

Transport



7 Transport

7.1 Introduction

7.1.1 This assessment addresses the transport effects of the proposed development and has been prepared by Brookbanks Consulting Ltd. It assesses the traffic-related environmental effects that may result where the proposed development is likely to alter traffic flows.

7.1.2 Potential construction phase environmental effects have been identified relating to transport:

- Direct and indirect: increase in HGV and non HGV traffic impacting on operation of highway network.

7.1.3 Potential operational environmental effects have been identified relating to transport:

- Direct and indirect (Severance) – This describes the perceived division that can occur within a residential area if it becomes separated by a major traffic artery;
- Direct and indirect (Driver Delay) - Delays to existing traffic can occur at several locations within the local highway network as a result of the additional traffic that would be generated by a development;
- Direct and indirect (Pedestrian Delay) - Changes in the volume, composition or speed of traffic may affect the ability of people to cross roads, and therefore increases in traffic levels are likely to lead to greater increases in delay;
- Direct and indirect (Pedestrian Amenity) -The scale of fear and intimidation experienced by pedestrians is dependent on the volume of traffic and HGV composition;
- Direct and indirect (Accident and Safety) - Where a proposed development is expected to produce a change in the character of the traffic on the local road network, as a result of increased HGV movements.

7.1.4 Data used in the assessment has been drawn from the Transport Assessment (TA) for the proposed development. The TA sets out transport issues relating to the proposed development and identifies any necessary interventions to mitigate the anticipated transport effects and to improve accessibility and safety for all modes of travel.

7.2 Legislation and Policy

7.2.1 National policy is contained within the National Planning Policy Framework (NPPF) published in March 2012. This document, unless expressly stated, replaces the Planning Policy Statements (PPSs) and Planning Policy Guidance (PPGs) that have now been revoked.

7.2.2 The NPPF sets out a presumption in favour of sustainable development “which should be seen as a golden thread running through both plan making and decision taking”.

7.2.3 There are three dimensions to sustainable development:

- An economic role – contributing to building a strong, responsive and competitive economy;
- A social role – supporting strong, vibrant and healthy communities; and

- An environmental role – contributing to protecting and enhancing our natural, built and historic environment.

7.2.4 The NPPF advises that

“these roles should not be undertaken in isolation, because they are mutually dependent. Economic growth can secure higher social and environmental standards, and well-designed buildings and places can improve the lives of people and communities... The planning system should play an active role in guiding development to sustainable solutions” (Paragraph 8).

The Statutory Development Plan

- 7.2.5 Section 38(6) of the Planning and Compulsory Purchase Act 2004 states that planning applications should be determined in accordance with the development plan, unless material considerations indicate otherwise. The statutory development plan comprises:

Planning Policy Context

- 7.2.6 In carrying out the assessment of the proposed development, relevant international and national legislation and instruments reflected in national and local policies were reviewed.

National Planning Policy Framework

- 7.2.7 Paragraph 30 of the NPPF encourages solutions that support reductions in greenhouse gas emissions and reduce congestion. Local planning authorities should therefore support a pattern of development which, where reasonable to do so, facilitates the use of sustainable modes of transport.

- 7.2.8 Paragraph 32 of the NPPF identifies that all developments generating significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:

- The opportunities for sustainable transport modes have been taken up depending on the nature and location of the application site, to reduce the need for major transport infrastructure;
- Safe and suitable access to the application site can be achieved for all people; and
- Improvements can be undertaken within the transport network that cost-effectively limits the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.

- 7.2.9 Paragraph 35 of the NPPF identifies that plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people. Therefore developments should be designed where practical to:

- Accommodate the efficient delivery of goods and supplies;
- Give priority to pedestrian and cycle movements and have access to high quality public transport facilities;

- Create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones; and
- Consider the needs of people with disabilities by all modes of transport.

7.2.10 A key tool is the Travel Plan, as identified in Paragraph 36 of the NPPF. Further details of the policies relating to travel plans are set out in the TA.

7.2.11 Paragraph 37 of the NPPF identifies that planning policies should aim for a balance of land uses that minimise journey lengths for employment, shopping, leisure, education and other activities. Developments should promote a mix of uses in order to provide opportunities to undertake day-to-day activities including work on site.

7.2.12 When setting local parking standards for residential and non-residential development, Paragraph 39 of the NPPF identifies that local planning authorities should take into account:

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

The Manual for Streets Volumes 1 and 2 (DfT and DCLG, 2007); and The Design Manual for Roads and Bridges (DfT)

7.2.13 This White Paper identified the need for a transport network that can meet the challenges of a growing economy and the increasing demand for travel but can also achieve environmental objectives. To achieve this, it requires a transport network that provides a more reliable and freer flowing service while making walking and cycling real alternatives for local trips. There is a clear recognition that the location and nature of development affects the amount and method of travel, and the pattern of development is itself influenced by transport infrastructure and transport policies.

Local Transport White Paper, Creating Growth Cutting Carbon (DfT 2011)

7.2.14 This document sets out the Government's vision for a sustainable local transport system that supports the economy and reduces carbon emissions. It explains how the Government is placing localism at the heart of the transport agenda, and underlines Central Government's direct support to local authorities, including through the Local Sustainable Transport Fund.

Highways England Circular: The Strategic Road Network and the Delivery of Sustainable Development Circular 02/2013 (Highways Agency 2013)

7.2.15 The Circular was published in 2013 and explains how the Highway Agency (HA) will engage with the planning system and provides details on how the HE will fulfil its remit to be a delivery partner for

sustainable economic growth whilst maintaining, managing and operating a safe and efficient strategic road network.

- 7.2.16 Paragraph 27 of the Circular identifies that where the overall forecast demand at the time of opening of the development can be accommodated by the existing infrastructure, further capacity mitigation will not be sought.
- 7.2.17 With regard to Travel Plans, Paragraphs 29 and 30 of the Circular highlight that it may be possible to free up additional capacity within the road network so that the demand generated by a proposed new development, which would otherwise be unacceptable, can be accommodated.
- 7.2.18 Paragraph 34 of the Circular identifies that at locations where there is insufficient capacity, the impact of the development will be mitigated to ensure that the strategic road network is able to accommodate existing and development generated traffic.
- 7.2.19 In relation to providing new access points, Paragraph 39 of the Circular identifies that where appropriate, proposals for the creation of new junctions or direct means of access may be identified and developed at the Plan-making stage in circumstances where it can be established that such new infrastructure is essential for the delivery of strategic planned growth.
- 7.2.20 The Circular identifies that development proposals are likely to be acceptable if they can be accommodated within the available highway capacity on the strategic road network, or they do not increase demand for use of a section that is already operating at over-capacity levels, taking account of any travel plan, traffic management and/or capacity enhancement measures that may be agreed. Furthermore it is noted that paragraph 9 identifies that development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.

Guidance on Travel Plans (DfT 2009)

- 7.2.21 The DfT guidance on travel plans requires travel demand to be managed, and this can be achieved largely through a Travel Plan. The main aims of a Travel Plan are to:
- Encourage travel to and from the application site by public transport, walking and cycling rather than by car;
 - Ensure awareness of the availability of alternatives to driving to and from the development by car;
 - Improve road safety, particularly by reducing traffic speeds, particularly for pedestrians and cyclists;
 - Improve personal security, particularly for pedestrians and cyclists; and
 - Encourage participation in the implementation, monitoring and evolution of the Travel Plan.
- 7.2.22 The DfT guidance includes information on examples of travel plans and the following components should form part of any Travel Plan:
- Site design. The layout of the application site will be designed to be attractive for walking and cycling;

- Prioritisation and promotion of public transport. Local bus stops will be upgraded with suitable facilities. Footway routes to and from bus stops will be surfaced, well lit and user friendly; and
- Measures to promote and facilitate walking and cycling. Information will be provided on available facilities and services through notice boards and leaflets.

Local Planning Policy

7.2.23 The St Edmundsbury Core Strategy (December 2010) sets out the following;

- Visions for how the future growth of Bury St Edmunds, Haverhill and the Rural Areas will be managed;
- A collection of objectives and strategic policies to help guide the sustainable distribution of new development across the borough and achieve the visions;
- Policies to guide the scale, type and location of new development;
- Broad locations for growth in Bury St Edmunds and Haverhill; and
- Information on how the detail in the Core Strategy will be implemented and monitored.

7.2.24 The Core Strategy provides the strategic context that will guide the preparation of subsequent Local Plan documents. It includes an outline for delivering strategic development needs, including housing, employment, leisure and retail. The Core Strategy does not include details of site specific allocations or policies for the management of new development. These are set out in separate Local Plan documents.

7.2.25 The Core Strategy provides an overall spatial Vision for St. Edmundsbury Borough, as indicated below.

“By 2031 St Edmundsbury will remain a vibrant part of Suffolk and a region where the distinctive local character, unique local heritage and environmental and cultural assets are retained and enhanced for the enjoyment of all. The Borough will be a safe place to live with strong communities. Employment growth and development will produce a prosperous sustainable economy including sustainable tourism. All residents of the borough will have an equal opportunity to access services, jobs, housing and leisure facilities to maximise their potential to live and work in an environmentally sustainable manner. A hierarchy and network of town and village centres will grow and develop to provide a wide range of services in a good environment and accessible to all, appropriate to the size of settlement.

The borough will respond to the challenge of delivering growth in a manner that does not just respect the heritage and culture of St Edmundsbury but actually strives to enhance them in an environmentally sustainable way. The natural and

built environment and local biodiversity of the borough will be protected and where possible enhanced to increase access to the countryside and the provision of green open space in recognition of the county ambition to become the greenest county. The challenges of climate change will be addressed to ensure that the specific threats that Suffolk faces are mitigated but that other adaptations are also made such as an increase in renewable energy and water efficiency and an active decrease in carbon emissions. All new development will respect the Breckland Special Protection Area, Special Areas of Conservation and Sites of Special Scientific Interest.

Bury St Edmunds and Haverhill will be the cultural and economic hearts of the borough with strong, sustainable links to the surrounding key services centres, villages and countryside.

...

Haverhill

Regeneration of the town will continue with the aim of being able to have a more attractive retail, leisure and employment offer to its residents to decrease the amount of out-commuting and to grow an organic 21st Century town based on strong community.

The town centre will be a high quality environment where pedestrians and other non-car users can move around safely and comfortably.

Development will be focused initially on the north-west Haverhill site and long-term development located on the north eastern edge of Haverhill.

Existing surrounding settlements will be protected from coalescence and have green buffer zones developed between them and Haverhill to maintain their integrity.

Haverhill will diversify its employment base, building on the bio-chemical industry and capitalising on the strong links it has with Cambridge and Stansted.

To achieve the latter, long-term sustainable transport solutions will be developed to mitigate the difficulties of accessing strategic road networks along the A1307, A1017 and A143.

Within the town, cycling and pedestrian links will be established.

Outside Bury St Edmunds and Haverhill, new development will be focused primarily on those settlements where there are good levels of services and facilities, having regard to the environmental and infrastructure capacity of those settlements and the desire to safeguard existing services and employment.”

7.2.26 To achieve the overall vision, 10 strategic objectives have been identified. Those relating to transport are intended to provide a higher level of access to jobs and services for all ages in both urban and rural areas, and improve connectivity with the rest of the region.

7.2.27 Policy CS7 'Sustainable Transport' states that the Council will develop and promote a high quality and sustainable transport system across the borough and reduce the need for travel through spatial planning and design. All proposals for development will be required to provide for travel by a range of means of transport other than the private car in accordance with the following hierarchy:

- Walking;
- Cycling;
- Public Transport (including taxis);

- Commercial vehicles;
- Cars.

7.2.28 All development proposals will be required to be accessible to people of all abilities including those with mobility impairments.

7.2.29 New commercial development, including leisure uses and visitor attractions, which generate significant demands for travel, should be located in areas well served by a variety of transport modes. Where appropriate, development proposals that will have significant transport implications will be required to have a transport assessment and travel plan showing how car based travel to and from the site can be minimised.

7.2.30 Policy CS8 'Strategic Transport Improvements' states that the Council will continue to work with relevant partners, including Suffolk County Council and Highways England, and developers, to secure the necessary transport infrastructure, including improvements to:

- Transport safety on the A1307 between Haverhill and the A11;
- Relieve the adverse impacts of traffic in Haverhill ;
- The public transport network ;
- Rights of Way.

7.2.31 Policy CS12 'Haverhill Strategic Growth' states that an Area Action Plan DPD (this is the Haverhill Vision 2031 set out below) will be prepared for Haverhill that will provide a coordinated spatial planning framework for the whole town including the release of a larger, strategic, greenfield, site. The policy specifically refers to the proposed development site stating that it will:

- Maintain the identity and segregation of Kedington and Little Wratting;
- Provide new high quality strategic public open space and recreation facilities;
- Protect by appropriate means the Scheduled Ancient Monument at Great Wilsey Farm;
- Provide improved public transport, foot and cycle links to the town centre and other locally significant leisure, employment and service destinations;
- Deliver additional education, community and leisure facilities to meet the needs of this development and is located in a way that can achieve positive integration with the wider area;
- Deliver around 2,500 homes of mixed tenure and size, including affordable homes; and
- Provide opportunities for B1 use class local employment.

7.2.32 The policy goes on to state that it is unlikely that the development at the proposed development site will commence before 2021. The actual amount of development will be determined by environmental and

infrastructure capacity considerations and the preparation and adoption of detailed masterplans in which the local community and other stakeholders have been fully engaged.

- 7.2.33 The Haverhill Vision 2031 was adopted in September 2014. It includes a series of aspirations, including:
- Well-connected new development integrated into the town;
 - Sustainable transport links; and
 - An increased shift to non-car modes of travel.
- 7.2.34 Objective 7 states that the Vision will support and encourage all means of sustainable and safe transport, public transport improvements, and cycleway and footway improvements.
- 7.2.35 Policy HV12 'Haverhill North-West Relief Road' states that the NWRR will be provided between Wrattling Road (A143) and Withersfield Road (A1307) as part of the North-West Haverhill strategic development (Policy HV3). The delivery and timing of the Relief Road will be controlled through a legal agreement attached to any planning permission for that development. Planning permission for the delivery of the North-West Haverhill strategic development in advance of the completion of the Relief Road will not be granted unless it is demonstrated that the transport impacts can be satisfactorily mitigated.
- 7.2.36 Policy HV4 'Strategic Site – North-East Haverhill' relates to the proposed development site and states that if planning application(s) to develop all or part of the site come forward in advance of the provision of the North-West Relief Road, permission will not be granted unless it is demonstrated that the transport impacts can be satisfactorily mitigated without the Relief Road.
- 7.2.37 The emerging Great Wilsey Park Masterplan Supplementary Planning Document has been produced to support Policy HV4. It provides the framework against which the planning application will be determined by the Council.
- 7.2.38 The Adopted Joint Development Management Policies Document (February 2015) includes a range of policies relevant to transport.
- 7.2.39 Policy DM45 'Transport Assessments and Travel Plans' sets out the criteria for requiring these document to accompany an planning application. It goes on to state that where a transport assessment and/or travel plan does not demonstrate that the travel impacts arising from the development will be satisfactorily mitigated or that adequate measures are in place to promote the use of more sustainable modes of transport, then planning permission will not be granted. The developer will be expected to provide the necessary funding to deliver any travel plan agreed in writing with the local planning authority. Where it is necessary to Great Wilsey Park development, developers will be required to make a financial contribution, appropriate to the scale of the development, towards the delivery of improvements to transport infrastructure or to facilitate access to more sustainable modes of transport.
- 7.2.40 Policy DM46 'Parking Standards' states that the authority will seek to reduce over-reliance on the car and to promote more sustainable forms of transport. All proposals for redevelopment, including changes of use, will be required to provide appropriately designed and sited car and cycle parking, plus make provision for emergency, delivery and service vehicles, in accordance with the adopted standards current at the time of the application. In particular it states that proposals for new mixed use sites will be expected

to minimise the provision of car parking where achievable, for example by providing shared use parking, and/or car-pooling as part of a Travel Plan.

7.2.41 The Suffolk Local Transport Plan 2011-2031 comprises two parts. Part 1 sets out the overarching transport strategy whilst Part 2 set out local implementation plans, including a chapter specifically on Haverhill.

7.2.42 In Part 1, Chapter 3 'Transport Issues in Suffolk', the LTP states that:

“St Edmundsbury will continue to be a location for growth which could amount to at least 10,000 new homes in the next 20 years as well as a growth in jobs. The growth will be concentrated mainly in the towns of Bury St. Edmunds and Haverhill, with the remaining dwellings being across the rest of the borough. The proposed concentration of housing within Bury St Edmunds will present transport challenges if we are to avoid increased congestion within the town and on roads leading to it, including the A14. Growth throughout the rest of the borough and in neighbouring districts will also add to traffic in Bury St. Edmunds as more residents and visitors travel to the town from across the sub-region to access key services and retail. The level of growth within Haverhill will also impact upon the road network both within the town and the wider area if measures are not put in place to address increased levels of car use associated from extra car trips from them. Levels of safety and congestion on the A1307 between Haverhill and Cambridge in particular are likely to be of significant concern and we will work with St Edmundsbury and Cambridgeshire County Council to find solutions to these problems.

Economic growth within the district is also forecast to see the creation of about 13,000 new jobs, with strong demand in Bury St Edmunds and Haverhill. The location of additional employment opportunities will create additional pressure onto the road network within the district and larger towns if measures are not in place to ease the flow of traffic and to encourage the use of alternatives to single occupancy car commuting. Issues of accessibility to more remote employment locations will also need to be addressed, including links towards Cambridge and Stansted.

As with the other districts within Suffolk, the rural nature of St Edmundsbury outside of the larger towns raises areas of concern for accessibility for those people without access to cars. Bury St Edmunds and Haverhill act as service centres for the surrounding populations and it is important that development throughout the rest of the borough supports access by public transport to sites. Apart from Bury St Edmunds none of the settlements have direct access to rail services.”

7.2.43 Key transport issues for Haverhill in itself include the following:

- Haverhill to Bury St Edmunds and Cambridge bus connections;
- Haverhill North West relief road;
- Haverhill cycle network;
- Haverhill road condition.

7.2.44 Part 2 states that the aim of the plan for Haverhill is to support the sustainable development of the town. Haverhill is likely to receive significant housing and employment growth. Given existing concerns about traffic levels, the challenges presented with substantial growth in Haverhill are reducing reliance on the car for the short journeys within the town and to larger urban centres such as Bury St Edmunds and

Cambridge. Suffolk County Council will work with St Edmundsbury Borough Council, South Cambridgeshire District Council, and Cambridgeshire County Council in which they will work together to find solutions to traffic issues on the A1307.

- 7.2.45 Travel to work patterns for Haverhill highlight that over half of the population travel less than 2km to work i.e. within walking distance. There is also a significant proportion of residents travelling to Cambridge and Stansted Airport, which requires close working with our neighbouring authorities to implement solutions. Suffolk County Council will work with St Edmundsbury Borough Council to ensure that demand for car travel can be reduced by co-locating housing, key services and employment. They want to see better networks for walking and cycling so that these are more attractive and realistic choices. They expect that all new developments will implement robust travel plans to minimise car use, including improvement to sustainable travel infrastructure and services. They will also work with established employers at sites such as Haverhill Business Park; Haverhill Industrial Estate; and Boundary Road Industrial Estate to try to reduce car journeys.
- 7.2.46 Suffolk County Council will provide better information to people about travel including accessing information online, by mobile phones, or from variable message signs. There is a potential for urban traffic management and control in Haverhill to link traffic lights and provide priority for buses alongside real time bus information. Haverhill has a good network of walking and cycling routes but many are incomplete. Most areas of the town are within one kilometre of the centre and main employment locations.
- 7.2.47 Publicly funded infrastructure improvements will be limited at the start of this plan due to funding constraints, but we still hope to be able to fund important improvements to the walking and cycling networks. Developer funding of improvements to support the sustainability of new developments will also be essential. As the plan progresses larger-scale publicly funded schemes may be possible, but will still be judged on the benefits they offer and their deliverability.
- 7.2.48 A North West Relief Road is a much needed improvement. This is a requirement alongside housing development in this part of the town and will help relieve the Cangle junction of through traffic heading north towards Bury St. Edmunds.

Figure 7.1: Key improvements to the Haverhill transport network



7.3 Methodology

7.3.1 The approach to the assessment has been based on the Institute of Environmental Assessment publication 'Guidance Notes No. 1: Guidelines for the Environmental Assessment of Road Traffic' (IEA 1993) and the Department for Transport (DfT) publication Guidance on Transport Assessment (Department for Transport 2007).

Study Area

7.3.2 For the purposes of this assessment the study area has been taken as the proposed development site, the adjacent roads and principle junctions in Haverhill that might be affected. The junctions requiring modelling were agreed with the County Council prior to the assessment taking place.

Surveys

7.3.3 The assessment is based on traffic flow changes predicted by traffic counts included within the TA, and as such no new technical surveys were carried out.

Assessment Scenarios

7.3.4 The timescales for development delivery are dependent on many factors, including the planning process and future market demand for housing. However, it is anticipated that the proposed development would commence onsite circa 2017 and first occupation would be in 2019. Furthermore, through discussion with SCC it has been agreed that the assessment years would be 2019, 2024 and 2029.

7.3.5 To assess the propensity for background growth, Temprow growth forecasts were investigated, this indicated the following growth:

- 2014 Households = 10,720
- 2019 Households = 11,490 reflecting an increase of 770 dwellings
- 2024 Households = 12,277 reflecting an increase of 1,557 dwellings
- 2029 households = 13,048 reflecting an increase of 2,328 dwellings

7.3.6 This demonstrates that the combination of both the proposed development and the North West development will deliver housing over and above that identified within Temprow, therefore any inclusion of background will result in double counting. On this basis, the assessment will not include any assumptions for background growth.

7.3.7 Traffic growth is also a factor of the creation of jobs. Therefore Temprow was interrogated to understand the background traffic growth levels with all of the housing growth assumptions removed. The result is indicated below.

7.3.8 Following completion of the aforementioned stages it is envisaged that the following model scenarios will be produced, namely:

- 2015 Existing Operation;
- 2015 Reference Case including committed developments but without North West Relief Road;
- 2015 Reference Case including committed developments with North West Relief Road;
- 2019 Reference Case including committed developments but without North West Relief Road;
- 2019 Reference Case including committed developments with North West Relief Road;
- 2029 Reference Case including committed developments but without North West Relief Road;
- 2029 Reference Case including committed developments with North West Relief Road.

7.3.9 The traffic model will include all committed developments, and as such no additional proposals will be included. Namely, this includes the North West Relief Road and the permitted North West Haverhill development and associated North West Relief Road. The North West Haverhill development comprises 1,150 dwellings

7.3.10 Further details on the traffic modelling are set out in the TA.

Consultation

7.3.11 A scoping note was prepared following initial discussions with Suffolk County Council (SCC) to set out the scope for the TA. It was submitted to the local authority on 27 August 2014 in draft form, with the final submission on 12 December 2014. To ensure a robust assessment, specific consideration was given to the following areas:

- Providing an appropriate review of the existing conditions;
- Accident analysis;
- Providing full details of development proposals;
- Providing a 'New Approach to Appraisal (NATA)' assessment;
- Assessment years;
- Trip Generation; and
- Promoting smarter travel choices via Travel Plans.

7.3.12 Discussions with the County Council have occurred over a number of months to agree the appropriate methodology for the transport assessment. This included an inception meeting prior to the submission of a formal scoping note and was followed by detailed discussions to agree the modelling methodology (the scoping note is included as an appendix to the TA). Various aspects covering the delivery of the proposed development have been discussed with the County Council with fundamental principles addressed and agreed.

7.3.13 The consultation process has resulted in working agreements across various areas of the assessment, including the following key areas:

- Location and the form of the access points;
- Methodology to be adopted in order to review the proposed development impacts;
- Trip generation rates to be applied;
- Data to be obtained, namely:
 - Preferred modes of transport in the locality.
 - Road traffic accident data on the local roads over the last five years.

- Public rights of way and cycle tracks in the vicinity of the proposed development.
- Existing road-based public transport services available.
- Existing rail-based public transport services available.

Significance Criteria

- 7.3.14 The methodology follows current best practice by assessing the effects of the proposed development on transport modes and users, including: pedestrians, cyclists, public transport users and vehicle drivers and passengers.
- 7.3.15 For the purposes of this assessment the majority of the routes in the vicinity of the proposed development site are considered to be on a moderate level in terms of sensitivity as they are predominantly residential areas. There are also relatively high volumes of pedestrian and cycle movements within these areas.
- 7.3.16 The magnitude of each effect has been considered against the criteria within the IEMA guidelines, where appropriate. The significance of each effect has then been considered. However, the IEMA guidelines state that:

"...for many effects there are no simple rules or formulae which define the thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor, backed-up by data or quantified information wherever possible. Such judgements will include the assessment of the numbers of people experiencing a change in environmental impact as well as the assessment of the damage to various natural resources."

- 7.3.17 The criteria used to determine the magnitude of impact and significance of effect for each of the traffic-related environmental effects take into account the advice given in the IEMA guidelines as summarised below.

Severance

- 7.3.18 Severance is the perceived division that can occur within a residential area if it becomes separated by a major traffic artery and is used to describe the factors that separate people from other people and places. For example, severance may be affected as a result of an increase in traffic that could affect the difficulty in crossing a road. It can also relate to quite minor traffic flows if they impede pedestrian access.
- 7.3.19 The effects of severance can be applied to motorists, pedestrians or residents. The IEMA guidelines suggest that changes of traffic flow of 30%, 60% and 90% are regarded as producing 'minor', 'moderate' and 'major' changes in severance respectively. However, there are no predictive formulae which give simple relationships between traffic factors and levels of severance. The IEMA guidelines state that marginal changes in traffic flow are unlikely to create or remove severance.

Driver Delay

- 7.3.20 Delays to existing traffic can occur at several locations within the local highway network as a result of the additional traffic that would be generated by a development. The IEMA guidelines state that delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system.

7.3.21 The theoretical capacity of a particular junction can be determined by assessing the Ratio of Flow Capacity (RFC) for priority controlled junctions and Degree of Saturation for signal controlled junctions. When an RFC value of 0.85 or more is experienced, or a degree of saturation of 90%, queuing and congestion are likely to occur during busy periods.

Pedestrian Delay

7.3.22 Changes in the volume, composition or speed of traffic may affect the ability of people to cross roads, and therefore increases in traffic levels are likely to lead to greater increases in delay. Delays are dependent upon the general level of pedestrian activity and general physical conditions of the crossing location.

7.3.23 Given the range of local factors and conditions which can influence pedestrian delay, the IEMA guidelines do not recommend that thresholds be used as a means to establish the significance of pedestrian delay, but recommend that reasoned judgements be made instead. However the IEMA guidelines do note that, when existing traffic flows are low, increases in traffic of around 30% can double the delay experienced by pedestrians attempting to cross a road.

Pedestrian Amenity

7.3.24 Pedestrian amenity is broadly defined as the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic.

7.3.25 The IEMA guidelines note that changes in pedestrian amenity may be considered significant where the traffic flow is halved or doubled, with the former leading to a beneficial effect and the latter an adverse effect.

Fear and Intimidation

7.3.26 The scale of fear and intimidation experienced by pedestrians is dependent on the volume of traffic, HGV composition, its proximity to people or the lack of protection caused by such factors as narrow pavement widths, as well as factors such as the speed and size of vehicles.

7.3.27 There are no commonly agreed thresholds by which to determine the significance of the effect. However, the IEMA guidelines note previous work that has been undertaken which puts forward thresholds that define the degree of hazard to pedestrians by average traffic flow, 18 hour/day heavy vehicle flow and average speed over an 18 hour day in miles per hour.

7.3.28 The IEMA guidelines also note that special consideration should be given to areas where there are likely to be particular problems, such as high speed sections of road, locations of turning points and accesses. Consideration should also be given to areas frequented by school children, the elderly and other vulnerable groups.

Accidents and Safety

7.3.29 Where a proposed development is expected to produce a change in the character of the traffic on the local road network, as a result of increased HGV movements for example, the IEMA guidelines state the implications of local circumstances or factors which may elevate or lessen risks of accidents, such as junction conflicts, would require assessment in order to determine the potential significance of accident risk.

Assessment Criteria and Assignment of Significance

7.3.30 The tables below set out the criteria for determining the magnitude of changes, the sensitivity of receptors and the significance of effects, with these being based on the IEMA guidance.

7.3.31 The sensitivity of the receptor and the magnitude of the impact are combined using the matrix in Table 7.1 to determine the significance of the effect. Where the matrix offers more than one significance option, professional judgement has been used to decide which option is most appropriate.

Table 7.1: Magnitude of Impact

Magnitude	Criteria
Severe	Changes in total traffic or HGV flows over 90%
Major	Changes in total traffic or HGV flows of 60% - 90%
Moderate	Changes in total traffic or HGV flows of 30% - 60%
Minor	Changes in total traffic or HGV flows of 15%- 30%
Negligible	Changes in total traffic or HGV flows of 5% - 15%
None	Changes in total traffic or HGV flows less than 5%

Table 7.2: Sensitivity of Receptor

Sensitivity	Examples
Very High	Receptors of greatest sensitivity to traffic flow: schools, colleges, playgrounds, accident blackspots, retirement homes, urban/residential roads without footways that are used by pedestrians. (Paragraph 2.5 IEMA Guidelines, 1993)
High	Traffic flow sensitive receptors including: congested junctions, doctors' surgeries, hospitals, roads with narrow footways, unsegregated cycleways, parks, recreation facilities
Medium	Traffic flow sensitive receptors including: shopping areas with roadside frontage, roads with widened footways, segregated cycleways, community centres.
Low	Receptors with some sensitivity to traffic flow: places of worship, public open space, nature conservation areas, listed buildings, tourist attractions and residential areas with adequate footway provision.
Very Low	Receptors with low sensitivity to traffic flows and those sufficiently distant from affected roads and junctions.

Table 7.3: Assessment Matrix

Sensitivity	Magnitude of Impact				
	Very High	High	Medium	Low	Very Low
Severe	Severe / Major	Major	Major / Moderate	Moderate	Moderate / Minor
Major	Major	Major / Moderate	Moderate	Moderate / Minor	Minor
Moderate	Major / Moderate	Moderate	Moderate / Minor	Minor	Minor / Negligible
Minor	Moderate	Moderate / Minor	Minor	Minor / Negligible	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
None	None	None	None	None	None

7.3.32 The terms in the matrix in Table 7.3 have the following definitions:

- Severe: These beneficial or adverse effects are a fundamental consideration in the decision making process.
- Major: These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process.
- Moderate: These beneficial or adverse effects may be important, but are not likely to be key decision-making factors. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a particular resource or receptor.
- Minor: These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the proposed development.
- Negligible: No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

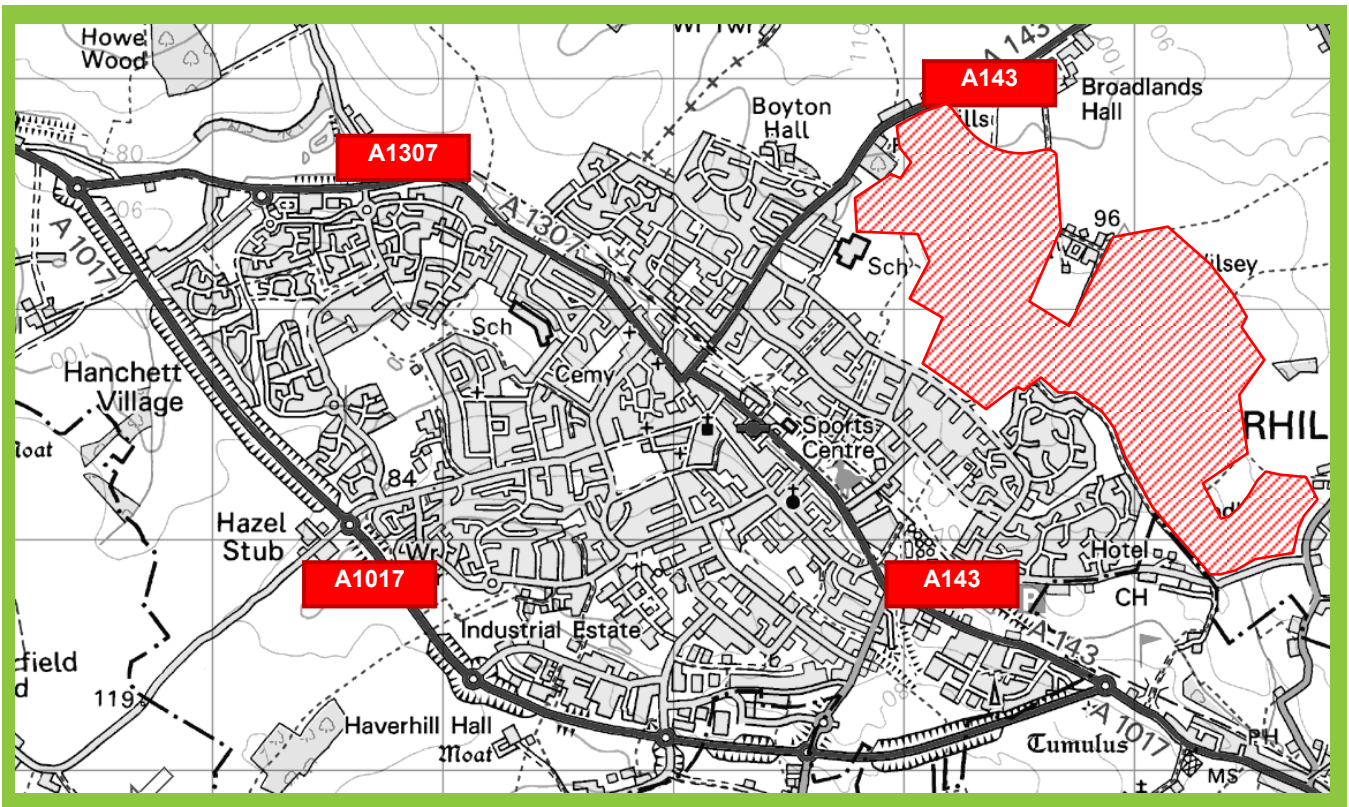
7.3.33 Potential effects are therefore concluded to be of major, moderate, minor or negligible significance. Major and moderate levels of significance represent effects considered to be significant in EIA terms.

7.4 Baseline Conditions

Existing Highway Network

7.4.1 The location of the site in relation to the local road network is indicated in Figure 7.2.

Figure 7.2: Site Location in relation to the local road network



- 7.4.2 The A143 Haverhill road is located to the west of the proposed development site and forms an important corridor within the local road network. The A143 commences from immediately to the south of Haverhill at a roundabout with the A1017 and heads generally in a north-easterly direction passing through Bury St. Edmunds approximately 25.5km from the proposed development site, where it crosses the A14 Felixstowe-Midlands strategic route, and terminating at the A12 London-Great Yarmouth road in Great Yarmouth. The A143 is predominantly a single carriageway road which is subject to national speed limit along much of the length. The section approaching Haverhill is subject to a 30mph speed limit.
- 7.4.3 The A1307 starts at the Cangle Junction (with the A143) in Haverhill Town Centre, heading north west from the roundabout, crossing the A11 London-Norwich strategic route, approximately 16km from the proposed development site, and terminating in Cambridge City Centre.
- 7.4.4 The A1017 starts at a roundabout with the A1307 to the north-west of Haverhill, heading in a south-easterly direction and serves as a 5.6km bypass for Haverhill, intersecting the southern terminus of the A143 at a roundabout to the south east of the town. It continues south-eastwards to terminate at a roundabout with the A131 Chelmsford-Sudbury road, just north of Braintree, approximately 23.5km from the proposed development site.
- 7.4.5 Chalkstone Way is a small local road that serves the north-eastern suburbs of Haverhill. It commences at a T-junction with the A143 Haverhill Road and skirts existing residential areas, terminating after

approximately 2km at a mini-roundabout with the A143 Sturmer Road. The road serves the Samuel Ward Academy and Westfield Primary School.

Rail Based Public Transport

7.4.6 The closest railway station is located in the centre of Cambridge, circa 30km to the north west of the proposed site. The train station, presently managed by the franchise operator, Abellio Greater Anglia, provides a range of facilities including:

- 374 space car park open 7 days of the week
- 896 cycle storage spaces
- Taxi rank in front of station
- Ticket office open 7 days of the week
- Self-service ticket office
- Manned help desk
- Cash machine
- Public Wi-fi
- Pay phones
- Post box
- Refreshments with Shops
- Toilets with baby changing facilities
- Waiting rooms

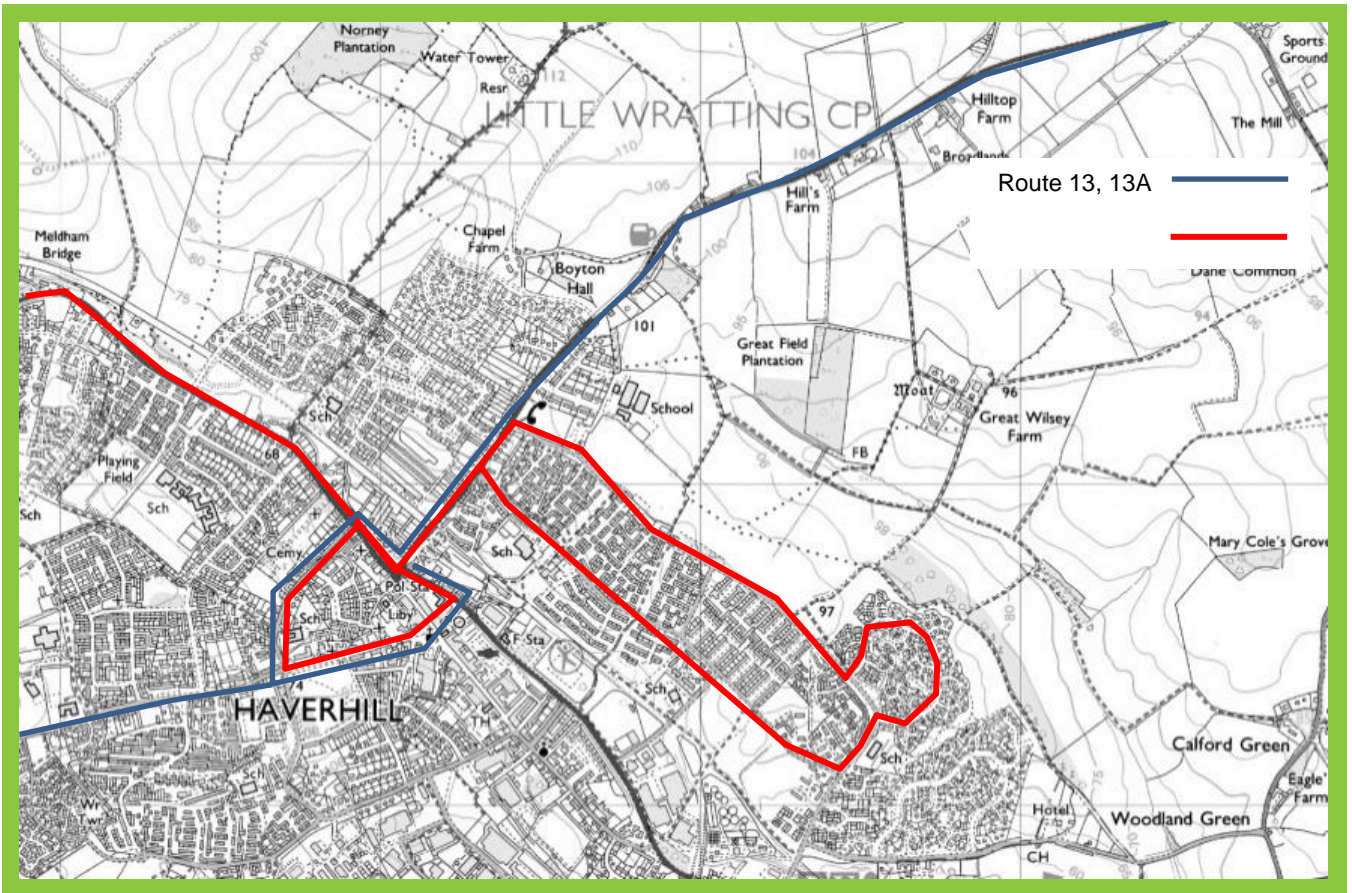
7.4.7 Cambridge Railway Station provides the following services:

- Four routes per hour to London Kings Cross with a journey time of circa 48 minutes.
- One route per hour to London Liverpool Street with a journey time of circa 1 hour and 10 minutes.
- One route per hour to Birmingham New Street with a journey time of circa 2 hours 37 minutes.
- One route per hour to Stansted Airport with a journey time of circa 30 minutes
- Two routes per hour to Norwich with a journey time of 1 hour and 18 minutes.

Road Based Public Transport

7.4.8 Numerous public transport routes operate across Haverhill. Those that operate adjacent to the proposed site are indicated below:

Figure 7.3: Bus Routes operating close to the development



7.4.9 The bus services 13 and 13A are routes managed by Stagecoach and operate between Haverhill, Linton and Cambridge, Monday to Sunday. The first bus leaves Haverhill Bus Station at 05:38. The last bus reaches Haverhill Bus Station at 00:05. This service operates typically every half hour on Saturdays and every hour on Sundays.

7.4.10 The bus services 14, 14A, 15 and 15A are routes managed by Stephenson's of Essex and operate between Haverhill, Chedburgh and Bury St Edmunds, Monday to Sunday. The first bus leaves Haverhill Bus Station at 06:15. The last bus reaches Haverhill Bus Station at 00:05. This service operates typically every hour.

7.4.11 In addition, a school bus service run by Stephenson's of Essex – Bus Service HL025 runs between Haverhill and Poslingford from Monday to Friday. The first bus arrives at the Haverhill Bus Station at 08:37 and leaves the Haverhill Bus Station at 14:50. This service operates twice a day.

7.4.12 Another school bus service run by Stephenson's of Essex – Bus Service HL351 runs between Haverhill and Great Bradley from Monday to Friday. The first bus arrives at the Haverhill Bus Station at 08:37 and leaves the Haverhill Bus Station at 14:50. This service operates twice a day.

7.4.13 The bus station provides waiting areas, toilets and is located circa 50m to the north-east of Haverhill High Street.

Pedestrians and Cyclists

7.4.14 At present the proposed development site does not contain any significant generators of pedestrian or cycle trips. As such, historically there has been no requirement to provide dedicated walking and cycling links into the site. There are intermittent footways within the local road network with cycle trips predominantly catered for within the highway. There are no substantial dedicated cycling facilities.

Public Rights of Way

7.4.15 Public Rights of Way (PRoW) are classified as highways and as such are protected routes. The 1949 National Parks and Access to the Countryside Act placed a duty on every County Council in England and Wales to draw up and publish a definitive map and statement of PRoW in their area.

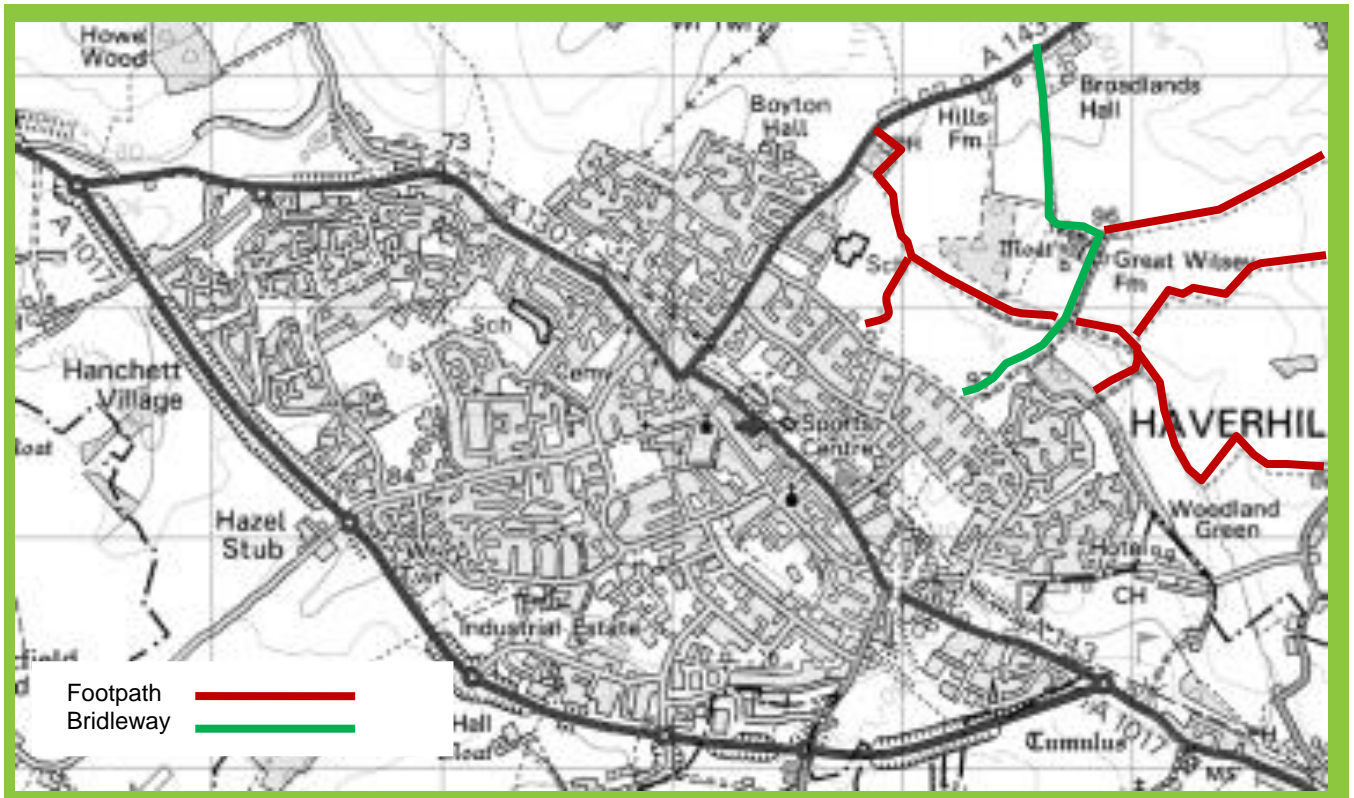
7.4.16 The Definitive Map is the legal record of the location and status of PRoW. The statement is a description of the PRoW shown on the definitive map.

7.4.17 There are four classifications of PRoW:

- Footpaths - by foot only
- Bridleways - by foot, horse or bike
- Restricted byways - by any form of transport that doesn't have a motor
- Byways open to all traffic - let you travel by any form of transport, including cars

7.4.18 Figure 7.4 highlights the PRoW that are closest to the site. This illustrates that there is a network of bridleways and footpaths that cross the site and connect with bridleways that penetrate other roads in the vicinity of the site.

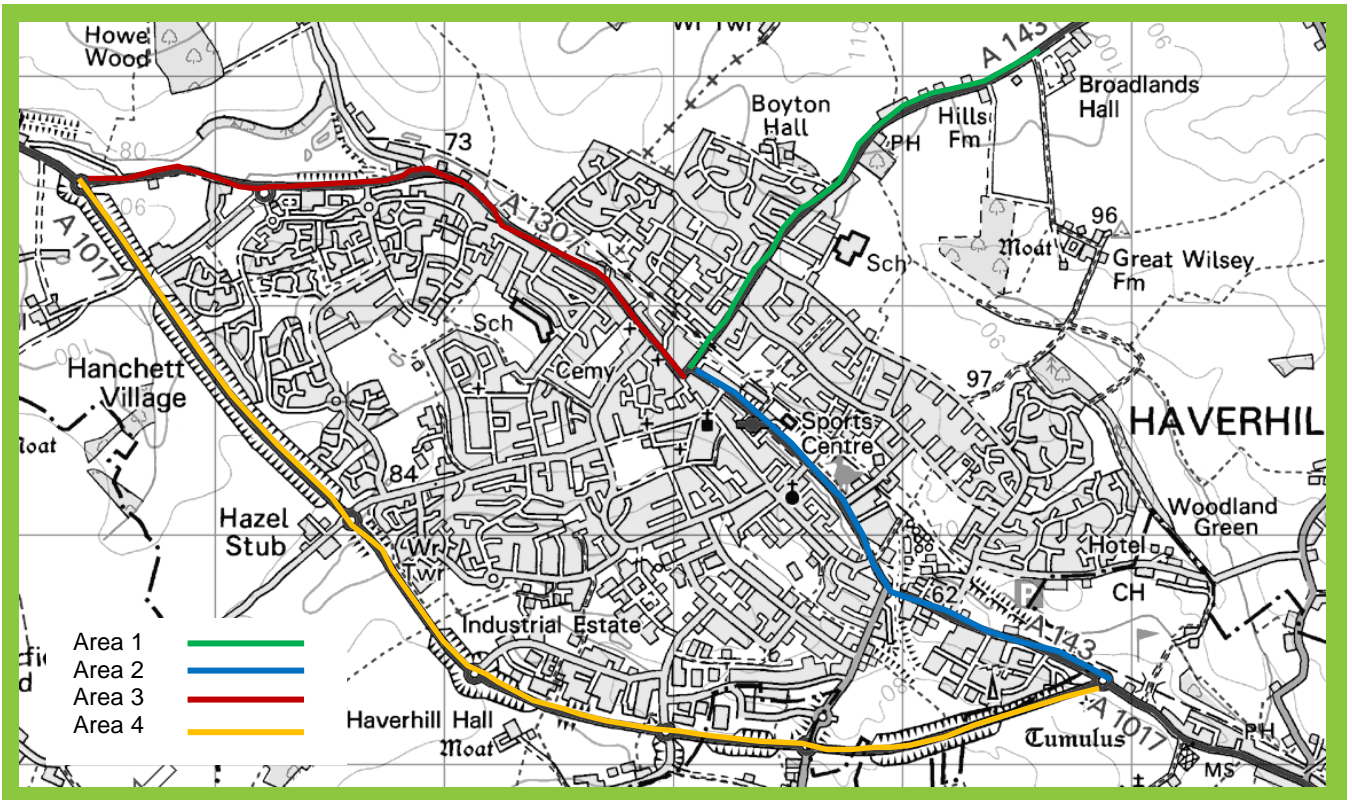
Figure 7.4: On site Public Right of Way



Personal Injury Accidents

7.4.19 Data has been obtained from Suffolk Police for all recorded personal injury road accidents (PIAs) occurring during a five year period up to the end of November 2014 on the A143, A1017 and other roads in the vicinity of the site.

Figure 7.5: Area to be covered in Accident Study



7.4.20 A total of 66 accidents are recorded which are summarised below, resulting in 96 casualties. One accident resulted in fatal injury to a motorcyclist. A further 9 accidents resulted in serious injury.

Table 7.4: Total number of PIAs by year and severity, with casualties

	Number of PIAs				Total	Casualties
	Slight	Serious	Fatal	Total		
Year 1 to end Nov'10	12	6	0	18	24	
Year 2 to end Nov'11	16	1	0	17	23	
Year 3 to end Nov'12	11	1	0	12	19	
Year 4 to end Nov'13	14	1	0	15	25	
Year 5 to end Nov'14	3	0	1	4	5	
5 year period total	56	9	1	66	96	

7.4.21 A notable statistical outlier relates to the high proportion of rear end shunts, making up 31.8% of all accidents.

7.4.22 Other notable factors are that 30 of the accidents (representing 45.5%) involved at least one young driver or rider aged 23 years or under and that 31.3% of the accidents involved vulnerable road users i.e. pedestrians and the riders of 2-wheeled vehicles. The numbers of such accidents are listed below.

Table 7.5: PIAs involving young drivers/riders

	Number of PIAs				
	Under 17	17-18	19-20	21-23	TOTAL
Pedal cyclist	6	0	1	1	8
Motor cyclist	1	0	0	1	2
Car/LGV driver	0	7	6	7	20
HGV 7.5t	0	0	0	0	0
5 year period total	7	7	7	9	30

Table 7.6: PIAs involving at least one vulnerable road user

	Number of PIAs			
	Pedestrian	Pedal cyclist	Motorcyclist	Total
Year 1 to end Nov'10	1	2	4	6
Year 2 to end Nov'11	0	5	2	7
Year 3 to end Nov'12	1	2	1	4
Year 4 to end Nov'13	3	0	2	5
Year 5 to end Nov'14	0	3	1	4
5 year period total	5	12	10	26

7.4.23 For the purpose of more detailed analysis, the accidents have been split by area and shown in the table below. Significant clusters within each area have then been identified and studied in greater detail. These have been compared against expected accident rates from COBA for that particular type of road layout and volume of traffic.

Table 7.7: All PIAs by area

	Slight	Serious	Fatal	Total	Casualties
Area 1 – A143 Haverhill Road	18	2	0	20	37
Area 2 – A143 Ehringshaushen Way /Sturmer Road	16	1	0	17	21
Area 3 – A1307 Withersfield Road /Cambridge Road	15	2	0	17	21
Area 4 – A1017 Haverhill Bypass	6	5	1	12	17
5 year period total	55	10	1	66	96

Area 1 – A143 Haverhill Road

7.4.24 This area of the road network covers the whole of the A143 Haverhill Road between Broadlands Hall and Cangle Junction in Haverhill Town Centre, and is shown as “Area 1” on Figure 7.5.

- 7.4.25 A total of 20 PIAs are recorded at this location during the 5-year study period, equivalent to 4.0 PIAs per annum. Of these, none resulted in fatal injury but two resulted in serious injury, one of which was to a motorcyclist.
- 7.4.26 There were a total of 37 casualties, averaging 7.4 per PIA.
- 7.4.27 The number of accidents per annum expected along a road of this type and traffic level based upon COBA parameters would be 7.4 PIAs per annum which compares with an observed rate of 4.0. This suggests that the road is performing marginally better than might be expected, therefore overall the results reported give no particular cause for concern.
- 7.4.28 The only notable feature of the accidents is that 10 or 50% of the accidents involved rear end shunts. All of these occurring between the T-junction with Millfields Way and the roundabout with the A143 Ehringshausen Way.

Area 2 – A143 Ehringshausen Way / Sturmer Road

- 7.4.29 This area of the road network covers the whole of the A143 Ehringshausen Way with Sturmer Road between the Cangle Junction roundabout in Haverhill Town Centre, and the roundabout with the A1017 Haverhill Bypass to the south east of Haverhill and is shown as “Area 2” on Figure 7.5.
- 7.4.30 A total of 17 PIAs are recorded at this location during the 5-year study period, equivalent to 3.4 PIAs per annum. Of these, one resulted in serious injury to a cyclist.
- 7.4.31 There were a total of 21 casualties, averaging 4.2 per PIA.
- 7.4.32 The number of accidents per annum expected along a road of this type and traffic level based upon COBA parameters would be 7.4 PIAs per annum which compares with an observed rate of 3.4. This suggests that the junction is performing marginally better than might be expected, therefore overall the results reported give no cause for concern.
- 7.4.33 The only notable feature of the accidents is that 11 or 52.4% of the accidents involved vulnerable road users.

Area 3 – A1307 Withersfield Road / Cambridge Road

- 7.4.34 This area of the road network covers the whole of the A1307 Withersfield Road leading into Cambridge Road between the Cangle Junction roundabout in Haverhill Town Centre, and the roundabout with the A1017 Haverhill Bypass to the north west of Haverhill, and is shown as “Area 3” on Figure 7.5.
- 7.4.35 A total of 17 PIAs are recorded at this location during the 5-year study period, equivalent to 3.4 PIAs per annum. Of these, two resulted in serious injury to a pedestrian, a cyclist and a motorcyclist.
- 7.4.36 There were a total of 21 casualties, averaging 4.2 per PIA.
- 7.4.37 The number of accidents per annum expected along a road of this type and traffic level based upon COBA parameters would be 7.4 PIAs per annum which compares with an observed rate of 3.4. This suggests that the road is performing marginally better than might be expected; therefore the results reported give no particular cause for concern.

Area 4 – A1017 Haverhill Bypass

- 7.4.38 This area of the road network covers the whole of the A1017 Haverhill Bypass between the roundabouts to the north-west and south-east of Haverhill, and is shown as “Area 4” on Figure 7.5.
- 7.4.39 A total of 12 PIAs are recorded at this location during the 5-year study period, equivalent to 2.4 PIAs per annum. Of these, one resulted in fatal injury serious injury, seven to motorcyclists.
- 7.4.40 There were a total of 17 casualties, averaging 3.4 per PIA.
- 7.4.41 The number of accidents per annum expected along a road of this type and traffic level based upon COBA parameters would be 8.4 PIAs per annum which compares with an observed rate of 2.4. This suggests that the road is performing better than might be expected, therefore overall the results reported give no particular cause for concern.

Accident Summary

- 7.4.42 66 personal injury accidents were reported to have occurred within the study area during the most recent 5-year period for which information is available at the time of writing. This included one fatal accident. Overall there does appear to be a quite high proportion of rear shunt type accidents, and in several cases, accidents involving vulnerable road users, although this is not necessarily atypical of urban roads serving a mixture of purposes in a living environment.
- 7.4.43 The area has been split into several sections for further analysis and the numbers of accidents reported has been compared with statistics indicating expected rates for each type of road or junction given observed traffic levels. Overall the accident record appears to be quite good with observed figures generally below the equivalent expected rate.
- 7.4.44 To summarise, there are no notable safety issues that will remain unaddressed by the current development proposals. Although the development will add traffic to the network there is no reason to suppose that this will significantly compromise the relatively safe performance of the existing road system.

7.5 Predicted Effects

Construction Stage: Direct and indirect: increase in HGV and non HGV traffic impacting on operation of highway network

- 7.5.1 It is anticipated that construction activities will be undertaken between 2017 and 2029 and due to the complexity and length of the construction programme it is not possible to accurately predict volumes of traffic that will be generated over the course of a normal working day. However, a qualitative assessment can be carried out as described below.
- 7.5.2 It is assumed that on average 200 dwellings will be constructed per year, which is likely to mean approximately 100 dwellings being constructed at any one time. This is anticipated to result in approximately 125 workers^A being on site at any one time which would lead to 250 two way trips per day. It is assumed that there would be in the region of up to 10 HGV movements per day from vehicles accessing the Site, which would lead to 20 two way trips per day.

^A Based on 1.5 full time equivalent jobs being supported by the construction of one dwelling with 80% being located onsite.

- 7.5.3 A routing strategy is suggested which would mean that only roads best suited for construction traffic would be affected. It has therefore been assumed that all construction traffic will route via the newly constructed North West Relief Road, A143, A1307 and the A1017 with all other roads, including those through the centre of Haverhill, prohibited to construction traffic. However, should the first phase be open prior to completion of the NWRR, construction traffic shall be routed through the A143, A1307 and the A1017. To ensure minimum disruption to local traffic during peak flow times, a system shall be put in place that ensures that construction traffic travels outside of these times.
- 7.5.4 It is considered that the effect of construction traffic on the surrounding highway network will be of no greater than minor adverse significance as the HGV movements will be scheduled to avoid the peak times of travel demand and the traffic generated by the tradesman will not be discernible from general traffic.
- 7.5.5 Furthermore, the effect of the construction traffic will be minimised as construction trips will not be routed along local roads and routes that are not designed to cater for such traffic. If construction exceeded these assumptions then the impacts would still be indiscernible from the current levels of traffic.

Operation Phase

- 7.5.6 The table below compares the predicted traffic generations for the proposed development with the 2029 AM and PM peak hour base flows to identify any potential sections of road where the increases in traffic may exceed the thresholds set out in the IEMA guidance, thus requiring a detailed assessment.

Table 7.8: Percentage Impact

	2029 Future year flows with Relief Road		2029 Future year flows with Relief Road and Development flows		Percentage difference	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
A143 Haverhill Road (North of Roundabout Access)	1194	1228	1382	1435	15.7	16.9
A143 Haverhill Road (Roundabout Access to North West Relief Road)	1194	1228	1982	2282	66.0	85.8
North West Relief Road	1032	1097	1511	1634	46.4	49.0
A143 Haverhill Road (North West Relief Road to Chalkstone Way)	709	772	987	1258	39.2	63.0
A143 Wrattling Road	1119	1279	1566	1772	39.9	38.5
A1307 Withersfield Road	711	1033	890	1231	25.2	19.2
A1017 Cambridge Road	1948	2103	2420	2631	24.2	25.1
A1017 Haverhill Bypass	902	938	902	938	0.0	0.0
A143 Lord's Croft Lane	1426	1765	1608	1968	12.8	11.5
A143 Ehringshausen Way	1086	1239	1086	1239	0.0	0.0
Chalkstone Way (West of Access)	641	442	974	813	52.0	83.9
Chalkstone Way (East of Access)	641	442	728	539	13.5	21.9
A143 Stumer Road	725	1237	796	1339	9.8	8.2

	2029 Future year flows with Relief Road		2029 Future year flows with Relief Road and Development flows		Percentage difference	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Coupals Road	415	355	431	373	3.9	5.1
Chalkstone Way (South of Coupals Road)	614	642	686	721	11.7	12.3
Water Lane (North of Coupals Road)	425	374	441	392	3.8	4.8
Water Lane (South of Coupals Road)	208	174	208	174	0.0	0.0
A1017 Rowley Hill	1041	1155	1112	1235	6.8	6.9
A1017 Stumer Road	1118	1151	1189	1229	6.4	6.8

7.5.7 The above table considers the period of greatest impact, i.e. during peak periods of travel demand. Outside these periods the traffic generated by the proposed development would be significantly less.

7.5.8 The information contained above indicates the locations where there are predicted to be significant increases in traffic solely as a result of the proposed development, i.e. that would exceed the IEMA threshold of a 10% increase along sensitive links. The following links meet the criteria:

- A143 Haverhill Road (North of Roundabout Access)
- A143 Haverhill Road (Roundabout Access to North West Relief Road)
- North West Relief Road
- A143 Haverhill Road (North West Relief Road to Chalkstone Way)
- A143 Wratting Road
- A1307 Withersfield Road
- A1017 Cambridge Road
- Chalkstone Way (West of Access)
- Chalkstone Way (East of Access)
- Chalkstone Way (South of Coupals Road)

7.5.9 The traffic flows on these sections of road would inevitably increase as a result of the proposed development, due to it being the primary access from the direction of Haverhill. The increase in traffic as a result of the proposed development on the subsequent roads that this road joins into gives no cause for concern. Therefore this suggests that the road will operate satisfactorily with the development.

Direct and indirect (Severance)

7.5.10 The IEMA guidance highlights that receptors are likely to experience effects in terms of severance when traffic flows change by 30% or more. The following links meet this criteria:

- A143 Haverhill Road (Roundabout Access to North West Relief Road) – 85.8%
- North West Relief Road – 49.0%
- A143 Haverhill Road (North West Relief Road to Chalkstone Way) – 63.0%
- A143 Wrating Road – 38.5%
- Chalkstone Way (West of Access) – 83.9%

7.5.11 Along the A143 Haverhill Road between the roundabout access, the new roundabout for the North West Relief Road and the junction with Chalkstone Way and also along Wrating Road, there is a significant percentage increase predicted. This is also the case for Chalkstone Way to the west of the proposed new site access. This increase reflects the location of the site access points and the current low traffic levels. As part of the Proposed Development, it is proposed to deliver a point of access from each aforementioned road; these will include footways along the access roads and crossing points within the A143 Haverhill Road and Chalkstone Way highways.

7.5.12 The percentage increase reported along the North West Relief Road reflects the relatively low traffic levels for a road with additional capacity. The anticipated levels of traffic along the North West Road with the inclusion of both the Haverhill North East and North West Growth Areas were considered in the design of the relief road, which gives a more direct link to the west of Haverhill avoiding the town centre for motorists travelling in the direction of Cambridge. Therefore, with the inclusion of the development traffic, the traffic flows at this location are not considered significant.

Direct and indirect (Driver Delay)

7.5.13 Delays to non-development traffic can occur on the network due to the additional traffic generated by a development. The IEMA guidance document notes that these additional delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close, to capacity.

7.5.14 The overall traffic levels along the A143 are within the theoretical highway capacity of these links and therefore it is considered that this would not create significant driver delay.

7.5.15 The TA considers the potential for delay at the junctions identified within the study area. These include the accesses from the A143 Haverhill Road and the Chalkstone Way. The results of the assessment demonstrate that the junctions would operate within the normally accepted thresholds of highway capacity.

7.5.16 Taking this into account, the impact on driver delay as a result of the magnitude of increase in traffic generated by the proposed development is considered to be negligible. Taking into account the sensitivity of the receptor, the significance effect would be minor adverse at worst. This is not significant in EIA terms.

Direct and indirect (Pedestrian Delay)

- 7.5.17 In accordance with the IEMA guidance, pedestrian delay is likely to occur when traffic affects the ability of people to cross roads. There are currently low levels of pedestrian activity in the vicinity of the application site, although the level of activity is likely to increase following the delivery of the proposed development.
- 7.5.18 The desire line for pedestrians from the application site is likely to be in a southerly direction towards Haverhill. The pedestrian flow east to west is likely to be insignificant. Pedestrian facilities are to be included to cater for movement within the site and existing rights of way would be retained (albeit with minor diversions in place in some cases). These will be in the form of pedestrian signal controlled crossings to ensure that pedestrians can cross the road safely.
- 7.5.19 Within the local network there are already pedestrian facilities that the on-site network would connect into. It is considered that these facilities are sufficient to cater for the expected east-west pedestrian flow. The A2036 would also link into the facilities on the application site.
- 7.5.20 The proposed development is not anticipated to create delay for users of the existing pedestrian network in the area and would provide new routes through the application site.
- 7.5.21 The impact of the traffic generated by the proposed development on pedestrian delay along these links is therefore considered to be of negligible magnitude. Taking into account the sensitivity of the receptor, the significance effect would be minor adverse at worst. This is not significant in EIA terms.

Direct and indirect (Pedestrian Amenity)

- 7.5.22 In accordance with the IEMA guidance, pedestrian amenity should only be considered significant in locations where the traffic flow is doubled. There are no locations where such changes in traffic levels are predicted and therefore the impact is considered negligible. Taking into account the sensitivity of the receptor, the significance effect would be minor adverse at worst. This is not significant in EIA terms.

Direct and indirect (Fear and Intimidation)

- 7.5.23 The primary factor in increasing levels of fear and intimidation for pedestrians and cyclists is high percentage changes in traffic volumes and HGVs. Due to the residential nature of the proposed development there is not predicted to be any significant increase in the volume of HGV traffic on the network and so the magnitude of change is classified as negligible.
- 7.5.24 There are locations identified where total traffic levels do increase beyond the 30% threshold, but as indicated above there are no locations identified where pedestrian or cyclist delay would increase significantly or where amenity would reduce significantly.
- 7.5.25 Therefore, the impact of the proposed development on fear and intimidation is considered to be negligible. Taking into account the sensitivity of the receptor, the significance of effect would be minor adverse at worst. This is not significant in EIA terms.

Direct and indirect (Accidents and Safety)

- 7.5.26 In accordance with the IEMA guidance, an assessment of road safety should be considered if the character of traffic flow alters through increases in traffic volume. The proposed development is not

predicted to generate significant volumes of HGV traffic and the TA demonstrates that traffic is not likely to increase significantly on any links that are not designed for the predicted levels. Therefore, the proposed development is unlikely to produce a change in character of the traffic on the surrounding road network.

7.5.27 Therefore, the impact of the proposed development on accidents and safety is considered to be negligible. Taking into account the sensitivity of the receptor, the significance effect would be minor adverse at worst. This is not significant in EIA terms.

Evaluation of Predicted Impacts

7.5.28 The significance of predicted impacts needs to be assessed and could be categorised as follows:

Table 7.9: Summary of Likely Environmental Effects on Traffic and Transport

Activity	Sensitivity of receptor	Likely impact	Short / medium / long term Continuous / intermittent	Magnitude of impact	Significance of effect	Significant / Not significant	Indirect / direct
Construction phase	High	Increases in traffic levels	Short term / continuous	Negligible	Minor adverse	Not significant	Direct
Operation Phase: Severance	High	Separations of people by increased traffic levels	Long term / continuous	Negligible	Minor adverse	Not significant (with further mitigation in place)	Direct
Operation Phase: Driver Delay	High	Delays due to increased traffic	Long term / continuous	Negligible	Minor adverse	Not significant	Direct
Operation Phase: Pedestrian Delay	High	Reduced opportunities to cross transport links	Long term / continuous	Negligible	Minor adverse	Not significant	Direct
Operation Phase: Pedestrian Amenity	High	relative pleasantness of a journey	Long term / continuous	Negligible	Minor adverse	Not significant	Direct
Operation Phase: Fear and Intimidation	High	dependent on the volume of traffic	Long term / continuous	Negligible	Minor adverse	Not significant	Direct
Operation Phase: Accident and safety	High	Increased risk of accidents	Long term / continuous	Negligible	Minor adverse	Not significant	Direct

7.6 Mitigation, Monitoring and Residual Effects

Construction Phase

7.6.1 It is considered that construction traffic will have no greater than a minor adverse impact. However this will be further mitigated through the production of a Construction Environmental Management Plan (CEMP) which will be produced in response to a planning condition attached to any outline planning

consent. The purpose is to reduce the risk of adverse effects of construction on sensitive environmental resources and to minimise disturbance to local residents.

7.6.2 The objective is to demonstrate that appropriate checking, monitoring and audit processes will be implemented to ensure works are undertaken in an appropriate manner, together with measures to ensure that appropriate corrective actions or mitigation measures are taken.

7.6.3 The CEMP shall include:

- Details of the approved construction traffic routes;
- The times within which traffic can enter and leave the Application Site;
- Specified on-site parking for vehicles associated with the construction works and the provision made for access thereto; and
- Details of the expected number of construction vehicles per day.

Post-completion stage

Highway Interventions

7.6.4 As identified above, the delivery of any substantial residential development has the potential to increase traffic levels on the surrounding road network. An assessment of the potential impacts associated with the Proposed Development has indicated that there are several locations identified within the local road network that require junction interventions. These include:

- A143 / Lord's Croft Lane: Implementation of traffic signals in place of existing roundabout
- A143 / Manor Road Junction: Small localised widening to the A143 approach roads at the mini-roundabout with Manor Road
- A1017 / A1307 Roundabout: Improvements to the roundabout between the A1017 and A1307 with the addition of a dedicated left-turn lane from A1307 Cambridge Road (West) into A1307 Cambridge Road (East)
- A1307 Withersfield Road / Queens Street Roundabout: Localised widening to the western approach to the roundabout from A1307 Withersfield Road.

7.6.5 The proposed development would be accessed from the existing highway. The main access would be from the A143 Haverhill Road at the north west of the application site. This access would take the form of a roundabout junction. An additional traffic signal-controlled junction is proposed on Chalkstone Way to the south of the site of the development. A third access is proposed into the development site from Coupals Road, however this will serve as an access road to the car park for the recreation area only.

7.6.6 A network of internal highway routes would provide connections throughout the application site.

7.6.7 The street hierarchy has been designed to:

- Provide a legible and permeable framework for development;

- Ensure that vehicle and pedestrian routes are both well overlooked and busy;
- Design in and manage traffic speeds through traffic calming;
- Accommodate a certain amount of on street parking, which brings activity to the street-scene and helps traffic calming;
- As well as providing access, reinforce legibility and the contrast between character areas; and
- Reflect the importance of routes according to the level of anticipated pedestrian, cycle and vehicular flow and the requirements of accessibility for servicing, refuse, emergency access and bus routing.

7.6.8 The layout would incorporate design features that allow for safe access and movement of service vehicles through the application site, and also act to influence safe movement through the proposed development, whether people are on foot, bicycle, car or bus. The general characteristics are set out in the following paragraphs.

Walking and Cycling

7.6.9 Published good practice identifies five main requirements for pedestrian routes. Wherever possible, these requirements should be followed when planning for pedestrians within the Proposed Development:

- Convenience – follow desire lines without any undue deviation from routes;
- Connectivity – link multiple origins and destinations;
- Conviviality – be pleasant to use;
- Coherence – be made legible through paving and/or signage; and
- Conspicuousness – promote security and safety allowing pedestrians to see and be seen by others.

7.6.10 The Guidance for Cycle Audit and Cycle Review (The Institution of Highways and Transportation, 1998) determines five main requirements for cycle routes. Again, it is important that these requirements are recognised if the promotion of cycling to the Site as a viable and attractive alternative to car use is to be successful:

- Coherence – continuous and to a consistent standard;
- Directness – closely follow desire lines as much as possible;
- Attractiveness – in aesthetic as well as objective terms;
- Safety – designed to minimise risks for cyclists and others; and
- Comfort – well maintained smooth dry surfaces, flush kerbs and gentle gradients.

7.6.11 The Proposed Development will include numerous walking and cycling routes within the Site to provide a comprehensive route network that will comprise both on and off road routes. Highway crossing points will be designed to cater for all types of pedestrian users with the routes lit where appropriate.

7.6.12 The walking and cycling routes will connect the individual housing blocks into the primary routes through the Site that will ensure full connectivity and route choice throughout the development.

7.6.13 The onsite network will connect into the external walking and cycling networks that includes the PRow network. The predominant walking and cycling desire line towards Haverhill is to be fully incorporated into the movement network for the Proposed Development.

Spine Road

7.6.14 The spine road would be the most important and legible vehicular route through the application site. It would change in character as it passes through the landscaped green corridors and built areas.

7.6.15 The spine road connects between the two access points, providing a north-south link within the proposed development.

7.6.16 The following indicative characteristics would be considered for the spine road within the extent of built development:

- Width: 6.75 metres wide, widened on bends to accommodate bus route and on street parking where provided;
- Cycle path: 1.8 metre cycle path (minimum) and 1.5 to 2.0 metre footways where appropriate;
- Landscaping, including street trees, and street furniture where appropriate;
- Landscape verges: 3 metre landscaped verges where appropriate;
- On-street parking where appropriate; and
- Bus stops at regular intervals.

Cycle Routes and Footpaths

7.6.17 Within low speed or traffic calmed routes 'safe routes', where cyclists would be able to mix with vehicles with minimal hazard. In addition, there would be dedicated cycle routes to promote sustainable travel.

7.6.18 Cycle paths will require:

- Clear entry/exit points with good surveillance;
- To be adopted and maintained by the local authority where required;
- To be lit to highway standards; and
- Have good natural surveillance.

7.6.19 There are two types of footpath routes proposed: those alongside streets through the built development area; and leisure paths through the open spaces. Key strategic foot and cycle path links through the application site would be emphasised by tree planting to create visual connections and associations.

7.6.20 The internal network of footpaths and cycle paths would afford safe routes from the residential areas to the schools. Sufficient measures for traffic calming/pedestrian movements would be provided both to promote slower vehicle speeds.

Public Transport

7.6.21 The strategy for the proposed development would be to provide a sustainable development served by public transport. A strategy will be developed and agreed with the local planning authority to ensure adequate public transport provision. The strategy would be based on the most likely destinations including Haverhill town centre.

7.6.22 The TA identifies the broad level of public transport that would serve the application site. In brief, the public transport strategy has been developed to respond to a phased approach, with increasing service frequency as the proposed development is built out.

Parking

7.6.23 Parking would be arranged on the application site to suit the housing type. Car parking provision would take into account the principles set out in the NPPF, including:

- Accessibility of the site;
- The type, mix and use of the development;
- Availability of and opportunities for public transport;
- Local car ownership levels;
- The overall need to reduce the use of high emission vehicles.

7.6.24 For the purposes of this assessment, it is assumed that one parking space would be provided for single bedroom properties and two parking spaces for properties with two or more bedrooms.

7.6.25 Secure cycle storage would be available in dedicated stores, garages and/or within gardens.

Travel Plan

7.6.26 To mitigate the increase in trips, a Travel Plan Framework (TPF) has been produced (Appendix 2 of the TA). The TPF establishes modal share targets to reduce traffic effects on the road network and encourage a modal shift towards sustainable modes of travel. These targets are based on challenging, but achievable non-car and Single Occupancy Vehicle (SOV) mode share targets. The targets are based upon current practice in the site's environs and have regard to the location of the application site.

7.6.27 The TPF provides the framework for the future Travel Plan. Research has shown that Travel Plans need to be managed by a travel plan coordinator, who has a clear brief with dedicated resources to manage the Travel Plan to ensure its objectives are met. It is the intention that the Travel Plan Coordinator would be in post for five years after first residential occupation at the application site.

7.6.28 In the early years of construction of the development, it will be necessary for the developers to 'pump prime' establishment of the development. As the employment land parcels are delivered in the later stages of development, the membership of the development will be increased such that the membership revenues alone will be adequate to cover the costs of supporting the development.

7.6.29 In addition, the developer is providing a failsafe fund to cover the cost of measures required in the event of the Travel Plan not meeting the required targets. The failsafe measures are only intended to mitigate the impacts of any under achievement towards meeting targets. They should not otherwise be invoked nor constitute a penalty to the developer. Funding is fully secured as part of the Section 106 agreement to the development. This will be payable on demand.

7.6.30 The key to a successful Travel Plan is identifying the correct measures that will suit future residents of a development. It is unlikely that there will be sufficient attraction to a single measure; hence a combination of measures is considered the most suitable approach to pursue in this case. The TPF identifies possible measures, which could include:

- Welcome Packs;
- Travel induction sessions;
- Support for Car share databases.

Evaluation of Residual/Cumulative Impacts

7.6.31 Details of other proposed developments considered within the cumulative assessment for the ES have been set out. The traffic model used to inform this chapter and the TA includes key committed developments as follows:

- North West Growth Area;
- Haverhill North West Relief Road.

7.6.32 In addition, the County Council has provided growth rates that have been applied to existing traffic levels to forecast the future traffic environment. Therefore, this chapter has taken into account operational phase cumulative effects as part of the above assessment.

7.6.33 Through the introduction of the identified mitigation, it is considered that there are no residual impacts.

Monitoring

7.6.34 At the time of writing, it is considered that monitoring of residual impacts is not necessary.

Residual Effects

7.6.35 The assessment has been undertaken in accordance with the IEMA guidelines, the details of which were discussed in an earlier section.

7.6.36 A full audit of the highway network surrounding the application site has been undertaken as part of the assessment, the purpose of which was to identify locations that should be considered sensitive in accordance with the IEMA guidelines.

7.6.37 Traffic flow data for both the AM and PM peak hours has been obtained to form the level against which the impact of the proposed development was assessed. The highway safety record of the roads surrounding

the application site has also been assessed to identify any problems that are likely to be exacerbated by the additional traffic generated by the proposed development.

7.6.38 The assessment of the impact of construction traffic concluded that the minimal increase in traffic during the construction phase would have a negligible impact on the road network. Any potential impact would be mitigated by the introduction of a CEMP. This includes measures to coordinate the delivery times to ensure that vehicle movements are spread throughout the day, and the provision of vehicle washing facilities to ensure that dust and mud are not transported onto the highway.

7.6.39 A detailed assessment of the potential traffic related environmental effects and their significance has been undertaken. This concluded that there would not be significant environmental effects.

7.6.40 The following table summarises the residual effects.

Table 7.10: Residual Effects

Potential effect	Significance (pre-mitigation)	Mitigation measure	Significance of residual effect
Construction Phase			
Construction traffic	Minor adverse	CEMP	Negligible
Operation Phase			
Severance	Negligible	Improved facilities within the application site and provision of appropriate linkages to the existing facilities within the local road network.	Negligible
Driver delay	Negligible	No mitigation required.	Negligible
Pedestrian delay	Negligible	Improved facilities within the application site and provision of appropriate linkages to the existing facilities within the local road network.	Negligible
Pedestrian amenity	Negligible	As for Pedestrian delay above	Negligible
Fear and intimidation	Negligible	As for Pedestrian delay above	Negligible
Accidents and safety	Negligible	No specific mitigation required	Negligible

7.7 Non-technical Summary

7.7.1 Due to the complexity and length of the construction programme it is not possible to accurately predict volumes of traffic that will be generated over the course of a normal working day. However a qualitative assessment can be carried out. Only roads best suited for HGVs would be used during construction. It has therefore been assumed that the majority of construction traffic will route via the newly constructed North West Relief Road, A143, A1307 and the A1017. However, should the first phase be open prior to completion of the NWRR, construction traffic shall be routed through the A143, A1307 and the A1017. To ensure minimum disruption to local traffic during peak flow times, a system shall be put in place that ensures that construction traffic travels outside of these times. Consequently the effect of construction traffic is predicted to be negligible.

7.7.2 To assess the effects during operation, various methods have been employed:

- **Severance:** the increase in traffic resulting from the proposed development is predicted to result in significant changes in traffic flows at the access points to the site. To mitigate this effect the access designs incorporate footways and crossing points to ensure that the effect is negligible. The percentage increases reported along the identified roads reflect the relatively low traffic levels. Even with the inclusion of the development traffic, the traffic flows at these locations are considered to be negligible.
- **Driver delay:** additional delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close, to capacity. Several junctions have been identified where this could potentially occur and consequently measures are proposed to improve these junctions' capacity. As such the net effect would be negligible.
- **Pedestrian delay:** this is only likely to occur when traffic affects the ability of people to cross roads. There are currently low levels of pedestrian activity in the vicinity of the site which will increase following the delivery of the proposed development. The strongest desire line for pedestrians lies between the site and the town centre. This movement is catered for by the existing facilities which will minimise pedestrian delay. Therefore it is concluded that the impact on pedestrian delay is negligible.
- **Pedestrian amenity:** this should only be considered significant in locations where the traffic flow is doubled. There are no locations identified where traffic levels are double and therefore the impact on pedestrian amenity is expected to be negligible.
- **Fear and intimidation:** the primary factor in increasing levels of fear and intimidation for pedestrians and cyclists is high percentage changes in traffic volumes and HGVs. Due to the residential nature of the development there is not predicted to be any significant increase in the volume of HGV traffic on the network and so the magnitude of change is classified as negligible. None of the locations identified highlight traffic levels that increase beyond the 30% threshold. Therefore, the effect of the proposed development on fear and intimidation is considered to be negligible.
- **Accident and safety:** the proposed development is not predicted to generate significant volumes of HGV traffic and traffic is not likely to increase significantly on any links that are not designed for the predicted levels. Therefore, the proposed development is unlikely to produce a change in character of the traffic on the surrounding road network. Therefore, the effect of the proposed development on accidents and safety is considered to be negligible within the wider road network.