6 TRANSPORT AND ACCESS

6.1 INTRODUCTION

6.1.1 This chapter of the Environmental Statement (ES) assesses the likely significant effects of the Proposed Development in terms of transportation including effects of traffic together with other transport and access matters (e.g. effects on pedestrians, cyclists, and public transport).

6.1.2 This chapter describes the assessment methodology; the baseline conditions existing at the site; the mitigation measures required to prevent, reduce or offset any significant effects; and the likely effects of the development relating to transport and access.

6.1.3 A Transport Assessment (TA) has been submitted with the planning application and has been appended to this ES (Appendix 6.1: Transport Assessment). This chapter has been prepared on the basis of the detailed assessment reported in the TA, and the reader is referred to the TA, where further information is required.

6.1.4 The TA has been developed in consultation with Oxfordshire County Council (OCC), Highways England (HE) and Cherwell District Council (CDC).

6.1.5 The majority of the Application Site ("Site") has been allocated for development within the Cherwell Local Plan 2011-2031 (adopted 2015). The Site forms a major part (1,175 dwellings, 1,500 new jobs and supporting land uses) of the Policy Villages 5 'Former RAF Upper Heyford' Allocation Site ("Allocation Site") which provides for the building of 1,600 new dwellings together with additional employment land and supporting social and physical infrastructure including educational and recreational facilities, new or improved bus services and provision for 1,500 new jobs.

6.1.6 The approach adopted to assessing the Proposed Development within the TA involved undertaking an assessment of the full Allocated Development of Policy Villages 5 (i.e. 1,600 dwellings and 1,500 jobs), and a threshold for development will be placed on each of the required mitigation measures once fully agreed. In this way the TA can be used for all applications coming forward within the Allocation Site without the requirement to test each individual application in full again.

6.1.7 This chapter assesses the significant effects arising from the Proposed Development by assessing effects arising from the whole of the Allocation Site (as in the TA) and also just those arising from the development of the smaller Application Site. In general, the assessment of the whole Allocation Site represents the most robust scenario and therefore this has been used to define the study area and likely effects arising. Differences between the effects arising from the Allocation Site and the smaller Application Site, will be referred to where relevant.

6.2 LEGISLATIVE AND POLICY FRAMEWORK

National Planning Policy Framework (NPPF)

6.2.1 The National Planning Policy Framework (NPPF, Department for Communities and Local Government, 2012) sets out the Government's economic, environmental and social planning policies. Taken together, these policies articulate the Government's vision of sustainable development, which should be interpreted and applied locally to meet local aspirations.

6.2.2 The NPPF recognises the importance transport policies have in facilitating development but also in contributing to wider sustainability and health objectives. The Framework identifies at paragraph 32, that: **"all developments that generate 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"'** (Para 32, Page 10).

6.2.3 NPPF paragraphs 34 to 36 identify that Local Authority plans and decisions should ensure developments that generate significant movements are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised.

6.2.4 The NPPF recognises that a key tool to facilitate this will be a Travel Plan such that all developments which generate significant amounts of movement should be required to provide a Travel Plan. Accordingly, a Full Residential Travel Plan and a Full Commercial Travel Plan (the "Travel Plans") have been prepared and submitted with the planning application as part of a suite of TA documents. These can be seen in **Appendix 6.2** and **Appendix 6.3**.

Planning Practice Guidance

6.2.5 The Government has recently adopted the national Planning Practice Guidance (PPG), which provides comprehensive guidance compatible with the NPPF, replacing much previous guidance including, in the case of transport, the Department for Transport's Guidance on Transport Assessment (2007).

6.2.6 The PPG includes a section dedicated to **"why are Travel Plans, Transport Assessment and Statements important"**, citing the following points:

- 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.

6.2.7 The guidance specifies that it is linked directly to paragraphs 17 (bullet point 11), 39 and 40 of the NPPF and explains that planning should actively manage patterns of growth in order to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are, or can be made, sustainable.

6.2.8 Under the section **"What key principles should be taken into account in preparing a Travel Plan, Transport Assessment or Statement?"**, the guidance states that Travel Plans, Transport Assessments and Statements should be:

- Proportionate to the size and scope of the proposed development to which they relate and build on existing information wherever possible;
- Established at the earliest practicable possible stage of a development proposal;
- Tailored to particular local circumstances (other locally-determined factors and information beyond those which are set out in this guidance may need to be considered in these studies provided there is robust evidence for doing so locally); and
- Brought forward through collaborative ongoing working between the local planning authority/Transport Authority, transport operators, Rail Network Operators, Highways Agency (now known as Highways England) where there may be implications for the Strategic Road Network and other relevant bodies. Engaging communities and local businesses in Travel Plans, Transport Assessments and Statements can be beneficial in positively supporting higher levels of walking and cycling (which in turn can encourage greater social inclusion, community cohesion and healthier communities).

6.2.9 The guidance also sets out the ways in which these documents can be made to be as useful and accessible as possible – by ensuring that any information or assumptions should be set out clearly and be publicly accessible.

Local Planning and Transport Policy

Oxfordshire Local Transport Plan: Connecting Oxfordshire (2015- 2031)

6.2.10 The current Oxfordshire Local Transport Plan: Connecting Oxfordshire 2015-2031 (LTP4) sets out OCC's policy and strategy for developing the transport system in Oxfordshire to 2031. The LTP4 was adopted as policy in September 2015.

6.2.11 Connecting Oxfordshire is based around five key transport goals:

1. To support jobs and housing growth and economic vitality;
2. To support the transition to a low carbon future;
3. To support social inclusion and equality of opportunity;
4. To protect, and where possible enhance Oxfordshire's environment and improve quality of life; and
5. To improve public health, safety and individual wellbeing.

6.2.12 A set of ten objectives form the basis for achieving these goals, and have been grouped under three themes:

Theme 1: Supporting growth and economic vitality (Goal 1)

- Maintain and improve transport connections to support economic growth and vitality across the county;
- Make most effective use of all available transport capacity through innovative management of the network;
- Increase journey time reliability and minimise end-to-end public transport journey times on main routes; and
- Develop a high quality, innovative and resilient integrated transport system that is attractive to customers and generates inward investment.

Theme 2: Reducing Emissions (Goal 2)

- Minimise the need to travel;

- Reduce the proportion of journeys made by private car by making the use of public transport, walking and cycling more attractive;
- Influence the location and layout of development to maximise the use and value of existing and planned sustainable transport investment; and
- Reduce per capita carbon emissions from transport in Oxfordshire in line with UK Government targets.

Theme 3: Improving quality of life (Goals 3, 4 and 5)

- Mitigate and wherever possible enhance the impacts of transport on the local built, historic and natural environment; and
- Improve public health and wellbeing by increasing levels of walking and cycling, reducing transport emissions, reducing casualties, and enabling inclusive access to jobs, education, training and services.

6.2.13 Some of the key transport projects to be delivered within the LTP4 Volume 2 Area Strategies which are relevant to the development at Heyford Park fall under the Bicester Area Strategy and include:

- "**BIC1 – Improve access and connections between key employment and residential sites and the strategic transport system by: Reviewing key county road links out of Bicester, including those that cross the county boundary… The interrelationship of development at Upper Heyford with that of Bicester, connected by the B4030, will be considered carefully."** (Page 61).
- **"BIC2 – We will work to reduce the proportion of journeys made by private car by implementing a Sustainable Transport Strategy by: Growth at Upper Heyford will need to be considered in terms of improved public transport frequency and connectivity with Bicester."** (Page 63).

6.2.14 The LTP4 recognises the importance of Travel Planning to encourage people to change their travel habits to ones which will cause fewer environmental problems. Travel Planning provides initiatives to increase levels of walking, cycling and use of public transport as appropriate, to bring about improved health and help towards the goal of reducing peak time traffic congestion.

6.2.15 Policy 34 of the LTP4 requires **"the layout and design of new developments to proactively encourage walking and cycling, especially for local trips, and allow developments to be served by frequent, reliable and efficient public transport."** (Page 85); this will be supported by the preparation of effective travel plans (see **Appendix 6.2 and 6.3**).

Cherwell Local Plan

6.2.16 Part 1 of the Cherwell Local Plan was re-adopted in July 2015 and sets out how the district will grow and change up to 2031. It sets out the proposals for how they will develop and support the local economy, protect villages and strengthen town centres. In addition to this Cherwell Local Plan Part 2 is currently being prepared and when adopted will also form part of the statutory Development Plan. The following policy refers to those set out in Part 1 of the local plan.

6.2.17 Section A sets out objectives for 'Ensuring Sustainable Development' and lists Strategic Objectives such as:

- **"Strategic Objective 13. To reduce the dependency on the private car as a mode of travel, increase the attraction of and opportunities for travelling by public transport, cycle and on foot, and to ensure high standards of accessibility for people with impaired mobility.**

- **Strategic Objective 14. To create more sustainable communities by providing high quality, locally distinctive and well-designed environments which increase the attractiveness of Cherwell's towns and villages as places to live and work and which contribute to the well-being of residents."** (Page 35).

6.2.18 Policy SLE 4: Improved Transport Connections details the Council's requirements for new developments in relation to transport connections. In this policy, the council indicates that it will support transport improvements at the former RAF Upper Heyford site in accordance with LTP4. The policy also states that:

> **"All development where reasonable to do so, should facilitate the use of sustainable modes of transport to make the fullest use of public transport, walking and cycling."** (Page 55).

6.2.19 The Cherwell Local Plan lists former RAF Upper Heyford under Section C.5 Our Villages and Rural Areas and specifically in Policy Villages 5: Former RAF Upper Heyford. Policy Villages 5 states that Heyford Park as a whole will provide a new settlement of approximately 1,600 dwellings (in addition to the 761 dwellings (net) already permitted) together with additional employment and supporting social and physical infrastructure, including the need to provide a local centre/hotel. Some of the key specific design and place shaping principles required of the development are:

- **"The settlement should be designed to encourage walking, cycling and use of public transport rather than travel by private car, with the provision of footpaths and cycleways that link to existing networks.**
- **Development should provide for good accessibility to public transport services.**
- **A Travel Plan should accompany any development proposals."** (Pages 258 -259).

Infrastructure Delivery Plan

6.2.20 Appendix 8 of The Cherwell Local Plan 2011 – 2031 contains 'The Infrastructure Delivery Plan' which details the new infrastructure and key facilities the Local Plan will secure in Kidlington and Rural Areas. The infrastructure to be secured at the Former RAF Upper Heyford, as detailed in the Plan, is listed below.

14b Local and Area Bus Services – Former RAF Upper Heyford:

- New or improved bus services that connect to other transport nodes.
- Improved accessibility.
- Provision of sustainable travel options.

14d Highway Improvements and Traffic Management Measures (including to the rural road network to the west and at Middleton Stoney) – Former RAF Upper Heyford:

- Highway network improvements as required by the Highways Authority, including improved capacity and traffic calming measures.

14e Junction 10 capacity improvements – Former RAF Upper Heyford:

- Contributions to capacity improvements as required by Highways England.

6.3 ASSESSMENT METHODOLOGY

Study Area

6.3.1 An EIA should focus on the likely significant environmental effects of a development. While the Proposed Development will generate traffic that will use roads across a very wide geographic area, likely significant effects will be more localised.

6.3.2 The TA has undertaken a detailed assessment of a wide study area which has been established through consultation with OCC, HE and CDC. A more localised study area for the assessment of transport and access effects is more appropriate in this ES based on the area where significant effects are likely.

6.3.3 The study area for the ES has been identified drawing from the Guidelines for the Environmental Assessment of Road Traffic (1993) where traffic levels will change by:

- >30% in average 18-hour total vehicle traffic flows; or
- >30% in average 18-hour HGV flows; or
- >10% in average 18-hour total vehicle traffic flows in areas with medium and high sensitive receptors compared to the 'do nothing' scenario.

6.3.4 Where there is less than a 10% change in flow it is unlikely that there will be any significant effects on receptors as such variance can occur on a daily basis. Such areas have therefore been scoped out of the EIA.

6.3.5 As the percentage impact is a function of the base flows, trigger levels in terms of absolute levels of increase have been introduced to prevent minor changes on links with low baseline flows from being considered more significant. An effect, therefore, is only considered to occur if the baseline traffic flow has increased to traffic flows greater than 600 vehicles/ hr, below which there is negligible hazard associated as indicated by Table 6.3.

6.3.6 The two 'do something' scenarios (Application and Allocation Test Cases) were included to define the study area and where there were differences between the two figures the more robust scenario (Allocation Test Case) has been used. Differences between the traffic resulting from the two scenarios and the associated effects have been referred to where appropriate. The following links bullet pointed below and identified in Table 6.7 and illustrated on Figure 6.1: Highway Network/Proposals Plan) have therefore been identified to define the study area:

- Somerton Road/Station Road (B4030) (Link 3, between Junctions 13 and 15);
- B4030 Heyford Rd (Link 16 between Junctions 6 and 9);
- Unnamed Rd (Link 17 between Camp Rd and Junction 5);
- B430 (Link 20 between Junctions 5 and 2c);
- B4030 Heyford Rd Link 24 between Junctions 9 and 6);
- A43 (Link 57 between Junctions 2a to 2b); and
- Camp Road (Links 69 – 110 between B430 and B4030).

<u>Surveys and Scenarios</u>

6.3.7 This assessment has considered likely significant effects during the construction and operation of the Proposed Development.

6.3.8 In order to establish the baseline traffic conditions and to enable junction capacity analysis to be carried out, traffic flow information was obtained from Manual Classification Count surveys carried out across the study area for the majority of junctions in 2016. The remaining junctions were surveyed in either 2013 or 2014.

6.3.9 As traffic is likely to increase until the completion of the development due to other committed development in the area, the year 2031 (end of the Local Plan period) has been used as the baseline ('do nothing' scenario). As agreed with OCC and HE the baseline includes:

- appropriate levels of background growth (based on TEMPro) to account for development not explicitly set out within the assessment.

- the consented Heyford Park development (1,178 units, 1,700 jobs) made up of the following;
  - 1,075 units and around 1,700 jobs (08/00716/OUT and 10/01642/OUT).
  - 60 residential dwellings south of Camp Road (13/01811/OUT / 16/00627/REM).
  - 43 residential dwellings south of Camp Road (16/00263/F).
- the committed Local Plan/ third party development sites.
  - North West Bicester. Including anticipated build out to 2031 of the following (Exemplar / Elmsbury (10/01780/HYBRID); Application 1 (14/01384/OUT); Application 2 (14/01641/OUT) and Himley Village (14/02121/OUT)). Consisting of 3,293 residential dwellings and 35,000sqm employment
  - Kingsmere (06/00967/OUT) comprising 1,585 residential units and 20,000sqm B1 / B2 employment
  - Network Bicester (14/01675/OUT) comprising 135 residential units and 53,000 sqm B2 / B8 employment
  - Bicester Gateway (16/02505/OUT) comprising 9,913 sqm retail / leisure

6.3.10 The two 2031 Test Cases ('do something' scenarios) were compared to the baseline to allow effects related to the Proposed Development to be identified and assessed. They are summarised as follows:

- Application Test Case (2031) includes;
  - Appropriate levels of background growth (as set out above)
  - the consented Heyford Park development (as set out above);
  - committed Local Plan / third party development sites (as set out above); and
  - 1,175 residential units and 1,500 jobs from the Heyford Park Allocation.
- Allocation Test Case (2031);
  - As above in Application Test Case (2031) but includes the full Heyford Park Allocation (1,600 residential units, 1,500 jobs).

Assessment of Construction Effects

6.3.11 To consider the likely significant effects of the construction phase, an assessment has been undertaken of the likely number of trips related to construction. This has been based on the floorspace and land uses likely to be under demolition / construction and identifying the likely HGV and other vehicle movements associated with the key construction activities, drawing upon experience of comparable strategic sites.

6.3.12 The assessment of HGV traffic is provided in **Appendix 6.4**. Traffic generated by construction personnel has been identified on the basis of the number of anticipated construction workers likely to be present on the site.

6.3.13 The number of construction personnel present on site will vary during the construction period, however it is anticipated that construction personnel during any phase will be in the order of approximately 50 to 100 staff based on the current works being undertaken.

6.3.14 It should be recognised that transport and access effects will vary through the construction programme. Assessment at this outline stage is limited by the information that is available and can only therefore provide an indication of likely construction traffic. It should be noted that traffic flows associated with construction are typically lower than the number associated with operation of the development.

Consultation

6.3.15 An extensive programme of pre-planning consultation has been undertaken with OCC, HE and CDC with meetings held on the following dates with on-going liaison between times to agree the scope of the TA, modelling work and any mitigation measures proposed:

- 21st September 2016 (OCC)
- 1st February 2017 (OCC / HE)
- 6th April 2017 (OCC)
- 11th May 2017 (OCC / HE / CDC)
- 20th June 2017 (OCC / HE)
- 26th July 2017 (OCC / HE / CDC)
- 26th September 2017 (OCC / CDC)
- 6th October 2017 (HE)
- 29th November 2017 (OCC / CDC)
- 11th January 2018 (OCC / CDC)
- 12th February 2018 (HE / OCC / CDC)

6.3.16 A consultation event was also held on the following dates to inform the public about the development proposals and transport implications of the development. More detail about these public events can be seen in Chapter 3: Application Site of this ES, if required.

- 5th October 2017
- 7th October 2017
- 10th October 2017

Significance Criteria

6.3.17 The significance of likely transport and access effects has been determined using a two-stage process, with criteria developed from best practice techniques. The effect of significance is derived from measures of the magnitude of the change and the sensitivity of the receptors affected. Criteria for sensitivity and magnitude are defined and assessed to determine the significance of the effect.

6.3.18 The criteria in Table 6.1 were used to determine the sensitivity of receptors in the study area. These criteria were defined using the Guidelines for the Environmental Assessment of Road Traffic (1993) (GEART), taking into account receptors which are specific to the study area and development. These are general categories and it should be noted that each receptor assessed may have a different sensitivity to each specific effect considered within the EIA.

Table 6.1 Criteria for Receptor Sensitivity

Sensitivity	Description of Criteria (Receptors)
High	• Educational institutions such as schools and colleges; • care and retirement homes for the elderly or infirm; • roads that have no footpaths and are likely to be used by pedestrians; and • accident blackspots.

Sensitivity	Description of Criteria (Receptors)
Medium	• Health care facilities such as hospitals, surgeries and clinics; • parks and recreational areas such as sports grounds; • retail areas such as shopping malls; • roads with narrow footpaths that may be used by pedestrians; and • areas of ecological or nature value.
Low	• Open spaces; • tourist and visitor attractions including historic buildings; and • places of worship such as churches.
Negligible	Links not covered by the above

6.3.19 In addition, although not specifically identified within the guidelines as falling within one of these sensitivity categories, it has been assumed that individual residential areas and employment areas on roads with narrow footways have a low sensitivity to these effects.

6.3.20 To determine the magnitude of change experienced by the receptors and to determine the likely significance of the effects resulting from the Proposed Development, thresholds from the GEART have been used and interpreted using professional judgement. The thresholds used to determine the magnitude of change are outlined in Table 6.2. The degree of hazard and severance indicators from the guidance have been related to the magnitude established within the significance criteria used in the EIA.

Table 6.2 Criteria for Magnitude of Change

Impact	Magnitude of Impact/ Threshold			
	Negligible	Low	Medium	High
Severance	Change in 18 hr Annual Average Weekly Traffic (AAWT) of <30%	Change in 18 hr AAWT of 30% - 60%	Change in 18 hr AAWT of 60% - 90%	Change in 18 hr AAWT of > 90%
Pedestrian Delay	The guidance recommends that professional judgement is used to determine the impact on Pedestrian Delay, taking into account local factors such as pedestrian activity, visibility and the physical conditions of the site.			
Driver Delay	Network working below capacity.	Changes in driver delay times have been calculated by comparing the differences between the baseline and Test cases for AM and PM peak delay times at key junctions which were calculated as part of the TA. Driver delays are only likely to be significant where the network surrounding the development is at or nearing capacity.		
Pedestrian and Cycle Movements	In the absence of professional guidance, the impact on Pedestrian and Cycle movement has been estimated using professional judgement, taking into account changes to roads, pathways and other infrastructure.			
Pedestrian Amenity	Pedestrian Amenity is impacted by traffic flow, composition and width of pavement and is related to fear and intimidation thresholds. As suggested by national guidance			

Impact	Magnitude of Impact/ Threshold			
	Negligible	Low	Medium	High
	a threshold of where traffic or HGV flows have halved or doubled was used to indicate that there is a significant effect.			
Accidents and Safety	Number of predicted personal injury collisions (PICs) does not exceed the number of observed PICs.	The number of observed PICs has been compared against the predicted number of PICs that could be expected for the time period when the observations were recorded (5 years). The calculations are based on variables including: observed AADT traffic flow, road speed, length of road section and type of road. This analysis has been interpreted with professional judgement and used to inform and determine the impact on Accidents and Safety.		
Hazardous Loads	The magnitude of the potential effects resulting from Hazardous Loads was determined using professional judgement and by considering the risk of the vehicle being in an accident from national statistics and taking into account the nature of the material that is likely to be transported and associated hazards.			

6.3.21 In addition to this, fear and intimidation thresholds identified in the GEART have also been considered and interpreted with professional judgement to determine likely significant effects of the Proposed Development (Table 6.33). An effect on fear and intimidation is only considered to occur if the baseline traffic flow is increased above any of the trigger levels.

Table 6.3 Fear and Intimidation Thresholds

Degree of Hazard	Average 18 hr traffic flows (vehicle/ hour)	Total 18 hr HGV flow	Average vehicle speed over 18hr day (mph)
Large	1800	>3000	>20
Medium	1200 - 1800	2000 - 3000	15-20
Small	600 - 1200	1000 - 2000	10-15

6.3.22 With reference to the average speeds on links over 18 hour days, the majority, if not all links, would have average vehicle speeds over an 18 hour day of in excess of 20mph, which would make irrelevant any assessment of levels of fear and intimidation based on this aspect. A judgement is therefore made in relation to average 18 hr traffic flows and total 18 hr HGV flows only.

6.3.23 Generic significance criteria have been applied throughout this EIA. These have been used, together with the assessment of magnitude of effect and receptor sensitivity, to determine the significance of effect which is set out in Table 6.4 and Table 6.5.

Table 6.4 Significance Criteria

Significance Criteria	Description of Criteria
Major beneficial	There has been a considerable positive change to the receptor on a scale which is of more than local importance.
Moderate beneficial	There has been a positive effect on the receptor in terms of the extent, duration or magnitude.

Significance Criteria	Description of Criteria
Minor beneficial	There has been a positive impact on the receptor that has been small, highly localised or short term.
Neutral/ not significant	No perceivable impact
Minor adverse	There has been a negative impact on the receptor that has been small, highly localised or short term.
Moderate adverse	There has been a negative effect on the receptor in terms of the extent, duration or magnitude.
Major adverse	A negative effect has occurred that will have an impact on the wider area or that may be in breach of standards or legislation.

Table 6.5 Degrees of Significance

Magnitude of Change	Sensitivity of Receptor				
		High	**Medium**	**Low**	**Negligible**
	High	Major	Major	Moderate	Negligible
	Medium	Major	Moderate	Minor to Moderate	Negligible
	Low	Moderate	Minor to Moderate	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

6.3.24 Only effects that have been identified as 'major' or 'moderate' are deemed to be significant.

6.3.25 Links identified within the study area as having increases in traffic flow as a result of the Proposed Development but that are wholly within the Application Site or will be upgraded as part of the development, such as Chilgrove Drive (Link 109), will be assumed to not have any significant effects associated with them. This is because it is assumed that these roads will have been considered as part of the design of the Proposed Development and will therefore be suitable for the purposes that they serve.

Assumptions and Limitations

6.3.26 The assessment of transport and access effects in this ES is based on the TA. The assumptions and technical deficiencies used in the preparation of the TA are set out in the TA.

6.3.27 Two sets of residential trip rates are set out within the TA, one based on TRICS person trip rates and a bespoke mode split derived for the development, and the other based on TRICS vehicle trip rates which are more robust and have been taken as a sensitivity test within the report. The trip rates used to calculate traffic numbers used in this assessment are based on the sensitivity rates which are more robust estimates and should therefore be seen as providing a robust assessment.

6.3.28 A spreadsheet model was used to test the effects of the development and calculate traffic flows. As such, no mitigation measures have been modelled into the 'do nothing' 2031 Reference Case or Test cases and thus the effect of the implementation of these measures on traffic flows have not been quantified.

6.4 BASELINE CONDITIONS

Introduction

6.4.1 As traffic levels are generally increasing and are likely to continue to do so until the Allocation Site is completed, the current year does not provide a suitable baseline for the assessment of the development. Therefore, the 'do nothing' scenario for 2031 is the most suitable baseline to be used in the assessment. This baseline includes all consented Heyford Park development and committed Local Plan/ third party development sites within the study area.

Existing Road Network

6.4.2 The existing road network is illustrated on **Figure 6.1: Highway Network/Proposals Plan.**

6.4.3 Heyford Park is located on the former RAF Upper Heyford site, which lies approximately 20km north of Oxford. The nearest towns to the site are Bicester, approximately 7.5km to the south east, and Banbury, approximately 15.5km to the north west.

6.4.4 Former RAF Upper Heyford is located within a network of predominately rural roads, many of which are unclassified. Junction 10 of the M40 motorway is located to the north east of the site and the A4260 Banbury to Oxford Road is situated to the west of the site and runs from north to south. The M40 forms part of the strategic route to London to the southeast and Birmingham to the northwest.

6.4.5 Camp Road forms the arterial route through the former RAF Upper Heyford and connects it to Somerton Road/ Station Road to the west and to Chilgrove Drive and the B340 in the east. Camp Road is approximately 6m wide where it passes through the existing development, with one lane in either direction for the majority of the carriageway, and reduction to single-lane operation at 5 locations to provide traffic calming features.

Existing Pedestrian and Cyclist Facilities

6.4.6 **Figure 6.2: Pedestrian and Cycle Connections** illustrates the network of pedestrian and cycle links in the vicinity of the site.

6.4.7 Camp Road provides walking and cycle access from the Application Site towards Upper Heyford to the west, and commuting, education and leisure opportunities to the east. Street lighting is provided along the entire length of Camp Road and the speed limit is restricted to 30 mph.

6.4.8 There is a footpath running adjacent to Camp Road on the south side which is separated from the carriageway by verges, hedgerows and security fences in places. On the north side of Camp Road, a footpath of approximately 2m width runs intermittently.

6.4.9 There are no controlled pedestrian crossing points on Camp Road however dropped kerbs and tactile paving are provided to enable uncontrolled crossing via the splitter islands on the approaches to the Main Gate roundabout. This provides access to the main employment area and Heyford Park Free School.

6.4.10 There are a network of Public Rights of Way (PRoW) to the north and outside of the perimeter of the Application Site linking Fritwell with Somerton.

6.4.11 There are also a number of existing PRoW criss-crossing the local area which provide connections to Caulcott and Lower Heyford to the south, Upper Heyford and Steeple Aston to the west and Ardley to the north east of the site. This network can be seen on Figure 3.1: Environmental Constraints Plan within this Environmental Statement.

6.4.12 The key PRoW routes which were curtailed when the site came into military use and will be reinstated as part of the consented development schemes include:

- Portway – a bridleway to the west of the site running in a north – south direction linking to existing bridleway 388/1 to the south and 388/1 / 349/9 to the north; and
- Aves Ditch – a bridleway to the east of the site which will be reinstated around the perimeter of the airfield creating a link between existing bridleway 388/7 to the south and the public highway to the north.

6.4.13 There are no dedicated cyclepaths or cycleways in the local area, other than that proposed along the south side of Camp Road as part of the consented scheme which has been partly constructed. The closest National Cycle Network route is National Cycle Network 5, the West Midlands Cycle Route which connects Reading to Bangor through Oxford. The route can be accessed off A4260 Banbury Road, about 7.5km west of the proposed development site. However, being a rural area, traffic is light and therefore most cyclists use the local road network.

6.4.14 A highways scheme is currently under construction on Camp Road. This scheme will provide a footpath of varying width on the northern side (between the approximate location of Dacey Drive and Larson Road) and a 3m wide shared foot and cycle way on the south side (between Izzard Road and the approximate location of Larson Road). Both paths will be separated along most of its length from the road by hedgerows and vegetated verges.

Existing Site Access Infrastructure

6.4.15 The site is currently accessed via a number of locations along Camp Road between Larson Road to the east and Gate 7 to the west. Gate 7 currently provides the main access to the flying field.

6.4.16 The proposed site will also be accessed via a number of access points along Camp Road, some of which are existing and some will be constructed to provide access into the Allocation Site. Of these new access points Chilgrove Drive is the most notable and is currently a narrow rural road of varying carriageway width which runs north to south and connects with Camp Road at the proposed access point's southern extent. The carriageway is approximately 3.6m wide up to 70m north of Camp Road junction and is approximately 2.5m wide thereafter. Despite being adopted highway Chilgrove Drive was severed when the airfield was constructed and is therefore currently a no through road that is very lightly used.

Existing Public Transport Network

6.4.17 The site is currently served by the 25a bus service which is operated by Thames Travel and runs between Bicester and Oxford via Heyford and Kirtlington on an hourly basis Monday to Saturday.

6.4.18 There is currently a bus stop located on the south side of Camp Road just to the east of Dow Street. This stop serves buses in both directions. The next nearest bus

stop to the site is at the western end of Camp Road close to the junction with Somerton Road, approximately 400m from Gate 7. The bus stops located are on both sides of the road.

Rail Service

6.4.19 The nearest railway stations are at Lower Heyford (4km from the site) and Bicester (7km from site).

6.4.20 Great Western Railways operates the line from Lower Heyford railway station which runs from Banbury to Oxford and has services every 90 -120 minutes with reduced services on Sundays. From Oxford, there are then connections onto London Paddington. The journey time from Lower Heyford to Banbury is approximately 18 minutes and to Oxford is 14 minutes.

Baseline Traffic Flow

6.4.21 The baseline 18 hour (06:00 – 00:00) AAWT traffic flow used for this assessment is the 2031 Reference Case. The baseline total vehicle and HGV 18 hr AAWT flows are set out in Table 6.7

Existing Road Traffic Collisions Assessment

6.4.22 Personal Injury Collision (PIC) data was obtained from OCC for a period of approximately 5 years (01/01/2012 – 28/02/17) for the local road network in the vicinity of the site, including strategic corridors such as the B430, A43 and A4260. A total of 171 collisions were identified for the study area of the TA; 132 resulted in slight injury, 32 in serious injury and three were fatal.

6.4.23 As a result of the 171 collisions there were 258 casualties, 33 of which were 'vulnerable road users' such as pedestrians, cyclists and powered two wheeled vehicles.

6.4.24 A detailed assessment of the PIC data is set out within the TA.

Receptors

6.4.25 The links outlined in paragraph 6.6.3 and Table 6.7 are expected to experience a perceptible change in vehicle traffic flow. The following receptors related to these links have been identified in Table 6.6 and Figure 6.1 and their sensitivity assessed in relation to the criteria outlined in Table 6.1.

Table 6.6 Summary of Receptor Sensitivity

Link ID	Receptor Sensitivity				Sensitivity of Link
	High	Medium	Low	Neutral/ Not Significant	
3			Allotments B & B Residential	Agricultural land Forest	Low
16			Open space Public House Residential	Agricultural land	Low

Link ID	Receptor Sensitivity				Sensitivity of Link
	High	Medium	Low	Neutral/ Not Significant	
17			Employment	Agricultural land Forest	Low
20		Sports field	Open space Church Restaurant Residential	Agricultural land	Medium
24			Open space	Agricultural land	Low
57	Accident black spot			Forest Agricultural land	High
76			Residential		Low
78			Residential		Low
80			Residential		Low
82			Residential		Low
84			Residential		Low
85			Residential		Low
88		Retail	Residential		Medium
90		Retail	Hotel Restaurant Residential		Medium
92			Residential		Low
94	School	Sports field	Residential		High
96	School	Sports field	Residential		High
98			Residential		Low
100			Residential		Low
103			Open space Residential		Low
106			Residential	Agricultural land	Low
108			Open space Residential	Agricultural land	Low

6.5 PREDICTED LIKELY EFFECTS (BEFORE MITIGATION)

Effects During Construction

6.5.1 As stated earlier in this ES chapter two 'do something' scenarios were modelled. These two scenarios are the Allocated Site and the Application Site. The former is the larger development and therefore is likely to have the greater impact on the local transport network. Due to the Allocated Site having a greater impact (i.e. the 'worst case'), its effects are outlined. Only where there is a notable difference in effect has the effect of the Application Site been presented.

6.5.2 The construction of the Allocated Site would generate traffic that would affect the local road network. Calculations have been made based upon information on the current construction activity at each site together with estimates of development build rate and materials. It has also been assumed that there will be construction and demolition activities being undertaken at the same time.

6.5.3 The assessment has assumed that construction will be taking place over an 11-year period.

6.5.4 The estimated traffic movements have been based upon delivery and removal of plant, and delivery and removal of materials. The development of the Allocation Site is anticipated to retain and reuse approximately 50 per cent of any demolished material on site for exercises such as cut and fill.

6.5.5 On this basis, the total number of AAWT HGV vehicle movements which could be associated with the construction of the full Allocation Site is anticipated to be in the order of 11 HGV trips per day (22 two-way trips). This generation sees a maximum of 2 trips (4 two-way trips) in any hour.

6.5.6 The predicted traffic flows associated with the fully built out Allocation Site development are calculated in the TA as peak hour movements. The peak hour two-way HGV traffic movements for the fully occupied Allocation Site are not expected to exceed 13 HGVs an hour (25 two-way trips) at peak times. On this basis the average daily traffic flows associated with construction are typically much less than traffic generated during the operational phase.

6.5.7 Effects may arise in relation to fear and intimidation, severance and pedestrian and cyclist movements as a result of HGV movement associated with construction. These effects will be mitigated as the proposed access roads such as Chilgrove Drive will be built or improved before more considerable levels of construction commences. This will minimise the volume of traffic moving through Camp Road and the impact on sensitive receptors. The effects will also be managed through the Construction Environmental Management Plan (CEMP). As the traffic flows associated with construction are lower than the number associated with operation of the development the magnitude of change will be negligible. The sensitivity of the wider road network varied from low to high although the majority of links are of low sensitivity. It is anticipated that only a minor temporary adverse effect may result from the use of the road network by construction traffic. It should be noted that the wider Allocation Site is expected to be built out over an 11 year period and therefore this effect, although temporary, is also considered to be long term.

6.5.8 The construction of the proposed access roads will include construction of a number of new junctions and modifications to Camp Road. These construction works would be for limited time periods and would be designed, managed and phased to minimise any adverse effects. The sensitivity of Camp Road to driver delay varies as there is a range of low to high sensitivity receptors. The majority of receptors are of low

sensitivity and the magnitude of change will be negligible. It is anticipated that a minor temporary adverse effect on driver delay would occur during the construction period for users of Camp Road. It is not expected that the construction traffic itself would have a significant effect on driver delay.

Effects During Operation

6.5.9 Table 6.6 and Table 6.7 present the receptor sensitivities and traffic flows associated with each link across the study area. They have formed the basis of the following analysis. Severance and fear and intimidation effects have been identified on a link by link basis whereas other effects, such as pedestrian delay, have been summarised across the study area. The location of these links is illustrated on Figure 6.1.

Table 6.7 Study Area Traffic Data

Link ID	Name	Reference Case (2031)		% Change Total Traffic 18 hr		% Change HGV 18 hr	
		All vehicles 18hr AAWT	HGV 18 hr AAWT	Application Test Case (2031)	Allocation Test Case (2031)	Application Test Case (2031)	Allocation Test Case (2031)
3	Somerton Rd/Station Rd (B4030) between Junctions 13 and 15	7269	422	42.4	49.3	13.2	14.5
16	B4030 Heyford Rd between Junctions 6 and 9	11995	396	27.0	34.1	12.5	14.8
17	Unnamed Rd between Camp Rd and Junction 5	4567	292	128.3	152.0	58.8	62.7
20	B430 between Junctions 5 and 2c	18675	1003	39.9	47.8	12.8	14.4
24	B4030 Heyford Rd between Junctions 9 and 6	10922	415	29.7	37.5	11.9	14.1
57	A43 between Junctions 2a to 2b	54216	6560	9.6	11.2	1.5	1.7
76	Camp Road – link between Junctions to Access Rd 3 (south) and 3a	6442	532	51.4	71.7	2.0	5.4
78	Camp Rd – link between Junctions to Access Rd 3a and 4	6445	532	53.4	73.8	2.4	5.7

Link ID	Name	Reference Case (2031)		% Change Total Traffic 18 hr		% Change HGV 18 hr	
		All vehicles 18hr AAWT	HGV 18 hr AAWT	Application Test Case (2031)	Allocation Test Case (2031)	Application Test Case (2031)	Allocation Test Case (2031)
80	Camp Rd – Link between Junctions to Access Rd 4 and 5	6621	533	54.7	74.6	2.8	6.1
82	Camp Rd – Link between Junctions to Access Rd 5 and 6	6721	534	53.9	73.5	2.8	6.1
84	Camp Rd – Link between Junctions to Access Rd 6 and 7 (Dow St).	6782	537	53.4	72.8	2.8	6.1
85	Camp Rd – Link between Junctions to Access Rd 7 (Dow St) and 8.	7570	546	48.2	65.5	2.7	6.0
88	Camp Rd – Link between Junctions to Access Rd 8 and 9	8174	563	49.2	65.3	3.6	6.8
90	Camp Rd – Link between Junctions to Access Rd 9 and 10	8415	565	48.2	63.8	3.6	6.8
92	Camp Rd – Link between Junctions to Access Rd 10 and 11	8902	538	46.0	60.7	3.9	7.2
94	Camp Rd – Link between Junctions to Access Rd 11 and 11a	8975	539	45.6	60.2	3.9	7.2
96	Camp Rd – Link between Junctions to Access Rd 11a and 11b	9207	568	44.4	58.7	3.7	6.9

Link ID	Name	Reference Case (2031)		% Change Total Traffic 18 hr		% Change HGV 18 hr	
		All vehicles 18hr AAWT	HGV 18 hr AAWT	Application Test Case (2031)	Allocation Test Case (2031)	Application Test Case (2031)	Allocation Test Case (2031)
98	Camp Rd – Link between Junctions to Access Rd 11b and 12 (N & S).	9311	569	43.9	58.0	3.7	6.8
100	Camp Rd – Link between Junctions to Access Rd 12 (N & S) and 13 (N & S).	9491	570	43.1	56.9	3.7	7.4
103	Camp Rd – Link between Junctions to Access Rd 13 (N & S) and 14.	9769	571	42.4	56.9	3.8	7.2
106	Camp Rd – Link between Junctions to Access Rd 14 and 15.	9804	570	42.3	56.7	3.8	7.2
108	Camp Rd – Link between Junctions to Access Rd 15 and Chilgrove Drive.	8822	434	47.0	64.8	11.1	15.2

Link 3 – Somerton Rd/Station Rd (B4030) – J13 west to J15

6.5.10 With reference to severance thresholds associated with the development of the Application Site and Allocation Site this link has a low magnitude change in total traffic AAWT flow of 42.4% and 49.3%, respectively. The effect from HGVs remains as negligible in both scenarios. This road passes through the village of Lower Heyford which has low sensitivity receptors including residential areas with footpaths. The overall effect is therefore minor and adverse and thus the effects of the development of the Application Site and the Allocation Site are not considered to be significant.

6.5.11 In relation to fear and intimidation thresholds the average hourly 18 hr traffic flow remains as a negligible degree of hazard as a result of the development of the Application Site but has increased to a small degree of hazard as a result of the development of the Allocation Site. The degree of hazard resulting from HGV flows remains as negligible in both scenarios. The sensitivity of the link is low therefore the overall effect is likely to be negligible for the Application Site and minor and adverse for the Allocation Site. The effects of the development of the Application Site and the Allocation Site are therefore not considered to be significant.

Link 16 - B4030 Heyford Rd J9 to J6 (south)

6.5.12 With reference to severance thresholds this link has a low magnitude change in total AAWT flow of 34.1% and a negligible change in HGV AAWT flow is associated with the development of the Allocation Site. Only a negligible change in total AAWT movement of 27% is associated with the Application Site. This link mainly passes through areas of open space and agricultural land but it also passes through the village of Middleton Stoney at its southern section. Within the village, there are receptors of low sensitivity including residential areas with footpaths and the Jersey Arms Hotel adjacent to this link. The overall effects are therefore likely to be minor and adverse, although negligible just for the Application Site. The effects of the development of the Application Site and the Allocation Site are therefore not considered to be significant.

6.5.13 In relation to fear and intimidation thresholds for the Allocation Site and Application Site the degree of hazard is identified as small and negligible for average hourly 18 hr traffic flow and total HGV flow, respectively, which is the same as the 'do nothing' scenario without the Proposed Development. The effects of the development of the Application Site and the Allocation Site are therefore not considered to be significant.

Link 17 - Unnamed Rd linking Camp Rd to J5 in east

6.5.14 With reference to severance thresholds this link has a high magnitude change in total AAWT flow of 152.0% and HGV AAWT flow of 62.7% associated with the development of the Allocation Site. A high magnitude change in total AAWT flow of 128.3% and low magnitude change in HGV AAWT flow of 58.8% associated with the development of the Application Site. It is mainly agricultural land that is adjacent to the link, there is also one low sensitivity receptor in the form of a food waste recycling business which is set back from the road. The overall effect related to the development of the Application and Allocation Sites could be moderate and adverse but is more likely to be negligible due to the presence on only one low sensitivity receptor which is set back from the road reducing the sensitivity to negligible. The effects are therefore not likely to be significant.

6.5.15 In relation to fear and intimidation thresholds the average hourly 18 hr traffic flow remains as a negligible degree of hazard in relation to the development of the Application Site but has increased to a low degree of hazard as a result of the development of the Allocation Site. The degree of hazard resulting from HGV flows remains at negligible. As the receptors in the area are of low and negligible sensitivity the effects related to the development of the Application and Allocation Site are likely to be negligible and minor and adverse, respectively, and thus the development is not likely to have a significant effect.

Link 20 - B430 - J5 to J2c

6.5.16 With reference to severance thresholds this link has a low magnitude change in total AAWT flow of 47.8% and 39.9% associated with the development of the Allocation Site and Application Site, respectively. A negligible change in HGV AAWT flow is anticipated in both scenarios. There is a sports field and residential properties with footpaths adjacent to this link which are medium and low sensitivity receptors, respectively. The overall effect associated with the development of the Allocation and Application Sites could be minor to moderate and adverse and thus the effects are not likely to be significant.

6.5.17 In relation to fear and intimidation thresholds, the average hourly 18 hr traffic flow has changed from being a small degree of hazard to a medium degree of hazard as a result of the development of the Allocation and Application Sites. The degree of hazard resulting from HGV flows remains as small. There is only one medium sensitivity

receptor on this link which is a sports field separated from the road along its length by a heavily vegetated area. The overall effect could therefore be moderate and adverse but is more likely to be minor to moderate and adverse and not significant due to the separation between the link and the receptor.

Link 24 - B4030 Heyford Rd - J9 to J6 (north)

6.5.18 With reference to severance thresholds this link has a low magnitude change in total AAWT flow of 37.5% and 29.7% associated with the development of the Allocation Site and Application Site, respectively. A negligible change in HGV AAWT flow is anticipated in both scenarios. It is mainly agricultural land that is adjacent to the road and no sensitive receptors have been identified, thus the overall effects related to the development of the Allocation and Application Sites is considered to be negligible and not significant.

6.5.19 In relation to fear and intimidation thresholds the degree of hazard is identified as small and negligible for average hourly 18 hr traffic flow and total HGV flow, respectively, for the development of the Allocation and Application Sites which is the same as the 'do nothing' scenario without the Proposed Development. The effects are therefore not likely to be significant.

Link 57 - A43 - J2a to J2b

6.5.20 With reference to severance thresholds this link has a negligible magnitude change in total AAWT flow of 11.2% and 9.6% associated with the development of the Allocation Site and Application Site, respectively. A negligible change in HGV AAWT flow is anticipated in both scenarios. There is an accident black spot present along this link which is considered to be a high sensitivity receptor. The overall effect is likely to be negligible and not significant as this is a busy link which connects onslip and offslip roundabouts to the M40 which pedestrians and cyclists are unlikely to use or need to cross.

6.5.21 In relation to fear and intimidation thresholds related to the development of the Allocation and Applications Sites, the degree of hazard is identified as large for average hourly 18 hr traffic flow and total HGV flow which is the same as the 'do nothing' scenario without the Proposed Development. The effects are therefore not likely to be significant.

Links 76 -108 – Camp Road

6.5.22 With reference to severance thresholds the links on Camp Road have a medium magnitude change in total AAWT movements between 56.7 – 74.6% associated with the development of the Allocation Site. Only a low magnitude change of between 42.3 - 54.7% is associated with the development of the Application Site. The change in HGV AAWT is of a negligible magnitude on most links apart from on link 108 where there is a low change of 15.2% and 11.1% associated with the development of the Allocation Site and the Application Site, respectively. As there are several high and medium sensitivity receptors adjacent to Camp Road including the Heyford Park free school to the east of Camp Road the effects of the development could be major and adverse if we consider traffic resulting from the wider Allocation Site or moderate and adverse if we consider traffic only resulting from the Application Site. This effect is predominantly a result of the relatively low baseflows through Camp Road and the single high sensitivity receptor which is set back from Camp Road and only occupies a small section of it. The overall effect of the Proposed Development within the Application Site is therefore more likely to be minor to moderate and adverse and not significant and the overall effect of the Proposed Development within the wider Allocation Site is therefore more likely to be moderate and adverse and therefore could potentially be significant.

6.5.23 In relation to fear and intimidation thresholds related to the development of the Application and Allocations Sites, the average hourly 18 hr traffic flow has changed from being a negligible degree of hazard to a small degree of hazard. Although there have been small increases in HGV flows, the degree of hazard resulting from HGV flows remains as negligible in both scenarios for most links with the exception of Camp Road links 100, 103 and 106 where the degree of hazard has increased from negligible to small. These results would suggest that the effects could be moderate and adverse but the effect of on fear and intimidation are more likely to be minor and adverse and not significant. This is in part due to the low speed limit across the links which are a maximum of 30 mph and traffic calming measures which area also proposed for the link. Improvements are being made to Camp Road as part of the highway scheme mentioned in section 6.4 which will result in a wider footpath and shared foot/cycle path to the north and south, respectively, of Camp Road along the development frontage which are separated from the road along most of its length. The percent composition of HGVs along Camp Road as a result of the Proposed Development within the Application Site will also decrease to between 2.76% and 4.57% as a result of opening Chilgrove Drive as an access to the Flying Field. Another effect of the opening of Chilgrove Drive is that HGVs using Camp Road are likely to be smaller HGVs associated with deliveries to homes and services which are a benefit to local residents, rather than larger, articulated vehicles associated with construction and existing employment opportunities on the flying field.

Driver Delay

6.5.24 It is expected that there will be some increases in driver delay at key junctions in the highway network without mitigation during the peak hours. A number of junctions have been identified and agreed with OCC and HE as requiring mitigation due to the impact of the Allocation Site. A package of highway improvements for these junctions has been proposed in support of the allocation site and is subject to agreement with the planning and highways authorities, as described at section 6.6 Mitigation and Enhancement, below.

6.5.25 The junctions that see the greatest development impact and therefore have been agreed as requiring mitigation will also see the biggest increases in driver delay. For this reason, an assessment of driver delay in these locations has been undertaken. Table 6.8 – **Error! Reference source not found.** illustrate the driver delay at these junctions.

6.5.26 These increases in driver delay are based on the Allocation Site scenario and therefore present a robust position over and above what would be predicted for the Application Site scenario.

6.5.27 It should be noted that the modelling undertaken for Junctions 2a, 3 and 6 is in the process of being refined at the request of HE and OCC, however it is considered that the figures set out below represent a reasonable assessment of delay at the junctions.

Table 6.8 Driver delay M40 J10 (2a)

Link	Baseline 2031 delay (secs)		Allocation Test Case 2031 delay (secs)		Increase in delay (secs)	
	AM	PM	AM	PM	AM	PM
A43 (N)	122	7	312	5	189	-1
M40 off-slip southbound	12	84	309	752	298	668
A43 (S)	1	1	1	1	0	0
Total	135	92	622	759	487	667

Table 6.9 Driver delay J3

Link	Baseline 2031 delay (secs)		Allocation Test Case 2031 delay (secs)		Increase in delay (secs)	
	AM	PM	AM	PM	AM	PM
A43 (N)	9	61	14	170	5	109
B4100 (E)	1188	574	1841	696	653	122
A43 (S)	10	151	15	394	4	242
B4100 (W)	370	1045	643	1149	273	104
Total	1578	1830	2513	2409	935	579

Table 6.10 Driver delay J5

Link	Baseline 2031 delay (secs)		Allocation Test Case 2031 delay (secs)		Increase in delay (secs)	
	AM	PM	AM	PM	AM	PM
Minor Road (Left)	7	7	20	22	12	15
Minor Road (Right)	11	10	35	20	24	11
B430 Ardley Road (N)	9	8	49	17	40	9
Total	27	25	104	60	77	35

Table 6.11 Driver delay J6

Link	Baseline 2031 delay (secs)		Allocation Test Case 2031 delay (secs)		Increase in delay (secs)	
	AM	PM	AM	PM	AM	PM
B430 Ardley Road (N)	259	38	478	40	219	2
B4030 Bicester Road (E)	236	91	462	299	226	208
B430 Oxford Road (S)	38	78	47	317	9	240
B4030 Heyford Road (W)	237	103	492	301	254	198
Total	771	309	1478	957	707	648

Table 6.12 Driver delay J15

Link	Baseline 2031 delay (secs)		Allocation Test Case 2031 delay (secs)		Increase in delay (secs)	
	AM	PM	AM	PM	AM	PM
A4260 Oxford Road (N)	67	16	336	22	269	6
B4030 (E)	99	82	308	106	209	24
A4260 Banbury Road (S)	24	30	26	106	2	76
B4030 (W)	118	105	364	168	246	63
Total	308	233	1034	402	726	169

Table 6.13 Driver delay J18

Link	Baseline 2031 delay (secs)		Allocation Test Case 2031 delay (secs)		Increase in delay (secs)	
	AM	PM	AM	PM	AM	PM
B4027 (E) (Left)	90	8	472	9	382	1
B4027 (E) (Right)	113	22	446	28	333	6
A4260 Banbury Road (N)	3	5	3	5	0	0
B4027 (W) (Left)	42	10	2186	12	2144	2
B4027 (W) (Right)	71	25	194	34	123	9
A4260 Banbury Road (S)	7	4	7	4	0	0
Total	325	73	3307	90	2982	17

6.5.28 It should be noted that these are robust driver delay times that illustrate conditions which occur for only two hours in the day during the AM and PM peak. Over the greater 24-hour period driver delay time associated with these junctions are likely to be less than the times associated with peak AM and PM traffic.

6.5.29 The effect of the Allocation Site on driver delay is generally negligible apart from on the links associated with the junctions identified in Table 6.8 - **Error! Reference source not found.**. These links have a potentially significant moderate and adverse impact and therefore mitigation measures have been proposed to reduce negative effects resulting from increases in traffic related to the Allocation Site. These mitigation measures are outlined in section 6.6.

Pedestrian and Cycle Movements

6.5.30 As part of the consented development at the Former RAF Upper Heyford the following key pedestrian and cycle measures are to be provided:

- An off-road foot / cycleway along Camp Road through the development;
- The Portway PRoW that was severed by the construction of the airfield will be reinstated around the perimeter of the site (as outlined in section 6.4);
- The Aves Ditch PRoW that was severed by the construction of the airfield will be reinstated around the perimeter of the site (as outlined in section 6.4);
- Improvements to connections between the Application Site and existing PRoW will be made; and
- The consented housing will be connected by a network of walk and cycle links between and within the residential areas, providing a permeable site which facilitates and encourages walking and cycling within the local area.

6.5.31 Figure 6.2 illustrates the current and consented walking and cycling facilities across the site. It illustrates the primary and secondary walk/cycle routes through the consented development, including how the gaps in existing bridleways and footways will be filled.

6.5.32 In addition to these infrastructure improvements additional measures to increase sustainable travel have been identified within the Travel Plans for the Application Site that include:

- The provision of new cycle connections through the proposed development including and off-road foot / cycleway along Chilgrove Drive and between Camp Road and the proposed park to the north of the new development area.
- The provision of a bike-hire, or bike-pool, scheme will be considered to encourage those that live and work within the site to potentially borrow a bike and cycle to their work place, then return the bike to the pool at the end of the day, where the resident can then continue on to their homes by foot. The cycle-hire scheme will be mainly geared toward commuters arriving by public transport, but it will also be available to residents living and working on site if they do not own their own bike. This scheme will ultimately help enhance cycling as a means for moving about the Flying Field.
- Cycle parking will be provided throughout the development. All cycle parking will be secured, covered, convenient and visible, and the minimum level of cycle parking provision will be in line with OCC standards as relevant at the time of reserved matters planning applications.
- A Bicycle User Group and a cycle repair scheme will be established by the Travel Plan Co-ordinator which can encourage the uptake of cycling by allowing cyclists to find support to improve their cycling skills, and somewhere to fix and service their bikes.

6.5.33 It is considered that the Application Site and associated services and infrastructure improvements will likely result in a minor and beneficial effect on pedestrian and cycle movements.

Pedestrian Amenity and Delay

6.5.34 There is one link where traffic from the Allocated Site has increased by over a 100%. In terms of fear and intimidation this has a low degree of hazard, HGV traffic makes up less than 5% of the traffic on this link.

6.5.35 The proposal for the development will also result in beneficial effects to pedestrians in the form of improvements to walking links.

6.5.36 The effects of the Application Site and Allocation Site on pedestrian amenity and delay is therefore likely to be minor and beneficial and not significant when considering

the improvements to be made to walking links and due to the composition and low levels of traffic that are expected on the affected links.

Accidents and Safety

6.5.37 The traffic associated with the Allocation Site is likely to have a significant effect where the observed PIC incident rate is higher than the predicted rate.

6.5.38 The comparison between observed and predicted PIC data identified two links and one junction where incidents recorded were higher than anticipated. These are:

- link 57 A43 between Junction 2a to 2b (1 anticipated, 2 observed);
- link 58 A43/M40 offslip Roundabout to A43/B4100 Roundabout (J3) (4 anticipated, 8 observed); and
- Junction 18 A4026 / B4027 (7 anticipated, 10 observed).

6.5.39 Based on these high PIC incident results it can be determined that the sensitivity of these two links and one junction are high as these links have been identified as accident black spots. The magnitude of change is identified as being low and therefore, the effect is moderate and adverse and significant.

6.5.40 The observed records on all other links were equal to or lower than those anticipated and therefore not deemed to be significant.

6.5.41 Proposed mitigation measures to reduce the significance of the effect of the development within the Allocation Site for links 57 and 58 and junction 18 are outlined in section 6.6.

Hazardous Loads

6.5.42 The Allocation Site has the potential to generate hazardous loads. This would largely relate to any contamination which could not be remediated on site or depend on future uses of the site. The hazardous loads will be dealt with under appropriate controls to reduce effects to an acceptable level which is not significant.

6.6 MITIGATION AND ENHANCEMENT

6.6.1 As part of the evolving development parameters and the EIA process, potential transport and access effects have been identified and design solutions sought to minimise any potential adverse effects. Opportunities for enhancements have also been identified. The incorporation of such mitigation and enhancement measures has been inherent to the design process. This section summarises the key transport mitigation and enhancement measures.

Construction

6.6.2 Construction Environmental Management Plans (CEMP) will be prepared in advance of construction (as described in Chapter 2 of the ES) that set out measures to manage the construction works. The CEMP will be progressed by the principal contractor(s) based on the proposed working practices. It is therefore proposed that CEMP would include the following transport and access mitigation measures:

- To ensure that construction vehicle movements are kept away from minor roads wherever possible, the contract documents for each contractor will set out the requirements for construction traffic as part of a freight and construction vehicle management plan.
- The CEMP will include a Travel Plan Framework (TPF) for construction personnel to reduce traffic generated by the construction works.

- There will also be the need to ensure safe movement of vehicles within the site during construction. These measures will include as appropriate:
    - Clearly demarked pedestrian and vehicle routes on site, where possible these will be kept separate;
    - Where pedestrian routes cross vehicle routes, the crossing points will be clearly marked and warning signs posted;
    - Main entry and exit points must be signposted;
    - At each construction parcel, vehicles will enter and exit where possible in a forward direction;
    - Drivers will be provided with a site map and site safety instructions on arrival;
    - Where possible, vehicle routes on site will be specifically constructed and be permanent; and
    - A site speed limit will apply.

6.6.3 Overall, best practice would be adopted to minimise the adverse effects of construction.

Operational

Driver Delay

Local and Strategic Highway Network

6.6.4 As part of the delivery of the Application Site, HGV access to the Flying Field will be re-routed away from Camp Road and instead HGVs will travel along Chilgrove Drive. The alternative route is considered to improve safety and amenity for residents within Heyford Park.

6.6.5 At the time of writing and in response to the forecasted traffic conditions, highway improvement measures have been identified in technical consultation with HE and OCC at the following key network junctions, together with traffic calming and management measures being considered in local villages at Upper Heyford, Lower Heyford, Ardley and Middleton Stoney:

- M40 J10 (M40 southbound off slip / A43) – J2a: Mitigation to be agreed. See below.
- Baynards Green roundabout (A43/B4100) – J3: Mitigation to be agreed. See below.
- B4030 Ardley Road / Minor Road – J5: Proposed upgrade to signalised T-junction. See Drawing 39304/5501/SK04 Revision E at Appendix 6.5.
- Middleton Stoney (B430 / B4030) – J6: Mitigation to be agreed. See below.
- Hopcrofts Holt (A4260 / B4030) – J15: Proposed improvements to the existing signalised crossroad layout. See Drawing 39304/5501/SK03 Revision E at Appendix 6.5.
- A4260 / B4027 – J18: Proposed upgrade to a roundabout junction. See Drawing 39304/5501/SK01 at Appendix 6.5.

6.6.6 The junction mitigation is currently being agreed with OCC and HE and therefore the proposals are not finalised at this stage. Notwithstanding this the mitigation proposals listed above have been modelled. It is considered that whilst the mitigation may be amended in the detail prior to final delivery the schemes set out above provide a good proxy of what could be delivered and the benefits that could be achieved.

6.6.7 Modelled driver delay times for the junctions with the proposed improvements incorporated are outlined in Tables 6.14 – 6.16.

Table 6.14 Mitigated Driver Delay Times J5

Link	Allocation Test Case Delay (sec) without mitigation		Allocation Test Case Delay (sec) with mitigation		decrease in delay (sec)	
	AM	PM	AM	PM	AM	PM
B430 Ardley Road (S)	0	0	53	34	-53	-34
Minor Road	35	22	14	29	21	-7
B430 Ardley Road (N)	49	17	12	21	37	-4
Total	84	40	79	83	5	-45

Table 6.15 Mitigated Driver Delay Times J15

Link	Allocation Test Case Delay (sec) without mitigation		Allocation Test Case Delay (sec) with mitigation		decrease in delay (sec)	
	AM	PM	AM	PM	AM	PM
A4260 Oxford Road (N)	336	22	121	22	215	0
B4030 (E)	308	106	143	66	165	40
A4260 Banbury Road (S)	26	106	24	38	2	68
B4030 (W)	364	168	172	98	192	70
Total	1034	402	459	224	574	178

Table 6.16 Mitigated Driver Delay Times J18

Link	Allocation Test Case Delay (sec) without mitigation		Allocation Test Case-Delay (sec) with mitigation		decrease in delay (sec)	
	AM	PM	AM	PM	AM	PM
B4027 (E)	472	28	9	4	463	24
Banbury Road (S)	7	4	3	4	4	0
B4027 (W)	2186	34	4	5	2182	29
Banbury Road (N)	3	5	6	3	0	2
Total	2667	70	23	16	2644	54

6.6.8 It should be noted that there are several occurrences where there are increases in delay (i.e. shown as a negative number) when comparing the modelling with and without mitigation. These increases are a result of providing a signalised method of control where priority control was previously in place. The signalisation can increase delay on certain arms of a junction but reduces delay overall at the junction as seen in the total figures.

6.6.9 In some cases, the delay at junctions has been reduced by the mitigation in the AM peak, but increases in the PM peak. This occurs where the junction is operating over capacity in the AM peak but within capacity in the PM peak prior to mitigation. In these instances the junction mitigation has primarily been developed to improve conditions in the AM peak, where the junction is operating over capacity. Whilst there is a slight increase in delay in the PM peak this is considered acceptable due to the improvement made in the AM peak hour.

6.6.10 At the time of writing mitigation schemes for the M40, J10 (J2a) and Baynards Green Roundabout (J3) have not been formally agreed with HE. The mitigation schemes, which include signalisation methods, are subject to an ongoing modelling exercise using the HEs VISSIM model and the final mitigation schemes will be agreed during the post application determination period.

6.6.11 Similarly a mitigation scheme has not yet been identified for the Middleton Stoney junction (J6) that goes beyond a scheme committed as part of the previously consented development at Heyford Park. Technical discussions are continuing with OCC and further modelling work will be undertaken to determine a more strategic approach to mitigation in this location.

6.6.12 It is expected that the delivery of the mitigation proposals for all off site junctions will be secured by S.106.

<u>Pedestrians and Cyclists</u>

As set out in Section 6.5 the following measures are proposed in relation to pedestrians and cyclists:

- The provision of new cycle connections through the proposed development including an off-road foot / cycleway along Chilgrove Drive and between Camp Road and the proposed park to the north of the new development area.
- The provision of a bike-hire, or bike-pool, scheme will be considered to encourage those that live and work within the site to potentially borrow a bike and cycle to their work place, then return the bike to the pool at the end of the day, where the resident can then continue on to their homes by foot. The cycle-hire scheme will be mainly geared toward commuters arriving by public transport, but it will also be available to residents living and working on site if they do not own their own bike. This scheme will ultimately help enhance cycling as a means for moving about the consented and proposed development and will encourage travel around the development by sustainable means.
- Cycle parking will be provided throughout the development. All cycle parking will be secured, covered, convenient and visible and the minimum level of cycle parking provision will be in line with OCC standards as relevant at the time of reserved matters planning applications.
- A Bicycle User Group and a cycle repair scheme will be established by the Travel Plan Co-ordinator which can encourage the uptake of cycling by allowing cyclists to find support to improving their cycling skills and somewhere to fix and service their bikes.

Travel Plans

6.6.13 A Full Residential Travel Plan and a Full Commercial Travel Plan (Travel Plans) have been prepared and submitted with the planning application as part of a suite of TA documents. These can be seen in Appendix 6.2 and Appendix 6.3.

6.6.14 The Travel Plans provide a framework which commits the developer and future occupiers to the implementation of measures for management and promotion of walking, cycling, public transport and car park management in order to achieve modal share targets aimed at encouraging the use of alternative travel modes and reducing single occupancy car journeys to and from the development.

6.6.15 The Travel Plans set out an action plan which details the proposed measures, commitments and obligations that the developer and future occupiers will adhere to in delivering the Travel Plan. These are intended to deliver the lowest practical level of car use to, from and within the development, as well as providing high quality and easy to use opportunities for alternative modes of transport. The identified measures include appointing a Travel Plan Co-ordinator, providing information to educate users of the development on smarter travel and promotional measures to encourage users to change travel habits.

6.6.16 Targets are identified for reducing single occupancy car journeys to and from the site at the outset with performance monitored and reviewed through the implementation period. The Travel Plans also set out the mechanisms through which ongoing monitoring, review and intervention would be enforced.

6.6.17 The Travel Plan mitigation measures to be provided by the Applicant will be secured by S.106.

Public Transport

6.6.18 New bus stops will be provided on Camp Road and on roads through the new development areas as necessary. The exact locations will be agreed between the Applicant and OCC at the detailed design stage.

6.6.19 The assessment parameters set out proposals to split the existing 25A service into 2 new services; one between Heyford Park and Bicester via Bicester Village Station; and, one between Heyford Park and Oxford via Oxford Parkway Station, subject to the emerging Public Transport Strategy (PTS) for Heyford Park.

6.6.20 The Heyford Park to Bicester service will provide for a service operating up to a 15 minute frequency Mondays – Saturdays and an hourly service on Sundays, subject to the emerging PTS.

6.6.21 The Heyford Park to Oxford service will provide an hourly service Mondays – Fridays.

6.6.22 The services described above form the main parts of the PTS for Heyford Park. These would be supported by a community minibus operated by the Applicant. The minibus would provide timetabled journeys to and from Lower Heyford rail station for commuters at peak times on Monday to Friday and would be available in the inter-peak period for local trips not covered by the main bus services on a demand responsive basis.

6.6.23 Note that the current PTS within the TA is still subject to refinement and change as the development and construction at Heyford Park progresses.

6.6.24 The public transport mitigation measures to be provided by the Applicant will be secured by S.106.

Accidents and Safety

6.6.25 The Allocation Site test scenario was identified as having the potential to have a significant adverse effect on accidents and safety as a result of higher than anticipated PIC incident rates on links 57, 58 and junction 18.

6.6.26 As set out at Paragraph 6.6.5 mitigation is being considered for the A43/M40 offslip roundabout (J2a) and A43/B4100 roundabout junction (J3) which is anticipated to reduce the number of observed accidents on links 57 and 58. Notwithstanding this, it is not considered that the link has any significant highway deficiency which contributed to the accidents recorded.

6.6.27 In addition to this, as set out at Paragraph 6.6.5 mitigation in the form of a roundabout has been proposed for Junction 18 - A4026 / B4027 which is anticipated to reduce the number of observed accidents at the junction due to the removal of conflict between the opposing movements.

6.6.28 It is anticipated that these mitigation measures will be secured by S.106 /S278.

6.7 CUMULATIVE EFFECTS

6.7.1 As the 2031 Allocation Site and Application Site 'do something' scenarios include all the cumulative schemes as listed in ES Chapter 2, Table 2.5, agreed committed developments, and highway schemes, the assessment of predicted likely effects outlined in section 6.5 above inherently considers the cumulative effect of the proposed development and other Local Plan Commitments and known developments for the Plan Period to 2031.

6.7.2 Therefore, this ES has already considered these cumulative effects and the measures proposed ensure that any cumulative impact is mitigated.

6.8 RESIDUAL EFFECTS

Construction

6.8.1 There is likely to be a temporary minor and adverse effect due to construction related to the Proposed Development within the Application Site and Allocation site test scenario. The effects related to the construction of the Allocation Site although temporary, are likely to be long term and occur over a period of 11 years whilst the site is built out. It is not anticipated that there will be significant residual effects related to the construction of the Proposed Development.

Operational

Severance

6.8.2 Within the Allocation Site test scenario there was potential for a moderate and adverse effect to occur in relation to severance on Camp Road and a minor to moderate and adverse effect to occur within the Application Site test scenario. Overall there is likely to be a minor to moderate and adverse effect of the Proposed Development within the Application Site and Allocation Site test scenarios on severance when both increases in traffic and infrastructure improvements associated with the Proposed Development and the wider area are considered.

Fear and Intimidation

6.8.3 No significant effects to fear and intimidation were identified as being likely to occur as a result of the Proposed Development within the Application Site or Allocation Site test scenario. With the implementation of improvements to infrastructure such as footpaths and cycle paths that are separated from main roads and the addition of traffic calming measures, the overall effect is likely to be negligible.

Driver Delay

6.8.4 With the implementation of the proposed mitigation including traffic calming measures and junction improvements identified in section 6.6 and the TA there is expected to be a negligible residual effect of the Proposed Development within the Application Site and Allocation Site test scenarios on driver delay.

Pedestrian and Cycle Movements

6.8.5 Residual effects on pedestrian and cycle movements will likely be minor and beneficial as a result of the Proposed Development within the Application Site and Allocation Site test scenario. This is due to the increase in the scope of the walking and cycle network in and around Upper Heyford and services that will be offered as part of the Travel Plan for the Application Site.

Pedestrian Amenity and Delay

6.8.6 Residual effects on pedestrian amenity and delay will likely be minor and beneficial as a result of the Proposed Development within the Application Site and Allocation Site test scenario due to improvements made to infrastructure such as footpaths, which will increase the connectivity of the area by linking it to PRoW in the surrounding area and help mitigate against any negative effects arising from any increases in traffic experienced.

Accidents and Safety

6.8.7 Residual effects on accidents and safety will likely be moderate and beneficial as a result of the Proposed Development within the Application Site and Allocation Site test scenario due to the proposed improvements to links 57, 58 and junction 18 which should reduce the number of observed accidents at these sites and mitigate against negative effects arising from increases in traffic.

Hazardous Loads

6.8.8 There is expected to be a negligible residual effect from hazardous loads arising from the Proposed Development within the Application and Allocation test scenario as hazardous loads are unlikely to occur and appropriate control measures will be put in place in the instance that they do occur.

6.9 MONITORING

6.9.1 Monitoring will be undertaken as part of the Travel Plans for the Application Site.

6.9.2 All Travel Plans would contain a commitment to conduct a new baseline survey and review the Travel Plans in light of the survey results within three months of approval and then at least every two years (Years 1, 3 and 5 or for longer if requested). The Travel Plans would be prepared using survey templates provided by the OCC Travel Choices Team. Given the scale of development and likely build-out times, it is proposed to monitor the Application site for a period of 10 years.

6.9.3 The Monitoring Report will assess the level of trip generation against targets set out in the Travel Plan. This data will be gathered via individual residential surveys (per household) and fully-classified multi-modal traffic surveys at access points to pockets of residential development as they come forward. It is expected that the different residential areas would offer different traffic profiles depending on the demographics of people living there – therefore a selection of traffic surveys across several residential areas will be used to determine an average vehicular trip rate and modal split. The date and timings of the fully classified, multi modal surveys will be agreed between the Travel Plan Co-ordinator and OCC.

6.10 CONCLUSION

6.10.1 A Transport Assessment has been undertaken in the context of extensive scoping discussions with Oxfordshire County Council (OCC), Highways England (HE) and Cherwell District Council (CDC).

6.10.2 The travel demand from the Proposed Development within the Application Site and Allocation Site test scenarios have been predicted and considered in detail in the context of the transport network.

6.10.3 This Transport and Access chapter considers the effects of traffic associated with the construction and operation of both the Allocation Site and Application Site scenarios on severance, driver delay, pedestrian and cycle movement, fear and intimidation, accidents and safety and hazardous loads. Key highway links to be assessed in the local area were identified with regard to the thresholds for fear and intimidation and severance. The traffic associated with the completed development in 2031 was used.

6.10.4 The majority of links were identified as minor and adversely affected or negligible in relation to severance with Camp Road being identified as having potential to experience a minor to moderate and adverse effect. Overall the Proposed Development within the Application Site and Allocation Site test scenarios is unlikely to have a significant effect on severance.

6.10.5 It was found that the overall effect of the Proposed Development within the Application Site and Allocation Site test scenarios on fear and intimidation would likely be negligible.

6.10.6 The overall effect of the Proposed Development within the Application Site and Allocation Site test scenarios on pedestrians and cyclists, including pedestrian amenity and delay is likely to be minor and beneficial as a result of the proposed improvements such as to walking and cycling infrastructure in the area.

6.10.7 A package of highway improvements and travel planning has been identified and is being agreed with the OCC, HE and CDC. These measures will mitigate the effects of traffic generated by the Proposed Development within the Application Site and Allocation Site test scenarios such that the effect on driver delay should be not significant.

6.10.8 Two links and one junction were identified as being significant in relation to accidents and safety. Improvements have been proposed at these three sites to mitigate against effects resulting from increases in traffic arising from the Proposed Development within the Application Site and Allocation Site test scenarios. The overall effect of the Proposed Development on accident and safety is likely to be moderate and beneficial

Table 6.19: Summary of Effects, Mitigation and Residual Effects.

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
Construction								
Various	Severance	Temporary	Negligible to High	Negligible	Local	Minor and adverse	Implementation of a construction environment management plan	Minor and adverse
Various	Fear and Intimidation	Temporary	Negligible to High	Negligible	Local	Minor and adverse	Implementation of a construction environment management plan	Minor and adverse
Various	Driver Delay	Temporary	Negligible to High	Negligible	Local	Minor and adverse	Implementation of a construction environment management plan	Minor and adverse
Various	Pedestrian and Cycle Movements	Temporary	Negligible to High	Negligible	Local	Minor and adverse	Implementation of a construction environment management plan	Minor and adverse
Various	Pedestrian Amenity and Delay	Temporary	Negligible to High	Negligible	Local	Negligible	None required	Negligible
Various	Accidents and Safety	Temporary	Negligible	Negligible	Local	Negligible	None required	Negligible
Various	Hazardous Loads	Temporary	Negligible to High	Negligible	Local	Negligible	In the instance that hazardous loads do occur	Negligible

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
							they will be dealt with under appropriate controls to reduce effects to an acceptable level which is not significant	
Operation								
Various	Severance	Permanent	Negligible to High	Negligible to High	Local	Negligible to moderate and adverse	Infrastructure improvements and implementation of traffic calming measures	Minor to moderate and adverse
Various	Fear and Intimidation	Permanent	Negligible to High	Negligible to High	Local	Negligible to Minor to moderate and adverse	Infrastructure improvements and implementation of traffic calming measures	Negligible
Various	Driver Delay	Permanent	Negligible to High	Negligible to Medium	Local	Negligible to moderate and adverse	Improvements to key network junctions and implementation of traffic calming measures	Negligible
Various	Pedestrian and Cycle Movements	Permanent	Negligible to High	Low	Local	Minor and beneficial	Implementation of Travel Plans and the associated services to be	Minor and beneficial

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
							provided as part of these plans. New walking and cycling routes proposed to increase accessibility and connectivity of the site and the local area	
Various	Pedestrian Amenity and Delay	Permanent	Negligible to High	Low	Local	Minor and beneficial	Implementation of Travel Plans and the associated services to be provided as part of these plans. Improvements to be made to walking links	Minor and beneficial
Various	Accidents and Safety	Permanent	High	Negligible to Medium	Local	Moderate and adverse	Improvements to A43/M40 offslip roundabout (signalisation), A43/B4100 roundabout junction (capacity enhancement) and Junction 18 – A4026/B4027 (signalisation)	Moderate and beneficial
Various	Hazardous Loads	Permanent	Negligible to High	Negligible	Local	Negligible	In the instance that hazardous	Negligible

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
							loads do occur they will be dealt with under appropriate controls to reduce effects to an acceptable level which is not significant	
Cumulative and In-combination								
Various	Severance	Permanent	Negligible to High	Negligible to High	Local	Negligible to minor to moderate and adverse	Infrastructure improvements and implementation of traffic calming measures	Minor and adverse
Various	Fear and Intimidation	Permanent	Negligible to High	Negligible to High	Local	Negligible to minor to moderate and adverse	Infrastructure improvements and implementation of traffic calming measures	Negligible
Various	Driver Delay	Permanent	Negligible to High	Negligible to Medium	Local	Negligible to moderate and adverse	Improvements to key network junctions and implementation of traffic calming measures	Negligible
Various	Pedestrian and Cycle Movements	Permanent	Negligible to High	Low	Local	Minor and beneficial	Implementation of Travel Plans and the associated services to be	Minor and beneficial

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
							provided as part of these plans. New walking and cycling routes proposed to increase the accessibility and connectivity of the site and the local area.	
Various	Pedestrian Amenity and Delay	Permanent	Negligible to High	Low	Local	Minor and beneficial	Implementation of Travel Plans and the associated services to be provided as part of these plans. Improvements to be made to walking links.	Minor and beneficial
Various	Accidents and Safety	Permanent	High	Negligible to Medium	Local	Moderate and adverse	Improvements to A43/M40 offslip roundabout (signalisation), A43/B4100 roundabout junction (capacity enhancement) and Junction 18 – A4026/B4027 (signalisation).	Moderate and beneficial
Various	Hazardous Loads	Permanent	Negligible to High	Negligible	Local	Negligible	In the instance that hazardous	Negligible

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
							loads do occur they will be dealt with under appropriate controls to reduce effects to an acceptable level which is not significant.	

6.11 REFERENCES

National Planning Policy Framework (NPPF)

Planning Practice Guidance

Oxfordshire Local Transport Plan: Connecting Oxfordshire (2015- 2031)

Cherwell Local Plan

Institute of Environmental Assessment (1993) *Guidance Notes No.1 –Guidelines for the Environmental Assessment of Road Traffic*.

Crompton and Gilbert's Pedestrian Delay Annoyance and Risk (1981) in Institute of Environmental Assessment (1993) *Guidance Notes No.1 –Guidelines for the Environmental Assessment of Road Traffic*.