# 14 TRANSPORT AND TRAVEL PLANNING

## 14.1 Introduction

14.1.1 This Chapter has been prepared by Brookbanks Consultants Ltd and sets out the results of an assessment of the traffic-related environmental effects of the Proposed Development. The purpose of this chapter is to assess those environmental effects that are potentially significant where a Proposed Development is likely to alter traffic flows.

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

14.1.3 Data used in the assessment has been drawn from the Transport Assessment (TA) for the Proposed Development contained in Volume 2 of the Environmental Statement. The TA sets out transport issues relating to the Proposed Development, identifies any necessary interventions to mitigate the anticipated transport effects and to improve accessibility and safety for all modes of travel.

14.1.4 Following a summary of the potential effects considered, the chapter outlines the methodology that has been adopted as part of the assessment and then provides a description of the baseline conditions.

## 14.2 Scope and methodology

14.2.1 The methodology follows current best practice by assessing the impacts of the proposed development on transport modes and users, including: pedestrians, cyclists, public transport users and vehicle drivers and passengers.

14.2.2 For the purposes of this assessment the majority of the routes in the vicinity of the application site are considered to be sensitive as there are residential properties lining the carriageways and, there are potentially high volumes of pedestrian and cycle movements within the urban area.

14.2.3 The magnitude of each impact has been considered against the criteria within the Institution of Environmental Management and Assessment's (IEMA) guidelines, where possible. The significance of each potentially significant effect has also been considered and an assessment has been made as to whether the proposed development would result in adverse or beneficial effects. 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.'*

14.2.4 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

14.2.5 as summarised below.

**Severance**

14.2.6 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 from 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.

14.2.7 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**

14.2.8 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.

14.2.9 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 signalled 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**

14.2.10 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.

14.2.11 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

14.2.12 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.

14.2.13 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

14.2.14 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.

14.2.15 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.

14.2.16 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

14.2.17 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.

### Significance Criteria

14.2.18 The below provides guidance for the criteria for determining the magnitude and significance of any identified effects, with these being based on the guidance provided within IEMA.

**Table 14.1 Magnitude**

| Magnitude | Criteria |
|---|---|
| High | Changes in total traffic or HGV flows over 90% |
| Medium | Changes in total traffic or HGV flows of 60% - 90% |
| Low | Changes in total traffic or HGV flows of 30% - 60% |
| Negligible | Changes in total traffic or HGV flows less than 30% |

**Table 14.2 Sensitivity**

| Sensitivity | Criteria |
|---|---|
| High | Where the Proposed Development could be expected to have a very substantial environmental effect (either adverse or beneficial) on severance, driver stress and delay, pedestrian and cyclist amenity, fear and intimidation, and accidents and safety during the construction and operational phases |
| Medium | Where the Proposed Development could be expected to have a noticeable environmental effect (either adverse or beneficial) on severance, driver stress and delay, pedestrian and cyclist amenity, fear and intimidation, and accidents and safety during the construction and operational phases |
| Low | Where the Proposed Development could be expected to result in a small, barely noticeable environmental effect (either adverse or beneficial) on severance, driver stress and delay, pedestrian and cyclist amenity, fear and intimidation, and accidents and safety during the construction and operational phases |
| Negligible | Where no discernible environmental effect is expected as a result of the Proposed Development on severance, driver stress and delay, pedestrian and cyclist amenity, fear and intimidation, and accidents and safety during the construction and operational phases |

**Table 14.3 Assessment Matrix**

| | Magnitude of Impact | | | |
|---|---|---|---|---|
| Sensitivity | Negligible | Low | Medium | High |
| Negligible | Negligible | Negligible or Minor | Negligible or Minor | Minor |
| Low | Negligible or Minor | Negligible or Minor | Minor | Minor or Moderate |
| Medium | Negligible or Minor | Minor | Moderate | Moderate or Major |
| High | Minor | Minor or Moderate | Moderate or Major | Major or Substantial |

14.2.19 The terms in the matrix in Table 14.3 have the following definitions:

Substantial: 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.

## 14.3 Consultation undertaken

14.3.1 During the development of this chapter, Suffolk County Council (SCC) and Highways England (HE) have been consulted regarding the proposals. This is in addition to the Scoping Opinion issued by Suffolk Coastal District Council.

14.3.2 The discussions with SCC and the HE included the agreement to the methodology adopted in production of the Transport Assessment (TA). This included the agreement to the use of a Paramics traffic model to identify the transportation impacts. A TA has been produced to support this application and should be read in conjunction with this Chapter.

## 14.4 Statutory and planning context

### National Planning Policy Framework

14.4.1 Chapter 4 of the NPPF 'Promoting Sustainable Transport' sets out the Governments expectations that development should maximise sustainable transport solutions. 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.

14.4.2 Paragraph 32 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 site, to reduce the need for major transport infrastructure;
- Safe and suitable access to the site can be achieved for all people; and
- Improvements can be undertaken within the transport network that cost effectively limit 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.

14.4.3 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.

14.4.4 A key tool to facilitate sustainable transport is the Travel Plan, as identified in Paragraph 36 of the NPPF. All developments which generate significant amounts of movement are required to provide a Travel Plan.

14.4.5 Paragraph 37 of the NPPF identifies that local planning policies should aim for a balance of land uses that minimise journey lengths for employment, shopping, leisure, education and other activities. Paragraph 38 notes that larger scale residential developments in particular should promote a mix of uses in order to provide opportunities to undertake day-to-day activities including work on-site.

14.4.6 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; and
- An overall need to reduce the use of high-emission vehicles.

14.4.7 Paragraph 42-006 of the National Planning Practice Guidance states that the aims of a Travel Plan are to positively contribute to:

- Encouraging sustainable travel;
- Lessening traffic generation and its detrimental impacts;
- Reducing carbon emissions and climate impacts;
- Creating accessible, connected, inclusive communities;
- Improving health outcomes and quality of life;
- Improving road safety; and
- Reducing the need for new development to increase existing road capacity or provide new roads.

14.4.8 NPPG Paragraph 42-011 states that a Travel Plan should evaluate and consider:

- Benchmark travel data including trip generation databases;
- Information concerning the nature of the proposed development and the forecast level of trips by all modes of transport likely to be associated with the development;
- Relevant information about existing travel habits in the surrounding area;

- Proposals to reduce the need for travel to and from the site via all modes of transport; and
- Provision of improved public transport services.

**HA Circular 02/2013 - The Strategic Road Network and the Delivery of Sustainable Development:**

14.4.9 The Circular was published in 2013 and explains how the HA will engage with the planning system and provides details on how the HA 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.

14.4.10 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.

14.4.11 Paragraph 25 identifies that the overall forecast demand should be compared to the ability of the existing network to accommodate traffic over a period up to ten years after the date of registration of a planning application.

14.4.12 Paragraph 27 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.

14.4.13 With regard to travel plans Paragraph 29 and 30 highlights 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.

14.4.14 Paragraph 34 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.

14.4.15 In relation to providing new access points, Paragraph 39 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

**Manual for Streets 1 and 2 (MfS):**

14.4.16 The UK Department for Transport (DfT) and the Department for Communities and Local Government (DCLG), with support from the Commission for Architecture and the Built Environment (CABE), to develop Manual for Streets to give guidance to a range of practitioners on effective street design.

14.4.17 The Manual for Streets (March 2007) guidance on the planning, design, provision and approval of new streets, and modifications to existing ones. It aims to increase quality of life through good design which creates more people-oriented streets. The detailed

guidance applies mainly to residential streets although the overall design principles can be applied to all streets within urban areas.

14.4.18 A street is defined as "a highway with important public realm functions beyond the movement of motor traffic" – i.e. by its function rather than just the road hierarchy.

14.4.19 Manual for Streets has updated geometric guidelines for low trafficked residential streets, examines the effect of the environment on road user behaviour, and draws on practice in other countries. This research provides the evidence base upon which the revised geometric guidelines in the Manual for Streets are based, including link widths, forward visibility, visibility splays and junction spacing.

14.4.20 Manual for Streets 2 - Wider Application of the Principles is the result of collaborative working between the Department for Transport and the transportation industry.

14.4.21 The aim of the document is to extend the advantages of good design to streets and roads outside residential areas, largely covered in MfS1. By amending the way high streets and non-trunk roads are designed, the fabric of public spaces and the way people behave can be changed. It means embracing a new approach to design and breaking away from inflexible standards and traditional engineering solutions.

14.4.22 The new guide does not supersede Manual for Streets 1, rather it explains how the principles of the first document can be applied more widely.

14.4.23 Design Manual for Roads & Bridges: The DfT publish a large suite of documents known as the Design Manual for Roads and Bridges, which provides detailed standards and guidance on the provision of highway networks. The suite of documents provides a comprehensive manual which accommodates all current standards, advice notes and other published documents relating to the design, assessment and operation of trunk roads including motorways. The standards are routinely adopted by local highway authorities for their local highway network.

**Suffolk Coastal Core Strategy**

14.4.24 Suffolk's core strategy is one of the first documents being produced as part of the Local Plan for the Suffolk Coastal area. It sets out in strategic terms, the councils overall approach to future development for the period to 2027, generally where it should take place and the key factors that need to be taken into account when considering individual proposal for development. It includes an outline for delivering strategic development needs, including housing, employment, leisure and retail. The Core Strategy also includes details of site specific allocations or policies for the management of new development. These are set out in separate Development Plan Documents.

14.4.25 The strategic approach to development in the Eastern Ipswich Plan Area is divided in Strategic Policy SP20 into 3 sections – the area to be covered by the Martlesham, Newbourne & Waldringfield Area Action Plan; the main urban corridor of Kesgrave, Martlesham and Rushmere St Andrew; and the smaller settlements and countryside which surround these core areas.

14.4.26 Strategic Policy SP20 states that the strategy for the Martlesham, Newbourne and Waldringfield Area Action Plan is one:

- that contains well-planned, sustainable new housing of a mix of size, type and tenure linked to existing and proposed employment;

- where the planned direction of controlled growth is eastwards of the A12 to the south and east of Adastral Park;
- where opportunities for new employment provision have been maximised, with major national and international companies sitting alongside smaller ones, particularly those associated with the strategically important hi-tech business at BT;
- where the Martlesham Heath Business Campus including Adastral Park has been designated a Strategic Employment Area;
- where development has been phased and scaled to ensure that new or upgraded transport, utility and other social and community provision is provided in advance of, or parallel to, new housing and employment provision;
- that has created its own distinctive identity with smaller readily distinguishable villages, neighbourhoods and communities within the larger area;
- where public transport provision and foot and cycle paths have been upgraded and promoted to minimise the need to use private motor vehicles to access employment, schools and other key facilities;
- where priority has been given to creating a safe and attractive environment, including the provision of advanced planting and landscaping to create new settlement boundaries that blend with the surrounding landscape and contribute to biodiversity and the ecological network;
- that includes the retention of designated Sandlings areas on the edge of Ipswich because of their historic and biodiversity interests;
- that preserves and enhances environmentally sensitive locations within the Eastern Ipswich Plan Area and its surroundings; and
- that maximises opportunities to achieve access to green space, including the countryside.

14.4.27 The transport and community infrastructure studies completed 2009 provide the background evidence to work with service providers and others to secure the necessary transport and other infrastructure to serve the proposed employment and housing.

14.4.28 Specifically, on land to the south and east of Adastral Park, strategic open space in the form of a country park or similar high quality provision will be required to mitigate the impact of development at this site and the wider cumulative impact of residential development on the relevant designated European nature conservation-sites.

14.4.29 Infrastructure needs stated by Strategic Policy SP20 to be accorded priority include::

- Provision of and increased access to open space both on and off-site to meet the mitigation measures outlined in the November 2011 Appropriate Assessment. This includes enhanced wardening and monitoring of visitor impacts upon designated European nature conservation-sites;
- Improvements to the water supply network;
- Upgrades to the waste water treatment (foul sewage) network;
- Provision of strategic drainage to manage surface water drainage within the site;
- Education facilities to meet identified preschool; primary and secondary needs within the development area;
- Health centre;
- Measures to manage impact on the local road network including improvements to the A12 between its junction with the A1214 and Seven Hills Interchange; to the A1214 and the Foxhall Road corridor;
- Improved public transport provision including links to Ipswich;

- Improvements to the public rights of way network, including pedestrian and cycle links; and
- Adequate electricity supply including an element of decentralised energy provision.

14.4.30 To achieve the overall vision, core strategic policies have been identified. Those relating to transport intended to provide higher level of access to jobs and services in both urban and rural areas and improve connectivity with the rest of the region.

**Suffolk Local Transport Plan (2011-2031)**

14.4.31 The Suffolk local plan is prepared in accordance with the statutory requirements. It sets out long-term transport strategy for the next 20 years. The aim of this strategy is to promote and aid economic resilience and private sector led growth through the current period of downturn, placing Suffolk in a position to emerge strongly as the economy recovers.

14.4.32 A number of key urban areas have been identified for growth where transport interventions can have significant impact which includes Ipswich area. It is complemented by an implementation plan, presented in a separate document, which explains how the strategic priorities identified here will be delivered. Different interventions will be considered for different places. The common themes are identified for urban areas are:

- Reducing the demand for car travel – This strategy will help people to travel more sustainably into and around the town. The purpose of this is to reduce car travel in Ipswich during peak times which would balance the demand with the limited capacity that is available and make it possible to improve public realm;
- Efficient use of transport networks – The aim is to improve this by managing roads to minimise delays to buses, giving cyclists clear passage through traffic jams and by making it easier for people to walk across the road; and
- Improving infrastructure - Within the Ipswich area there is good public transport network connecting housing areas and employment sites. The Proposed Development will require additional bus lanes, interchange points and improved waiting facilities. Hence working with commercial bus operators will help in achieving this strategy.

14.4.33 The plan shows how transport will support and facilitate future sustainable economic growth by:

- Maintaining the local transport networks;
- Tackling congestion;
- Improving access to jobs and markets; and
- Encouraging a shift to more sustainable travel patterns.

14.4.34 Key issues to be addressed in Ipswich are as follows:

- Road condition;
- Urban realm improvements;
- Tackling congestion;
- Modernisation of bus stations;
- Reducing separation between town centre and waterfront;
- Better facilities for walking and cycling;

- Stronger neighbourhoods;
- Longer term – crossing for improved access to wet dock island site;
- Town centre masterplan;
- A14 improvements;
- Ipswich – Transport fit for the 21st Century;
- Extensive Air Quality Management Areas; and
- A14 Orwell Bridge and Seven Hills Interchange Congestion.

14.4.35 It is forecasted that there will be growth of 15,000 dwellings, with an additional 5,000 in neighbouring districts on the edge of the town. Most of this development in Ipswich will support regeneration of areas within the town, with a significant area of regeneration around the Waterfront and further development of education quarter.

14.4.36 Significant development in Ipswich, particularly employment. The development within the town should result in shorter journeys and will provide an opportunity to change the ways that people choose to travel. According to the traffic modelling it is anticipated that the level of traffic growth is likely to grow by 15% by 2021. This could cause additional pressure on the A12/A14 at Copdock, Seven Hills interchange and the Orwell Bridge.

14.4.37 The public transport in Ipswich is generally good, and provides good commercial services but there are some areas which are not served well. Currently, there is a lack of multi-operator ticketing which worsens this problem. The car park availability and pricing within the town is an important factor in the travel choices that need considering.

**Parking standards**

14.4.38 Parking standards for houses and apartments: For dwelling houses and apartments the council will aim to achieve the following minimum parking standards:

- Apartments; 1.5 spaces, where 1 space is allocated and another defined shared visitor space is provided for every 2 dwellings in communal parking areas;
- 2 bed units; 1.5 spaces, where 1 space is allocated and 1 space is provided for every 2 dwellings in defined bays within the public highway,3+ bed units; 2 allocated spaces per dwelling;
- Plus 1 visitor space per 4 dwellings unallocated and provided in defined bays within the public highway or private drive; and
- Integral or standalone garages will not be counted as a parking space unless they are an adequate size (currently 3x6 metres minimum clear internal dimensions).

## 14.5 Existing environment

**Existing Travel Patterns**

14.5.1 The site is largely located in the Martlesham Ward. A review of 2011 Census data has been carried out.

14.5.2 The distance travelled to work is indicated in Table 14.4 for residents aged 16 to 74 who were employed the week before the census.

**Table 14.4 Distance travelled to work**

| Distance | Population | Percentage |
|---|---|---|
| Working at or from home | 267 | 11.4% |
| Less than 2km | 454 | 19.4% |
| 2km to less than 5km | 240 | 10.3% |
| 5km to less than 10km | 688 | 29.4% |
| 10km to less than 20 km | 287 | 12.3% |
| 20km to less than 40km | 128 | 5.5% |
| 40km to less than 60km | 31 | 1.3% |
| 60km and over | 31 | 4.7% |
| Other | 111 | 5.7% |
| Total | 2,339 | 100% |

14.5.3 Based on the Census data provides an indication of the distance travelled to work. This indicates that 19.4% of working people travelled less than 2km from home with a further 10.3% travelling between 2km and 5km. This demonstrates that circa 1 in 5 commuter trips stay within the immediate vicinity of the site. Therefore, this demonstrates that travel by sustainable mode is likely.

14.5.4 The Census statistics have also been integrated to identify the mode share for the residents of the Martlesham Ward. This considers the existing travel patterns of all residents aged 16 to 74.

**Table 14.5 Mode Share – resident population**

| Mode | Population | Percentage |
|---|---|---|
| Train | 42 | 1.8% |
| Bus, minibus or coach | 120 | 5.1% |
| Driving a car or van | 1,554 | 66.0% |
| Passenger in a car or van | 86 | 3.7% |
| Motorcycle, scooter or moped | 18 | 0.8% |
| Taxi | 3 | 0.1% |
| Bicycle | 164 | 7.0% |
| On foot | 193 | 8.3% |
| Work mainly at or from home | 156 | 6.7% |
| Other method of travel to work | 13 | 0.6% |

14.5.5 This demonstrates that the most dominant mode of travel is by car, resulting in 66.0% of all the trips within the Martlesham ward. This is followed by travel by foot or cycling, again demonstrating that travel by sustainable modes is likely.

14.5.6 A review of the mode share of employees working in the 010 ‘super output areas - middle layer’ has also been carried out. This analysis is presented below.

**Table 14.6 Mode Share – daytime population**

| Mode | Population | Percentage |
|---|---|---|
| Train | 45 | 0.6% |
| Bus, minibus or coach | 341 | 4.4% |
| Driving a car or van | 5,389 | 69.9% |
| Passenger in a car or van | 265 | 3.4% |
| Motorcycle, scooter or moped | 87 | 1.1% |
| Taxi | 9 | 0.1% |
| Bicycle | 561 | 7.3% |
| On foot | 312 | 4.0% |
| Work mainly at or from home | 680 | 8.8% |
| Other method of travel to work | 25 | 0.3% |

14.5.7 This demonstrates that the most dominant mode of travel is by car, resulting in 69.9% of all the trips within the Martlesham ward.

### Highway Network

14.5.8 Adastral Park is located to the east of the A12 which provides a main route to Lowestoft and Great Yarmouth in the north. Adjacent to the site, the A12 is a dual carriageway road subject to a 70mph speed limit. Through discussions with SCC, the aspiration to reduce the speed limit has been identified.

14.5.9 The A12 continuous to the south and connects to the A14. The A14 is a major international, national and regional route connection Felixstowe to the M6 and M1.

14.5.10 The A12 to the north connects to the A1214 at Martlesham heath and provides access to the route towards Ipswich. Foxhall, to the south of Adastral Park provides an alternative route into Ipswich from the east.

### Pedestrians and Cyclists

14.5.11 At the present day, the development land does not have any significant traffic generators within the boundary. As such, there has been no material requirement for footway / cycleway provision on-site or to access the site.

14.5.12 To the north west of the site, there are existing pedestrian links to Martlesham Heath across A12 via a foot/cycle path to the north of the junction with Barrack Square and via subway near the roundabout with Anson Road. The route along Gloster Road and Barrack square has segregated footway/cycleway link. The footbridge and underpass also has cycleway which allows cycle paths in eastern Ipswich and towards the town centre.

14.5.13 There is a public footpath which runs from the north of Martlesham heath along Gloster Road and the western edge of, to Newborne Road to the south of the Park.

### Public Rights of Way

14.5.14 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.

14.5.15 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.

14.5.16 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; and
- Byways open to all traffic - let you travel by any form of transport, including cars.

**Public Transport – Road**

14.5.17 The existing bus services that operate close to the proposed site are identified below. The bus route 66 currently serves high quality service to the existing park, which links Martlesham Heath-Grange Farm-Kesgrave - Ipswich. The bus service 173/174 (Woodbridge to Felixstowe) has just two services during peak hours. The rest of the buses also operate through Adastral Park.

**Public Transport - Rail**

14.5.18 The closest train station is located in Woodbridge. The stations provide excellent nodes for onward routes to Ipswich (having a journey time of circa 15 minutes) and Lowestoft (having a journey time of circa 1 hour 10 minutes).

14.5.19 The train station offers the following services:

- 72 space car park with accessible spaces open 24 hours;
- Self-service ticket machines;
- Manned help desk;
- Cash machine;
- Pay phones;
- Post box;
- Public WiFi;
- Refreshments; and
- Shops.

**Accident Analysis**

14.5.20 Data was obtained from Suffolk County Council pertaining to all personal injury road accidents (PIAs) reported as occurring during the five year period up to the end of August 2016 for all of the roads in the vicinity of the site.

14.5.21 The accidents are classed into one of three categories based on the severity of the most seriously injured casualty:

- Fatal injury: Injuries which cause death either immediately or any time up to 30 days after the accident;
- Serious injury: Injuries for which a person is detained in hospital as an in-patient or any of the following injuries whether or not the casualty is detained in hospital; fractures, concussion, internal injuries, severe cuts and lacerations, severe

general shock requiring medical treatment and injuries resulting in death more than 30 days after the incident; and

- Slight injury: Injuries of a minor nature such as sprains, bruises or cuts not judged to be severe, or slight shock requiring only roadside attention.

14.5.22 Eight accidents on minor roads unlikely to be frequented by development traffic were omitted from the analysis, leaving a total of 144 accidents on the roads in question. These accidents resulted in a total of 198 casualties. One accident resulted in fatal injury to a young child when a rear shunt occurred and an incorrectly strapped child seat failed. A further 16 incidents resulted in serious injury.

**Table 14.7 Total number of PIAs by year and severity, with casualties**

| Period | Number of PIAs | | | | Casualties |
|---|---|---|---|---|---|
| | Slight | Serious | Fatal | Total | |
| Year 1 to end Aug'12 | 20 | 3 | 0 | 23 | 35 |
| Year 2 to end Aug'13 | 29 | 3 | 0 | 32 | 47 |
| Year 3 to end Aug'14 | 34 | 4 | 0 | 38 | 45 |
| Year 4 to end Aug'15 | 24 | 5 | 0 | 29 | 43 |
| Year 5 to end Aug'16 | 20 | 1 | 1 | 22 | 28 |
| 5 year period total | 127 | 16 | 1 | 144 | 198 |

14.5.23 The number of accidents appears to have risen in the second and third year but returned to the starting level by the fifth year. The most notable overall feature of the accidents is that over half of them (51%) involved a rear end shunt. It is also noted that 39 or 27% of the accidents were reported to involve at least one driver (or rider) aged 23 or under. 21% of all accidents involved at least one rider of a 2-wheeled vehicle.

14.5.24 A plot of the locations of the accidents indicated five distinct clusters at roundabouts on the A12.

**Table 14.8 Total number of PIAs by year and severity, with casualties for each identified cluster of accidents**

| Period | Number of PIAs | | | | Casualties |
|---|---|---|---|---|---|
| | Slight | Serious | Fatal | Total | |
| C1: A12 jw A1214 | 15 | 2 | 0 | 17 | 22 |
| C2: A12 jw Anson Road | 12 | 1 | 0 | 13 | 15 |
| C3: A12 jw Eagle Way | 9 | 3 | 1 | 13 | 17 |
| C4: A12 jw Foxhall Road | 15 | 0 | 0 | 15 | 21 |
| C5: A12 jw A14(T) | 21 | 3 | 0 | 24 | 36 |
| 5 year period total | 72 | 9 | 1 | 82 | 111 |

### Cluster 1 – A12 jw A1214 Main Road

14.5.25 This junction is shown as “Cluster 1” in Table 14.8. It includes the signalised junction at Portal Avenue, just west of the roundabout. A total of 17 PIAs were reported at this location during the 5-year study period, equivalent to 3.4 PIAs per annum. Of these none resulted in fatal injury but two resulted in serious injury, in both cases, to a motorcyclist.

14.5.26 Nine of the 17 accidents involved rear end shunts, but perhaps more significant than this is the fact that seven of them involved at least one 2-wheeled vehicle. In all, two pedal cycles and six motorcycles were involved. There are no clear common factors however indicating any particular site-specific problem for 2-wheeled vehicles.

14.5.27 The accidents are generally spread out around the junction although four did occur at the traffic signals at Portal Avenue just west of the roundabout and another cluster, of seven accidents occurred on the A12 southbound approach.

14.5.28 Overall, it is concluded that there are no specific problems at this location such as might lend themselves to ameliorative intervention.

### Cluster 2 – A12 jw Anson Road

14.5.29 This junction is shown as “Cluster 2” in Table 14.8. A total of 13 PIAs were reported here during the 5-year study period, equivalent to 2.6 PIAs per annum. Of these none resulted in fatal injury but one did result in serious injury. The accidents are on a distinctly reducing trend with 5, 3, 3, 2 and 0 occurring during successive 12-month periods.

14.5.30 Almost half of the 13 accidents involved rear end shunts, with the other half occurring as a result of a vehicle changing lane. Eight of them occurred during the evening peak period. A fairly high proportion of the accidents occurred during the hours of darkness and on a wet road surface.

14.5.31 The accidents were generally spread out around the junction but with a concentration of five rear shunt accidents on the southbound approach. In view of the absence of any reported accidents in the final 12-months of the survey period it is concluded that there is no significant problem at this location.

### Cluster 3 – A12 jw Eagle Way

14.5.32 This junction is shown as “Cluster 3” in Table 14.8. A total of 13 PIAs were reported at this location during the 5-year study period, equivalent to 2.6 PIAs per annum. Of these one accident resulted in fatal injury and three resulted in serious injury. The accidents also appear to be on a generally rising reducing trend with 1, 2, 3, 4 and 3 occurring during successive 12-month periods.

14.5.33 Nine of the 13 accidents involved rear end shunts, six on the northbound approach to the island. The only other notable pattern is that 5 of the accidents involved young drivers/riders aged 23 and under and a further two involved elderly drivers aged over 80 years old.

14.5.34 The fatal accident that occurred here was due more to a vehicle defect (poor fitting of a child seat) than any fault with the junction itself. The remaining accidents do not indicate any particular problem, being fairly typical of a busy roundabout such as this. There

may be some scope for improved advance signing of the junction on the A12 approaches together with larger chevron signs, but visibility is generally good and the benefits of such measures might be limited.

**Cluster 4 – A12 jw Foxhall Road**

14.5.35 This junction is shown as "Cluster 4" in Table 14.8. A total of 15 PIAs were reported at this location during the 5-year study period, equivalent to 3.0 PIAs per annum. Of these none resulted in serious or fatal injury and although the numbers did rise over the first three years, they reduced again in the final year.

14.5.36 Again, the accidents are characterised by a predominance of rear end shunt types (11 of the 15 accidents), with five occurring on the Foxhall Road approach and three on each of the A12 approaches. There are no other notable common features.

14.5.37 There are no clear indications that anything is amiss with the current layout that is contributing to the fairly high number of rear end shunts here.

**Cluster 5 – A12 jw A14 (T) Seven Hills Roundabout**

14.5.38 This junction is shown as "Cluster 5" in Table 14.8. A total of 24 PIAs were reported here during the 5-year study period, equivalent to 4.8 PIAs per annum. Of these none resulted in fatal injury but three did result in serious injury.

14.5.39 Yet again, the most (and only) notable common factor amongst the accidents occurring at this location is the predominance of rear end shunts. In this case, 79% of all of the accidents were of this type. The locations of the shunts were as follows:

- A14(T) eastbound off-slip = 2
- A14(T) eastbound left to A12 north = 1
- A12 southbound approach = 2
- A14(T) westbound off-slip = 7
- A1156 northbound approach = 6
- On circulatory carriageway=1

14.5.40 This is another case of drivers appearing not to be adequately warned of the need to slow down as they approach the roundabout. There are no obvious problems with the current layout but it could be improved with any or all of the following: better advance warning signs, countdown boards, direction signs, larger chevrons on the splitter and central islands and possibly also some yellow bar markings on the A14(T) off-slips.

**Accident Summary**

14.5.41 144 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 accidents resulting from rear end shunts.

14.5.42 Five clusters of accidents have been identified, all at roundabout junctions on the A12. None of these junctions appear to be particularly defective in layout but all have potential for some improvements to enhance conspicuity and to warn drivers approaching the junction of its presence and the need to slow down. These measures, however, are indicated by the existing situation and not as a result of the Proposed

Development. Although the development will add traffic to the network there is no reason to suppose that this will significantly compromise the safety of the existing road system.

## 14.6 Predicted impacts

### Short term Construction impacts

14.6.1 It is anticipated that construction activities will be undertaken over a period of time 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.

14.6.2 At this stage it is not possible to give an exact timetable of construction works, or a precise start and finish date. This is due to the fact that the proposals cannot commence until parcels of the site have been sold to a developer. This has not yet taken place. If it is assumed that some 200 dwellings were constructed in a year then it is likely that this could result in circa 75 dwellings being in the process of being constructed at any one time. This could result in around 75 tradesmen being on-site at any one time which would lead to 150 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.

14.6.3 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 tradesmen will not be discernible from general traffic. 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.

### Long term highway impacts

14.6.4 The information contained below indicates the locations where there is predicted to be significant increases in traffic solely as a result of the completed Proposed Development, i.e. that will exceed the IEMA threshold of a 10% increase along sensitive links.

14.6.5 The table below presents the traffic flow changes associated with the development together with the potential employment land that could be delivered in the future on land known as Northern Quadrant (NQ).

**Table 14.9 Two way traffic flow changes**

| Link | Without development | | With development | | Percxentage difference | | With development +NQ | | Percentage difference | |
|---|---|---|---|---|---|---|---|---|---|---|
| | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| 1 - West of A14 Roundabout | 5555 | 6203 | 3853 | 6512 | -30.6% | 5.0% | 3822 | 6463 | -31.2% | 4.2% |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 - South of A14 Roundabout | 1265 | 1346 | 965 | 1414 | -23.7% | 5.1% | 953 | 1409 | -24.7% | 4.7% |
| 3 - East of A14 Roundabout | 3697 | 4414 | 2566 | 4745 | -30.6% | 7.5% | 2542 | 4706 | -31.2% | 6.6% |
| 4 - Bucklesham Access off A14 Roundabout | 79 | 111 | 50 | 111 | -36.7% | 0.0% | 47 | 109 | -40.5% | -1.8% |
| 5 - North of A14 Roundabout | 3839 | 3698 | 3542 | 4004 | -7.7% | 8.3% | 3511 | 3997 | -8.5% | 8.1% |
| 6 - Newbourne Road - East of A12 Roundabout | 338 | 247 | 367 | 472 | 8.6% | 91.1% | 389 | 504 | 15.1% | 104.0% |
| 7 - A12 - North of Newbourne Rd Roundabout | 4000 | 3986 | 4128 | 4404 | 3.2% | 10.5% | 4132 | 4402 | 3.3% | 10.4% |
| 8 - Ipswich Rd North | 311 | 216 | 318 | 413 | 2.3% | 91.2% | 341 | 444 | 9.6% | 105.6% |
| 9 - Foxhall Rd East of Dobbs Ln | 1200 | 1523 | 1361 | 1748 | 13.4% | 14.8% | 1360 | 1750 | 13.3% | 14.9% |
| 10 - Barrack Sq - A12 Roundabout Approach | 1069 | 799 | 1213 | 1005 | 13.5% | 25.8% | 1206 | 1025 | 12.8% | 28.3% |
| 11 - Eagle Way - West of Barrack Sq\A12 Roundabout | 346 | 491 | 362 | 484 | 4.6% | -1.4% | 360 | 477 | 4.0% | -2.9% |
| 12 - Barrack Sq -South of Gloster Rd | 629 | 443 | 616 | 465 | -2.1% | 5.0% | 613 | 462 | -2.5% | 4.3% |
| 13 - Gloster Road - South of Gated Access | 535 | 375 | 686 | 564 | 28.2% | 50.4% | 689 | 590 | 28.8% | 57.3% |
| 14 - A12 - North of Barrack Sq Roundabout | 2804 | 3412 | 3015 | 3514 | 7.5% | 3.0% | 3031 | 3510 | 8.1% | 2.9% |
| 15 - Eagle Way - West of Anson Rd Roundabout | 467 | 412 | 407 | 405 | -12.8% | -1.7% | 405 | 402 | -13.3% | -2.4% |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 16 - Anson Rd - A12 Roundabout Approach | 1330 | 1799 | 1540 | 1720 | 15.8% | -4.4% | 1536 | 1703 | 15.5% | -5.3% |
| 17 - Anson Rd - Tesco Roundabout Western Approach | 1279 | 1611 | 1486 | 1553 | 16.2% | -3.6% | 1487 | 1531 | 16.3% | -5.0% |
| 18 - Anson Rd - Tesco Roundabout Eastern Approach | 827 | 556 | 734 | 627 | -11.2% | 12.8% | 756 | 625 | -8.6% | 12.4% |
| 19 - Gloster Road - South of Anson Rd | 618 | 327 | 618 | 520 | 0.0% | 59.0% | 631 | 538 | 2.1% | 64.5% |
| 20 - Anson Rd- East of Felixstowe Rd | 437 | 304 | 427 | 298 | -2.3% | -2.0% | 425 | 297 | -2.7% | -2.3% |
| 21 - Felixstowe Rd North of Anson Rd | 424 | 616 | 459 | 642 | 8.3% | 4.2% | 477 | 637 | 12.5% | 3.4% |
| 22 - A12 - South of Park & Ride Roundabout | 3386 | 3490 | 3326 | 3648 | -1.8% | 4.5% | 3359 | 3679 | -0.8% | 5.4% |
| 23 - Main Rd - North of Felixstowe Rd | 778 | 988 | 715 | 1016 | -8.1% | 2.8% | 707 | 1013 | -9.1% | 2.5% |
| 24 - Main Rd - South of Felixstowe Rd | 370 | 417 | 297 | 421 | -19.7% | 1.0% | 314 | 417 | -15.1% | 0.0% |
| 25 - A12 - North of Park & Ride Roundabout | 3199 | 3238 | 3091 | 3240 | -3.4% | 0.1% | 3099 | 3262 | -3.1% | 0.7% |
| 26 - A1214 - West of Park & Ride Roundabout | 1462 | 1422 | 1432 | 1517 | -2.1% | 6.7% | 1432 | 1519 | -2.1% | 6.8% |
| 27 - A1214 - West of Dobbs Ln | 1111 | 1157 | 1172 | 1237 | 5.5% | 6.9% | 1169 | 1239 | 5.2% | 7.1% |
| 28 - North Of Ropes Dr (East) Roundabout | 75 | 69 | 70 | 66 | -6.7% | -4.3% | 68 | 66 | -9.3% | -4.3% |
| 29 - Ropes Dr (East) South of A1214 | 588 | 580 | 439 | 572 | -25.3% | -1.4% | 433 | 571 | -26.4% | -1.6% |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 30 - A 1214 - West of Ropes Drive (East) | 775 | 756 | 859 | 844 | 10.8% | 11.6% | 855 | 844 | 10.3% | 11.6% |
| 31 - Ropes Dr (West) - South of A1214 | 876 | 1243 | 917 | 1212 | 4.7% | -2.5% | 925 | 1204 | 5.6% | -3.1% |
| 32 - A1214 East of Bell Ln | 1555 | 1819 | 1599 | 1834 | 2.8% | 0.8% | 1598 | 1832 | 2.8% | 0.7% |
| 33 - A1214 - West of Bell Ln | 1353 | 1481 | 1361 | 1576 | 0.6% | 6.4% | 1370 | 1584 | 1.3% | 7.0% |
| 34 - Bell Ln - South of A1214 | 300 | 294 | 324 | 372 | 8.0% | 26.5% | 327 | 379 | 9.0% | 28.9% |
| 35 - Foxhall Rd - West of Bell ln | 1142 | 1386 | 1156 | 1517 | 1.2% | 9.5% | 1144 | 1506 | 0.2% | 8.7% |
| 36 - Monument Farm Ln - South of Foxhall Rd | 52 | 55 | 50 | 54 | -3.8% | -1.8% | 49 | 51 | -5.8% | -7.3% |
| 37 - Foxhall Rd - East of Monument Farm Ln | 1288 | 1540 | 1332 | 1755 | 3.4% | 14.0% | 1327 | 1745 | 3.0% | 13.3% |
| 38 - Hall Rd - South of Foxhall Rd | 31 | 18 | 42 | 18 | 35.5% | 0.0% | 43 | 18 | 38.7% | 0.0% |
| 39 - Dobbs Ln - North of Foxhall Rd | 191 | 225 | 215 | 234 | 12.6% | 4.0% | 209 | 232 | 9.4% | 3.1% |

14.6.6 The following links would exceed the IEMA criteria

- Newbourne Road - East of A12 Roundabout;
- A12 - North of Newbourne Rd Roundabout;
- Ipswich Rd North;
- Foxhall Rd East of Dobbs Ln;
- Barrack Sq - A12 Roundabout Approach;
- Gloster Road - South of Gated Access;
- Anson Rd - A12 Roundabout Approach;
- Anson Rd - Tesco Roundabout Western Approach;
- Anson Rd - Tesco Roundabout Eastern Approach;
- Gloster Road - South of Anson Rd;
- Felixstowe Rd North of Anson Rd;
- A1214 - West of Ropes Drive (East);
- Bell Ln - South of A1214;
- Foxhall Rd - East of Monument Farm Ln;
- Hall Rd - South of Foxhall Rd; and

- Dobbs Ln - North of Foxhall Rd.

**Severance**

14.6.7 The IEMA Guidance highlights that receptors are likely to experience significant effects in terms of severance when traffic flows change by 30% or more. It can be seen from the analysis that the following locations are predicted to experience such an increase:

- Newbourne Road - East of A12 Roundabout;
- Ipswich Rd North;
- Gloster Road - South of Gated Access;
- Gloster Road - South of Anson Rd; and
- Hall Rd - South of Foxhall Rd.

14.6.8 The percentage increase reported along several of the identified roads reflects the relatively low traffic levels. Even with the inclusion of the development traffic, the traffic flows at these locations remain within the theoretical highway capacity thresholds.

14.6.9 Ipswich Road North, Newbourne Road and Gloster Road are all adjacent to the development and the increase in traffic levels are not unexpected. The majority of these locations provide existing footways that cater for safe movements.

14.6.10 Ipswich Road North and Newbourne Road do not provide footways and the existing pedestrian flow along these routes is negligible. The delivery of the development will increase westbound pedestrian flows. However, the majority of the development generated pedestrian flow will be internal to the development. As such, these trips will utilise the on-site network.

14.6.11 The effect on severance could be minor adverse without mitigation.

**Driver delay**

14.6.12 Delays to non-development traffic can occur on the network due to additional traffic generated by a development. The IEMA Guidance 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.

14.6.13 The traffic levels within the vicinity of the site, once the development traffic is included are within the theoretical highway capacity. However, a review of the junctions within the road network close to the site has been reviewed througg a Paramics micro-simulation traffic model. The results predict a negligible impact on traffic delay.

14.6.14 Therefore the effect on driver delay could be minor adverse without mitigation.

**Pedestrian delay**

14.6.15 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 site, although the level of activity is likely to increase following the delivery of the Proposed Development.

14.6.16 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.

14.6.17 Therefore it is concluded that the impact on pedestrian delay is negligible.

### Pedestrian amenity

14.6.18 In accordance with the IEMA Guidance, pedestrian amenity should only be considered significant in locations where the traffic flow is doubled.

14.6.19 The locations where the flow doubles are all adjacent to the development and these experience low levels of pedestrian activity.

14.6.20 Therefore the effect on driver delay could be minor adverse without mitigation.

### Fear and intimidation

14.6.21 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.

14.6.22 There are locations identified where traffic levels do increase beyond the 30% threshold, but this is a result of low levels of existing traffic.

14.6.23 Therefore, the effect of the Proposed Development on fear and intimidation is considered to be negligible.

### Accident and safety

14.6.24 In accordance with the IEMA Guidance, an assessment of road safety should be considered if the character of traffic flow alters through increases in 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.

14.6.25 Therefore, the effect of the Proposed Development on accidents and safety is considered to be negligible within the wider road network.

## 14.7 Mitigation

### During Construction

14.7.1 It is considered that construction traffic will have a negligible impact. However to limit the impact of construction traffic a Construction Environmental Management Plan (CEMP) will be produced. The purpose is to reduce the risk of adverse effects of construction on sensitive environmental resources and to minimise disturbance to local residents.

14.7.2 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.

14.7.3 The CEMP shall include:-

- Details of the approved construction traffic routes;
- The times within which traffic can enter and leave the 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.

**Operational effects**

***Highway interventions***

14.7.4 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 the need for highway interventions at the following locations. There could be additional off site interventions moving towards the centre of Ipswich. These wil be dealt with via a contribution, if necessary.

- A14 / A12 / A1156 Interchang;.
- A12 / Newbourne Rd / Foxhall Road Roundabout;
- A12 / Barrack Square / Eagle Way Roundabout;
- A12 / Anson Road / Eagle Way Roundabout;
- A12 / A1214 Roundabout: Traffic; and
- Gloster Road / Barrack Square Priority Junction.

***Walking and Cycling***

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

- Convenience – follow desire lines without any undue deviation from route;
- Connectivity – link multiple origin 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.

14.7.6 The ‘Guidance for Cycle Audit and Cycle Review’ (The Institution of Highways and Transportation, 1998) determines five main requirements for cycle routes. It is highly crucial 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.

14.7.7 Overall consideration should be given towards the former Commission for Architecture and the Built Environment (CABE) principles of inclusive design, as highlighted below:

- Inclusive: so everyone can use it safely, easily and with dignity;
- Responsive: taking account of what people say they need and want;
- Flexible: so different people can use them in different ways;

- Convenient: so everyone can use them without too much effort or separation;
- Accommodating: for all people, regardless of their age, gender, mobility, ethnicity or circumstances;
- Welcoming: with no disabling barriers that night exclude some people; and
- Realistic: offering more than one solution to help balance everyone's needs and recognising that one solution may not work for all.

14.7.8 The Masterplan for the site will include numerous walking and cycling routes within the development to provide a comprehensive route network that will comprise both on and off road paths. This will include walking / cycling route adjacent to the main link road through the development. This would deliver the main spine through the development, from which spurs would then access the wider development. Highway crossing points will be designed to cater for all types of pedestrian users with the routes lit where appropriate.

14.7.9 Across the site the improvements would include the provision of adequate surfacing to reflect the characteristics of the area and lighting where appropriate. In areas adjacent to housing, this could result in illuminated tarmacked routes and in less built up areas more low engineered surfacing. The surfacing to be used will be appropriate to the type and quantum and usage for any given route.

14.7.10 The walking and cycling paths will connect the individual housing blocks into the main route through the site that will ensure full connectively and route choice throughout the development.

14.7.11 The on-site network will connect into the external walking and cycling network. The predominant walking and cycling desire lines is to be fully incorporated into the links from the development.

14.7.12 Walking and cycling trips to the west will be encouraged to travel through the development to make use of the high quality environs that will be delivered. The on-site routes will link into the A12 with suitable crossing facilities provided at the A12 site access points.

***Public Transport***

14.7.13 To maximise the opportunities to travel by public transport, it is proposed to improve the current routes that operate in the immediate area. Brookbanks have discussed the public transport opportunities with local operators to ensure that a long term viable solution can be delivered

14.7.14 It is considered a phased delivery of public transport enhancements is appropriate to secure long term viability. Through discussions with Ipswich buses, a public transport strategy has been developed, as indicated below.

14.7.15 Phase one: Initial diversion of existing Route 4 to provide peak and lunchtime facilities. There would be no cost associated with this initial diversion.

14.7.16 Phase two: Extension of Route 4 to operate throughout the day every 30 minutes. The estimated cost is identified as being £70,000 per annum, less revenue.

14.7.17 Phase three: Provision of a 20 minute frequency timetable with an extended route and operating day serving the development, and linked to route X5 via the full length of Foxhall Road to give a faster journey into town with potentially improved links to the

train station. The estimated cost is identified as being £200,000 per annum, less revenue.

***Travel Plan***

14.7.18 To mitigate the increase in trips, a Travel Plan (TP) has been produced. The TP establishes mode share targets to reduce traffic effect 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 site. The targets take account of the local geography and existing transport provision.

14.7.19 Research has shown that TPs need to be managed by a travel plan coordinator, who has a clear brief with dedicated resources to manage the TP to ensure its objectives are met. It is the intention that the Travel Plan Coordinator will be in post for 5 years after 1st occupation of the Proposed Development.

14.7.20 The key to a successful TP 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 Travel Plan F2 identifies possible measures, which could include:

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

14.7.21 To address the environmental challenges posed by the proposed development, a green travel planning approach will be adopted. This will include:

- The provision of green infrastructure within the proposed development;
- The examination of existing public transport available to the proposed development;
- The provision of a network of footways and cycleways to compliment the existing Public Rights of Way in the vicinity of and crossing the proposed development.

## 14.8 Summary of effects

**Construction Effects**

14.8.1 As outlined within the Potential Effects section, there is the potential that the development could have a minor adverse impact. However with mitigation identified in the preceding chapter reduces the potential impact to negligible levels.

**Operational Effects**

14.8.2 As outlined within the Potential Effects section, there is the potential that the development could have a minor adverse impact. However with mitigation identified in the preceding chapter reduces the potential impact to negligible levels.

**Residual Effects**

14.8.3 It is considered that there are no residual effects.

**Statement of Effects**

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

14.8.5 A full audit of the highway network surrounding the 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.

14.8.6 Traffic flow data for both the AM and PM peak hours has been obtained to form the level against which the impact of the development was assessed. The highway safety record of the roads surrounding the site has also been assessed to identify any problems that are likely to be exacerbated by the additional traffic generated by the development.

14.8.7 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.

14.8.8 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.

14.8.9 The following table summarises the residual effects:

**Table 14.10 Summary of Residual Effects**

| Potential effect | Significance (pre-mitigation) | Mitigation measure | Significance of residual effect |
|---|---|---|---|
| **Construction Stage** | | | |
| Construction traffic | Minor adverse | CEMP | Negligible |
| **Post-completion Stage** | | | |
| Severance | Minor adverse | Improved facilities within the site and provision of appropriate linkages to the existing facilities within the local road network. | Negligible |
| Driver delay | Minor adverse | Financial contribution. | Negligible |
| Pedestrian delay | Negligible | Improved facilities within the site and provision of appropriate linkages to the existing facilities within the local road network. | Negligible |
| Pedestrian amenity | Minor adverse | 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 |