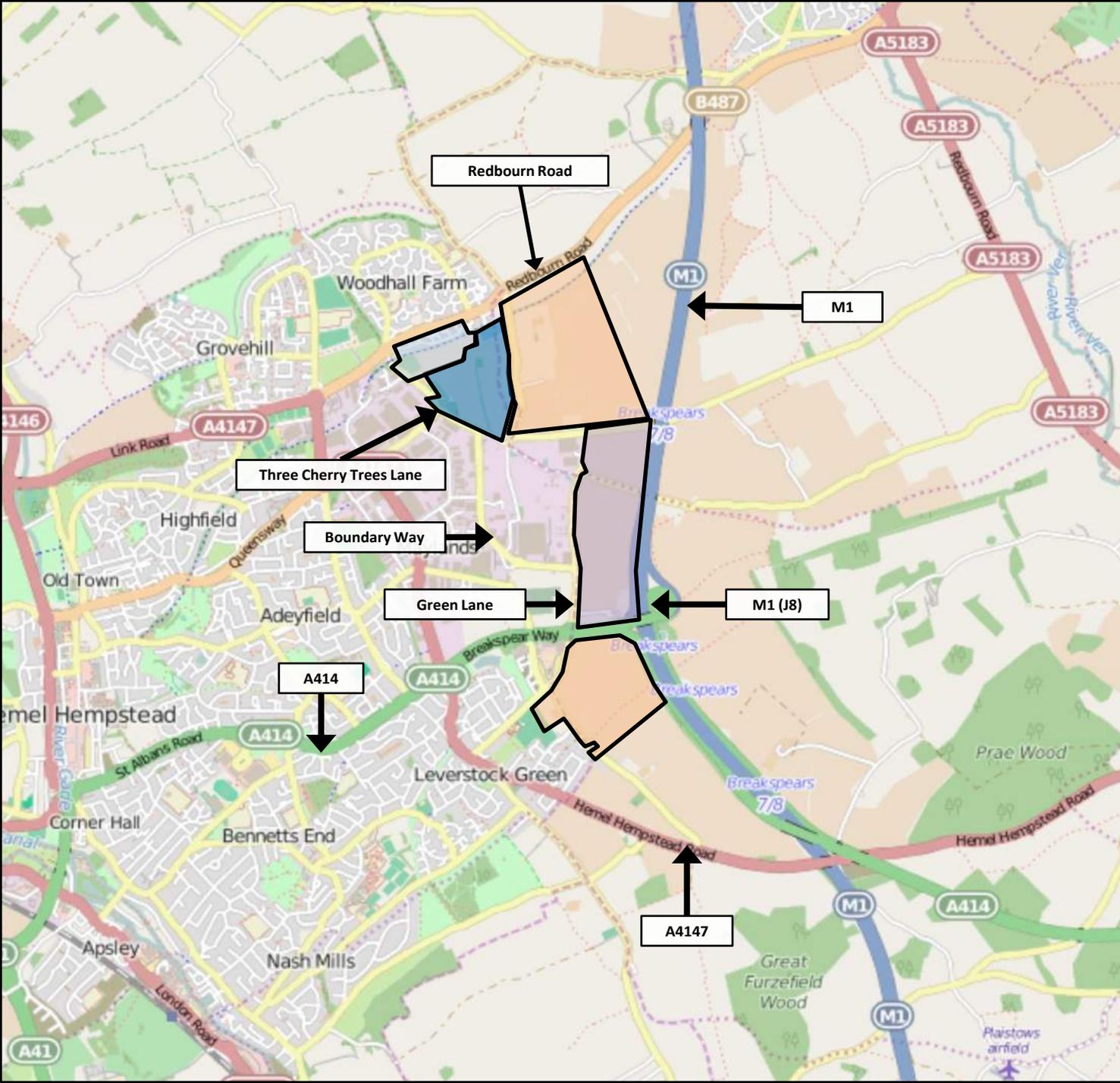
DB

13/07/16

NTS

DRAWING REFERENCE:

Figure 1



- Key**
- Residential Development Parcels
 - Commercial Development Parcels
 - Spencer's Park Phase 1
 - Spencer's Park Phase 2

The Crown Estate

East Hemel Hempstead

Site Location Plan
(Local Context)

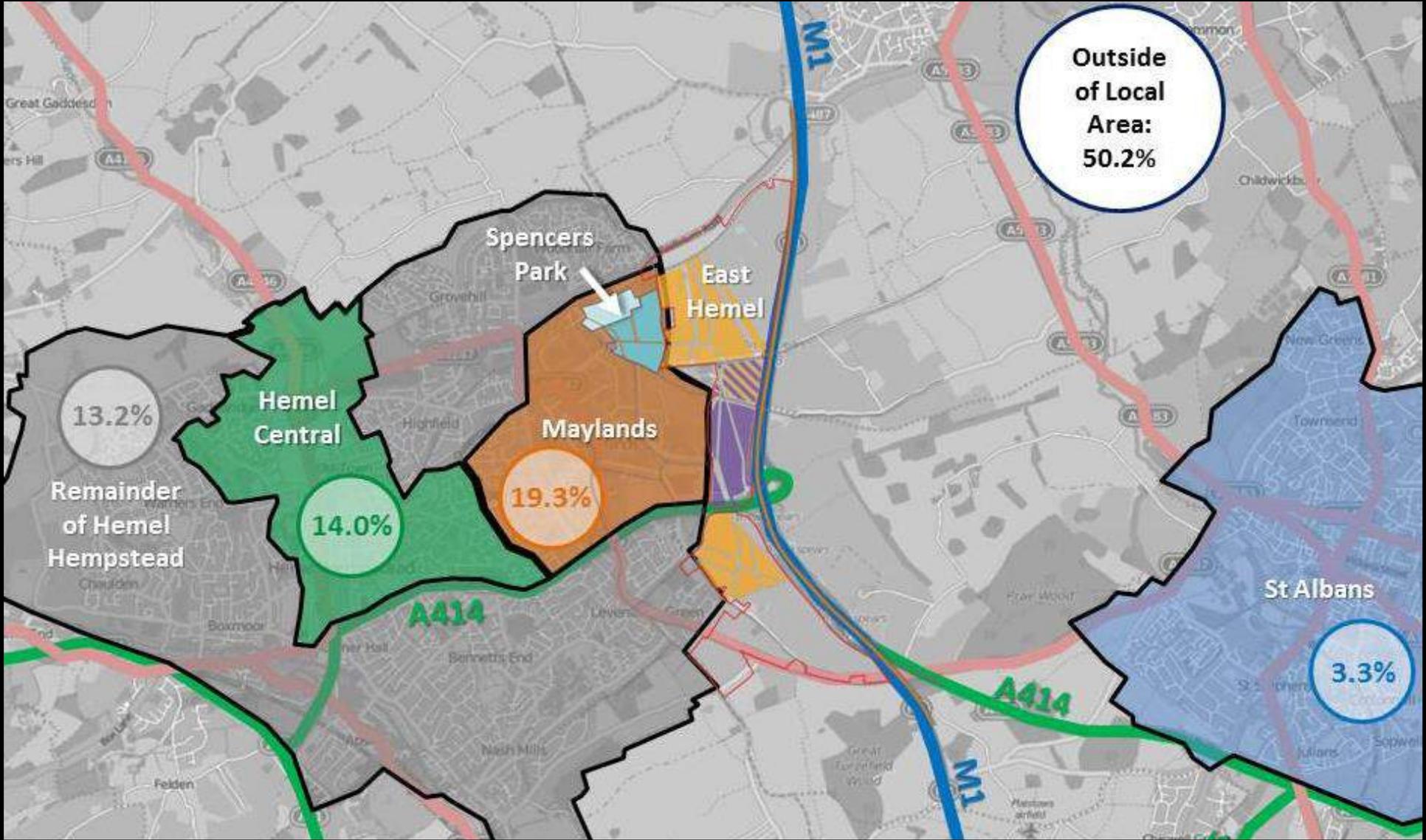
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LK	MDC	13/07/16	.



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DRAWING REFERENCE: **Figure 2**



Key:

The Crown Estates

East Hemel Hempstead

Travel Patterns (Journey to Work)



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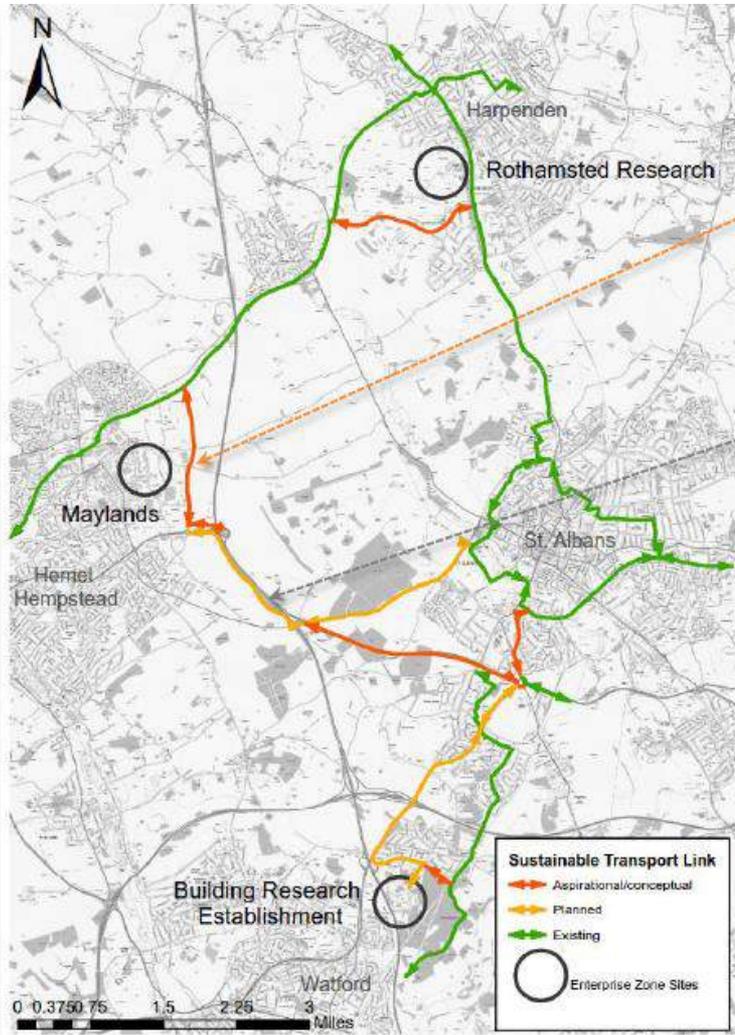
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13/07/16

NTS

DRAWING REFERENCE:

Figure 3



SC5 Nickey Line
'branchline'
 (alongside SC2
 N-S spine road)

HCC-led project
 A4147-A414T(M1)-A414
 Breakspear Way cycle
 link



Maylands Study – SC3-6

May 5, 2016

Key:

The Crown Estates

East Hemel Hempstead

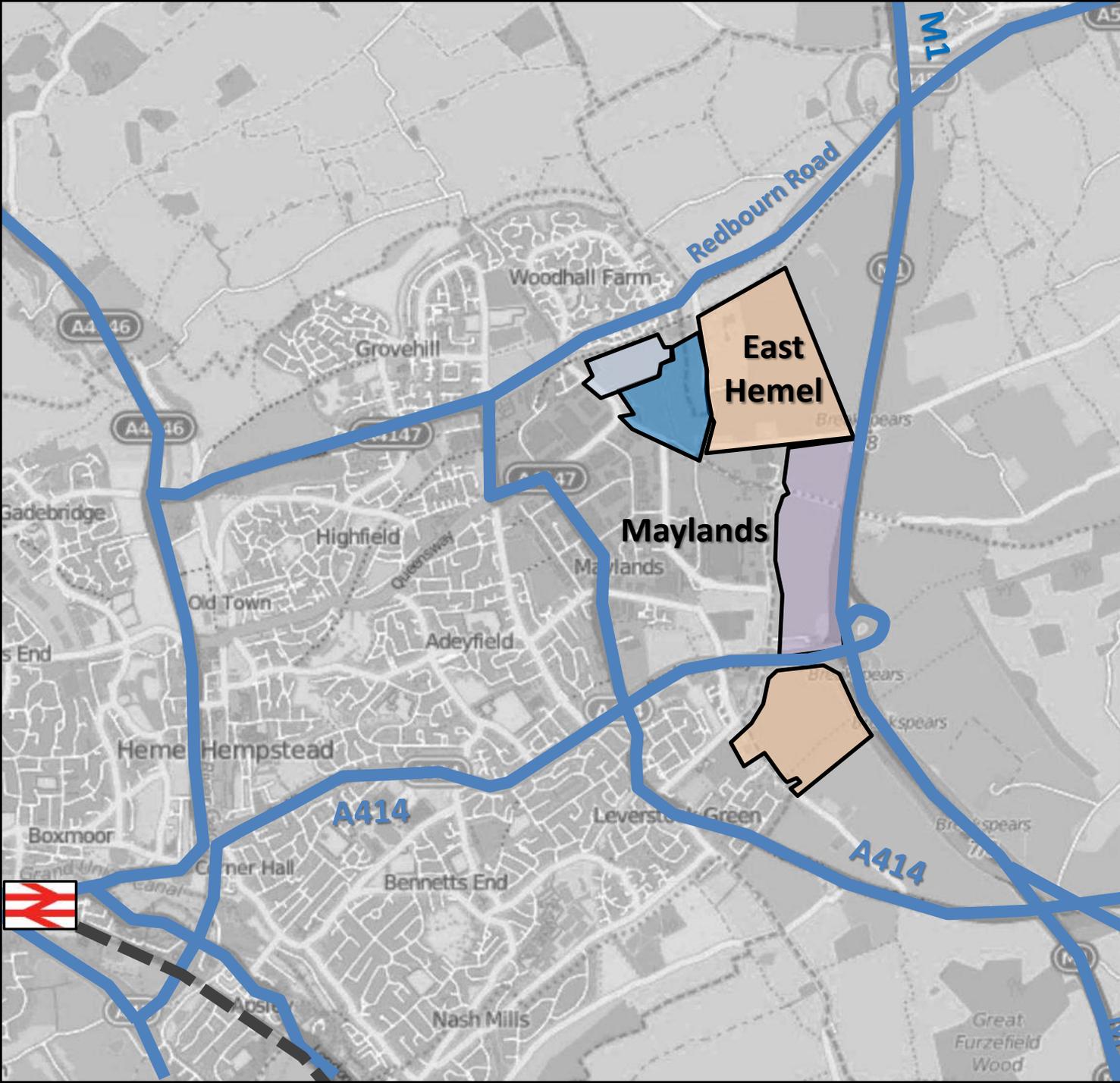
A4147-A414 Cycle Linkage



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DRAWN:	CHECKED:	DATE:	SCALE:
LK	DB	13/07/16	NTS

DRAWING REFERENCE: **Figure 4**



- Key**
-  Residential Development Parcels
 -  Commercial Development Parcels
 -  Spencer's Park Phase 1
 -  Spencer's Park Phase 2

The Crown Estate

East Hemel Hempstead

East Hemel Draft Allocation

Land Parcels

SCALES: NTS

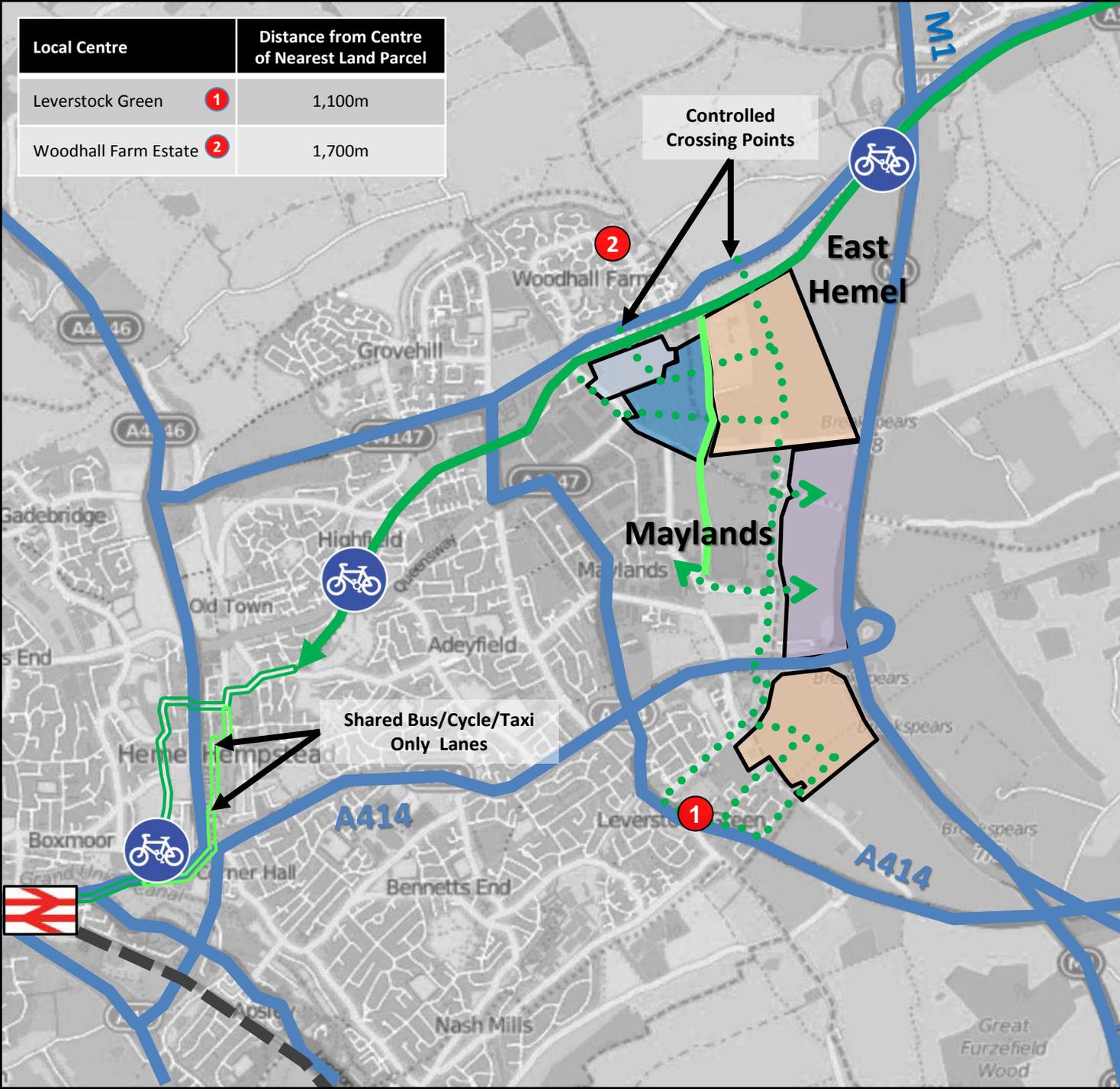
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LK	MDC	13/07/16	.



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DRAWING REFERENCE: Figure 5

Local Centre		Distance from Centre of Nearest Land Parcel
Leverstock Green	1	1,100m
Woodhall Farm Estate	2	1,700m



- Key**
- Residential Development Parcels
 - Commercial Development Parcels
 - Spencer's Park Phase 1
 - Spencer's Park Phase 2
 - Proposed Ped/Cycle Access
 - Nickey Line – Traffic Free Route
 - On-street Cycle Route on Quieter Roads (between Nickey Line & Hemel Station)
 - Alternative Cycle Route with Bus/Cycle/Taxi Only Sections (between Nickey Line & Hemel Station)
 - Creation of 'quietways' on some local roads (inc. Cherry Tree Lane and Buncefield Lane)

The Crown Estate

East Hemel Hempstead

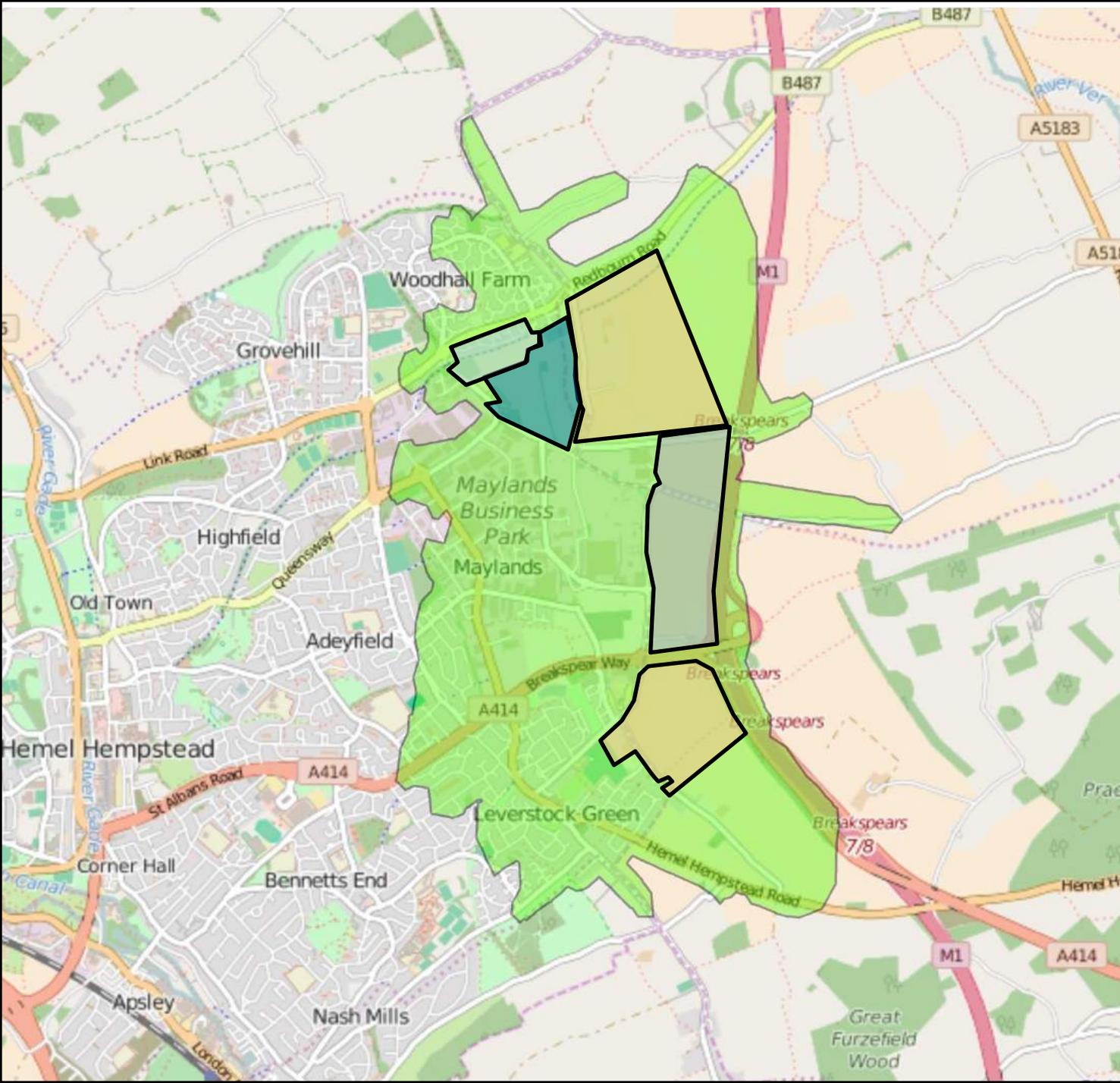
Walking and Cycling Strategy

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LK	MDC	13/07/16	.



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DRAWING REFERENCE: **Figure 6**



Key
 2km Walking Isochrones

The Crown Estate

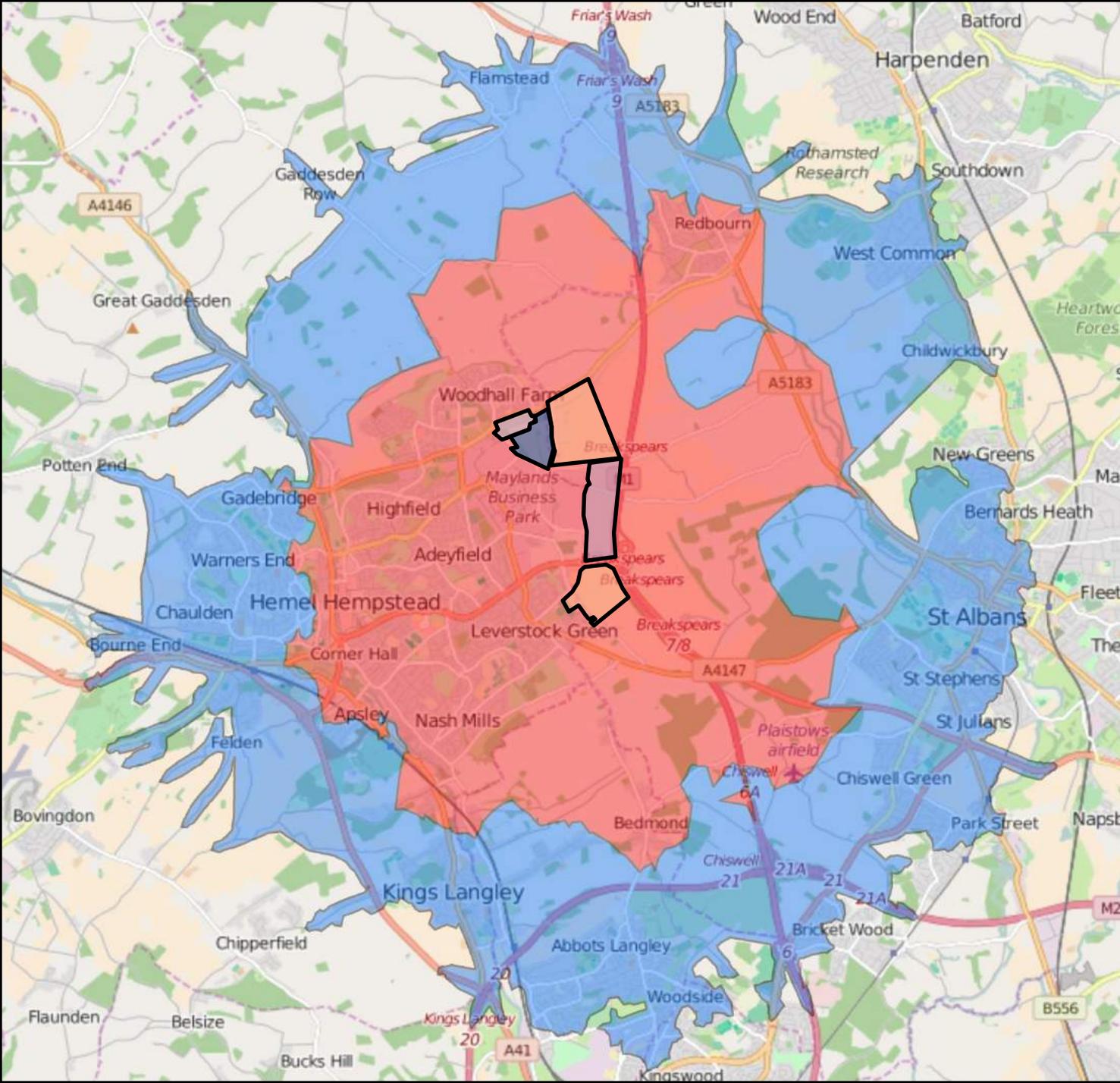
East Hemel Hempstead

2km Walking Isochrones

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DRAWN: LK	CHECKED: MDC	DATE: 13/07/16	REVISION: .

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DRAWING REFERENCE: **Figure 7**



Key

- 5km Cycling Isochrones
- 8km Cycling Isochrones

The Crown Estate

East Hemel Hempstead

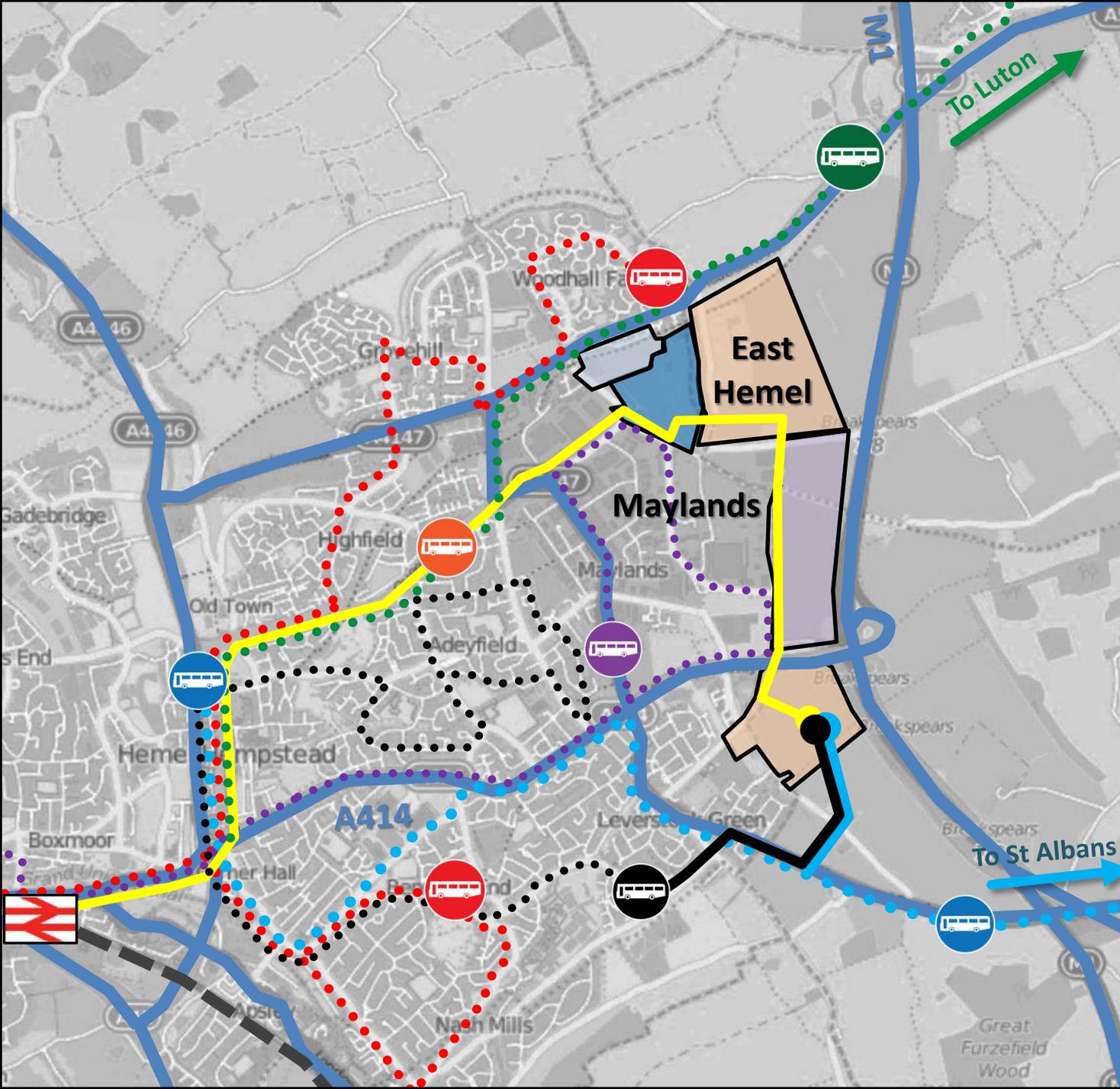
5km and 8km Cycling Isochrones

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DRAWN: UK	CHECKED: MDC	DATE: 13/07/16	REVISION: .



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DRAWING REFERENCE: **Figure 8**



- Key**
- ● ● Existing Route 1
 - ▬ Proposed Route 1 Extension
 - ● ● Existing Route 2
 - ▬ Proposed Route 2 Extension
 - ● ● Existing Route 46
 - ● ● Existing Route 300 / 301
 - ▬ Proposed Route 300 / 301 Diversion
 - ● ● Existing Route ML1
 - ▬ Proposed New Bus Route
 - ▬ Railway Line
 - ▭ Hemel Railway Station

The Crown Estate

East Hemel Hempstead

Bus Strategy

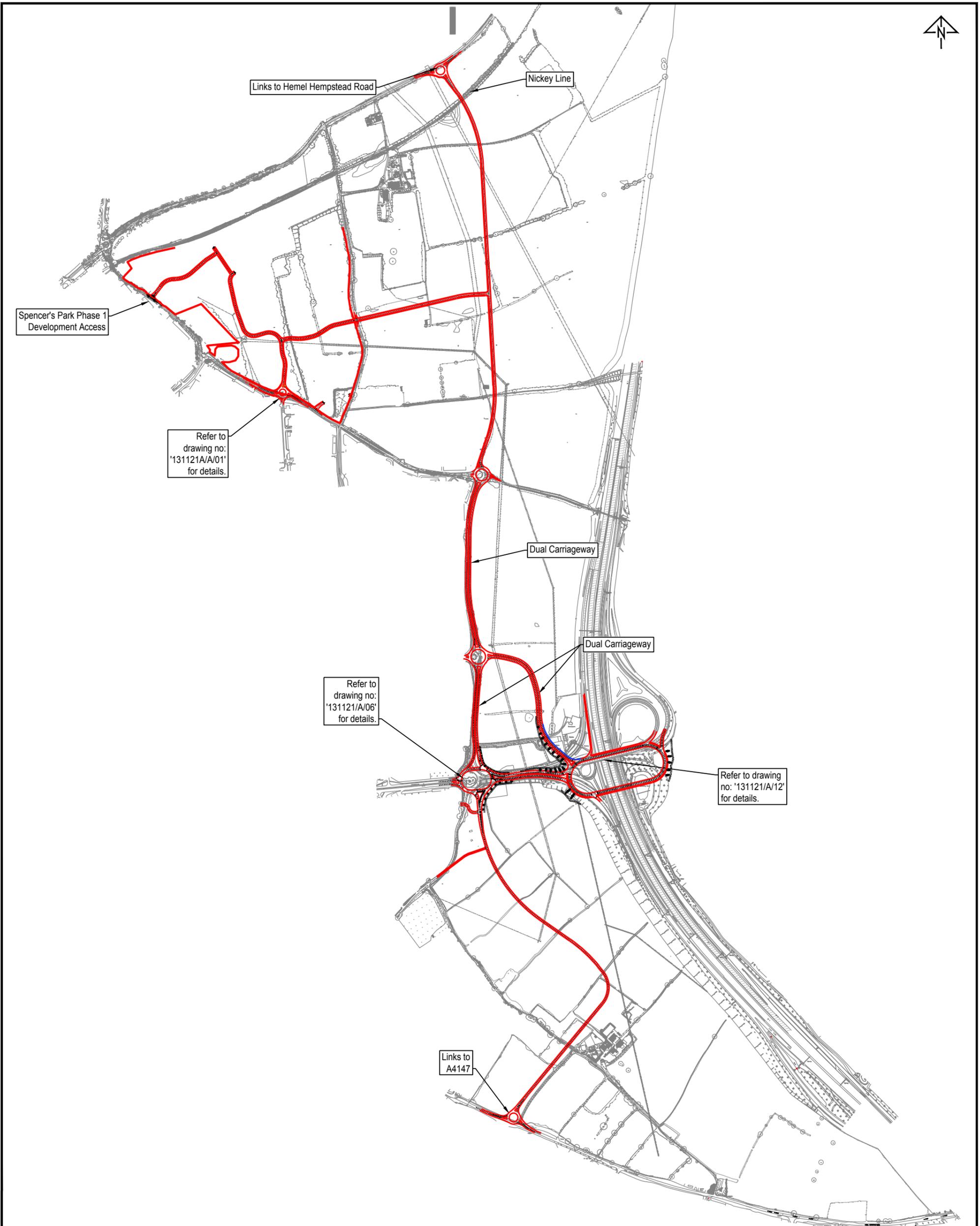
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DRAWING REFERENCE: **Figure 9**

APPENDIX A



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REV	DETAILS	DRAWN	CHECKED	DATE
A	Alignment to south updated to suit.	TF	DB	25.02.2016
B	Junction options and links updated.	TF	DB	18.04.2016
C	Junction options and links updated.	TF	DB	31.05.2016
D	Junction options and links updated.	TF	DB	19.07.2016

Notes:
1. This is not a construction drawing and is intended for illustrative purposes only.
2. White lining is indicative only.

DRAFT
FOR INFORMATION ONLY

East Hemel Hempstead

Highway Design Scope
(up to Planning Application)

DRAWN: TF	CHECKED: DB	DATE: 15.02.2016	SCALES: 1:12,500 at A3 (1:6250 at A1)
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The Crown Estates



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Appendix 3: Maylands Growth Corridor Study Hemel Hempstead: Investment Prospectus (January 2018)

Maylands Growth Corridor

Hemel Hempstead

INVESTMENT PROSPECTUS

January 2018





Contents

Context

Pages 3-4

Why investment is needed

Pages 5-7

Stakeholders and Policy

Page 8-9

Developing the Study

Page 10

Proposals

Pages 11-30

The way ahead

Page 31-32

Context

In 2015, Hertfordshire Local Enterprise Partnership commenced work on the **Maylands Growth Corridor Study**. The purpose of the study was to identify current and future transport constraints and opportunities facing the Maylands area of Hemel Hempstead. The area is set to undergo a transformation in the future as a result of planned new housing and employment development. There was a need therefore to confirm the challenges relating to the transport network in and around the Maylands area, and identify the priorities for investment in transport infrastructure and services.

The Study has been developed in partnership with Hertfordshire County Council, Dacorum Borough Council, St Albans City and District Council, Highways England and The Crown Estate.

Maylands forms part of Hertfordshire's **Enviro-Tech Enterprise Zone (EZ)**.

The overarching aim of the EZ is to support and develop the existing enviro-tech sector in west Hertfordshire and attract more businesses to the area thanks to its excellent national and international transport links. The multi-site EZ covers Maylands Business Park as well as underused land and buildings at the Building Research Establishment (Bricket Wood) and Rothamsted Research (Harpenden).



The aims of the EZ are to **harness Hertfordshire's relationship with London and elsewhere** (the area benefits from direct access to the M1, with easy links to London, international hubs including London Luton Airport, the wider South East and the Midlands and provides a gateway to the UK economy); to **maintain global excellence in science and technology** (the EZ sits at the heart of the Golden Research Triangle (Cambridge-London-Oxford) so attracts inward investment and supports businesses seeking expansion space from constrained sites within Greater London); it will **harness the expertise of partnership organisations including BRE, Rothamsted Research and the University of Hertfordshire** to establish Hertfordshire as a **globally renowned centre of excellence in green technology**; and it will **provide the foundations for growth**.

The EZ is expected to deliver over **8,000 new jobs, 800 new businesses**, many of which will be based in Maylands, and an **uplift in land values in the region of £120m**.



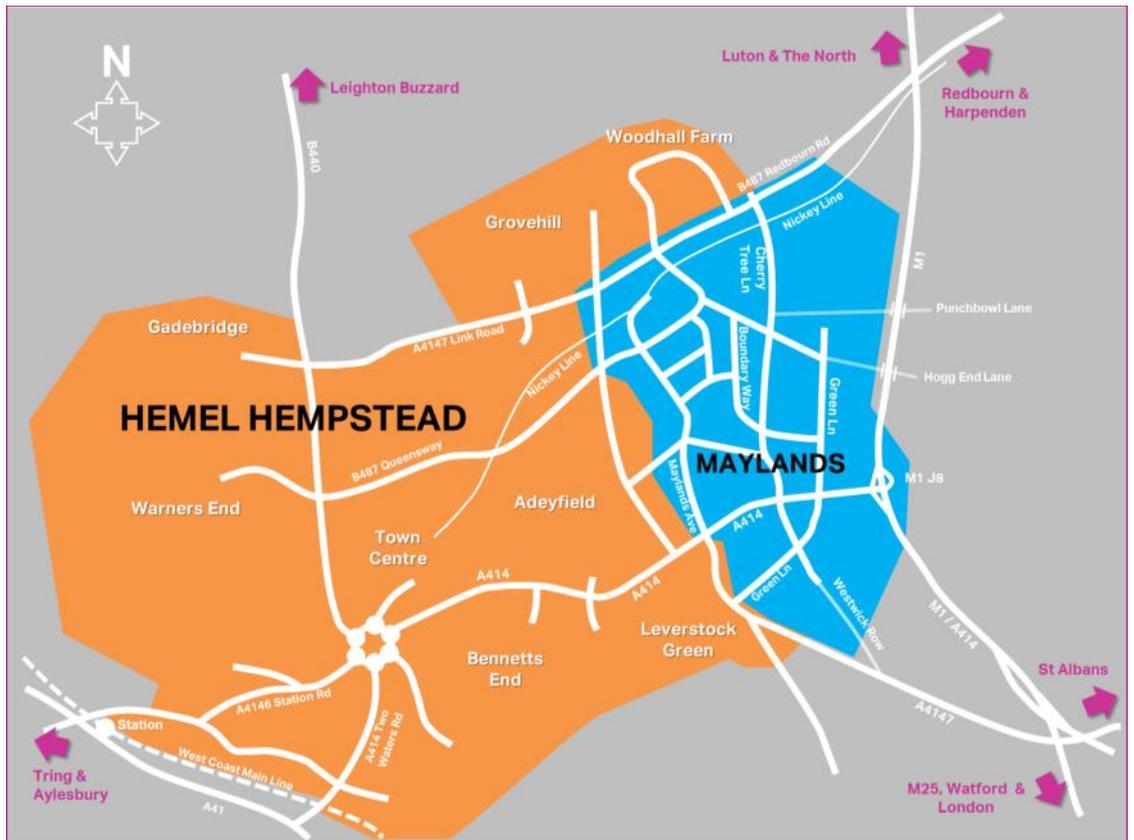
Maylands Business Park is already one of the largest business parks in the East of England and it is currently home to over **650 businesses** that employ over **18,000 people**. It benefits from superior access to the motorway network meaning that businesses can benefit from being well connected with the rest of Hertfordshire, Greater London, the South East of England and beyond. The site contains a range of premises and uses to suit all business needs. From large scale warehousing to small incubator units for new business start-ups. The area is currently subject to regeneration. The Maylands Gateway Development brief design guidance sets the context for delivering future phases of the Maylands Urban Realm Improvements (utilising Section 106 contributions from expected development in the area).

With new jobs comes new pressures placed on the transport network, be it on the highway network with additional vehicle movements or the increasing need to provide employees attractive and viable alternatives to the car to get to and from work, whether this is on foot, by bike, by bus or by train.

It is not just about new jobs and economic growth. Hemel Hempstead is expanding with current plans to build around 10,000 new homes in and around the town up to 2031 including large urban extension developments at Spencer's Park and East Hemel Hempstead which will sit adjacent to the existing Maylands business park area. Residential development is already occurring within the Maylands area, including the Maylands Plaza development. A greater mix of residential and employment will change travel demand and movement patterns.

The study has therefore been critical in confirming what is needed to support growth and to ensure the transport network can and will operate efficiently and sustainably in the future.

Location



△ Maylands in the local context

Maylands is located on the eastern side of Hemel Hempstead. The area is approximately 3km from Hemel Hempstead town centre and 4.5km from the town's main railway station. St Albans is located around 6km to the east.

▽ Maylands in the strategic context

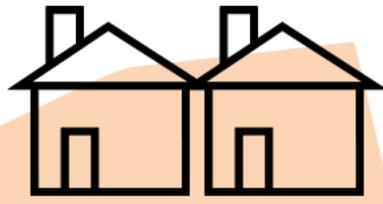


Maylands and the eastern Hemel Hempstead area is located at the crossroads of the M1 (north-south) and A414 (east west) strategic corridors. M1 Junction 8 is located on the south-eastern

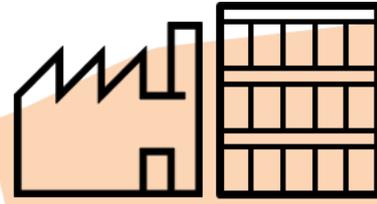
side of Maylands and acts as the main eastern transport gateway to Hemel Hempstead. It is through M1 Junction 8 that the A414 crosses the M1, linking Hemel Hempstead with the rest of Hertfordshire. The M25 is located around 6km to the south of Maylands and Luton Airport is located 13km to the north.

Why investment in infrastructure in Maylands is needed

New homes and new jobs



4,000+ homes



8,000 jobs

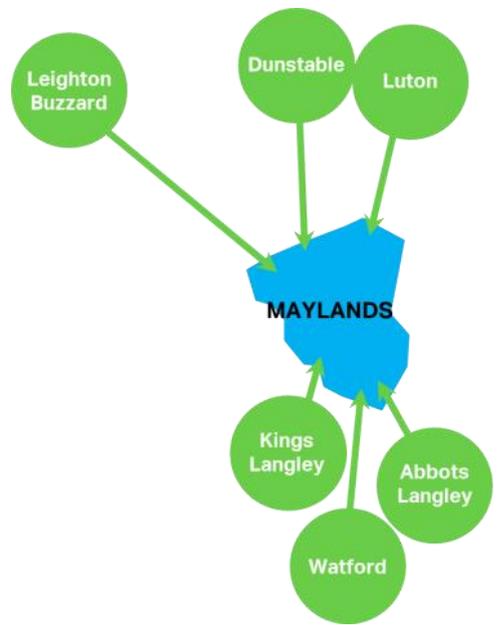
The Maylands and eastern Hemel Hempstead area will be a focus of new homes and jobs in the coming years. Over 4,000 new homes are planned in the immediate area, including the East Hemel Hempstead urban extension and Spencer's Park. As part of the EnviroTech Enterprise Zone, around 8,000 new jobs are planned with renewal and intensification of the existing business park area and brand new office and logistics space provided within the Eastern Hemel Hempstead urban extension.

Key Developments in the local area



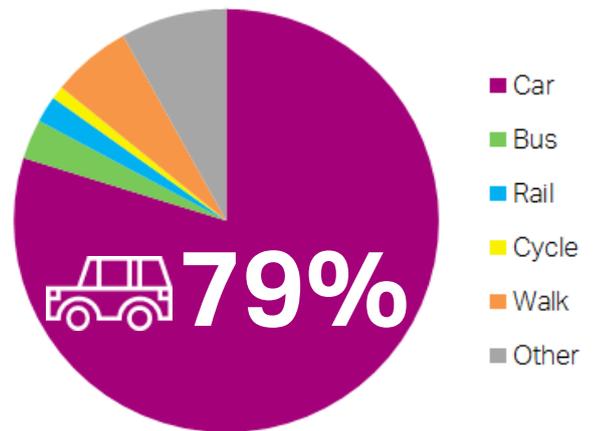
Transport Challenges

Maylands attracts people in for work not just from Hemel Hempstead but from a wide area spanning towns such as Luton, Leighton Buzzard and North Watford. Longer distance commuting journeys are more likely to be made by car than by public transport given the edge of town location of the business set away from Hemel Hempstead town centre and railway station. Roads like the M1 and A414 are key commuter corridors.



For commuting journeys into Maylands from within Hemel Hempstead, a higher proportion are from areas which immediately surround the business park including Grovehill, Woodhall Farm and Adeyfield. There are also commuting journeys from Bennetts End and Apsley on the southern edge of the town.

For commuting journeys into Maylands from everywhere (including from other towns), nearly 80% of these trips are made by private car. This is over 11,000 trips to work. However, only 6% of people walk (around 900 trips) and 3% travel by bus (around 400 trips). Fewer travel by bike or by rail. There is untapped potential to increase non-car mode share, particular on foot and by bike for shorter distance journeys within Hemel Hempstead, but also by bus/coach from surrounding towns such as Luton and Watford.



With so much reliance placed upon the private car to get to and from work in Maylands, this inevitably places highway links under strain within and surrounding the area. Severe traffic congestion is a regular occurrence during morning and evening peak periods on the A414 Breakspear Way (which is a main arterial route serving the entire town) especially so eastbound (towards the M1) and also on roads within Maylands including Boundary Way, Green Lane and Maylands Avenue. Observations indicate that it can take up to 10 minutes to travel just under 1km approaching the A414 Breakspear Way-Green Lane roundabout, with average speeds of less than 15mph (on a road with a speed limit of 70mph).

Planned growth will generate additional demand on the transport network. If the current level of car mode share to work was maintained in the future, this could mean an extra 6,000 car movements to/from work every day, many occurring during the morning and evening peak periods. Additional homes will also create additional travel demand, and whilst it is anticipated that some of the residents of the planned new housing developments will work in Maylands and would therefore be less reliant on the car for commuting journeys, there will be people who need to travel elsewhere for work and other trip purposes. The planned additional homes in Maylands alone could generate an extra 5,500 cars, and a notable proportion of these could be using the road network during the peak periods.

It is not just commuters who are affected. Many of the businesses in Maylands rely on the highway network to transport goods and services.—they need a quick and reliable transport network. Traffic congestion and delays can be damaging to the local economy.



△ Locations of problems

Current problems

A number of problems have been identified through evidence gathering and discussions with stakeholders. The most prevalent issues are shown in the figure to the left.

- 1** - A dominant right turning movements from the M1 towards Maylands (Green Lane north) causes very long queues and delays on all other approaches.
- 2** - Severance caused by very busy, heavily trafficked roads makes crossing the road for pedestrians and cyclists quite difficult and potentially unsafe.
- 3** - Traffic is rat-running on narrow lanes through the area to avoid queues elsewhere, including Cherry Tree Lane, Buncefield Lane and part of Green Lane (south) through Leverstock Green
- 4** - Access to the Nickey Line for pedestrians and cyclists is difficult especially from Chery Tree Lane and Three Cherry Trees Lane (very steep)
- 5** - Obstructive HGV parking can cause damage to the highway verge, create litter and cause disruption to traffic. on other roads

What might be the cause of these problems?

These problems may be caused by a number of underlying issues. The Maylands and eastern Hemel Hempstead area is **remote from Hemel Hempstead town centre and rail station** making it too far to walk or cycle for many people. The area's close **proximity to the M1** is an asset (making it attractive to business) but this also encourages the use of the car. There is an **unclear hierarchy of roads** which is leading to less suitable, narrow lanes being used by traffic when they could be reserved for pedestrians and cyclists. There is a **lack of HGV parking** both on and off road for deliveries, leading to inconsiderate HGV parking in some locations. The **type of employment provided in Maylands is not always conducive to travelling by public transport or on foot/by bike** because people are travelling at

How can these problems be tackled?

There are different approaches that can be used to tackle these problems. Planned development presents opportunities to deliver positive change to the Maylands area by providing much needed new and improved transport infrastructure and services. Improvements will tackle these issues and deliver the following key outcomes

Reduced delays on surrounding road network, thus creating shorter and more reliable journey times

More viable and attractive alternative modes to the car particularly for shorter distance journeys

Efficient management of HGV Traffic with reduced disruption to general traffic and unobtrusive parking

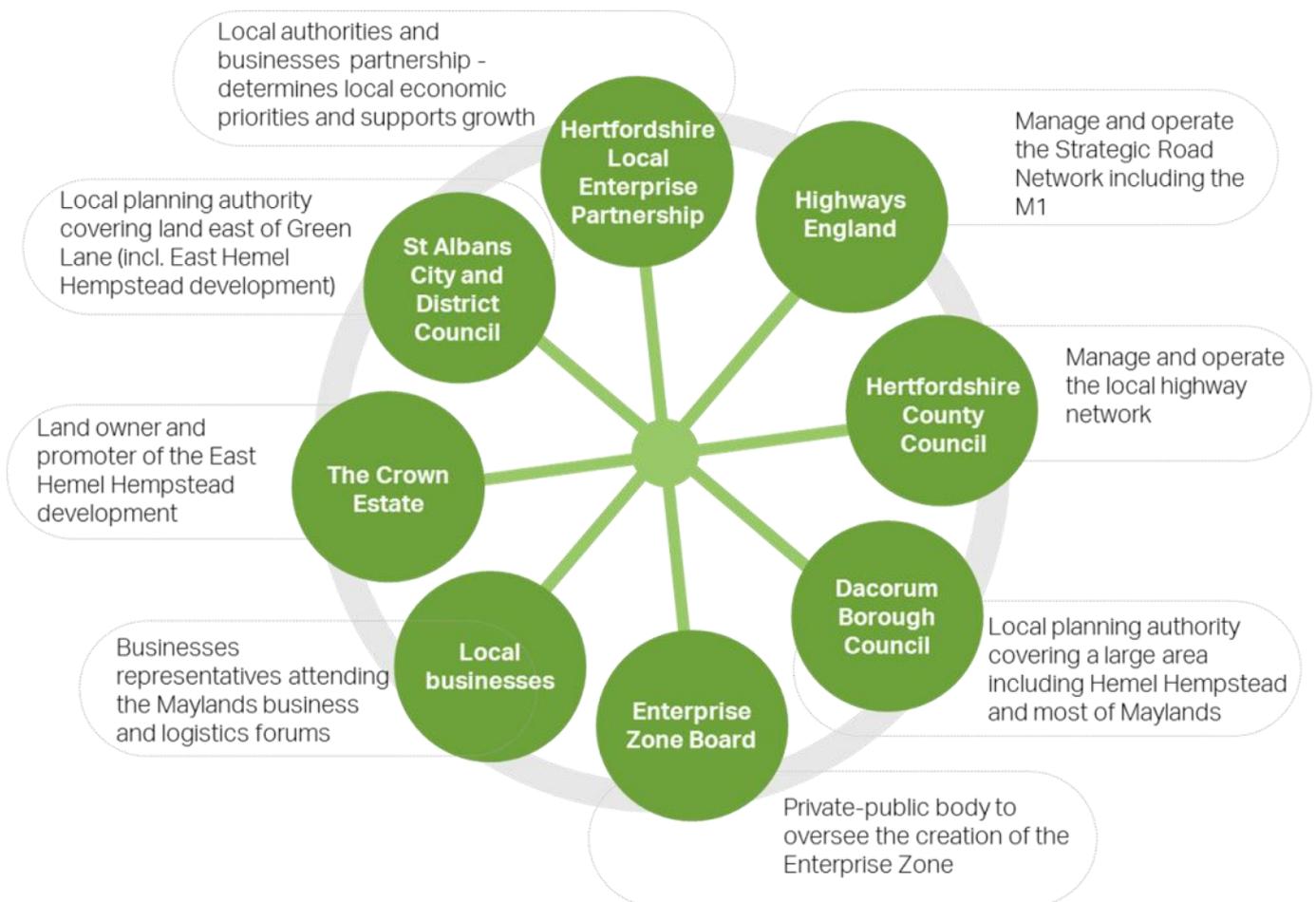
Key Transport Outcomes

Stakeholders and Policy

The Maylands Growth Corridor Study has been led by Hertfordshire Local Enterprise Partnership in collaboration with Dacorum Borough Council and St Albans City and District Council (the two local planning authorities), Hertfordshire County Council, Highways England and The Crown Estate (major landowner and promotor of the East Hemel Hempstead urban extension development).

Since the Maylands Growth Corridor Study was commissioned, the EnviroTech Enterprise Zone Board has been set up to oversee the creation of the Enterprise Zone including the delivery of key transport improvements.

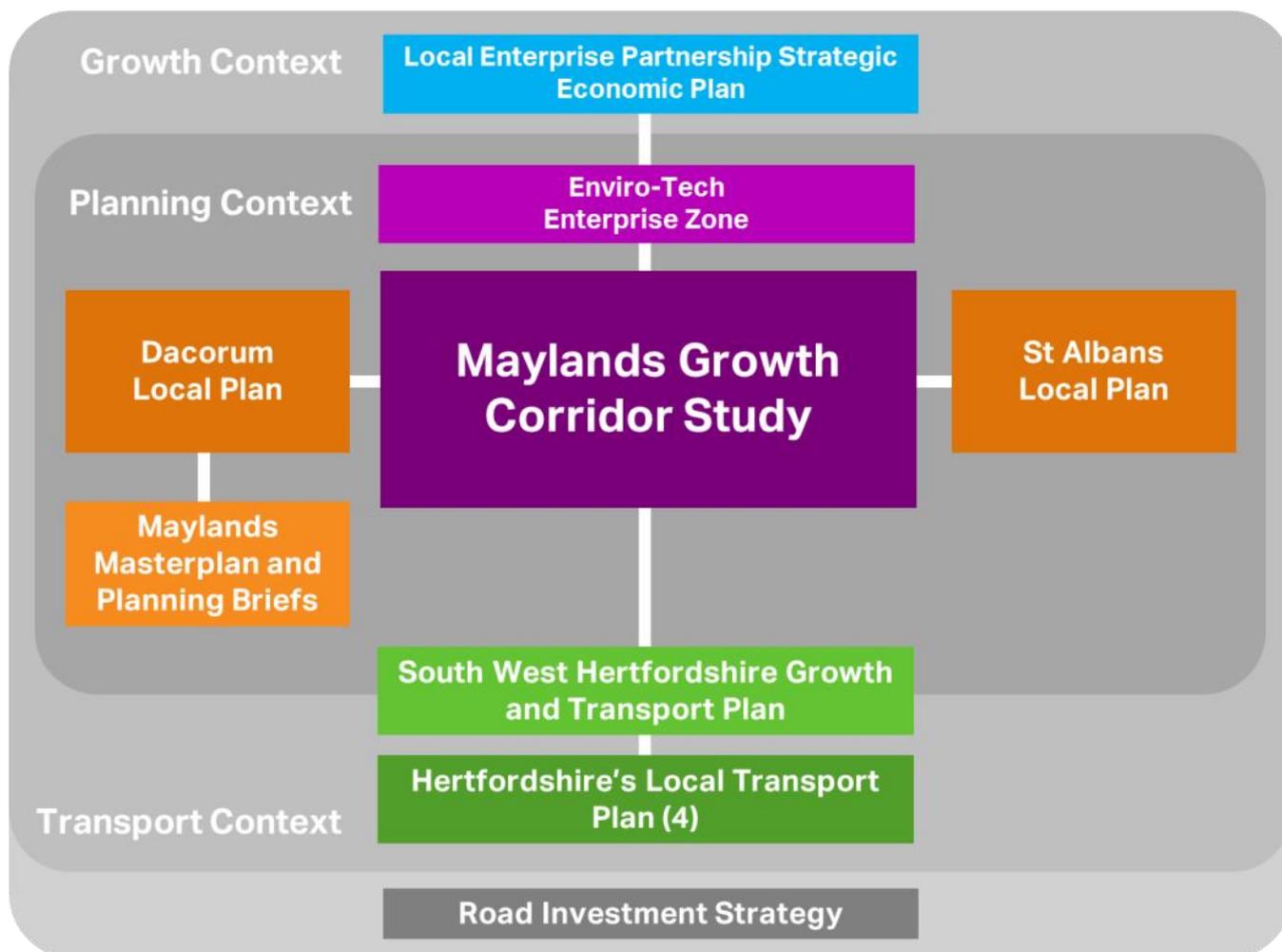
The stakeholder group has helped to shape and direct the development of different aspects of the study, including the formation of supporting evidence and the generation of interventions (or Scheme Concepts as they are referred to in the study).



Local businesses have been engaged at points during the development of the study to gather views on their priorities and preferences for infrastructure investment. All of these stakeholders will play a critical role in the realisation of the Maylands Growth Corridor Study proposals going forward.

The transformation of Maylands is enshrined in policy and is supported by other strategies at a local and more strategic level.

Supporting policy and strategy framework



In a broader growth context, Hertfordshire’s Local Enterprise Partnership’s **Strategic Economic Plan** ‘Perfectly Placed for Business’ 2017-2030, sets out the LEP’s priorities and aims for facilitating economic growth and maintaining prosperity across Hertfordshire. It provides the strategic background for growth in Maylands and underpins the Enviro-Tech Enterprise Zone which was established in 2016.

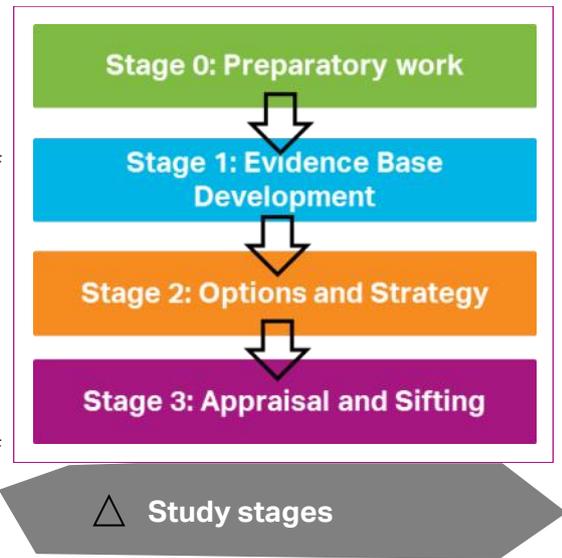
In a local planning context, the two local planning authorities—Dacorum Borough Council and St Albans City and District Council—have **Local Plans** (either adopted or emerging) which set out the level and spatial distribution of housing and economic growth across the area. Maylands and the East Hemel Hempstead area spans both planning authorities therefore it is important to take on board both authorities’ future visions and proposals for housing and economic growth as well as the need to maintain services and protect the environment. In addition to the local development plans, Dacorum Borough Council has an adopted **masterplan** and a series of **planning briefs** to guide the transformation of the Maylands business park.

In a transport context, Hertfordshire County Council’s **Local Transport Plan** provides county-wide policy, objectives and proposals for the transport network. The emerging **South West Hertfordshire Growth and Transport Plan** translates LTP policies and goals at a sub-county level, and identifies packages of interventions within Hemel Hempstead and along inter-urban corridors such as the M1 and A414.

In a broader context, Highways England has an ambitious programme to improve the Strategic Road Network, including the M1. The **London to Scotland East Route Strategy** (part of their **Road Investment Strategy 2**) identifies M1 Junction 8 as a key congestion point.

Developing the Study

Work commenced in 2015 on the Maylands Growth Corridor Study. The study has been developed through a series of stages. **Stage 0** involved preparatory work to confirm the locations and severity of existing problems on the transport network and to clarify the levels of housing and employment growth coming forward. **Stage 1** involved building the supporting evidence base and tools that would be used to inform the development of the study, including updates to the Hemel Hempstead Traffic Model. **Stage 2** took the findings from Stages 0 and 1 and developed a series of Scheme Concepts that would address the transport problems and respond to future growth. The study has culminated in **Stage 3** which has involved a process of appraisal, sifting of options and consideration of the phasing and packaging of interventions.



The study is presented in full across a series of core documents aligned with the study stages. These are summarised below. In addition, there is a range of supporting documents which align with the study's findings and proposals, and these including the Local Transport Plan 4, South West Hertfordshire Growth and Transport Plan, Hemel Hempstead Evidence Pack, the local planning authorities' Local Plans and the LEP's Strategic Economic

Maylands
Growth Corridor
Study core doc-
uments

<p>Maylands Growth Corridor Study Stage 0 Report</p>	<h2 style="color: #76b82a;">Stage 0</h2> <ul style="list-style-type: none"> Stage 0 Issues Report (2015)
<p>Maylands Growth Corridor Study Stage 1 Report</p>	<h2 style="color: #00a0e3;">Stage 1</h2> <ul style="list-style-type: none"> Hemel Hempstead Traffic Model Local Model Validation Report (2016) Hemel Hempstead Traffic Model Forecasting Report (2017)
<p>Maylands Growth Corridor Study Stage 2 Report</p>	<h2 style="color: #f79646;">Stage 2</h2> <ul style="list-style-type: none"> Model Sensitivity Test Report (2016) Scheme Concept 1 Options Feasibility Report (2016) Scheme Concepts 3-6 Options Report (2016) Scheme Concept 7 Lorry Parking and Routing Report (2016) Scheme Concept 8 Bus Service Provision Options Report (2016)
<p>Maylands Growth Corridor Study Stage 3 Report</p>	<h2 style="color: #9b30ff;">Stage 3</h2> <ul style="list-style-type: none"> Scheme Concept 1 Options Sifting Report (2017) Phasing and Packaging Report (2017)

A full list of core and supporting documents are provided on page 32.

Proposals



Interventions to improve walking and cycling access and connectivity

A series of interventions, known as **Scheme Concepts**, have been devised to help facilitate important economic growth in the Maylands and East Hemel Hempstead area and to address existing and future challenges on the surrounding transport network.

The Scheme Concepts are wide ranging and designed to cater for different users of the transport network in the area.

Some of the interventions will provide additional highway capacity, improved connectivity and enable more efficient use and management of the road network in and around Maylands. These interventions should reduce journey times and traffic queues, and take traffic off narrower and less suitable parts of the highway.

Some of the interventions recognise the importance of providing safe, attractive and prioritised routes for pedestrians and cyclists, especially where these users are likely to interact with and potentially come into conflict for motorised vehicles. These interventions will open up Maylands to its immediate surroundings and make journeys on foot and bike to and through the area a more viable, healthier and enjoyable mode of choice.

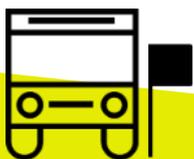
Given Maylands' edge of town location, some distance from large parts of Hemel Hempstead including the town centre and railway station, and in recognition that many employees live in other neighbouring towns, bus services will continue to provide important short and medium distance connections. Enhancements to existing services as well as new services and supporting infrastructure will make bus and coach a far more attractive proposition.

Finally, the efficient movement of goods is vital to Maylands, therefore recognition is given to a package of interventions which help local businesses transport goods around more efficiently.

The full schedule of Scheme Concepts is shown over the page along with a map identifying their broad locations.



Interventions to improve routing and parking for large goods vehicles

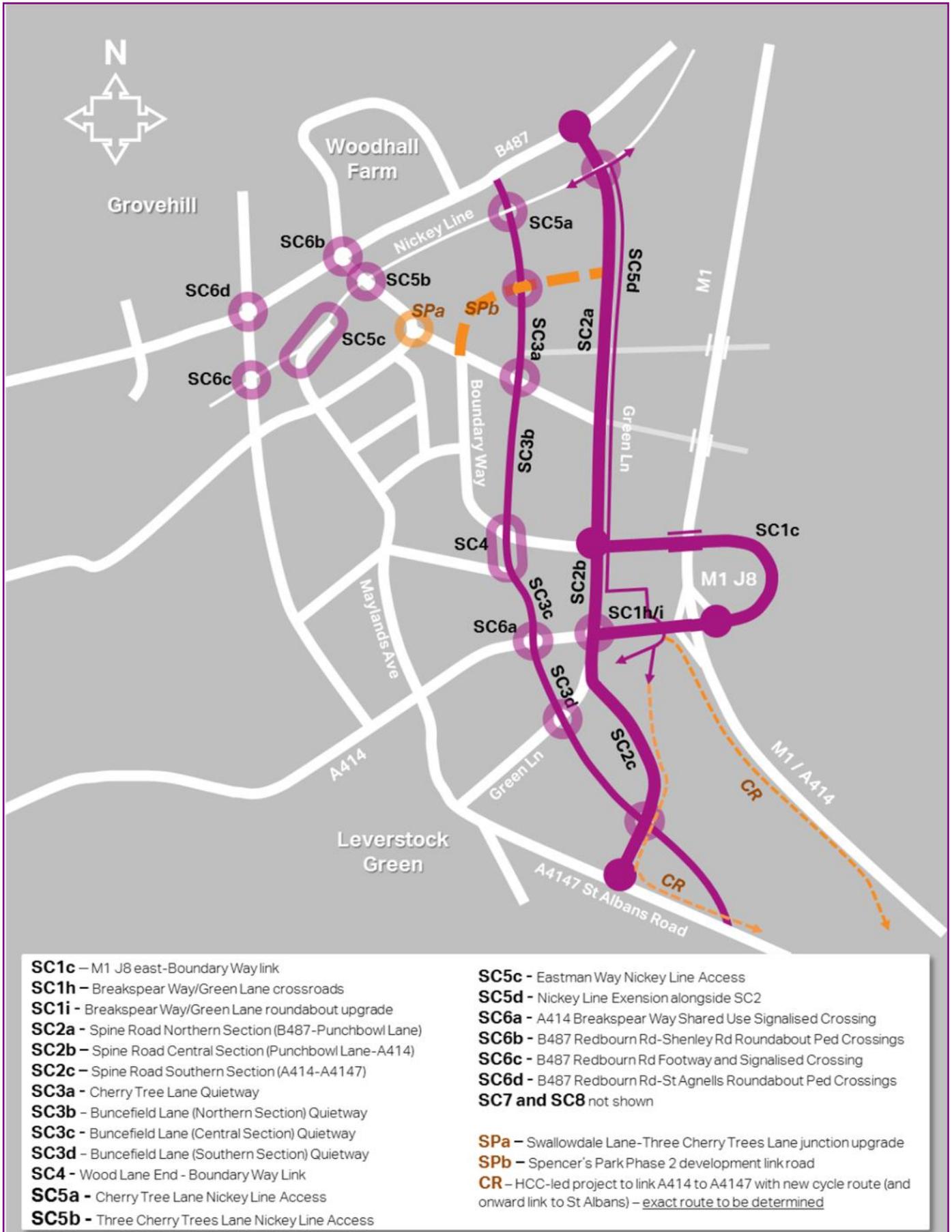


Interventions to introduce new and altered bus services and supporting infrastructure



Interventions to reduce congestion and improve journey times

The Maylands Scheme Concepts



△ Overview map of Scheme Concepts

Schedule of Interventions

Scheme Concept	Name	ID	Description
SC1	Eastern Gateway	c	M1 J8 east – Boundary Way link road
		h	A414 Breakspear Way/Green Lane staggered signalised crossroads including pedestrian/cycle bridge
		i	A414 Breakspear Way/Green Lane roundabout signalisation upgrade
SC2	Multi-Modal Spine Road	a	Northern Section (B487-Punchbowl Lane)
		b	Central Section (Punchbowl Lane-A414)
		c	Southern Section (A414-A4147)
SC3	Quietway Green Corridor	a	Cherry Tree Lane Quietway
		b	Buncefield Lane (Northern Section) Quietway
		c	Buncefield Lane (Central Section) Quietway
		d	Buncefield Lane (Southern Section) Quietway
SC4	Wood End Lane-Boundary Way Link Road	-	Wood Lane End - Boundary Way Link
SC5	Nickey Line Enhancements	a	Cherry Tree Lane Nickey Line Access
		b	Three Cherry Trees Lane Nickey Line Access
		c	Eastman Way Nickey Line Access
		d	Nickey Line 'branchline' extension alongside SC2
SC6	Foot and Cycle Access Routes	a	A414 Breakspear Way Shared Use Signalised Crossing
		b	B487 Redbourn Rd-Shenley Rd Roundabout Ped Crossings
		c	B487 Redbourn Rd Footway and Signalised Crossing
		d	B487 Redbourn Rd-St Agnells Roundabout Ped Crossings
		e	A4147 Redbourn Rd crossing (Nickey Line)
SC7	Lorry Parking and Routing	a1	Further investigations re. expansion of Furnell's facility
		a2	Expand Watling Street lorry park
		a3	Introduce new lorry parking facility
		b	Subsidy of local HGV parking
		c1	Better signage of Furnell's Lorry Park and A5 Lorry Park
		c2	Promotional campaign to raise awareness of lorry parks
		d1	Introduce Bollards
		d2	Traffic Regulation Orders
		d3	Awareness Campaign
		e1	Formalise HGV laybys on Green Lane
		e2	Introduce lay-bys on Eaton Road
		f	Revise delivery arrangements
SC8	Bus Service Enhancements	a4	Amended ML1 + Extension (2-way working on Maylands Avenue)
		c	Re-route Centrebus '46'
		e	Re-route Arriva '320'
		f	Extension of Greenline 759 commuter coach

Scheme Concept 1 (SC1) Eastern Gateway

Improvements to M1 Junction 8 and A414 Breakspear Way-Green Lane Junction

One of the most significant and immediate challenges facing the Maylands and East Hemel Hempstead area is severe congestion and delays on the A414 Breakspear Way and in the vicinity of M1 Junction 8. This is not only critical to the immediate local area — the A414 is a major distributor route running through the middle of Hemel Hempstead and it is also a major east-west arterial route crossing Hertfordshire and therefore provides a vital inter-urban route between towns.

The A414 and M1 Junction 8 is the main gateway to Hemel Hempstead for people accessing jobs and services. The A414 carries a mixture of local shorter distance and more strategic longer distance journeys by private car, coach and HGV freight traffic.

What is the aim?

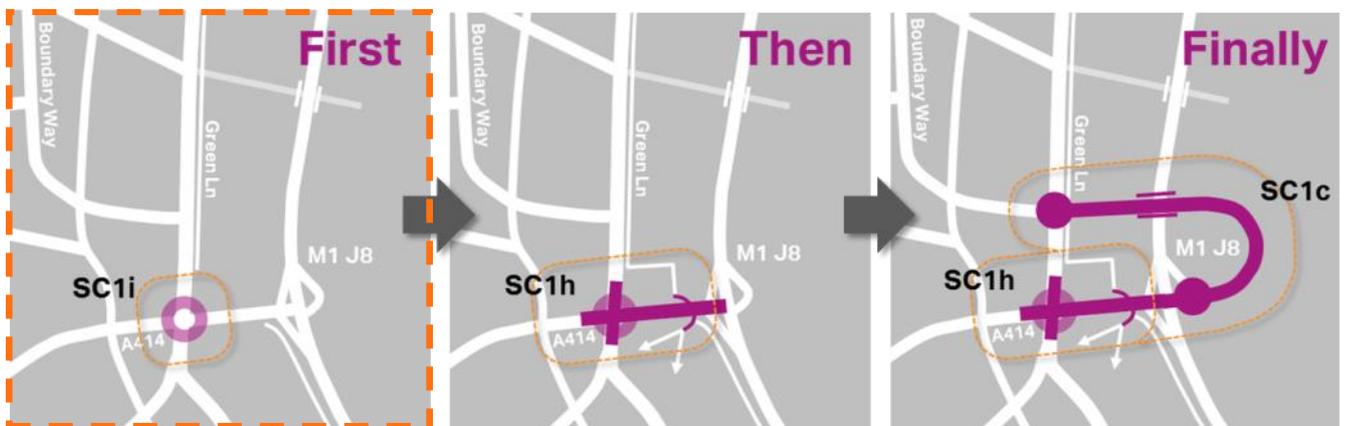
The aim of Scheme Concept 1 is to reduce current and future delays on the A414 Breakspear Way and adjoining routes in the vicinity of M1 Junction 8, and to provide additional capacity to enable planned new developments in Maylands and primarily the East Hemel Hempstead urban extension to go ahead.

What is proposed?

A range of highway-focused options have been considered, each varying in terms of scale and impact. It is important not to view each Scheme Concept in isolation, and that as a package the interventions will complement each other. Whilst Scheme Concept 1 will deliver increased highway capacity which will reduce queues and delays to motorists, it will also take pressure off other parts of the transport network so that they can facilitate movements by bike or on foot and free up capacity for buses.

A phased approach has been devised. As shown below.

OPTIONAL FIRST STEP



△ Indicative phasing of SC1 options

SC1i A414 Breakspear Way-Green Lane roundabout signalisation

SC1i comprises of the implementation of full-time traffic signals on the A414-Green Lane roundabout and re-shaping the central island and some approach arms to provide additional capacity for traffic.

SC1i is a potential interim measure which can deliver a moderate reduction in existing queue levels but is unlikely to be sufficient to accommodate additional traffic generated by planned new development in the longer term. The advantage of SC1i is that it will be quick to deliver and could have quite immediate beneficial effects on transport users, albeit only for a short period.

SC1h Staggered signalised crossroads

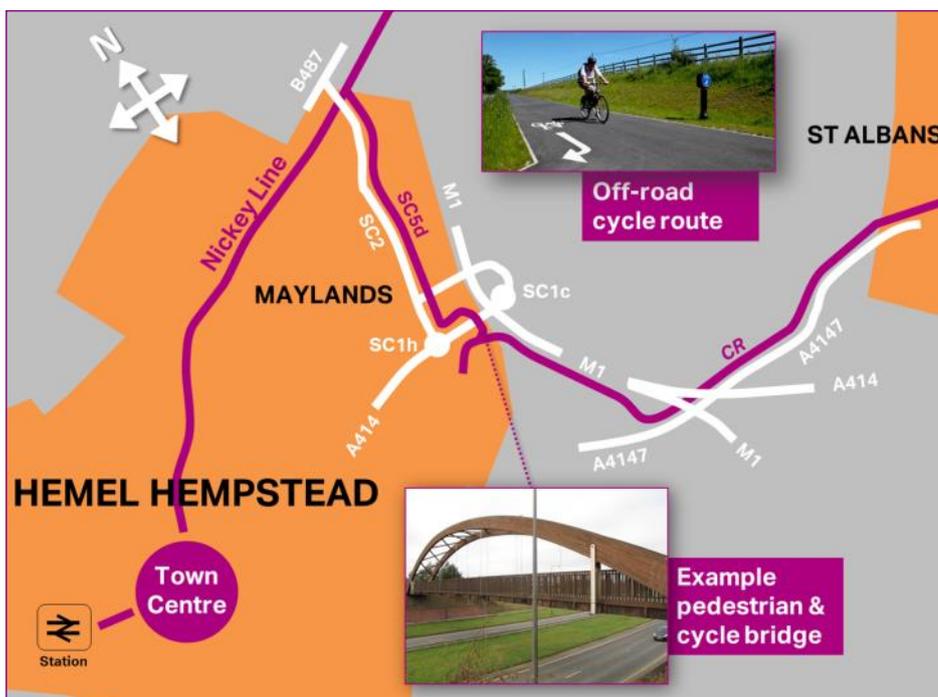
SC1h could be delivered in the short-term in place of SC1i (there would be no point in delivering them both within a short timeframe which would be disruptive and wasteful of limited funds) or it can follow SC1i after several years.

SC1h is integral to the emerging East Hemel Hempstead development masterplan. It comprises of replacement of the existing A414-Green Lane roundabout with a staggered signalised crossroads. This will provide greater management and control to different traffic movements. In the future, the junction will be an important conduit not only for east-west traffic along the A414 and to/from the M1, but also for north-south movements between different parts of the East Hemel Hempstead development. The existing roundabout layout will not be fit for purpose for dealing with this change in pattern of movements in the longer term.



△ Indicative Illustration of SC1c

An important component of SC1h is a new high quality pedestrian and cyclist only bridge over the A414. This bridge will link the East Hemel Hempstead North and South urban extensions together and form part of the cycleway 'branch' off the Nickey Line to the north which will connect to a new off-road cycleway alongside the A4147 to St Albans planned by Hertfordshire County Council. The bridge will be very user-friendly for pedestrians and cyclists, with clear, well lit and attractive routes connected to the development on either side of the A414.



△ Cycle route via SC1h bridge

SC1c M1 J8-Boundary

Way Link Road

Longer term, it is recognised that if Maylands is to continue to thrive, a larger piece of infrastructure will be needed which can also help ensure traffic can exit and enter the M1 motorway efficiently and safely.

SC1c is integral to planned new development and the growth and continued prosperity of Maylands and Hemel Hempstead as a whole. It comprises of a new roundabout on the eastern side of the M1, connected to the slip roads serving the south-bound M1 carriageway and A414 towards St Albans/Park Street. A new road will link the roundabout around the east of the M1 and over the motorway, connecting into an enlarged and improved Boundary Way-Green Lane roundabout. Traffic heading towards the A414 (Park Street) and M1 South (including M25) from Maylands/East Hemel Hempstead, or coming from the north on the M1 towards Maylands/East Hemel Hempstead, will no longer need to use the A414 Breakspear Way. Traffic from the south on the M1 will still use the A414 Breakspear Way



△ Indicative Illustration of SC1c

When will it happen?

SC1i could come forward within 2 years. Its delivery will be strongly tied to the Maylands Gateway development.

SC1h could come forward within 2-5 years during the early phases of East Hemel Hempstead urban extension development, depending on when or if SC1i is implemented.

SC1c is a more complex intervention which could be delivered within 5-10 years, before the completion of East Hemel Hempstead urban extension development.

Who will be responsible for delivering it?

SC1i can be delivered within the existing highway boundary and will be funded by local developers and delivered by Hertfordshire County Council.

SC1h will require land outside of the existing highway boundary but within the control of The Crown Estate and will be funded entirely by local developers including The Crown Estate. It will be delivered by Hertfordshire County Council or by the developer themselves.

SC1c will require land outside of the existing highway boundary but within the control of The Crown Estate and will require funding from a mixture of sources including local developers and central Government. It will be delivered by Hertfordshire County Council. Or the developer themselves. As it will interact with the strategic road network, Highways England will need to be heavily involved in the development and delivery of SC1c.

How much will it cost?

SC1i - < £250k

SC1h - £2m - £5m (depending on whether dualling of Green Lane is included or not)

SC1c - £15m - £25m (depending on composition of scheme)

Scheme Concept 2 (SC2) Multi-Modal Spine Road

A new road linking together the Eastern Hemel Hempstead development

The East Hemel Hempstead urban extension along with other key developments including Maylands Gateway and Spencer's Park, will change the volume and patterns of journeys across Maylands and the wider area. Future residents, employees and businesses will need access to the wider transport network.

New road links will be required to connect new development to the wider area.

What is the aim?

The aim will be to provide a highway connection between the B487 Redbourn Road in the north and the A4147 St Albans/Hemel Hempstead Road in the south via the A414 Breakspear Way. The link will utilise and upgrade part of the existing Green Lane, and will enable future residents and employees to access different parts of the development. The link is necessary to ensure that the existing road network does not come under increasing pressure in the future.

What is proposed?

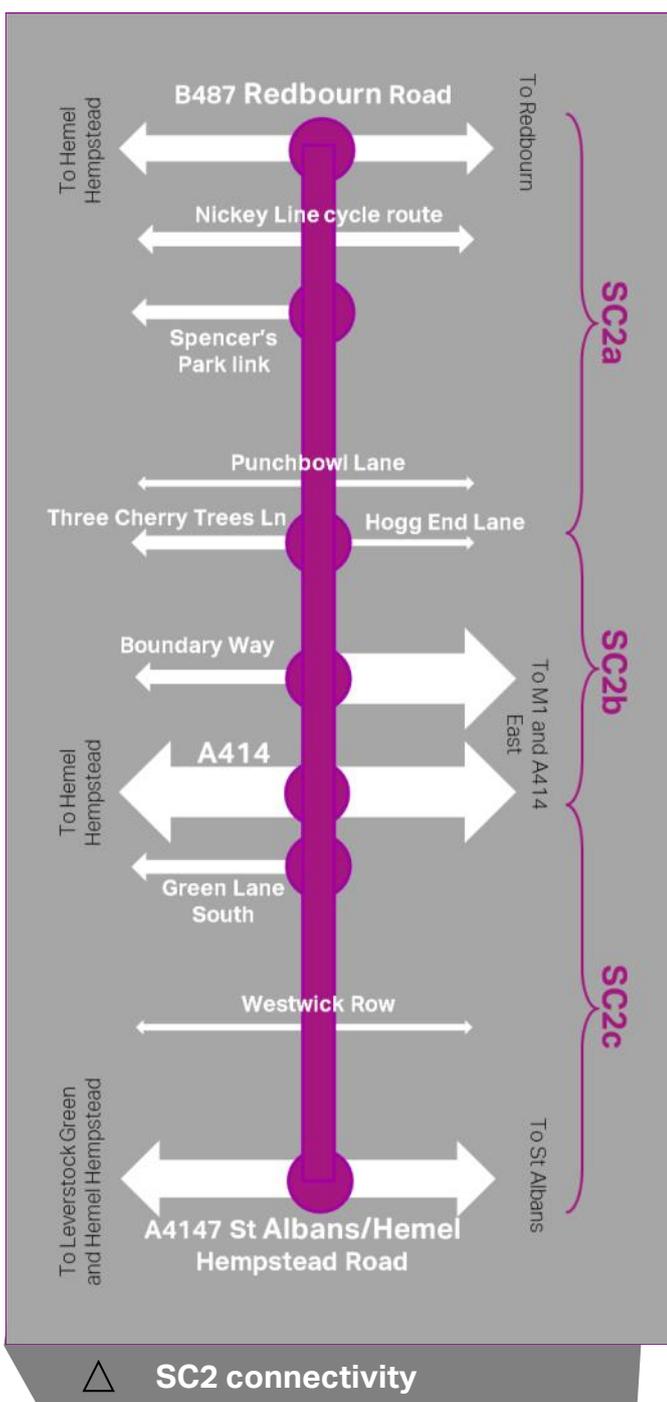
For the purposes of the Maylands Growth Corridor Study, the road link is divided into three parts.

SC2a – the northern stretch linking the B487 Redbourn Road and Punchbowl Lane – 30mph single carriageway road with potential for 20mph zones. Where it dissects the Nickey Line, a new traffic signal controlled pedestrian/cyclist crossing will be provided.

SC2b – the central stretch linking Punchbowl Lane and A414 Breakspear Way – 30mph mix of single and dual carriageway road. Existing junctions with Three Cherry Trees Lane and Boundary Way will be upgraded. It will tie in with SC1h (the staggered crossroads).

SC2c – the southern stretch linking the A414 Breakspear Way and A4147 St Albans Road – 30mph single carriageway road with the potential for 20mph zones. The existing Green Lane (from Leverstock Green) will be diverted to meet the new link road. Where SC2c crosses Westwick Row (part of the SC3 Quietway Green Corridor) a pedestrian/cyclist crossing will be provided.

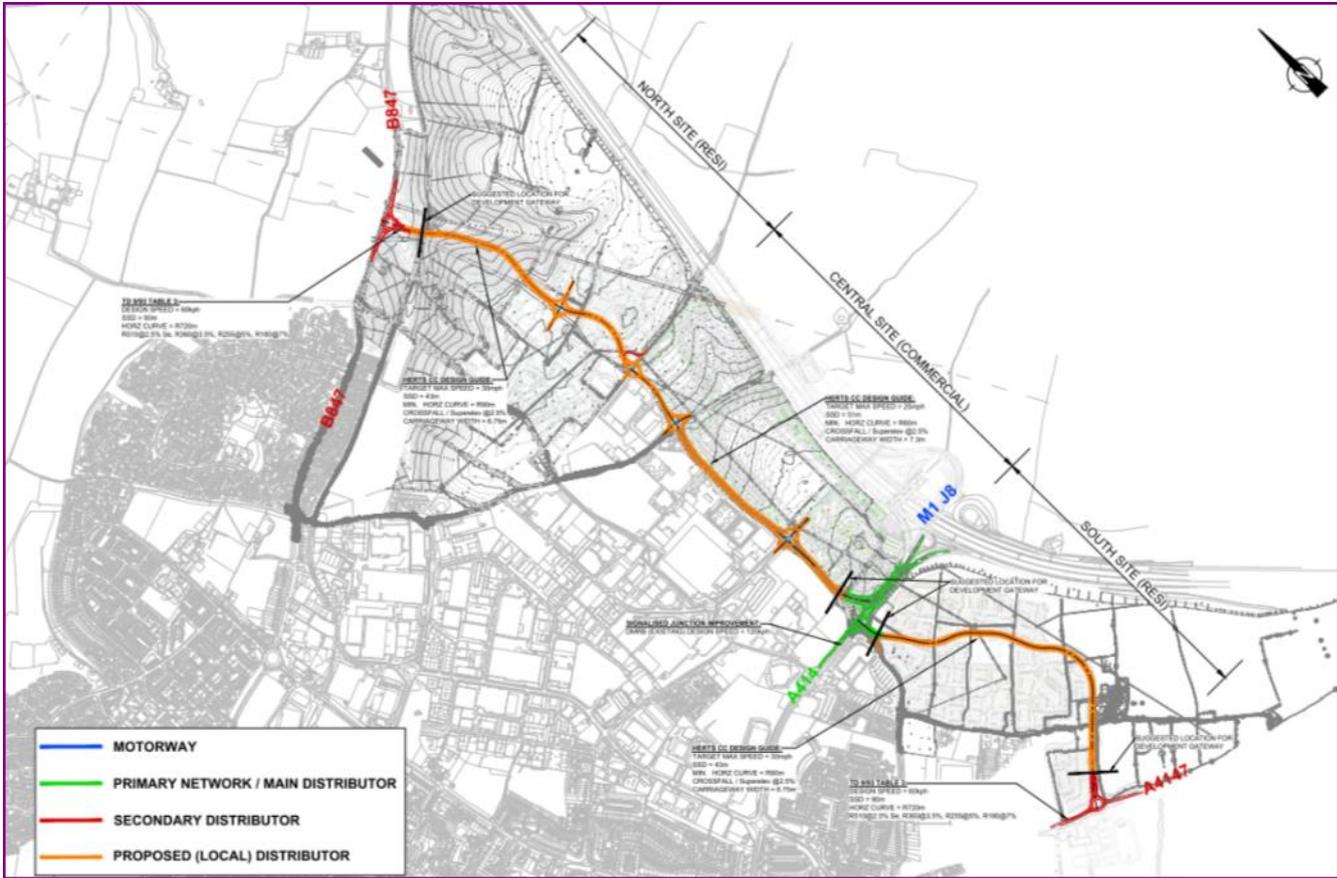
Importantly, SC2 is not envisaged to act as a high capacity bypass for Hemel Hempstead. It will be single car-



riageway and a 30mph speed limit (with potential for 20mph zones) will be in place over much of its length. The required access and connectivity for planned new development needs to be balanced with opportunities to provide an alternative route for traffic within the wider Hemel Hempstead area.



Spine road cross-section



△ Indicative alignment of SC2

When will it happen?

Scheme Concept 2 will be phased in line with planned development at Spencer's Park Phase 2 and East Hemel Hempstead. The northern stretch will be strongly associated with Spencer's Park Phase 2 and East Hemel Hempstead North (residential), as will the central section. The central section will be phased in line with development of the commercial element of the East Hemel Hempstead development and also the northern part of the development. The southern stretch will be strongly associated with East Hemel Hempstead South (residential and employment).

Who will be responsible for delivering it?

The developer of East Hemel Hempstead will be exclusively responsible for delivering Scheme Concept 2 as an integral element of the planned development, albeit the road could have wider benefits. Once completed, the new road will eventually be adopted by Hertfordshire County Council formally as part of the wider highway network.

How much will it cost?

The cost of SC2 is to be determined. It is expected to be funded entirely by the East Hemel Hempstead developer.

Scheme Concept 3 (SC3) Quietway Green Corridor

A new north-south quiet route primarily for pedestrians and cyclists

What is the aim?

The Maylands area is currently criss-crossed by a series of attractive narrow lanes which are quite rural in character despite running through or close to industrial uses. Running from the B487 Redbourn Road to the A4147 St Albans Road, via the A414 Breakspear Way, Cherry Tree Lane, Buncefield Lane and Westwick Row combined form a green artery through the Maylands area.

Some sections however also serve as rat-runs for motorists trying to avoid traffic congestion on other routes, for example Cherry Tree Lane acts as a northern gateway to the Maylands area and an alternative route towards M1 Junction 8 for traffic from places like Redbourn and parts of northern Hemel Hempstead and beyond. Cherry Tree Lane is undulated and quite narrow in parts so it is not possible for two vehicles to pass each other easily.

Similarly, the section of Buncefield Lane between Wood Lane End and the A414 can often be used by traffic heading out of the Maylands area, wishing to avoid long queues on the A414 heading towards the M1.

As Maylands and the eastern Hemel Hempstead area evolves and develops, there is real opportunity to safeguard these attractive green lanes, with pedestrians, cyclists and other non-motorised users given more priority over traffic. Three Cherry Tree Lane, Buncefield Lane and Westwick Row combined will provide a continuous link for leisure and commuter trips on foot and by bike into and out of Maylands and for residents and employees in the area to enjoy.



△ View southwards along Buncefield Lane near to Wood Lane End



△ View southwards along Cherry Tree Lane

What is proposed?

The proposal is to convert the existing lanes into Quietways. A mix of new signs and kerbed build-outs will be implemented to discourage through movements along with areas where vehicles will be banned.

Scheme Concept 3 comprises of interlocking components:

SC3a - Cherry Tree Lane (from B487 Redbourn Road to the junction with Three Cherry Trees Lane)

SC3b – Buncefield Lane northern section (from Three Cherry Trees Lane to Boundary Way)

SC3c – Buncefield Lane central section (from Boundary Way to A414 Breakspear Way)

SC3d – Buncefield Lane southern section (from A414 Breakspear Way to Green Lane) + Westwick Row (from Green Lane to A4147 St Albans Road)

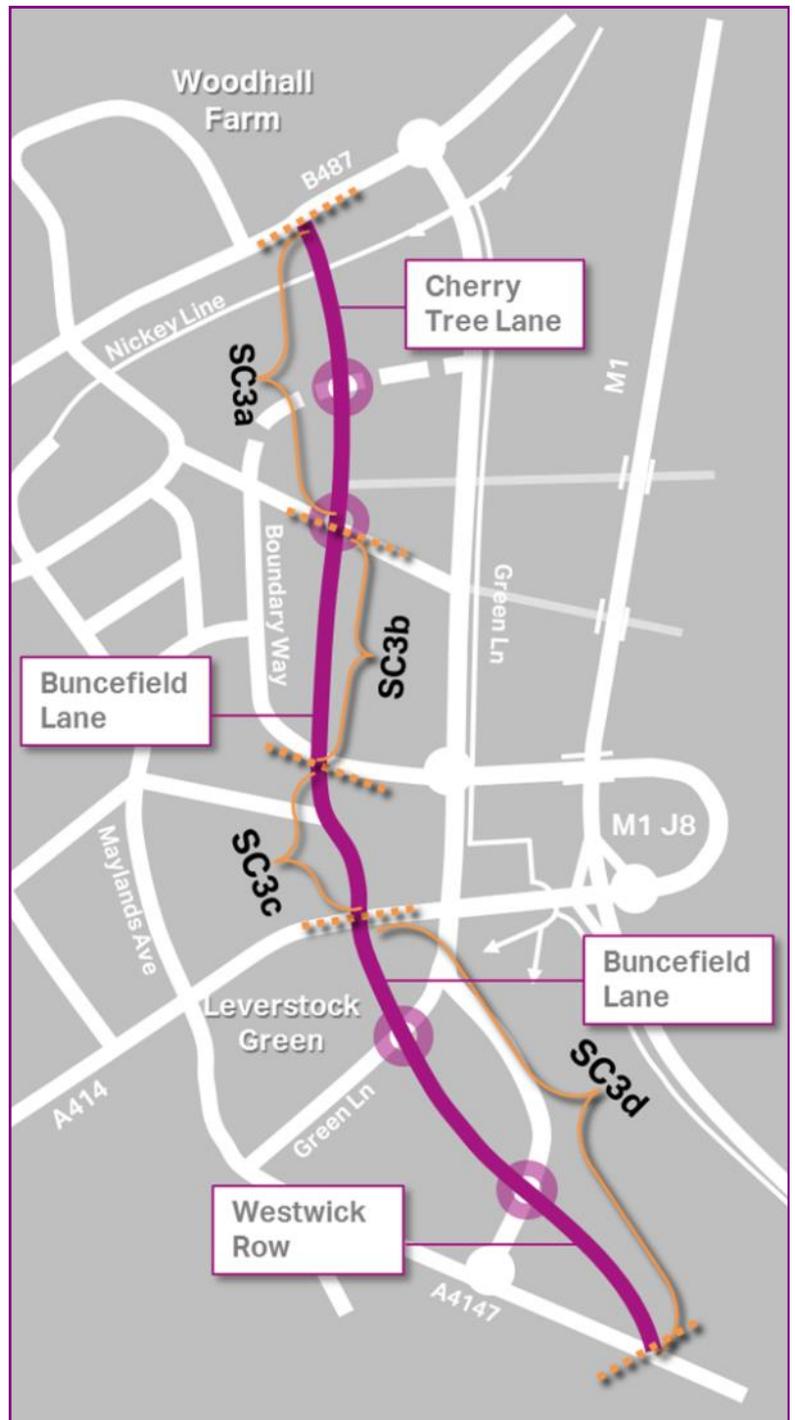
Restrictions will be made more effective by the provision of new alternative highway links which are designed to cater for traffic unlike these lanes. These alternative routes include Scheme Concept 2 (the eastern development spine road) and Scheme Concept 4.

New and improved crossing facilities will be required where the Quietway corridor intersects with heavily trafficked routes such as the A414.

Apart from new signage at entrances, the lanes themselves will not alter in character – there will be no need for widening of the roads, installation of footways or additional street furniture for example.

When will it happen?

All of these components will be simple to deliver, however they cannot be implemented until the alternative road links are in place otherwise there is a risk that traffic will continue to use the lanes which means that pedestrians and cyclists will not feel safe using them.



△ Scheme Concept 3 indicative alignment

Who will be responsible for delivering it?

Hertfordshire County Council will bring forward Scheme Concept 3.

How much will it cost?

The cost of all components could be in the region of £225k and £275k, subject to more detailed feasibility investigations.

Scheme Concept 4 (SC4) Wood Lane End-Boundary Way Link Road

A new link road to facilitate access to Maylands Gateway

What is the aim?

Traffic congestion is occurring on routes within Maylands and in particular Boundary Way, Maylands Avenue and key access points along the A414 and B487 corridors. The section of Wood Lane End running east from Maylands Avenue to Buncefield Lane, and the section of Buncefield Lane running down to the A414 can be used as a rat-run for traffic in weekday morning and evening peak periods, especially as a way of avoiding queues and delays on the A414 heading towards the M1. Wood Lane End is a two-way road with residential and commercial land uses at the western end near to Maylands Avenue, and predominantly residential at the eastern end. Proposed commercial development at Maylands Gateway will change traffic volumes and routeings on Wood Lane End.

The aim of the Wood Lane End-Boundary Way link road is to help facilitate the proposed commercial development at Maylands Gateway, and in conjunction with SC3 (Quietways), relieve Buncefield Lane of rat-running traffic.



△ View northwards along Buncefield Lane towards Boundary Way

▽ SC4 and surrounding roads



What is proposed?

A new two-way single carriageway link road will be constructed from Boundary Way to the existing highway on Buncefield Lane.

The section of Buncefield Lane between Wood Lane End and Boundary Way is currently used as a segregated cycleway/footway. There is a wide bridleway between two fence lines along the eastern side of the cycleway/footway. The cycleway/footway and bridleway join the southern side of an access road that has been provided for Martin Brower UK (Bryanston Court) which forms the southern arm of a roundabout on Boundary Way.

The new link road will be wide enough to accommodate a cycleway/footway and bridleway (part of SC3 Quietway corridor) alongside the eastern side of the new two-way road.

Measures will be put in place to discourage traffic entering the Maylands area via the new link road, other than the proposed Maylands Gateway development.

When will it happen?

Scheme Concept 4 will be delivered in line with the proposed Maylands Gateway development which could come forward in the short term. This will then help unlock the central section of Scheme Concept 3 along Buncefield Lane, and Scheme Concept 6d which comprises of a new pedestrian/cycle crossing on the A414 Breakspear Way.

Who will be responsible for delivering it?

The developer of the Maylands Gateway site will be responsible for delivering the new road link as it will primarily serve as access to the development site. The road link will eventually be adopted by Hertfordshire County Council as part of the local road network.

How much will it cost?

The road link has been initially estimated to cost between £750k and £1m, however this is subject to more detailed design and feasibility investigations being undertaken by the developer for the proposed commercial development at the central part of the Maylands Gateway in discussions with Hertfordshire County Council.



△ Scheme Concept 4 indicative alignment

Scheme Concept 5 (SC5) Nickey Line Enhancements

Improved Accesses and 'branchline' extension

What is the aim?

Poor linkage between the Nickey Line (National Cycle Route 57), Cherry Tree Lane and Three Cherry Trees Lane has been identified. The existing connections from these roads onto the Nickey Line are steep and unmade – the existing facilities do not conform to preferred widths and gradients.

This is likely to deter pedestrians and cyclists from using the Nickey Line as either a leisure or commuting route. With planned housing and employment development coming forward in the area, the Nickey Line has the potential to become a vital, largely traffic-free, route east-west between Hemel Hempstead town centre and Maylands. Furthermore, better north-south links connecting into the Nickey Line, such as the SC3 Quietway, as well as a new 'branch' off the Nickey Line which feeds through the East Hemel Hempstead urban extension will open up many new local journey opportunities.

What is proposed?

Improved access facilities are proposed from Cherry Tree Lane (**SC5a**) and Three Cherry Trees Lane (**SC5b**) where they route over and under the Nickey Line respectively.

On Cherry Tree Lane, it is envisaged that a system of ramps with appropriate gradients for cyclists and pedestrians to negotiate would be provided between the level of the road and the level of the track.

On Three Cherry Trees Lane, two options could be considered for this location: 1 – A direct route along the line of the current unmade connection; or 2 – a route with a quarter turn so that a longer path with appropriate ramp gradients between the road and the Nickey Line can be provided.



△ Access steps to the Nickey Line from Cherry Tree Lane

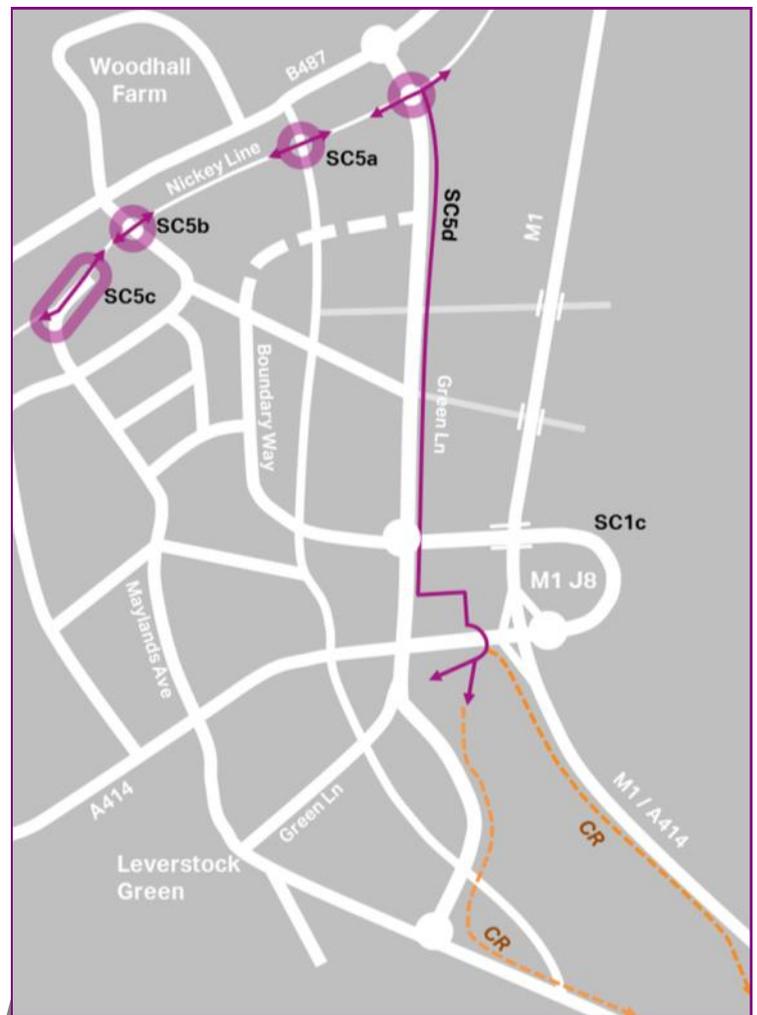


◁ Directional signage along the Nickey Line

Eastman Way is a two-way road cul-de-sac, which provides access to a light industrial area. The Nickey Line is severed by Eastman Way near the eastern end of the estate road. There is a section of estate road between the western and eastern ends of the Nickey Line. Pedestrians and cyclists are directed along the northern footway between these junctions with the Nickey Line. However, there is a vehicular entrance to a household waste site near the western junction with the Nickey Line, two further direct access points across the northern footway, and no crossing point where pedestrians and cyclists are required to cross the road to join the eastern junction with the Nickey Line.

There is an opportunity to widen the northern footway on Eastman Way between the western junction with the Nickey Line and the junction with the northern arm of the cul-de-sac (SC5c).

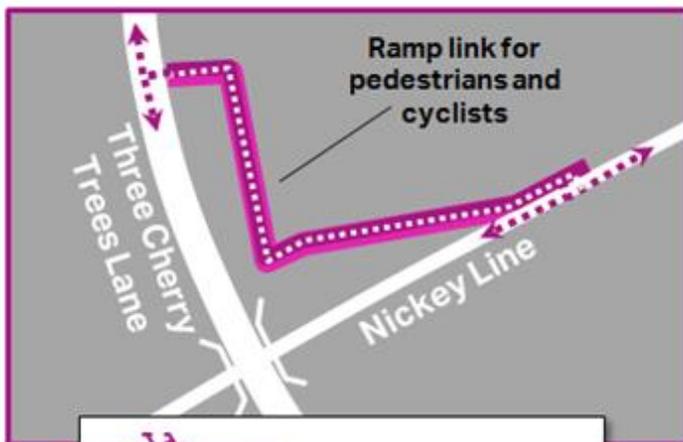
A new cycleway 'branchline' (SC5d) off the Nickey Line will route alongside SC2a and b as a segregated cycleway, with at-grade crossings at all intermediate junctions (including a potentially signalised crossing on the new SC1c 'loop' link road) and a pedestrian/cycle bridge over the A414 between Green Lane and the M1, and eventually connect with a brand new cycleway which will run alongside the A4147 towards St Albans (with onward connection to Verulamium Park and the St Albans Green Ring). The bridge over the A414 will be delivered as part of SC1h.



△ Scheme Concept 5 locations

When will it happen? SC5a and b (the improved Nickey Line access points) could happen in the short-term but should be timed to coincide with the implementation of SC3a (Cherry Tree Lane quietway) SC5c (Eastman Way improvements) is not linked to other interventions and can come forward in the short term.

▽ Illustration of new access ramp linking Three Cherry Trees Lane and the Nickey Line



SC5d (the cycleway 'branchline') is strongly tied to the phased construction of SC2a and b. (the East Hemel Hempstead spine road).

Who will be responsible for delivering it?

SC5a-c will be delivered by Hertfordshire County Council in discussion with the Friends of the Nickey Line, Sustrans and local authorities.

SC5d will be delivered by the EHH developer along with SC2 in discussion with Hertfordshire County Council who will eventually adopt it as part of the highway.

How much will it cost?

SC5 - approximately £220k-£335k (excluding SC5d)

Scheme Concept 6 (SC6) Foot & Cycle Access Routes

Improved footway/cycleway accesses and crossings on routes into Maylands

What is the aim?

The Maylands business park attracts people from a large catchment area. There are however a notable proportion of the area's employees who live within Hemel Hempstead and within easy walking or cycling distance of the area. It is recognised however that there are potential barriers which could be discouraging people from walking to work.

Maylands is surrounded and dissected by heavily-trafficked roads which could be quite difficult to cross because existing facilities are not well linked to footways or cycleways or there are not enough of them serving the journeys people need to make.

Several key roads are considered to cut-off Maylands from its surroundings. The B487 Redbourn Road separates the Woodhall Farm and Grovehill residential areas from Maylands. It is estimated that around nearly 1,000 commuting journeys are made to Maylands from these areas but not all of these are on foot—some are by car.

The northern and southern arms of Buncefield Lane are severed by A414 Breakspear Way. Breakspear Way is a two-lane dual carriageway subject to the national speed limit, which provides the main link east/west link between the M1 motorway and Hemel Hempstead Town Centre.

The aim of Scheme Concept 6 is to reduce severance caused by heavily trafficked roads and make walking and cycling over short distances into, out of and through Maylands a more attractive travel mode of choice.



What is proposed?

Scheme Concept 6 comprises of five component interventions:

SC6a involves a new shared use, pedestrian/cyclist signalised Toucan crossing on the A414 Breakspear Way in proximity to the two petrol filling stations. SC6a will be critical to the delivery of the SC3 Quietway as well as improving access on foot and by bike to Breakspear Park and the Holiday Inn hotel.

SC6b involves improving crossing facilities at the B487 Redbourn Road-Shenley Road roundabout. The roundabout will remain, however crossing distances will be reduced and footway pavement widths will be enlarged. SC6b will be strongly linked to the improved access to the Nickey Line (SC5b).

SC6c involves providing a new signal-controlled crossing on Redbourn Road near the Shenley Road roundabout. The new crossing would be located between the eastbound and westbound bus stops, and a new footway would be provided in the southern verge between the crossing and the westbound bus stop.

SC6d involves improving crossing facilities at the B487 Redbourn Road-St Agnells Lane-Link Road roundabout.

SC6e involves the implementation of a new signal-controlled crossing on the A4147 Redbourn Road. There is currently an uncontrolled crossing via a central refuge located approximately 200m from the St Agnells Lane roundabout, which provides continuity between the western and eastern sections of the Nickey Line. This section of Redbourn Lane is subject to a 40mph speed limit with street lighting present.

A new signal-controlled crossing for cyclists as well as pedestrians would be provided to replace the uncontrolled crossing. The central refuge island would be removed and footways on both sides of Redbourn Road will be widened and larger waiting areas will be provided to receive the new signal-controlled crossing, to improve conditions for those cyclists and pedestrians attempting to cross.

When will it happen?

All SC6 component interventions can come forward in the short term. This is critical, as it will help improve access to Maylands on foot and by bike for existing users.

Who will be responsible for delivering it?

Hertfordshire County Council as highway authority will be responsible for delivering all of the SC6 component interventions.

How much will it cost?

SC6 components in combination could cost between £410k and £675k, subject to further more detailed feasibility investigations.



△ SC6a indicative drawing

Scheme Concept 7 (SC7) Lorry Parking and Routeing

Improved parking and routeing for heavy goods vehicles visiting Maylands

Heavy Goods Vehicle traffic generated in Maylands require good access to the wider road network. The main access route is via the A414 Breakspear Way and M1 Junction 8 which facilitates movements north-south along the M1, towards the M25 (and to Watford, London and the South and South-West of England beyond) and east along the A414 to the rest of Hertfordshire and the A1(M) corridor.

Despite the numerous highway connections into Maylands, many are not suitable to HGVs. The three main access routes are Green Lane and Maylands Avenue (from the A414) and A4147 Redbourn Road and Swallowdale Lane. Three Cherry Trees Lane has height and width restrictions in place to prevent and discourage HGV movements, and Cherry Tree Lane has a weight limit in place. Other routes are either residential in nature, such as the western end of Wood Lane End or narrow country lanes such as Hogg End Lane and Punchbowl Lane which have weight restrictions in place.

Businesses in Maylands, including Amazon, Next, Martin Brower UK, Gist, Robert Dyas and many more are reliant upon the highway network to transport goods across a wide area. Quick and reliable access to the A414, M1 and A4147 is therefore essential.

Roads surrounding Maylands are susceptible to congestion especially during weekday morning and evening peaks. This can be disruptive to businesses both in terms of employees having difficulties getting to/from work, but also in the transport of goods and services. Many of the logistics firms in Maylands operate on tightly managed schedules to maintain efficiency. If goods and services cannot arrive or depart on time due to congestion on surrounding roads, this can have a detrimental effect on businesses and their prosperity.

HGV parking is also an issue. Intermittent parking by HGVs on constrained roads within Maylands can create a lot of disruption. There is not enough space for HGVs to park up, albeit for a short time (for instance if they are awaiting a specific delivery time slot) without causing difficulties for other vehicles trying to get around the HGVs.

There is also a wider parking issue caused by HGV drivers using the M1 and taking advantage of some quieter roads in Maylands for a longer stay during the daytime or overnight. HGVs can park on Three Cherry Trees Lane and on Green Lane, and whilst this may not be hugely disruptive to traffic movements, vehicles can cause a lot of damage to highway verges and there is also a problem with litter.

▽ HGVs parked on Three Cherry Trees Lane



▽ Furnells Lorry Park, Maxted Road

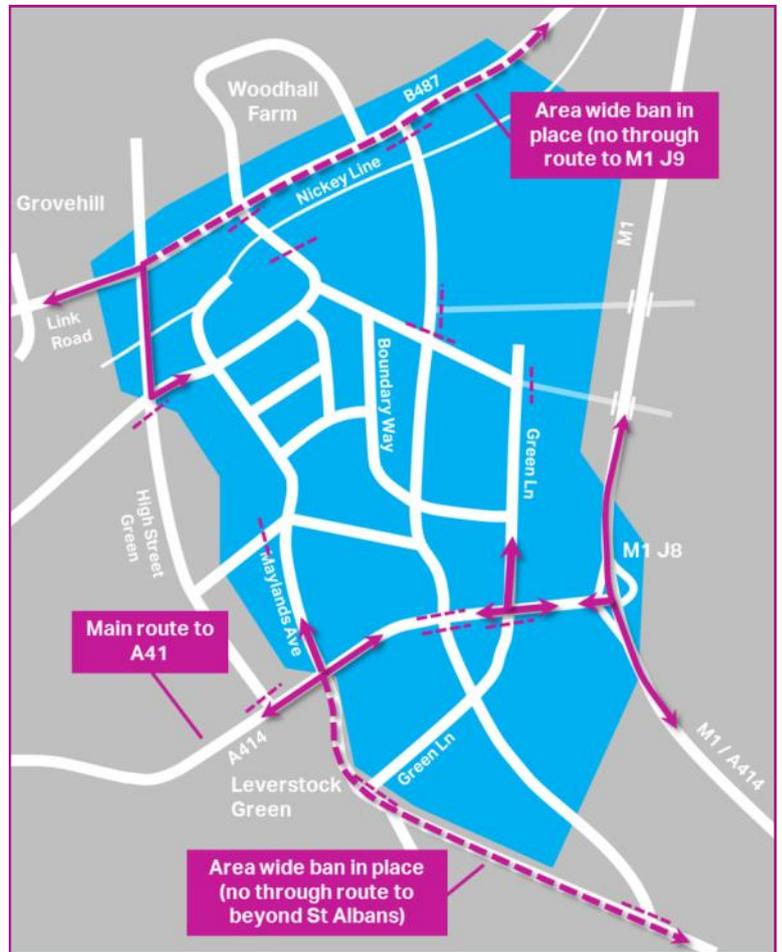




△ Lorry Parking Signage

What is proposed?

A package of interventions are recommended, most of which will require more detailed investigations and discussions with stakeholders. To help address a lack of off-road parking for HGVs, either expansion of the existing Furnells lorry park or the A5183 Watling Street lorry park, or provision of a brand new lorry park could be undertaken. All of these options will require additional land and could be very expensive. There is considered to be a reluctance by HGV drivers to pay for parking. Investigations into a potential subsidy of local HGV parking could be investigated. The cost of this will be dependent upon the level of uptake and subsidy. Better signage of existing parking facilities such as Furnells Lorry Park should be considered as drivers may not be aware the facility is available. This could be combined with a promotional campaign to raise awareness of all lorry parks, through engagement with local and national logistics companies. To manage HGV parking in appropriate places, bollards and other controlling measures can be introduced. Bollards and earth bunding were introduced on Green Lane in early 2017 in addition to new Traffic Regulation Orders that will make parking in specified locations an offence. It is also recommended that new laybys be considered.



△ Current HGV access routes into Maylands

Eaton Road is one location where a layby for short term HGV parking could be introduced. Further investigations will be required to determine if this is feasible and how it can be ensured that the layby is not used by cars. Further engagement with logistics companies in the Maylands area to determine how they can optimise their operations in terms of HGV delivery arrangements should be undertaken. Also, further work is required to determine the potential for a new logistics park for the area, providing short and long term parking facilities with sufficient capacity and high quality facilities.

When will it happen?

Some of the interventions could be quite quick to deliver within 2-5 years. The creation of dedicated lorry parking facilities off the high-



△ Eaton Road —potential location for short term lorry parking

How much will it cost?

The cost of measures is to be determined, based on more detailed investigations and prioritisation of measures.

Scheme Concept 8 (SC8) Bus Service Enhancements

New and improved bus service routes for local and longer distance journeys

What is the aim?

Buses do not currently play a major role in transporting people into and out of Maylands. There are services which skirt the edges of Maylands along the A414 Breakspear Way, B487 Redbourn Road and also along Maylands Avenue. There is only one service which penetrates the eastern part of the Maylands employment area. Looking ahead, with an increased residential population to the east of Maylands there will be opportunity to improve bus service connectivity to key locations including Hemel Hempstead town centre, railway station and surrounding urban centres including Watford and Luton. Bus and coach services can therefore play a crucial role in providing an attractive alternative to the car, especially if services are frequent and accessing them is convenient for both new residential areas and Maylands business park.

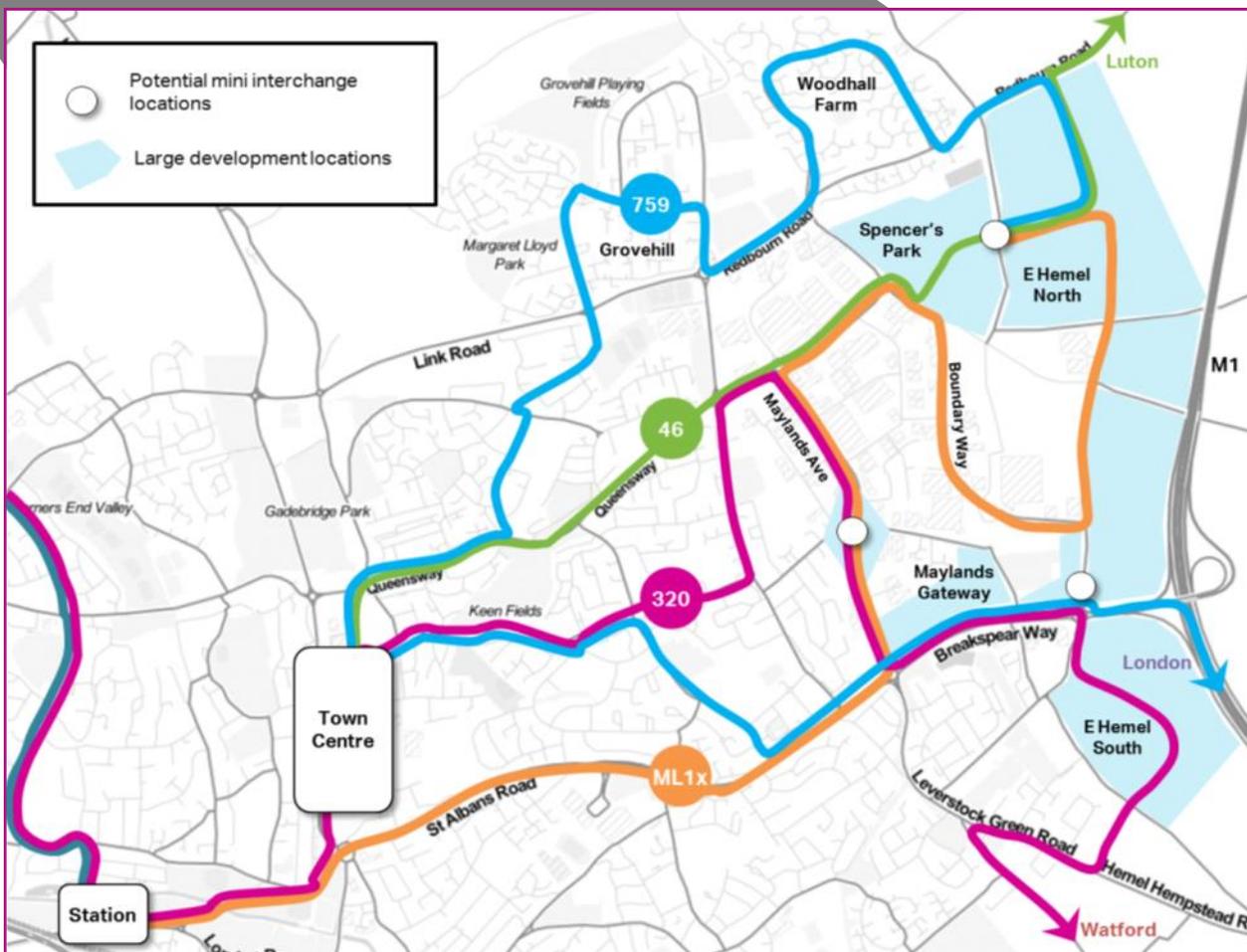
What is proposed?

A series of bus service alterations are being considered, as shown below. This section sets out one potential strategy but other options could be considered. Further dialogue with bus operators, Hertfordshire County Council and other parties will be required to determine the potential for bus service improvements.



△ Centrebus 46 & Arriva Greenline 758/9

▽ Potential bus route changes



The emphasis will be on the enhancement of existing services as opposed to providing brand new services. This will ensure that existing services can continue to serve local communities, but the usage of these services could be increased as the service routes are extended and altered to connect with Maylands and new developments including Spencer's Park and East Hemel Hempstead urban extension.

Arriva Greenline 758/9 is a commuter coach service linking Hemel Hempstead and Central London. Peak time services commence in the Woodhall Farm area. The service will instead start in the Spencer's Park/East Hemel Hempstead UA (North) area but will continue to serve Woodhall Farm. **Centrebus 46** links Luton and Hemel Hempstead. It does not currently serve the main part of Maylands. The proposal is to re-route this service to connect with new developments. **Arriva 320** links Watford and Hemel Hempstead via Leverstock Green and Maylands Avenue. The service can be re-routed via East Hemel Hempstead South. Finally, the existing **ML1** service can be extended to serve most of East Hemel Hempstead North development and Spencer's Park.



△ Example bus interchange

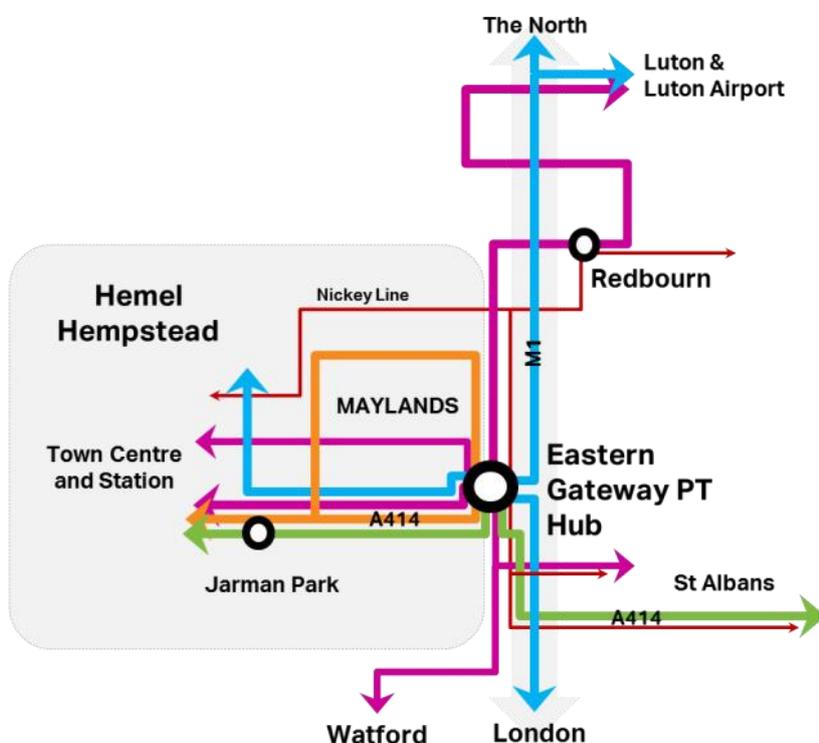
Hemel Hempstead bus interchange



▽ Potential interurban bus connectivity

service can be re-routed via East Hemel Hempstead South. Finally, the existing **ML1** service can be extended to serve most of East Hemel Hempstead North development and Spencer's Park.

To complement these service changes, supporting infrastructure will be required such as attractive bus stops (with seating, shelters and real time information panels indicating when services are due to arrive). One or a series of mini coach/bus interchanges will act as focal points for more than one service, enabling people to change buses. A larger eastern gateway hub, located close to the A414 corridor could provide shorter and longer distance services. The proposed East-West cross-county bus rapid transit system (promoted in LTP4) linking Hemel Hempstead and Hatfield could also call at the eastern hub, improving inter-urban connectivity to Maylands.



	Express Coach Services (incl. 758/9)		Cross-county express transit system (LTP4)
	Local Intra-Urban Circular Bus Route (incl. ML1)		Inter-connecting Cycle ways (including NCR57 Nickey Line)
	Local Inter-Urban Bus Routes (incl. 46 and 320)		

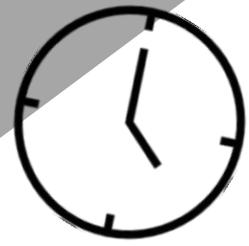
When will it happen?

Service changes will be reliant upon new road links being in place such as SC2 and the build-out of planned development.

Who will be responsible for delivering it and how much will it cost?

Further engagement with local bus operators is required before service changes are committed and more detailed service specifications can be drawn up.

The way ahead

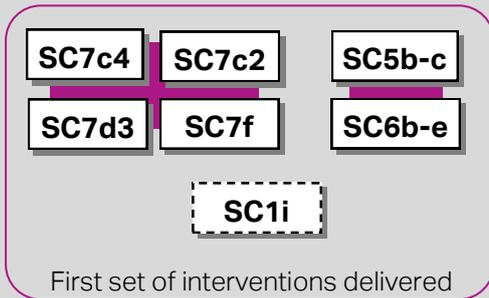


The Maylands Scheme Concepts will be delivered over a number of years, governed by when and how much funding is available, when key housing and employment developments come forward, on the adoption of Local Plans and when more detailed design and feasibility investigations are complete.

The full schedule of interventions is provided on page 13.

First...

By 2020/21 / Within 2 years



Business case for SC1c completed

Planning Application submitted for East Hemel Hempstead urban extension

Maylands Gateway completed

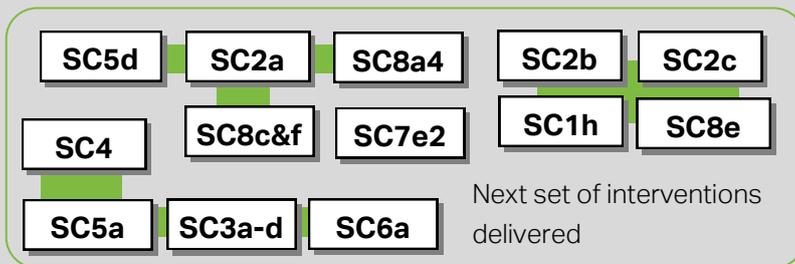
New Local Plans for Dacorum and St Albans

Public realm improvements



Then...

By 2023/24 / Within 5 years



East Hemel Hempstead development gets underway

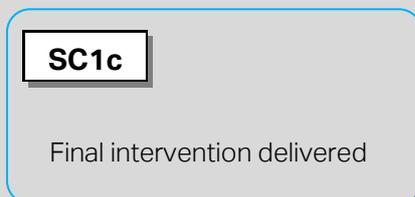
Additional public realm improvements

Scope for further innovative measures for achieving modal shift identified in planning documents



Finally...

By 2028/29 / Within 10 years



East Hemel Hempstead development nearing completion

Further public realm improvements

Next Steps

The Maylands Growth Corridor Study sets out the broad framework of proposals and supporting evidence to deliver positive change and facilitate growth in the area as part of the EnviroTech Enterprise Zone.

However, more detailed work will need to be undertaken in order to bring forward the proposals set out in this document. The Stage 3 Phasing and Packaging report provides more detail on the next steps for individual Scheme Concepts. A set of generic steps is provided below. These steps should be commenced in 2018 and

Must do list

- Finalise and refine traffic modelling to quantify the outcomes of the proposed Maylands Scheme Concepts (primarily SC1c, SC1h, SC2 and SC4) – 2031 AM and PM peak only
- Confirm sponsor(s), delivery models, timescales and programmes for progressing all interventions
- Stakeholders to continue to liaise in relation to the processing of key planning applications including East Hemel Hempstead
- Develop a detailed risk schedule covering all aspects of planning and construction of the interventions
- Conduct more detailed design / feasibility for all Scheme Concepts
- Conduct a business case in line with DfT WebTAG requirements (SC1c and h only) including environmental and economic appraisal and more detailed traffic modelling using the Hemel Hempstead Traffic Model and the COMET strategic assignment model.

Glossary, Abbreviations & Acknowledgements

Glossary of supporting documents

Maylands Masterplan Planning Policy Statement (Dacorum Borough Council, 2007)
Heart of Maylands Development Brief (Dacorum Borough Council, 2010)
Maylands Gateway Development Brief (Dacorum Borough Council, 2013)
Dacorum Adopted Core Strategy (Dacorum Borough Council, 2013)
Maylands Growth Corridor Study Stage 0 Report (AECOM, 2015)
Hemel Hempstead Traffic Model Local Model Validation Report (AECOM, 2016)
Maylands Growth Corridor Study Stage 1&2 Model Sensitivity Test Report (AECOM, 2016)
Maylands Growth Corridor Study Stage 2 SC1 Options Feasibility Report (AECOM, 2016)
Maylands Growth Corridor Study Stage 2 SC3-6 Options Report (AECOM, 2016)
Maylands Growth Corridor Study Stage 2 SC7 Lorry Parking & Routing Report (AECOM, 2016)
Maylands Growth Corridor Study Stage 2 SC8 Bus Service Provision Options Report (AECOM, 2016)
Hemel Hempstead Evidence Pack (Hertfordshire County Council and AECOM, 2016)
Hemel Hempstead Traffic Model Forecasting Report (AECOM, 2017)
Maylands A414 Breakspear Way SC1h Roundabout Proposals Design Review (AECOM, 2017)
Maylands M1 J8 SC1c Design Review (AECOM, 2017)
M1 Corridor Context Paper (Hertfordshire County Council, 2017)
Maylands Growth Corridor Study Stage 3 SC1 Options Sifting Report (AECOM, 2017)
Maylands Growth Corridor Study Stage 3 Phasing and Packaging Report (AECOM, 2017)
South West Hertfordshire Growth and Transport Plan—draft (Hertfordshire County Council and AECOM, 2017)
Hertfordshire's Local Transport Plan 4—consultation draft (Hertfordshire County Council, 2017)

Abbreviations

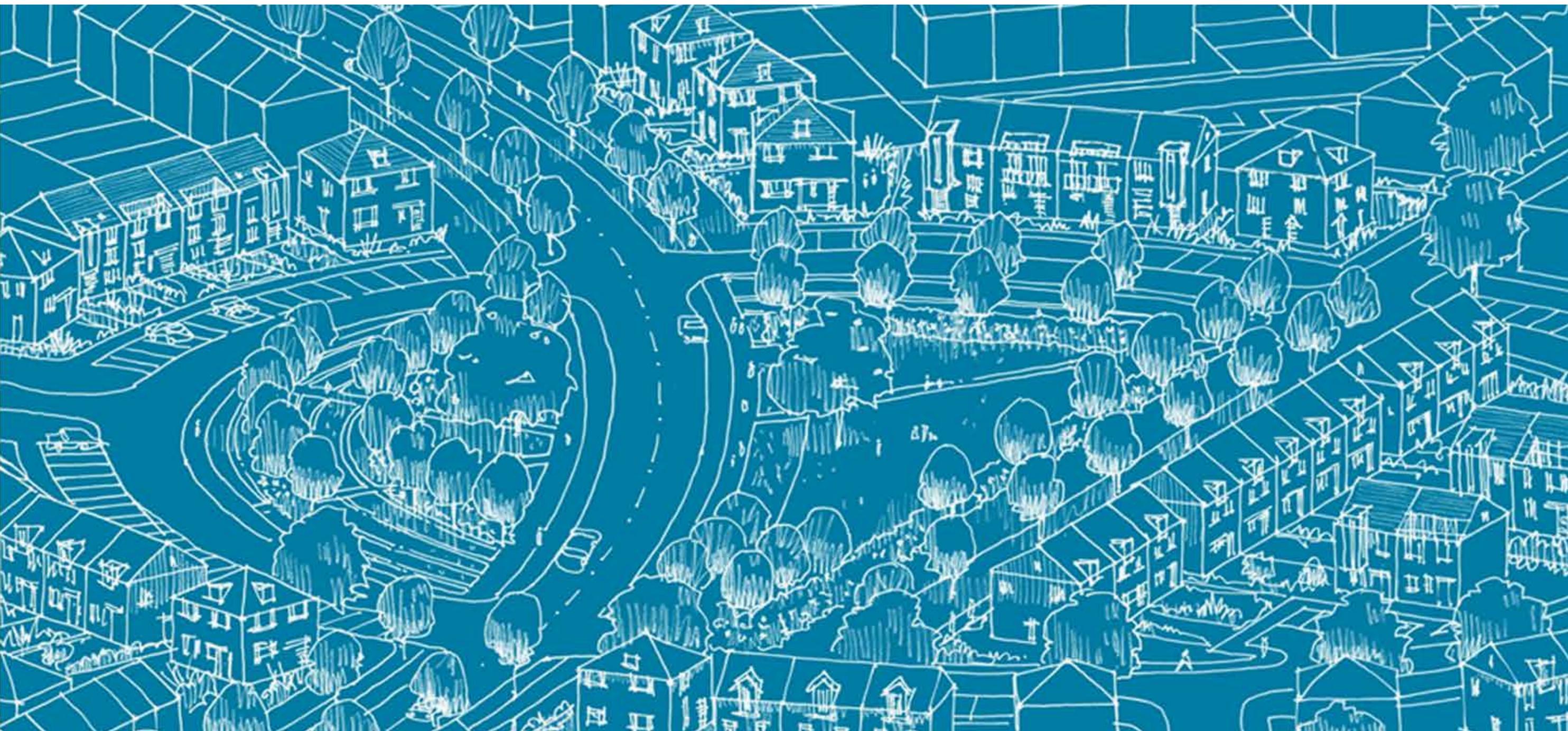
DBC—Dacorum Borough Council
EZ—Enterprise Zone
GTP - Growth and Transport Plan
HCC—Hertfordshire County Council
HGV—Heavy Goods Vehicle
HE—Highways England
LEP—Local Enterprise Partnership
LTP - Local Transport Plan
SACDC—St Albans City and District Council
SC—Scheme Concept
TCE—The Crown Estate

Acknowledgments

This document has been prepared by AECOM on behalf of Hertfordshire Local Enterprise Partnership, and in association with Dacorum Borough Council, St Albans City & District Council, Hertfordshire County Council, Highways England and The Crown Estate.

Document Author: Simon Willison (AECOM—Associate Director)

Appendix 4: Transport Extract of East Hemel Hempstead (North)
Landowner/Developer Representations Regulation 19 Consultation (October 2018)



East Hemel: Reg 19 Representations Policy S6(i)



“Policy S6(i) East Hemel Hempstead (North) Broad Location :

The Crown Estate (TCE) owns the freehold of the land necessary to deliver this Broad Location. Master plan work with St Albans Council has been proceeding for two years and it is intended to submit an outline application for the whole of S6(i) and S6(ii) and the northern part of S6(iii) in 2019. The master plan is well advanced and is shown here.

The planning application will deliver all the components of Policy S6(i) including:

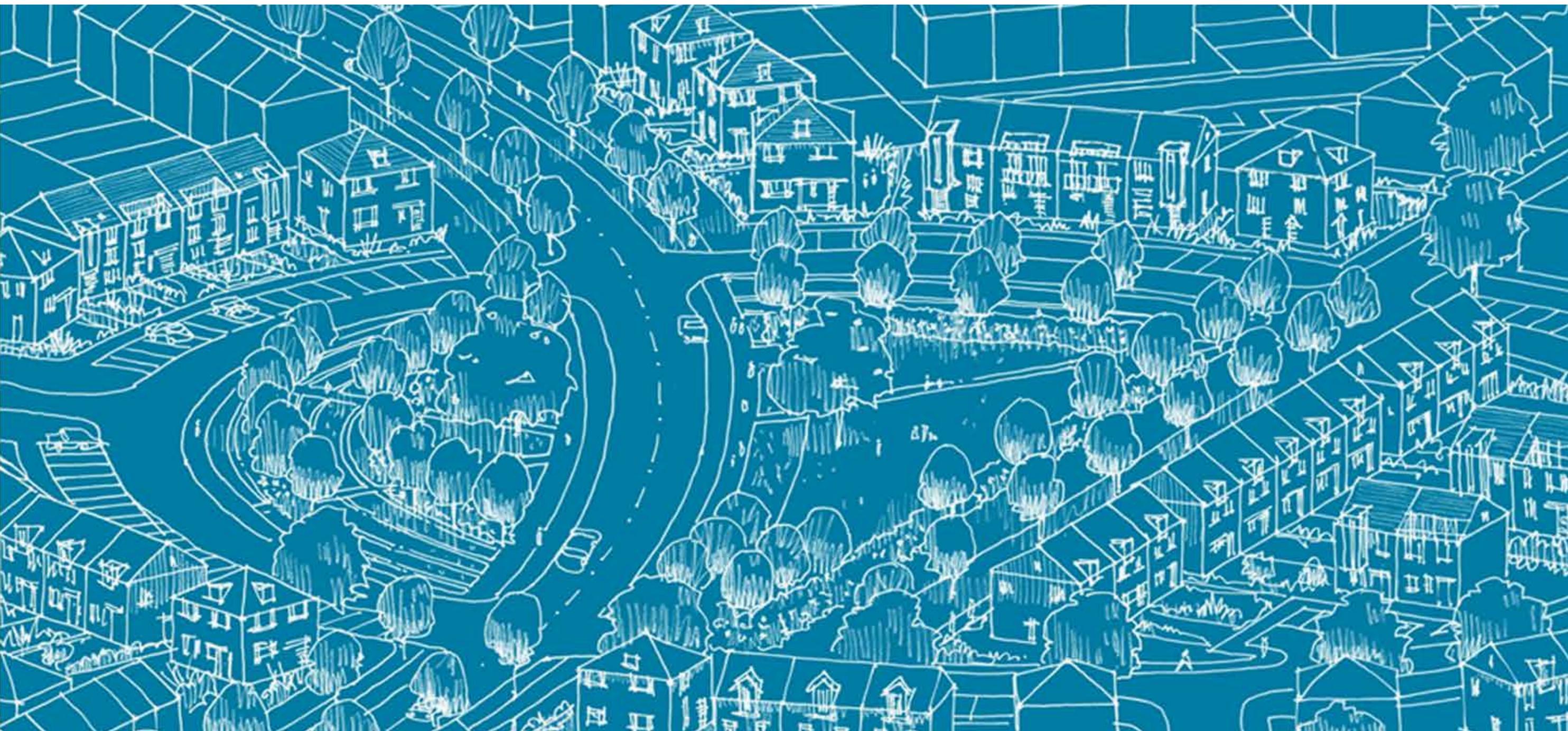
- 1,650 homes (including C2, C3 and special needs housing)
- 40% affordable housing
- a density in excess of 40 dph
- a 3 Form Entry Primary School
- an 8 Form Entry Secondary School
- a new Local Centre with a range of retail, recreational and community uses
- a new Country Park
- strategic and local open space
- a Community Management Organisation.

The Bigger Picture

East Hemel (North) Broad Location forms one of four Broad Locations which make up the Local Plan Reg 19 proposals for East and North Hemel. The Crown Estate and St Albans Council are jointly working on a comprehensive and integrated master plan for the whole of S6(i) to (iv) which will deliver around 5,550 new homes and 55 ha of new employment. The current version of this master plan is shown here and is capable of further extension west into Dacorum Borough if Dacorum's new Local Plan allocates further strategic housing releases across the northern edge of Hemel Hempstead. Together, these areas could form the 'Hemel Garden Community'.



Appendix 5: Transport Extract of East Hemel Hempstead (Central)
Landowner/Developer Representations Regulation 19 Consultation (October 2018)



East Hemel: Reg 19 Representations Policy S6(ii)



Policy S6(ii) East Hemel Hempstead (Central) Broad Location:

The Crown Estate (TCE) owns the freehold of the land necessary to deliver this Broad Location. Master plan work with St Albans Council has been proceeding for two years and it is intended to submit an outline application for the whole of S6(i) and S6(ii) and the northern part of S6(iii) in 2019. The master plan is well advanced and one potential development option is shown here.

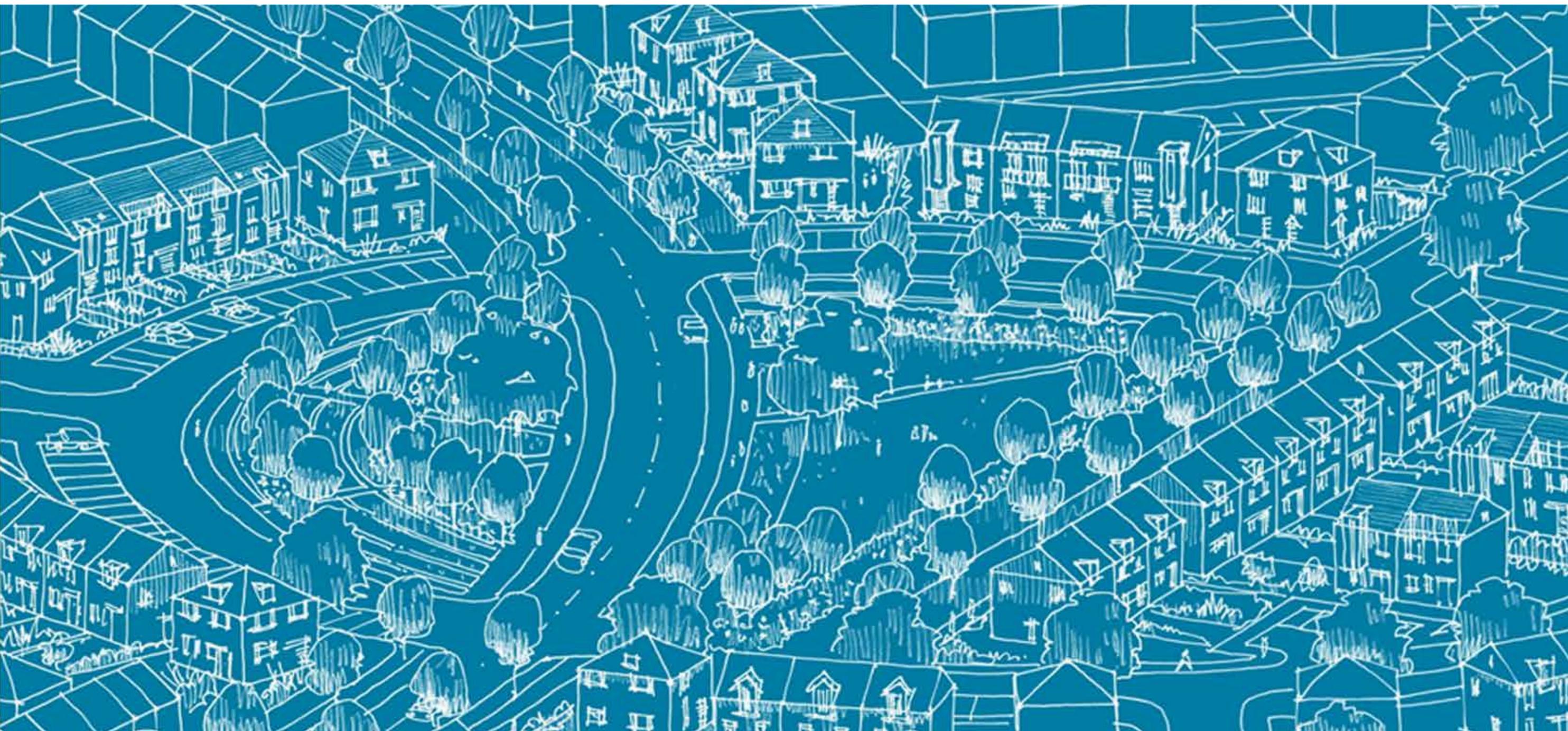
- The planning application will deliver all the components of Policy S6(ii) including
- 55 hectares of mixed employment in accordance with the principles of the Enviro-Tech Enterprise Zone
- incubator space
- the safeguarding of land for a new link from J8 of the M1 over the M1 to Green Lane
- an upgrade to the Breakspear Way junction
- a Gypsy and Traveller site.

The Bigger Picture

East Hemel (Central) Broad Location forms one of four Broad Locations which make up the Local Plan Reg 19 proposals for East and North Hemel. The Crown Estate and St Albans Council are jointly working on a comprehensive and integrated master plan for the whole of S6(i) to (iv) which will deliver around 5,550 new homes and 55 ha of new employment. The current version of this master plan is shown here and is capable of further extension west into Dacorum Borough if Dacorum's new Local Plan allocates further strategic housing releases across the northern edge of Hemel Hempstead. Together, these areas could form the 'Hemel Garden Community'.



Appendix 6: Transport Extract of East Hemel Hempstead (South)
Landowner/Developer Representations Regulation 19 Consultation (October 2018)



East Hemel: Reg 19 Representations Policy S6(ii)



“Policy S6(iii) East Hemel Hempstead (South) Broad Location:

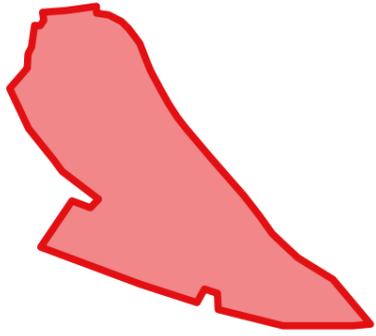
The Crown Estate (TCE) owns the freehold of the land necessary to deliver this Broad Location. Master plan work with St Albans Council has been proceeding for two years and it is intended to submit an outline application for the northern part of S6(iii) along with S6(i) and (ii) in 2019. This will be followed by a planning application for the rest of S6(iii). The master plan is well advanced and is shown here.

- The two planning applications will deliver all the components of Policy S6(iii) area including
- 2,400 homes (including C2, C3 and special needs housing)
- 40% affordable housing
- a density in excess of 40 dph
- one 3FE and one 2FE primary school
- a Local Centre with a range of retail, recreational and community uses
- a new Country Park
- strategic and local open space
- a Gypsy and Traveller site
- a Community Management Organisation.

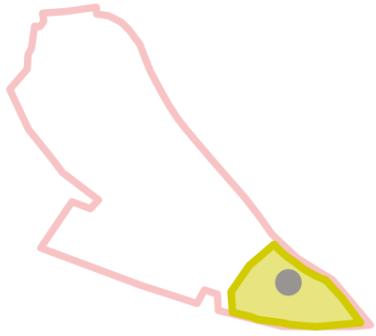
The Bigger Picture

East Hemel (South) Broad Location forms one of four Broad Locations which make up the Local Plan Reg 19 proposals for East and North Hemel. The Crown Estate and St Albans Council are jointly working on a comprehensive and integrated master plan for the whole of S6(i) to (iv) which will deliver around 5,550 new homes and 55 ha of new employment. The current version of this master plan is shown here and is capable of further extension west into Dacorum Borough if Dacorum's new Local Plan allocates further strategic housing releases across the northern edge of Hemel Hempstead. Together, these areas could form the 'Hemel Garden Community'.





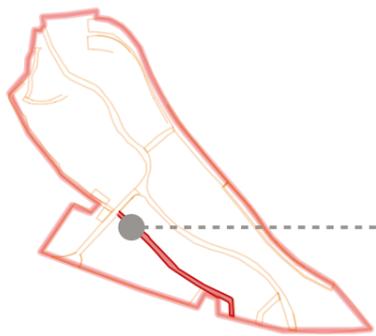
South & South East
Area : 131 ha



Green Belt
Area : 18.12 ha



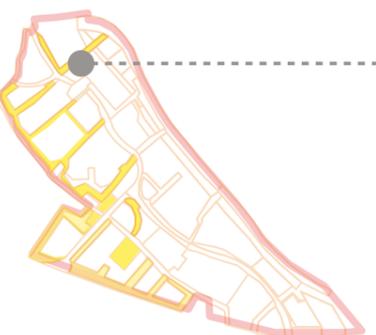
Acoustic Barrier & BPA
Area : 16.50 ha



Westwick Road
Area : 3.72 ha



Heritage
Area : 1.70 ha



Retained Woodland: 18ha

The acoustic bund and BPA pipeline along the M1 extends to beyond the Green Belt boundary and prevents residential up to the gross redline area.

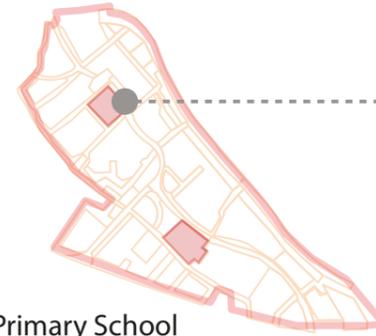
The main access road through the development which connects A414 to A4147.

The heritage features and the associated standoff distance all prevent development from occurring in these areas and reduces the amount of housing capable of being developed in the area.

The woodland blocks, hedges and tree belts are features that are being retained in the masterplan and prevent the area being developed for housing.



SuDS/ Play/ Strategic Open Space
Area : 22.29ha



Primary School
Area : 4.80ha



Local centre
Area : 1.84ha



Net residential
Area : 44.03ha

The SuDS feature sits at the lowest point in the land and cannot be accommodated in green belt or elsewhere as the land form is higher across the whole of the SE and South of Hemel redline boundary. The water area needs to sit at its lowest point on the site to enable water to follow pipes under the M1 across to SuDS lakes and river courses to the east of the M1. The approximate area follows a similar area required for East Hemel Southern residential area. A network of well designed and cared for open space is designated to local authority standards.

A primary school is a social infrastructure requirement and comprises two 2.4ha sites which would have delivered 192 residential units if available for housing.

The local centres are developed with 2 storeys of apartments over the retail/mixed use space which make an allowance for 80 units to be added to final total making it 1842 units.

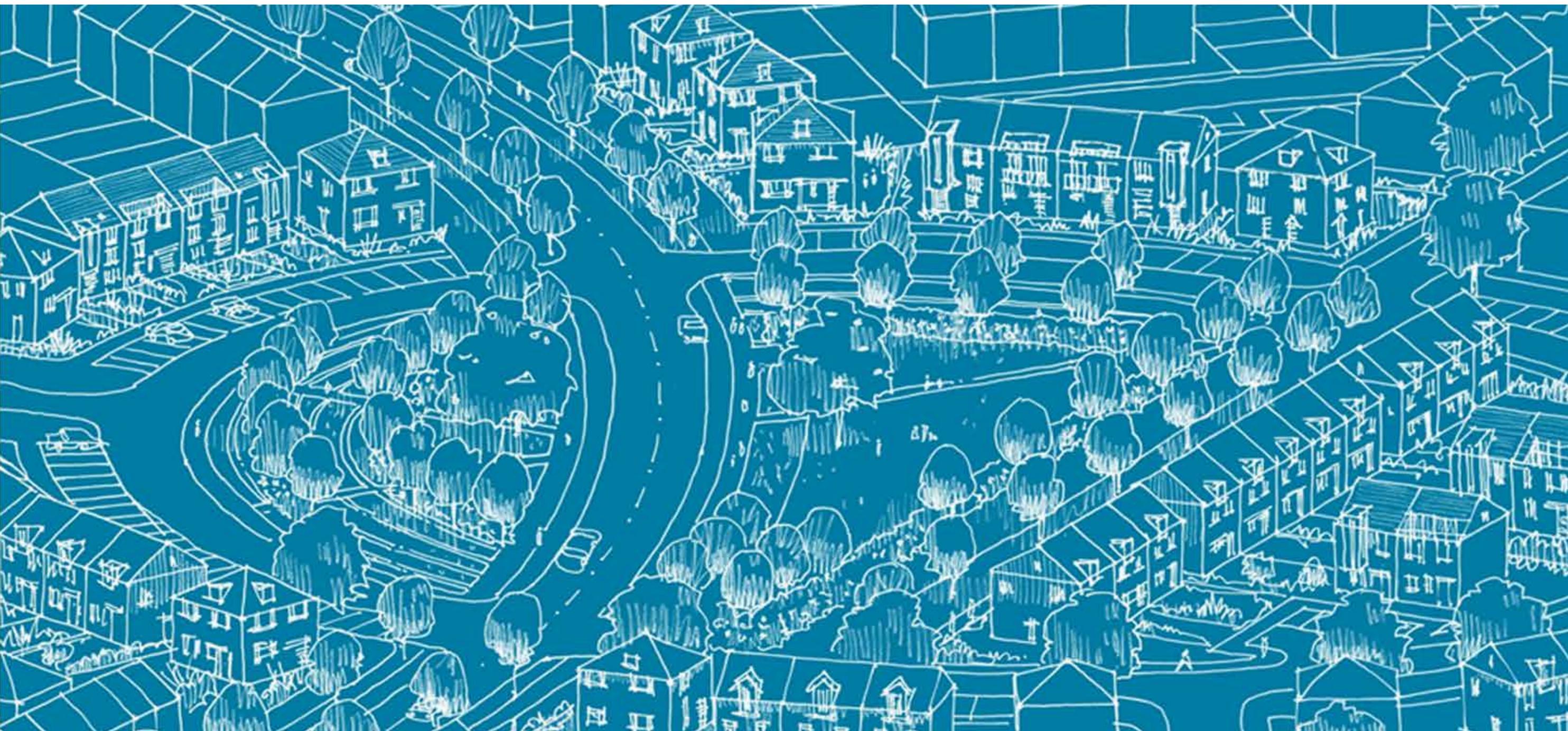
$44.03 \text{ ha} \times 40\text{dph} = 1,762$ residential units plus 80 units in the local centre to be added to the final making it 1842 units.

The above calculation demonstrates that the net residential area is around 44 hectares. At a density of 40dph this delivers only around 1842 homes, around 558 short of the 2,400 homes expected in S6(iii). In order to achieve 2,400 homes in this area, the density would have to rise to over 52/53 dph.



17198-RT-001 Rev5-South East and policy S6(iii) Land use budget break down

Appendix 7: Transport Extract of North Hemel Hempstead Landowner/Developer Representations Regulation 19 Consultation (October 2018)



North Hemel: Reg 19 Representations Policy S6(iv)



Policy S6(iv) North Hemel Hempstead Broad Location :

The Crown Estate (TCE) is in discussions with the landowners within Broad Location S6(iv) with a view to acquiring their land. However, TCE has progressed masterplan work for this area with St Albans Council in order to produce a comprehensive scheme for all four Broad Locations which would deliver 5,550 homes and up to 10,000 jobs. The master plan is well advanced and is shown here.

The master plan shows how all the components of S6(iv) will be delivered including:

- 1,500 homes(including C2,C3 and special needs housing)
- 40% affordable housing
- a density in excess of 40dph
- one 3FE primary school
- a Local Centre with a range of retail, recreational and community uses
- a new Country Park
- strategic and local open space
- a Community Management Organisation.

The Bigger Picture

North Hemel Hempstead Broad Location forms one of four Broad Locations which make up the Local Plan Reg 19 proposals for East and North Hemel. The Crown Estate and St Albans Council are jointly working on a comprehensive and integrated master plan for the whole of S6(i) to (iv) which will deliver around 5,550 new homes and 55 ha of new employment. The current version of this master plan is shown here and is capable of further extension west into Dacorum Borough if Dacorum's new Local Plan allocates further strategic housing releases across the northern edge of Hemel Hempstead. Together, these areas could form the 'Hemel Garden Community'.



Appendix 8: MLM Land North of Hemel Hempstead Road (B487) Transport
Technical Note (October 2018)

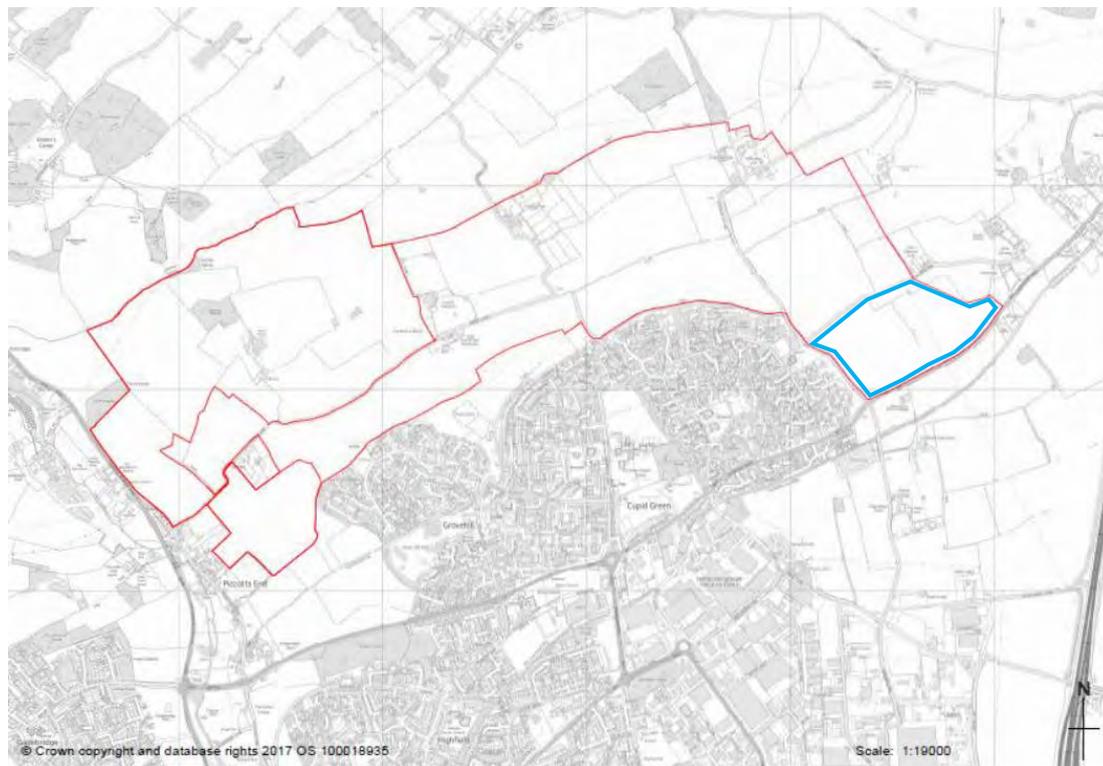
Technical Note – Land North of Hemel Hempstead Road (B487), Hemel Hempstead

Introduction

MLM Consulting Engineers have been appointed to produce a Technical Note for the proposed development of 450 dwellings on the land north of Hemel Hempstead Road (B487), Hemel Hempstead. This Technical Note assesses the potential effects of the development on the local highway infrastructure and discusses whether it can be brought forward in advance of a relief road, which has been identified through *'The Maylands Scheme Concepts'* as necessary to support the continuous residential and employment development in the vicinity. A site location plan is included in Appendix 1.

The proposed scheme forms part of the site that has been allocated within the draft Local Plan (October, 2017) *"Dacorum's Schedule of Site Appraisals (For Large Greenfield Sites)"*. The proposals are for a mixed use residentially led new community for up to 4,500 homes. The area that is allocated within the local plan is shown in red in Figure 1 below, with the area outlined in blue the subject of this report.

Figure 1 – North Hemel Hempstead (Phases 1 and 2)





Job Title: Land North of Hemel Hempstead Road
Document Reference: 619890-MLM-ZZ-XX-RP-TP-0001
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Revision: 02
Status: -
Date: 1 October 2018

The relief road is planned to be constructed which would link together the Eastern Hemel Hempstead development, which comprises a mix of residential and commercial development. The proposed location of the relief road and surrounding potential developments are included on a map in Appendix 2.

A series of interventions, known as Scheme Concepts (taken from 'Maylands Growth Corridor, Hemel Hempstead' document), have been devised to help facilitate important economic growth in the Maylands and East Hemel Hempstead area and to address existing and future challenges on the surrounding transport network. An extract that summarises the concepts is included in Appendix 3.

Policy

Dacorum Local Plan to 2036 (November, 2017)

Dacorum's 2036 Vision states within the Local Plan (November, 2017): *" the growth and regeneration of Hemel Hempstead continues, with further improvements to the town centre, the Apsley and Two Waters area and Maylands Business Park. The town is fulfilling its potential as a sub-regional business centre, with the Enterprise Zone supporting the green technology sector"*.

Hertfordshire Local Transport Plan (LTP) 2018-2031

The Hertfordshire Local Transport Plan (LTP) sets out how transport can help deliver a positive future vision for Hertfordshire.

Figure 3.9 within the LTP sets out the current transport network problems and issues within Hertfordshire, stating that there is poor access to out of town centres of employment, Hemel Hempstead town centre and railway station.

Hertfordshire County Council secured over £10m from the DfT's Local Sustainable Transport Fund (LSTF) in the period 2011/12-2014/15.

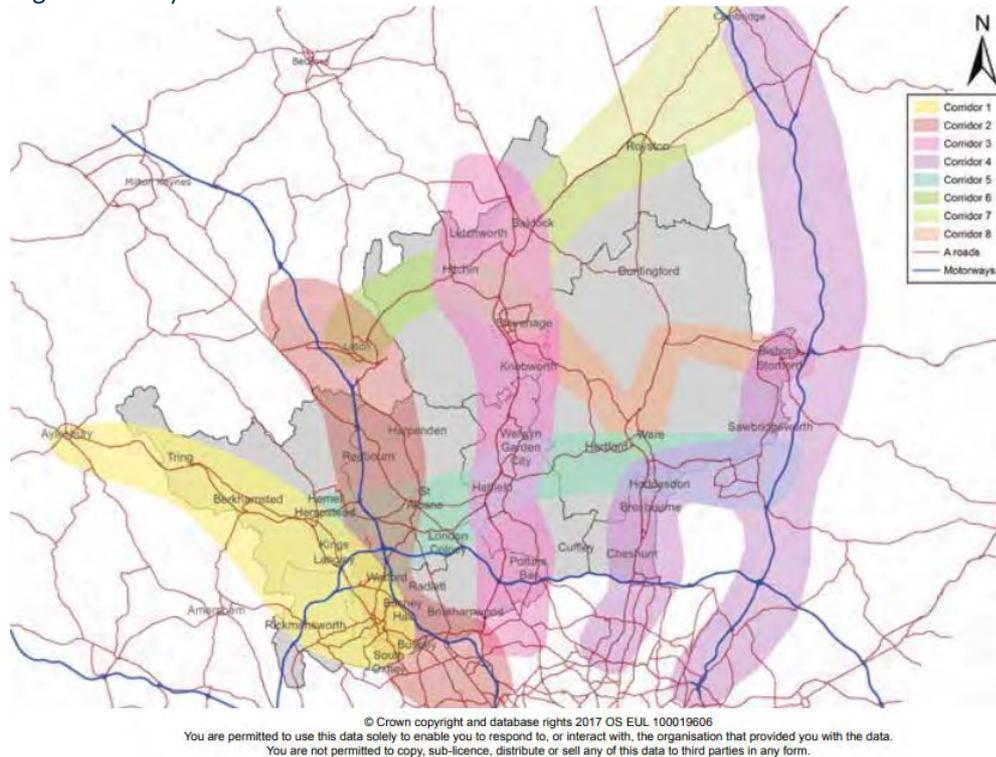
Maylands Business Park (the 'Park') within Hemel Hempstead was a particular focus, with funding spent on initiatives including a designated Travel Plan Co-ordinator for the business park; sustainable travel marketing and promotional activities; new and improved cycling routes and facilities; urban realm improvements to support walking; bus infrastructure improvements; a new express bus service between the Park and Hemel Hempstead town centre / rail station, and a dedicated lift share website.

There are 8 key multimodal movement corridors located within Hertfordshire which are shown in Figure 2. Corridor 5 consists of Hemel Hempstead & Watford, St Albans and Harlow.



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Figure 2 – Key Multimodal Movement Corridors



The main scheme priorities for the corridor are a significant improvement in interurban passenger transport connectivity in the corridor, notably through delivery of an east-west bus rapid transit scheme, with park and ride provision implemented alongside this where possible, and Sustainable Travel Town projects in the larger towns along the corridor. Highway improvements to support growth will be needed in East Hemel Hempstead, at multiple junctions along the A414, at Hertford and north of Harlow.

A number of transport improvements have been highlighted in order to support new development in East Hemel Hempstead. This includes upgrading the A414 / Green Lanes junction, M1 Junction 8 enhancements and a new spine road linking the A414 and B487. These have been analysed further in the *'Maylands Growth Corridor, Hemel Hempstead'* study undertaken by AECOM (January, 2018) and are discussed below – the location of the roundabout is shown in Figure 3.



Job Title: Land North of Hemel Hempstead Road
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Figure 3 – A414 Breakspear Way / Green Lane Roundabout



'Maylands Growth Corridor, Hemel Hempstead' (January, 2018)

The purpose of this study was to identify current and future transport constraints and opportunities facing the Maylands area of Hemel Hempstead. Due to the planned housing and employment development in the area, there was a need to understand the challenges relating to the transport network in and around the Maylands area, and identify the priorities for investment in transport infrastructure and services.

One of the most significant and immediate challenges facing the Maylands and East Hemel Hempstead area is severe congestion and delays on the A414 Breakspear Way and in the vicinity of M1 Junction 8. Scheme Concept 1 is split into 3 different scenarios, all of which offer proposals to provide additional capacity in order to enable new developments to progress in the area. A summary of the 3 concepts is provided below:

- *'SC1i A414 Breakspear Way-Green Lane roundabout signalisation'* – Implementation of full-time traffic signals on the A414-Green Lane roundabout and re-shaping the central island and some approach arms to provide additional capacity for traffic. This consists of widening the circulatory of the roundabout as well as widening the lanes on the arms. This will be quick to deliver and could have quite immediate beneficial effects on transport users, albeit only for a short period. This could come forward within 2 years with the delivery strongly tied to the Maylands Gateway development.
- *'SC1h Staggered signalised crossroads'* – Replacement of the existing A414-Green Lane roundabout with a staggered signalised crossroads. In the future, the junction will be an important conduit not only for east-west traffic along the A414 and to/from the M1, but also for north-south movements between different parts of the East Hemel Hempstead development. This could come forward within 2-5 years during the early phases of East Hemel Hempstead urban extension.
- *'SC1c M1 J8-Boundary'* – A new roundabout on the eastern side of the M1, connected to the slip roads serving the southbound M1 carriageway and A414 towards St Albans/Park Street. A new road will link the roundabout around the east of the M1 and over the motorway, connecting into an enlarged and improved Boundary Way-Green Lane roundabout. This could be delivered within 5-10



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years, before the completion of East Hemel Hempstead urban extension development. An indicative illustration of this arrangement is included in Figure 4.

Figure 4 – Indicative Illustration of SC1c



(Source: *Maylands Growth Corridor Hemel Hempstead*, AECOM 2018)

An additional concept, known as the ‘*Scheme Concept 2 (SC2) Multi-Modal Spine Road*’, consists of a multi-modal spine road that will link together the Eastern Hemel Hempstead development. This will provide a link between the B487 Redbourn Road in the north and the A4147 St Albans/Hemel Hempstead Road in the south via the A414 Breakspear Way. This link is necessary to ensure that the existing road network does not come under increasing pressure in the future. This scheme is expected to be phased in line with planned development at Spencer’s Park Phase 2 and East Hemel Hempstead (locations shown in Appendix 2).

Baseline Conditions

Existing Highway

Hemel Hempstead Road (B487) runs along the southern boundary of the site which offers a single lane of traffic travelling in both directions which is subject to a 60mph speed limit. There are grass verges on either side with no footways present. Heading west towards Hemel Hempstead, the road meets the Holtsmere End Lane/Cherry Tree Lane/Redbourn Road junction where the speed limit reduces to 40mph along Redbourn Road.

The ‘*Maylands Growth Corridor*’ report highlighted a number of existing highway problems in the area that have been identified through evidence gathering and discussions with stake holders. The main issues are as follows:

- Dominant right turning movements from the M1 towards Maylands (Green Lane north) causes very long queues and delays on all other approaches.
- Severance caused throughout the Park by very busy, heavily trafficked roads makes crossing the road for pedestrians and cyclists quite difficult and potentially unsafe.



Job Title: Land North of Hemel Hempstead Road
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- Traffic is rat-running on narrow lanes through the area to avoid queues elsewhere, including Cherry Tree Lane, Buncefield Lane and part of Green Lane (south of Breakspear Way) through Leverstock Green.
- Access to the Nickey Line for pedestrians and cyclists is difficult especially from Cherry Tree Lane and Three Cherry Trees Lane (very steep).
- Obstructive HGV parking can cause damage to the highway verge, create litter and cause disruption to traffic on other roads.
- Observations indicate that it can take up to 10 minutes to travel just under 1km approaching the A414 Breakspear Way-Green Lane roundabout.

The concepts that will resolve many of these issues have been outlined in the previous section with a summary of the concepts included in Appendix 3.

Maylands Business Park (the 'Park')

The Maylands Business Park (the 'Park') is one of the largest business parks in the East of England and it is currently home to over 650 businesses that employ over 18,000 people and forms part of Hertfordshire's Enviro-Tech Enterprise Zone (EZ). Nearly 80% of trips are made by private car and therefore there is untapped potential to increase non-car mode share, particularly on foot and by bike for shorter distance journeys within Hemel Hempstead.

With the Park expected to grow in the future, this will generate more vehicle trips to the area. As such, if residential developments are located near to the Park, this will provide a net benefit to the highway network as the length of journey for vehicle trips will be reduced. With journey distances expected to be shortened, this provides the opportunity to influence a number of future residents to travel more sustainably.

Trip Generation and Distribution

Proposed Development Trip Generation

Reference has been made to the TRICS database in order to assess the likely number of trips associated with the proposed development. A vehicle trip generation assessment was undertaken with the assessment based on the following criteria:

- Houses privately owned;
- Sites surveyed within England excluding Greater London from 2010; and
- Weekday data only.

Table 1 summarises the vehicle trip rates and resultant flows with the TRICS output data included in Appendix 4.

Table 1: Vehicle Trip Generation

Time Period	Trip Rates (Per Dwelling)			Flows (Based on 450 Dwellings)		
	Arrivals	Departures	2-way	Arrivals	Departures	2-way
08:00-09:00	0.129	0.363	0.492	58	163	221
17:00-18:00	0.309	0.154	0.463	139	69	208

Table 1 suggests that there will be approximately 163 departures during the AM peak period (08:00-09:00) and 139 arrivals during the PM peak period (17:00-18:00).



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Reference has been made to the 2011 Census Data for travel to work data for the area in which the site is located adjacent to (Dacorum 005). This provides an estimation of how future residents will travel in the area, with the data summarised in Table 2.

Table 2: 2011 Census Data MSOA Dacorum 005

Method of Travel to Work	Percentage (%)
Underground, metro, light rail	1%
Train	3%
Bus, minibus or coach	7%*
Taxi	0%
Motorcycle, scooter or moped	1%
Driving a car or van	73%
Passenger in a car or van	5%
Bicycle	1%
On foot	9%
Other method of travel to work	0%
Total	100%

*Rounded up to achieve a total of 100%

Proposed Development Trip Distribution

In order to calculate the location of where future residents of the development would travel to work, reference has been made to the 2011 Census Data for 'Location of usual residence and place of work by method of travel to work' for the 'Middle Super Output Area Dacorum 005'.

Table 3 summarises the areas in which residents who currently live in the Dacorum 005 MSOA commute to focusing on car drivers only.

The assessment initially focused on the 'Regions' in England. This resulted in 13% of people commuting to London and 87% of people commuting to the 'East' Region. The 'East' Region was then analysed on a 'Local Planning Authority' (LPA) level which revealed that 48% of people commute to the 'Dacorum' LPA. The Middle Super Output Areas for Dacorum was then analysed to generate a profile of where people currently commute to from Dacorum 005.



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Table 3: Destination of Travel to Work Data for 'Dacorum 005'

Destination	Total
<i>Regional</i>	
London	13%
East	87%
<i>Local Planning Authority (For 'East' Region)</i>	
Dacorum	48%
Hertsmere	4%
Luton	3%
St Albans	15%
Three Rivers	4%
Watford	9%
Welwyn Hatfield	4%
<i>Middle Super Output Areas (For 'Dacorum')</i>	
Dacorum 005	2%
Dacorum 013	25%
Dacorum 015	14%
Dacorum 018	4%
Dacorum 022	3%
TOTAL	100%

On the basis of the existing journey to work data, Table 3 illustrates that 48% of future residents travelling to work may drive within Dacorum. A total of 25% of vehicle drivers travelling to work currently go to Maylands Business Park (the 'Park') from Dacorum 005, even though they live within an approximate 2km walking distance of the Park. This presents an opportunity to influence a number of existing and future residents to travel to the Park by sustainable modes of travel thereby reducing the number of cars on the local highway network. The potential options to reduce travel by car are provided later within this document.

In order to understand the junctions that are most likely to be affected by the development, reference was made to an online route planner to determine the best possible route from the site to each of the MSOAs and LPAs. A route assignment map has been included in Appendix 5.

The main junctions that are likely to be influenced by the proposed development, as well as the expected number of vehicle trips that will pass through each junction within the peak hours has been summarised in Table 4. A map showing the location of the main junctions that are expected to be affected on the basis of the existing network is included in Appendix 6.



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Table 4: Percentage of Traffic Expected to Travel Through Specific Junctions

Junction	Percentage (%)	Vehicle Trips	
		AM	PM
A414 Breakspear Way / Green Lane	34%	75	71
Cherry Tree Lane	34%	75	71
The B487 Redbourn Road / Shenley Road / Three Cherry Trees Lane Roundabout	46%	102	96
St Agnells Lane / Redbourn Road / Link Road Roundabout	21%	46	44
The B487 Hemel Hempstead Road	18%	57	51
M1 Junction 8	34%	108	96

The junction that is expected to receive the highest percentage of vehicle movements is the B487 Redbourn Road / Shenley Road / Three Cherry Tree Lane roundabout, with 46% of vehicle traffic likely to pass through. The roundabout appears to exhibit queuing in the peak hours on Shenley Road and Three Cherry Tree Lane.

Approximately a third (34%) of traffic is expected to travel southbound on the M1 travelling via Cherry Tree Lane to the A414 Breakspear Way / Green Lane roundabout and through Junction 8 of the M1.

There is queuing on Cherry Tree Lane in the evening peak only in both directions which is likely to relate to the constrained nature of the carriageway. There is little scope to widen the carriageway, but in any event there are aspirations through the Local Plan to make improvements to pedestrian/cycle facilities and discourage cars using this route (this is discussed later in the section on pedestrian/cycle improvements). If this route were to discourage car movements then more vehicles from the Site are likely to use the B487 Redbourn Road / Shenley Road / Three Cherry Tree Lane junction which impacts this junction further.

The A414 Breakspear Way / Green Lane roundabout is known to be congested due to the large number of vehicles that access the Park each day. The main issue is in relation to right turners approaching the Park which causes queues on the western arm of the roundabout. As the proposals are for a residential development, traffic will be travelling in the opposite direction to commuters driving to/from the Park. Therefore, it is likely that left turners from the Site accessing Junction 8 of the M1 in the morning peak will have limited impact on right turners at the A414 Breakspear Way / Green Lane roundabout and vice versa in the evening peak. However, overall the junction will be impacted due to the additional traffic and change in distribution across the arms of the roundabout.

St Agnells Lane / Redbourn Road / Link Road roundabout appears to operate in both peak hours at the junction, however Redbourn Road is shown to be congested further south from the roundabout through to the junction of Swallowdale Road / High Street Green / Queensway in the evening peak. It is unclear why this would occur but would require investigation to see whether the junction is causing the issue. It is anticipated that the level of traffic would be increased beyond that shown in the table above if the Cherry Tree Lane were to be improved to discourage vehicle use and so would further impact at this junction.

Should vehicles be discouraged from using Cherry Tree Lane then the traffic would likely use Maylands Avenue / A4147 / St Albans Road / Breakspear Way as well as the junctions set out in the above table. This is a congested junction during both peak periods and is likely to be due to the interaction with the junction of A414 Breakspear Way / Green Lane roundabout.



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Whilst there will be an impact on all of these junctions it is worth noting that the vehicle trips to local areas in Dacorum are to be influenced through improvements to sustainable travel and as such the mitigation that may be necessary would be based on a reduced amount of traffic. It may be that with large gains in mode shift, the impact would be low enough to be acceptable to the Highway Authority or could be undertaken in conjunction with relatively minor highway improvements at the most affected junctions.

Maylands Business Park (the 'Park') Distribution

As the Park employs over 18,000 people and plays such a key role in traffic movements within Hemel Hempstead, it is important to understand the origin of where commuters currently travel from to the Park. Reference has been made to the 2011 Census Data for 'Location of usual residence and place of work by method of travel to work'. The Park is located within the 'Middle Super Output Area Dacorum 013' and therefore this was selected as the destination point.

Table 5 summarises the main areas in which commuters travel from to reach the Park with the focus on car drivers. Appendix 7 shows the likely route that vehicles would take when travelling to the area based on an online route planner.

The assessment initially focused on the 'Regions' in England. This resulted in 13% of people commuting from the South East, 8% from London and 78% of people commuting from the 'East' Region. The 'East' and 'South East' Region were then analysed on a 'Local Planning Authority' (LPA) level which revealed that 44% of people commute from the 'Dacorum' LPA. The Middle Super Output Areas for Dacorum was then analysed to generate a profile of where people currently commute from to Dacorum 013.

Table 5: Origin of Commuters Travelling to 'Dacorum 013'

Destination	Total
<i>Regional</i>	
East	78%
London	8%
South East	13%
<i>Local Planning Authority</i>	
Aylesbury Vale	6%
Central Bedfordshire	11%
Chiltern	2%
Dacorum	44%
Milton Keynes	3%
Luton	11%
St Albans	8%
Watford	4%
Wycombe	2%
<i>Middle Super Output Areas (For 'Dacorum')</i>	
Dacorum 005	6%



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Dacorum 007	7%
Dacorum 008	6%
Dacorum 011	5%
Dacorum 015	7%
Dacorum 018	7%
Dacorum 020	6%
TOTAL	100%

Table 5 demonstrates that 44% of commuters travelling by car drive to the Park from within the Dacorum MSOAs. This provides an opportunity to influence the way that they travel, thereby reducing car trips on the local highway network.

As mentioned previously, one of the main issues with congestion in the local area is due to the dominant right turning movements from the M1 towards Maylands (Green Lane north) causing long queues and delays on all other approaches. By building a residential development near to the Park, it means that a proportion of traffic would no longer be travelling to the Park from further afield with trips expected to be more localised. The distance of the proposed development to the Park is within 3km, as such, there is an opportunity for a number of future trips to be undertaken by sustainable modes of travel thereby creating a net benefit on the surrounding highway network.

Measures

This section outlines a number of potential options to help reduce the number of vehicle movements generated by the development. It refers to policy documents and other reports that have highlighted the need for improvements to the surrounding area.

Shuttle Bus Service

A shuttle bus service between the Site, the Park, Hemel Hempstead railway station and St Albans City railway station could be implemented which may assist with reducing the total number of car drivers travelling locally. This service would be a direct service with limited stops to improve journey times, and with frequent services in the peak hours. Bus priority at congested areas of the network would be considered to further improve journey times – for example, including bus detector loops at traffic signalised junctions to enable buses to get closer to the front of the queue or including short sections of bus lanes close to junctions to bypass queues.

As highlighted within the Local Transport Plan (LTP) for Hertfordshire (2018-2031), a concept for an A414 Bus Rapid Transit (BRT) has been contemplated. This would be a passenger transit link offering greater speeds and reliability than traditional bus services, linking Hemel Hempstead railway station in the west to Welwyn Garden City in the east, with potential future extensions to Hertford and Harlow. The service would be expected to operate relatively free from the impacts of traffic congestion, with this achieved via bus priority measures and segregation. The proposed shuttle service may be able to take advantage of the bus priority afforded to the BRT as it approaches Hemel Hempstead which would further improve the journey times in the future.

The proposed shuttle bus would also improve services between Hemel Hempstead train station and the Park for employees travelling to/from work. The existing bus services (PB32 & ML1) that operate between the railway station and the Park, take approximately 15 and 20 minutes respectively, with each route



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operating 2 services each hour. The frequency can therefore be increased with this additional service available.

As mentioned within Table 6, 44% of vehicle traffic associated with journey to work travels to the Park from within Dacorum, as such, a shuttle bus service will help to minimise the proportion of local vehicle drivers thereby providing a benefit on the local highway network. Furthermore, it is predicted that 48% of future residents of the Site that drive to work would go in areas within Dacorum and can therefore also be influenced by a shuttle bus service.

Improve Walking & Cycling Infrastructure

With 25% of future residents at the Site who drive to work expected to drive to the Park (on the basis of existing movement patterns), there is an opportunity to influence how future residents will travel to the Park as well as existing residents that live within the Dacorum 005 MSOA.

The Developer is willing to provide funding towards walking and cycling infrastructure between the Site and the Park. This would include extending the existing footway on the southern side of Redbourn Road along the southern boundary of the Site. This will provide a walking route from the Site to the Park and towards Hemel Hempstead Town Centre. This would also include contributing towards the two 'Scheme Concepts' outlined in the paragraph below.

Within the 'Maylands Growth Corridor' study, it refers to a proposed Quietway on Cherry Tree Lane (SC3a) which would consist of a mix of new signs and kerbed build-outs in order to discourage through movements along with areas where vehicles will be banned. The document also refers to the Nickey Line (SC5) where improved access facilities are proposed from Cherry Tree Lane and Three Cherry Trees Lane where they route over and under the Nickey Line respectively. On Cherry Tree Lane, it is envisaged that a system of ramps with appropriate gradients for cyclists and pedestrians to negotiate would be provided between the level of the road and the level of the track.

By improving the walking and cycling infrastructure in the vicinity of the Site, it will help promote sustainable travel for the development Site as well as influencing existing travel patterns. This is likely to result in a reduction in vehicle trips on the local highway network.

Maylands Business Park (the Park) Travel Plan (December, 2011)

A Travel Plan was created for the Park area in order to provide a long term, sustainable travel management plan. The Travel Plan is an overarching travel plan framework for the Park with individual occupiers playing an important role in achieving a higher sustainable transport modal share.

As part of the Travel Plan, there was an employee survey submitted. A summary of the results are that "only 2% of work journeys are made by bus, 2% walk with no cyclists. There is some potential in encouraging more sustainable travel by staff – more than a third of staff would be encouraged to use public transport if more direct bus services were provided, and a quarter if staff discounts were available on season tickets. The most popular initiative to encourage staff to walk or cycle to work is the provision of shower and changing facilities, followed by the provision of safe cycling routes and the provision of secure bike parking".

The Developer is willing to commit to providing additional funds to continue the implementation of the Travel Plan, if needed. This can include relaunching the previous website. A new 'welcome pack' can be issued to new and potential employers/employees which details the existing facilities, routes and timetables for the local area and highlighting any new enhancements to sustainable travel that have been implemented in the area.



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Travel Plan

A Travel Plan will be required as part of a planning application for the Site. The list of measures outlined within the Travel Plan can also be extended to the Woodhall Farm residential area, which is located to the west of the Site (Dacorum 005) – this will help to promote sustainable travel and encourage a shift from single occupancy car use.

A Travel Plan has a number of objectives, measures and targets to achieve over the life time of the Travel Plan. The main objective of the Travel Plan is to reduce single occupancy vehicle use whilst increasing use of sustainable transport modes.

A number of measures that would be implemented are as follows:

- Issue each household within the Site and in the nearby community with a Sustainable Travel Information Pack (STIP) that highlights walking and cycling routes and bus and railway timetables.
- Provide a £50 cycle voucher and a free months bus pass to households to encourage sustainable transport use.
- Promote sustainable transport events to residents.
- Provide each household with 10 “myPTP” credits to help plan their journeys.
- Introduce a ‘Liftshare’ group for both the Site and for the Maylands Business Park to help encourage car sharing.

The Travel Plan will assist with reducing single occupancy car use thereby reducing the number of vehicle trips generated on the local highway network from the proposed development and the existing Woodhall Farm residential area.

Summary

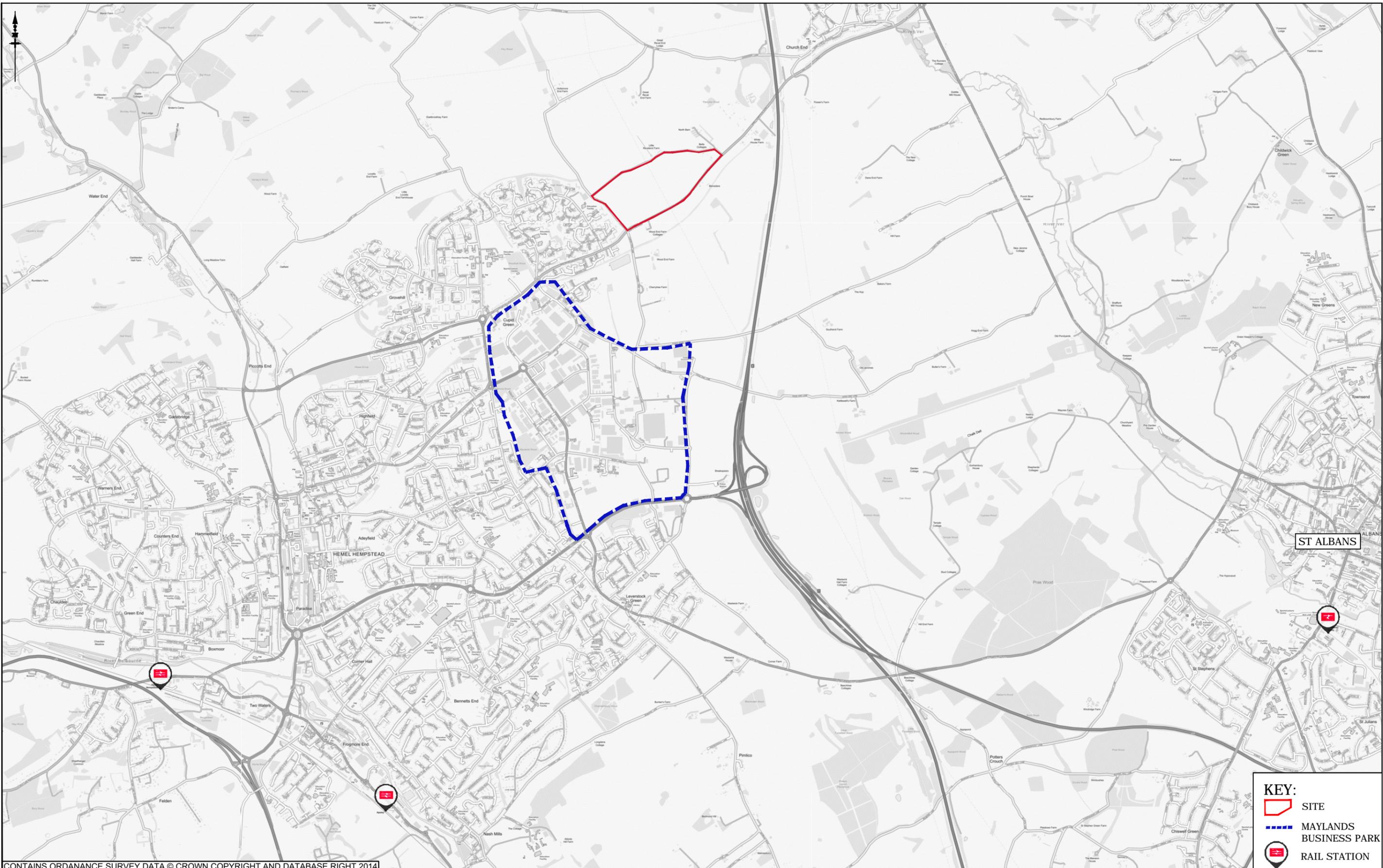
To summarise, without making any improvements to the local area, the proposed development is expected to generate 221 two-way (58 arrivals and 163 departures) and 208 two-way vehicle trips (139 arrivals and 69 departures) in the AM and PM peaks respectively. It is likely that mitigation would be required at junctions that are already operating at or close to capacity, however it is worth noting that the vehicle trips to local areas in Dacorum are to be influenced through improvements to sustainable travel and as such the mitigation that may be necessary would be based on a reduced amount of traffic. It may be that with large gains in mode shift, the impact would be low enough to be acceptable to the Highway Authority or could be combined with minor highway improvements to the junctions.

A list of measures to influence mode share are outlined and include promoting and marketing sustainable modes to existing residents and new residents at the Site; implementing a shuttle bus to improve connections between the Site, the Park and Hemel Hempstead railway station whilst also providing a route through to St Albans railway station; implementing bus priority measures (where possible) to improve the journey times for the shuttle bus; improvements to pedestrian and cycle infrastructure to improve local connections; and potentially providing additional funding towards the Business Park Travel Plan to facilitate measures to encourage employees to travel sustainably.



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Appendix 1 – Site Location Plan



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619890-MLM-ZZ-XX-DR-TP-1002

KEY:

-  SITE
-  MAYLANDS BUSINESS PARK
-  RAIL STATION



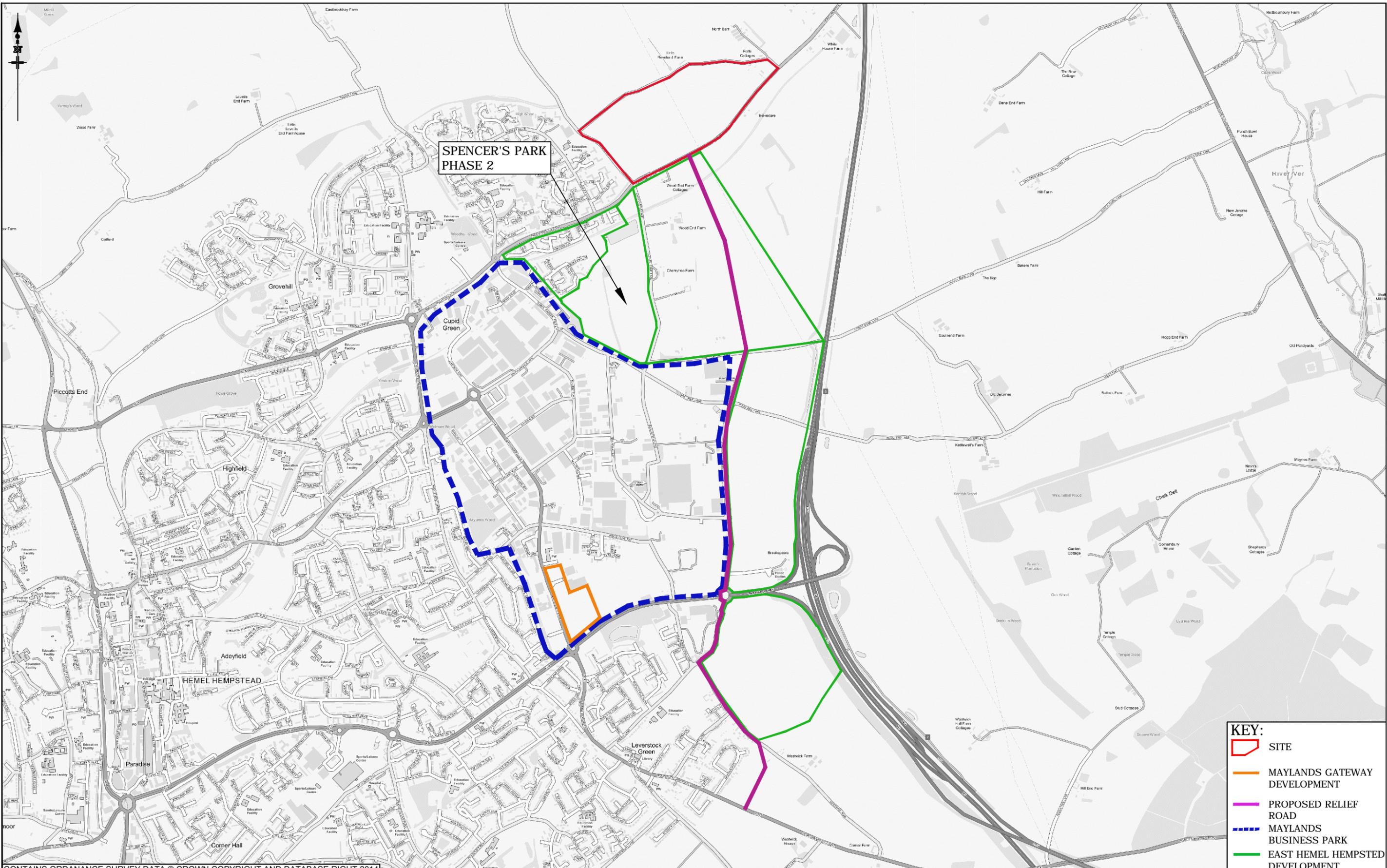
190 Eureka Park,
Upper Pemberton, Ashford,
Kent TN25 4AZ
Tel: 01233 610530
Website: www.mlmgroupp.com

HEMEL HEMPSTEAD
LOCATION PLAN



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Document Reference: 619890-MLM-ZZ-XX-RP-TP-0001
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Appendix 2 – Map of Existing and Proposed Developments



SPENCER'S PARK
PHASE 2

- KEY:**
- ▭ SITE
 - ▭ MAYLANDS GATEWAY DEVELOPMENT
 - ▭ PROPOSED RELIEF ROAD
 - ▭ MAYLANDS BUSINESS PARK
 - ▭ EAST HEMEL HEMPSTEAD DEVELOPMENT

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190 Eureka Park,
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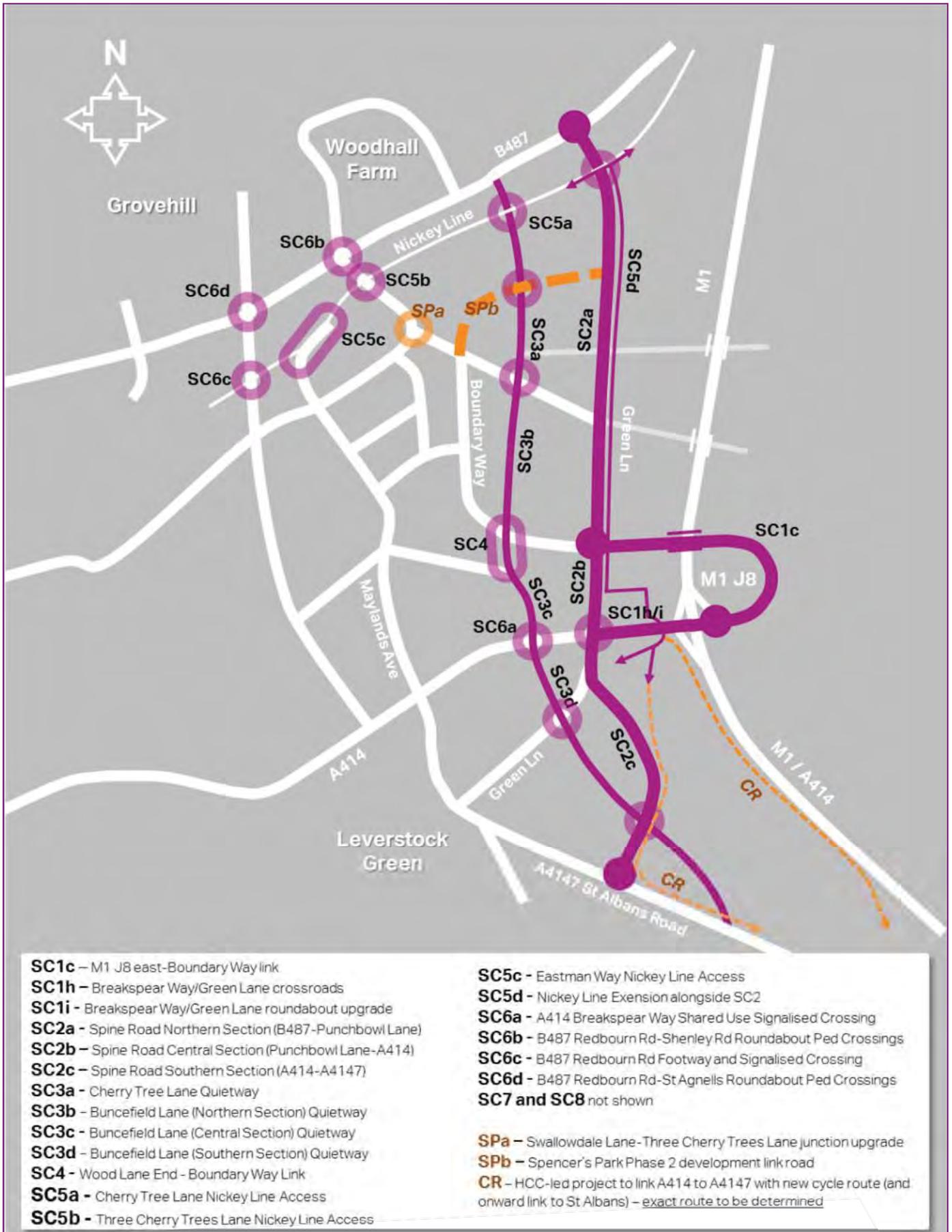
HEMEL HEMPSTEAD
A PLAN ILLUSTRATING EXISTING & POTENTIAL NEW DEVELOPMENTS



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Document Reference: 619890-MLM-ZZ-XX-RP-TP-0001
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Appendix 3 – The Maylands Scheme Concepts

The Maylands Scheme Concepts



△ Overview map of Scheme Concepts



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Appendix 4 – TRICS Output Data

Calculation Reference: AUDIT-532501-180927-0918

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED
 VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	3 days
	EX ESSEX	1 days
	HC HAMPSHIRE	1 days
	KC KENT	5 days
	SC SURREY	1 days
	WS WEST SUSSEX	5 days
03	SOUTH WEST	
	DC DORSET	1 days
	DV DEVON	3 days
	SM SOMERSET	1 days
	WL WILTSHIRE	1 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	2 days
	NF NORFOLK	3 days
	SF SUFFOLK	3 days
05	EAST MIDLANDS	
	LN LINCOLNSHIRE	2 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	2 days
	ST STAFFORDSHIRE	3 days
	WK WARWICKSHIRE	2 days
	WM WEST MIDLANDS	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NE NORTH EAST LINCOLNSHIRE	2 days
	NY NORTH YORKSHIRE	8 days
	SY SOUTH YORKSHIRE	1 days
	WY WEST YORKSHIRE	1 days
08	NORTH WEST	
	CH CHESHIRE	2 days
	GM GREATER MANCHESTER	2 days
	LC LANCASHIRE	1 days
	MS MERSEYSIDE	1 days
09	NORTH	
	CB CUMBRIA	1 days
	DH DURHAM	2 days
	TW TYNE & WEAR	2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of dwellings
 Actual Range: 6 to 805 (units:)
 Range Selected by User: 6 to 4334 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/10 to 19/04/18

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	17 days
Tuesday	11 days
Wednesday	13 days
Thursday	11 days
Friday	12 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	64 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town Centre	7
Suburban Area (PPS6 Out of Centre)	24
Edge of Town	25
Neighbourhood Centre (PPS6 Local Centre)	8

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	56
Village	4
No Sub Category	4

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C1	1 days
C3	62 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,000 or Less	2 days
1,001 to 5,000	10 days
5,001 to 10,000	12 days
10,001 to 15,000	17 days
15,001 to 20,000	6 days
20,001 to 25,000	6 days
25,001 to 50,000	10 days
50,001 to 100,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Secondary Filtering selection (Cont.):

Population within 5 miles:

5,001 to 25,000	10 days
25,001 to 50,000	6 days
50,001 to 75,000	7 days
75,001 to 100,000	13 days
100,001 to 125,000	2 days
125,001 to 250,000	14 days
250,001 to 500,000	10 days
500,001 or More	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	22 days
1.1 to 1.5	39 days
1.6 to 2.0	2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	6 days
No	58 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	63 days
2 Poor	1 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	CA-03-A-04	DETACHED		CAMBRI D G E S H I R E
	PETERBOROUGH THORPE PARK ROAD Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 9 <i>Survey date: TUESDAY 18/10/11</i>			<i>Survey Type: MANUAL</i>
2	CA-03-A-05	DETACHED HOUSES		CAMBRI D G E S H I R E
	EASTFIELD ROAD PETERBOROUGH Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 28 <i>Survey date: MONDAY 17/10/16</i>			<i>Survey Type: MANUAL</i>
3	CB-03-A-05	DETACHED/TERRACED HOUSING		CUMBRI A
	MACADAM WAY PENRITH Edge of Town Centre Residential Zone Total Number of dwellings: 50 <i>Survey date: TUESDAY 21/06/16</i>			<i>Survey Type: MANUAL</i>
4	CH-03-A-08	DETACHED		CHESHIRE
	WHITCHURCH ROAD CHESTER BOUGHTON HEATH Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 11 <i>Survey date: TUESDAY 22/05/12</i>			<i>Survey Type: MANUAL</i>
5	CH-03-A-09	TERRACED HOUSES		CHESHIRE
	GREYSTOKE ROAD MACCLESFIELD HURDSFIELD Edge of Town Residential Zone Total Number of dwellings: 24 <i>Survey date: MONDAY 24/11/14</i>			<i>Survey Type: MANUAL</i>
6	DC-03-A-08	BUNGALOWS		DORSET
	HURSTDENE ROAD BOURNEMOUTH CASTLE LANE WEST Edge of Town Residential Zone Total Number of dwellings: 28 <i>Survey date: MONDAY 24/03/14</i>			<i>Survey Type: MANUAL</i>
7	DH-03-A-01	SEMI DETACHED		DURHAM
	GREENFIELDS ROAD BISHOP AUCKLAND Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 50 <i>Survey date: TUESDAY 28/03/17</i>			<i>Survey Type: MANUAL</i>
8	DH-03-A-02	MIXED HOUSES		DURHAM
	LEAZES LANE BISHOP AUCKLAND ST HELEN AUCKLAND Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Number of dwellings: 125 <i>Survey date: MONDAY 27/03/17</i>			<i>Survey Type: MANUAL</i>

LIST OF SITES relevant to selection parameters (Cont.)

9	DV-03-A-01 BRONSHILL ROAD TORQUAY	TERRACED HOUSES	DEVON
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 37 <i>Survey date: WEDNESDAY 30/09/15</i>		
10	DV-03-A-02 MILLHEAD ROAD HONITON	HOUSES & BUNGALOWS	DEVON
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 116 <i>Survey date: FRIDAY 25/09/15</i>		
11	DV-03-A-03 LOWER BRAND LANE HONITON	TERRACED & SEMI DETACHED	DEVON
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 70 <i>Survey date: MONDAY 28/09/15</i>		
12	ES-03-A-02 SOUTH COAST ROAD PEACEHAVEN	PRIVATE HOUSING	EAST SUSSEX
	Edge of Town Residential Zone Total Number of dwellings: 37 <i>Survey date: FRIDAY 18/11/11</i>		
13	ES-03-A-03 SHEPHAM LANE POLEGATE	MIXED HOUSES & FLATS	EAST SUSSEX
	Edge of Town Residential Zone Total Number of dwellings: 212 <i>Survey date: MONDAY 11/07/16</i>		
14	ES-03-A-04 NEW LYDD ROAD CAMBER	MIXED HOUSES & FLATS	EAST SUSSEX
	Edge of Town Residential Zone Total Number of dwellings: 134 <i>Survey date: FRIDAY 15/07/16</i>		
15	EX-03-A-02 MANOR ROAD CHIGWELL GRANGE HILL	DETACHED & SEMI-DETACHED	ESSEX
	Edge of Town Residential Zone Total Number of dwellings: 97 <i>Survey date: MONDAY 27/11/17</i>		
16	GM-03-A-10 BUTT HILL DRIVE MANCHESTER PRESTWICH	DETACHED/SEMI	GREATER MANCHESTER
	Edge of Town Residential Zone Total Number of dwellings: 29 <i>Survey date: WEDNESDAY 12/10/11</i>		
17	GM-03-A-11 RUSHFORD STREET MANCHESTER LEVENSHULME	TERRACED & SEMI-DETACHED	GREATER MANCHESTER
	Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Number of dwellings: 37 <i>Survey date: MONDAY 26/09/16</i>		

LIST OF SITES relevant to selection parameters (Cont.)

18	HC-03-A-19 CANADA WAY LIPHOOK	HOUSES & FLATS	HAMPSHIRE
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 62 <i>Survey date: MONDAY 27/11/17</i>		
19	KC-03-A-03 HYTHE ROAD ASHFORD WILLESBOROUGH	MIXED HOUSES & FLATS	KENT
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 51 <i>Survey date: THURSDAY 14/07/16</i>		
20	KC-03-A-04 KILN BARN ROAD AYLESFORD DITTON	SEMI-DETACHED & TERRACED	KENT
	Edge of Town Residential Zone Total Number of dwellings: 110 <i>Survey date: FRIDAY 22/09/17</i>		
21	KC-03-A-05 ROCHESTER ROAD NEAR CHATHAM BURHAM	DETACHED & SEMI-DETACHED	KENT
	Neighbourhood Centre (PPS6 Local Centre) Village Total Number of dwellings: 8 <i>Survey date: FRIDAY 22/09/17</i>		
22	KC-03-A-06 MARGATE ROAD HERNE BAY	MIXED HOUSES & FLATS	KENT
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 363 <i>Survey date: WEDNESDAY 27/09/17</i>		
23	KC-03-A-07 RECVLVER ROAD HERNE BAY	MIXED HOUSES	KENT
	Edge of Town Residential Zone Total Number of dwellings: 288 <i>Survey date: WEDNESDAY 27/09/17</i>		
24	LC-03-A-30 WATSON ROAD BLACKPOOL	SEMI-DETACHED	LANCASHIRE
	Edge of Town Centre Residential Zone Total Number of dwellings: 24 <i>Survey date: FRIDAY 14/06/13</i>		
25	LN-03-A-03 ROOKERY LANE LINCOLN BOULTHAM	SEMI DETACHED	LINCOLNSHIRE
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 22 <i>Survey date: TUESDAY 18/09/12</i>		

LIST OF SITES relevant to selection parameters (Cont.)

26	LN-03-A-04 EGERTON ROAD LINCOLN	DETACHED & SEMI -DETACHED	LI NCOLNSHIRE
	Edge of Town Centre Residential Zone Total Number of dwellings: 30 <i>Survey date: MONDAY 29/06/15</i>		<i>Survey Type: MANUAL</i>
27	MS-03-A-03 BEMPTON ROAD LIVERPOOL OTTERSPOOL	DETACHED	MERSEYSIDE
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 15 <i>Survey date: FRIDAY 21/06/13</i>		<i>Survey Type: MANUAL</i>
28	NE-03-A-02 HANOVER WALK SCUNTHORPE	SEMI DETACHED & DETACHED	NORTH EAST LINCOLNSHIRE
	Edge of Town No Sub Category Total Number of dwellings: 432 <i>Survey date: MONDAY 12/05/14</i>		<i>Survey Type: MANUAL</i>
29	NE-03-A-03 STATION ROAD SCUNTHORPE	PRIVATE HOUSES	NORTH EAST LINCOLNSHIRE
	Edge of Town Centre Residential Zone Total Number of dwellings: 180 <i>Survey date: TUESDAY 20/05/14</i>		<i>Survey Type: MANUAL</i>
30	NF-03-A-01 YARMOUTH ROAD CAISTER-ON-SEA	SEMI DET. & BUNGALOWS	NORFOLK
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 27 <i>Survey date: TUESDAY 16/10/12</i>		<i>Survey Type: MANUAL</i>
31	NF-03-A-02 DEREHAM ROAD NORWICH	HOUSES & FLATS	NORFOLK
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 98 <i>Survey date: MONDAY 22/10/12</i>		<i>Survey Type: MANUAL</i>
32	NF-03-A-03 HALING WAY THETFORD	DETACHED HOUSES	NORFOLK
	Edge of Town Residential Zone Total Number of dwellings: 10 <i>Survey date: WEDNESDAY 16/09/15</i>		<i>Survey Type: MANUAL</i>
33	NY-03-A-06 HORSEFAIR BOROUGHBRIDGE	BUNGALOWS & SEMI DET.	NORTH YORKSHIRE
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 115 <i>Survey date: FRIDAY 14/10/11</i>		<i>Survey Type: MANUAL</i>
34	NY-03-A-07 CRAVEN WAY BOROUGHBRIDGE	DETACHED & SEMI DET.	NORTH YORKSHIRE
	Edge of Town No Sub Category Total Number of dwellings: 23 <i>Survey date: TUESDAY 18/10/11</i>		<i>Survey Type: MANUAL</i>

LIST OF SITES relevant to selection parameters (Cont.)

35	NY-03-A-08	TERRACED HOUSES		NORTH YORKSHIRE
	NICHOLAS STREET YORK			
	Suburban Area (PPS6 Out of Centre) Residential Zone			
	Total Number of dwellings:		21	
	Survey date: MONDAY		16/09/13	Survey Type: MANUAL
36	NY-03-A-09	MIXED HOUSING		NORTH YORKSHIRE
	GRAMMAR SCHOOL LANE NORTHALLERTON			
	Suburban Area (PPS6 Out of Centre) Residential Zone			
	Total Number of dwellings:		52	
	Survey date: MONDAY		16/09/13	Survey Type: MANUAL
37	NY-03-A-10	HOUSES AND FLATS		NORTH YORKSHIRE
	BOROUGHBRIDGE ROAD RIPON			
	Edge of Town No Sub Category			
	Total Number of dwellings:		71	
	Survey date: TUESDAY		17/09/13	Survey Type: MANUAL
38	NY-03-A-11	PRIVATE HOUSING		NORTH YORKSHIRE
	HORSEFAIR BOROUGHBRIDGE			
	Edge of Town Residential Zone			
	Total Number of dwellings:		23	
	Survey date: WEDNESDAY		18/09/13	Survey Type: MANUAL
39	NY-03-A-12	TOWN HOUSES		NORTH YORKSHIRE
	RACECOURSE LANE NORTHALLERTON			
	Edge of Town Centre Residential Zone			
	Total Number of dwellings:		47	
	Survey date: TUESDAY		27/09/16	Survey Type: MANUAL
40	NY-03-A-13	TERRACED HOUSES		NORTH YORKSHIRE
	CATTERICK ROAD CATTERICK GARRISON OLD HOSPITAL COMPOUND			
	Suburban Area (PPS6 Out of Centre) Residential Zone			
	Total Number of dwellings:		10	
	Survey date: WEDNESDAY		10/05/17	Survey Type: MANUAL
41	SC-03-A-04	DETACHED & TERRACED		SURREY
	HIGH ROAD BYFLEET			
	Edge of Town Residential Zone			
	Total Number of dwellings:		71	
	Survey date: THURSDAY		23/01/14	Survey Type: MANUAL
42	SF-03-A-04	DETACHED & BUNGALOWS		SUFFOLK
	NORMANSTON DRIVE LOWESTOFT			
	Suburban Area (PPS6 Out of Centre) Residential Zone			
	Total Number of dwellings:		7	
	Survey date: TUESDAY		23/10/12	Survey Type: MANUAL
43	SF-03-A-05	DETACHED HOUSES		SUFFOLK
	VALE LANE BURY ST EDMUNDS			
	Edge of Town Residential Zone			
	Total Number of dwellings:		18	
	Survey date: WEDNESDAY		09/09/15	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

44	SF-03-A-06 BURY ROAD KENTFORD	DETACHED & SEMI -DETACHED	SUFFOLK
	Neighbourhood Centre (PPS6 Local Centre) Village Total Number of dwellings: 38 <i>Survey date: FRIDAY 22/09/17</i> <i>Survey Type: MANUAL</i>		
45	SH-03-A-05 SANDCROFT TELFORD SUTTON HILL	SEMI -DETACHED/TERRACED	SHROPSHIRE
	Edge of Town Residential Zone Total Number of dwellings: 54 <i>Survey date: THURSDAY 24/10/13</i> <i>Survey Type: MANUAL</i>		
46	SH-03-A-06 ELLESMERE ROAD SHREWSBURY	BUNGALOWS	SHROPSHIRE
	Edge of Town Residential Zone Total Number of dwellings: 16 <i>Survey date: THURSDAY 22/05/14</i> <i>Survey Type: MANUAL</i>		
47	SM-03-A-01 WEMBDON ROAD BRIDGWATER NORTHFIELD	DETACHED & SEMI	SOMERSET
	Edge of Town Residential Zone Total Number of dwellings: 33 <i>Survey date: THURSDAY 24/09/15</i> <i>Survey Type: MANUAL</i>		
48	ST-03-A-06 STANFORD ROAD WOLVERHAMPTON BLAKENHALL	SEMI -DET. & TERRACED	STAFFORDSHIRE
	Edge of Town Centre No Sub Category Total Number of dwellings: 17 <i>Survey date: FRIDAY 09/05/14</i> <i>Survey Type: MANUAL</i>		
49	ST-03-A-07 BEACONSIDE STAFFORD MARSTON GATE	DETACHED & SEMI -DETACHED	STAFFORDSHIRE
	Edge of Town Residential Zone Total Number of dwellings: 248 <i>Survey date: WEDNESDAY 22/11/17</i> <i>Survey Type: MANUAL</i>		
50	ST-03-A-08 SILKMORE CRESCENT STAFFORD MEADOWCROFT PARK	DETACHED HOUSES	STAFFORDSHIRE
	Edge of Town Residential Zone Total Number of dwellings: 26 <i>Survey date: WEDNESDAY 22/11/17</i> <i>Survey Type: MANUAL</i>		
51	SY-03-A-01 A19 BENTLEY ROAD DONCASTER BENTLEY RISE	SEMI DETACHED HOUSES	SOUTH YORKSHIRE
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 54 <i>Survey date: WEDNESDAY 18/09/13</i> <i>Survey Type: MANUAL</i>		
52	TW-03-A-02 WEST PARK ROAD GATESHEAD	SEMI -DETACHED	TYNE & WEAR
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 16 <i>Survey date: MONDAY 07/10/13</i> <i>Survey Type: MANUAL</i>		

LIST OF SITES relevant to selection parameters (Cont.)

61	WS-03-A-06	MIXED HOUSES		WEST SUSSEX
	ELLIS ROAD			
	WEST HORSHAM			
	S BROADBRIDGE HEATH			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:		805	
	<i>Survey date: THURSDAY</i>		<i>02/03/17</i>	<i>Survey Type: MANUAL</i>
62	WS-03-A-07	BUNGALOWS		WEST SUSSEX
	EMMS LANE			
	NEAR HORSHAM			
	BROOKS GREEN			
	Neighbourhood Centre (PPS6 Local Centre)			
	Village			
	Total Number of dwellings:		57	
	<i>Survey date: THURSDAY</i>		<i>19/10/17</i>	<i>Survey Type: MANUAL</i>
63	WS-03-A-08	MIXED HOUSES		WEST SUSSEX
	ROUNDSTONE LANE			
	ANGMERING			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:		180	
	<i>Survey date: THURSDAY</i>		<i>19/04/18</i>	<i>Survey Type: MANUAL</i>
64	WY-03-A-01	MIXED HOUSING		WEST YORKSHIRE
	SPRING VALLEY CRESCENT			
	LEEDS			
	BRAMLEY			
	Neighbourhood Centre (PPS6 Local Centre)			
	Residential Zone			
	Total Number of dwellings:		46	
	<i>Survey date: WEDNESDAY</i>		<i>21/09/16</i>	<i>Survey Type: MANUAL</i>

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	64	82	0.076	64	82	0.265	64	82	0.341
08:00 - 09:00	64	82	0.129	64	82	0.363	64	82	0.492
09:00 - 10:00	64	82	0.143	64	82	0.158	64	82	0.301
10:00 - 11:00	64	82	0.126	64	82	0.149	64	82	0.275
11:00 - 12:00	64	82	0.137	64	82	0.149	64	82	0.286
12:00 - 13:00	64	82	0.151	64	82	0.148	64	82	0.299
13:00 - 14:00	64	82	0.157	64	82	0.152	64	82	0.309
14:00 - 15:00	64	82	0.156	64	82	0.175	64	82	0.331
15:00 - 16:00	64	82	0.244	64	82	0.172	64	82	0.416
16:00 - 17:00	64	82	0.260	64	82	0.164	64	82	0.424
17:00 - 18:00	64	82	0.309	64	82	0.154	64	82	0.463
18:00 - 19:00	64	82	0.256	64	82	0.164	64	82	0.420
19:00 - 20:00	1	97	0.062	1	97	0.052	1	97	0.114
20:00 - 21:00	1	97	0.031	1	97	0.021	1	97	0.052
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.237			2.286			4.523

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

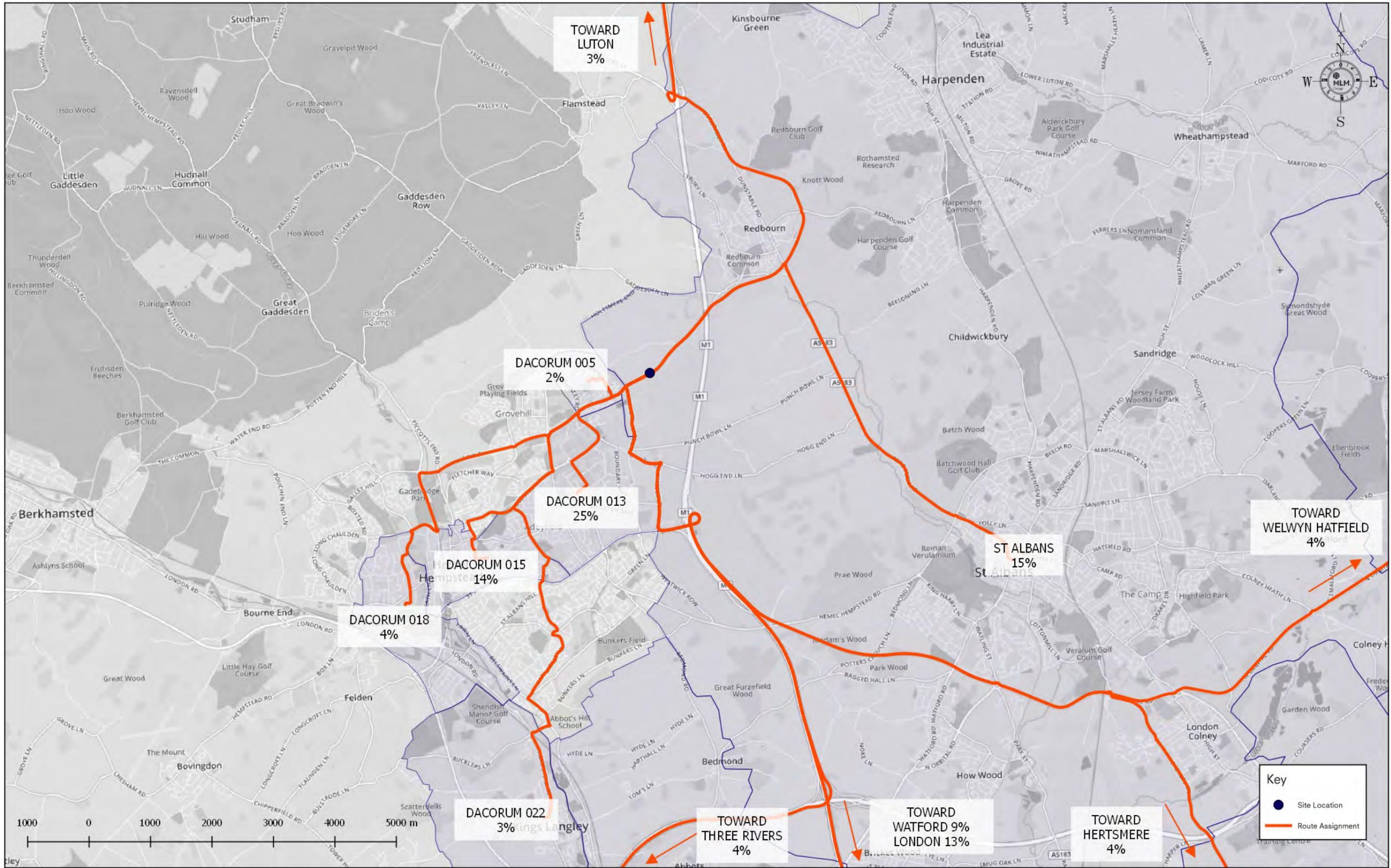
Trip rate parameter range selected:	6 - 805 (units:)
Survey date date range:	01/01/10 - 19/04/18
Number of weekdays (Monday-Friday):	64
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.



Job Title: Hemel Hempstead
Document Reference: 619890-MLM-ZZ-XX-RP-TP-0001
MLM Reference: JIR/619890/JT
Date: 1 October 2018

Appendix 5 – Route Assignment from Site



619890-MLM-ZZ-XX-DR-TP-1001-P01

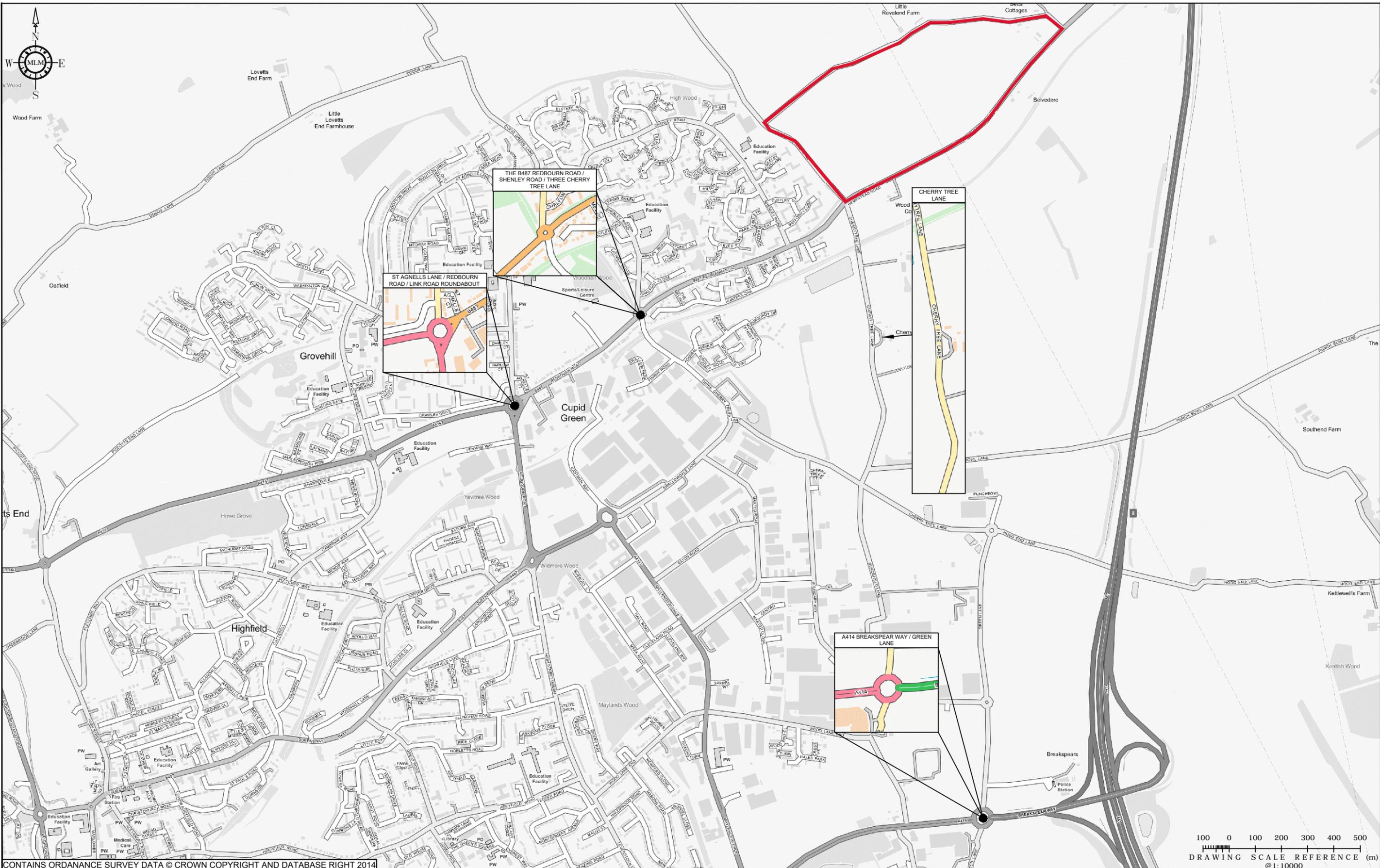
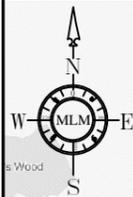


HEMEL HEMPSTEAD
JOURNEYS TO WORK FROM DACORUM 005 MSOA
ROUTE ASSIGNMENT

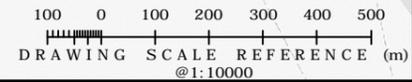


Job Title:	Hemel Hempstead
Document Reference:	619890-MLM-ZZ-XX-RP-TP-0001
MLM Reference:	JIR/619890/JT
Date:	1 October 2018

Appendix 6 – Map of Junctions



CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2014



619890-MLM-ZZ-XX-DR-TP-1001

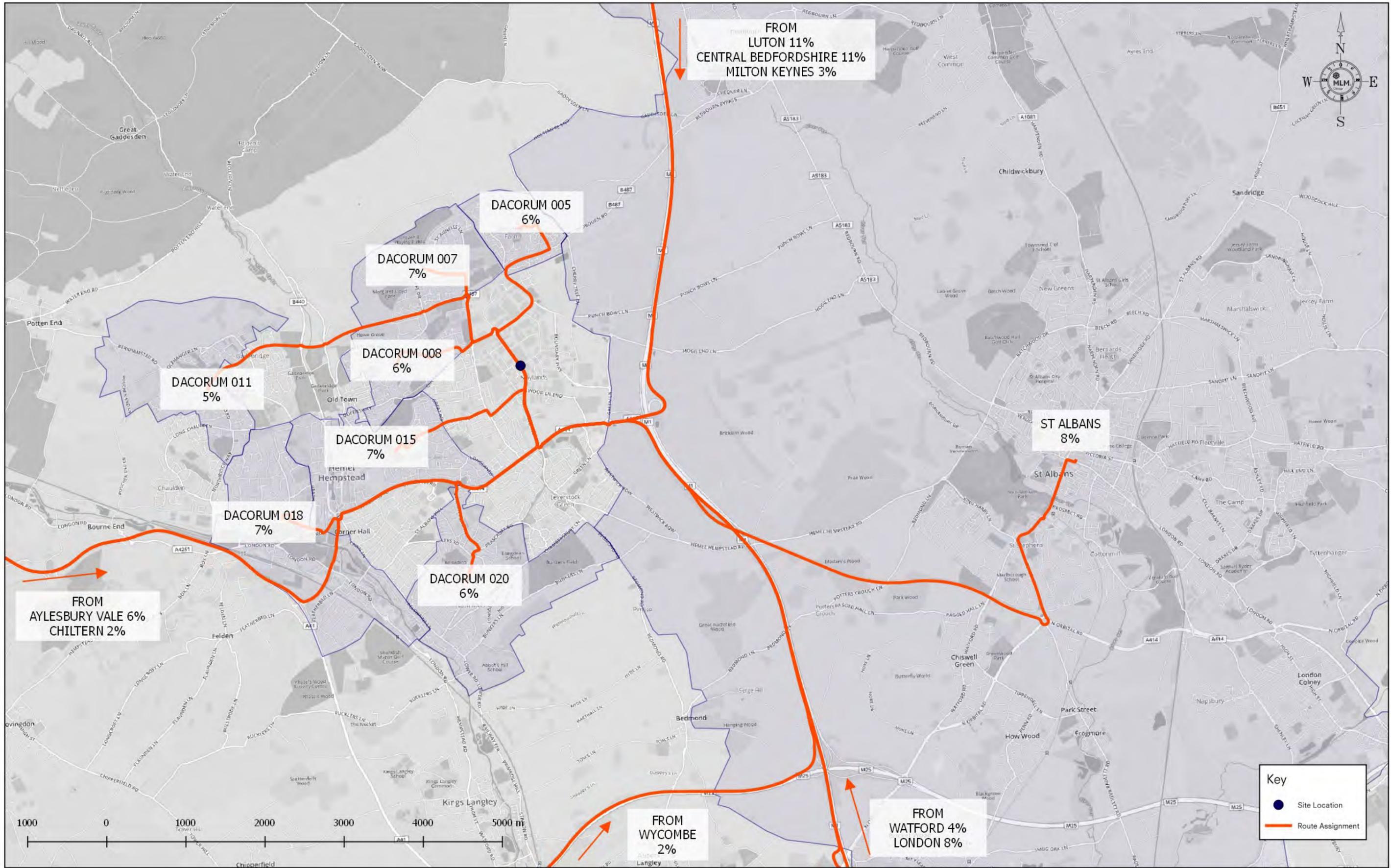


HEMEL HEMPSTEAD
PLAN HIGHLIGHTING KEY JUNCTIONS



Job Title: Hemel Hempstead
Document Reference: 619890-MLM-ZZ-XX-RP-TP-0001
MLM Reference: JIR/619890/JT
Date: 1 October 2018

Appendix 7 – Route Assignment to Maylands Business Park



619890-MLM-ZZ-XX-DR-TP-1002-P01



HEMEL HEMPSTEAD
 JOURNEYS TO WORK TO DACORUM 013 MSAO
 ROUTE ASSIGNMENT