

Transport Strategy

North Hertfordshire District Council

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EXECUTIVE SUMMARY

Purpose and Background

This Transport Strategy supports the emerging North Hertfordshire District Council (NHDC) Local Plan covering the period 2011-2031, which was submitted to the Secretary of State for examination in June 2017. The Local Plan sets targets for new homes, employment and retail development, identifying areas of land where development can be built. Policies are included which will be used to make decisions on planning applications.

The Transport Strategy will sit alongside the Local Plan and be updated over its lifetime, and NHDC will continue to work in close cooperation with the highway authority (Hertfordshire County Council) and other stakeholders, including Highways England, and adjacent local authorities.

The Strategy assesses the implications of the Local Plan proposals on the local transport networks, and recommends a strategic approach to provide for transport through the Local Plan period. The recent consultation on the Transport Vision 2050 by Hertfordshire County Council (HCC) signalled a shift in strategic thinking about transport – this new approach encourages far greater emphasis on more sustainable travel choices such as cycling and public transport, with a lower emphasis on highway improvements.

The Transport Strategy has developed from this view, and is focused on the potential for solutions and mitigations to better reflect the new sustainable transport priorities of HCC – in other words it is a focus on alternate / 'better' ways of doing things, rather than retrospectively trying to 'fix' all longer standing highway issues.

This Transport Strategy has been developed with the support of HCC, and describes existing transport opportunities and constraints. A considerable evidence base has been collated to support the Local Plan, using census data, NHDC transport data and various traffic modelling analyses.

The policies and measures developed include schemes and programmes aimed at accommodating growth, as would be expected given the long timeframe of the Local Plan. Some measures are more well defined at this stage, while others have been outlined and ongoing work will define these in more detail – this provides flexibility as the strategy develops. The measures in the strategy have been included in the Infrastructure Development Plan (IDP).

HCC are also preparing a Growth and Transport Plan (GTP) for the area, which includes NHDC and Stevenage. The GTP will be consulted on in mid-2018, and will expand upon and add/or to the principles and proposals of this Transport Strategy, with the participation of NHDC and Stevenage.

Summary of Issues and Opportunities

North Hertfordshire is a predominantly rural district, with 4 main market towns (Hitchin, Letchworth, Baldock and Royston). These market towns have a high quality of life, with historic environments and many facilities, they are all small enough to

walk/cycle almost the entire town, and are close enough together (apart from Royston) to cycle between them as well.

Car ownership and use in the towns is high, many people live in nearby villages with little alternative to the car, and cycle and bus use is low.

These historic towns and links to/from them suffer from traffic congestion and some air quality problems. Their 'environmental capacity' to accommodate further traffic growth without detrimentally affecting the high quality of the local environment is limited, and a starting point should be managing traffic growth and avoiding significant increases in traffic through the towns where possible.

The towns are relatively small in size – currently 34,000 for Hitchin, 33,000 for Letchworth, 10,000 in Baldock and 16,000 for Royston. This means that they are probably not of the scale to sustain a comprehensive high-frequency urban bus system or an effective park and ride system. But the towns collective 'travel market size' (the Hitchin/Letchworth/Baldock mini-conurbation has some 90,000 people, without planned growth) and their closeness to each other (with Letchworth and Baldock being less than 2 miles apart and Hitchin 4 miles from Letchworth), means that some improvements in bus provision should be possible. There is high potential for much more walking and cycling, and in the longer-term for new technologies to reduce costs and enable more demand responsive public transport.

The towns have a good central 'spine' of connectivity between them, consisting of the railway line and the A505 (and B656 between Baldock and Letchworth) and there are opportunities to improve the function of this corridor and its use for sustainable travel.

Baldock and Royston have bypasses, which remove most of the strategic traffic, and Letchworth is relieved to some extent by the A1 (M), but the A505 still runs through part of the town. Hitchin has no bypass and strategic radial routes to the centre, which results in more congestion. There are junctions in all towns which experience delays, but much of the 'through' traffic in the area is outside of NHDC control, as growth in travel to/from Central -Bedfordshire, Luton, Stevenage and other locations will continue to affect how the NHDC networks operate, particularly through Hitchin.

Increasing highway capacity is a 'double-edged sword' – it will reduce congestion at relevant locations, and improve air quality and reduce delays to bus services, – but it is also likely to be to the detriment of the local environment, encourage car use, could lead to congestion at other locations and increased volumes on minor roads, and will work against other proposals to encourage sustainable modes. Clearly a balance needs to be struck between these issues, although as noted above, the overall view is that the 'environmental capacity' of the towns means that traffic will require careful management, and to protect the high quality of life in the towns, any improvements need to be relevant to a wider strategy and appropriate to the extent and scale of the congestion.

The traffic modelling work undertaken for the Local Plan indicated that junction improvements could be implemented that would cater for most of the predicted increase in traffic in the towns. However, this work also showed that some delays would remain, and that capacity increases could have secondary impacts of increasing flows on more minor roads in the towns, and lead to the further problems noted above.

Significant increases in highway capacity will also be contrary to stated county transport policy, and consequently, in overall terms, the focus should be on increasing the use of sustainable modes. A general increase in highway capacity into and through the towns is not recommended, the exception being where junction improvements can reduce AQMA issues without significantly increasing traffic through the town, or where they would have a more strategic function. The focus should instead be on managing the networks, smoothing flows, reducing speeds in the towns and providing better facilities for walking, cycling and buses.

Transport Strategy Aims and Objectives

Following the principles of the HCC Transport Vision document, the main aims of the Transport Strategy are to:

- enable increased prosperity;
- contribute to vibrant, attractive and sustainable places; and
- support people to live safe, healthy and fulfilling lives.

Transport Strategy Principles

To achieve these aims, the Transport Strategy principles will be to:

- Improve access opportunities for the local economy – this could include better access to employment areas and better transport choice for workers;
- Reduce carbon emissions and the impacts on air quality management areas;
- Manage the transport network in a manner appropriate to the local conditions – this will include, depending on requirements, the ‘smoothing’ of traffic movements where there are pinch points, reductions in speeds and better travel conditions for sustainable modes, and the provision of appropriate capacity where this will not lead to a severe impact on other policies.
- Reduce the demand for travel by encouraging sustainable travel (on foot, by bicycle, by public transport, or via shared mobility) as an alternative to the private car; and
- Ensure all development is supported by the necessary provision of, or improvements to infrastructure, services, and facilities in an effective and timely manner to make development sustainable and minimise its effect upon existing communities.

Policies

To deliver these principles the key policies proposed are:

1. Ensuring that the **new developments have sustainable transport ‘built-in’**;
2. Adoption of a **transport user hierarchy**;
3. Deliver a **step change in cycling and improved walking** within the main urban centres through travel behaviour change and better facilities;
4. Deliver **an improvement in bus-based public transport** in the main urban centres, including better bus interchange and journey times;

5. A **'Sustainable Spine' corridor along the A505¹** with a focus on enhanced public transport and cycling connectivity between the towns.
6. A **traffic management plan** for each main urban town, which focuses on managing traffic to improve air quality, reduce congestion and severance issues, rather than increasing traffic volumes through the towns.
7. **Rural management and improvement measures** aimed at resolving particular traffic issues or taking opportunities to better link villages to each other or the main urban towns and
8. Review, provide for and utilise **technology improvements** through the strategy.

The strategy describes the principal measures in more detail and shows how these will be applied to each town/area.

Implementation and Funding

Implementation will require co-ordination between the stakeholders listed above. An overall programme will need to be developed with interdependencies and responsibilities, and monitored over time to ensure successful outcomes.

The IDP sets out the broad funding requirements for the Local Plan and the likely funding sources. The current assumption is that all the transport measures in the Strategy (which will also be in the IDP) will be funded by development-related sources, likely to be either S106 or CIL (yet to be introduced by NHDC) or site-associated works.

The IDP currently identifies broad funding requirements for transport of some £23.25m over the plan period. Given the revised focus of the Strategy, this funding has been retained and reallocated to:

- Identified highway schemes;
- A general allowance for other highway, traffic management and safety schemes arising from strategy studies;
- Behaviour change programme funding; and
- Funding for public transport and parking measures.

Longer-term schemes could be funded through a mix of resources, including GTP/LTP4 funding and potential grants.

Action plan

The Strategy sets out the principles of future policies and measures for the A505 corridor and each town, and this will form the basis of the Local Plan transport delivery. In future, further consideration will be required of measures to develop a detailed programme of works that will be revised / reviewed / kept up-to-date over the plan period in concert with HCC and the progress of the GTP.

The table below sets out a recommended action plan and timescales and approximate costs for different broad timescales:

- Short-term (0-2 years);

¹ And B656 between Letchworth and Baldock, and Baldock/Letchworth Road in Royston

- Medium-term (2 – 4 years); and
- Longer term (4+ years).

STRATEGY ACTION PLAN

	Action	Comment	Responsibility	Timescale and approximate cost/budget over LP period
1	Growth and Transport Plan	The Growth and Transport Plan is being prepared by HCC. There are likely to be some overlaps with measures noted below, and the GTP should relate to the Transport Strategy.	HCC with NHDC and Stevenage input	Ongoing.
2	Progress NHDC parking strategy	Develop programme of implementing measures in parking strategy.	NHDC with HCC input	Short-term, some measures medium-term – Allowance of approx. £300k in estimates.
3	Travel behaviour change programme, including schools and major workplaces, health - focused.	Consider employing staff member(s) to develop and implement programme of behaviour change; ownership of walking/cycling strategy and links to highways/traffic management for each town. Focus on sustainable travel to schools and workplaces.	NHDC, with HCC input	Short Term Approx. £60 pa staff costs, £50-£75k pa per town supporting funding.
4	Walking/cycling Update cycling strategy and include a walking strategy as well – identify key corridors, crossings, improvements needed	Existing cycling strategy requires updating, various studies have already been undertaken in the towns, these need prioritisation. Should be combined with walking strategy particularly crossing points, Cycle parking in town centres also needs updating.	NHDC, with HCC input	Short-term. £30-£50k study cost, budget approximately £6m across all towns for plan period.
5	Traffic Management Study of Hitchin	Co-ordinate with cycling/walking measures, clarify which junction improvements are appropriate, investigate options in SW of town, identify	NHDC in partnership with HCC	Short/Medium Term - £20-£40k approx. study cost; budget all towns over plan period approx. £6m highway measures and £5.7m other highway/traffic

North Hertfordshire Transport Strategy

	Action	Comment	Responsibility	Timescale and approximate cost/budget over LP period
		measures relating to development sites.		management/safety measures.
6	Traffic Management Study of Letchworth/Baldock	Co-ordinate with cycling/walking measures, clarify which junction improvements are appropriate, identify measures relating to development sites.	NHDC in partnership with HCC	Short/Medium Term £20-£40k study cost – see item 5 for funding
7	Traffic Management Study of Royston	Co-ordinate with cycling/walking measures, clarify which junction improvements are appropriate, identify measures relating to development sites.	NHDC in partnership with HCC	Short/Medium-term - £20-£40k study cost – see item 5 for funding
8	Rural and village measures	Confirm traffic management strategy and any proposals for traffic management in Knebworth, Codicote, Great Wymondley and Gravely that encourage traffic onto more strategic routes such as the A602.	NHDC in partnership with HCC	Short/Medium-term – £20k study cost; budget approx. £1.35m.
9	Study of A505 corridor – identify overall strategy	Identify inter-town cycling and bus potential, measures to improve rail access between towns. Include links to Luton and Stevenage	HCC with input from NHDC. Liaison with bus and rail operators, adjacent authorities – Luton/Stevenage	Medium-longer-term; approx. £20-£40k study cost, measures included in overall budget under all items.

1. INTRODUCTION

Background

- 1.0 Markides Associates Ltd (MA) has been appointed by North Hertfordshire District Council (NHDC) to prepare a Transport Strategy to support the emerging Local Plan.
- 1.1 The new Local Plan will replace the 1996 Local Plan, covering the period 2011-2031. The Local Plan sets targets for new homes, employment and retail development, and identifies areas of land where development can be built. Policies are included that will be used to make decisions on planning applications.
- 1.2 The NHDC Cabinet approved the Proposed Submission Draft Local Plan on 26th September 2016 and a public consultation followed between 19th October 2016 and 30th November 2016. The Plan was submitted to the Secretary of State for examination in June 2017.

Context for the transport strategy

- 1.3 The Transport Strategy is aimed at assessing the implications of the Local Plan proposals on the local transport networks, and to recommend a strategic approach to provide for transport through the Local Plan period. The recent consultation on the Transport Vision 2050 by Hertfordshire County Council (HCC) signalled a shift in strategic thinking – this consultation postdates the preparation of the Proposed Submission Local Plan.
- 1.4 This new approach encourages far greater emphasis on more sustainable travel choices such as cycling and public transport, with a lower emphasis on highway improvements.
- 1.5 This revised shift in priorities means that the Transport Strategy is focused on the potential for solutions and mitigations to better reflect the new priorities of HCC; in other words, it is a focus on alternate/ 'better' ways of doing things, rather than retrospectively trying to 'fix' a series of longer standing highway issues.
- 1.6 The Transport Strategy will sit alongside the Local Plan and be updated over its lifetime, and will:
 - Explain the role and outcomes of the transport modelling undertaken to date;
 - Consider the cumulative impacts of NHDC's Local Plan when considered alongside the plans of adjacent authorities;
 - Identify how the Plan can contribute towards the future transport priorities of HCC as expressed in consultations upon their forthcoming update of the Local Transport Plan, and other priorities such as air quality;
 - Inform an approach to strategic interventions which are not strictly required to support the Local Plan but may deliver greater benefits in the longer-term such as solutions to some through traffic in Hitchin and better east-west links across the District;
 - Determine how best to integrate sustainable transport provision (public transport, walking and cycling) within proposed new developments to encourage use of these modes;

- Consider localised issues and concerns not necessarily reflected in high-level transport modelling (such as at Knebworth and Codicote high streets);
- Set out a rolling programme of works and projects across the District.

Local Plan Consultation Responses

- 1.7 In their response to the Local Plan consultation HCC made the following key points:
- Commented on mitigation proposals for each town and key junctions on the A1 (M). Most locations were agreed, but some additional locations were also highlighted;
 - Highlighted where additional investigation may be required, particularly in respect of proposed mitigation around Junctions 8 and 9 of the A1(M);
 - HCC expects all mitigation identified in the WHaSH modelling to be included in the IDP;
 - Expressed some caution about the current modelling of potential growth in the adjoining Luton and Central Bedfordshire area;
 - Noted that some mitigation may be required in some villages as well.
- 1.8 In their response to the Local Plan consultation, Highways England² made the following key points:
- They welcomed the emphasis on sustainable travel for any new development sites;
 - Their key concerns were on the operation of Junctions 8, 9 and 10 of the A1(M), and they would like further evidence of impact on these junctions and the mitigations proposed;
 - They expressed some concern at the perceived imbalance between housing and job creation, which could lead to more commuting;
 - It was unclear at this stage to them what improvements may be required; how effective these are likely to be and how these could be funded, and;
 - They advised that unless improvement schemes to the Strategic Road Network are already committed it should not be assumed that Highways England will be able to fund any improvements to the Strategic Road Network. It is likely that developers will be a major source of funding for the mitigation measures required.

Context and relationship with the emerging Growth and Transport Plan (GTP)

- 1.9 Following receipt of these representations, a 'Direction of Travel' memorandum was agreed between NHDC and Hertfordshire County Council (HCC) as the Highway Authority, to ensure that HCC agree with NHDC's approach to assessing the highway,

² Letter from Highways England dated 30/11/2016

traffic and transport aspects of Local Plan growth. This will be progressed into a Memorandum of Understanding at a later stage.

- 1.10 As part of the discussions with HCC, it was agreed that a Transport Strategy should be prepared to support the NHDC emerging Local Plan. It was agreed with HCC that in line with the latest HCC 'Transport Vision 2050' proposals, longer-term sustainable transport-based solutions would in general be more suitable to reduce congestion than highway-based solutions – although in some cases highway-based solutions will still be appropriate. The Transport Strategy should outline how modal shift will take place within the four main NHDC towns and links between towns and villages.
- 1.11 A considerable evidence based has been collated to support the Local Plan, using census data, NHDC transport data, and various traffic modelling analyses³.
- 1.12 The Local Plan was submitted to the Secretary of State for examination in June 2017. This Transport Strategy has been prepared to inform the examination hearings.
- 1.13 This Transport Strategy seeks to describe existing transport opportunities and constraints, and to develop a high-level strategic set of policies and measures to deal with growth pressures for the plan period, with an indication of future requirements beyond this timeframe.

The Role of Hertfordshire County Council

- 1.14 Hertfordshire County Council is the highway authority for the non-trunk roads in NHDC, and manages and maintains these roads. It is also responsible for most forms of public transport operating within the county, and for liaising on rail matters with Network Rail and the rail operators. The county also sets overall transport strategy and policy, through Local Transport Plans (LTP's) and other policy documents, and will play an important part in implementing transport measures from the Transport Strategy.
- 1.15 The NHDC transport strategy should be in line with County policy, as set out in the emerging 4th LTP4. This is set out in the HCC 'Transport Vision 2050' proposals for the plan period. In doing so, the strategy will show linkages to national and HCC policy, and the likely transport consequences of growth in the plan period, and potential measures that can accommodate or mitigate such growth.
- 1.16 HCC is currently in the process of developing a Growth and Transport Plan (GTP) for North Hertfordshire, expected to be complete by mid-2018. The GTP will build on the Transport Strategy, and will be aligned with growth proposals in Local Plans and Neighbourhood Plans. The GTP is distinct from the LTP3/4 or Urban Transport Plans and will be subject to separate consultation.
- 1.17 This Transport Strategy will therefore provide strategic input into the GTP process.
- 1.18 The GTP Evidence Packs for Hitchin and Letchworth/Baldock have been made available for this strategy and form a large part of the evidence base.

³ The modelling is summarised in the Odyssey Markides Technical Note 'Local Plan Transport Technical Review' dated September 2016.

Structure

1.19 This Transport Strategy is structured as follows:

- **Section 2.0 Aims and Objectives, Policy and Implementation** – Considers the context of the Transport Strategy to support the Local Plan, and outlines the aims and objectives of the strategy. This section will also show how the strategy should be used and implemented to support Local Plan growth over the planning period to 2031 and beyond;
- **Section 3.0 NHDC Assessment** – This section will include a review of baseline and future population and employment, and a high-level review of the existing local and strategic highway and transport network. This review will cover existing issues, air quality management areas (AQMA's), constraints and advantages of the NHDC network in the context of Hertfordshire and location of the District, and the plans of the surrounding authorities. Data from the Census and HCC research is also presented;
- **Section 4.0 Transport Strategies for Adjacent Authorities** – The Transport Strategies of adjacent authorities, (including Central Bedfordshire) will be reviewed, particularly Stevenage and Luton where NHDC have allocated strategic growth locations on the edge of the District;
- **Section 5.0 Transport Strategy** – This section will outline the principles of the transport strategy;
- **Section 6.0 Impact Assessment** – This section summarises the outcome of modelling work undertaken for the Local Plan, describes any impacts and mitigation proposals, and shows how the sustainable mode share increases proposed in the strategy will reduce the impact of growth; and
- **Section 7.0 Conclusions** – This section draws conclusions on the strategy, impact and achievement of NPPF requirements.

2. POLICY FRAMEWORK, AIMS AND OBJECTIVES

General

- 2.0 This section covers the aims and objectives and the policy basis underpinning the Transport Strategy as well as the implementation and application of the Strategy.

Policy Framework

- 2.1 HCC developed the Northern Hertfordshire Area Transport Plan (NHATP) in 2004 and the first Local Transport Plan (LTP) 2006/2007-2010-2011.
- 2.2 NHDC adopted Town Centre Strategies for Royston (2008), Baldock (2006), Hitchin (2004) and Letchworth Garden City (2007), and the context of the Town Centre Strategies for transport and movement was provided by HCC's Local Transport Plan (LTP) and the NHATP.
- 2.3 Urban Transport Plans (UTPs) for Baldock and Letchworth (2007), Hitchin (2011) and Royston (2010) were also prepared by HCC, which built on the NHATP and these supported the Town Centre Strategies.
- 2.4 The National Planning Policy Framework (NPPF) 2012 places Local Plans at the heart of the planning system. Local plans set out a vision and framework for the future development of the area, addressing needs and opportunities in relation to housing, the economy, community facilities, and infrastructure.
- 2.5 HCC have recently consulted on their 2050 Transport Vision, which sets out a 30-year vision for transport in the County. The LTP4 presents the County's vision and strategy for the long-term development of transport and provides the framework for transport's support of the economic and social development. The forthcoming LTP 4, which is expected to be complete by March 2018, will be based on the 2050 vision and associated consultation.
- 2.6 The Local Plan process and supporting evidence base along with the Infrastructure Delivery Plan sets the stage for NHDC to publish a Transport Strategy for the District, which links HCC's emerging Vision and LTP4 to the NHDC Local Plan.
- 2.7 As part of NHDC's Local Plan 2011-2031, agreement has been reached to work with HCC in preparing a Transport Strategy that covers the whole District and supports Local Plan growth in transport, traffic and highway terms.
- 2.8 The Transport Strategy is an evolving document through the Local Plan timeframe and sets the stage for the District post 2031. Development proposals should be designed in conjunction with the Transport Strategy, which supports Local Plan policy and sets out the aspirations of NHDC and HCC.

Policy Framework

- 2.9 This section assesses the transport and parking policy context to support this technical evidence with the relevant policies identified as follows:

National Policy

- National Planning Policy Framework 2012

Hertfordshire County Council

- Local Transport Plan 3, 2011;
- Draft Local Transport Plan 4 / Emerging Transport Vision 2050;
- Hertfordshire Rail Strategy 2016;
- Hertfordshire Active Travel Strategy 2013;
- Hertfordshire Bus Strategy 2011-2031;
- Inta-link Strategy 2011-2016;
- Inter-urban route strategy 2013;
- Rural Transport Strategy 2012; and
- Speed management strategy 2012.

North Hertfordshire District Council

- NHDC Local Plan 2011-2031;
- North Herts Towns Cycle Routes Network 2000; and
- Town Centre Strategies 2004-2008.

Joint Policy Documents– Town Centre Urban Transport Plans

- Letchworth and Baldock Urban Transport Plan 2012;
- Hatching Urban Transport Plan 2011; and
- Royston Urban Transport Plan 2010.

National Planning Policy Framework 2012

- 2.10 The final version of the NPPF was published on 27 March 2012. It came into effect immediately, superseding all other national planning policy (except on waste).
- 2.11 The document sets out the Government’s economic, environmental and social planning policies for England and its expectation for their application. It is meant as high-level guidance for local councils to use when defining their local and neighbourhood plans. This approach allows the planning system to be tailored to reflect the needs and priorities of individual communities.
- 2.12 At the heart of the NPPF is a presumption in favour of sustainable development which ‘should be seen as a golden thread running through both plan making and decision taking’ (Paragraph 14). In paragraph 15, it goes onto say that ‘Policies in Local Plans should follow the approach of the presumption in favour of sustainable development so that it is clear that development which is sustainable can be approved without delay”.
- 2.13 Transport policies have an important role to play in facilitating sustainable development, but also in contributing to wider sustainability and health objectives. Smarter use of technologies can reduce the need to travel. 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.

Hertfordshire County Council - Local Transport Plan 3

- 2.14 Hertfordshire County Council (HCC) adopted their third Local Transport Plan (LTP3) in 2011. The Local Transport Plan is a statutory document that sets out the County Council's vision and strategy for the long-term development of transport in the county.
- 2.15 Hertfordshire County Council's current Corporate Plan (2013-2017) identifies the four key priorities which this LTP seeks to support and reflect in its vision and objectives. These priorities are for residents to have the opportunity to:
- Thrive;
 - Prosper;
 - Be healthy and safe; and
 - Take part.
- 2.16 The LTP3's approach to transport is articulated through five goals which relate to enhancing the quality of life, health and the natural, built and historic environment by improving journey experience in terms of comfort, regularity, safety and the ability to park.
- 2.17 LTP3 states that the county will work closely with District/Borough Councils to agree adequate parking enforcement strategies, ensure that the needs of disabled persons are considered in all parking proposals (principally Controlled Parking Zones and Special Parking Areas) and to prevent vehicles impeding the footway.
- 2.18 Significantly reducing CO2 emissions is a key county-wide and national target, which HCC believes could be achieved through road pricing in congested areas and routes, taxing private car parks and limiting car parking provisions. These measures may need to be considered in the future and do not form part of the present LTP3 policies.
- 2.19 Car parking policies and standards form part of the overall policies for the management of the highway network. It is stated that provision and standards for car parking will be determined by Local Planning Authorities and will include provision throughout districts, including urban areas and for new development. Proposals for Park and Ride facilities will be considered in the light of Local Development Frameworks and Urban Transport Plans.

Draft Local Transport Plan 4 / Emerging Transport Vision 2050

- 2.20 Since the development of the LTP3 there have been significant changes to the planning process and economy. Unlocking economic growth has become extremely important and housing growth forecasts have shown that the 10 districts and boroughs within Hertfordshire need to accommodate a significant increase in housing and employment levels. As a result of the predicted growth within the County, the County's transport planning strategy needs to accommodate and support the future aspirations of the Borough and Districts. Sustainability is at the forefront, to create sustainable towns and linkages and generate modal shift from private cars.
- 2.21 A fundamental aspect of this review is the development of a new Transport Vision for Hertfordshire to 2050. The Transport Vision forms the evidence to support the

investment needed for Hertfordshire. By 2050, forecasts predict that the population of Hertfordshire will have grown by around 400,000 to over 1.5m, having a huge impact on congestion and journey times, particularly during peak travel periods.

2.22 The development of Hertfordshire's Transport Vision is a three-stage process. Stage 1 involved the collection and analysis of data, and the identification of challenges based on how Hertfordshire may grow and develop in the period from 2016 to 2050. Stage 2 built upon the evidence base collated in Stage 1 to establish a series of broad options for strategic-level transport packages to address the challenges identified. In Stage 3 the objective is to develop, assess and prioritise the transport schemes identified in Stage 2, and identify those schemes that should be taken forward by Hertfordshire County Council for further development, modelling and public consultation as part of the major schemes package to be included in the forthcoming LTP4.

2.23 The Transport Vision 2050 documents were consulted on in late 2016. They include the 'Hertfordshire Vision Stage 3 Technical Report on Major Scheme Selection' August 2016.

2.24 The Vision sets out objectives around 3 aims relating to Prosperity, Place and People, these are shown below:

Prosperity

- Improve access to International Gateways and regional centres outside of Hertfordshire;
- Enhanced connectivity between Primary Urban Centres in Hertfordshire;
- Improve accessibility between employers and their labour markets; and
- Enhance journey reliability and network resilience across Hertfordshire.

Place

- Enhance the Quality and Vitality of Town Centres;
- Preserve the character and quality of the Hertfordshire environment; and
- Reduce Carbon Emissions.

People

- Making journeys and their impact safer and healthier; and
- Improving access and enabling participation in everyday life through transport.

2.25 The Vision also has 4 principles which guide the strategy:

- Application and adoption of new technology;
- Cost effective delivery and maintenance;
- Modal shift and encouraging active travel; and
- Integration of land use and transport planning.

2.26 There are six policy options outlined in the consultation which could all feature in the LTP4:

- Adoption of a 'transport user hierarchy' policy;
- Delivery of a step change in cycling in the larger urban areas;

- Greater facilitation and support for shared mobility (car clubs, lift share, bike share);
- Enhanced public transport connectivity between towns, through bus priority measures;
- A priority traffic management network; and
- Growth and Transport Plans.

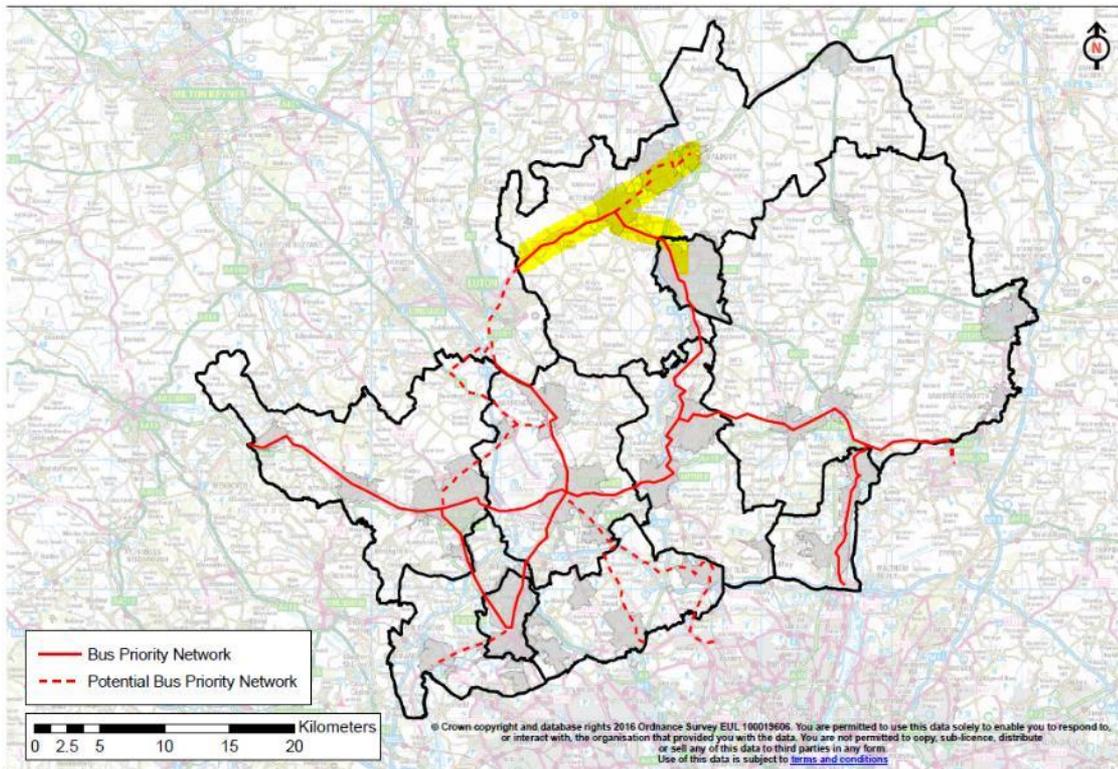
2.27 In respect of highways and roads, the vision document states that “We cannot build our way out of trouble with a widespread programme of constructing more roads or expanding the capacity of existing routes as this would be unaffordable, very environmentally damaging and not address the need for more people to use sustainable modes of transport. The potential of new technologies, such as driverless cars, makes it difficult to predict what journeys in the county will look like beyond the next 15-20 years. During this time, we will continue to upgrade the county’s roads, making best use of the routes and links already in place. In particular, we need to address the impact of new housing and business developments in areas that are already congested.”

2.28 The adoption of a ‘transport user hierarchy’ policy will remove the priority of designing roads and urban areas for vehicle movements, and give priority to other sustainable modes of transport such as walking, cycling and public transport. Car-based commuter needs are given a lower priority in the hierarchy because of the contribution they make to congestion at peak times, and because of the urban space taken up by long-stay car parking. The proposed transport user hierarchy is shown below.



2.29 The public consultation documents also provided information regarding the future transport strategy and potential transport schemes for the county. The NHDC centres are not identified as Primary Urban Centres, even though collectively Hitchin, Letchworth/Baldock are large enough to be one. The only directly related major proposals to NHDC is a possible priority bus network, which will increase the bus provision and will create a more reliable and sustainable link between main town centres, including between Stevenage, Hitchin and Luton following the broad line of the A602 and A505; the longer-term aim is to extend this to Letchworth Garden City and Baldock, shown in Figure 7 from the Vision document below. A potential bypass of Hitchin was one of a long-list of schemes in an earlier consultation document on the Vision, but has not been short-listed in this final version.

Fig. 7: Possible Priority Bus Network



2.30 The Stage 2 Transport Vision 2050 document identified several other potential transport schemes including the use of variable messaging signs (VMS), social media and emerging technologies to provide better information about on-street parking options within Hertfordshire’s urban areas, reducing the time spent circulating looking for a space. Other schemes include dynamic pricing, which will allow for different parking charges by time of day, location, demand, type of vehicle and occupancy.

Hertfordshire Rail Strategy 2016

2.31 The rail strategy for Hertfordshire focuses on 4 key themes;

- To support competitiveness, improvements in links to the rest of the country are recommended to maximise benefits from the agglomeration effect that better transport connections between centres can bring;
- To support economic growth, the strategy comprises several interventions that improve the rail service for commuting trips from Hertfordshire;
- To address sustainability, the strategy proposes improvements to east-west orbital movement by public transport; and
- To support population growth, the strategy includes recommendations for the development of strategic transport hubs around key stations.

2.32 Hertfordshire is set to see an 18% population growth by 2031, which is 203,000 additional residents, and 15% employment growth with 80,000 additional jobs.

2.33 Most rail lines into London are forecast to be over capacity by 2031. There are currently 16% of commuting trips within HCC made by rail currently and 51% of all commuting trips to London use rail, which is 60,000 people a day.

- 2.34 The Hertfordshire Rail Strategy stated that one of the top long-term priorities would potentially affect NHDC with the promotion of the east-west rail central section southern option via Luton, Hitchin and Stevenage. However, an update from East West Rail in July 2016 decided that the northern option via Sandy is the preferred choice.

Network Rail Plans

- 2.35 Network Rail's Control Period 5 (CP5) covers rail infrastructure investment promoted by the agency between 2014 - 2019. There are no projects specific to North Herts within this period, but the lines through the District stand to benefit indirectly through quicker journey times and improved reliability as a result of traction supply upgrades and the introduction of the Intercity Express Programme (IEP) on the ECML from 2018, as well as capacity improvements elsewhere. This includes the construction of a new Platform 5 at Stevenage station. This will provide additional capacity but may result in (some) 'Hertford Loop' services that currently originate in Letchworth Garden City terminating at Stevenage.

DfT Rail franchises

- 2.36 As part of the current enlarged Thameslink, Southern and Great Northern franchise there is a commitment by the operator to provide:

- 150 new metro-style EMU cars to replace the existing 1970s stock on commuter services into London's Moorgate station;
- A new fleet of 108 coaches 'designed for airline travellers' to be introduced on Gatwick Express airport services by 2016;
- Introduction into service in 2016-18 of new rolling stock;
- Additional direct services to Gatwick airport, including a through Cambridge – Brighton service;
- £50m to be spent improving 239 stations;
- The 100 busiest stations staffed from first to last train; and
- Free Wi-Fi at 104 stations.

- 2.37 As part of the Virgin Trains East Coast franchise, Stevenage station (the nearest ECML station that North Herts residents can access) will benefit from:

- Upgraded train interiors introduced between 2015 and 2017; and
- The station will be served by new high speed (Intercity Express Programme (IEP) trains from 2020 providing more reliable services, more seats, more luggage space, faster journey times and improved Wi-Fi and mobile coverage.

Hertfordshire Active Travel Strategy 2013

- 2.38 Whilst the strategy will seek to address Active Travel across the whole county, the evidence has demonstrated that there are some specific areas where Active Travel should target in particular:

- Short journeys: With over 56% of all trips in Hertfordshire under five miles or less, there are a significant number of journeys in Hertfordshire that currently take place by private car that could be undertaken by cycling or walking;
- Urban congestion: Congestion is a significant issue in urban areas, with Watford, St Albans, Hemel Hempstead and Stevenage having the greatest urban delays in

2011. Traffic forecasts are expected to increase by 20.9% by 2031, based on 2011 levels, justifying the need to target packages in the areas of worst congestion;

- Active Travel for Schools: Whilst 51% of children walk to nursery or primary school, and 47% walk to secondary school, cycling only accounts for 3% of secondary school trips. Furthermore, over 23% of children are classified as obese in some parts of Hertfordshire; and
- Poor health ‘hotspots’: Hertfordshire has several key settlements where health indicators are particularly concerning and could be improved through Active Travel.

Hertfordshire County Council Bus Strategy 2011-2031

2.39 Hertfordshire is both a complex and a difficult area in which to provide viable and sustainable bus services. Although 17% of households have no car (Hertfordshire County Council Traffic Data report 2016), Hertfordshire still has high car ownership and use, leading to congestion on some roads and local “hot spots”. It has many small towns with surrounding green belts that do not create natural conditions for commercial bus operation. Yet, expectations and aspirations are high for an integrated, high-quality bus and rail network. The County Council needs to be able to facilitate the development of the bus network further by giving a clear policy lead and identifying those strategies which it believes will address the problem. This will help operators shape their businesses to meet shared objectives and improve the dialogue for operators to influence actions by the public sector.

2.40 The bus strategy includes 10 policies which seek to promote and support passenger transport

- **A.** Support, promote and improve a network of efficient and attractive bus services which are responsive to existing and potential passenger needs, including the special accessibility requirements of the elderly and passengers with disabilities.
- **B.** Procure a range of bus provision which provides maximum benefit to the travelling public in the most cost-effective way;
- **C.** Develop a passenger transport network as a viable alternative to the use of the private car to contribute to the reduction of greenhouse gas emissions;
- **D.** Encourage parents and school aged children to make maximum use of the available public transport network;
- **E.** Recognise that customers need attractive and affordable fares to use the system to its full potential and that car users need to be encouraged to choose sustainable modes;
- **F.** Continue to support and develop the bus transport provision that allows maximum accessibility - particularly for non-car users and the disadvantaged (passengers with disabilities, elderly etc);
- **G.** Promote and publicise the passenger transport network through the Intalink partnership using a variety of media;
- **H.** Provide and maintain all bus stops, and other bus related highway infrastructure, to consistent quality and standard across the county;

- I. Seek to give greater priority to buses on the road network to improve punctuality and minimise bus service disruption from road congestion and the effects of road works; and
- J. Continue to develop partnerships with other parties to achieve improvements in service provision and other facilities for specific aspects, corridors or geographical areas.

Inta-link Strategy 2011-2016

- 2.41 The Inta-link Partnership is a unique quality partnership for information and marketing of the passenger transport network in Hertfordshire. Launched by the County Council in 1999, the partnership consists of the majority of local bus and train operators, all of the district councils and neighbouring local transport authorities.
- 2.42 The primary objectives that are set out within the Inta-link Partnership Agreement continue to support this strategic policy in that it:
- Promotes, through a cohesive marketing strategy, an integrated, high-quality passenger transport network in Hertfordshire;
 - Encourages greater usage of Hertfordshire's passenger transport network for both existing and new customers;
 - Meets the objectives of local authorities, local businesses whilst optimising commercial opportunities for passenger transport operators;
 - Supports the policies, objectives, goals and challenges of the County Council's Local Transport Plan and Bus and Rail Strategies; and
 - Supports the County Council's overall aims and any equality implications.

Inter-urban Route strategy 2013

- 2.43 The key objectives of this Strategy were outlined as:
- To determine the function of each route - its characteristics, capacity, delays and adequacy / potential to accommodate growth;
 - To consider and prioritise time-frames for interventions within routes;
 - To provide a strategy for each route and a county-wide strategy (responding to planned development in the next five years);
 - To provide material consideration at a point in time, setting out the transport issues with known developments;
 - To identify potential contenders for Major Projects; and
 - To set out options for consultation to gain public endorsement of the schemes that would be required to accommodate growth.
- 2.44 There are 8 corridors identified in the strategy of which 4 of the corridors (3, 4, 6 & 7) include areas within NHDC:
- 3. Potters Bar to Letchworth Garden City
 - 4. Waltham Cross to Royston
 - 6. Luton to Royston
 - 7. Letchworth Garden City to Ware

- 2.45 Corridor 3 from Potters Bar to Letchworth is dominated by the A1(M). Existing trip patterns are primarily commuting to London and between the major settlements. Housing development at Hitchin, Stevenage, Hatfield and Welwyn Garden City will place additional pressure on links that are already currently congested. Longer term, all large-scale developments will require consideration of significant levels of investment in transport infrastructure and ways to manage demand. The proposed measures that affect NHDC are the (i) the programmed smart motorways project; (ii) an off-carriageway cycle route between Hitchin and Stevenage, (iii) the Hitchin Curve for the east coast main line, which was constructed in 2013 to increase rail throughput at the Cambridge junction.
- 2.46 Corridor 4 from Waltham Cross to Royston is focused on the A10 and provides longer distance links between London and Cambridge. The proposed measures that affect NHDC are improved bus services between Royston and Cambridge and cycle links between Cambridge and Cheshunt via Royston.
- 2.47 Corridor 6 Luton to Royston focuses on the A505, which carries a mix of local traffic and longer distance traffic between the A10 and the A1M. It is noted that long term, all large-scale developments will require consideration of significant levels of investment in transport infrastructure and ways to manage demand. Proposed measures include bus priority between urban developments, Hitchin, Letchworth and Stevenage; an improved interchange at Hitchin Station for rail and bus journeys, and upgrading cycle links between Hitchin, Letchworth and Baldock and Hitchin and Royston.
- 2.48 Corridor 7 from Letchworth to Ware focuses on the A602, which carries a mix of local traffic and longer distance trips from the A1M and A10. It is noted that there is a high level of car commuting trips between Hitchin and Letchworth. The proposed measures include the A602 corridor route improvement.
- 2.49 The Strategy prioritises schemes within individual corridors against the five Local Transport Plan goals. There was not an intention to prioritise between corridors. The sections on each of the corridors also note any schemes that may be candidate major transport schemes for Local Transport Body funding.

Rural Transport Strategy 2012

- 2.50 The Rural Transport Strategy is a daughter document to the LTP3 and covers those areas not covered by the Urban Transport Plans, exploring how transport can contribute towards addressing the economic, social and environmental challenges in rural Hertfordshire.
- 2.51 People living in rural areas generally travel greater distances to access services than their urban counterparts. Travel in rural areas can be problematic to those who do not have access to a private vehicle or where households have access to single vehicles but have multiple occupants. The challenge is compounded by limited opportunities to use alternative or sustainable transport modes. For the majority of rural residents in Hertfordshire, the car is the dominant transport mode, and is increasingly used to travel further to key services such as shops, workplaces and schools. This contributes significantly to congestion in urban areas, leading to economic, social and environmental problems.

Road Safety Strategy 2011

2.52 The Road Safety Strategy sets out the County Council's aspirations for casualty reduction and prevention. The intention is to encourage a change in attitude and behaviour and deliver a safer and greener highway environment. This strategy recommends action to:

- Make roads safer for all highway users;
- Improve driving standards;
- Reduce the number of people who exhibit inappropriate and reckless behaviour;
- Improve road infrastructure;
- Promote and achieve appropriate driving speeds;
- Improve safety for vulnerable users;
- Raise awareness of road safety issues; and
- Reduce the economic and social dis-benefits of road collisions.

Speed Management Strategy 2012

2.53 The purpose of the speed management strategy is to set out:

- How speed management schemes are selected and funded;
- A consistent approach to setting speed limits based on the function and nature of the route;
- A consistent approach to the implementation of speed management traffic calming measures;
- The role of the Police and County Council as Highways Authority in relation to speed enforcement;
- The key criteria for the selection of safety camera sites; and
- Education and publicity programmes.

Highways England Roads Investment Strategy (RIS)

2.54 The first Road Investment Strategy (RIS) was published in February 2015, with the first Roads Period 2015/16 to 2019/20. Although primarily an identification of investment projects, the RIS contains a 25-year Strategic Vision through to 2040 identifying how the Strategic Road Network (SRN) would be shaped over that period.

2.55 Two key highway concepts within the RIS were confirmed:

- **Smart Motorways** – Using modern technology to convert the hard shoulder into an additional, controlled running lane. These often involve 'all lane running' where there is no longer any dedicated hard shoulder. CCTV cameras and variable message signs are used to regulate speed and close lanes in the event of an incident or congestion; and
- **Expressways** – A plan to upgrade certain A roads with variable quality to largely or entirely dual carriageway roads that are safe, well-built and resilient to delay; provide junctions which are largely or entirely grade separated, with modern safety measures and construction standards; and technology to manage traffic and provide better information to drivers.

- 2.56 The RIS confirmed that the A1(M) between Junctions 6-8 would be upgraded to a Smart Motorway.
- 2.57 The RIS also confirmed the intention to undertake two detailed studies, all focused on making major improvements to the capacity and connectivity of the SRN. The one of relevance to North Herts is the A1 East of England Study. This has recently reported, and set out three shortlisted options for the A1(M) junctions 10-14, including (1) an off-line new motorway, (2) local improvements to A1 non-motorway section, and (3) to upgrade non-motorway routes which link to the A1/A1(M) (A414 at J3 and J4). These were recommended for further study.
- 2.58 The RIS will also examine the potential for an Oxford to Cambridge Expressway, and latest reports indicate that the upgrade of the A428/A421 route via Milton Keynes is the preferred option.

North Hertfordshire District Council Policy Framework
NHDC Local Plan 2011-2031

- 2.59 The Transport Strategy should support the Local Plan's relevant 'Vision' statements:
- A mixture of quality new homes will be provided in appropriate sustainable locations;
 - New development will have contributed to the creation of sustainable communities. Strategic sites will have been master planned in accordance with the guiding principles set out within this Plan;
 - New development will help to maintain and enhance the vibrancy of existing settlements, and essential infrastructure that is of benefit to existing and future residents;
 - New green infrastructure will have enhanced the network of green corridors linking settlements to the open countryside, providing greater opportunities for healthy lifestyles;
 - The District will play its part in addressing climate change by improving opportunities for travelling by public transport, walking and cycling, using natural resources more efficiently, reducing the demand for water, securing high quality sustainable design and managing the risk of flooding; and
 - By working in partnership with service providers, government bodies, the Local Enterprise Partnerships, developers, other local authorities, and other key bodies we will ensure the timely delivery of necessary supporting infrastructure. (ECON8).
- 2.60 The following policies within the NHDC Local Plan will also be supported by the Transport Strategy:
- Sustainable development**
- **Policy SP1 Sustainable Development in North Hertfordshire** – Supports the principles of sustainable development within NHDC and sets out the strategic aims of the Council.

Economy and Town Centres

- **Policy SP3 Employment** – The Council will proactively encourage sustainable economic growth, support new and existing businesses and seek to build on the District’s strengths, location and offer- three new employment designations are promoted with 1.5ha of employment land at the former power station in Letchworth, 19.6ha to the east of Baldock and 10.9ha to the west of Royston.

Transport and Infrastructure

- **Policy SP6 Sustainable Transport** – Delivering accessibility improvements and promote use of sustainable transport modes insofar as reasonable and practicable;
- **Policy SP7 Infrastructure Requirements and Development Contributions** – The Council will require development proposals to make provision for infrastructure that is necessary in order to accommodate additional demands resulting from the development; and
- **Policy T1 Assessment of Transport Matter** – Planning permission will be granted where.
 - a. Development would not adversely impact upon highway safety;
 - b. Mechanisms to secure any necessary sustainable transport measures and/or improvements to the existing highway network are secured in accordance with SP7.
 - c. Sustainable transport statements, Transport Assessments and/or Travel Plans along with supporting documents are provided where required.
 - d. For major developments applicants, should demonstrate that the proposed scheme would be served by public transport and safe, direct and convenient routes for pedestrians and cyclists will be provided.

- **Policy T2 Parking** – Planning permission will be granted where;
 - a. Parking is provided in accordance with the minimum standards set out in the Local Plan,
 - b. Proposals have regard to SPD’s, strategies or advice; and
 - c. Applicants clearly identify how they provide for all likely types of parking demand.

Design

- **Policy SP9 Design and Sustainability** – The Council considers good design to be a key aspect of sustainable development.
- **Policy D1- Sustainable Design** – Planning permission will be granted where;
 - Development proposals create or enhance public realm; and
 - Maximise accessibility, legibility and connectivity.

- **Policy D4 Air Quality** – Planning permission will be granted where proposals include appropriate levels of mitigation to minimise emissions to the atmosphere and their potential effects upon health and the local environment.

Healthy Communities

- **Policy SP10 Healthy Communities** – The Council will provide and maintain healthy, and inclusive communities for our residents.

Strategic Housing Sites

- 2.61 The current estimated housing need figure for North Herts for the plan period 2011 – 2031 is 13,800 homes⁴. However, the current plan target is 15,950, which comprises 14,000 homes to meet North Herts District's needs and a further 1,950 homes to meet Luton's needs in North Hertfordshire.
- 2.62 The approximate make-up of this estimate is:
- Homes completed/consented up to 31.03.16 – 2,700;
 - Windfalls and unidentified broad locations – 1,650;
 - Urban capacity sites in Baldock, Hitchin, Letchworth, and Royston – 850;
 - Greenfield extensions to the above settlements and east of Luton and at Stevenage – 9,750;
 - Village allocations – 1,950; and
 - Total – 16,900.
- 2.63 The overall project population increase in NHDC, excluding any housing contribution to Luton's targets, is 26,000. This is an increase of some 25% over the estimated population of 135,000 in 2011, over the 20-year plan period.
- 2.64 A summary of the strategic sites, which contain the bulk of the above total is given below in **Table 2-1**, and they are also shown in **Figure 3.1**. The table also describes the transport mitigation proposals in the Local Plan.

Employment

- 2.65 While the District has a thriving economy, there is significant out-commuting to surrounding centres such as Stevenage and Welwyn as well as to London.
- 2.66 The employment strategy of this Plan is driven by three, interlinked priorities for the North Hertfordshire economy:
- Increasing representation in high skilled and high value sectors;
 - Reducing out-commuting by providing greater opportunities for people to both live and work in the District; and
 - Aligning employment development with housing growth to promote sustainable patterns of development and access by non-car modes.
- 2.67 The main plan employment land provision is expected to be met as follows:
- Baldock (20.4ha) – 3,200 jobs;

⁴ Updating the Overall Housing Need (Opinion Research Services, 2016)

- West of Royston (10.9ha) 1,750 jobs – York Road;
- Letchworth Garden City Power Station (1.5ha) 240 jobs and Works Road; and
- Wilbury Road, Hitchin.

2.68 These larger sites are supplemented by smaller concentrations of employment in the towns and villages. A total land use capacity for some 5,000 jobs is planned.

TABLE 2-1: SUMMARY OF STRATEGIC HOUSING SITES

Strategic Housing Site	Location	Proposals	Transport Mitigation in Local Plan
BA1 – Land North of Baldock	Baldock	<p>A new neighbourhood including;</p> <ul style="list-style-type: none"> I. 2,800 new homes II. 500m² (net) class A1 convenience retail provision III. 1,400m² (net) of other A-class floorspace IV. At least 28 serviced plots for self-build development; V. A community hall and GP surgery; VI. Primary and secondary school provision 	<p>A new link road connecting the A507 London Road to the A505 Baldock bypass including a new bridge across the railway.</p> <ul style="list-style-type: none"> I. Sustainable transport measures to include: II. a secondary rail crossing for pedestrians and cyclists in the vicinity of Ashville Way; III. safe access routes to / from, and upgrades to, Baldock station; IV. sensitive integration of Bridleway Baldock 034 / Bygrave 002 as a north-south route through the development; and V. the use of Bygrave Road / Ashwell Road from the south-western edge of the allocated site to the link road as a sustainable transport corridor
EL1, EL2 and EL3 – Land East of Luton	Cockernhoe / East Luton	<p>A new neighbourhood including;</p> <ul style="list-style-type: none"> I. 2,100 new homes II. 250m² (net) class A1 convenience retail provision III. 850m² of other A-class floorspace IV. Principal access to be taken from Luton Road and integrated into Luton’s existing highway network via Crawley Green Road V. Primary and secondary school provision VI. At least 21 serviced plots for self-build development 	<p>Integration of existing public rights of way within and adjoining the site to provide routes to the wider countryside including:</p> <ul style="list-style-type: none"> I. footpath Offley 001 as a route from south-east Luton to the rural area; and II. Footpaths Offley 039, Offley 002 and Offley 003 as potential northwest to south-east green corridors through the site

Strategic Housing Site	Location	Proposals	Transport Mitigation in Local Plan
LG1 – Land North of Letchworth	Letchworth Garden City	<p>A new strategic Housing site including;</p> <ul style="list-style-type: none"> I. 900 new homes II. Provision of a new primary school III. Neighbourhood-level retail and community facilities providing around 900m2 (net) of A-class floorspace IV. At least 9 serviced plots for self-build development 	<p>Development of this site will result in incorporation of part of the existing Letchworth Greenway into the urban area. These affected sections should be re-routed and re-provided as part of any application.</p> <p>The possibility of providing radial link paths from the existing urban area, through the site to the Greenway (and beyond) should be explored as part of a comprehensive green infrastructure strategy</p>
NS1 – Land North of Stevenage		<p>A new strategic Housing site including;</p> <ul style="list-style-type: none"> I. 900 new homes II. Integration with adjoining development in Stevenage Borough including site-wide solutions for access, education, retail and other necessary social infrastructure 	<p>An upgraded junction at the intersection of Graveley Road / North Road;</p> <p>Integration of existing public rights of way to provide routes through the site to the wider countryside including:</p> <ul style="list-style-type: none"> I. footpath Graveley 006 and Bridleway Gravely 008 along the perimeter of the site; and II. footpath Graveley 007 as a south-east to north-west route through the site and link path from the urban area to the Stevenage Outer Orbital Path
GA2 – Land off Mendip Way, Great Ashby	Great Ashby / north-east of Stevenage	<p>A new strategic Housing site including;</p> <ul style="list-style-type: none"> I. 600 new homes II. 500m2 (net) of A1-class floorspace III. At least 6 serviced plots for self-build development 	<p>Integration of existing public rights of way within and adjoining the site to provide routes to the wider countryside including:</p> <ul style="list-style-type: none"> I. footpaths Weston 027 and Weston 044 and Bridleway Weston 033 as features which help define the perimeters of the site; and II. footpath Weston 029 as a potential green corridor through the site <p>NHDC assessments show that this level of development can be accommodated without a significant adverse impact on the wider highway networks of Luton and Hertfordshire</p>

Strategic Housing Site	Location	Proposals	Transport Mitigation in Local Plan
<p>HT1 – Land at Highover Farm</p>	<p>Hitchin</p>	<p>A new strategic Housing site including;</p> <ul style="list-style-type: none"> I. 700 new homes II. Neighbourhood-level retail facilities providing approximately 500m² (net) of A-class floorspace III. Principal access from Stotfold Road with appropriate integration to the local highway network IV. At least 7 serviced plots for self-build development V. Provision of a new primary school 	<p>A number of existing roads run to the edge of the allocated land, including Highover Way and High Dane. These provide opportunities to integrate development with the surrounding area whilst ensuring that any such routes do not create an alternate access from Stotfold Road to the employment areas located between the railway lines</p>

3. NHDC ASSESSMENT

Purpose

- 3.0 This section of the Transport Strategy will include a high-level review of the existing local and strategic highway and transport network. This will cover existing issues, air quality management areas (AQMAs), constraints and advantages of the NHDC network in the context of Hertfordshire and location of the District.

NHDC Profile

- 3.1 NHDC comprises the northern boundary of Hertfordshire and is approximately 375sq. miles in area. The District has a population of approximately 127,114 from the Census 2011, which is approximately 11% of HCC's total population. It is estimated that there are currently some 55,000 households in NHDC, with an average household size of 2.5. Just over 75% of the population reside within the four main towns or Great Ashby.
- 3.2 The District is bordered by 8 different Local Authorities as shown on the strategic plan in Appendix 1.
- 3.3 To the north of NHDC is Central Bedfordshire and to the north-east is South Cambridgeshire which are two very large authorities. To the east there is a small boundary with Uttlesford and to the south is East Hertfordshire, Stevenage, St Albans, Welwyn Hatfield all within Hertfordshire and Luton lies to the west.
- 3.4 **Table 3-1** shows the proposed housing targets for all the adjacent authorities where these are available. This shows that NHDC and surrounding adjacent authorities will need to cater for a significant level of growth which all has implications on the transport networks, particularly where residents commute to and from adjacent authorities and through NHDC. The housing targets are on top of employment sites that will provide additional jobs within the various authorities.

TABLE 3-1: HOUSING TARGETS FOR NHDC AND ADJACENT AUTHORITIES.

Local Authority	Housing Target
NHDC	13,800 homes
South Cambridgeshire	Approximately 9,119 new homes by 2031 (Proposed submission Local Plan 2013)
Central Bedfordshire	Draft Local Plan Reg 18 Consultation end August 2017 (proposed range 20,000 to 30,000 new homes by 2035 in addition to 23,000 homes which are allocated or with planning permission.)
Uttlesford	Working on technical evidence base – approximately 12,500 new homes
East Herts	16,390 new homes by 2033 (East Herts District Council pre-submission consultation 2016)
Stevenage	8,155 new homes by 2031 (Local Plan draft January 2016)
St Albans	9,000 new homes by 2031 (Strategic Local Plan 2011-2031 publication draft 2016)
Welwyn Hatfield	12,000 homes by 2032 (Draft Local Plan proposed submission August 2016)
Luton Borough Council	17,800 new homes by 2031 (Draft Local Plan proposed submission April 2016)

3.5 There are 23 wards within NHDC. These have been categorised for this study into rural, urban and fringe locations.

3.6 The District has four main settlements: the historic market towns of Hitchin, Baldock and Royston, and the world's first Garden City, Letchworth. It also includes most of the Great Ashby estate, which is part of the urban area of Stevenage, and numerous villages and hamlets.

Walking and cycling

3.7 The District is served by a variety of public footpaths and green links, including the Hitchin Outer Orbital Path (HOOP) (12 miles), the Hicca Way (9miles), and Letchworth Greenway (13.5 miles). 7% of the District's residents walk to work, with a mean distance of 1.74 miles, whilst walking counts for 43% of school journeys. 9% of the District's residents experience difficulty in walking more than half a mile.⁵

3.8 A variety of cycle routes serve the District, including National Cycle Route 12 (The Great North Way) which traverses the county from Potters Bar to the county boundary north of Letchworth. Other important routes include Hitchin to the Chilterns (23 miles), Royston Circular Cycle routes (17 miles), and Baldock Circular Cycle routes (11 miles).

⁵ Herts County Travel Survey 2016

5.20 47% of households in the District have access to a useable bike whilst 2% cycle to work and 3% cycle to school; all of these figures are above the county average. These are clearly low base levels of cycling from which to develop.

- 3.9 Cycling routes and cycle parking within towns are sparse for the most part and generally of poor quality, with many streets dominated by high levels traffic and speeds. One exception is Royston, where an NHDC/HCC/Sustrans scheme in 2012 provided a new subway under the railway line, helping deal with severance and shortening cycle/walk journeys to key local destinations.
- 3.10 However as shown in **Figure 3.1** to **Figure 3.4**, the 4 main urban areas are almost entirely within 20 minutes' walk and 10 minutes of cycling of the centre of each town, and Royston is within 20 mins cycling of Letchworth and Baldock.
- 3.11 There is clearly significant potential to increase walking and cycling activity, which also is in line with Local Plan Policy SP10: Healthy Communities, which seeks to provide and maintain healthy, inclusive communities for residents, including to 'protect, enhance and create new physical and green infrastructure to foster healthy lifestyles'. There are also opportunities to develop better cycling connections to neighbouring areas, including Stevenage.

FIGURE 3.1– HITCHIN AND LETCHWORTH/BALDOCK KEY FEATURES AND WALKING CATCHMENTS

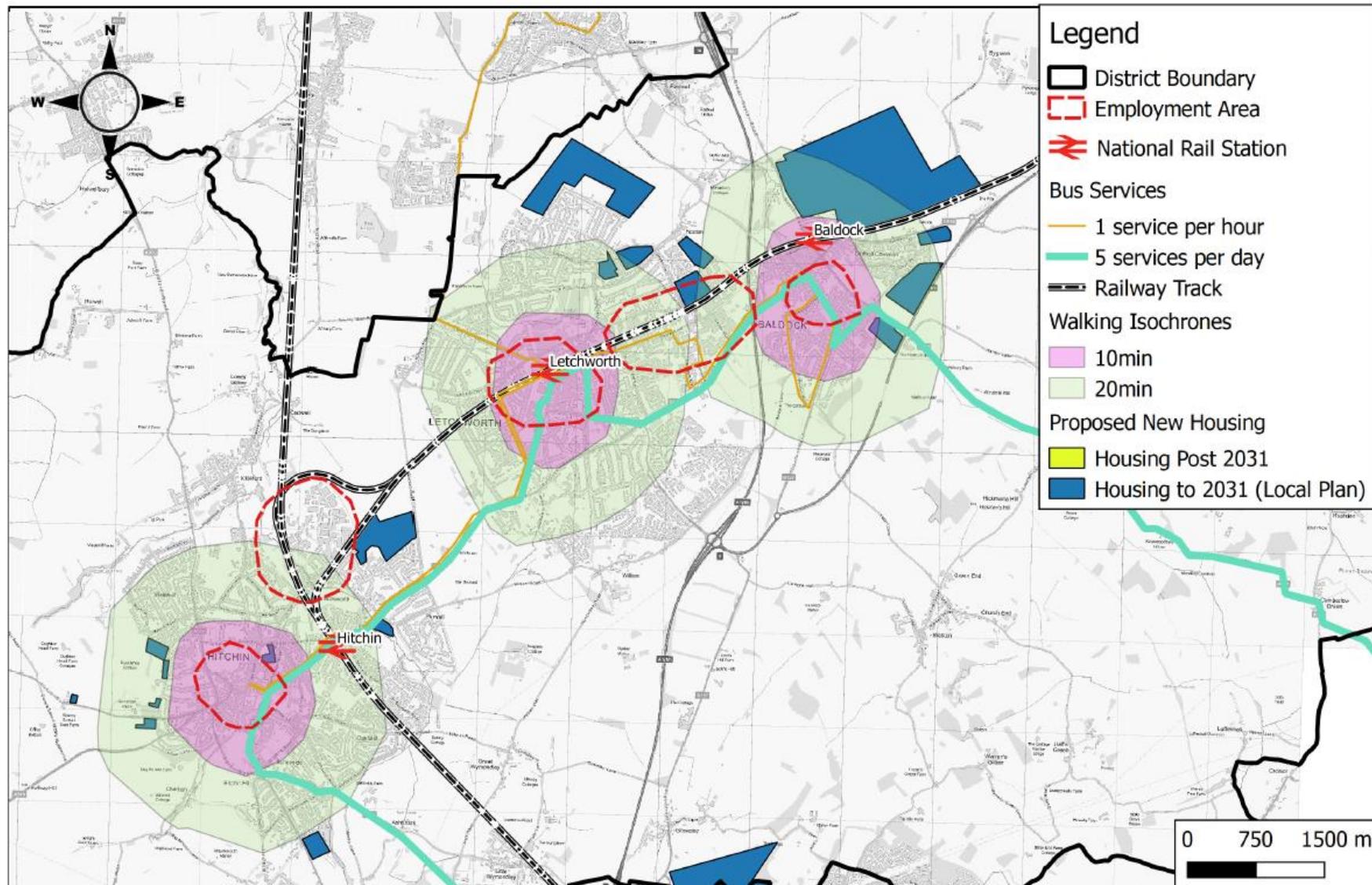


FIGURE 3.2 – HITCHIN AND LETCHWORTH/BALDOCK KEY FEATURES AND CYCLING CATCHMENTS

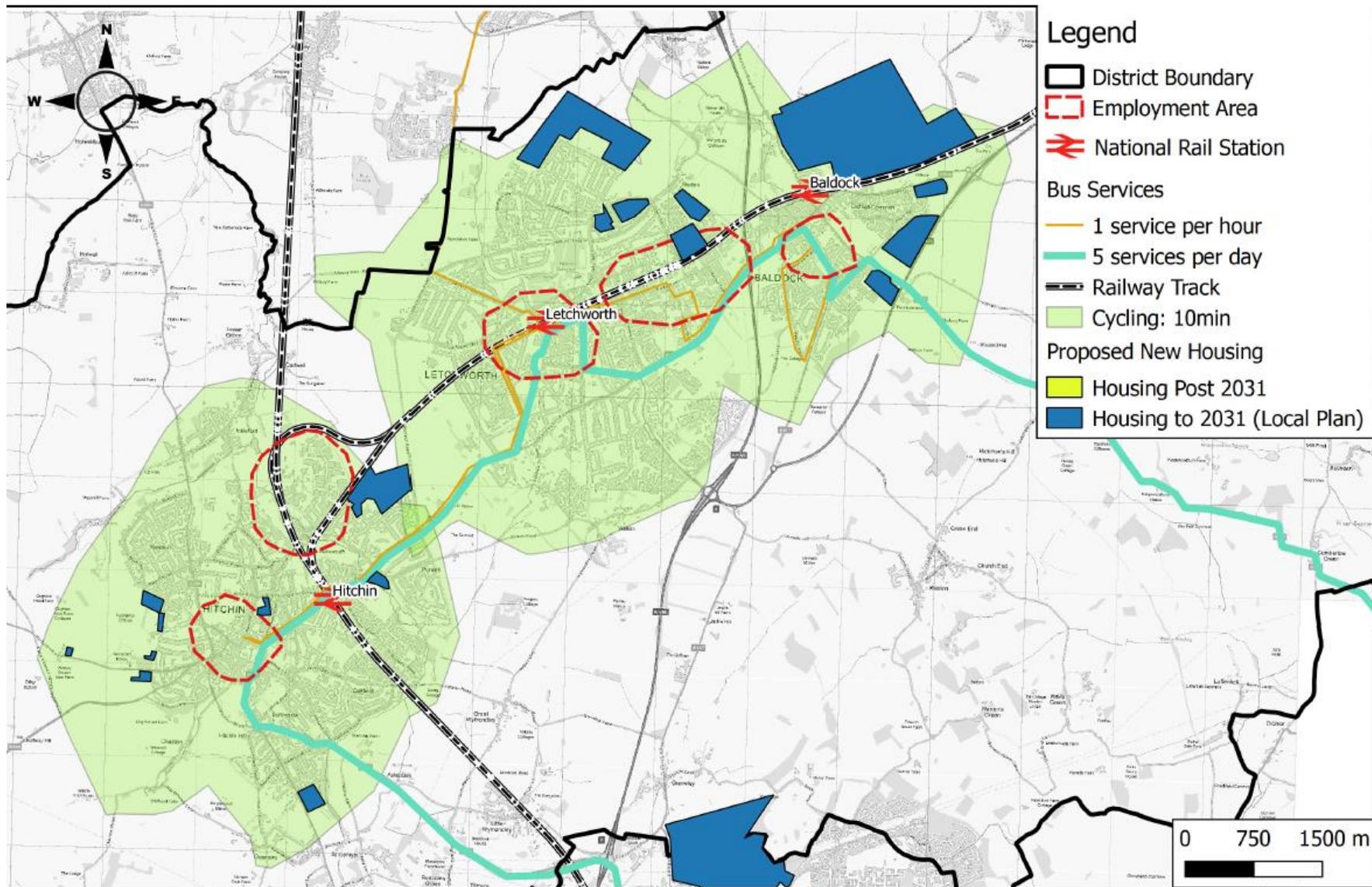


FIGURE 3.3 – ROYSTON KEY FEATURES AND WALKING CATCHMENTS

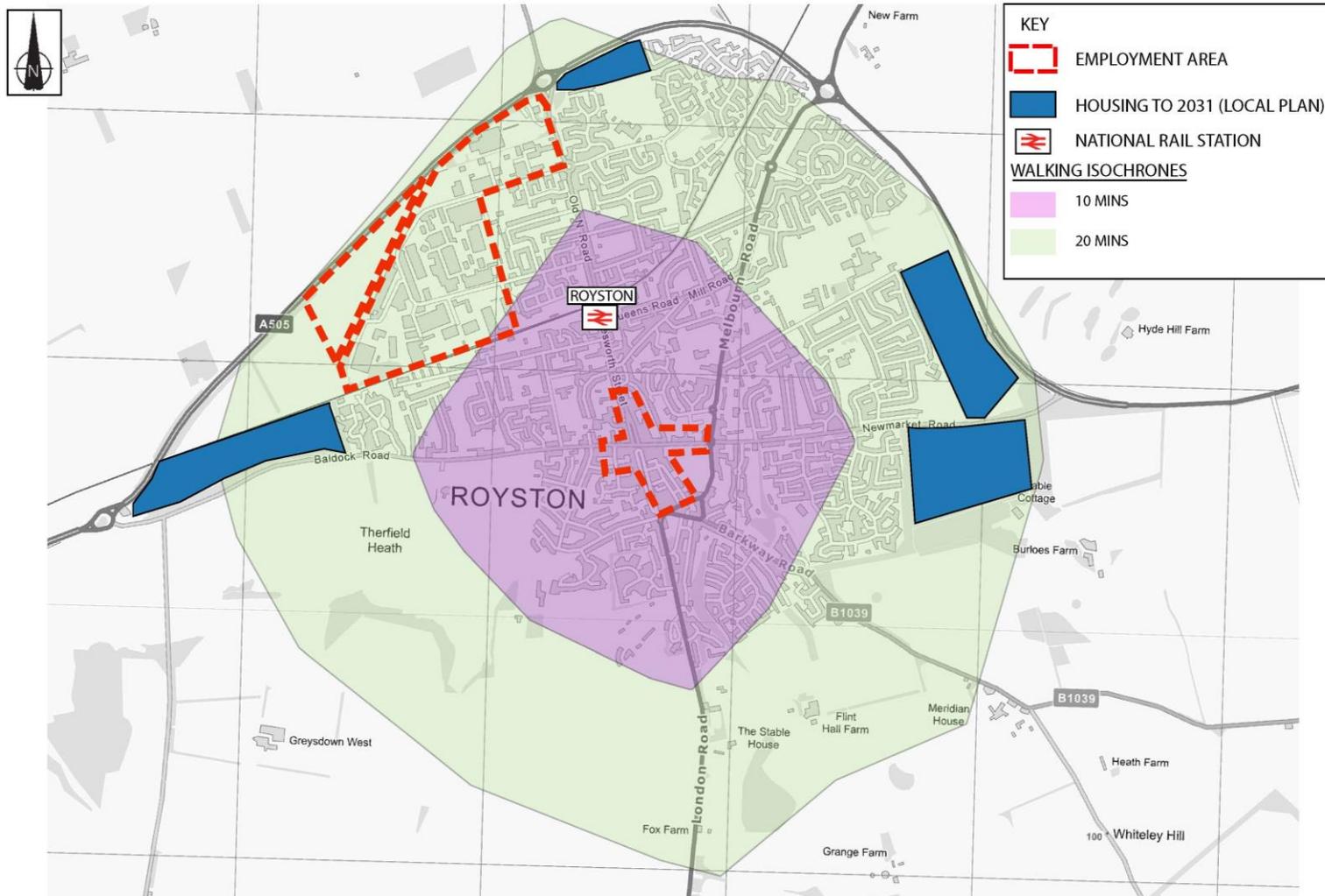
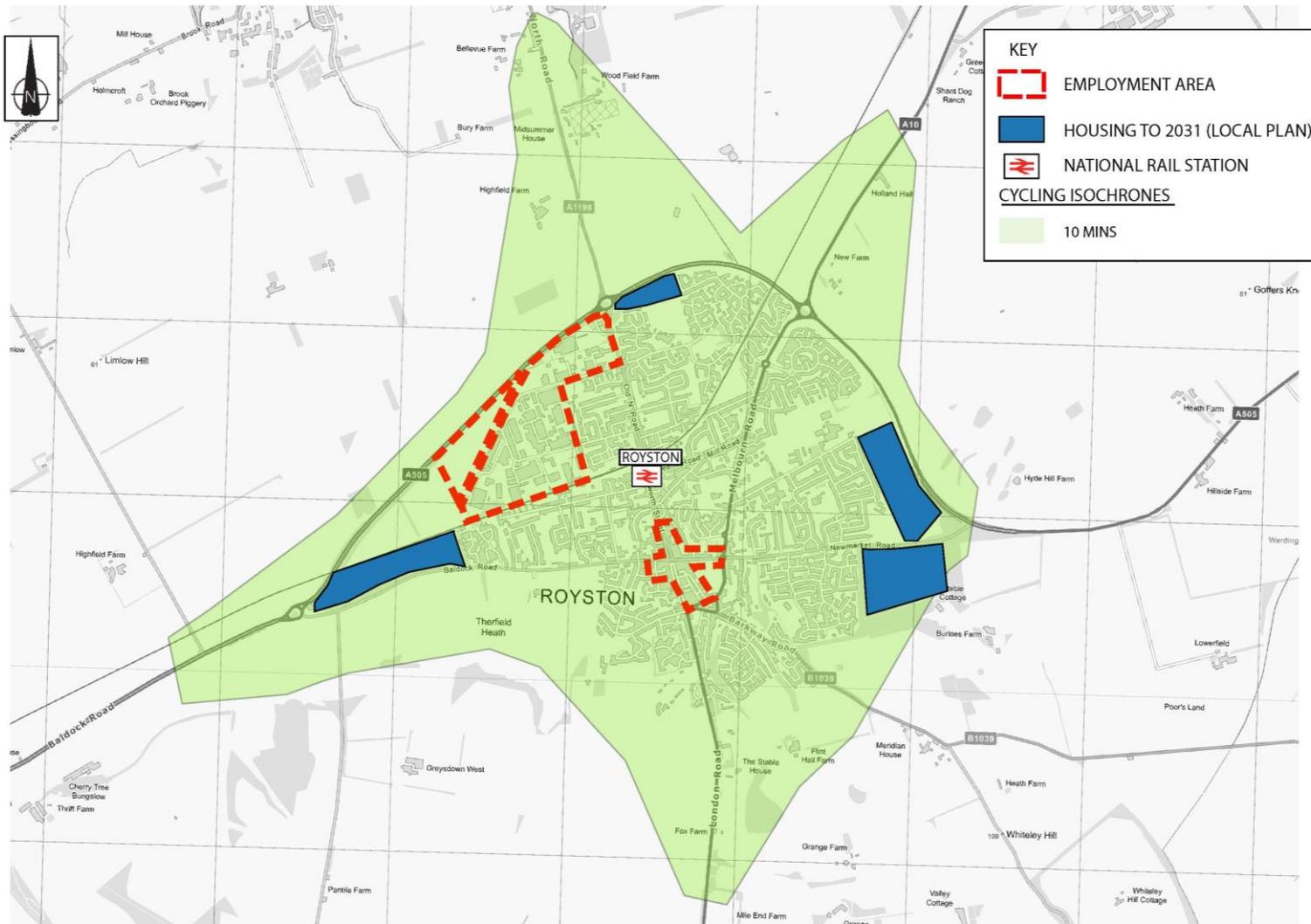


FIGURE 3.4 – ROYSTON KEY FEATURES AND CYCLING CATCHMENTS



- 3.12 The DfT-funded 'Cycling Propensity Tool'⁶ shows the types of increase possible areas under different scenarios, ranging from government targets (an approximate doubling of cycling) to 'Going Dutch' with more high-quality infrastructure. Analysis using this tool shows that with a higher investment 'Going Dutch' scenario for Hitchin and Letchworth/Baldock implies that over the longer-term cycling to work mode shares could be increased to 15% and above (from an existing approximate 3%).

Bus Services

- 3.13 There are a range of local bus services, although services can be infrequent, particularly in the rural area. HCC have over the last few years reduced subsidies for bus services, which has affected rural areas in particular.
- 3.14 Analysis undertaken for the GTP (GTP Evidence Pack, Draft, Hertfordshire County Council, 2017) indicates that there are frequent services running north-south through Letchworth and on towards Stevenage. However, bus services between Letchworth and Hitchin and Letchworth and Baldock are less frequent and there are large parts of both towns not served directly by buses.
- 3.15 The GTP provides useful information on accessibility to frequent bus services (defined in the GTP as more than 4 buses per hour). The maps below, first for Hitchin then Letchworth/Baldock, show the approximate walking distance (5 minutes or 400m) to bus stops, along with the hourly bus stop frequency.
- 3.16 Whilst the majority of residential areas are within 400 metres of a bus route most of the services are infrequent. The exceptions to this are:
- In Hitchin in the town centre, along A505 Cambridge Road and A600 Bedford Road; and
 - In Letchworth/Baldock those bus stops along Station Road, and around the Letchworth Business Park and employment area.
- 3.17 This reinforces the difficulties in accessing a frequent bus service from many residential areas, and means that bus may not present a viable alternative to the car and other modes.

⁶ www.pct.bike

FIGURE 3.5 – BUS SERVICES IN HITCHIN⁷

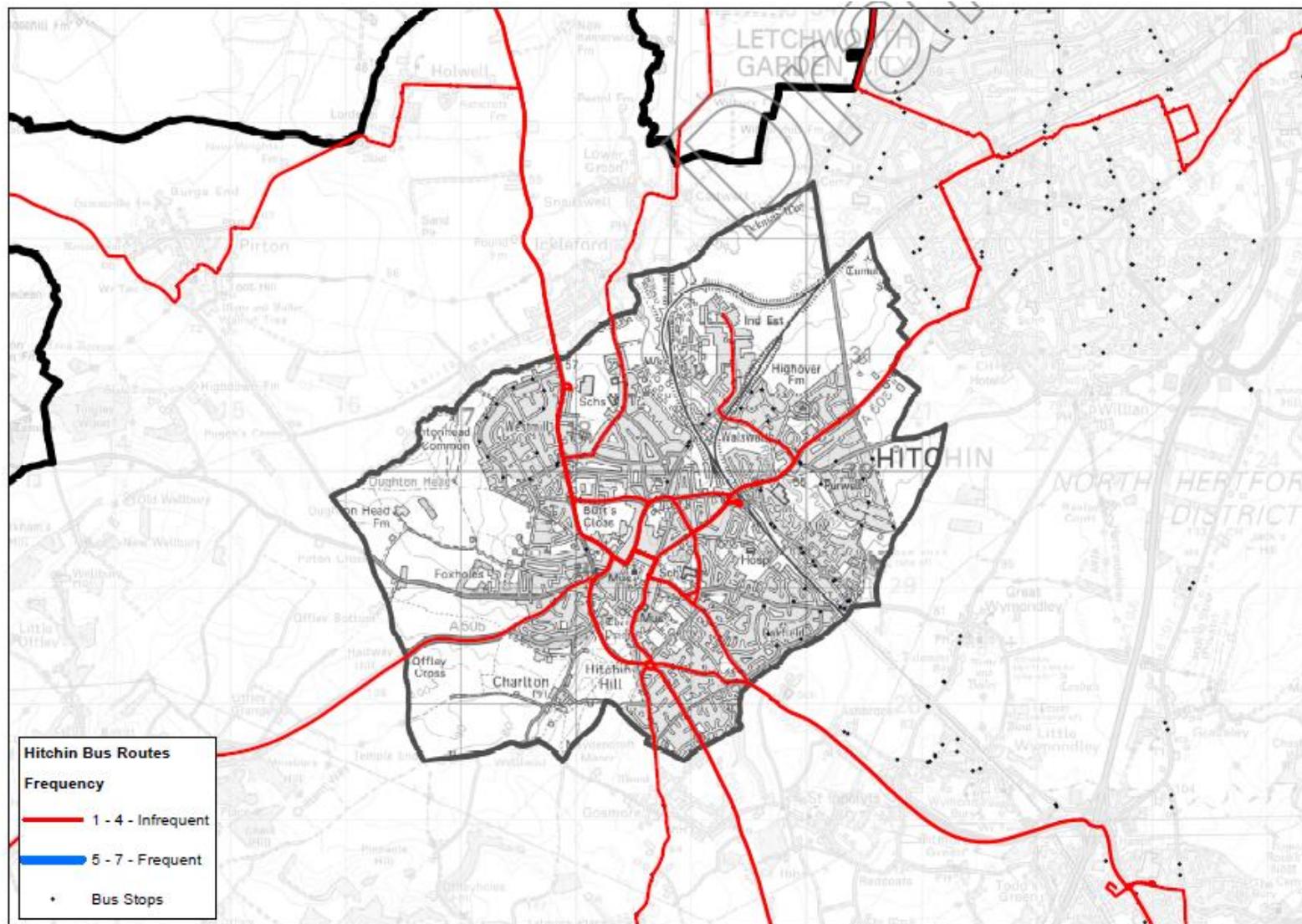
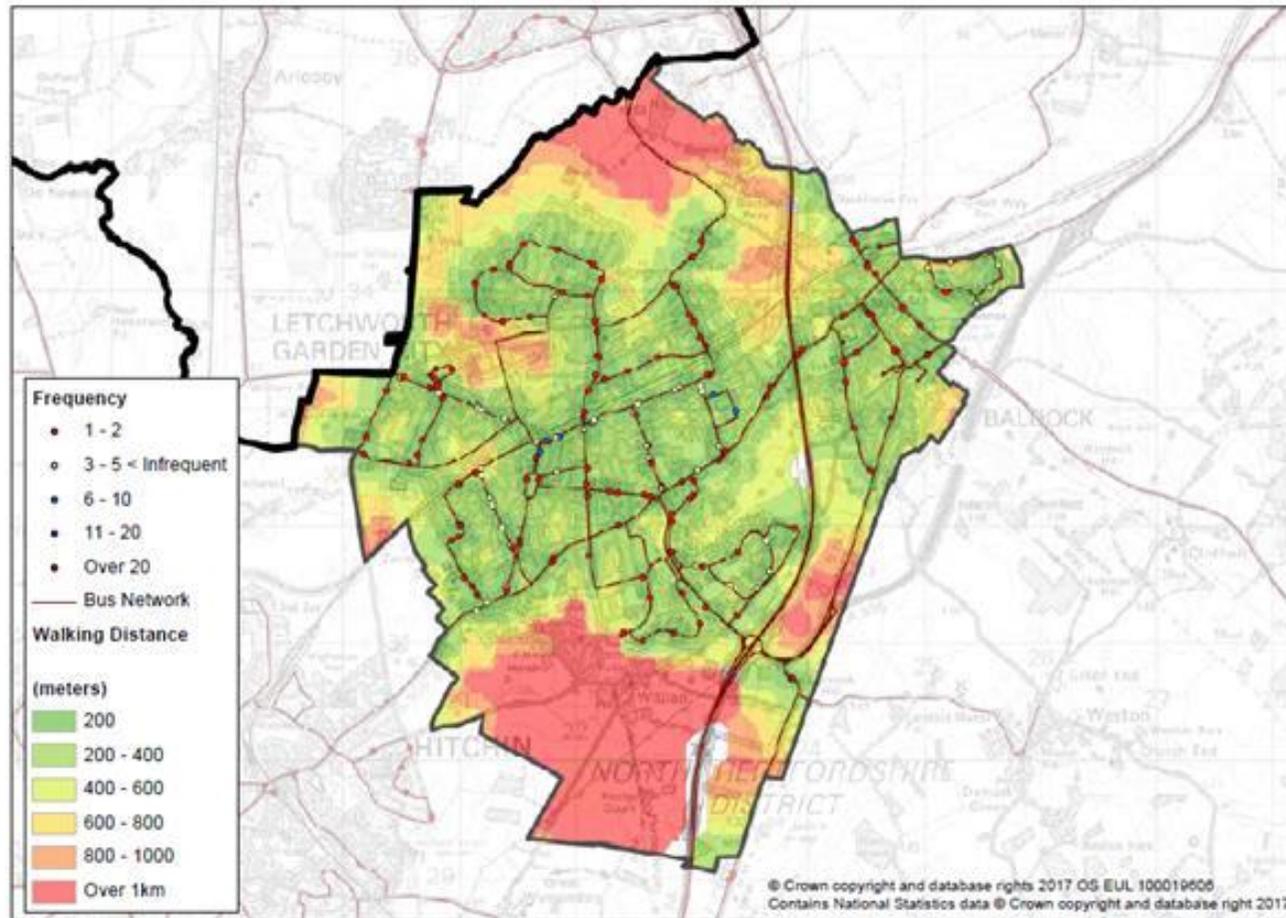


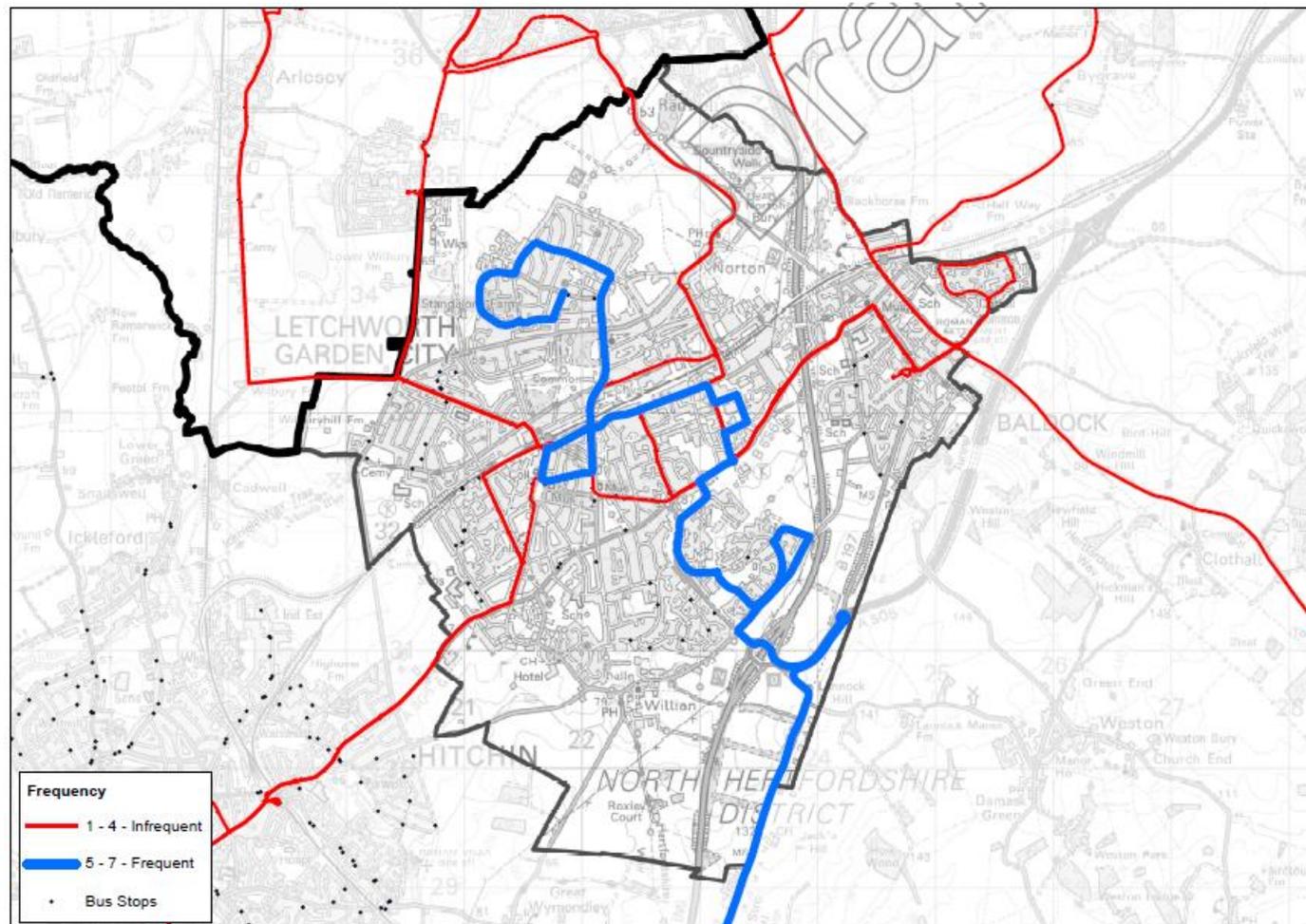
FIGURE 3.6 – WALKING ACCESS (5 MINUTES) TO BUS SERVICES IN HITCHIN⁸



⁷ (GTP Evidence Pack, Draft, Hertfordshire County Council, 2017)

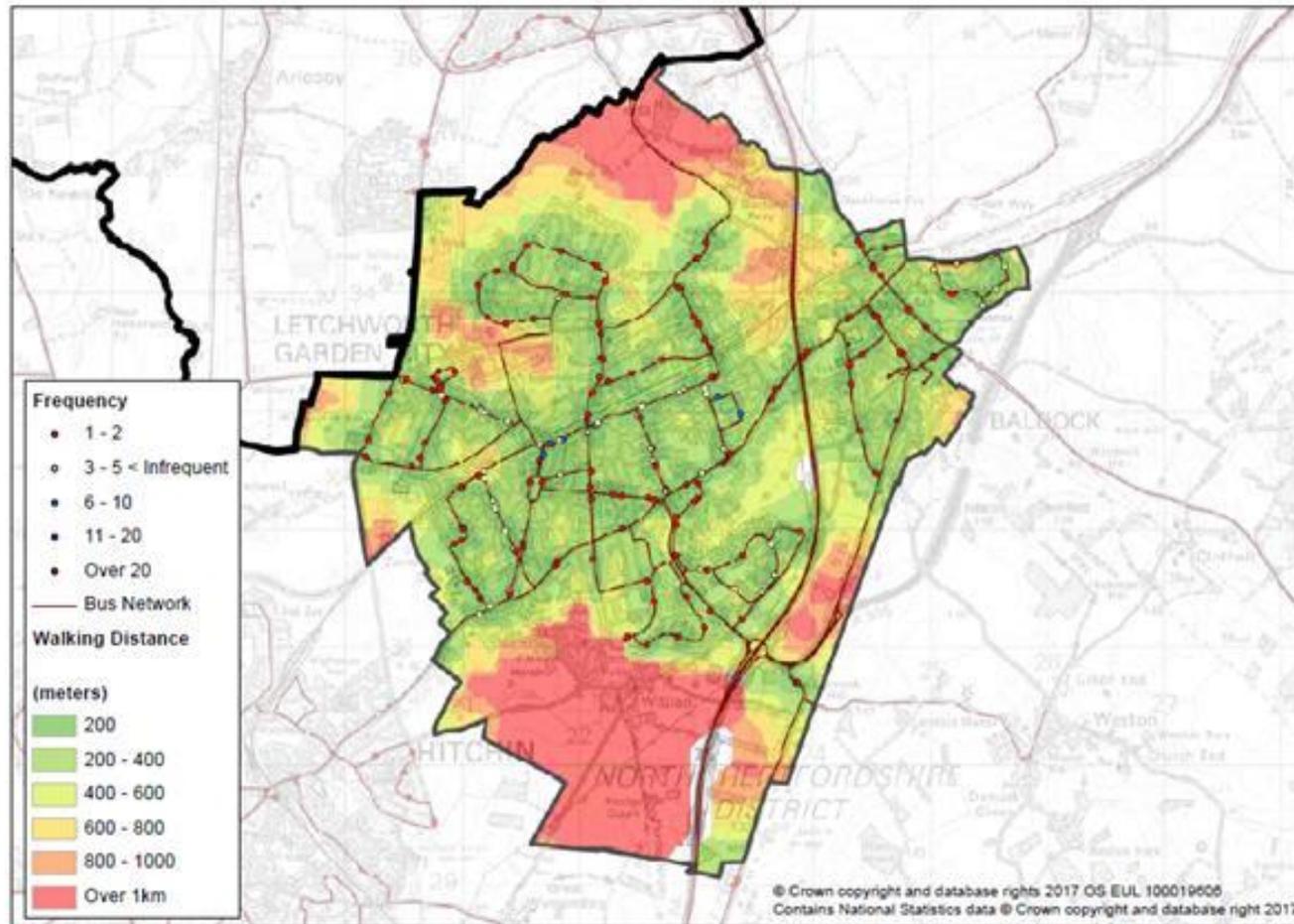
⁸ (GTP Evidence Pack, Draft, Hertfordshire County Council, 2017)

FIGURE 3.7 – BUS SERVICES IN LETCHWORTH/BALDOCK⁹



⁹ (GTP Evidence Pack, Draft, Hertfordshire County Council, 2017)

FIGURE 3.8 – WALKING ACCESS (5 MINUTES) TO BUS SERVICES IN LETCHWORTH/BALDOCK¹⁰



¹⁰ (GTP Evidence Pack, Draft, Hertfordshire County Council, 2017)

- 3.18 Other analysis in the GTP evidence packs shows that the car is the quickest mode for most journey distances / destinations, apart from trips to the City of London, where train is quicker and internal short trips in the towns, where the bike is equal or similar to in journey time. Interestingly bicycle is not much longer than car for short/medium trips between the core urban settlements. Some trips by bus and rail include long legs of the journey made on foot, due to the location of bus and train station / stops.
- 3.19 The analysis highlights the lack of competitive bus journeys for all journey distances and is compounded by issues with frequencies, directness and accessing a nearby bus stop that services the designated route. In most cases bus journeys are twice as long as by car.

Rail Services

- 3.20 The East Coast Main Line railway run through the District north-south between Hitchin and Letchworth providing destinations between London Kings Cross, Stevenage, Cambridge and Peterborough.
- 3.21 The rail line splits at Hitchin with the north-eastern rail line travelling via Letchworth, Baldock and Royston onto Cambridge. The northern rail line continues to Peterborough via Huntingdon.
- 3.22 There are 5 rail stations within NHDC; Knebworth, Hitchin, Letchworth, Baldock and Royston. The rail station facilities and passenger numbers for these stations from the Office of Rail and Road Statistics for 2015/2016 are shown in Table 3-2. It is understood that all the rail station car parks are full, and in many cases commuters also park on-street nearby, where parking is not controlled.

TABLE 3-2: NHDC RAIL STATION FACILITIES AND PASSENGER NUMBERS

Rail Station	Annual Rail Passenger Usage (Office of Rail and Road Statistics) 2015/2016	Car Parking	Cycle Parking
Knebworth (not step free)	0.59 million	48 spaces £5.40 daily rate	40 spaces
Hitchin (step free)	3.20 million	362 spaces £7.20 daily rate	291 spaces
Letchworth (step free)	1.87 million	No car park	184 spaces
Baldock (not step free)	0.66 million	44 spaces £5.20 daily rate	52 spaces
Royston	1.44 million	341 spaces £7.20 daily rate	178 spaces

- 3.23 The busiest station in terms of passenger numbers is Hitchin which has over double the number of most other stations apart from Letchworth. Hitchin does have the largest car park and highest level of cycle parking and it has the highest service frequency of all the 5 stations as shown in Table 3-3.

TABLE 3-3: COMMUTING SERVICE FREQUENCY NHDC STATIONS

Destination	Peak time	NHDC Station				
		Knebworth	Hitchin	Letchworth	Baldock	Royston
Direct Service Frequency to/from London Kings Cross	AM Peak 08:00-09:00	3 trains (24-29 mins)	8 trains (28-48 min)	5 trains (30-46 mins)	3 trains (36-53 mins)	4 trains (47-60mins)
	PM Peak 17:00-18:00	2 trains (33-37mins)	5 trains (32-42mins)	4 trains (36-49 mins)	2 trains (40-53 mins)	4 trains (44-60mins)
Direct service frequency to/from Cambridge	AM Peak 08:00-09:00	2 trains (48-56mins)	2 trains (39-42mins)	2 trains (33-36mins)	3 trains (30-33mins)	3 trains (15-23 mins)
	PM Peak 17:00-18:00	3 trains (51-56mins)	2 trains (38-42mins)	4 trains (24-41 mins)	3 trains (33-38mins)	4 trains (14-21mins)
Direct service frequency to/from Peterborough	AM Peak 08:00-09:00	2 trains (58mins)	2 trains (48 mins)	No direct services (change Hitchin)		
	PM Peak 17:00-18:00	2 trains (64mins)	3 trains (46-52 mins)			
Direct service frequency to/from Stevenage	AM Peak 08:00-09:00	2 trains (3 mins)	5 trains (5 mins)	3 trains (10 mins)	3 trains (13mins)	3 trains (23-30mins)
	PM Peak 17:00-18:00	3 trains (4 mins)	5 trains (5 mins)	3 trains (10 mins)	2 trains (13mins)	3 trains (20-24mins)

3.24 London, Cambridge and Peterborough are all within commuting distance for residents living in NHDC. Stevenage has also been included in Table 3-3 as this has a significant level of existing employment.

3.25 Between Hitchin and Letchworth, which are the two busiest stations in NHDC, there are 3 AM peak trains and 2 PM peak trains and the journey takes 5 minutes. The journey time between Royston and Knebworth is 28 minutes which are the two NHDC stations that are furthest apart. Royston to Letchworth is a 10-min train journey or 23 mins by car and Royston to Hitchin is 18 minutes which would take approximately 28 mins in a car. However, the ‘effective’ total rail journey time is higher with walk and wait times. This is particularly important where some of the main ‘attractors’ of commuting trips (e.g. employment areas) are not particularly close to the station (e.g. Letchworth Airports).

3.26 NHDC is in close proximity to two major international airports; Luton Airport which is located adjacent to the western boundary of the District to the west and Stansted which is approximately 20 miles to the south-east. However, there are no direct rail or strategic road links to either airport from NHDC.

Strategic Highway Network

3.27 NHDC has good road links with major strategic highway networks. The A1(M)/A1 bisects the District in a north/south direction; while running parallel to the west is the M11 and to the east the M1.

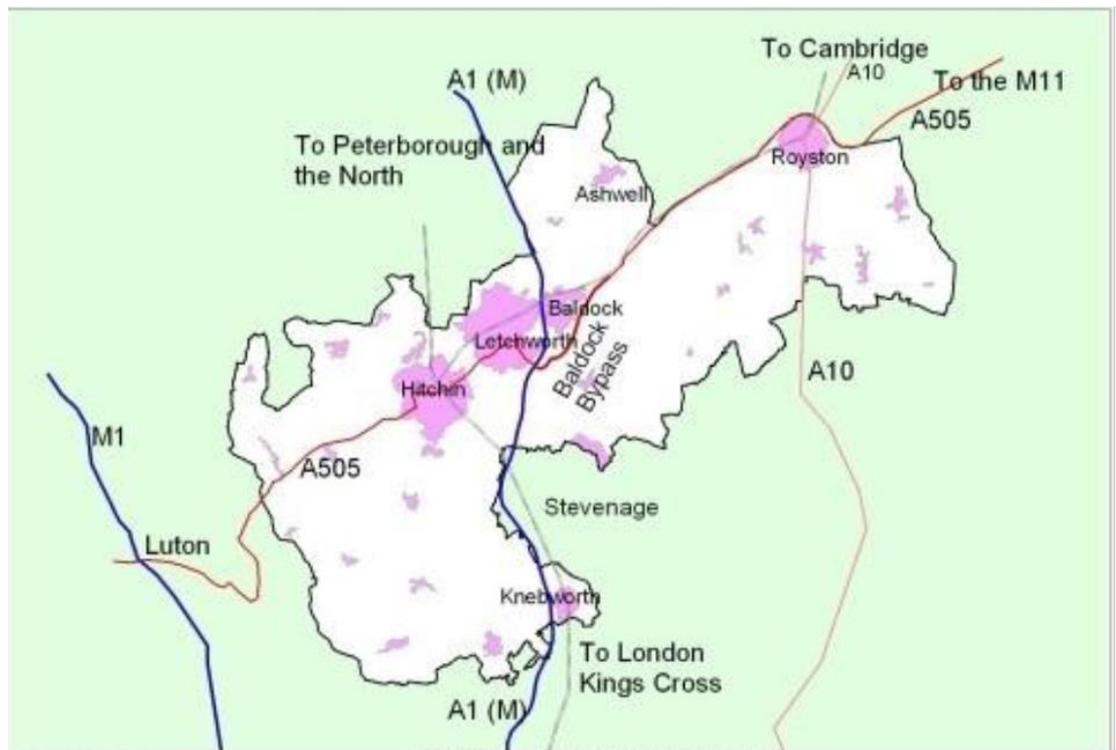
3.28 The only strategic east-west route is the A505, which runs between Luton in the west and Royston in the east, running on to the M11 near Cambridge. Baldock and Royston have bypasses using the A505; in Hitchin the A505 runs through the town, and in Letchworth it runs partially through the town.

3.29 Other important roads are:

- The A602 between Hitchin and Stevenage;
- The B656 between Letchworth and Baldock;
- The north-south A507 through Baldock; and
- The north-south A10 through Royston.

3.30 The local and strategic Highway Network within NHDC is shown in **Figure 3.9**.

FIGURE 3.9 – STRATEGIC HIGHWAYS



3.31 Figure 3.10 shows the current level of delays across the county – the broad North Hertfordshire area of interest is shaded. The key location in the NHDC area is the A1 (M), which is the subject of a proposed Smart Motorway upgrade by Highways England.

3.32 While there are congestion hotspots in Hitchin and to a much lesser extent Letchworth/Baldock and Royston, overall the District has lower congestion levels than the rest of the county.

3.33 Generally, the links within the towns operate within capacity; however, radial links to towns experience stress. The Baldock bypass has relieved traffic to some extent in the town with the key links now operating well within capacity, but delays and queuing still occur at the traffic signals at the A507 / B656 junction.

- 3.34 The A505 Royston bypass has provided an alternative for east-west traffic, but the A10 and the Great North Road cross the town in a north-south direction, and congestion occurs at the key junctions on the A505.
- 3.35 Letchworth is partially bypassed by the A505, and the main congestion points in Letchworth are on the A505, and particularly at the junction with Letchworth Gate, which leads to the A1(M).
- 3.36 Hitchin does not have a bypass, and congestion is apparent where the key radial routes approach the town, in particular the A602 from Stevenage and the A505 Pirton Road to/from Luton.

Highways- traffic growth

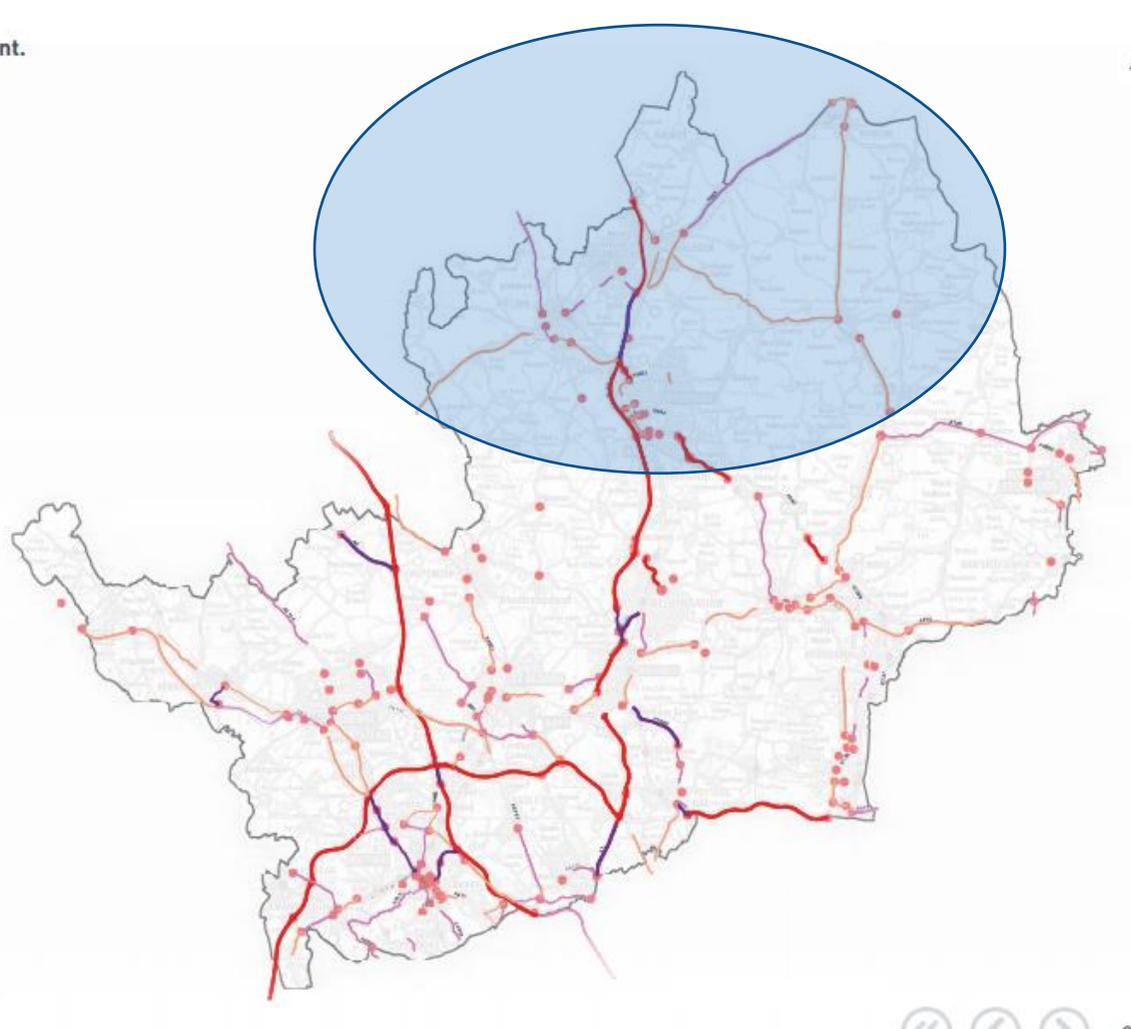
- 3.37 The HCC Traffic and Transport data report (2016) notes that from 2003 traffic flows stabilised in Hertfordshire until 2007 when there was a reduction corresponding with the UK recession. Flows continued to decline until 2013, when there was an increase in traffic flow aligning with the upturn of the UK economy. This increase has continued, with the 2015 data indicating that traffic flows have reached pre-recession levels in line with national trends.
- 3.38 HCC report the latest published analysis (in the Traffic and Transport Data Report) shows that in North Herts District, traffic flows increased by 5.2% on HCC roads between 2014-2015.
- 3.39 The latest predictions from the National Trip End Model (NTEM – Tempro version 7) indicate that between 2015 and 2021, car traffic growth in North Hertfordshire will increase by 6.7%, with a total of 17% growth predicted between 2015 and 2031. This includes the impact of most if not all of the Local Plan proposals, although there may be some differences in final locations.

FIGURE 3.10 – HERTFORDSHIRE COUNTY NETWORK PERFORMANCE¹¹

3.1 Network Performance cont.

Figure 3.1.1 - 2015 Peak Hour Congestion

- Congestion Ratio (2014 data)*
- **0 - 0.49**
Very little congestion during peak hours
 - **0.5 - 0.79**
Occasional queuing and congestion during peak hours
 - **0.8 - 0.99**
Frequent queuing and congestion during peak hours. A CRF ratio of 1 means traffic demand equals carriageway capacity.
 - **>1.0**
Serious queuing and congestion on a daily basis with small incidents causing considerable delays. Traffic demand exceeds carriageway capacity.
 - **No data available.**
 - **Congested Junction on key network**



Source: TrafficMaster data & HCC monitoring programme
 HCC Annual Count Monitoring Programme
 and DfT CRF calculation from the Design
 Manual for Roads & Bridges (DMRB)
 Vol 5 Section 1 Annex D

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¹¹ Extract from HCC Hertfordshire Traffic and Transport Data Report 2016

Highways – Road Safety

- 3.40 In the study area, there are three defined hazardous sites at the A1(M) Junction 9, at the Stotfold Road / Icknield Way junction at Wilbury Hill, and at the A505 Baldock Bypass / B197 London Road roundabout.

Town Centres

- 3.41 There is no one dominant centre serving the District. Hitchin town centre is the largest retail destination, followed by Letchworth and there are large employment areas in Letchworth, Hitchin and Royston. There are traditional markets in Hitchin, Baldock and Royston, and Business Improvement Districts are currently operating in Hitchin, Letchworth Garden City and Royston. The District's settlements have a complex system of interdependencies with each other and with surrounding larger towns, notably Stevenage, Luton, Cambridge, Welwyn Garden City, Milton Keynes and London. A substantial proportion of the District's population commutes to these larger centres for work and for shopping.

Air Quality Management Areas

- 3.42 The A505 is currently directly associated with air quality concerns because it passes through the four main population centres of the District; namely Hitchin, Letchworth Garden City, Baldock and Royston. Of particular concern is the area in the south of Hitchin, including 2 designated Air Quality Management Areas (AQMA) on Stevenage Road (A602) near the Hitchin Hill roundabout and the Payne's Park roundabout at the A602 junction with the A505.
- 3.43 In addition to the air quality problems identified in Hitchin that are associated with elevated nitrogen dioxide (NO₂), levels of NO₂ are close to exceeding a national air quality objective around the A505 in the Hitchin Street/Whitehorse Street area of Baldock. Furthermore, particulate matter air pollution is a public health concern, which is reflected by the presence of a national air quality objective and a public health outcome indicator.

Use of unsuitable roads by through traffic

- 3.44 As with most urban areas, there is some evidence that motorists are using unsuitable roads to avoid delays on congested routes. There are many locations where traffic volumes are probably unsuitable for the nature of the road, but the more 'strategic' routes noted in the modelling include:
- Routes through Great Wymondley, by which traffic can bypass delays on the A602 between Hitchin and Stevenage;
 - The B197 through Graveley between Letchworth and Stevenage;
 - Willow Lane in Hitchin, which can be used by east/west traffic to bypass delays on the A505/A602 route; and
 - Stevenage Road, which can be used to bypass congestion on the A602 between Hitchin and Stevenage.

Travel Behaviour

Competition between modes

- 3.45 Analysis undertaken for the GTP work on Hitchin and Letchworth/Baldock shows that the car is the quickest mode for most journey destinations apart from (1) short distance trips to Letchworth Pixmore Ave, where cycle journey times are similar, (2) short distance trips to Baldock High Street where bus and cycle times are similar and (3) medium trips to Hitchin where cycling is similar. This table highlights the lack of competitiveness for bus journeys for all but short trips to the town centre, which is compounded by issues with frequencies, directness and accessing a nearby bus stop that services the designated route. In most cases bus journeys are twice as long as by car. Anecdotally, bus services are geared towards travel to town centres or key movements, which doesn't always translate to work zones, hence the lack of competitiveness in many cases.

Car ownership

- 3.46 The car ownership for NHDC compared to HCC and the adjacent authorities has been obtained from the Census 2011 and is shown in Table 3-4.
- 3.47 NHDC has car ownership which is in line with the County average. Some mainly adjacent authorities with large urban settlements such Luton, St. Albans and Stevenage have much lower levels of car ownership.

TABLE 3-4: CAR OWNERSHIP NHDC, HCC AND ADJACENT AUTHORITIES

Authority	Car Ownership Census 2011
Hertfordshire	1.37
Central Bedfordshire	1.49
East Hertfordshire	1.49
Luton	1.08
North Hertfordshire	1.36
South Cambridgeshire	1.53
St Albans	1.42
Stevenage	1.20
Uttlesford	1.66
Welwyn Hatfield	1.30

- 3.48 NHDC has 17% of households without any vehicles which is in line with the County average and this is the same for households with 1 car (42%), 2 cars (31%), 3 cars (7%) and 4 or more cars (3%).

3.49 A detailed review of the wards and car ownership has been undertaken from the Census 2011 and this is tabulated in **Appendix 1**. This shows that there is very little difference overall between the car ownership in rural, urban and fringe ward locations.

Travel to Work – Resident Population

3.50 From assessing the travel to work resident population from the Census 2011, approximately 69% drive (9% as passengers), 14% travel by public transport and 15% walk or cycle as shown in **Table 3-5**.

TABLE 3-5: TRAVEL TO WORK – RESIDENT POPULATION

Method of Travel to Work	% of Travel
Underground	0.3
Train	6.2
Bus	7.8
Taxi	1.2
Motorcycle	0.5
Driving	59.9
Passenger	8.9
Cycling	1.4
Walking	13.8

Travel to Work – Daytime population

3.51 From assessing the travel to work daytime population from the Census 2011, approximately 69% travel by car (9% as passengers), 14% travel by public transport and 15% walk or cycle. This is in line with the resident population travel to work statistics. The daytime population travel to work data is shown in **Table 3-6**.

TABLE 3-6: TRAVEL TO WORK – DAYTIME POPULATION

Method of Travel to Work	% of Travel
Underground	0.3
Train	6.2
Bus	7.9
Taxi	1.2
Motorcycle	0.5
Driving	59.6
Passenger	9.1
Cycling	1.4
Walking	13.7

Commuting Patterns

- 3.52 Some 61% of residents’ work outside NHDC. A review of the Census 2011 location of usual residence and place of work by method of travel to work shows that 39% of residents live and work within NHDC with 64% of those residents choosing to drive (6% as passengers).
- 3.53 The average commuting distance has increased from 10.7 miles in 2001 to 12.1 miles in 2011. Within Hertfordshire County the average commuting distance is 20-30 miles which is reflective of the fact that 31% of trips of out commuters from the County travel to Greater London and 12% to an adjacent authority.
- 3.54 This means 61% of residents commute out of NHDC. The top 10 destinations, (apart from those residents that live and work within NHDC), that NHDC residents travel to work are shown in **Table 3-7** along with the % of residents that commute to those places.

TABLE 3-7: DESTINATIONS RESIDENTS FROM NHDC COMMUTE TO FOR WORK

Place of work: 2011 census merged local authority district	All (categories method of travel to work)- no other or WFH	% All place of work residents travel to from NHDC
Stevenage	6,362	12.5
Welwyn Hatfield	3,943	7.7
Westminster, City of London	2,811	5.5
South Cambridgeshire	2,100	4.1
Central Bedfordshire	1,792	3.5
Luton	1,721	3.4
East Hertfordshire	1,543	3.0
Cambridge	1,345	2.6
St Albans	1,287	2.5
Camden	1,000	2.0

In-Commuting Patterns

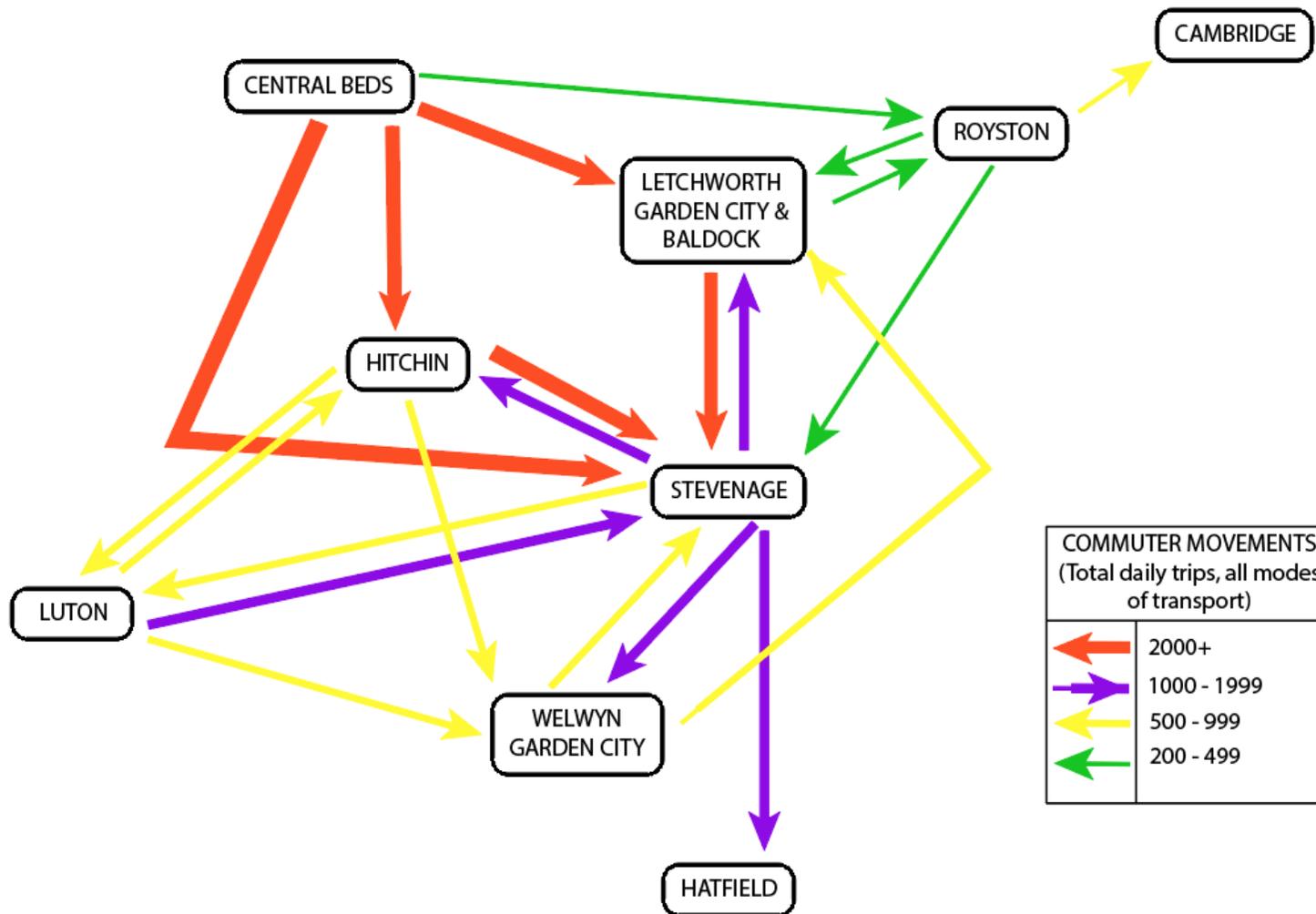
- 3.55 There is a wide range of destinations that employees travel from to work in NHDC. There are 39% of people that live and work within NHDC. The next top 10 destinations that employees live in to travel to work in NHDC are shown in **Table 3-8**.

TABLE 3-8: TOP 10 IN-COMMUTING DESTINATIONS

Usual residence: 2011 census merged local authority district	All (categories method of travel to work)- no other or WFH	% Place people travel from to work in NHDC
Central Bedfordshire	5,722	14.9
Stevenage	3,707	9.6
South Cambridgeshire	1,807	4.7
Luton	1,277	3.3
East Hertfordshire	968	2.5
Welwyn Hatfield	776	2.0
Huntingdonshire	531	1.4
St Albans	492	1.3
Bedford	472	1.2
Cambridge	275	0.7

3.56 **Figure 3-11** below, sourced from the GTP Evidence packs (Draft, Hertfordshire County Council, 2017), shows the main (non-London) commuting movements. Most of these movements are by car, despite a good railway service between the towns in addition to bus links. The strong linkages with Stevenage and Luton are clear, and there are also links between the key towns, particularly Hitchin and Letchworth/Baldock. In addition, there are strong links between parts of Central Bedfordshire and NHDC towns, as well as to Stevenage, which can only be reached by travel through NHDC.

FIGURE 3.11 – MAIN NON-LONDON COMMUTER MOVEMENTS



- 3.57 HCC travel surveys indicate that some 22% of North Herts travel to work trips are less than 5 miles long. North Herts respondents have high levels of car ownership, which have continued to increase. North Herts respondents make more trips on average per day and travel further distances compared with Hertfordshire overall. North Herts respondents also travel further to work, travel longer distances to work by car, and do less working from home, compared to county totals. The higher reliance on car use and greater distance travelled in North Herts is due to the large rural nature of the District compared to other districts in Hertfordshire.

Summary of Key Development/Transport Characteristics

- 3.58 **Table 3-9** summarises the existing and proposed population and employment for Hitchin and Letchworth/Baldock and the key transport characteristics of each. Some key points are:
- There are more houses than jobs planned, which will increase the demand for out-commuting;
 - There are relatively low cycle and bus modes; and
 - There is a relatively high level of internal commuting in Baldock/Letchworth/Royston, lower in Hitchin.

TABLE 3-9: KEY STATISTICS FOR HITCHIN AND LETCHWORTH/BALDOCK¹²

	Hitchin	Letchworth + Baldock
2011 population	35,300	34,000 + 10,600
New homes plan period – 2014 to 2031	1,500	2,200
New jobs plan period – 2014 to 2031	1,200	2,300
Proposed Development large sites	Highover Farm 700 units	Letchworth North 900 units Baldock North 2,550 units
Resident mode share to work 2011 census		
Car mode share ¹³	66%	71%
Bicycle	2%	2%
Bus	3%	2%
Walk	9%	8%
Train	12%	8%
Internal work trips	14%	20%
Outbound work trips	41%	37%
Inbound work trips	31%	31%
Work at home	7%	7%
Internal car mode share	47%	60%
Internal walk mode share	44%	30%
Internal cycle mode share	4%	6%
Internal bus mode share	2%	2%

¹² Source Hertfordshire County Council, Hitchin and Letchworth & Baldock Growth and Strategy Plan Evidence Packs

¹³ Includes car passengers

4. TRANSPORT STRATEGIES OF NEIGHBOURING AUTHORITIES

Stevenage

- 4.0 Stevenage Borough Council's (SBC) Local Plan is at the Main Modifications stage. During the Local Plan preparation, the council proposed a shift in transport strategy emphasis towards a new Stevenage Mobility Plan.
- 4.1 SBC has therefore proposed a main modification to their Local Plan (MM41) which states that the council strategy is to 'support and encourage increasing Mobility by sustainable and inclusive modes. It is to support a mode shift over time from car driver to more space efficient, socially inclusive and less polluting forms of Mobility, and not simply to supply extra road capacity for the benefit of car borne commuters in peak periods'.
- 4.2 It notes that Stevenage is a Sustainable Travel Town and the Mobility Strategy focuses on reducing the need to travel overall and increasing the proportion of journeys made by sustainable modes (on foot, by bicycle, by public transport, or via schemes such as cycle hire and car clubs). The initiatives include walking, cycling and shared mobility infrastructure and enhancements, together with behaviour schemes.
- 4.3 The Strategy expects a step change in uptake of sustainable modes. It also advises that it is likely that some highway capacity would need to be reallocated for use by pedestrians, cyclists and bus users. A Mobility Steering Group formed of Hertfordshire County Council, Stevenage Borough Council and invited stakeholders will monitor progress of the delivery of the Stevenage Mobility Strategy.
- 4.4 The strategy also proposes that significant funding is set aside in the IDP for cycleway improvements, behaviour management, and a monitor and manage fund taken from the amount set aside in the previous IDP for highway junction changes. Further work is ongoing on the strategy.
- 4.5 This has two consequences for the proposals within the NHDC:
- Firstly, the traffic modelling work undertaken by HCC for NHDC identified existing and future highway issues in the Stevenage area, and various junction improvement proposals were identified and tested. Given the new SBC strategy, these may not now be required, as they were aimed at highway capacity improvements. Some funding proposed for some of these schemes may now be used on other non-highway measures. SBC is continuing work on the strategy which will provide more direction on these issues.
 - Secondly, the proposed strategic development sites adjacent to Stevenage in NHDC will need to be co-ordinated with the new transport approach, focusing on sustainable transport links, particularly walking and cycling, to the rest of Stevenage.

Central -Bedfordshire

- 4.6 Significant development growth is planned to the north of NHDC. In the modelling undertaken, all options assume 2000 new homes East of Ardsley near Stotfold Close to

the A507, which runs east-west through the district between the A6 near Luton and the A1 north of Baldock.

- 4.7 Modelling tests¹⁴ indicate that there will be increased congestion on the A507 as this route gives access to both the A1 and Stotfold urban area. One option (Option 1*) assumes the A1 East of England Improvements (3 lanes and grade separation) which would include Junction 10 north of Baldock. The test conclusion is that the improvements on the A1 north of Junction 10 attract additional traffic to and from this junction, and there are remaining capacity issues on the A507 in both directions.
- 4.8 Work on the Local Plan is ongoing, and there is a need for joint working under the Duty to Co-operate in order to identify and resolve any transport issues.

Luton

- 4.9 The Luton Local Plan strategy focuses on sustainable travel options within Luton, and seeks to reduce the demand for car travel, but also has proposals for improved highway links. Of relevance to NHDC in particular, it proposes a 'Luton Northern Bypass' between the A6 and A505, which in turn is proposed to be linked to the southwest (and M1) via a new eastern link road between the A505 and the airport. Various modelling tests were undertaken of these links and different development scenarios for the LBC Local Plan.
- 4.10 Current development proposals within NHDC east of Luton include some 2,100 homes by 2031. Conclusions drawn from modelling tests carried out by NHDC (described in more detail in Section 6) and Transport Assessment work for these proposals, with appropriate scheme-related mitigation and sustainable transport measures, were that:
- Most of the travel generated by the EoL developments will be 'Luton-facing' with very little travel to the north, south or east. This also means that there are greater opportunities to encourage modal shift and integrate with public transport, walking and cycling proposals in the rest of Luton;
 - The indications are that the impact of the development is unlikely to be severe, although specific junction mitigations are likely to be required to deal with some congestion issues; and
 - There is no indication that an 'eastern bypass' of Luton is needed to enable the development.
- 4.11 There is a need for ongoing joint working under the Duty to Co-operate in order to identify and resolve any transport issues.

¹⁴ Central Bedfordshire Local Plan – Stage 1A Transport Modelling July 2017

5. TRANSPORT STRATEGY

Summary of Issues and Opportunities

- 5.0 North Hertfordshire is a predominantly rural district, with 4 main market towns (Hitchin, Letchworth, Baldock and Royston). These market towns have a high quality of life, with historic environments and many facilities. They are all small enough to walk/cycle almost the entire town, and are close enough together (apart from Royston) to cycle between them as well.
- 5.1 Car ownership and use in the towns is high; many people live in nearby villages with little alternative to the car, and cycle and bus use is low.
- 5.2 These historic towns and links to/from them suffer from traffic congestion and some air quality problems. Their 'environmental capacity' to accommodate further traffic growth without detrimentally affecting the high quality of the local environment is limited, and a starting point should be managing traffic growth and avoid significant increases in traffic through the towns where possible.
- 5.3 The towns are relatively small in size – currently 34,000 for Hitchin, 33,000 for Letchworth, 10,000 in Baldock and 16,000 for Royston. This means that they are probably not of the scale to sustain a comprehensive high-frequency urban bus system or an effective park and ride system. Changes to car parking supply and charges at a scale that would deliver sufficient reductions in traffic, are likely to have some impacts on the local economy and be unpopular with local residents.
- 5.4 However, the towns collective 'travel market size' (the Hitchin/Letchworth/Baldock mini-conurbation has some 90,000 people, without planned growth) and their closeness to each other (with Letchworth and Baldock being less than 2 miles apart and Hitchin 4 miles from Letchworth), means that they could be treated as one transport 'market'. This could mean that some improvements in bus provision may be possible, and there is real potential for much more walking and cycling. In the longer-term, there is also the potential for future new technologies to reduce cost and enable higher frequency demand responsive public transport.
- 5.5 The towns have a good central 'spine' of connectivity between them, consisting of the railway line and the A505 (and B656 between Baldock and Letchworth) and there are opportunities to improve the function of the corridor and its use for sustainable travel.
- 5.6 Baldock and Royston have bypasses, which remove most of the strategic traffic, and Letchworth is relieved to some extent by the A1(M), but the A505 still runs through part of the town. Hitchin has strategic radial routes to the centre, which results in more congestion. There are junctions in all towns which experience delays. However, much of the 'through' traffic in the area is outside of NHDC control, as growth in travel to/from Central Bedfordshire, Luton, Stevenage and other locations will continue to affect how the NHDC networks operate, particularly through Hitchin. There are also ongoing issues with traffic using inappropriate roads and through villages, bypassing congestion on some strategic links.

- 5.7 Increasing highway capacity is a ‘double-edged sword’; it will reduce congestion at relevant locations, and improve air quality and reduce delays to bus services, but it is also likely to be to the detriment of the local environment, encourage car use, could lead to congestion at other locations and increased volumes on minor roads, and will work against other proposals to encourage sustainable modes. Clearly a balance needs to be struck between these issues, although as noted above, the overall view is that the ‘environmental capacity’ of the towns for much traffic has been reached, and to protect the high quality of life in the towns, any improvements need to be relevant to a wider strategy and appropriate to the extent and scale of the congestion.
- 5.8 The traffic modelling work undertaken for the Local Plan indicated that junction improvements could be implemented that would cater for most of the predicted increase in traffic in the towns. However, this work also showed that some delays would remain, and that capacity increases could have secondary impacts of increasing flows on more minor roads in the towns, leading to the further problems noted above. Significant increases in highway capacity will also be contrary to stated county transport policy, and this is discussed in more detail in Section 6 of this report.
- 5.9 Consequently, in overall terms, the focus should be on increasing the use of sustainable modes. A general increase in highway capacity into and through the towns is not recommended, the exception being where junction improvements can reduce AQMA issues without significantly increasing traffic through the town, or where they would have a more strategic function. The focus should instead be on managing the networks, smoothing flows, reducing speeds in the towns and providing better facilities for walking, cycling and buses.
- 5.10 The strategy is likely to be most effective in reducing shorter more local car trips, and reductions in these will help reduce the overall impact of future growth in travel from development and background traffic. Longer distance trips to adjacent settlements or urban areas are more challenging to move to sustainable modes, but higher use of rail, bus and (to some extent) cycling still offer opportunities to reduce this type of car travel.
- 5.11 The following section sets out the principles of the Strategy. Many of the elements of the HCC Transport Vision fit well with the conclusions drawn above on the NHDC area, and in some respects the NHDC main urban areas can be viewed as a microcosm of this wider strategy. It therefore appears appropriate to base the NHDC strategy around these same principles, adapted for the local circumstances. We have described above the relationship between this Transport Strategy and emerging GTP’s, which will build on the Transport Strategy principles and proposals.

Transport Strategy Aims and Objectives

- 5.12 Following the principles of the HCC Transport Vision document, the main aims of the Transport Strategy are to:
- Enable increased prosperity;
 - Contribute to vibrant, attractive and sustainable places; and
 - Support people to live safe, healthy and fulfilling lives.

Transport Strategy Principles

- 5.13 To achieve these aims, the Transport Strategy principles will be to:
- Improve access opportunities, particularly for the local economy – this could include where relevant better access to employment areas and better accessibility and transport choice for workers;
 - Reduce carbon emissions and the impacts on air quality management areas;
 - Manage the transport network in a manner appropriate to the local conditions – this will include, depending on requirements, the ‘smoothing’ of traffic movements where there are pinch points, reductions in speeds and better travel conditions for sustainable modes, and the provision of appropriate capacity where this will not lead to a severe impact on other policies.
 - Reduce the demand for travel by encouraging sustainable travel (on foot, by bicycle, by public transport, or via shared mobility) as an alternative to the private car; and
 - Ensure all development is supported by the necessary provision of, or improvements to, infrastructure, services, and facilities in an effective and timely manner to make development sustainable and minimise its effect upon existing communities.

Policies

- 5.14 To deliver these principles the key policies proposed are:
9. Ensuring that the **new developments have sustainable transport ‘built-in’**;
 10. Adoption of a **transport user hierarchy**;
 11. Deliver a **step change in cycling and improved walking** within the main urban centres through travel behaviour change and better facilities;
 12. Deliver an **improvement in bus-based public transport** in the main urban centres, including better bus interchange and journey times;
 13. A **‘Sustainable Spine’ corridor along the A505¹⁵** with a focus on enhanced public transport and cycling connectivity between the towns.
 14. A **traffic management plan** for each main urban town, which focuses on managing traffic to improve air quality, reduce congestion and severance issues, rather than increasing traffic volumes through the towns.
 15. **Rural management and improvement measures** aimed at resolving particular traffic issues or taking opportunities to better link villages to each other or the main urban towns, and;
 16. Review, provide for and utilise **technology improvements** through the strategy.
- 5.15 The principal measures are described below, followed by a section showing recommendations of how these can be applied to individual towns.

New developments and sustainable transport

- 5.16 The Local Plan emphasizes that new developments need excellent walk and cycle links

¹⁵ And B656 between Letchworth and Baldock

to adjacent areas and other key destinations, and good public transport connections. These modes should generally take precedence over highway access, and offer easy direct access by sustainable modes to attractions such as schools, railway stations and town centres. The developments should also link with and contribute to other policies, such as the ‘Sustainable Spine’

Transport User Hierarchy

- 5.17 The adoption of a ‘transport user hierarchy’ policy will remove the priority of designing roads and urban areas for vehicle movements, and give priority to other sustainable modes of transport such as walking, cycling and public transport. Car-based commuter needs are given a lower priority in the hierarchy because of the contribution they make to congestion at peak times. This hierarchy should be considered in all the decisions the councils make about transport and development proposals.



Step change in walking and cycling

- 5.18 Travel behaviour change is an important element of this proposal. This requires dedicated travel behaviour change staff based locally, with sufficient resources to develop campaigns and events during the plan lifetime, and who can develop relationships with local stakeholders. This work should build on any existing HCC initiatives, and proposals for new developments, where travel plans will normally be required. The best time to change behaviour is around ‘life milestones’ such as moving to a new house or job, and the travel change behaviour programme can use these opportunities.
- 5.19 Walking is already popular in the key towns, and there is significant potential to increase this, with a focus on the health benefits, and collaborative working with the NHS and other local stakeholders such as schools and colleges. The walking networks are largely already in place, although there is a need for far better crossing facilities to reduce severance caused by major roads and railway lines, and town centre walking environments can also be improved.
- 5.20 Cycling has a much lower ‘base’ mode share, but also offers significant potential for change. An initial objective can be the government target of at least doubling cycling use, achieved through providing a sufficiently attractive environment and influencing of behaviour. There will be greater investment in infrastructure measures to provide better links between key areas, with a focus on crossings of main roads/railway lines and shared/segregated facilities or ‘Quietways’ (signed routes along quieter roads). The measures will therefore include:

- Behaviour change initiatives, particularly health-related, and in conjunction with the local NHS, employers and schools/colleges;

- Walking initiatives, could include National Walking Week, Walk to School Week, the '10,000 steps' initiatives, loaning of 'Fitbit' type devices in conjunction with the NHS, and Living Streets also has various campaigns and tools;
- Working closely with new developments, and ensuring that travel plans for these are implemented and fit with the wider strategy;
- On relevant main routes, more segregation of cycling from faster moving through traffic (some highway capacity is likely to need to be reallocated);
- Quietways on other routes: these are continuous routes following quieter streets, parks and waterways and linking to key destinations. They overcome barriers to cycling by providing improved junctions and an alternative to riding on busy roads.
- Much more cycle parking, particularly in the town centres and at major trip attractors;
- Potential trials of electric bikes or loan bikes to encourage cycling;
- Reducing severance in some areas – for example the Cadwell Lane/Wilbury Way employment area in Hitchin is surrounded by railway lines, with few crossing points for walking/cycling. Consideration could be given (as with a recent scheme in Royston) to create a new cycle/pedestrian link from the west where there is an existing bridge, and to improve the cycle/walking facilities on the Grove Road and Woolgrove Road approaches to the employment area. There are other similar issues in all the towns, where localised links can improve permeability.
- It may be appropriate for the Travel behaviour staff to take 'ownership' of the local walking, cycling and public transport strategies, working closely with HCC and other stakeholders on both 'soft' and 'hard' measures.

Bus-based public transport and interchange in the main urban centres

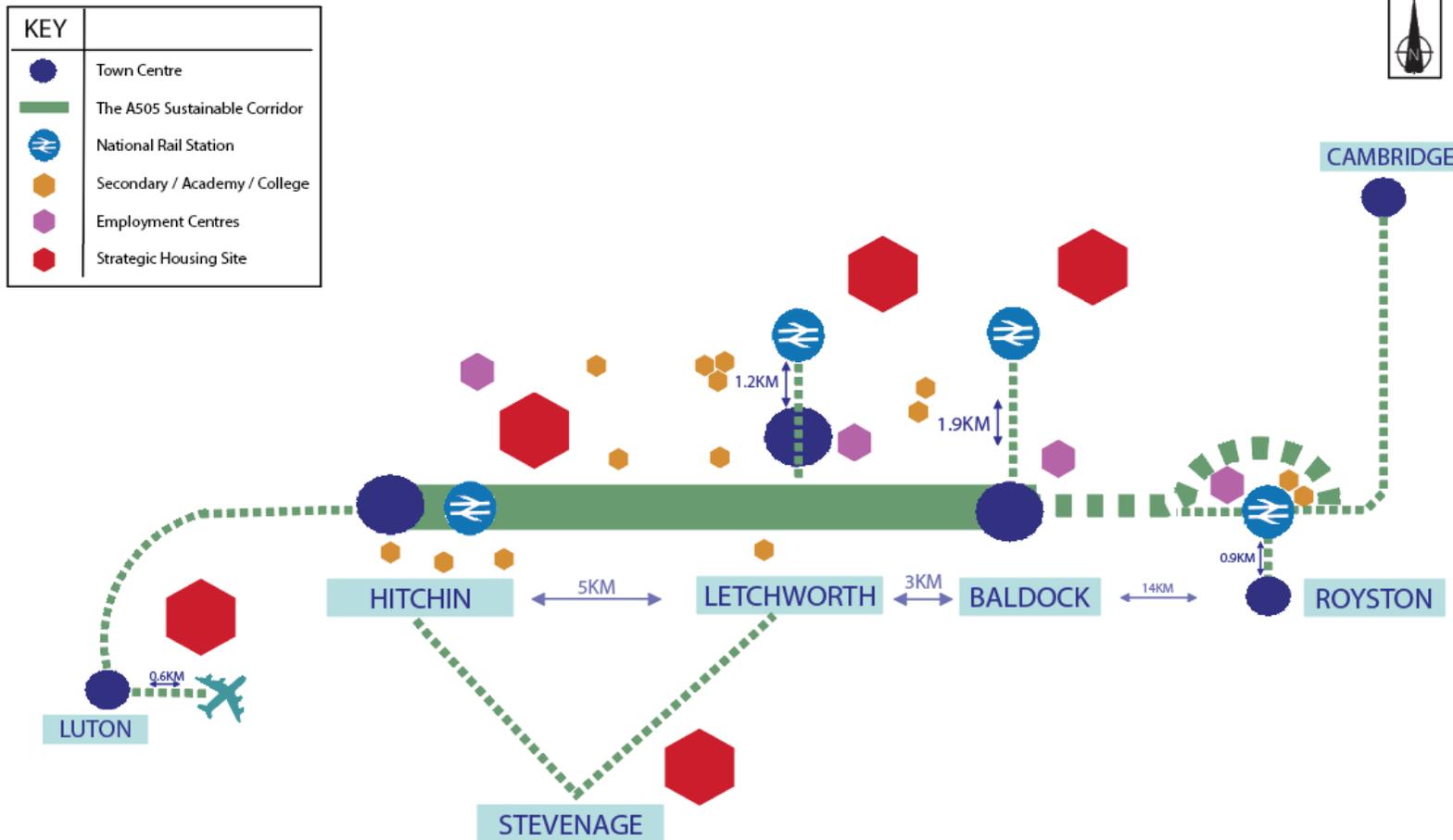
- 5.21 The GTP evidence pack analysis from HCC¹⁶ shows where the towns are covered by higher frequency bus services, and where coverage is sparse, and this should be discussed with the local operators to determine if amendments or enhancements to bus services can be considered. At the same time proposals for potential bus priority can be developed.
- 5.22 Other improvements should include improved information, better passenger facilities as well as marketing. Consideration could be given to amending routes to link the adjacent towns, but to ensure that 'end to end' routes are available to key employment or areas with key facilities. In all towns consideration will be given to how bus interchange can be improved, for example in Hitchin, relocation of some bus stops and better facilities could create a much-improved bus interchange.
- 5.23 Finally, links to Stevenage from Hitchin and Letchworth GC will remain important, and to Luton from Hitchin – longer-term higher bus frequencies (4 bph) and better journey times should be the aim.

¹⁶ Draft, 2017

A 'Sustainable Spine' along the A505 - enhanced people movement between the towns

- 5.24 There are few east-west links in the area, and the A505 is the most important one – together with the railway line it connects all the main urban areas, particularly when the B656 between Baldock and Letchworth is included. The road passes close to all railway stations and/or town centres and most employment areas. Several secondary schools lie close to it, and many of the key development sites are also adjacent. In some cases, the 'corridor' should move away from the A505 (where it is almost entirely traffic-focused) to more relevant other roads linking town centres, such as the B656 linking Letchworth and Baldock, and Baldock Road/Newmarket Road in Royston. In addition, there are important 'off-shoot' corridors to Stevenage from Hitchin (the A602) and Letchworth (the B197) where improved bus services can be considered.
- 5.25 The corridor should be reconsidered in relation to its 'people movement' function, rather than as a highway link only – see Figure 5.1. This will mean considering:
- More and better crossing points for walking/cycling to key destinations;
 - Technology to provide traveller information;
 - Bus passenger infrastructure and bus priority;
 - Enhanced bus services, with a frequency of a minimum of 4 buses per hour during the daytime Weekday and Saturday on the corridor;
 - Consideration of how rail travel between the towns could be improved, perhaps with cheaper/more integrated ticketing;
 - Cycling links on the corridor; and
 - Speed of traffic and road space allocation.
- 5.26 These measures can be tied to development sites and it is suggested that a 'pilot' area be chosen to work up proposals – the link between Letchworth and Baldock may be relevant, as significant new development is planned there, and better cycling facilities may be easier to achieve.

FIGURE 5.1 – A SUSTAINABLE SPINE ALONG THE A505



Traffic management plan for each town

- 5.27 This plan should review existing traffic movements and capacity, air quality issues and links to other measures such as buses, walking and cycling. It should then propose a management framework for future changes. In some cases, this will include reductions in capacity to accommodate cycling and walking, in other cases increases in capacity to reduce issues at hotspots. This is likely to mean some refocus on the identified congestion hotspots and potential mitigation measures already being considered, to ensure that they remain appropriate to the overall strategy.
- 5.28 It is recommended that any capacity increases should be targeted at:
- AQMA areas, provided this improves air quality conditions and does not just generate more traffic;
 - The strategic road network to encourage traffic to use this; and
 - Other severe problems where capacity increases are not likely to encourage additional through traffic or traffic on unsuitable roads.
- 5.29 **Appendix 2** summarises for each town the congestion areas identified in the various traffic modelling analyses, and describes the mitigation modelled. It broadly categorises these schemes as:
1. Likely to be required, typically where they deal with a strategic issue.
 2. Further investigation required in the light of the proposed strategy. In some cases, this may mean a change to the proposed scheme, in others that the schemes may not be taken forward. For example, a mitigation scheme that improves capacity but increases through traffic in an inappropriate location may be dropped or amended to one that improves safety and conditions for pedestrians.
 3. Schemes that are unlikely to be required.
- 5.30 This provides a flexible approach to the future strategy, and also means that funding set aside in the IDP for some of these schemes is likely to be available for other measures of the strategy relating to sustainable transport.

Rural management and improvement measures

- 5.31 These will be site specific measures aimed at resolving traffic issues or taking opportunities to improve the 'place' function of the village or to better link villages to each other or the main urban towns. They can be linked to new development in and around the villages. They will not be aimed at increasing traffic through the towns/villages, but at easing any problems. Not all issues have been identified to date, but some that have become apparent through the strategy formation are:
- Knebworth and Codicote – both locations have development planned, are generally bypassed by the A1(M), and the Smart Motorway plans for this link should provide more relief. However, both towns have localised congestion issues (some caused by parking), which may be able to be resolved to relieve local congestion. Development proposed in these locations should contribute to small-scale improvements to traffic management and the urban streetscape, without encouraging more through traffic. There are opportunities to work with Highways England at these locations.

- Great Wymondley/Graveley are both villages which can be affected by through traffic using more local roads to bypass congestion on e.g. the A1(M). Measures here will need to be appropriate to the ‘environmental capacity’ of the villages, and not increase through traffic.
- There are other rural locations where development can contribute to the strategy, including:
 - Ashwell and Morden – popular rural rail station, potential for increasing sustainable mode share.
 - Barkway/Barley – villages within some 2 miles apart that share some facilities. Consideration could be given to improving walking/cycling bus access between them.

Technology issues

- 5.32 Technological innovation is rapidly changing the transport sector. Many of these are likely to improve highway capacity and/or reduce the cost of highway travel, which may work against measures to encourage more sustainable modes. However other innovations will help to improve safety and air quality, make public transport more seamless and make sustainable travel safer and easier. Figure 5.2 below shows the possible different effects of technology on congestion, while Table 5-1 summarises the likely impacts for NHDC.
- 5.33 There are many different possible outcomes of new technology affecting transport, some of which will act to reduce congestion, while others may increase demand and counterbalance this. However, technology also offers future opportunities to improve air quality and sustainable modes. As the strategy evolves, these emerging technologies should be reviewed and used where relevant.

FIGURE 5.2 – POTENTIAL EFFECTS OF TECHNOLOGY ON ROAD TRAFFIC AND CONGESTION

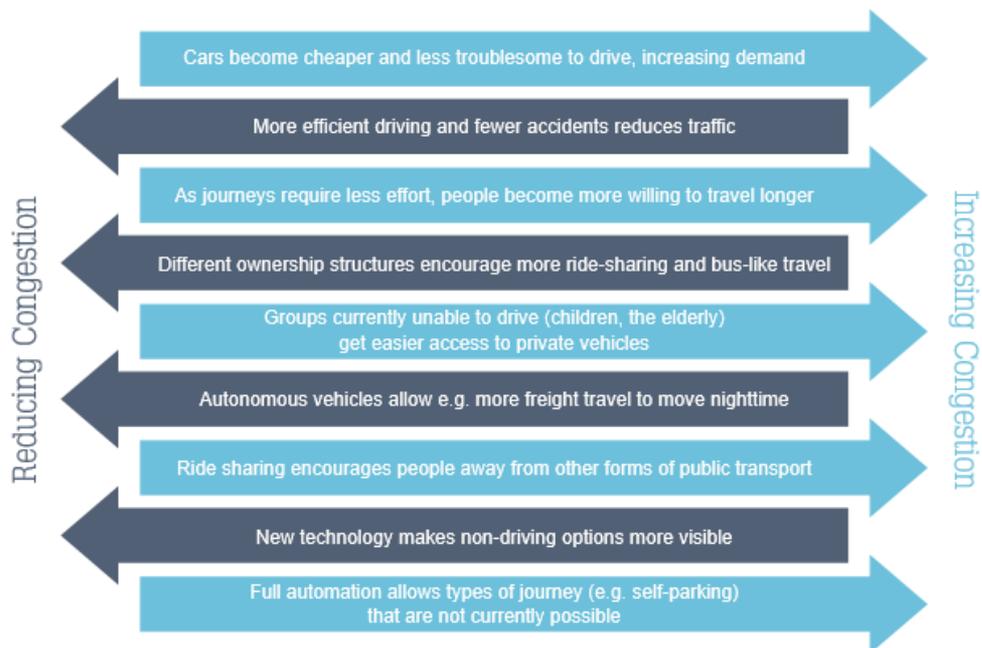


TABLE 5-1: TECHNOLOGY AND TRANSPORT

Technological change	Implications for NHDC
Improved communications and web-based working	The high quality of life in NHDC may attract more businesses using technology, and may reduce the need for peak travel, and require more flexible working facilities/provision.
Information on travel conditions and public transport has rapidly evolved, and much more accurate and real-time information will be available in future, enabling 'seamless' planning of multi-modal journeys, typically to hand-held devices,	Could encourage more public transport/ cycling/ walking travel, but may also encourage car journeys for some trips; satnav will enable drivers to use any route that is available and has lower delays, including minor roads. Will provide much better information of incidents and issues on networks, helping to reduce delays.
Integrated ticketing for sustainable modes	Integrated ticketing between modes e.g. bus/train/cycle hire/taxi, should encourage public transport and sustainable modes uptake.
Electric and hybrid vehicles	Rapidly increased take-up is highly likely, with reductions in local air quality issues and higher demand for electric charging points. Potential links between emissions and future parking charges.
Mobility as a service - using a digital interface to source and manage the provision of a transport related service(s) to meet the mobility requirements of a customer.	Lower car ownership, more provision of travel on demand by service providers; could lead to lower transport costs, lower car ownership, and potentially higher demand. Potentially lower revenues from parking, as people will require less parking by requesting transport on demand.
Automated vehicles	Increased safety, highway capacity, particularly as proportion of vehicle fleet changes. Differential impacts on roads, with more initial focus on motorways/other strategic roads. Lower cost of travel may encourage higher travel demand, but increase in capacity likely to exceed this. Higher mobility for those who do not have access to cars, reduced demand for parking at destinations, increased 'mobility as a service' demand. Likely to offer significant opportunities to reduce public transport costs and improve demand -responsive public transport. Potential to abstract from Public Transport, or AVs to completely replace low-demand bus routes for example. AVs might encourage urban sprawl, unless controlled through planning system or road pricing.
ITS and connected vehicles/connected infrastructure	Safety, environmental and capacity improvements. Cyber security issues.

5.34 The sections that follow describe how the strategy will apply at the town level.

Hitchin Transport Strategy

Key issues

- 5.35 Hitchin is a compact town, has reasonable bus services, a very busy railway station and significant local employment, including the town centre and at the Cadwell Lane/Wilbury Way employment area. The estate has only two access points under the railway lines, both leading to the same congested access junction. There are reasonable bus services within the town and to Stevenage (2 per hour) but these are generally of frequencies less than 4 per hour, and interchange in the town centre could be improved. There are few cycling facilities and few pedestrian crossings, with roads and railway lines creating severance.
- 5.36 The A505 'Sustainable Spine' passes through the town in an east-west direction, skirting the town centre to its west, and passing close to the railway station as it heads towards Letchworth Garden City. It is used by various bus services along its length.
- 5.37 There are several congestion points where radial traffic entering the town exceeds the capacity of the road system. Two of these, the Payne's Park junction of the A505 and the A602 junction with the B656 and Park Street, are designated AQMA's.
- 5.38 The main highway routes from Stevenage and Letchworth Garden City / Royston to Luton converge on the A602 and pass through Hitchin. Therefore, the junction of the A602 and A505 on the eastern side of Hitchin is an important gateway and a pinch point.
- 5.39 Other important highway gateways are the A602 connecting to Stevenage and the A1(M), and the A505 connecting to Letchworth Garden City. The Bedford Road (A600) provides access to Shefford and adjacent towns in Central Bedfordshire.
- 5.40 The roads within Hitchin are generally within capacity, probably partly due to the 'gating' of traffic on the radial approach roads, and the 'environmental capacity' of the town means that traffic will require careful management. Significant increases in traffic volumes will lead to increased congestion within the town, more air quality problems and greater severance.
- 5.41 About a quarter of commuting trips originating in Hitchin are to destinations within the town, with the town attracting trips from Luton, Letchworth GC and Central Bedfordshire. Letchworth GC and Stevenage are the two largest destinations for commuting trips from Hitchin excluding central London.
- 5.42 The total traffic entering and exiting Hitchin in the Do Minimum (DM) option without Local Plan development and the Do Something (DS) option with the Local Plan (described in more detail in Section 6) was estimated from COMET model results for 2031. This showed that the traffic flows entering Hitchin are very similar for these scenarios except for the Upper Tilehouse/Old Park Road/Payne's Park Roundabout, where the DS scenario has flows of some 500 vehicles less than in the DM scenario. Further analysis shows that despite assumed DS highway improvements, these vehicles seek to use alternative minor roads such as Willow Lane on the south-west of the town. There is evidence that other minor roads in the town centre are also used.
- 5.43 The COMET model was also used to determine the through traffic in the town, and this showed clearly that the key through movements follow the A602 to A505/Pirton Road

axis through the south-western part of the town i.e. between Stevenage and Luton, and through the two AQMA's noted above. The model also shows the use of Willow Lane to accommodate this movement. While there are some other through movements, these are much smaller (less than 250 vehicles) than the estimated 1,600 vehicles making this broad south east/south west movement during the morning peak hour.

- 5.44 The modelling for the Local Plan tested the impact of various junction improvements, which in general kept delays to the same level as the DM scenario. However, there were also indications as noted above that vehicles were using minor roads in the centre and to/from the town, such as through Great Wymondley.
- 5.45 Consequently, and in line with the overall strategy, an increase in highway capacity into and through the town is not recommended, the exceptions being where junction improvements can reduce AQMA issues without significantly increasing traffic through the town.

Strategy elements

- 5.46 In line with the broader strategy, the key elements proposed are set out in Table 5-2 and in Figure 5.4.

FIGURE 5.3 – MAIN THROUGH TRAFFIC MOVEMENT IN HITCHIN

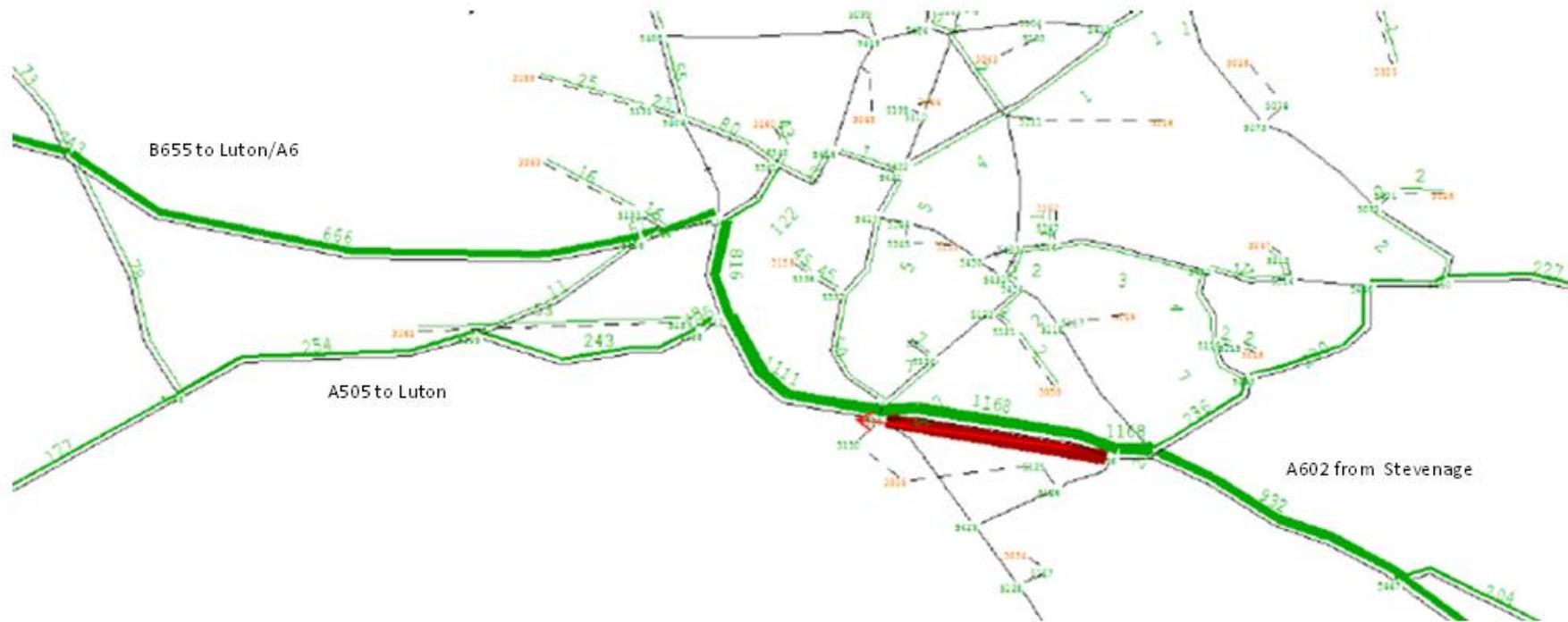


FIGURE 5.4 – HITCHIN TRANSPORT STRATEGY KEY ELEMENTS

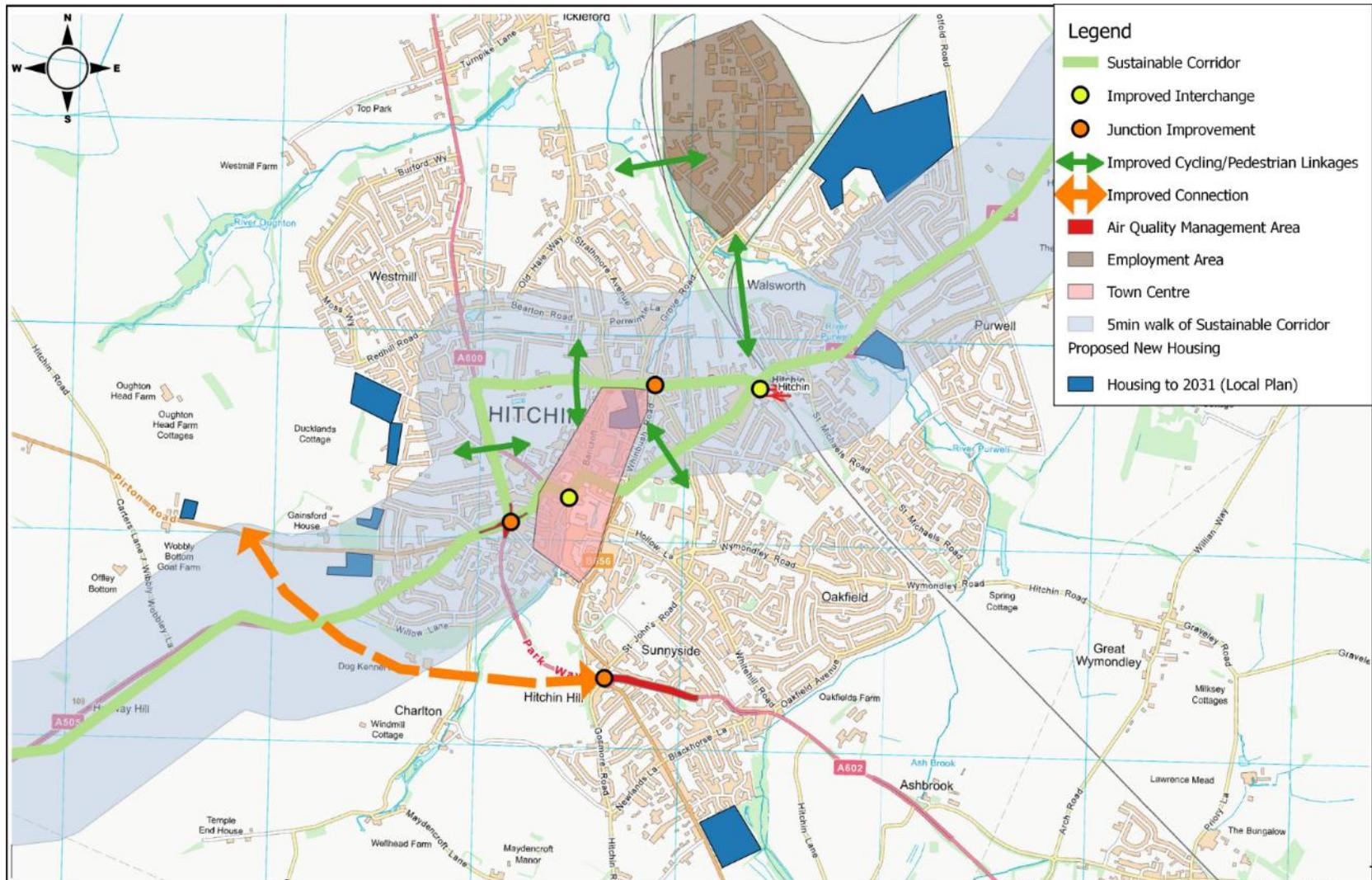


TABLE 5-2: HITCHIN TOWN STRATEGY ELEMENTS

Strategy element	Measures	Comments
Behaviour change	Appointment of Sustainable Travel Planner with budget for behaviour change measures, working closely with District Council, County Council, NHS, and schools/colleges and rail operator.	Focus on health, local employment, information on walking, cycling, buses, co-ordination with other stakeholders. Ensuring large new developments have active travel planning from the outset.
Key development sites	Ensure site H1 is linked to rest of town by bus, cycle and walk routes as 'preferential' mode – links to Cadwell Lane/Wilbury Way employment area as well. Associated off-site traffic improvements with all sites.	A site masterplan should be prepared setting out such measures as required in Policy SP17 of the emerging Local Plan. A transport assessment and travel plan will also be required.
Improving Walking and Cycling	More and better crossings of main roads, particularly the A505, A600 and the B656, and the railway line severance in Purwell area. Strategic signed cycle network, some Quietway's. Focus on town centre, station and Cadwell Lane/Wilbury Way employment area Longer-term increased pedestrianisation of town centre.	The 2006 study of cycling routes in the town is a good starting point, but should be combined with a walking review Significant improvement to and within Cadwell Lane/Wilbury Way employment area, investigate new north-western link for cycling into Cadwell Lane.
Bus-based improvements	Longer-term aspiration for 4 bph to Letchworth/Baldock, and 4 bph Luton/Stevenage. Improve bus interchange in town centre Better coverage of town services. Bus priority measures at pinch points.	Working with HCC and bus operators and in conjunction with travel behaviour change programme.
Sustainable Spine	Longer-term aspiration 4 bph Luton/Hitchin/Stevenage/Letchworth. Better walking/cycling crossings and bus priority as above. Cycling facilities as appropriate along or adjacent to the route.	Initial work could focus on walking/cycling crossings as described above, and any bus delay pinch points, as well as better bus passenger facilities.
Traffic Management	Retain 'gating' function of radial junctions. Consider appropriate improvements at Payne's Park and A602/B656 junctions in AQMA. Investigate potential for longer-term relief links on south-west of town - B655 to A505 to A602. 20 mph as general assumption in town apart from some strategic routes.	Aim to reduce through traffic through Payne's Park and A602/B656 junctions. Options difficult, but possible potential in considering using Carters Lane, Willow Lane or other links, with some options also significantly reducing flows on Pirton Road, diverting these to the A505.

- 5.47 The potential for longer-term relief links on the south-west of the town noted above could serve several purposes:
- Remove long-distance traffic from the core urban area;
 - By freeing capacity on existing streets, space could be reassigned for use by other modes (walking, cycling, public transport) or for improved public realm; and
 - Air quality and congestion delays would be reduced, particularly in the AQMA's.
- 5.48 Of course, additional road capacity could also have detrimental impacts as noted above, and any options will require capital investment, which in the current economic climate is most likely to be part-funded by new development, leading to more traffic.
- 5.49 There are likely to be three broad options:
- The existing schemes for traffic capacity improvements at the key junctions here;
 - Local 'mini-relief roads' which either use existing upgraded highways or new smaller links to take through traffic away from particular areas or junctions; and
 - A 'traditional' 'bypass' or set of bypasses on the town periphery, which will remove through traffic from one or all directions.
- 5.50 More analysis will be required of these options through further Transport Strategy studies and/or the GTP process, to evaluate the way each of these can help achieve the strategy objectives, the overall environmental impacts and the cost implications. The existing schemes for junction improvements have been included in the IDP pending this further analysis.

Letchworth/Baldock Transport Strategy

Key issues

- 5.51 Letchworth, as a Garden City, provides a balance of residential accommodation, services and employment. The original concept behind the Garden City was that residents would enjoy a full range of social, educational and leisure facilities as well as jobs, decent homes and an environment which would promote health and wellbeing. There would be integrated and accessible transport systems, with walking, cycling and public transport designed to be the most attractive forms of local transport. To some extent this aim has been achieved, with a relatively high internalisation of commuting trips within Letchworth. Baldock is immediately adjacent to Letchworth, and is considered together with Letchworth for this analysis.
- 5.52 The A505 'Sustainable Spine' passes through the towns in an east-west direction, skirting Letchworth GC town centre to its north, and then uses the B656 to Baldock town centre, passing the key Letchworth employment area along the way. The A505 and the railway line create severance along an east-west axis, and the A1(M) separates Baldock from Letchworth.
- 5.53 There are several existing congestion points in and around Letchworth, including Junction 8 of the A1(M), the junction of the A505 and Letchworth Gate which leads to the A1(M) (and may be affected by blocking back from the motorway), and the A505/Norton Way (leading to the town centre). In Baldock the key congestion locations are in the town centre, where the B656 meets the A507 at the junction of Station

Road/Whitehorse Street. While the latter junction experiences regular delays, overall the traffic conditions in the towns are not highly congested, and there are no existing AQMA's.

- 5.54 The roads within Letchworth and Baldock are generally broadly within capacity, probably mainly due to the effective bypass of the A505 at Baldock; however, as noted above, the central junction in Baldock does experience peak delays. Again, increases in volumes could lead to increased congestion within the towns, more air quality problems and greater severance.
- 5.55 The modelling for the Local Plan tested the impact of various junction improvements. The A505 Norton Road improvement included signal optimisation and delays were generally low; the Station Road/Whitehorse lane junction tested signal optimisation and a reduction of signal stages. We note that that this junction is also an important one for cyclists and pedestrians, and that any junction improvements will need to cater for these road users as well.
- 5.56 The proposed new link road between Norton Road and Royston Road in conjunction with the strategic site BA1 has also been tested, which in general kept delays to the same level as the DM scenario. The traffic modelling undertaken to support the Local Plan evidence base is described in more detail in Section 6.
- 5.57 In line with the overall strategy, an increase in highway capacity into and through the town is not recommended, the exceptions being where junction improvements can improve strategic road use without significantly increasing traffic through the town.

Strategy elements

- 5.58 In line with the broader strategy, the key elements proposed are set out below and in Figure 5.5 and Table 5-3.

FIGURE 5.5 – LETCHWORTH/BALDOCK TRANSPORT STRATEGY KEY ELEMENTS

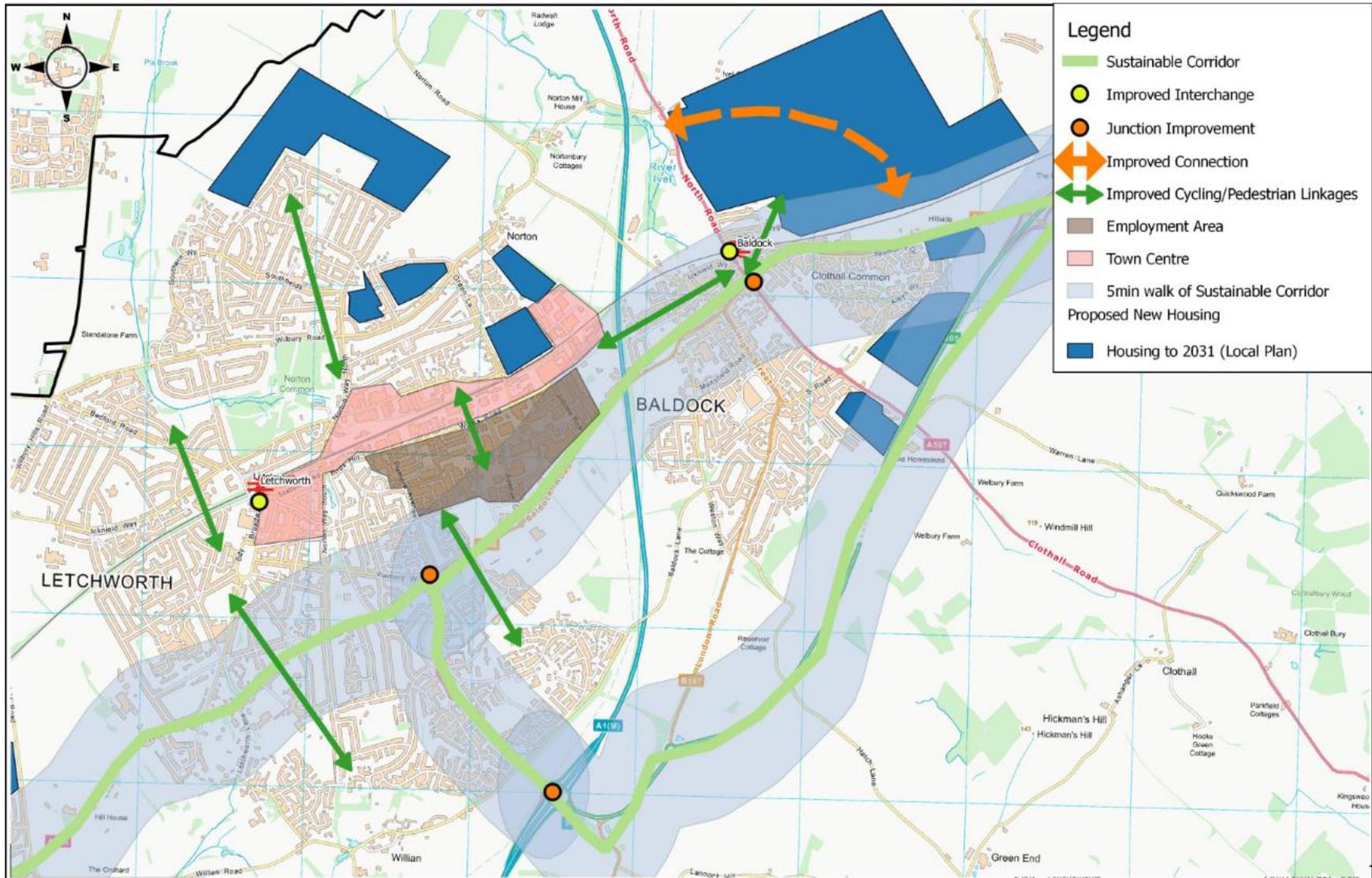


TABLE 5-3: LETCHWORTH/BALDOCK STRATEGY ELEMENTS

Strategy element	Measures	Comments
Behaviour change	Appointment of Sustainable Travel Planner with budget for behaviour change measures, working closely with District Council, County Council, NHS, schools/colleges and rail operator	Focus on health, local employment, information on walking, cycling, buses, co-ordination with other stakeholders. Ensuring large new developments have active travel planning from the outset.
Key development sites	Design focus on walking and cycling through all development, to local facilities and to adjacent areas. Ensure site BA1 is linked to Baldock station and town centre by bus, cycle and walk routes as 'preferential' modes. Introduce link road between the A507 London Road and A505 Baldock Bypass over the railway, but design to discourage through traffic from using this new link. For site LG1 in Letchworth, link new internal network of pedestrian and cycle routes to existing routes through the Grange Estate and The Garden City Greenway, including National Cycle Route 12 and a new cycle route from Norton Common eastwards to the main employment area. Bus services to be extended and improved. Associated off-site traffic improvements with all sites.	A site masterplan should be being prepared setting out such measures as required in Policy SP14 (Site BA1) and SP15 (Site LG1) of the emerging Local Plan. A transport assessment and travel plan will also be required for both sites.
Improving Walking and Cycling	More and better crossings of main roads, particularly the A505, A507, B197 and the B656, and the railway line severance. Strategic signed cycle network, some Quietway's. Focus on town centre, station and Works Road, Icknield Way and Blackhorse Road employment areas.	The 2006 study of cycling routes in the town is a good starting point, but should be combined with a walking review.
Bus-based improvements	Longer-term aspiration for 4 bph to Hitchin and 4 bph Stevenage. Improve bus interchange in town centre Better coverage of town services. Bus priority measures at pinch points.	Working with HCC and bus operators and in conjunction with travel behaviour change programme.
Sustainable Spine	Longer-term aspiration 4 bph Luton/Hitchin/Stevenage/Letchworth. Better crossings and bus priority as above. Cycling facilities as appropriate.	Initial work could focus on walking/cycling crossings as described above, and any bus delay pinch points, as well as better bus passenger facilities.
Traffic Management	Retain 'gating' function of radial junctions to manage through traffic. Potential improvement at A505 North Way and Letchworth Gate if through traffic to rest of centre will not be increased.	Further work needed in conjunction with HCC, potentially through GTP process. Improvement at Junction 8 of A1(M) should also improve conditions on Letchworth Gate and may reduce flows seeking to use central Baldock to avoid

Strategy element	Measures	Comments
	Review of Station Road/Whitehorse Street junction in Baldock, but retention of good walking/cycling facilities here. Support junction 8 A1(M) improvement 20 mph as general assumption in town apart from some strategic routes	congestion here. Further consideration needed of A505/Letchworth Gate junction in relation to rest of this section of the A505, and the effect of additional capacity here on increasing through traffic. Potential walking/cycling pilot project on B656 and alternative routes to improve the access between the two towns.

Royston Transport Strategy

Key issues

- 5.59 Royston is a very compact town, and a high level of local jobs are taken up by local residents; it does, however, have a high influx of commuter demand from surrounding villages as well. The town is bisected by the railway line and major roads, causing severance.
- 5.60 More than half of the commuting trips originating in Royston are to destinations in Cambridge or other places outside of the plan area. Almost a third of trips originating within Royston are to destinations within the town. This reflects Royston’s position on the edge of the plan area, with Cambridge accessible by rail within 25 minutes. Royston also has a weaker relationship with Letchworth and Stevenage.
- 5.61 Key gateways to Royston are the junctions on the A505 Royston bypass connecting with radial routes into the town, as well as the A10, which provides access to Buntingford and other towns in East Hertfordshire. Royston rail station is located 10 minutes’ walk to the north of the town centre.
- 5.62 The roads within Royston are generally broadly within capacity, probably partly due to the ‘gating’ of traffic on the radial approach roads. There are existing congestion issues on the Great North road (southbound) approach to the A505, and northbound congestion on Great North Road towards the A505 junction within the town, and some delays within the town in the evening peak hour. There are poor pedestrian crossing facilities but some cycling improvements in the last few years, in particular a new crossing under the railway line.
- 5.63 Increases in through traffic is likely to lead to a deterioration in the environmental conditions in the town. Consequently, and in line with the overall strategy, an increase in highway capacity into and through the town is not recommended, although some junction improvements may reduce congestion without significantly increasing through traffic.

Strategy elements

- 5.64 In line with the broader strategy, the key elements proposed are set out below and in Figure 5.6 and Table 5-4. .

FIGURE 5.6 – ROYSTON TRANSPORT STRATEGY KEY ELEMENTS

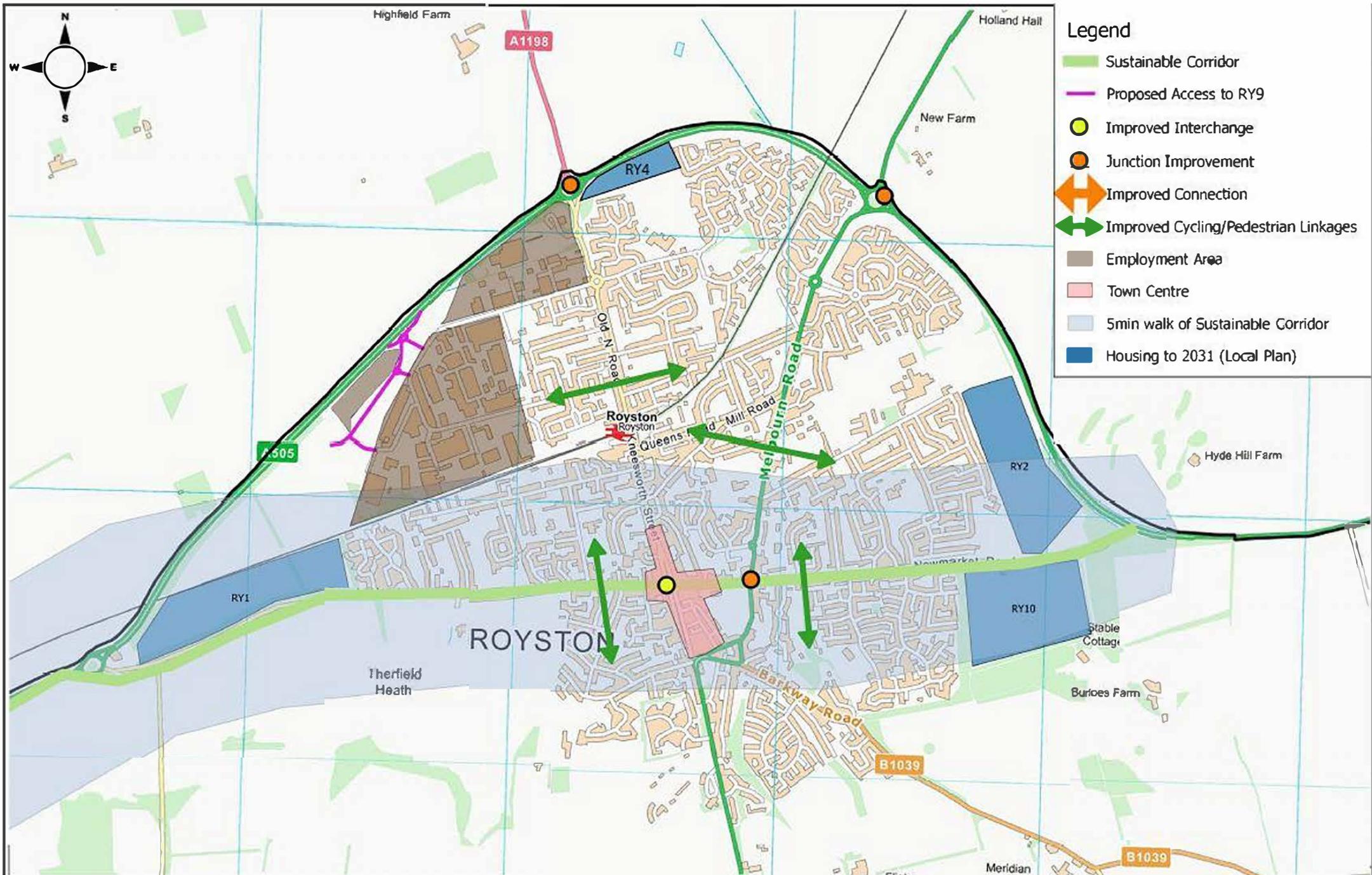


TABLE 5-4: ROYSTON STRATEGY ELEMENTS

Strategy element	Measures	Comments
Behaviour change	Appointment of Sustainable Travel Planner with budget for behaviour change measures, working closely with District Council, County Council, NHS, and schools/colleges and rail operator.	Focus on health, local employment, information on walking, cycling, buses, co-ordination with other stakeholders. Ensuring large new developments have active travel planning from the outset.
Key development sites	Various sites to be developed. Improved walking, cycling and public transport facilities with all sites. Appropriate off-site traffic improvements with all sites.	LEP-funded new access to York Way employment area, new access proposed off A505 to site RY2, and junction modifications proposed at A505/ A10 Roundabout; A505/ A1198 Roundabout; and A10/ Newmarket Road/ Melbourn Street Roundabout
Improving Walking and Cycling	More and better crossings of main roads, particularly the Great North Road, A10 and Baldock/Melbourn Road. Strategic signed cycle network, some Quietways. Focus on town centre, and station Longer-term links to adjacent villages, Melbourn may be good 'trial' location Increased pedestrian amenity in town centre.	The Sustrans study of potential improvements is a good starting point, but should be combined with a walking review. The 2006 cycling study is also available and was referenced in the Sustrans study.
Bus-based improvements	Improve bus interchange in town centre Better coverage of town services Bus priority measures at pinch points.	Better passenger facilities, work with HCC and operators to identify if town services and links to nearby villages can be improved. Links to travel behaviour change.
Sustainable Spine	The Baldock Road/Newmarket Road within Royston should form the continuation of the Sustainable Spine.	Measures here likely to include walking/cycling crossings, appropriate speed reductions and bus passenger improvements.
Traffic Management	Retain 'gating' function of radial junctions apart from some capacity improvements where this will not increase through traffic 20 mph as general assumption in town apart from some strategic routes.	Further work needed in conjunction with HCC, potentially through GTP process. Some junction modifications proposed in early TA's for sites may be appropriate, but walking/cycling provision at these should be reviewed.

Implementation of the strategy

- 5.65 The effective delivery of the Strategy will require the authority to work closely with several partners and stakeholders, for these partners to secure appropriate consents and funding, and to manage and minimise risks.

Roles and Responsibilities

- 5.66 North Hertfordshire District Council will work in conjunction with the partners and stakeholders listed below to secure the successful delivery of the Transport Strategy and Local Plan. The Strategy has been developed in close co-operation with Hertfordshire County Council and will be shared with Highways England and neighbouring authorities.
- 5.67 Obtaining the support of stakeholders and the public in terms of the strategy and individual schemes will be important and will help minimise delays, abortive costs and risks.

TABLE 5-5: STAKEHOLDERS, ROLES AND RESPONSIBILITIES

Authority	Role and responsibility
North Hertfordshire District Council	As the local planning authority, the District Council has the responsibility to deliver growth earmarked within the Local Plan and provide a framework for investment in the public realm to create more sustainable and attractive communities as well as seeking to deliver the aims of this Strategy through partnership working with Hertfordshire County Council and neighbouring authorities.
Hertfordshire County Council	Hertfordshire County Council is the local highway authority with responsibility for managing, maintaining and improving the safe and efficient operation of the highway network, and facilitating sustainable travel through improved travel choice. They are responsible for preparing the LTP which sets the overall vision for the County.
Other local authorities	Neighbouring local planning and highway authorities have a duty to co-operate in seeking to address and resolve cross border issues associated with trip generation.
Highways England	Responsible for the management and maintenance of the Strategic Road Network (SRN) which includes the A1 (M) in this area.
Network Rail	Network Rail is responsible for the management, operation and maintenance of the rail network.
Train operators	Great Northern is responsible for the management of the stations in the study area and for rail services
Bus Operators	Service providers in the area include Arriva, Stagecoach, Centrebus, Uno Bus, Wanderbus and others.
Schools/colleges	Key generators of travel, links to travel planning, walking, cycling and bus use to encourage sustainable modes
Developers	Will deliver the housing and employment land and will be responsible for delivering the requirements of the planning consent, including any off-site mitigation measures/schemes.
LEP	Advocate of business and local economy. Ability to obtain and leverage funding for infrastructure
Businesses	Users of infrastructure, key travel generators of traffic. Can contribute to changing travel behaviour of staff, and help implement some measures.
Sustrans	Charitable body with responsibility for managing, maintaining and promoting use of the National Cycle Network, Route 15 runs through the area. Sustrans also help design and deliver cycling infrastructure, most recently in Royston.

Implementation

- 5.68 Implementation will require co-ordination between the stakeholders listed above. An overall programme will need to be developed with interdependencies and responsibilities, and monitored over time to ensure successful outcomes.

Risk Management

5.69 Risk management will be essential in the programme process. Risk can be managed through:

- Good partnership working;
- Effective consultation;
- Feasibility work investigating time-critical issues such as utility diversions and consent timescales to ensure the programme is realistic;
- Flexible funding sources and the ability to shift programme schemes in time to some degree; and
- Having a 'sustainable transport champion' in place to promote/facilitate behavioural change and ensure linkages between strategy elements.

Funding

5.70 The IDP sets out the broad funding requirements for the Local Plan and the likely funding sources. For transport these sources are likely to be:

- Off-site works or junctions associated directly with the development;
- Section 106 contributions;
- CIL if implemented;
- County and central government grants or funding streams; and
- Potentially borrowing if this method is used.

5.71 The current assumption is that all the transport measures in the Strategy (which will also be in the IDP) will be funded by development-related sources, likely to be either S106 or CIL (when implemented by NHDC) or site-associated works.

5.72 The IDP currently identifies broad funding requirements for transport of some £23.3m over the plan period, derived from recent HCC modelling and traffic assessment work and proposals in the UTP's. The latter include some other highways schemes and sustainable transport measures. Given the focus of the strategy, this funding has been retained but reallocated to:

- Identified highway schemes;
- A general allowance for other highway, traffic management and safety schemes arising from strategy studies;
- Behaviour change programme funding; and
- Funding for public transport and parking measures.

5.73 There will need to be some flexibility over the remaining 15-year plan period on how this funding is spent between these categories, as the behaviour change programme progresses.

5.74 The sums allocated are shown below. The overall funding in the IDP has been retained, but some low value for money or duplicated schemes have been reallocated to other works-streams in line with the strategy.

TABLE 5-6: SUMMARY OF SCHEMES AND MEASURES

Category of scheme		Letchworth/ Baldock	Hitchin	Royston	Rural/ villages	Total
Highways (schemes identified)		£1,961	£3,890	£100		£5,951
Traffic management/safety/ measures identified through strategy studies	Mixture of schemes likely, some highways/safety/management and 'hard' measures for travel behaviour change.	£1,750	£1,330	£1,250	£1,350	£5,680
Travel Behaviour change	Employment of champion (£60k per year, 2 shared between 3 towns and rural areas), measures £75k per year per town + rural areas, Includes 'soft' campaigns and minor hard measures.	£810	£810	£750	Covered in town resources	£2,370
Walking measures	UDP/previous studies. TBC in strategy study	£500	£1,707	£100	Inc. in traffic mngt/safety	£2,307
Cycling measures	UDP/previous studies. TBC in strategy study	£1,770	£680	£500	£750	£3,700
Public transport	£50k pa, 15 years - schemes, subsidy or promotion	£750	£750	£750	£750	£3000
Parking	Measures arising from parking strategy	£100	£100	£100		£300
TOTALS		£7,641	£9,267	£3,550	£2,850	£23,308

Action plan

- 5.75 The Strategy has set out the principles of future policies and measures for the A505 corridor and each town, and this will form the basis of the Local Plan transport delivery. In future, further consideration will be required of measures to develop a detailed programme of works that will be revised / reviewed / kept up-to-date over the plan period in concert with the highway authority and GTP.
- 5.76 For example, the modelling work led by HCC for the Local Plan tested a junction improvement in the centre of Baldock; this strategy shows that a highway capacity improvement here may work against other objectives to encourage walking/cycling and improve the town centre environment; and the final scheme here may focus less on highway capacity and more on cycling and walking facilities. However, in co-ordination with a scheme to improve highway capacity at the A1(M) Junction 9, there could still

be a reduction in through traffic through Baldock; however, more detailed work is needed on these schemes to confirm this.

- 5.77 In addition, while some potential schemes have been developed to address issues in rural areas and villages, more work is needed to determine the best future scheme, bearing in mind the strategy objective to reduce traffic on inappropriate roads and move them to the more strategic routes, such as the A602.
- 5.78 Hertfordshire County Council is the highway authority, with the lead on all highway matters, and nearly all walking, cycling, public transport and highways measures are on the public highway, and it would seem appropriate that they take the lead on the final identification of measures. However, NHDC have a crucial role to play as planning authority in ensuring that development contributes to the Strategy, and that the behavioural change elements are also delivered in conjunction with local stakeholders and the community.
- 5.79 HCC are preparing a Growth and Transport Plan (GTP) for the area, which includes NHDC and Stevenage. The GTP will be consulted on in mid-2018, and will expand upon and/or add to the principles and proposals of this Transport Strategy, with the participation of NHDC and Stevenage.
- 5.80 As part of ongoing work on the Transport Strategy, it is recommended that more detailed work be done to:
- Clarify the timescale for the GTP and the relationship with the other workstreams;
 - Confirm the measures for the corridor and towns – this will mean reviewing current mitigation proposals and confirming their inclusion and detail;
 - Confirm which of these will be delivered in conjunction with different development sites;
 - Set up a behaviour change programme to deliver the walking/cycling/public transport proposals, focusing on schools, major workplaces and health. The behaviour change ‘champion; could take ownership of the walking, cycling and local public transport strategies, and liaise closely with HCC and other stakeholders. It will be important to ensure that all new development have effective and implemented travel plans from the outset, assisted by the ‘champion’.
- 5.81 The table below sets out a recommended action plan and timescales and approximate costs for different broad timescales:
- Short-term (0-2 years)
 - Medium-term (2 – 4 years) and
 - Longer term (4+ years)

TABLE 5-7: STRATEGY ACTION PLAN

	Action	Comment	Responsibility	Timescale and approximate cost/budget over LP period
1	Growth and Transport Plan	The Growth and Transport Plan is being prepared by HCC. There are likely to be some overlaps with measures noted below, and the GTP should relate to the Transport Strategy.	HCC with NHDC and Stevenage input	Ongoing.
2	Progress NHDC parking strategy	Develop programme of implementing measures in parking strategy.	NHDC with HCC input	Short-term, some measures medium-term – Allowance of approx. £300k in estimates.
3	Travel behaviour change programme, including schools and major workplaces, health - focused.	Consider employing staff member(s) to develop and implement programme of behaviour change; ownership of walking/cycling strategy and links to highways/traffic management for each town. Focus on sustainable travel to schools and workplaces.	NHDC, with HCC input	Short Term Approx. £60 pa staff costs, £50-£75k pa per town supporting funding.
4	Walking/cycling Update cycling strategy and include a walking strategy as well – identify key corridors, crossings, improvements needed	Existing cycling strategy requires updating, various studies have already been undertaken in the towns, these need prioritisation. Should be combined with walking strategy particularly crossing points, Cycle parking in town centres also needs updating.	NHDC, with HCC input	Short-term. £30-£50k study cost, budget approximately £6m across all towns for plan period.
5	Traffic Management Study of Hitchin	Co-ordinate with cycling/walking measures, clarify which junction improvements are appropriate, investigate options in SW of town, identify measures relating to development sites.	NHDC in partnership with HCC	Short/Medium Term - £20-£40k approx. study cost; budget all towns over plan period approx. £6m highway measures and £5.7m other highway/traffic management/safety measures.

	Action	Comment	Responsibility	Timescale and approximate cost/budget over LP period
6	Traffic Management Study of Letchworth/Baldock	Co-ordinate with cycling/walking measures, clarify which junction improvements are appropriate, identify measures relating to development sites.	NHDC in partnership with HCC	Short/Medium Term £20-£40k study cost – see item 5 for funding
7	Traffic Management Study of Royston	Co-ordinate with cycling/walking measures, clarify which junction improvements are appropriate, identify measures relating to development sites.	NHDC in partnership with HCC	Short/Medium-term - £20-£40k study cost – see item 5 for funding
8	Rural and village measures	Confirm traffic management strategy and any proposals for traffic management in Knebworth, Codicote, Great Wymondley and Gravely that encourage traffic onto more strategic routes such as the A602.	NHDC in partnership HCC	Short/Medium-term – £20k study cost; budget approx. £1.35m.
9	Study of A505 corridor – identify overall strategy	Identify inter-town cycling and bus potential, measures to improve rail access between towns. Include links to Luton and Stevenage	HCC with input from NHDC. Liaison with bus and rail operators, adjacent authorities – Luton/Stevenage	Medium-longer-term; approx. £20-£40k study cost, measures included in overall budget under all items.

6. IMPACT ASSESSMENT

- 6.0 The assessment of the highway implications of the Local Plan growth has been led by HCC as the highway authority. This work has been undertaken for three broad areas due to the availability of modelling tools:
- East of Luton key sites;
 - Stevenage key sites; and
 - Rest of NHDC – with a slightly different modelling approach used for Hitchin and Letchworth/Baldock (WHaSH) to Royston (COMET).
- 6.1 The WHaSH¹⁷ model is a highways-only model focused on the A1 corridor and adjacent towns. The COMET model is a countywide model consisting of a suite of models including a Variable Demand Model, Highways Model and Public Transport Model and has been used to test the cumulative impacts of Local Plan growth across the county. There is some overlap between the models, and a comparison was undertaken of any differences. Several modelling reports have been developed to estimate the Local Plan impact, and these are listed below:
- Preferred Local Plan Model Testing – Problem Locations, Aecom, September 2016; and
 - Interpretation of COMET results, HCC, April 2017.
- 6.2 The broad principles of the modelling were the same, with the development and validation of a base model; the extrapolation of this to a future forecast year of 2031 using TEMPRO and other growth factors and committed network changes to develop a Do-Minimum scenario. Finally, a Do-Something scenario was created with planned growth and mitigation.
- 6.3 It should be noted however that the work to date has concentrated on highway mitigation measures and therefore the COMET and WHaSH modelling work does not include any modal shift which could be achieved through the implementation of sustainable transport measures. Whilst the interventions do offer some localised capacity improvements, the consequence is that they potentially induce more traffic and continue to facilitate travel by car. It is therefore important that they form part of a balanced transport strategy which includes improvements to sustainable transport.
- 6.4 The general outputs from the WHaSH and COMET models are presented in the technical notes referred to above. A summary is as follows:
- The WHaSH work identified thirteen network pinch points in total across the area of interest in the do-minimum scenario;
 - A further 7 network pinch points were identified in the do-something scenarios. These are listed in the table in Appendix 2 and shown in the figure below;
 - These pinch-points ranged in severity, with the majority being relatively low impact (maximum delay at any one turn of between 1 and 8 minutes) and a few, mainly on

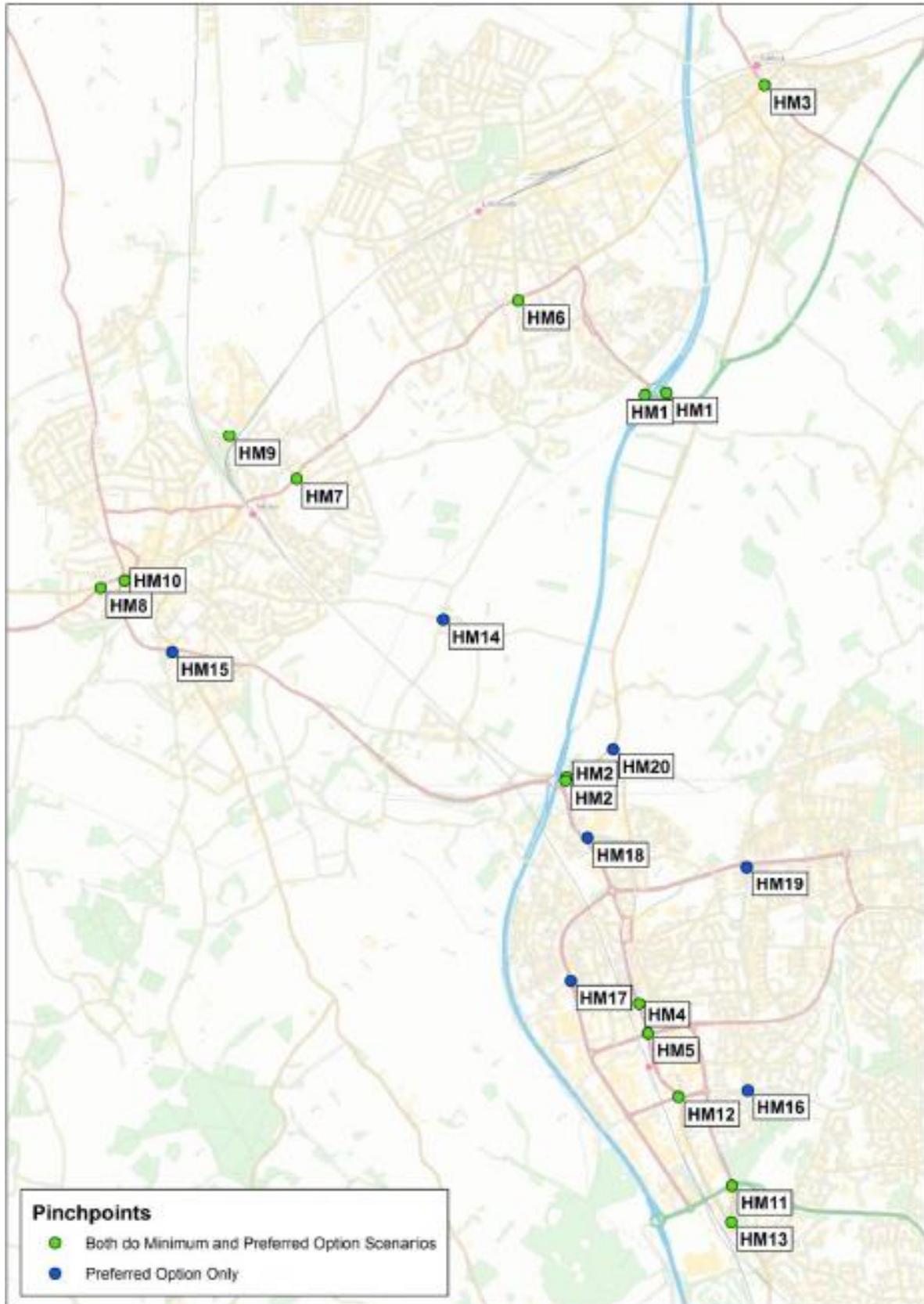
¹⁷ Welwyn/Hatfield and Stevenage/Hitchin model

the strategic network and within Stevenage, being more severe. There were also two locations in Hitchin with more severe delays;

- The COMET model identified broadly the same locations as pinch points, and indicated some others which also required investigation including 3 in Royston, which was not covered by the WHaSH model;
- Various highway mitigation schemes were tested, which reduced the impact at the majority of these pinch-points. At some locations, the mitigation was not tested in the model, but subsequent transport assessment work has indicated that suitable mitigation is possible;
- Some locations require assessment or additional investigation, although the more severe delay locations have all been assessed; and
- The different highway schemes are listed in the table in Appendix 2, with comments regarding the mitigation.

6.5 More detail is given below on each of the main urban areas.

FIGURE 6.1 – MAP OF DO-MINIMUM AND DO-SOMETHING PROBLEM LOCATIONS (WITHOUT MITIGATION)



Hitchin/Letchworth/Baldock

- 6.6 The results of the COMET model runs have been compared with the results of the more localised WHaSH model runs to identify if there are other locations which come under pressure when the cumulative impact of growth is considered.
- 6.7 The locations of stress generally align between the two models on the key A roads although there are some differences on local routes. The WHaSH modelling work was used to identify potential mitigation measures which have then been run through the COMET Do Something scenario (in addition to schemes identified by other districts).
- 6.8 A comparison of results of the COMET Do something (with schemes) and Do Minimum runs indicates that the measures proposed in Hitchin result in improvements to the operation of the A602 route and around the Payne's Park area but do cause some traffic re-routeing. Benefits from optimisation of existing signals on the A505 route through the town are however more limited.
- 6.9 There are also improvements around Junction 9 and in the centre of Baldock from the proposed schemes.
- 6.10 Rat running is evident in the Wymondley area and changing the junction priority in Great Wymondley attracts more traffic on these routes and exacerbates the problems. The conversion of the Gravely Road / North Road junction to a roundabout also seems to attract more traffic to this route.
- 6.11 While the mitigation measures reduce the impact, more work will be required, through the GTP and development process, to define the final schemes.

Royston

- 6.12 The WHaSH model did not include the Royston area and the COMET results indicate predicted stress and delay problems at the A505 junctions to the north of the town in addition to some issues in the town centre.
- 6.13 Transport assessments undertaken for development sites propose minor improvements to A505 junctions and one town centre junction, a new access onto the A505 for site RY2, and there is also a new access being implemented to the York Way employment area as part of a LEP scheme.
- 6.14 Some further analysis through the Transport Strategy and/or the GTP is needed to confirm the delay predictions, review the current scheme proposals and agree final schemes. This should be co-ordinated with the walking/cycling work within the town and potential links to villages. The overall aim should be not to increase if possible the extent of north-south through traffic, or at least to manage this at appropriate volumes/speeds to ensure that walking/cycling can be the favoured method for local journeys.

East of Luton

- 6.15 A technical note has been prepared on the impact of the NHDC sites near Luton, and this is attached as **Appendix 3**. The conclusions drawn from the modelling tests is that:

- Most of the travel generated by the EoL developments will be ‘Luton-facing’ with very little travel to the north, south or east. This also means that there are greater opportunities to encourage modal shift and integrate with public transport, walking and cycling proposals in the rest of Luton;
 - The indications are that the impact of the development is unlikely to be severe, although specific junction mitigations are likely to be required to deal with some congestion issues; and
 - There is no indication that an ‘eastern bypass’ of Luton is needed to enable the development.
- 6.16 These findings were substantiated by analysis under taken by consultants on behalf of the promoters of these sites, for which transport assessments have been prepared. Consequently, there is evidence that the impact of the NHDC sites here will not be severe when mitigation measures are included.

Stevenage

- 6.17 As noted above, Stevenage Borough Council have recently developed a Mobility Strategy, which focuses on sustainable transport and less on highway improvements. This is likely to mean that most of the highway mitigations tested for this Local Plan may not be implemented, and they will be replaced by other measures.

Other Village/Rural locations

- 6.18 As described above, modelling has also indicated that while the A1 (M) Smart Motorway scheme will relieve some locations, there is likely to be some increased traffic through some of these areas, including Great Wymondley, Knebworth, Codicote and Gravelly. However, the modelling is at a strategic level and does not always consider the effect of e.g. parking in locations such as Knebworth on the capacity here. As noted above, further analysis is needed to confirm final proposals but these are likely to be aimed at arranging traffic rather than increasing through traffic, and improving the ‘place’ function of the villages.

Transport Strategy Mode Share Estimates

- 6.19 To assess the impact of the Local Plan growth, it was necessary to estimate the impact of the strategy on mode share and hence the potential reduction in highway trips.
- 6.20 Given the nature of most of the Transport Strategy proposals relating to buses, walking and cycling, they are not readily able to be assessed using the multi-modal COMET model, which is strategic in nature. Consequently, analysis has focused on the following steps.
- 6.21 Firstly, DfT TEMPRO data was used to establish a broad indication of the number and types of trips in each of the main towns in the morning peak hour. These trips are represented as origins and destinations in each of the Census Middle Super Output Areas (MSOAs) for that town.
- 6.22 This data was extracted for a 2017 base year, and showed the mode share by journey purpose for the different trips likely to take place in that peak hour. For example, the

data showed that in the morning peak hour some 40% of trips are work based, with a further 35% being education-based. The trips estimates should include all trips with origins and destinations in the town but will not include any ‘through’ trips, such as road or rail trips passing through the towns.

- 6.23 These baseline trips were then factored up by the anticipated Local Plan growth in housing and jobs, to obtain an approximation of a future baseline.
- 6.24 The final step was to estimate how the transport strategy would change mode share, and to adjust the trip-end data accordingly. This reduction was only applied to the estimated internal trips, trips with origins and/or destinations outside of the town were not adjusted. While some of these trips will be affected by the strategy, behaviour change will be much harder, and to be conservative, no adjustment was made. The outcome was an estimate of a reduction in the proportion of (internal) vehicle trips in the town, and increases in other modes.
- 6.25 The Table 6-1 below shows the mode share change estimate assumed. This was based on a mixture of government targets (for cycling) and anticipated increases in the use of walking and buses of 20% (1% per year over 20 years). Rail use was retained as is, and car driver and passenger use was adjusted to be the ‘remainder’ of the mode share, assuming the same ratio between drivers and passengers as today. These changes are expected to be achieved incrementally, over the life of the Local Plan.
- 6.26 The estimated changes appear achievable over the plan period given appropriate investment, and have been benchmarked against mode shares in similar size towns in the UK, and sit within these ranges.
- 6.27 The results are shown in Table 6-2, which shows that decreases in the proportion of internal car travel of some 7-8% (car driver and passenger) should be achievable with the strategy. This means for example that for journeys within Hitchin, car driver /passenger mode share should reduce from 66% to 58%, while walking should increase by 5%, cycling by 2% and bus use by 2%. These estimates indicate that the overall impact of growth is very likely to be less than that estimated in the highway modelling to date.

TABLE 6-1: TRANSPORT STRATEGY MODE SHARE ADJUSTMENTS

Mode (all journey purposes)	Rationale
Walk	Increase walk mode share by 20%, approx. 1% per year
Cycle	Doubling in cycle mode share as per DfT target
Bus/coach	Increase walk mode share by 20%, approx. 1% per year
Rail	Retain as current
Car driver	Car driver and passenger is remaining mode share after above adjustments
Car passenger	

TABLE 6-2: TRANSPORT STRATEGY ADJUSTED MODE SHARES

Mode	Hitchin		Letchworth		Baldock		Royston	
	Current Modal Share	Adjusted Modal Share						
Walk	23%	28%	25%	30%	23%	28%	25%	30%
Cycle	2%	4%	2%	4%	2%	4%	2%	4%
Car Driver	44%	39%	42%	37%	45%	39%	47%	42%
Car Passenger	22%	19%	23%	20%	23%	20%	21%	19%
Bus/Coach	5%	7%	6%	7%	5%	6%	4%	5%
Rail/Underground	3%	3%	2%	2%	2%	2%	2%	2%
Combined Modes	100%	100%	100%	100%	100%	100%	100%	100%

7. CONCLUSIONS

- 7.1 This Transport Strategy has been developed to support the Local Plan – it sets out general policies and principles for the area, and required funding and implementation requirements. It identifies a series of schemes and programmes that together can deliver the infrastructure necessary to accommodate growth. Ongoing work, in conjunction with HCC and other stakeholders, will refine the strategies in each town and define potential schemes in more detail.
- 7.2 HCC are also preparing a Growth and Transport Plan (GTP) for the area, which includes NHDC and Stevenage. The GTP will be consulted on in mid-2018, and will expand upon and add/or to the principles and proposals of this Transport Strategy, with the participation of NHDC and Stevenage.
- 7.3 The strategy sets out a vision, principles and key measures, aimed at reducing the need to travel and encouraging sustainable modes. Highway issues will require management and some improvements, but these should not be to the detriment of other policies.

Impacts of growth

- 7.4 The traffic modelling work undertaken shows that:
- In the Do-minimum situation (i.e. without the Local plan growth), there is pressure on various parts of the networks, some severe; and
 - Much of the traffic passing through the area is through traffic over which NHDC has little control.
- 7.5 The extent of growth planned, while consisting of many homes, will represent a relatively small increase in overall travel. Nevertheless, this new travel does increase in the number of congestion hotspots and delays.
- 7.6 Two large elements of the growth in housing numbers in the area are adjacent to Luton and Stevenage, and will be integrated with these large urban areas. In both locations, transport policies seek to improve sustainable travel and contain growth in vehicle travel, and the new development will be co-ordinated with these policies. While this assessment has shown potential highway improvement in Stevenage, these are being reconsidered by SBC based on their new transport strategy.
- 7.7 The work for this strategy has shown that there are highway mitigation proposals that can accommodate the other growth planned, albeit that some of these have less effect and may be lower priority. The strategy has outlined the schemes and measures required, and further work in conjunction with the GTP will provide more detail over the plan period. The larger new developments will be integrated with local networks and NHDC will seek to ensure that sustainable modes are built in from the outset.
- 7.8 This assessment is also regarded as very conservative, in that it does not consider the mode share potential of the policies and measures in the strategy. Work undertaken for this strategy shows that in the main urban areas, a reduction of car travel by some 7-8% is possible, achieved over the plan period. If this reduction is considered, the impact of the growth will be reduced. However, the extent of through traffic will need to be addressed at a wider level, through working in collaboration with adjacent authorities under the duty to

co-operate. Significant future growth in for example Central Bedfordshire would continue to have an impact on the ability of NHDC to accommodate growth.

Response to stakeholder comments

- 7.9 In response to HCC comments on the emerging Local Plan, various meetings have been held to discuss the implications for the Strategy and there will be ongoing close liaison on future work, including the emerging GTP. The strategy is based around on the HCC 'Transport Vision' principles.
- 7.10 In response to key issues raised during consultation by HCC:
- The strategy has considered the more recent COMET traffic modelling by the County which highlighted other potential pinch points, and these have been included in the list of junctions requiring future consideration.
 - The strategy (and a revised IDP) includes all relevant identified highway schemes, as well as sustainable transport measures, and provides funding resources for further measures identified through ongoing work.
 - In relation to Hitchin, the strategy includes the identified highway measures, but notes that, based on the modelling, further consideration is required for the final 'package' of measures.
 - For Baldock the strategy included consideration of the new link road associated with Site B1.
 - For Letchworth, the J8 scheme on the A1(M) has been included, and further work is recommended on the 'rat-running' issues through adjacent villages and minor roads- the A1 (M) Smart Motorway scheme should also relieve some of these.
 - In Royston the COMET modelling has identified some locations of potential congestion, and transport assessments associated with growth sites propose mitigation measures; these will be considered further in the light of the strategy focus on walking and cycling here.
 - The strategy recognises that ongoing liaison is required with neighbouring authorities under the 'Duty to Cooperate' on the implications of growth in these areas for NHDC.
 - Finally, the strategy considers the HCC comments relating to use of minor and village roads, and that junction capacity improvements suggested by early HCC work may not be appropriate, as they could attract more traffic. The strategy proposes further work on identifying the best solutions that will not encourage additional traffic on these roads and can enhance these village environments.
- 7.11 In response to issues raised during consultation by Highways England, the Transport Strategy does have a focus on sustainable Transport to reduce highways demand, and will encourage more local employment. The key junctions on the A1(M) have been assessed using the available models, which also included the proposed new link road associated with Site BA1. Provision has been made in the strategy for improvements to Junction 8 and 9. Junction 10 has been noted as being within Central Bedfordshire, and further liaison will be required with that authority. In relation to the specific strategic development sites, ongoing work is proposed on sustainable transport and cooperation with Stevenage and Luton on the relevant sites.

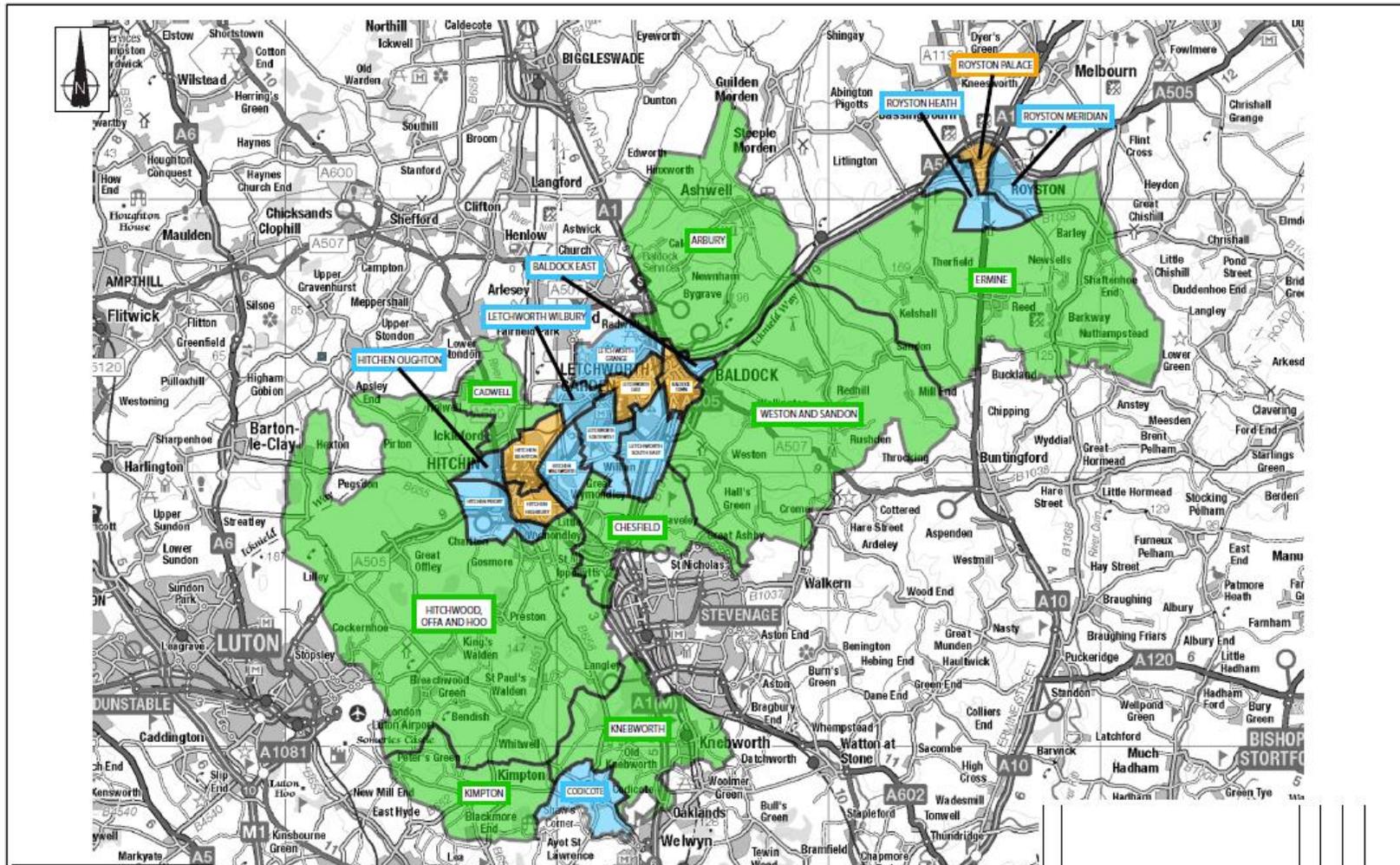
Conclusion

- 7.12 Overall, the conclusion is that an appropriate strategy has been developed for the Local Plan period, and this will be updated and developed further in conjunction with the forthcoming GTP. The growth planned, with suitable strategy and mitigation measures is unlikely to result in severe impact on the local networks.
- 7.13 Ongoing work is planned with HCC and other stakeholders to develop and implement the strategy and appropriate funding has been allocated in the IDP.

APPENDIX 1- OTHER FIGURES/DATA

Figure 1: North Hertfordshire in Context:





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Job Title
NHDC LOCAL PLAN

Drawing Title
NORTH HERTS WARD MAP

Client
NORTH HERTS DISTRICT COUNCIL

Rev	Amendments	Dr	Chk	App	Date
	Scale NTS	Date JUN '17	Designed SEC		
	Drawn SEC	Checked SC	Approved SC		
	Job No 16079-01	Figure No			Rev

TABLE A1: WARD CAR OWNERSHIP CENSUS 2011

Ward	Location	Car Ownership
Hitchin Oughton	fringe	1.70
Letchworth Wilbury	fringe	1.49
Letchworth Grange	fringe	1.23
Letchworth South East	fringe	1.44
Hitchin Walsworth	fringe	1.61
Letchworth South West	fringe	1.55
Royston Heath	fringe	1.88
Baldock East	fringe	1.13
Hitchin Priory	fringe	1.22
Royston Meridian	fringe	1.06
Codicote	fringe	1.51
Average= 1.44		
Cadwell	rural	1.27
Knebworth	rural	1.73
Chesfield	rural	1.82
Arbury	rural	1.56
Hitchwood, Offa and Hoo	rural	1.14
Kimpton	rural	1.12

Ermine	rural	1.26
Weston and Sandon	rural	1.36
Average= 1.41		
Hitchin Bearton	urban	1.10
Letchworth East	urban	1.40
Hitchin Highbury	urban	1.52
Baldock Town	urban	1.24
Royston Palace	urban	1.91
Average= 1.43		

APPENDIX 2 – HIGHWAY IMPACTS AND POTENTIAL MITIGATIONS

Ref.	Junction	Location	DM or DS	Do-min approx. delays/severity	WHasH Mitigation tested	HCC (COMET) assessment comment	Transport Strategy comment - Green – scheme proposed; Light green- scheme likely, analysis required Orange- further consideration f or final scheme; No colour – scheme may not be essential for strategy
A1 (M)							
HM1	A1M J9 /Letchworth Gate / A505	A1M, Letchworth	DM	3 min	Signalised entries to the rdbt, and optimise the existing signalised entry points	Reduction in delay and stress on SB slips with scheme	A505 Corridor Strategic road, increases A1M flows, decreases flows on A505 and rural roads, delays generally reduced to do-minimum levels. Further investigation of effect of new link road for site BA1 needed in development of final mitigation.
HM2	A1M J8 / A602	A1M, Stevenage	DM	12-25s do-m	Signalised entries (Stevenage Road and Graveley Road) to the roundabout and optimise the existing signalised entry point +left-turn slip Hitchin Rd to the southbound A1 M on-slip	Traffic diverts away from junction onto more local routes, particularly Great Wymondley/Graveley	Low levels of delay. Mitigation reduces delays significantly, but some secondary impacts on rerouting. to lower order roads. Further investigation of these impacts, and a wider assessment will be carried out to develop a final mitigation package. Some additional mitigation measures may be required. Stevenage also have revised strategy
NH13	A1(M) Junction 10	North of Baldock A1 (M)			Not identified as WHasH issue, no WHasH scheme identified	WHasH shows some pm peak issues. No issue in COMET	Central Beds identified problems with traffic – to be dealt with in their Local Plan.

Hitchin

HM7	Woolgrove Rd / Cambridge Rd / Willian Rd	Hitchin	DM	6-7 mins	Implement a MOVA signal controlled system at the junction, for signal optimisation		A505 corridor Access to industrial estate High delays predicted, scheme effective in reducing delays. Need to consider links to other Hitchin junctions and policy objectives for town, not to encourage through traffic.
HM8	Pirton Rd / A505 / Upper Tilehouse St/ Wratten Rd.	Hitchin	DM	4-7 mins	Change to a signal controlled junction	Some diversion?	A505 corridor AQMA High delays, scheme effective in reducing delays, but diversion to Willow Lane. Need to consider links to other Hitchin junctions and policy objectives for town.
HM9	Cadwell Ln / Wilbury Way /Woolgrove Rd	Hitchin	DM	1-6 mins	Connect Wilbury Way and Cadwell Lane to the north of the industrial area; Redesign Cadwell Lane junction movements.	Understood may be part of longer- standing scheme to connect area to Stotfold Rd, but concerns this may just divert traffic to Letchworth	Medium delays. Scheme does not show clear benefits. Scheme diverts traffic to same junction. Very high cost scheme, limited impact, funds may be better used elsewhere
HM10	Upper Tilehouse St / A602 / Payne's Park Gyratory	Hitchin	DM	4 mins	Change to a signal controlled junction –	Some issues of diversion to Willow Lane	A505 corridor AQMA Medium delays Scheme has some beneficial effect Some diversion to other roads. Need to consider links to other Hitchin junctions and policy objectives for town.
HM15	A602 / B656 / Gosmore Rd. / St. John's Rd	Hitchin	DS	< 2 mins	Widen approach arms John's		Small delays, close to AQMA scheme effective

					Road approach and signalise?		May be appropriate provided no increase to through traffic further north
NH1	Bancroft / Hermitage Road	Hitchin			Improve signalised junctions and pedestrian phasing in Hitchin		Town centre May be appropriate if improved pedestrian facilities Not appropriate to encourage rat-running
NH2	Queen Street / Hermitage Road	Hitchin			Improve signalised junctions and pedestrian phasing in Hitchin		Town centre May be appropriate if improved pedestrian facilities Scheme should not encourage rat-running
NH8	A505 /Stotfold Road, Hitchin	Hitchin	DM		Not identified as WHasH issue, no WHasH scheme identified	Comet identifies issue link stress A505 approach New dev site accesses Stotfold Road	A505 corridor HT1 development site proposal will include assessment, likely to be some junction improvements
NH9	A600 Bedford Rd/A505 Fishponds Rd (Am peak)	Hitchin			Not identified as WHasH issue, no WHasH scheme identified	No issue identified, Pirton Road scheme increases flows along here	A505 corridor Central beds through traffic. Schools related to peak hour traffic. Caution re increasing through traffic here.
NH10	A505 Carters Lane/Offley Cross	Hitchin			Not identified as WHasH issue, no WHasH scheme identified	No issue	A505 corridor Carters Road minor road, links Pirton Road and A505. May need to be included in south-western access package in longer-term
NH11	A602 Parkway/ Willow Lane (am peak)	Hitchin			Not identified as WHasH issue, no WHasH	AM delays WHasH? Impacted by schemes Payne's Park, Hitchin Hill and Pirton road	A505 corridor Willow Lane used as rat-run from A505 – will need improvement or

					scheme identified	Better A602, stress on Willow Lane	calming as part of south-western access package
NH12	A602 Stevenage Road/Oakfield	Hitchin			Not identified as WHaSH issue, no WHaSH scheme identified	Some delays in WHaSH, not an issue in COMET	Town centre speed reductions have been implemented
Baldock/Letchworth							
HM3	Station Rd / Whitehorse St/ Royston Rd / Clothall Rd	Baldock	DM	2 min	Signal optimisation (MOVA). Reduce the signal stages at the junction and adjust to the traffic conditions		A505/B656 corridor WHaSH run with dev link roads shows some mitigation still required, scheme reduces delays to 1 min. HCC request further investigation of routing options, link road design to be reviewed. Also, key junction for pedestrians/cyclists/buses in centre, final design will need to address.
HM6	A505 / Norton Way	Letchworth	DM	1-2 mins	MOVA Signal Optimisation: add extra movements from William Way	Not issue in COMET	A505 corridor Delays small. Review solution considering corridor objectives
NH5	B656 Hitchin Street / B197 High Street, Baldock	Baldock			Not identified as WHaSH issue, no WHaSH scheme identified	Comet link stress DM and DS, not highlighted in WHaSH	Mini-roundabout town centre – likely to be some delays, but higher capacity will increase through traffic. Need to consider pedestrians and cyclists as well
NH6	A505 / Letchworth Gate / B656 / Pixmore Way	Letchworth	DM/DS		Not identified as WHaSH issue, no WHaSH scheme identified	Comet link stress DM and DS, not highlighted in WHaSH	No indication of significant problem. There is a potential relationship between this junction and the A1(M) junction 9 schemes (scheme HM1). For further analysis.

NH7	Fourth Avenue / Avenue One, Letchworth	Letchworth	DM/DS		Not identified as WHasH issue, no WHasH scheme identified	Comet link stress DM and DS, not highlighted in WHasH. Large employment growth assumed in model	People park around the junction. Employment parking. Low cost traffic management measures should resolve
HM4	A602 / Trinity Rd	Stevenage	DM	<1 min	Signalised the entry arm at Trinity Rd		Delays quite small
HM11	A602 / Monkswood Way	Stevenage	DM	7 in ref case, none do-min?	Implement a MOVA signal controlled system at the roundabout		Not clear regarding scheme effects Big decreases in do-min situation Stevenage have revised transport strategy to focus on walking/cycling scheme, with less focus on highway capacity. This scheme may therefore be amended or replaced.
HM12	Six Hills Way / A602	Stevenage	DM	18 s	Signalise roundabout entries Six Hills Way, London Rd, A602		Reduction in delays do-min to ref case? Low do-min delays Stevenage have revised transport strategy to focus on walking/cycling scheme, with less focus on highway capacity. This scheme may therefore be amended or replaced.
HM13	London Rd / Monkswood Way	Stevenage	DM	3 mins	Extend flared length on southern approach		Medium delays, scheme delivers small benefit. Stevenage have revised transport strategy to focus on walking/cycling scheme, with less focus on highway capacity. This scheme may therefore be amended or replaced.
HM16	Six Hills Way / Homestead Moat	Stevenage	DS	1-2 mins	Signalised T-junctions at staggered junctions, with the introduction		Small impact Big decreases in do-min, scheme has little impact Stevenage have revised transport strategy to focus on walking/cycling

					of MOVA operated signals		scheme, with less focus on highway capacity. This scheme may therefore be amended or replaced.
HM17	Clovelly Way / Gunnels Wood Rd	Stevenage	DS	2-4 mins	Signalise roundabout Wood Road		Medium delays, scheme effective am, less in pm Stevenage have revised transport strategy to focus on walking/cycling scheme, with less focus on highway capacity. This scheme may therefore be amended or replaced.
HM18	A602 / Corey's Mill Ln.	Stevenage	DS	<1 min	Signalise the roundabout entries: A602, Coreys Mill Ln, A602		Low delays, scheme improves am, worse pm Stevenage have revised transport strategy to focus on walking/cycling scheme, with less focus on highway capacity. This scheme may therefore be amended or replaced.
HM19	A1072 Martin's Way / Canterbury Way	Stevenage	DS	<1 min	Signalise roundabout Grace Way		Solved by DM scheme? Low DS delay Stevenage have revised transport strategy to focus on walking/cycling scheme, with less focus on highway capacity. This scheme may therefore be amended or replaced.
Royston							
NH3	A505 /Old North Road Royston	Royston			Not in WHaSH model		Greater Cambridge LEP funding for new off-slip to industrial estate. TA's for development propose some mitigation. Care required not to encourage increased Royston through traffic

NH4	A505 /A10 Royston	Royston			Not in WHaSH model	TA for site RY2 proposes a new access roundabout on the A505, and flare increases on this junction, the A505/ A1198 Roundabout and the A10/ Newmarket Road/ Melbourn Street Roundabout	TA's for development propose some mitigation. Care required not to encourage increased Royston through traffic
NH4	Old North Road/York Way	Royston			Not in WHaSH model	Just south of NH3 above, rdbt	TA's propose some mitigation, Inappropriate to encourage increased Royston through traffic
Other areas/rural/villages							
HM14	Hitchin Rd. / Arch Rd.	Hitchin - Great Wyndley	DS	<1 min	Change the priority of the junction	Attracts more traffic intensifies problem	Small delays, scheme attracts traffic through village. Consideration of area-wide scheme and possible traffic calming needed instead.
HM20	B197 Graveley Rd/North Rd	Graveley- link between Stevenage and Baldock near junction 8	DS	<1 min	Convert priority junction to rdbt	Scheme appears to attract additional traffic to this route and North Road.	Small delays; may attract more traffic to North Road, need to co- ordinate with revised Stevenage Transport Strategy
NH14	A600/ Turnpike Lane. Congestion on the A600 Bedford Road, southbound approach to Turnpike Lane in Ickleford	Hitchin			Not identified as WHaSH issue, no WHaSH scheme identified	Noted by HCC	Low levels delay. Not identified as significant issue in WHaSH

NH15	Graveley -rat run avoiding Junct 8 and using B197 rather than Junct 9	Stevenage vicinity			Not identified as WHasH issue, no WHasH scheme identified		Links to proposals at HM2, consider with other Stevenage proposals
NH16	Knebworth – B197 Station Road/Watton Road junction	Knebworth			Not identified as WHasH issue, no WHasH scheme identified		Low levels of delay, care required not to encourage through traffic Consider under Knebworth traffic mngt. Proposals, low cost parking measure likely to resolve.

APPENDIX 3 – EAST OF LUTON ASSESSMENT

Technical Note



Local Plan – Transportation– East of Luton

Project No. 16079-01

6 September 2017

Client **NORTH HERTFORDSHIRE DISTRICT COUNCIL**

Author Stacey Capewell, Atholl Noon

Authorised Atholl Noon

1. INTRODUCTION

1.1 North Hertfordshire District Council (NHDC) has requested Markides Associates (MA) to comment on the likely transport implications of the proposed allocation of 2,100 dwelling units in the NHDC Local Plan in the East of Luton (EoL) area, in the light of the latest information in the Luton Borough Council (LBC) Local Plan, including the Main Modifications.

1.2 LBC's representations to the NHDC local plan (November 2016) state that:

“NHDC Local Plan Policy SP19 (East of Luton) and supporting text are not considered to be justified, effective or positively prepared in relation to transportation provision. NHDC do not appear to have tested the provision of new local/strategic distributor roads linking the A505, development around Cockernhoe and Century Park. The transport model used to test the NHDC Local Plan is an earlier version of the Luton model and is based on the assumption that are in the Pre-Submission Luton Local Plan rather than the increased capacity of the Luton [sic] in its 2016 SHLAA”.

1.3 This technical note briefly describes:

- The evidence base presented for the Luton Local Plan in terms of transport;
- The proposed Luton main modification that changes the residential dwellings assumed in the Local Plan;
- The outline proposals and modelling work undertaken on the East of Luton proposals.
- Information provided on current planning applications; and
- The relevant sections of the Inspector's report on the Luton Local Plan.

2. LUTON LOCAL PLAN TRANSPORT EVIDENCE BASE

2.1 The evidence base for the Luton Local Plan is set out in <http://www.luton.gov.uk/Environment/Planning/Regional%20and%20local%20planning/evidence-base/Pages/default.aspx>.

2.2 The key evidence produced related to multi-modal modelling of the Local Plan proposals¹ (using the Central Bedfordshire and Luton Transport Model – CBLTM) and work undertaken on potential junction mitigation. The model years assumed were 2016, 2021 and 2031, and modelling was undertaken for the morning and evening peak hours. The modelling analysis was accompanied by other information including the Local Transport Plan, a Travel Planning Strategy and various other supporting documents.

2.3 A summary of the tests undertaken, which are reported in document TRA001A, is:

- Option A (2016) was a reference case with committed developments only;
- Option B (2021 and 2031) tested future growth in the LBC area;
- Option C added to Option B known proposed development sites in adjacent authority areas. This included additional development North of Luton -4,278 dwellings in 2021/2031 and 5,500 dwellings EoL in 2031. This test included an assumed new eastern link road between the A505 and the airport.;
- Option C mitigation – included any identified junction mitigation schemes; and
- Option C (alternative) – reduced the EoL development to 2,100 in 2031, and removed the new eastern link road between the A505 and the airport. It also did not include any junction mitigation schemes.

2.4 A summary of the additional dwelling unit assumptions modelled is shown in Table 1 below. For comparison, it is estimated that in 2011 there were some 77,000 existing dwellings in Luton. There was no change in employment assumptions in North Herts as modelled, and no change in employment modelled between Option C and Option C (Alternative).

TABLE 1 LBC MODELLING ASSUMPTIONS- ADDITIONAL DWELLING UNITS

	2016	2021		2031		
	Option A	Option B	Option C	Option B	Option C	Option C (Alt)
Luton	1,766	3,099	3,099	6,905	6,905	6,905
Central Beds	-	3,270	4,337		11,441	11,441
North Herts	-	-	-	-	5,500	2,100
Total	1,766	6,369	7,436	15,135	23,846	20,446

2.5 In terms of infrastructure the tests included an Airport link to Century Park and an A505 to Airport Bypass.

2.6 The key conclusions from the 2031 tests (which include the EoL assumptions) were:

- There was an increase in network stress from Option B to Option C as demand increases, with the key area of stress being the A6; there are elsewhere mixed outcomes with some areas improving and some experiencing worse conditions; and
- The overall performance of the junction mitigation tests was mixed, with some working while others did not work as successfully as expected, and others were deemed no longer required. The main areas of concern listed in the report did not include any areas in the vicinity of the EoL sites.

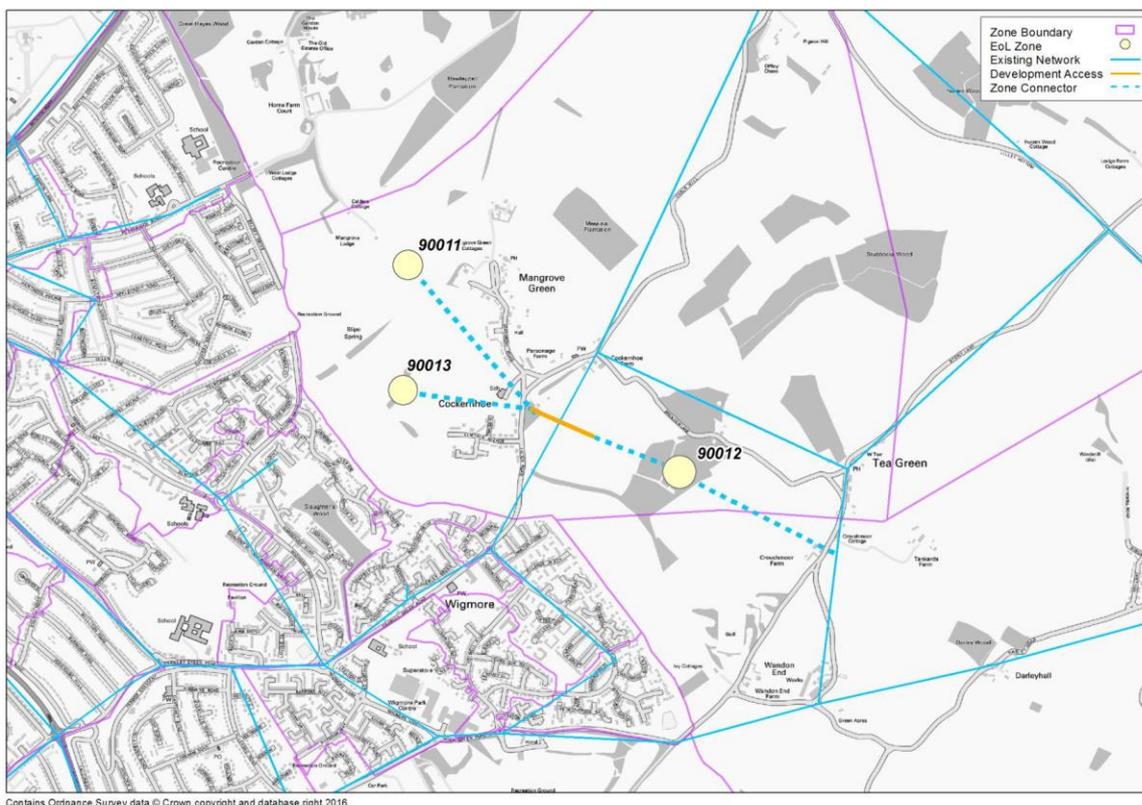
¹ TRA 001A Luton Local Plan 2015 Pre-submission Transport Evidence, Aecom, April 2016

- Option C (Alternative) also produced mixed results, with one notable junction (Leagrave Road/Waller Avenue), which is to the north of Luton town centre) having an increase in congestion.

3. NHDC MODELLING OF EOL

- 3.1 NHDC commissioned Aecom to model the EoL development using the CBLTM in a separate test assuming a lower level of development and no 'eastern bypass' of Luton.
- 3.2 The report 'East of Luton Urban Extension Stage 2 – Traffic Modelling Results (North Hertfordshire District Council)' by Aecom dated 24/02/2016 sets out the results of modelling to assess the traffic impact of a potential 2,100 dwelling urban extension to the east of Luton, within North Hertfordshire, on land near Cockernhoe village.
- 3.3 The modelling task utilised the CBLTM. An existing 2031 forecast year scenario from a previous Luton Local Plan test (i.e. Option C – Duty to Cooperate (DtC) scenario) was used as the basis for this modelling task. This Option C test included a total of 23,853 new dwellings in Luton and adjacent areas, including 5,753 in Luton and 5,500 dwellings at EoL. This latter assumption was reduced to 2,100, giving a new total of 20,453 new dwellings. The connections to the network are shown in Figure 1. The EoL scheme will connect primarily to (i) Luton road, leading to Crawley Green Road (ii) Stony Lane leading to Eaton Green Road.

FIGURE 1 EOL MODELLING ZONES AND CONNECTIONS



3.4 Two tests were undertaken

- 2031 Do Minimum – without EoL Development (this was the Option C test); and
- 2031 Do Something – with EoL Development (2,100 dwellings and a 5-FE (FE) secondary school).

3.5 Total trip generation for the EoL site was as shown in Table 2 below. The distribution of trips was assumed from nearby zones in Luton with similar characteristics. The model test was undertaken using only the highway assignment module, and therefore did not consider any potential mode shift, and should therefore be regarded as conservative. The model test did not include any junction mitigation measures.

TABLE 2 EoL TRIP GENERATION ASSUMED IN MODEL

	Am Peak Hour		Pm peak hour	
	In	Out	In	Out
Vehicles	336	578	465	361

3.6 The network statistics show that the EoL Development has a small negative impact on the overall performance of the Luton highway network and that the vehicle delay time and vehicles queued increase by 3-4% to 3-5% respectively, whilst the network speed reduces by 1% to 1.5%. Given that the NHDC Option C increases new dwelling units by some 11% (from 18,353 to 20,453 units) these changes are not considered high.

3.7 For the morning and evening peak hours select link analysis (see Figures 2 and 3) indicate that most of the trips to/from the EoL development trips travel eastward from or westward into Luton. A very small proportion of trips travel to/from Hitchin/North Hertfordshire, primarily educational trips in the morning peak hour, and hardly any in the evening peak hour.

3.8 The select links show that in the morning peak hour, EoL flows reaching Vauxhall Way are low, in the region of 100-150 trips each way, with the evening peak hour volumes being in the order of 150-200 vehicles each way. In both peak hours there is limited use of Lilley Bottom in a north/south direction (50-100 vehicles per hour each way) and other routes to and from North Hertfordshire. Overall the impact is regarded as low and dissipates quickly further away from the development.

FIGURE 1 SELECT LINK PLOTS 2031 DO SOMETHING (MORNING PEAK HOUR)

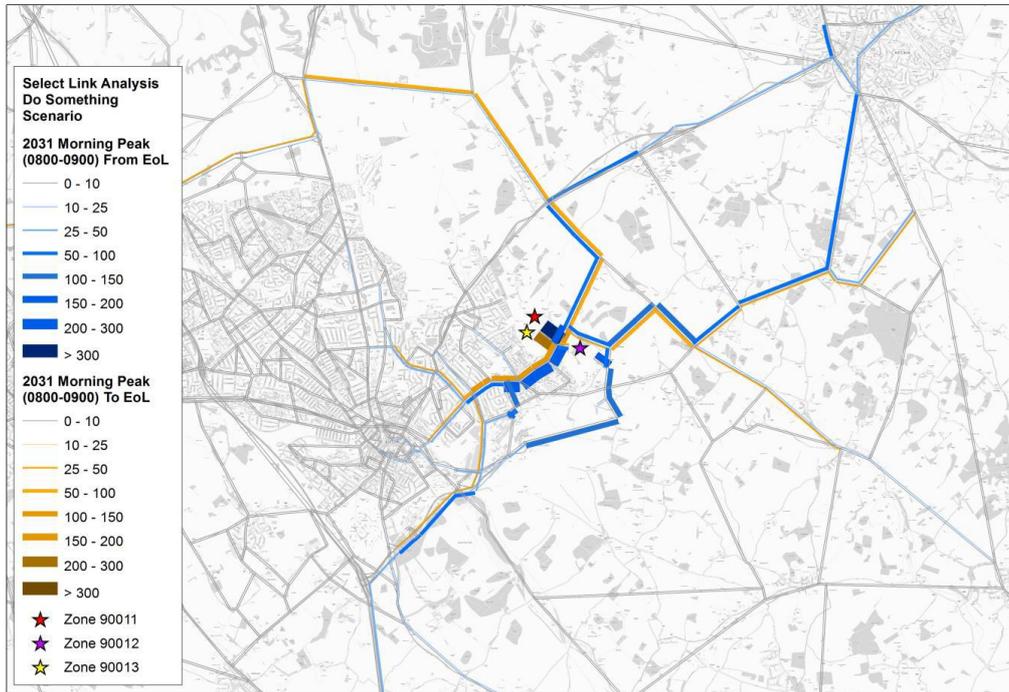
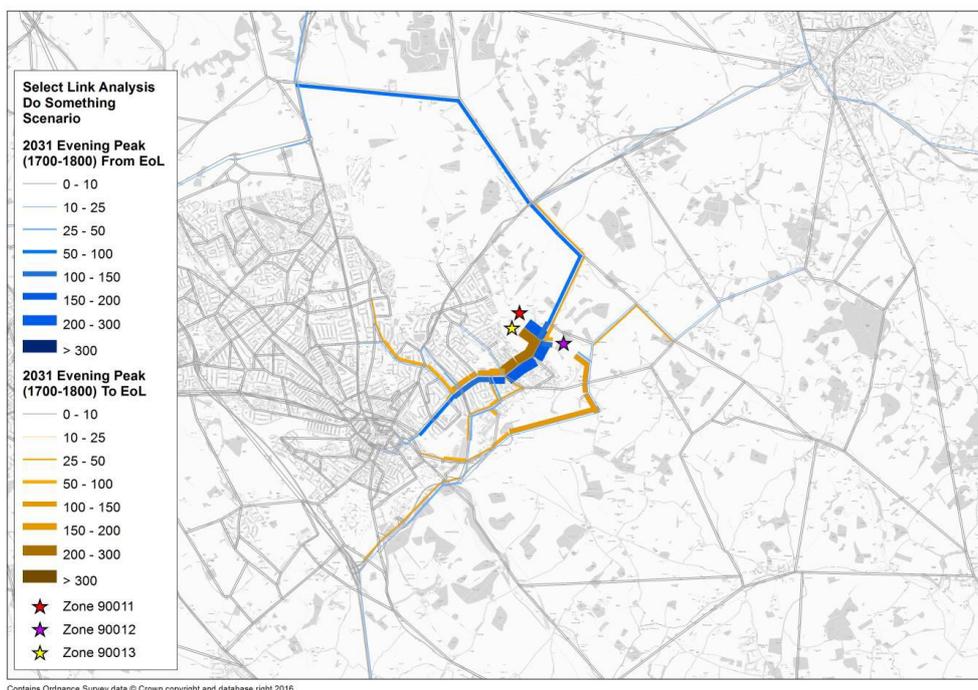


FIGURE 2 SELECT LINK PLOT 2031 DO SOMETHING (EVENING PEAK HOUR)



3.9 The flow difference plots (Figures 4 and 5) show that the EoL development increases traffic flows on Luton Road, Eaton Green Road and Stony Lane. As expected, the scale of the traffic flow increase is greatest on the road links adjacent to the EoL Development which gradually

disperse onto the wider road network in Luton and North Hertfordshire. Flow differences between the do-minimum and EoL scenario are very low, in the order of 100 vehicles each way except to the west towards Luton in the close vicinity of the site.

FIGURE 3 - FLOW DIFFERENCE (2031 DO SOMETHING MINUS DO MINIMUM) (MORNING PEAK HOUR)

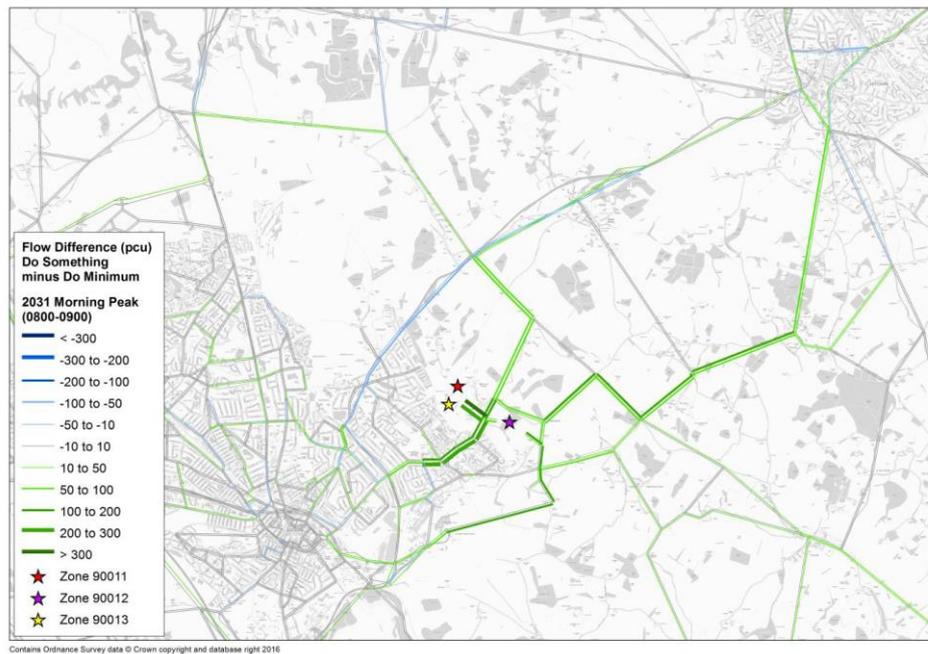
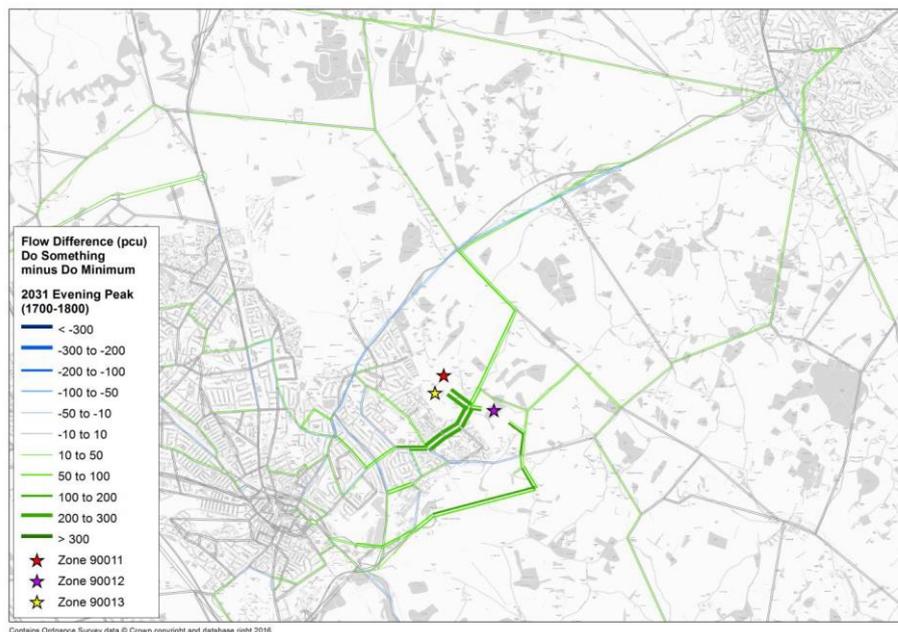


FIGURE 4 - FLOW DIFFERENCE (2031 DO SOMETHING MINUS DO MINIMUM) (EVENING PEAK HOUR)



- 3.10 For the 2031 Do Something scenario, the pattern of link stress plots is generally similar to the 2031 Do Minimum scenario. This suggests that the links that are operating at or over capacity in the 2031 Do Minimum scenario will continue to experience high volume over capacity ratios for the 2031 Do Something scenario, however, the additional EoL Development trips are not expected to cause additional congestion spots to materialise.
- 3.11 The modelling suggests that the additional EoL Development trips will cause some increased junction delay at junctions in the vicinity of the development such as on the A505 Vauxhall Way and Hitchin Road.
- 3.12 The junction delay difference plots also show that delay for junctions on the Luton Town Centre Ring Road will increase because of the EoL development trips. However, the flow difference plots show that the difference in link flows for the Luton Town Centre Ring Road links are marginal. These links are operating at / over capacity for the 2031 Do Minimum scenario and the modelling suggests that these junctions are likely to be more sensitive to flow increase.
- 3.13 The conclusion that can be drawn from this modelling test is that:
- Most of the travel generated by the EoL developments will be 'Luton-facing' with very little travel to the north, south or east. This also means that there are greater opportunities to encourage modal shift and integrate with public transport, walking and cycling proposals in the rest of Luton;
 - The indications are that the impact of the development is unlikely to be severe, although specific junction mitigations are likely to be required to deal with some congestion issues; and
 - There is no indication that an 'eastern bypass' of Luton is needed to enable the development.
- 3.14 The following should be noted as potential limitations of this modelling:
- The EoL assessment was carried out just prior to the Luton model testing (described in section 2 above) being finalised and subsequently reported in April 2016, and that there are therefore some differences between the demand and networks between the EoL tests and those reported in report TRA001A;
 - Only the highway assignment model was used, so no changes in mode of travel were considered – this can therefore be assumed to be a conservative estimate;
 - The modelling assumed Option C land use and highway assumptions, except for the A505-Airport Bypass Eastern Link Road. It includes the proposed road link between the Airport Way and Eaton Green Road which forms part of the Century Park development. If this road link were not to be included, the impact could be greater for Eaton Green Road and the urban network of Luton;
 - The land use assumptions did not include the additional dwelling units within Luton in the Luton Main Modifications (see section 4); and
 - The EoL Development is located at the edge of the simulation network of CBLTM. The representation of the highway network is coarser towards the edge of the simulation network, and as such there is more uncertainty on the assignment and scale of impacts (such as delay) of the additional EoL development traffic.

4. LUTON LOCAL PLAN MAIN MODIFICATIONS

- 4.1 In April 2017 LBC issued Main Modifications to their submitted local plan. Main Modification MM02 Para 2.26, states *'For clarification. 8,500 dwellings will be provided within the borough to meet and will contribute towards meeting the full objectively assessed need for market and affordable housing requirements through allocations, development at High Town, regeneration of the town centre (Power Court) and former employment area (Napier Park). Neighbouring local authorities need to help meet Luton's unmet market and affordable housing needs in accordance with the 'Duty to Cooperate'.*
- 4.2 This modification represents an uplift from the previous local plan proposals modelled in the pre-submission transport evidence of 6,905 dwellings, i.e. an uplift of 1,595 dwellings. Most of these dwellings are situated in or close to the centre of Luton.
- 4.3 We are not aware of any new transportation evidence being provided by LBC in relation to this modification, which implies that it is not regarded as being of a scale, or having an impact, sufficient to require additional analysis. It is also noted that proposal MM02 is not considered to be a policy that potentially alter the findings of earlier stages of the Sustainability Appraisal/Strategic Environmental Assessment².
- 4.4 It appears unlikely that the scale of this main modification will change the outcomes of the NHDC EoL modelling test described above and the conclusions from it. This is because:
- The additional main modification LBC dwellings are a relatively small addition to the modelled number of new dwellings – circa 1,600 dwellings on 20,453 assumed for the NHDC test, or 8%. This additional allocation is only some 1.9% of the total Luton housing stock, estimated at 82,600 in 2017³. The fact that further modelling was not provided by LBC of this change supports this view; and
 - The additional LBC dwellings are all located close to or in the town centre, where the opportunities for mode shift are highest, and any traffic is expected to have a very limited effect on the network of direct relevance to the EoL development.

5. INSPECTORS REPORT ON THE LUTON LOCAL PLAN

- 5.1 The Inspectors Report on the Luton Local Plan was published in August 2017⁴. Paragraphs 203 to 207 relate to the transport impacts of the Local Plan. The report acknowledged that the modelling was not as per the final scheme, with particular reference to the additional allocation of units within Luton in the Main Modifications.
- 5.2 However, the overall conclusion was that the effects on the strategic road network have been adequately assessed at this stage and sufficient measures are in place to help mitigate adverse effects. Given the requirement for an early review, the changes advanced through

² SA/SEA for the Luton Local Plan Date March 2017, Technical Note Addendum, Urban Edge Environmental Consulting. Document ED110

³ <https://www.luton.gov.uk/Environment/Lists/LutonDocuments/PDF/Planning/Census/Luton%20Household%20Projections%202010-2031.pdf>

⁴ <http://www.luton.gov.uk/Environment/Lists/LutonDocuments/PDF/Local%20Plan/Luton-Local-Plan-final-Inspectors-report.pdf>

the main modifications to this report, including in relation to the strategic allocations, do not justify any further modelling work at this stage and before the Plan can be found sound.

- 5.3 The Inspector also noted that ‘. development in and around dense urban areas inevitably has the potential to increase traffic congestion, regardless of what mitigation is put in place. While this has an economic cost, and is frustrating and inconvenient to those who use the roads, it is not a sufficient reason in this case to avoid meeting housing or employment needs.’

6. CURRENT PLANNING APPLICATIONS

- 6.1 There are two ‘live’ planning applications on sites in the draft East of Luton planning allocation areas. These are:

- 17/00830/1 – Bloor Homes: outline planning application for up to 1450 dwellings
- 16/02014/1 – The Crown Estate: outline planning application for up to 660 dwellings

- 6.2 The transport assessments submitted with these applications are summarised below.

17/00830/1 – Bloor Homes: outline planning application for up to 1450 dwellings⁵

- 6.3 The development is the proposed Stubbocks Walk residential-led mixed use development on land within North Hertfordshire District Council (NHDC) to the east of Wigmore, Luton. The proposed site comprises up to 1,400 dwellings, an ‘all through school’ comprising 2 forms of entry primary education and 4 forms of entry secondary education, a mixed use local centre, a stand-alone 2-form primary school, community facilities and sports pitches.

- 6.4 The application area forms part of a wider proposed East of Luton allocation site as identified in the Proposed Submission Draft Local Plan 2011-2031 – North Hertfordshire, which will deliver a total of 2,100 dwelling units – this overall level was also tested in the TA.

- 6.5 Agreement was reached with the Local Highway Authority, Hertfordshire County Council, on all transport matters. The agreed transport strategy/package included:

- ‘Relief road’ road removing through traffic for Cockernhoe and running north-south to the east of Cockernhoe through the site including a roundabout forming a primary access to the site;
- East to west link road through the site connecting Luton Road to Darley Road;
- New roundabout on Darley Road forming a primary access to the site;
- New site access roundabout on east to west link from Luton Road priority junction (the western/central site roundabout);
- Re-aligned section of Chalk Hill forming a secondary access to the site;
- New bus service providing 30 minute or better frequency on weekdays and Saturday linking the site, Wigmore Local Centre, Luton Parkway Station, Luton town centre and with close access to Luton Airport;
- Financial contribution to existing local bus service to Hitchin;

⁵ Stubbocks Walk, Proposed Residential Development Final Transport Assessment, 27th October 2016, David Tucker and Associates

- Extensive footway/cycleway enhancements along Crawley Green Road and Eaton Green Road to enhance access to education and employment land uses;
 - Localised improvement to Chalk Hill carriageway and visibility enhancements at the Chalk Hill/ Lilley Bottom junction; and
 - Site-wide Travel Plan.
- 6.6 A target for a 10% reduction of the car driver modal share for commuting and business trips from the development has been established in the travel plan. In addition, there are targets for mode share for education trips.
- 6.7 The proposed vehicular access strategy provides access to the north and south of the site via Luton Road and Darley Road respectively.
- 6.8 Table 3 below shows the total trip generation in the peak hours – this takes into account the mode share targets described above. The TA also noted that improved public transport links and cycling infrastructure between the Wigmore Area and Luton Airport, surrounding employment, including the future Napier Park development, and Luton Airport Parkway will be of benefit to existing residents and will facilitate wider modal shift. This shift is supported by Travel Plan measures being implemented by the Airport and the future travel plan strategy supporting the Napier Park development proposals
- 6.9 A future assessment year of 10 years following submission of the application was assumed for 2026. This equates to the anticipated period over which the scheme will be fully built out. In addition, a future year of 2031 has been tested which is consistent with North Hertfordshire’s Local Plan period. Temporo growth was used to factor background traffic levels to these assessment years.

TABLE 3 STUBBOCKS WALK EOL TRIP GENERATION ASSUMED

Application for 1,400 homes			
Peak period	In	Out	Total
Am Peak	278	423	701
Pm Peak	416	311	727
Assumed development of 2,100 homes			
Peak Period	In	Out	Total
Am Peak	337	620	958
Pm Peak	615	435	1051

- 6.10 The results of the junction assessments are described in Table 4:

TABLE 4 STUBBOCKS WALK JUNCTION ASSESSMENT SUMMARY

Junction	Assessment conclusion	Improvements proposed	Post-improvement assessment – 1,400 units	Post-improvement assessment – 2,100 units
Site access roundabout onto Luton Road		New junction for development	Within capacity 2026 and 2031	Within capacity 2026 and 2031
Site access roundabout onto Darley Road		New junction for development	Within capacity 2026 and 2031	Within capacity 2026 and 2031
Eaton Green Road/Wigmore Lane roundabout junction	Operates with minimum delay for all test scenarios, however in the 2026 and 2031 base scenario delays increase on the Eaton Green Road southern approach.	Minor widening and additional flaring	Within capacity except for Eaton Green Road (south) in 2026/31 pm peak, but improved on 2026/31 base with no development.	Within capacity except for Eaton Green Road (south) in 2026/31 pm peak, but improved or similar operation to 2026/31 base with no development.
Crawley Green Road/Wigmore Lane roundabout junction	Operates within capacity during the base 2016, 2026 and 2031 scenarios. The development traffic in 2026 and 2031 increases delay on the Wigmore Lane northern approach in the morning peak and similarly on the southern and western approaches in the afternoon peak, but not significant and dissipates quickly	None	N/A	Queues increase on the Crawley Green Road western approach and Wigmore Lane southern approach in the PM peak period. Mitigation of minor widening on these approach roads is proposed, queues improve on 2031 base with no development.
Crawley Green Road/A505 Vauxhall Way roundabout junction	RFC values above 0.85 for both the base and the base with development test scenarios during the PM peak period,	Improved roundabout	Exceeds capacity in 2026/2031, but improvements in operation compared to 2026 and 2031 base cases with no development	Exceeds capacity in 2026/2031, but improvements or similar operation compared to 2026 and 2031 base cases with no development

Junction	Assessment conclusion	Improvements proposed	Post-improvement assessment – 1,400 units	Post-improvement assessment – 2,100 units
Eaton Green Road/Airport Way/Vauxhall Way/Harrowden Road roundabout junction	RFC values over 0.85 experienced during the AM/PM peak periods for 2026 base and 2031 + 100% development traffic on Eaton Green Road (east) and Vauxhall Way (south) approaches. However maximum queues low and for short duration.	None	N/A	modelling shows an increase in queuing on the Eaton Green Road eastern approach during both peak periods, maximum of 14 vehicles in the PM peak. Queue dissipates within the modelled period.
M1 junction 10	No junction test, but flows low in relation total flow, and recent junction improvement	None	N/A	
M1 junction 10A	No junction test, but flows low in relation total flow, and recent junction improvement	None	N/A	

- 6.11 The TA conclusion was that the transport strategy and overall mitigation package is appropriate to support proposals for 1,400 and 2,100 dwellings with associated education and community uses.
- 6.12 The TA was reviewed by Aecom on behalf of Highways England, and while several comments were made, there was general agreement on the methodology and outcomes, with the main exception being the need for an individual capacity assessment of M1 J10 due to the number of predicted additional development trips at this junction. Clarification was also sought on the status of the proposed 1,400 dwelling development in relation to a separate application for residential development on a similar but slightly different site.

16/02014/1 – The Crown Estate: outline planning application for up to 660 dwellings

- 6.13 The information on this development was taken from the report 'Land to the West of Cockernhoe, Transport Assessment Non-Technical Summary, prepared by Vectos in April 2016, and Chapter 14 of the Environmental Statement for the same development prepared by Wardell Armstrong.
- 6.14 This assessment used the trip generation data applied within an earlier David Tucker Associates TA for Bloor Homes, and assumed the same mitigation at junctions. The proposals also included:
- Access to the site is proposed from a new roundabout junction on Luton Road to the south-east of the site.
 - Comprehensive network of pedestrian and cycle routes provided across the site, with links with existing walking and cycling facilities in the local area;
 - an off-road cycle way along Luton Road/Crawley Green Road and Wigmore Lane and a strategic walking/cycling route to Luton Airport.
 - a new bus service linking the town centre, rail stations, Wigmore Lane local centre and Luton Airport to the Proposed Development
- 6.15 The conclusion was that the development with proposed mitigations will result in a residual minor adverse effect in relation to pedestrian delay, accidents and safety, traffic and transport, severance, pedestrian amenity and driver delay that is not significant.
- 6.16 Luton Council, in written comments dated 22nd September 2016, expressed concerns about the capacity of roads within Luton, in particular the network to the eastern side of Luton. They urged the developer to consider this scheme in the light of other potential development in the area and the growth of Luton including new employment land being provided near to the airport (Century Park). To accommodate all this growth, there will likely be a need for new local/ strategic distributor roads linking the AS, development around Cockernhoe and Century Park. They noted that there may be opportunity for this scheme to contribute to the delivery of such infrastructure.

7. CONCLUSION

- 7.1 The evidence available demonstrates in our view that any proposed allocation east of Luton within North Hertfordshire, with suitable mitigation as tested in the relevant Transport Assessments, will not have the severe residual cumulative impacts that NPPF para 32 requires if development is to be prevented. Given that the tested mitigations did not include a new eastern relief road of Luton, this would also appear not to be required to facilitate the development of the allocation.