6 TRAFFIC AND ACCESS

6.1 INTRODUCTION

6.1.1 This Technical Assessment presents the approach and findings of the assessment of potential effects of traffic and transport arising from the Proposed Development. The assessment presents the methodology followed, and provides a review of the baseline conditions in the vicinity of the Application Site and surrounding area. The assessment then presents the results of the appraisal of the effect of the Proposed Development on the baseline scenarios in order to determine the anticipated magnitude and significance of effect. Mitigation measures to minimise the effects of the Proposed Development during construction and operational phases to an acceptable level are presented and discussed.

6.1.2 Consideration has been given to effects in relation to HGVs, car and non-car users (pedestrians, cyclists and users of public transport).

6.1.3 A Transport Assessment (TA) (**Appendix 6.1**) incorporating a Residential Travel Plan (TP) and accompanying appendices (all provided in the Appendix) has been prepared in support of the Proposed Development. This assessment has been prepared on the basis of the detailed assessment reported in the TA. The reader is referred to the TA and TP and supporting appendices where further information is required.

6.1.4 This assessment includes a review of the current conditions found within the area, identifies mitigation measures that have already been incorporated into the proposals or will be implemented in the future and then assesses the significance of the residual effects of the Proposed Development.

6.2 ASSESSMENT APPROACH

Methodology

6.2.1 The methodology used in this assessment has been developed to fulfil the requirements of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 and within:

- The Guidelines for the Environmental Assessment of Road Traffic published by the Institute of Environmental Assessment in 1993 (now the Institute of Environmental Management and Assessment);
- Volume 11 of the Design Manual for Roads and Bridges – Environmental Assessment (Highway Agency et al.); and
- Planning Practice Guidance (PPG) document 'Travel Plans, Transport Assessments and Statements in decision-taking' (March 2014).

6.2.2 In accordance with the above, the assessment has considered likely significant environmental effects in relation to severance, driver delay, fear and intimidation, pedestrian and cyclist movement, accidents and safety, and hazardous loads.

6.2.3 The assessment has considered links that have the potential to be significantly affected by the proposals, based on criteria included within the Guidelines for the Environmental Assessment of Road Traffic published by the Institute of Environmental Assessment (1993).

Assessment of Significance

6.2.4 The generic significance criteria for the EIA are identified in **Table 6.1**. These criteria have then been utilised for the assessment of transport and access effects drawing upon the Guidelines for Environmental Assessment of Road Traffic and for the assessment of fear and intimidation. The thresholds summarised in **Table 6.2** are based upon the conclusions of Crompton and Gilbert's Pedestrian Delay Annoyance and Risk (1981).

Table 6.1: Fear and Intimidation Thresholds

Degree of Hazard	Average traffic flows over 18hr day (vehicles / hour)	Total 18hr HGV flow	Average vehicle speed over 18hr day (mph)
Extreme	1,800	>3,000	>20
Great	1,200 – 1,800	2,000 – 3,000	15 - 20
Moderate	600 – 1,200	1,000 – 2,000	10 – 15
Small	<600	<1,000	<10

6.2.5 The threshold for assessing significance is based on the following range of indicators for assessing changes in traffic flows:

Table 6.2: Severance Indicators

Indicator	Change in Traffic Flows
Large	>60%
Moderate	30% - 60%
Slight	10% - 30%

6.2.6 The significance of potential transport and access effects have 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. Categories of sensitivity and magnitude are defined and assessed to determine the significance of the effect.

6.2.7 In addition to the above, as the percentage change 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 is increased to any of the levels shown in **Table 6.1**.

6.2.8 Categories of receptor sensitivity have been defined from the principles set out in the Guidelines for the Environmental Assessment of Road Traffic, including the following:

- The need to identify particular groups or locations which may be sensitive to changes in traffic conditions;
- The list of affected groups and special interests set out in the guidance;

- The identification of links or locations where it is felt that specific environmental problems may occur; and
- Locations including conservation areas, hospitals, links with high pedestrian and cycle flows.

6.2.9 These have been used to outline in broad terms the sensitivity of receptors to traffic for the categories identified in this assessment, although in detail, each receptor assessed would have a different sensitivity to each specific effect.

6.2.10 Although not specifically identified within the guidelines as being sensitive for these categories it has been assumed that individual residential and employment areas have low sensitivity. **Table 6.3** shows the classification of receptors.

Table 6.3: Sensitivity Receptors Classification

Classification	Land use
High Sensitivity Receptors	• Schools, colleges and other educational institutions; • Retirement/care homes for the elderly or infirm; • Roads with no footway that may be used by pedestrians; and • Roads with poor personal injury collision records
Medium sensitivity receptors	• Hospitals, surgeries and clinics; • Parks and recreation areas; • Shopping areas; and • Roads with narrow footway that may be used by pedestrians.
Low sensitivity receptors	• Open spaces; • Tourist/visitor attractions; • Historical buildings; and • Churches and other places of worship.

6.2.11 The magnitude of effects (as shown in **Tables 6.1** or **6.2**) and receptor sensitivity (as shown in **Table 6.3**) has then been compared to estimate the significance of the effect, as set out in **Table 6.4**. As there are no published standard criteria, **Table 6.4** includes a range of criteria to allow the specific characteristics of each effect to be considered on an individual basis, within the structure of the receptor/magnitude approach. The criteria in **Table 6.4** has been used to inform the assessment of significance for those effects for which the quantitative approach set out above is less appropriate (such as effects on pedestrian connectivity and safety).

Table 6.4: Significance Matrix

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

6.2.12 The transport and access effects of the construction phase of the Proposed Development will be consistent with the current situation on site, as the consented 1075 dwellings are currently being built out and the build-out rates per year will remain constant subject to market influences.

6.2.13 A qualitative assessment has been made of the likely significant transport and access effects of the proposed construction works. This has been based on an estimation of reasonable worst case conditions and has sought to consider those aspects of the construction works that could lead to significant effects. The assessment has drawn upon the team's experience of assessing the environmental effects of similar developments.

6.2.14 The effect of the Proposed Development on pedestrians, cyclists, public transport users, accidents and safety, and hazardous loads are considered for the Proposed Development as a whole. As suggested in **Table 6.3** a qualitative judgement is made on whether the local transport network has adequate provisions for pedestrians, cyclists and other road users and a sensitivity assigned as appropriate. For example, this includes making a judgement on whether there are adequate widths for footways and cycleways or the level of accidents on the local road network.

6.2.15 Suitable management and control measures have been identified which it is proposed should be incorporated into a Construction Environmental Management Plan (CEMP) to manage the construction works.

6.2.16 The TA (**Appendix 6.1**) has been prepared in the context of the National Planning Practice Guidance (NPPG) document 'Travel Plans, Transport Assessments and Statements in decision-taking' (March 2014).

Legislative and Policy Framework

National Planning Policy

National Planning Policy Framework (March 2012)

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

6.2.18 The NPPF recognises the importance transport policies have in facilitating Proposed Development but also in contributing to wider sustainability and health objectives.

6.2.19 A more detailed review of the NPPF as relevant to transport is presented in Section 2.2 of the TA in **Appendix 6.1**.

National Planning Practice Guidance (NPPG)

6.2.20 The Government has recently published (last updated in March 2014) the National Planning Practice Guidance (NPPG), which provides comprehensive guidance compatible with the NPPF.

6.2.21 A more detailed review of the NPPG as relevant to transport is presented in Section 2.2 of the TA in **Appendix 6.1.**

Local Policy/Strategy

Oxfordshire Local Transport Plan: Connecting Oxfordshire 2015 - 2031

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

6.2.23 As with the national policies, a more thorough review of LTP4 is presented in the TA (Section 2.4, **Appendix 6.1**).

Cherwell Local Plan 2016-2031

6.2.24 The Cherwell Local Plan sets out how the district will grow and change up to 2031. It sets out the proposals for how it will develop and support the local economy, protect villages and strengthen town centres.

6.2.25 The adopted Cherwell Local Plan lists Upper Heyford under '*Section C.5 Our Villages and Rural Areas'* and specifically in '*Policy Villages 5: Former RAF Upper Heyford*'.

6.2.26 A more detailed review of the policies relevant to transport are presented in the TA.

Scoping Criteria

6.2.27 A draft scoping report was prepared, but not discussed formally with OCC. Therefore, the scope of this study has been determined through professional judgement and previous experience in similar schemes in the area.

Limitations to the Assessment

6.2.28 The assumptions used in the preparation of the TA (**Appendix 6.1**) and the limitations of the assessment are set out in the TA.

6.3 BASELINE CONDITIONS

Site Description and Context

6.3.1 Former RAF Upper Heyford is located within a network of predominantly rural roads, many of which are unclassified, although Junction 10 of the M40 motorway is located 6.1km to the east of Land South of Camp Road, and the A4260 Banbury to Oxford road runs from north to south some 4.7km to the west. **Figure 6.1** shows the strategic Application Site location plan.

6.3.2 The M40 forms part of the strategic route to London to the southeast and Birmingham to the northwest.

6.3.3 The Application Site is currently accessed via Eglin Street, which is on the western side of Camp Road close to the junction with Somerton Road.

6.3.4 Camp Road forms the arterial route through the southern part of former RAF Upper Heyford. The former runway, taxiway and employment buildings associated with the Flying Field, as well as the former officers' mess (the new free school), lie to the north of Camp Road whereas the existing residential and auxiliary buildings lie to the south. The previously consented housing will be located both to the north and south of Camp Road. The Application Site lies to the south of Camp Road.

6.3.5 Camp Road is restricted to a 30mph speed limit along its length. Street lighting is provided and pedestrian footpaths are present along its length, although not all of the footways have been formally adopted and are therefore not maintained at public expense by the local authority.

6.3.6 Camp Road connects the Application Site to Upper Heyford village and Somerton Road / Station Road to the west, and to Chilgrove Drive and the B430 in the east.

6.3.7 Somerton Road provides connections to the village of Somerton to the north and is subject to a 30mph speed limit through Upper Heyford which increases to 60mph when leaving the village.

6.3.8 Somerton Road links to Station Road at the junction with Camp Road which continues to the B4030 which runs parallel to Camp Road and onwards to the A4260 to the west.

6.3.9 The B430 forms a north-south link between the M40 and the A34 Trunk Road at Weston-on-the-Green, providing access to other key destinations including Bicester and Oxford. To the north the B430 terminates at Junction 10 of the M40 immediately north of the village of Ardley. The road is subject to a 60mph speed limit which decreases to 40mph through Ardley. To the south the B430 terminates at the A34 Trunk Road. The road is subject to a 60mph speed limit until it reaches the village of Weston-on-the-Green where it decreases to 40mph through the village. The B430 meets the B4030 at a staggered crossroads in Middleton Stoney, located around 3.0 kilometres to the south east of former RAF Upper Heyford.

6.3.10 Trip distribution and assignment using the 2011 Census travel to work data suggests that the Proposed Development will have the greatest effect on the following local road sections:

- Camp Road between Somerton Road and Chilgrove Drive;
- Camp Road between Chilgrove Drive and B430;
- B430 between Camp Road and M40 junction 10 slip road;
- B430 between Middleton Stoney and Camp Road; and

- B4030 between Middleton Stoney and Camp Road/B4030 junction.

6.3.11 The above road sections have been appraised in this assessment and are shown in **Figure 6.2** in the context of the wider study area.

Walking, Cycling and Public Transport Facilities

6.3.12 Camp Road provides walk and cycle access from the main entrance of the Application Site towards Upper Heyford to the west, providing commuting, education and leisure travel opportunities for walkers and cyclists.

6.3.13 Camp Road is well lit with footpaths towards Upper Heyford of varying widths between 0.5m and 2m, although a scheme is currently under construction that will provide a 1.8m wide footway on the northern side of Camp Road and a 3m wide shared footway/cycleway on the southern side up to the north eastern corner of the Application Site. The footway and shared footway/cycleway will be separated from the carriageway for much of its length by an approximately 3m wide verge with planting. A section of Camp Road immediately west of the Main Gate Junction will be made a shared surface area, with the main vehicular route (with a footway on either side) diverted around this section.

6.3.14 There is an existing footpath running diagonally from the Somerton Road/Camp Road junction across the fields to the back of the Application Site and with one fork of the footpath exiting close to the Horse and Groom public house along the B4030; whilst the other continues eastwards to link to the B4030 further along.

6.3.15 Historically, there were a number of Public Rights of Way (PRoWs) crossing the Flying Field, but some of these were curtailed when the site came into military use. As part of the previously consented development at former RAF Upper Heyford some of the original PRoWs on the site will be reinstated as well as improving connections to existing PRoWs elsewhere. In addition, the consented housing will be connected by a network of walk and cycle links penetrating the residential areas and providing a permeable site which facilitates and encourages walking and cycling within the local area.

6.3.16 There is also a network of other footpaths, bridleways and tracks that crisscross the greater site as shown in **Figure 6.3.** As well as the off-road PRoWs, there is potential for additional routes for walkers and cyclists along the highway network by using the existing footway adjacent to the Camp Road as a shared facility.

6.3.17 Camp Road is currently served by two bus routes:

- The 25A from Oxford to Bicester. The service is operated by Thames Travel and offers approximately one service per hour in each direction on weekdays and Saturdays, with a less-frequent service during the evenings. There is no Sunday service; and
- The 90 service from Upper Heyford through Lower Heyford to Banbury which runs only one service in each direction per week on Thursdays passing through Camp Road.

6.3.18 The closest existing bus stops to the Application Site are approximately 500m walking distance to the west along Camp Road, close to the junction with Somerton Road. The bus stops are on both sides of Camp Road.

6.3.19 The nearest railway stations are Heyford, located in the village of Lower Heyford (2.8km from the Application Site), and Bicester (10km from the Application Site). Heyford Railway Station is served by direct trains to key destinations, notably Banbury, Oxford and London Paddington with typical service frequencies of between 90 minutes and 150 minutes on weekdays and Saturdays. On Sundays there are three direct journeys between Heyford and Banbury and Oxford.

6.3.20 **Figure 6.3** also shows the existing and previously consented walking, cycling and public transport facilities within the local area.

Receptors

6.3.21 Table 6.3 has been used to identify the following receptors close to the immediate study area largely defined by Somerton Road to the west, Camp Road running through the centre of the area in an east-west direction, and the B430 from Middleton Stoney to Ardley:

- High sensitivity around the middle of Camp Road to the east of the Application Site and west of Chilgrove Drive due to the location of Heyford Free School;
- Medium sensitivity for the local centre on Camp Road between Somerton Road and Chilgrove Drive;
- Medium sensitivity on the B430 close to the villages of Ardley and Middleton Stoney due to narrow footways and possibility of elderly people; and
- Medium sensitivity on both sides of Middleton Stoney village on the B4030 due to narrow footways and possibility of elderly people close by.

6.3.22 The Free School accessed along Camp Road is located away from the main road in the former officers' mess (one of the former airfield buildings) and therefore would not be adversely affected by the Proposed Development in terms of noise pollution. However, the pupils and teachers would need to get to the school through the local road network. It is worth noting however that there is a good quality footpath along the length of Camp Road between the Kirtlington Road junction and Chilgrove Drive, which is segregated from the main carriageway which the pupils from the school could potentially use from their residences to the school. Furthermore, there are chicanes and build outs along Camp Road which help reduce the speed of traffic along this stretch and therefore contribute to a safer environment for more vulnerable road users.

6.3.23 The wider study area has also been considered in this ES Chapter. This is largely defined by the following roads:

- To the west by the A4260 Oxford Road both sides of the junction with the B4030 at Hopcrofts Holt;
- To the south by the extent of B4030 Station Road/Lower Heyford Road between Hopcrofts Holt and the village of Middleton Stoney; and
- To the east by the B4030 Bicester Road between the B430 and the M40.

6.3.24 The following receptors have been identified in the wider area:

- Medium sensitivity around the built up area/shopping area in the four directions at Hopcrofts Holt;
- Medium sensitivity on the extent of the B4030 within the village of Lower Heyford due to the built up nature of the area with houses fronting the road and narrow footways;
- Medium sensitivity along Somerton Road both sides of the junction with Camp Road due to the village of Upper Heyford with properties fronting onto the road and shopping/local leisure facilities in proximity; and

- Medium sensitivity in the four directions at the Middleton Stoney Village at the centre of the village (staggered junction) due to narrow footways, built up nature and communal facilities in proximity.

Baseline Traffic Survey Information

6.3.25 Traffic surveys were conducted in 2013 at the following junctions:

- Hopcrofts Holt junction;
- Somerton Road/Camp Road;
- Camp Road/Kirtlington Road/Portway;
- Camp Road/Chilgrove Road; and
- Middleton Stoney junction.

6.3.26 The traffic survey data for 2013 is included in Appendix H of the TA (**Appendix 6.1**).

6.3.27 PBA commissioned further traffic surveys in 2014 at the following junctions:

- M40 junction 10 southern roundabout;
- B430/Camp Road; and
- B4030 Lower Heyford Road/Port Way staggered junction.

6.3.28 The traffic survey data for 2014 is included in Appendix H of the TA (**Appendix 6.1**).

6.3.29 TEMPRO has been used to growth the traffic data obtained from the two traffic surveys to the base year (2016).

6.3.30 From a review of housing and job numbers within the TEMPRO database (version 7) it appears that the previously consented development at Heyford Park of 1,075 dwelling units and employment uses are included in the database for 2013/2014-2016.

6.3.31 To better reflect the effect of the consented development on the local highway network the number of consented residential units built out, and jobs occupied, or forecast to be built out/occupied, since the 2013/2014 traffic surveys have been removed from TEMPRO and manually added on the local highway network. Thus, the local growth factors have been adjusted within the TEMPRO software.

6.3.32 The resulting average hourly 18-hour (06:00 – 00:00) baseline annual average weekly traffic (AAWT) has been calculated for the links that comprise the wider study area for the "do nothing" scenario and is shown in **Table 6.5.** The wider study is shown in **Figure 6.2.**

Table 6.5: Baseline (2016) Traffic Flows – 18-hour AAWT

Link No.	Link	Total Vehicles	HGVs	HGV%
1	B4030 West of junction with A4260	3514	146	4.2%
2	B4030 Station Rd, east of A4260	3679	146	4.0%
3	A4260 Oxford Rd north of B4030	10068	396	3.9%
4	A4260 South Banbury Road, south of B4030	10436	414	4.0%
5	Somerton Road North of Camp Rd	1712	91	5.3%
6	Camp Rd to west of Kirtlington Rd	2114	131	6.2%
7	Camp Rd (Kirtlington Rd to Chilgrove Drive)	4102	156	3.8%
8	Minor Rd east of Chilgrove Drive	2820	144	5.1%
9	B430 South of M40 Junction	9208	500	5.4%
10	B430 Ardley Rd north of Middleton Stoney Junction	6537	271	4.1%
11	B430 Oxford Rd south of Middleton Stoney	7435	265	3.6%
12	B4030 Bicester Rd east of Middleton Stoney	5296	222	4.2%
13	B4030 Heyford Rd west of Middleton Stoney	5103	186	3.6%
14	B4030 Lower Heyford Rd	2883	118	4.1%
15	Port Way	785	28	3.6%
16	B4030 Lower Heyford Rd west of Port Way	3213	146	4.5%

6.4 ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

Demolition

6.4.1 It is proposed to demolish the majority of the prefabricated classrooms on the Application Site to give way for the Proposed Development.

6.4.2 The demolition works will be accessed from the existing access along Camp Road known as Eglin Street. The demolition machinery and tipper trucks would access the Application Site from the east and would therefore not affect the western end of Camp Road including the village of Upper Heyford. However, they would pass through the vicinity of Heyford Free School which has a high sensitivity and the proposed shopping centre and local amenities area which have medium sensitivity. There is also a new housing development under construction just east of the Application Site as part of the wider consented scheme

6.4.3 A Construction Environmental Management (CEMP) plan will be in place for the demolition work detailing the measures to ensure that delays in the local road network and inconveniences are reduced as much as possible during the work. These effects would be managed through the CEMP to manage the demolition, which amongst other measures would detail the operational hours of the HGVs during off peak hours to minimise delays in the local road network, and routing agreements to minimise effects. A CEMP is already in place for the ongoing development of the consented 1075 scheme and the same principles will be extended to the Application Site.

6.4.4 As much material as possible will be stored on the Application Site and reused in construction.

6.4.5 The demolition works are expected to have major adverse effect according to Table 6.4 due to the movements of HGVs and the sensitivity of the location as described above. However, a demolition management plan together with reusing material on-site will lead to some level of mitigation of these effects.

Construction

6.4.6 The construction of the Proposed Development would generate traffic bringing building materials and construction workers to the Application Site which would affect the local road network. In particular, effects may arise in relation to fear and intimidation and severance as a result of HGV movements. These effects would be managed through the CEMP to manage the construction works, which amongst other measures would detail the operational hours of the HGVs during off peak hours to minimise delays in the local road network and routing agreements to minimise effects.

6.4.7 It is still anticipated that a temporary major adverse effect may result from the use of the local road network by construction traffic due to the sensitivity of the receptors nearby, namely the school and the local centre.

6.4.8 The construction work would occur during limited time periods and would be designed, managed and phased to minimise any adverse effects. It is likely, however, that a major adverse effect on driver delay would occur during the construction work.

6.4.9 As set out above, a CEMP is already in place for the ongoing development of the consented 1075 scheme and the same principles will be extended to the Application Site.

Operation of Proposed Development

6.4.10 The effect of the Proposed Development has been tested in the 2021 future year which is 5 years after the planning application submission. The 2021 future year has two scenarios: a "do nothing" scenario which includes no Proposed Development traffic but includes previously consented developments (listed below), and a "do something" scenario which includes both the previously consented developments and the Proposed Development.

6.4.11 The following committed developments have been included in the 2021 "do nothing" and "do something" scenarios:

- Remaining traffic associated with the consented 1075 residential units and employment (around 1,000 jobs) (10/01642/OUT) which were not occupied as of 2016.
- 60 residential dwellings south of Camp Road – an outline application was submitted in November 2013 (13/01811/OUT). This application was given approval in March 2016, a Section 106 has been signed, and reserved matters have been submitted but are yet to be determined.
- 43 residential dwellings south of Camp Road – a full application was submitted in February 2016 (16/00263/F). This application is yet to be determined.

6.4.12 The Proposed Development trip generation has been derived from residential person trip rates from the TRICS database using 'Suburban Area' and 'Edge of Town' locations. A modal split derived from 2011 Census journey to work data for residents in the nearest Middle Layer Super Output Area (MSOA) was applied to the person trip rates to derive trip rates for each mode and for the AM and PM peak hours.

6.4.13 The CDC Local Plan Modifications for the redevelopment of the former RAF Upper Heyford require at least 30% of new dwellings on-site to be affordable. The trip generation factors used in this assessment have only assumed market rate dwellings, therefore presenting a very robust assessment.

6.4.14 2011 Census Travel to Work data was used to assign the development traffic onto the local road network as shown in the TA (Section 6.6,**Appendix 6.1**). The traffic assignment using the 2011 Census data shows that the development traffic splits in a ratio of 15% to 85% in a west: east direction respectively along Camp Road. The majority of the traffic travelling eastwards goes through the minor road at Chilgrove Drive junction with approximately two thirds of this traffic travelling northwards towards Ardley and the M40 along the B430. The remaining third travels southwards on the B430. The highest increase in traffic due to the Proposed Development therefore is experienced along Camp Road and the minor road that derives directly from it to the east.

6.4.15 **Table 6.6** below shows a summary of the AAWT (Annual Average Weekday Traffic) for all traffic for the 2021 "do nothing" and "do something" scenarios.

Table 6.6: All Traffic Flows 2021 – AAWT

Link No.	Links	18-Hr Proposed Dev. Traffic	18-Hr Do Nothing	18-Hr Do Something	Do Something per Hour	18-Hr Change in Traffic Flows % (Do Nothing Vs Do Something)
1	B4030 West of junction with A4260	2	3606	3608	200	0.1%

Link No.	Links	18-Hr Proposed Dev. Traffic	18-Hr Do Nothing	18-Hr Do Something	Do Something per Hour	18-Hr Change in Traffic Flows % (Do Nothing Vs Do Something)
2	B4030 Station Rd, east of A4260	159	4014	4173	232	4.0%
3	A4260 Oxford Rd north of B4030	23	10354	10377	577	0.0%
4	A4260 South Banbury Road, south of B4030	133	10902	11035	613	1.2%
5	Somerton Road North of Camp Rd	22	1806	1828	102	1.2%
6	Camp Rd to west of Kirtlington Rd	181	2467	2648	147	7.3%
7	Camp Rd between Kirtlington Rd and Chilgrove Drive	738	5471	6209	345	13.5%
8	Minor Rd east of Chilgrove Drive	910	4695	5605	311	19.4%
9	B430 South of M40 junction	617	10672	11289	627	5.8%

Link No.	Links	18-Hr Proposed Dev. Traffic	18-Hr Do Nothing	18-Hr Do Something	Do Something per Hour	18-Hr Change in Traffic Flows % (Do Nothing Vs Do Something)
10	B430 Ardley Rd north of Middleton Stoney Junction	293	7273	7566	420	4.0%
11	B430 Oxford Rd south of Middleton Stoney	366	8262	8628	459	4.4%
12	B4030 Bicester Rd east of Middleton Stoney	44	5641	5685	316	0.8%
13	B4030 Heyford Rd West of Middleton Stoney	119	5511	5630	313	2.2%
14	B4030 Lower Heyford Rd	0	2955	2955	164	0.0%
15	Port Way	11	821	832	46	1.3%
16	B4030 Lower Heyford Rd, west of Portway	0	3293	3293	183	0.0%

6.4.16 Areas further removed from the Camp Road/B430 horizon generally experience little traffic changes due to the Proposed Development as shown in the table. The areas with minor traffic increases as a result of the Proposed Development include sections of the B430 east of the Proposed Development, the A4260 (Oxford/Banbury Road) to the west, and the B4030 which runs east-west to the south of the Application Site.

6.4.17 It is worth noting the net growth of HGVs is not expected to change as a result of the Proposed Development as it is residential. Therefore, an analysis of the effect of HGV traffic as a result of the Proposed Development is not deemed necessary.

6.4.18 **Table 6.2** "Severance indicators" notes that change in traffic flows below 10% of 18 hour AAWT would be considered slight. Therefore, using this criterion, it can be seen that the only changes in flow due to the Proposed Development that exceed this criterion are on Camp Road and the Minor Road east of Chilgrove Drive that links to it. For robustness, an analysis of the B430 from the Minor Road (east of Chilgrove Drive) to Ardley and to the south of the Middleton Stoney junction is also presented. Therefore, six links (links 6-11) have been included in the following detailed analysis.

6.4.19 The following section assesses the potential effect of the increases in traffic shown in **Table 6.6** above on each of the six links identified in relation to severance, fear and intimidation and driver delay.

Road Section 6: Camp Road (west of Kirtlington Road) - Severance

6.4.20 The Proposed Development is predicted to increase traffic flows by 7.3%. These increases are below the slight threshold as identified in **Table 6.2** "Severance Indicators".

6.4.21 There are no notable developments of a sensitive nature on this section of Camp Road as it fronts some accesses to properties. There are narrow footways on both sides of the road with two bus stops on the western side of the road section, and a narrow footway on the south side for the side closest to Kirtlington Road. Therefore, **Table 6.3** "Sensitivity Receptors Classification" would classify the section as of medium sensitivity due to the narrow footpaths and the fact that pedestrians may use it to access the bus stops.

6.4.22 The negligible change in traffic numbers combined with the medium sensitivity of the road section would therefore lead to a negligible level of significance due to the Proposed Development according to **Table 6.4**. The overall effect is considered negligible.

Road Section 6: Camp Road (west of Kirtlington Road) - Fear and Intimidation

6.4.23 With reference to the thresholds for fear and intimidation, the average hourly traffic flow over an 18-hour period for the "do something" 2021 scenario is 147 per hour. This represents a negligible/small degree of hazard in terms of fear and intimidation thresholds as shown in **Table 6.1** as the change is less than 600 vehicles per hour threshold.

6.4.24 As indicated in **Paragraph 6.4.21**, the road section is considered to have medium sensitivity for the reasons discussed therein. Combined with the negligible/small degree of hazard the overall fear and intimidation for the road section due to the Proposed Development is therefore considered minor to moderate.

Road Section 6: Camp Road (west of Kirtlington Road) – Driver Delay

6.4.25 **Table 6.6** shows that there will be an increase of 181 vehicles on this road section over an 18-hour period in both directions. This is on average an increase of 90 vehicles in any one direction. This is also equivalent to an average increase of 5 vehicles per hour in one direction. This increase in traffic is negligible in terms of the potential to create driver delays. Therefore, the magnitude for driver delay due to the Proposed Development is considered negligible.

6.4.26 The road section has a medium sensitivity designation due to the factors discussed in **Paragraph 6.4.21. Table 6.4** would therefore designate driver delay on this section of road as negligible.

Road Section 7 Camp Road (Kirtlington Road - Chilgrove Drive) - Severance

6.4.27 This section of Camp Road would be considered of high sensitivity as Heyford Free School is situated and accessed off Camp Road at this location. There are also a lot of businesses; and indeed the district centre of the consented 1075 dwelling units application is to be located off this section of Camp Road.

6.4.28 The Proposed Development is predicted to increase traffic flows by 13.5% on this road section over an 18-hour period. These increases are in the slight threshold identified in **Table 6.2**.

6.4.29 Therefore, the combination of high sensitivity receptors and slight magnitude of Proposed Development on this road section mean that this road section would have a minor net adverse effect in terms of severance.

Road Section 7 Camp Road (Kirtlington Road - Chilgrove Drive) – Fear and Intimidation

6.4.30 With reference to the thresholds for fear and intimidation, the average hourly traffic flow over an 18-hour period for the 2021 "do something" scenario is 345. This relates to a small degree of hazard according to the fear and intimidation thresholds table.

6.4.31 As indicated in **Paragraph 6.4.27** this section of Camp Road would be considered to have a high sensitivity due to the location of the local school access, amongst other issues. By taking all these factors in combination, the overall magnitude for fear and intimidation would be considered moderate adverse as a result of the Proposed Development.

Road Section 7 Camp Road (Kirtlington Road - Chilgrove Drive) – Driver Delay

6.4.32 **Table 6.6** shows that the 18 hour Proposed Development traffic for the road section is 738 vehicles. This equates to 369 vehicles in any one direction over the 18 hours. Spread averagely over the period, this would be equivalent to an increase of 21 vehicles per hour or one vehicle every three minutes. This level of traffic increase is considered negligible and is not expected to cause any noticeable delays on the road section.

6.4.33 As discussed in **Paragraph 6.4.27** the road section is considered to have a high sensitivity due to the local school location.

6.4.34 The combination of negligible magnitude of expected driver delay in conjunction with the high sensitivity of the road section means the road section can be designated of negligible effect in terms of driver delays.

Road Section 8 Minor Road east of Chilgrove Drive – Severance

6.4.35 The Proposed Development is predicted to increase traffic flows by 19.4% on the road section. This increase is in the 'slight' threshold identified in **Table 6.2** for all vehicles.

6.4.36 Adjacent to the road section is farmland from the junction with Chilgrove Drive all the way to the B430 junction. Therefore, the receptors adjacent to this link can be considered of low or negligible sensitivity. Therefore, the combination of slight magnitude of change of traffic as a result of the Proposed Development with the low/negligible sensitivity means that the severance due to the Proposed Development on the road section can be considered negligible according to **Table 6.4.**

Road Section 8 Minor Road east of Chilgrove Drive – Fear and Intimidation

6.4.37 With reference to the thresholds for fear and intimidation, the average hourly traffic flow over an 18-hour period for the 2021 "do something" scenario is 311 per hour. This relates to a small degree of hazard for fear and intimidation.

6.4.38 Again as described in **Paragraph 6.4.36** the road section has low/negligible sensitivity. The combination of a small magnitude of fear and intimidation and low/negligible sensitivity means that the effect of the Proposed Development on this road section is negligible in terms of fear and intimidation.

Road Section 8 Minor Road east of Chilgrove Drive – Driver Delay

6.4.39 The total development traffic over the 18 hours on this section of road is 910 vehicles. This equates to approximately 455 vehicles in one direction, and 25 vehicles on average increase in traffic in any one hour i.e. an increase of less than one vehicle every two minutes over the road section on average. This level of increase of traffic would be considered low. Therefore, the magnitude of increase of development traffic is low and would have negligible effect on driver delays over the road section.

6.4.40 Again as described in **Paragraph 6.4.36** the road section has low/negligible sensitivity. Therefore, the combination of small magnitude of driver delay and low/negligible sensitivity means that the road section has negligible effect in terms of driver delay as result of the Proposed Development.

Road Section 9 B430 South of M40 Junction - Severance

6.4.41 This section of the B430 lies between the southern roundabout of M40 junction 10 and the minor road junction of the B430. The road is a good quality B-road with a few accesses between the minor road to the village of Ardley. There are no footways on this section. Where the village of Ardley starts, the speed limit reduces to 40mph and there is a narrow footway on one side of the road. Beyond the village towards the M40 junction, the speed reverts to national speed limit and there are no footways. There are some residential properties fronting onto the road at Ardley. There are no school or shopping facilities in close proximity, and one pub that fronts onto the road on this section. Taking all these factors into account and using **Table 6.3** this road section may be considered to have receptors of a medium sensitivity due to the narrow footway and the presence of the pub fronting onto the road. It is however worth noting that only the section of the road between Church Road and Ardley Road (less than half a kilometre) would be considered to be of medium sensitivity with the remaining section (approximately 2km) considered to be of low sensitivity as it is open farm land.

6.4.42 The Proposed Development is predicted to increase traffic flows by 5.8%. This increase is below the slight threshold as identified in **Table 6.2**.

6.4.43 Therefore, the combination of medium sensitivity receptors on this road section and negligible magnitude in traffic flows, mean that the Proposed Development can be considered to have negligible adverse effect on this section of road in terms of severance. This is for the section within Ardley village with the rest of the road section which fronts open farm land considered also to be of negligible severance due to the Proposed Development.

Road Section 9 B430 South of M40 Junction - Fear and Intimidation

6.4.44 The average traffic flows over 18-hour day in vehicles per hour for this section of the B430 is 627 as shown in **Table 6.6**. **Table 6.1** classifies this level of traffic flows as moderate in terms of the magnitude for fear and intimidation.

6.4.45 As discussed in **Paragraph 6.4.41** the road section would be considered to have receptors of a medium sensitivity on the section fronting Ardley village due to the narrow footway and the location of the pub adjacent to the road for the section fronting Ardley Village. For this section therefore, the combination of moderate magnitude of traffic flows and the medium level of sensitivity would mean it is classified as of moderate overall adverse effect in terms of fear and intimidation. The rest of the road section has open farmland frontages onto the road and would be considered to have minor or negligible overall effect in terms of fear and intimidation.

Road Section 9 B430 South of M40 Junction – Driver Delay

6.4.46 The road section is expected to have 18 hour Proposed Development traffic of 617 vehicles in both directions. This is equivalent to 309 vehicles in one direction on average, and equates to 17 vehicles on average every hour in one direction. This level of increase of traffic (less than one vehicle every three minutes) is considered minor or negligible in terms of the magnitude of driver delay it would have on the B430.

6.4.47 The section of the B430 fronting the village of Ardley will therefore be classified as having a minor to moderate adverse effect on driver delay due to the Proposed Development, whereas the remainder of the road section which fronts farmland will be considered to have minor or negligible overall effect on driver delay as result of the Proposed Development.

Road Section 10 B430 Ardley Road north of Middleton Stoney – Severance

6.4.48 This section of the B430 is between the staggered junction at Middleton Stoney and the junction of the road with the minor road which is contiguous with Camp Road. At the southern end of this section at Middleton Stoney junction, the road fronts residential and business properties including a restaurant. There are narrow footways on the section fronting Middleton Stoney village which has a 30mph speed limit. Beyond the village, the speed changes to national speed limit and the road fronts farmland on both sides. Therefore, it can be considered that for the road section fronting Middleton Stoney, the receptors can be considered to have a medium sensitivity due to the narrow footways and the pub/restaurant location. The rest of the road section is considered to have low sensitivity receptors.

6.4.49 This section of the B430 is expected to experience a 4.0% increase in traffic due to the Proposed Development. Table 6.2 classifies this level of increase as below slight, or negligible. Therefore, although there is the road section fronting Middleton Stoney village which is considered to be of a medium sensitivity due to demand for walking along the narrow footways, the combination with the low traffic increases due to the Proposed Development on the whole road section means the Proposed Development is considered to have negligible effect in terms of severance.

Road Section 10 B430 Ardley Road north of Middleton Stoney Junction – Fear and Intimidation

6.4.50 As detailed in **Paragraph 6.4.48** the section of B430 within the village of Middleton Stoney is considered to have medium sensitivity whereas the one beyond the village is considered to have low/negligible sensitivity.

6.4.51 This section of B430 is expected to have a traffic flow of 420 vehicles per hour in 2021. **Table 6.1** classifies this level of traffic flows as small. Therefore, the magnitude of traffic flow for the purposes of fear and intimidation on the road section is low.

6.4.52 Therefore, the combination of medium sensitivity and low magnitude for the section of road within Middleton Stoney means that the Proposed Development is expected to have an overall minor to moderate overall effect in terms of fear and intimidation; whereas on the section beyond the village, the Proposed Development is expected to have a negligible overall effect in fear and intimidation terms.

Road Section 10 B430 Ardley Road north of Middleton Stoney - Driver Delay

6.4.53 **Table 6.6** shows that there will be an increase of 293 vehicles over an 18-hour period on this road section due to the Proposed Development. This is equivalent to 147 in any one direction on average, and approximately 8 vehicles on average in any one-hour period. This level of traffic increase is minimal and is not expected to increase driver delays on the road.

6.4.54 The overall effect of Proposed Development in terms of driver delay is therefore expected to be minor to moderate for the road section within Middleton Stoney and negligible for the other section of the road fronting onto open farmland.

Road Section 11 B430 Oxford Road south of Middleton Stoney – Severance

6.4.55 This section of the B430 is south of the staggered junction at Middleton Stoney. This road section is rural with a national speed limit. There are some accesses to properties at the northern edge of the section close to Middleton Stoney with a reduction of speed to 30mph but otherwise the road fronts predominantly farmland. There are no footways on the road section. It is not considered that these would be needed on the road section. Therefore, it is considered that the road section has low sensitivity receptors.

6.4.56 The road section is expected to have a 4.4% increase in traffic due to the Proposed Development by 2021. This level of traffic increase in severance threshold terms is considered below slight. Therefore, the combination of low sensitivity receptors and negligible magnitude of increase in traffic terms means that the Proposed Development will have a negligible effect on the road section.

Road Section 11 B430 Oxford Road south of Middleton Stoney Junction – Fear and Intimidation

6.4.57 As detailed in **Paragraph 6.4.55** this section of B430 is considered to have low/negligible sensitivity receptors.

6.4.58 This section of B430 is expected to have a traffic flow of 459 vehicles per hour in 2021. **Table 6.1** classifies this level of traffic flows as small. Therefore, the magnitude of traffic flow for the purposes of fear and intimidation on the road section is small.

6.4.59 Therefore, the combination of low/negligible sensitivity receptors and small magnitude for the section of road means that the Proposed Development is expected to have an overall minor to negligible overall effect in terms of fear and intimidation.

Road Section 11 B430 Oxford Road south of Middleton Stoney - Driver Delay

6.4.60 **Table 6.6** shows that there will be an increase of 366 vehicles over an 18-hour period on this road section due to the Proposed Development. This is equivalent to 183 in any one direction on average, and less than 10 vehicles on average in any one-hour period. This level of traffic increase is minimal and is not expected to increase driver delays on the road.

6.4.61 The overall effect of the Proposed Development in terms of driver delay is therefore expected to be negligible for this section of the B430 road which predominantly fronts onto open farmland.

Effect on Pedestrians and Cyclists

6.4.62 There is an existing footpath running eastwards adjacent to Camp Road from the Application Site inside the fence of the former RAF Upper Heyford all the way to the main RAF site. It is proposed to maintain and enhance this footpath. This will create a pedestrian connection in an east-west direction across the site which would help the residents of the Proposed Development connect to the employment areas and Heyford Free School to the east via the shared footway/cycleway currently under construction adjacent to Camp Road. Within the Proposed Development, a shared footway/cycleway will be provided along the principle internal highway network to facilitate pedestrian and cycle movement through the Proposed Development and to the site accesses on Camp Road.

Effect on Public Transport

6.4.63 As described in the TA, it is proposed that the waiting areas associated with the existing bus stops on Camp Road, approximately 500 west of the Proposed Development are enhanced as part of the Proposed Development. This could include clearer signage (such as a pole and flag) and timetable information. These enhancements will provide a minor beneficial effect.

Accidents and Safety

6.4.64 The 5-year accident data has been scrutinised which shows the details of accidents in the local area to April 2016. The Personal Injury Collision (PIC) data received shows that within the five-year study period a total of 46 collisions were recorded. Out of these collisions none were fatal, 9 were serious and 37 were slight in severity.

6.4.65 One serious collision was recorded on Camp Road during the five-year study period. This collision involved a motorcycle and a minibus, where the motorcycle appears to have been following the minibus too closely as it made a manoeuvre.

Table 6.7: Five Years Serious Collisions in Study Area

	Date	**Location**	**Causes**
1	01/02/2013	B4030 at bend approx. 75m east of access to Lime Hollow	Motorcyclist lost control at bend and slid on road onto path of oncoming light goods vehicle.
2	21/04/2013	B4030 Station Road junction with Freehold Street	Elderly driver overshot junction and hit wall of adjacent property. Driver appeared fatigued.
3	09/09/2013	B4030 at bend by access to Park Farm Middleton Stoney	Motorcyclist lost control round bend in wet conditions and fell off.

4	06/01/2014	B4030 Heyford Road junction with Bullmarsh Close	Car failed to give way to motorcyclist when turning causing a collision.
5	09/01/2016	A4260 junction with B4030 at Hopcrofts Holt	Motorcyclist travelled through a red signal and had a collision with a car.
6	08/03/2014	Camp Road junction with Larsen Road	Motorcyclist following vehicle too closely, and tried overtaking but vehicle was turning right causing a collision.
7	22/11/2014	B4030 at bend by access to Park Farm	Appears that one of the vehicles lost control at the bend in wet conditions causing a collision.
8	05/02/2015	A4260 junction with B4030 at Hopcrofts Holt	Car turning right failed to give way to car travelling in opposite direction.
9	04/12/2015	B430 Station Road approx. 200m south of rail bridge	Car driver lost control of vehicle after a large stone hit the windscreen of the car and their head. Car collided with another car.

6.4.66 As can be seen from the summary above no vulnerable road users were involved in any serious collisions and none of collisions are clustered or suggest a pattern related to existing highway safety issues in the study area. The slight accidents also do not show any serious road safety issues on the local network surrounding the Application Site.

6.4.67 A plan showing the location of accidents in the local area is shown in Appendix D of the accompanying TA (**Appendix 6.1**).

6.4.68 The Application Site access junction on Camp Road will be designed to the appropriate standard and safety requirements and should therefore provide enhanced safety features.

6.4.69 As set out above, the Proposed Development should have insignificant/minor adverse effect on severance and fear and intimidation.

6.4.70 Overall, the Proposed Development would have an insignificant effect on accidents and safety.

Hazardous Loads

6.4.71 Given the nature of the Proposed Development, hazardous loads are not expected in the operation of the Proposed Development. It is therefore expected there will be an insignificant effect in relation to hazardous loads.

6.5 MITIGATION AND ENHANCEMENT

Introduction

6.5.1 As part of the Proposed Development of the emerging masterplan and the EIA process, potential transport and access effects have been identified and design solutions to minimise any potential adverse effects included. Opportunities for environmental enhancement measures have been inherent to the master planning process. This assessment identifies related transport mitigation and enhancement measures.

6.5.2 Routing plans implemented as part of CEMP will ensure that construction vehicles will not route through surrounding built up areas and affect the local environment and amenity.

Mitigation by Design

The Access Junctions on Camp Road

6.5.3 The existing access serving the Proposed Development on Camp Road, known as Eglin Street, will be closed and redeveloped as a green corridor for pedestrian access only.

6.5.4 Three new principle site accesses will serve the site. Two will be located on Camp Road to the east and west of Eglin Street, and the third will be located off Izzard Road on the eastern extent of the Proposed Development, which will also lead to Camp Road. Each of the three principle accesses will take the form of priority T-junctions. Modelling of the access has shown that it will offer adequate capacity to serve the Proposed Development.

6.5.5 In addition to the principle site accesses, a further 4 small cul-de-sac access points will provide access to 6 dwellings each.

6.5.6 A layout of the proposed access arrangement is shown at Appendix E of the TA (**Appendix 6.1**).

Middleton Stoney Junction

6.5.7 The TA presents a mitigation package for the Middleton Stoney junction which includes the addition of a right turn bay for traffic turning from the B430 South to B4030 east (Bicester Road). This will lead to reduction in delays for traffic at the junction.

M40 Junction 10 Southern Roundabout

6.5.8 The TA presents a mitigation package for the M40 Junction 10 southern roundabout which includes additional road markings providing lane destination and advanced direction signs on the M40 off slip and B430. This will encourage road users travelling towards the A43 to make better use of both lanes and will lead to reduction in delays for traffic at the junction.

Walking, Cycling and Public Transport

6.5.9 There is an existing footpath adjacent to Camp Road and running from Kirtlington Road junction to the end of the site of the former RAF Upper Heyford to the east. As part of the Proposed Development, it is proposed to maintain and enhance the footpath along the site frontage to serve as an east-west link for pedestrians.

6.5.10 Within the Proposed Development, a shared footway/cycleway will be provided along the principle internal highway network to facilitate pedestrian and cycle movement through the Proposed Development and to the site accesses on Camp Road.

6.5.11 With regards to public transport it is proposed that the waiting areas associated with the existing bus stops on Camp Road, are enhanced as part of the Proposed Development. This could include clearer signage (such as a pole and flag) and timetable information.

6.5.12 These enhancements will provide a net minor beneficial effect.

Additional Mitigation

Demolition

6.5.13 A CEMP will be prepared, agreed with the LHA and implemented as part of the demolition process. There is already one in place for the consented 1075 application, which it is expected will be extended to include wider development. It will include the following, amongst other measures:

- The routing of the HGVs carrying out the demolition work avoiding sensitive areas within the locality;
- Operation hours of the demolition work; and
- Operation hours of the HGVs outside the peak traffic periods to reduce network delays.

6.5.14 The implementation of the management plan will help mitigate the environmental effects that may be associated with the demolition work resulting in a minor adverse effect due to the work.

Construction

6.5.15 A CEMP will be prepared to manage the construction process. There is already one in place for the consented 1075 application, which is expected to be extended to include wider development. The CEMP would be agreed with the local planning authority prior to the commencement of construction works. Measures that would be included in the CEMP are likely to include:

- Routing of construction vehicles to avoid the built up areas to the west of Camp Road;
- Hours of delivery would be controlled to avoid disturbance to the local population;
- Queueing of construction traffic on the public highway will be avoided through appropriate traffic management controls;
- All contractor parking will be located within the Application Site, no contractor parking would be allowed in the surrounding residential and open land;
- The construction of the Application Site access will be designed, managed and phased to minimise disturbance to road users and local residents; and
- Suitable wheel washing facilities will be provided within the Application Site to prevent mud being deposited on the local roads.

6.5.16 Overall best practice will be adopted to minimise adverse effects of construction.

Travel Planning

6.5.17 A Residential Travel Plan (TP) has been incorporated into the TA.

6.5.18 The TP commits the developer to the implementation of measures for the 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 Proposed Development.

6.5.19 The TP sets out an action plan which details potential measures, commitments and obligations that the developer 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 Proposed 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 Coordinator, providing information to educate users of the Proposed Development on smarter travel and promotional measures to encourage users to change travel habits.

6.5.20 Targets will be identified for reducing single occupancy car journeys to and from the Application Site at the outset with performance monitored and reviewed through the implementation period. The TP also sets out the mechanisms through which ongoing monitoring, review and intervention would be enforced.

6.5.21 **Table 6.8** is a summary of the mitigation measures identified in this assessment with an indication of how each may be secured for the Proposed Development.

Table 6.8: Mitigation

Ref	Measure to Avoid, Reduce or Manage Any Adverse Effects and/or to Deliver Beneficial Effects	How Measure would be Secured		
		By Design	By S.106	By Condition
1.	New Access Junctions onto Camp Road	X	X	
2.	Improvements to Middleton Stoney junction	X	X	
3.	Improvements to M40 Junction 10 southern roundabout	X	X	
4.	Enhancement of bus stops near Camp Road/Somerton Road junction		X	
5.	Implementation of a Demolition Management Plan			X
6.	Implementation of Construction Environmental Management Plan			X
7.	Travel Planning for Proposed Development		X	X

6.6 CUMULATIVE AND IN-COMBINATION EFFECTS

6.6.1 For the purpose of this assessment cumulative effects have not been considered at this stage. The 300 application forms part of the wider local plan allocation, for which modelling methodology is currently in development in order to be agreed with OCC. Modelling will be undertaken for the full allocation once the modelling approach is agreed.

6.7 SUMMARY

Introduction

6.7.1 This assessment presents the approach and findings of the appraisal of potential effects on traffic and transport. The assessment presents the methodology followed, provides a review of the baseline conditions and presents the results of the assessment of the effect of the Proposed Development. Mitigation measures to minimise the effects of the Proposed Development during construction and operational phases to an acceptable level are presented and discussed.

6.7.2 Consideration has been given to effects in relation to car and non-car users (pedestrians, cyclists and users of public transport). The assessment has considered the effects in terms of severance, fear and intimidation and driver delays.

6.7.3 A Transport Assessment (TA) incorporating a Residential Travel Plan (TP) and accompanying appendices has been prepared in relation to the Proposed Development. This assessment has been prepared on the basis of the detailed appraisal reported in the TA. The reader is referred to the TA, the TP and supporting appendices where further information is required.

Baseline Conditions

6.7.4 Former RAF Upper Heyford is located within a network of predominantly rural roads, many of which are unclassified. Junction 10 of the M40 motorway is located 5km to the east of Land South of Camp Road, and the A4260 Banbury to Oxford Road runs from north to south some 4.5 km to the west.

6.7.5 The Application Site is currently accessed via Eglin Street from the Camp Road junction.

6.7.6 Camp Road provides walk and cycle access from the main entrance of the Application Site towards Upper Heyford to the west, providing commuting, education and leisure travel opportunities for walkers and cyclists.

6.7.7 There are numerous existing Public Rights of Way (PRoWs) criss-crossing the local area and other existing rural links. As well as the off-road PRoWs, low levels of traffic in the predominantly rural area currently allow the potential for additional routes for walkers, cyclists and equestrians along the highway network.

6.7.8 Camp Road is currently served by two bus services: 25A from Oxford to Bicester offers approximately one service per hour in each direction on weekdays and Saturdays, with a less-frequent service during the evenings, whilst 90 offers a single service per week (Thursdays only) from/to Banbury and Upper/Lower Heyford. There is no Sunday service.

6.7.9 The nearest railway stations are Heyford, located in the village of Lower Heyford (2.8km from the Application Site), and Bicester (10km from the Application Site). Heyford Railway Station is served by direct trains to key destinations, notably Banbury, Oxford and London Paddington with typical service frequencies of between 90 minutes and 150 minutes on weekdays and Saturdays. On Sundays there are three direct journeys between Heyford and Banbury and Oxford.

6.7.10 Environmental receptors have been identified in the study area encompassing A4260 to the west, north and south of Hopcrofts Holt junction; the A430 from the M40 junction 10 to the north, to past the Middleton Stoney junction to the south; and the extent of Camp Road from Somerton Road junction to the B430. The following sensitivities are considered applicable to the various sections:

- High sensitivity around the middle of Camp Road due to location of the school; and
- Medium sensitivity for Camp Road at the local centre, the B430 close to the villages of Ardley and Middleton Stoney and both sides of the B4030 in Middleton Stoney.

Likely Significant Effects

6.7.11 All the local road sections considered show a rise in traffic when the "without Proposed Development" 2021 scenario is compared to the "With Proposed Development" 2021 scenario apart from B4030 Lower Heyford Road, which showed no increase in traffic. However, the rise in traffic on all the road sections is slight apart from the rise in traffic on the Camp Road from the Somerton Road junction to the B430 junction, and also the B430 north of this road to the M40 Junction 10.

6.7.12 Camp Road (Minor Road) between Chilgrove Drive and B430 is predicted to experience a 19.4% growth in all traffic due to the Proposed Development. This level of general traffic growth would be classified as "slight" in magnitude according to criteria in **Table 6.2**.

6.7.13 The Camp Road section between Somerton Road and Chilgrove Drive has an access for the Heyford Free School. This section is considered of high sensitivity due to this reason. However, since the school is not next to the road but a distance of at least 150m from the road and blocked by other buildings, it is not expected that a rise in traffic on the road would have adverse effects with regards to noise, etc. The moderate severance that may be experienced due to the slight increase of traffic on the section will be mitigated by the travel planning measures to be implemented as part of the Proposed Development; and the increased opportunities for public transport access for local pedestrian and cycle movement.

6.7.14 Analysis of the available accidents data close to the Application Site indicate no accident patterns associated with the location. It is envisaged that there will be an insignificant effect on accidents and safety within the pertinent area as a result of the Development.

6.7.15 Given the nature of the Proposed Development, hazardous loads are not expected either during its construction or operation.

6.7.16 It can therefore be seen that the Proposed Development does not have any significant environmental effects related to traffic and access.

Mitigation and Enhancement

6.7.17 The following mitigation measures have been identified and will be implemented as part of the Proposed Development or are already agreed for implementation as part of the previously consented development:

6.7.18 Three new principle site accesses will serve the site. Two will be located on Camp Road to the east and west of Eglin Street, and the third will be located off Izzard Road, which will also lead to Camp Road. Each of the three principle accesses will take the form of priority T-junctions.

6.7.19 In addition to the principle site accesses, a further 4 small cul-de-sac access points will provide access to 6 dwellings each.

6.7.20 The TA (**Appendix 6.1**) presents a mitigation package for the Middleton Stoney junction and the M40 junction 10 southern roundabout which will lead to a reduction in delays for traffic at the junctions.

Improvement of Walking, Cycling and Public Transport

6.7.21 As a result of the Proposed Development, it is expected that there will an increase of cyclists and pedestrians in the local area. Within the Proposed Development, a shared footway/cycleway will be provided along the principle internal highway network to facilitate pedestrian and cycle movement through the Proposed Development and to the site accesses on Camp Road.

6.7.22 The existing footpath running adjacent to Camp Road will be retained for pedestrian access which will connect to the shared footway/cycleway east of the Proposed Development currently under construction. This will provide a net minor beneficial effect.

6.7.23 The Proposed Development will lead to a higher demand for public transport for residents. It is proposed to enhance the bus stops on Camp Road to improve the uptake of this mode leading to a net minor beneficial effect.

Implementation of Construction Environmental Management Plan (CEMP)

6.7.24 . This will reduce the effects of the demolition work on the local environment in terms of delays on the local road network.

6.7.25 Further, the CEMP will mitigate against the delays and severance that may result from the construction traffic including HGVs.

Travel Planning for Proposed Development

6.7.26 Travel planning to be implemented as part of the Proposed Development will help enhance the uptake of sustainable modes of transport with the resultant reduction in traffic on the local roads.

6.8 CONCLUSION

6.8.1 This ES assessment has been undertaken to identify the transport related effects of the project during the demolition of the majority of the existing buildings, construction and operational phase of the Proposed Development.

6.8.2 The environmental effects have been assessed for the year 2021. Local receptors have been assessed for their level of sensitivity and the effect on them from traffic associated with the Proposed Development established. The significance of those effects has been considered.

6.8.3 The assessment has shown that there will be some adverse effects associated with the Proposed Development. Without mitigation the effects of the Proposed Development would be considered not acceptable. This is due to the expected rise in traffic on the local road network during the demolition of the existing buildings, construction and operation of the Application Site.

6.8.4 However, the assessment has also demonstrated that the transport measures proposed to support the application will serve to mitigate against the adverse effects, thereby making the Proposed Development acceptable in environmental terms.

Table 6.9 Summary of Effects, Mitigation and Residual Effects.

Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Mitigation / Enhancement Measures	Geographical Importance	Significance of Effects	Residual Effects
Demolition and Construction							
Increase in HGVs on local road network	Temporary	Low	Minor	Implementation of Construction Environment Management Plan (CEMP)	Local	Minor Adverse	Negligible

Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Mitigation / Enhancement Measures	Geographical Importance	Significance of Effects	Residual Effects
Operation							
Traffic increase on certain local road sections	Permanent	High to Low	Moderate to Minor	• Mitigation at Middleton Stoney junction. • Mitigation at M40 Junction 10 southern roundabout. • Provision of walking and cycling infrastructure within the site. • Enhancement of existing bus stops on Camp Road to help reduce traffic on local road network. • Travel Plan measures.	Local	Moderate to Minor Adverse	Minor Adverse

Description of Effect	**Nature of Effect**	**Sensitivity Value**	**Magnitude of Effect**	**Mitigation / Enhancement Measures**	**Geographical Importance**	**Significance of Effects**	**Residual Effects**
Camp Road (west of Kirtlington Road)							
Severance	Permanent	Medium	Negligible	Improved public transport facilities. Travel Plan measures.	Local	Negligible	Negligible
Fear and Intimidation	Temporary	Medium	Negligible		Local	Minor Adverse	Negligible
Driver Delay	Permanent	Medium	Negligible		Local	Negligible	Negligible
Camp Rd (Kirtlington Rd - Chilgrove Drive)							

Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Mitigation / Enhancement Measures	Geographical Importance	Significance of Effects	Residual Effects
Severance	Permanent	High	Slight	Travel Plan measures.	Local	Minor Adverse	Negligible
Fear and Intimidation	Temporary	High	Small		Local	Moderate Adverse	Minor Adverse
Driver Delay	Permanent	High	Negligible		Local	Negligible	Negligible
Minor Rd east of Chilgrove Drive							

Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Mitigation / Enhancement Measures	Geographical Importance	Significance of Effects	Residual Effects
Severance	Permanent	Low	Slight	Travel Plan measures.	Local	Negligible	Negligible
Fear and Intimidation	Temporary	Low	Small		Local	Minor Adverse	Negligible
Driver Delay	Permanent	Low	Small		Local	Negligible	Negligible
B430 South of M40 Junction							
Severance	Permanent	Medium	Slight	Travel Plan measures. Mitigation at M40 Junction 10 southern roundabout.	Local	Negligible	Negligible
Fear and Intimidation	Temporary	Medium	Moderate		Local	Moderate Adverse	Minor Adverse
Driver Delay	Permanent	Medium	Slight		Local	Minor Adverse	Negligible
B430 Ardley Rd north of Middleton Stoney							

Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Mitigation / Enhancement Measures	Geographical Importance	Significance of Effects	Residual Effects
Severance	Permanent	Medium	Negligible	Mitigation at Middleton Stoney junction. Travel Plan measures.	Local	Negligible	Negligible
Fear and Intimidation	Temporary	Medium	Small		Local	Minor Adverse	Negligible
Driver Delay	Permanent	Medium	Negligible		Local	Negligible	Negligible
B430 Oxford Rd south of Middleton Stoney							
Severance	Permanent	Low	Negligible	Mitigation at Middleton Stoney junction. Travel Plan measures.	Local	Negligible	Negligible
Fear and Intimidation	Temporary	Low	Minor		Local	Minor Adverse	Negligible
Driver Delay	Permanent	Low	Negligible		Local	Negligible	Negligible
Pedestrians and Cyclists							

Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Mitigation / Enhancement Measures	Geographical Importance	Significance of Effects	Residual Effects
	Permanent	Not Applicable	Not Applicable	Internal pedestrian and cycling links within the Proposed Development linking to the scheme currently under construction to help access employment, school and shopping facilities.	Local		Minor beneficial
Public Transport							
	Permanent			Enhanced local bus stops.	Local		Minor Beneficial

Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Mitigation / Enhancement Measures	Geographical Importance	Significance of Effects	Residual Effects
Accidents and Safety							
	Permanent	Not Applicable	Not Applicable	Better bus waiting facilities will enhance safety.	Local		Negligible