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8 TRANSPORT AND ACCESS

8.1 INTRODUCTION

8.1.1 This chapter provides an assessment of the potential significant effects of the proposed outline planning application for the construction of up to "**Outline planning application for the construction of up To 140,000 sqm of employment floorspace (use class B8 with ancillary offices and facilities) and servicing and infrastructure including new site accesses, internal roads and footpaths, landscaping including earthworks to create development platforms and bunds, drainage features and other associated works including demolition of the existing farmhouse. All matters of detail reserved.**" This chapter has been prepared by David Tucker Associates (DTA).

8.1.2 The following receptors have been considered as part of the assessment:

- Users of the public highway in the vicinity of the site including, pedestrians, cyclist, public transport users;
- Private car and van drivers; and
- Existing vehicle users in the surrounding areas.

8.1.3 The assessment has been carried out in accordance with the Institute of Environmental Assessment (IEA) Guidance Note No 1 'Guidelines for the Environmental Assessment of Road Traffic' (1993) (the 'IEA Guidelines').

8.1.4 The impacts associated with traffic in relation to air quality and noise are set out in **Chapter 10: Air Quality** and **Chapter 11: Noise** of this ES respectively.

8.1.5 A Transport Assessment (TA) is attached in **Appendix 8.1** and has been prepared to support the assessment reported in this chapter. The assessment reviews the impact on both the local and strategic road network (SRN) and reflects initial discussions with National Highways (NH) and the local Highway Authority, Oxfordshire County Council (OCC).

8.1.6 A Framework Travel Plan (FTP) is attached in **Appendix 8.2** and has been prepared with the objective to reduce the percentage of occupants travelling by single occupancy car.

8.2 ASSESSMENT APPROACH

Methodology

8.2.1 The assessment considers the likely significant environmental effects from construction traffic and development generated traffic on the capacity and safety of the surrounding road network. The assessment also considers the implications for public transport and pedestrian and cycling movements.

8.2.2 An estimate of the trips by the Site has been undertaken on a vehicular trip basis and has been derived from the TRICS online database. The distribution of development traffic is based on the 2011 Census journey to work data.

8.2.3 In order to inform the assessment, traffic count data has been collected on the local road network at various locations during 2021 and 2022. Full details of the data are provided in **Section 8.3** below. Traffic data for the M40 has been obtained from the Department for Transport (DfT).

8.2.4 Personal Injury Collision (PIC) data has been obtained from OCC for the full five-year period preceding the introduction of Covid-19 restrictions up to the most recent PICs published (1st January 2015 to 31st December 2021). Full details of the data are provided in **Section 8.3** below.

Assessment of Significance

8.2.5 To facilitate the impact assessment process and ensure consistency in the terminology of significance, a standard assessment methodology has been applied. This methodology has been developed from a range of sources, including the IEA Guidelines and advice given in the Design Manual for Roads and Bridges (DMRB).

8.2.6 The IEA Guidelines also sets out when traffic related environmental impacts can be scoped out for further assessment. Paragraph 3.15 notes that:

“To assist the assessor it is suggested that two broad rules of thumb could be used as a screening process to delimit the scale and extent of the assessment. The rules are described and justified in the following paragraphs:

- **Rule 1 include highway links where traffic flows will increase by more than 30 % (or the number of heavy goods vehicles will increase by more than 30 %).**
- **Rule 2 include any other specifically sensitive areas where traffic flows have increased by 10 % or more.”**

8.2.7 This ‘rule of thumb’ has been used as a general guide in undertaking this assessment rather than a hard and fast rule. The assessment of the significance of an effect will be determined by the interaction of the following factors:

- The magnitude, scale or severity of the impact or change; and
- The value, importance or sensitivity of the environmental resource or receptor being affected.

8.2.8 The IEA Guidelines make it clear in paragraph 4.5 that:

“For many effects there are no simple rules or formulae which define thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor, backed up by data or quantified information wherever possible”.

8.2.9 The approach to determining the significance of identified effects has regard to the guidance given in the Design Manual for Roads and Bridges - ‘DMRB Lifecycle Analysis (LA) 104 Environmental assessment and monitoring’ (LA 104) - in terms of defining the environmental value / sensitivity of the receptor (Table 3.2N of LA 104) and the magnitude of the impact (Table 3.4N of LA 104). The overall significance of effects has been determined using the matrix set out in **Table 8.4** (which is based upon the tables listed above from LA 104).

8.2.10 The categorisation of the magnitude of the impact brought about by the proposals varies depending upon the impact area being considered (e.g. severance, driver delay etc.). In considering the impacts on the different topic areas regard has been had to the relevant guidance contained within the IEA Guidelines. This guidance is further discussed in the following paragraphs.

Table 8.1: Environmental value (or sensitivity) and typical descriptors

Value (Sensitivity)	Typical Descriptors
Very High	Facility of international or national significance.
High	Close proximity to schools, colleges, accident black-spots.
Medium	Close proximity to congested junctions, hospitals, community centres, conservation areas.
Low (or Lower)	Close proximity to public open space, nature conservation areas, and residential areas with adequate pavements.
Negligible	Receptors of low sensitivity.

Table 8.2: Magnitude of the Impact and typical descriptors

Value (Sensitivity)	Typical Descriptors
Major/ substantial	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (Adverse). Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality (Beneficial).
Moderate	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements (Adverse). Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality (Beneficial).
Minor/ slight	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristic(s), features or elements (Adverse). Minor benefit to, or addition of, one (maybe more) key characteristic(s), features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring (Beneficial).
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements (Adverse). Very minor benefit to or positive addition of one or more characteristics, features or elements (Beneficial).

Table 8.3: Descriptors of the significance of effect categories

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

Table 8.4: Significance of Effect Categories 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	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

8.2.11 As the matrix in Table 8.4 demonstrates, the sensitivity of the receptor and the magnitude of impact for each environmental effect has been considered to determine the significance of the effect. In Environmental Impact Assessment (EIA) terms the impacts which are defined as moderate or major are taken to be significant.

Severance

8.2.12 Severance is the perceived division that can occur within a community when it becomes separated by a major traffic route. Whilst the IEA Guidelines refer to the effect of traffic on severance of 30 %, 60 % and 90 % producing 'slight', 'moderate' and 'substantial' changes in severance respectively, it is suggested that caution be applied to relying on these quanta of change. The consideration of severance in this assessment has had due regard to specific local conditions, in particular, the location of pedestrian routes to key local facilities and whether crossing facilities are provided or not.

Driver Delay

8.2.13 Traffic delays to 'non-development' traffic can occur:

- At the site entrances where there will be additional turning movements;
- On the highways passing the site where there may be additional flow; and
- At key junctions on the nearby highway network.

8.2.14 Impact on driver delay is based on the quantum of change in traffic levels against interpretation of the local highway link capacity expressed in terms of predicted flows.

Pedestrian Delay

8.2.15 The proposed development will bring about increases in the number of vehicle movements during the construction and operational phases. In general terms, increases in traffic levels are likely to lead to greater increases in delay to pedestrians seeking to cross roads. The IEA Guidelines recommend that, rather than rely on thresholds of pedestrian delay, the assessor should use judgement to determine whether pedestrian delay is a significant impact. This is the approach which has been adopted for the purposes of this assessment.

Pedestrian Amenity

8.2.16 This is broadly defined as the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic. The IEA Guidelines cite a doubling of traffic flow (or its lorry component) as representing a threshold for impact evaluation. This measure is considered within the assessment that follows.

Fear and Intimidation

8.2.17 This again relates to pedestrians, and shares characteristics with pedestrian amenity. There are no commonly agreed thresholds for estimating danger, but research work is cited setting out 'degree of hazard' levels relating to 18-hour average traffic flow, 18-hour heavy goods vehicle (HGV) flow and average vehicle speed. These levels are considered within the assessment that follows in terms of impact.

8.2.18 The thresholds for determining the magnitude of change are based upon the conclusions of the 1981 study by Crompton and Gilbert entitled 'Pedestrian Delays, Annoyance and Risk'¹. The magnitude criteria for fear and intimidation thresholds is detailed in **Table 8.5** below.

Table 8.5: Magnitude Criteria Fear and Intimidation Thresholds

Magnitude of Change	Average traffic flow over 18 hr day vehicles/hour	Total 18 hr HGV flow	Average speed over 18 hr day miles/hour
Large	1800 +	3000+	20+
Medium	1200-1800	2000-3000	15-20
Small	600-1200	1000-2000	10-15
Negligible	Less than 600	Less than 1000	Less than 10

Accidents and Safety

8.2.19 The PIC record for the local highway network has been obtained from OCC for the full five-year period preceding the introduction of Covid-19 restrictions up to the most recent PICs published (1st January 2015 to 31st December 2021). The impact of additional traffic from the proposals is considered in terms of the magnitude of traffic increase and existing accident record data.

¹ Crompton D H, Pedestrian Delay, Annoyance and Risk, Imperial College, 1981

Hazardous and Abnormal Loads

8.2.20 The IEA Guidelines acknowledge that most developments will not result in increases in the number of movements of hazardous/abnormal loads. This is the case here.

Legislative and Policy Framework

8.2.21 This section of the chapter sets out key aspects and implications of policy and guidance that are relevant to the assessment of likely impacts on traffic and transport.

UK Legislation

8.2.22 The traffic and transport assessment are predominantly governed by the statutory framework provided by the Highways Act 1980 which directs the management and operation of the road network in England and Wales.

National Policy

National Planning Policy Framework (NPPF)

8.2.23 In July 2021, the Government published a revised National Planning Policy Framework (NPPF)². This assessment should therefore be read in the context of the new NPPF.

8.2.24 Paragraph 111 of the NPPF is clear that:

"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe".

8.2.25 Within this context, the NPPF provides in Paragraph 112 that applications for development should:

- a) **give priority first to pedestrian and cycle movements, both within the scheme and within neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;**
- b) **address the needs of people with disabilities and reduced mobility in relation to all modes of transport;**
- c) **create places that are safe, secure, and attractive – which minimise the scope for conflicts between pedestrians, cyclists, and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;**
- d) **allow for the efficient delivery of goods, and access by service and emergency vehicles; and**

² Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework.

- e) **be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible, and convenient locations.**

8.2.26 Paragraph 113 of the NPPF goes on to state that:

"All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed".

8.2.27 In reinforcing the principle of supporting sustainable development, paragraph 10 stipulates that at the heart of the Framework is

"A presumption in favour of sustainable development".

DfT Circular 02/2013 - 'Strategic road network and the delivery of sustainable development'

8.2.28 DfT Circular 02/2013³ (Highways Agency and DfT, 2013) sets out the way in which Highways England, now NH engage with communities and the development industry to deliver sustainable development and, thus, economic growth, whilst safeguarding the primary function and purpose of the strategic network.

8.2.29 Where development proposals are consistent with an adopted Local Plan, Highways England does not anticipate the need for engagement in a full assessment process at the planning application stage. However, where proposals are not consistent with the adopted Local Plan then a full assessment of the impact is necessary.

8.2.30 In Paragraph 45, NH require that:

"In consultation with relevant infrastructure providers, statutory environmental advisors and consenting authorities, developers must ensure all environmental implications associated with their proposals, are adequately assessed and report so as to ensure that the mitigation of any impact is compliant with prevailing policies and standards. This requirement applies in respect of the environmental impact arising from the temporary construction works and permanent transport solution associated with the development, as well as the environmental impact of the existing trunk road upon the development itself."

Local Policy

Cherwell Local Plan (2011-2031)

8.2.31 The Cherwell Local Plan (2011-2031)⁴ seeks to look to the future and set out proposals to support the local economy and communities up to 2031. It forms part of the statutory Development Plan for Cherwell. The Plan was formally adopted by the Council on 20th July 2015.

³ Highways Agency and Department for Transport (2013). Strategic road network and the delivery of sustainable development. Available at: <https://www.gov.uk/government/publications/strategic-road-network-and-the-delivery-of-sustainable-development>.

⁴ Cherwell District Council (2015). Cherwell Local Plan 2011-2031.

8.2.32 The plan addresses a number of broad parameters, such as:

- A strategy for development in Cherwell;
- Policies for development in Cherwell;
- Policies for Cherwell's places;
- Infrastructure, and
- Delivery

8.2.33 The Application Site is identified as a strategic employment site in Policy Banbury 6 which is reserved for land use classes of "**B1 (Office), B2 (General Industrial) and B8 (Storage and Distribution)**".

Oxfordshire Local Transport Plan (2015-2031)

8.2.34 The Oxfordshire Local Transport Plan (LTP4)⁵ sets out the proposed transport solutions for Oxfordshire up to 2031. The LTP4 has been developed with four overarching transport goals:

- To support jobs and housing growth and economic vitality;
- To reduce transport emissions and meet our obligations to Government;
- To protect, and where possible enhance Oxfordshire's environment and improve quality of life; and
- To improve public health, air quality, safety and individual wellbeing

8.2.35 The policies which are relevant to this development are listed below:

- Policy 12 - Oxfordshire County Council will work with partners to identify how access to employment, education, training and services can be provided, particularly for those with disabilities or special needs, or who otherwise have difficulties in walking, cycling and/ or using public transport, or for people without access to a car.
- Policy 19 - Oxfordshire County Council will encourage the use of modes of travel associated with healthy and active lifestyles.
- Policy 22 - Oxfordshire County Council will promote the use of low or zero emission transport, including electric vehicles and associated infrastructure where appropriate.
- Policy 26 - Oxfordshire County Council will aim to record, protect, maintain and improve the public rights of way network so that users are able to understand and enjoy their rights in a safe and responsible way.
- Policy 34 - Oxfordshire County Council will require 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.

Guidance

Institute of Environmental Assessment Guidance Note No 1

8.2.36 The IEA Guidelines⁶ were published in January 1993 by the Institute of Environmental Assessment. These guidelines assess the environmental impacts of road traffic associated with new developments, irrespective of whether the developments are to be subject to formal EIA.

⁵ Oxfordshire County Council (2015). Oxfordshire Local Transport Plan 2015-2031.

⁶ Institute of Environmental Assessment (1993). Guidelines for the Environmental Assessment of Road Traffic.

8.2.37 The purpose of the guidelines is to provide the basis for systematic, consistent, and comprehensive coverage for the appraisal of traffic impacts arising from development projects. Impacts that may arise include pedestrian severance and pedestrian amenity, driver delay, accidents and safety and noise, vibration, and air quality.

8.2.38 The GEART have been used to inform this assessment.

Planning Practice Guidance

8.2.39 Following directly on from paragraph 111 of the NPPF, the 'Travel Plans, Transport Assessment and Statements in decision taking' Planning Policy Guidance⁷ states:

"Local planning authorities must make a judgement as to whether a development proposal would generate significant amounts of movement on a case by case basis (i.e. significance may be a lower threshold where road capacity is already stretched or a higher threshold for a development in an area of high public transport accessibility).

In determining whether a Transport Assessment or Statement will be needed for a proposed development local planning authorities should take into account the following considerations:

- **The Transport Assessment and Statement policies (if any) of the Local Plan;**
- **The scale of the proposed development and its potential for additional trip generation (smaller applications with limited impacts may not need a Transport Assessment or Statement);**
- **Existing intensity of transport use and the availability of public transport;**
- **Proximity to nearby environmental designations or sensitive areas;**
- **Impact on other priorities/ strategies (such as promoting walking and cycling);**
- **The cumulative impacts of multiple developments within a particular area; and**
- **Whether there are particular types of impacts around which to focus the Transport Assessment or Statement (e.g. assessing traffic generated at peak times)."**

8.2.40 The document advocates initial consultation with key decision makers at an early stage through pre-application discussions to determine the scope of the technical work required to underpin the associated transport assessments and travel plans. The key issues it suggests that should be considered are:

⁷ Department for Communities and Local Government. (2014). Travel Plans, Transport Assessment and Statements. Available at: <https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements>.

- **“The planning context of the development proposal;**
- **Appropriate study parameters (i.e. area, scope, and duration of study);**
- **Assessment of public transport capacity, walking/ cycling capacity and road network capacity;**
- **Road trip generation and trip distribution methodologies and/ or assumptions about the development proposal;**
- **Measures to promote sustainable travel;**
- **Safety implications of development; and**
- **Mitigation measures (where applicable) – including scope and implementation strategy.”**

8.2.41 It acknowledges that the scope and level of detail in reports will vary from site to site, but suggests the following should be considered when confirming the scope of the proposed assessment:

- **“Information about the proposed development, site layout, (particularly proposed transport access and layout across all modes of transport);**
- **Information about neighbouring uses, amenity and character, existing functional classification of the nearby road network;**
- **Data about existing public transport provision, including provision/ frequency of services and proposed public transport changes;**
- **A qualitative and quantitative description of the travel characteristics of the proposed development, including movements across all modes of transport that would result from the development and in the vicinity of the site;**
- **An assessment of trips from all directly relevant committed development in the area (i.e. development that there is a reasonable degree of certainty will proceed within the next three years);**
- **Data about current traffic flows on links and at junctions (including by different modes of transport and the volume and type of vehicles) within the study area and identification of critical links and junctions on the highways network;**
- **An analysis of the injury accident records on the public highway in the vicinity of the site access for the most recent three-year period, or five-year period if the proposed site has been identified as within a high accident area;**
- **An assessment of the likely associated environmental impacts of transport related to the development, particularly in relation to proximity to environmentally sensitive areas (such as air quality management areas or noise sensitive areas);**

- **Measures to improve the accessibility of the location (such as provision/ enhancement of nearby footpath and cycle path linkages) where these are necessary to make the development acceptable in planning terms;**
- **A description of parking facilities in the area and the parking strategy of the development;**
- **Ways of encouraging environmental sustainability by reducing the need to travel; and**
- **Measures to mitigate the residual impacts of development (such as improvements to the public transport network, introducing walking and cycling facilities, physical improvements to existing roads.**

In general, assessments should be based on normal traffic flow and usage conditions (e.g. non-school holiday periods, typical weather conditions) but it may be necessary to consider the implications for any regular peak traffic and usage periods (such as rush hours). Projections should use local traffic forecasts such as TEMPRO drawing where necessary on National Road Traffic Forecasts for traffic data.

The timeframe that the assessment covers should be agreed with the local planning authority in consultation with the relevant transport network operators and service providers. However, in circumstances where there will be an impact on a national transport network, this period will be set out in the relevant Government policy.”

The Strategic Road Network: Planning for the Future

8.2.42 The Strategic Road Network: Planning for the Future document⁸ describes the approach which NH (formerly Highways England) takes to engage in the planning system and the issues looked at when considering draft planning documents. It also offers advice on the information which NH would like to see included in a planning proposal. The relevant paragraphs are summarised below.

“Transport assessments should generally be carried out in line with prevailing government guidance in agreement with us, through preapplication and scoping, such as a road safety audit (stage 1)”.

“We will expect to see measures implemented that fully mitigate any and all environmental impacts arising from and relating to the interaction between developments and the SRN. There are three aspects to this:

- **The environmental impacts arising from the temporary construction works;**
- **The environmental impacts of the permanent transport solution associated with the development; and**

⁸ Highways England (2015). The Strategic Road Network Planning for the Future.

- **The environmental impact of the road network upon the development itself.”**

“To avoid potential delay or challenge, transport assessments/statements and environmental statements/impact assessments should be mutually consistent and pay due regard to each other.”

“If the development is in an approved local plan and has had an appropriate level of assessment of the impact of the development undertaken, we [Highways England] do not anticipate the need to repeat the full assessment process at the planning application stage.”

“If, however, the development proposed has not been subject to an appropriate level of assessment, or is not included or consistent with an approved local plan, then we anticipate agreeing the scope of work required to make a full assessment. For those sites that have been considered at local plan stage, we will take into account any assessment already undertaken.”

“Formal pre-application discussions are an effective means of gaining a good, early understanding of the development, its benefits, its likely impacts and its infrastructure needs. By consulting with us pre-application, you will ensure that the transport assessment you prepare is appropriately scoped and is based on the most relevant and up-to-date data. It will also ensure that you are made aware of, and can take account of, any SRN issues that might have a bearing on the way in which the development is

planned and/or delivered. This, in turn, helps avoid delays and difficulties further into the application process”.

“If a SR is to be prepared, we advise this includes:

- **Details of the development, such as location, access arrangements, use class, size or number of units, likely phasing, maximum number of parking spaces and any other relevant information;**
- **Proposed methodology for estimating the vehicular trip generation and distribution on the SRN, and resulting trip generation figures;**
- **Proposed methodology for assessing the impact of this trip generation on the SRN; and**
- **Proposed methodology for assessing the environmental consequences of the transport impacts of the development.”**

Scoping Criteria

8.2.43 A Scoping Opinion has not been undertaken with the Local Planning Authorities therefore the potential effects considered below are based on professional judgement.

8.2.44 The following Transport and Access assessment considers the following potential effects for both the construction and the operational phases:

- Severance;
- Driver Delay;
- Pedestrian Delay;
- Pedestrian Amenity;
- Fear and Intimidation;
- Accidents and Safety; and
- Hazardous and Abnormal Loads.

8.2.45 The description of each of these potential effects can be seen in the Assessment of Significance section above.

Limitations to the Assessment

8.2.46 As part of the scoping stage with OCC, it was identified that “**December is not a Neutral Month for traffic surveys**” and that the flows may have not be representative of normal conditions due to Covid restrictions. OCC also identified that there were roadworks and temporary speed limits in November 2021 and wanted to know if they were also in place in early December 2021. These comments have been considered in the existing traffic flows section of **Section 8.3** below.

8.3 BASELINE ENVIRONMENT

Site Description and Context

Local and Wider Road Network

8.3.1 The Proposed Development will be accessed from the A361. The A361 is a single carriageway road which measures approximately 7.5m in width. The road is subject to the national speed limit of 60mph. This is to be reduced to 50mph as part of the permitted planning application for the land to the west of the A361 (ref: 19/00128/HYBRID; 'Frontier Park') from the M40 Junction 11 for a distance 250m north of the Frontier Park site access. The A361 runs between the M40/ A422/ A361 Roundabout to the A45 on the south-western boundary of Daventry.

8.3.2 The A422 is a dual carriageway road with each direction separated by a grass central reservation. The road is subject to the national speed limit of 70mph. The A422 becomes single carriageway and subject to a 50mph speed limit to the east of the B4525/ A422/ Mansion Hill Roundabout. The A422 runs between Banbury and the A43 to the south of Brackley.

8.3.3 The M40 motorway is a dual three-lane motorway which links London, Oxford and Birmingham. The Proposed Development is approximately 500m from Junction 11 of the M40 motorway which is a signalised grade-separated roundabout.

Public Transport Provision

Bus

8.3.4 There are currently no bus stops in the vicinity of the Proposed Development. The nearest bus stop to the Proposed Development is located approximately 1.3km south on Ermont Way. This stop is serviced by the numbers 132, 200, 500 and B9. A summary of these bus services can be seen in **Table 8.6** below.

Table 8.6: Summary of Bus Services

Service	Route	Frequency		
		Monday-Friday	Saturday	Sunday
132	Banbury – Brackley – Tingewick – Buckingham	-	11:23 & 14:58	-
200	Banbury – Daventry	Hourly (06:42-18:27)	Hourly (07:52-18:27)	-
500	Banbury – Brackley	30mins (06:00-23:10)	30mins (06:40-23:10)	Hourly (08:10-18:30)
B9	Banbury Gateway – Hardwick	30mins (06:49-22:19)	30mins (07:29-22:19)	Hourly (09:19-18:19)

8.3.5 Frontier Park proposes to introduce bus stops along the site frontage. The bus stops will be sheltered and provide up to date timetable information, as well as being fully accessible for all users.

8.3.6 Pedestrian crossing points will also be provided as part of the permitted application which will be located at the main pedestrian desire lines. The crossings will benefit from the introduction of dropped kerbs and tactile paving.

8.3.7 The bus stops will be served by the number 200 which currently runs along the A361 in both directions. The summary of the number 200 can be seen in **Table 8.6** above.

Rail

8.3.8 The closest Railway station is Banbury Station which is approximately 2.7km north-east of the Proposed Development. This equates to a circa 33-minute walk or a circa 9-minute cycle. There are 63 cycle storage spaces at the station and 978 pay and display car parking spaces, 14 of which are accessible.

8.3.9 The station has the services Chiltern Railways, Cross Country Trains and Great Western Railway. The services go to a variety of other stations such as Birmingham Moor Street, Southampton Central, Newcastle, London Marylebone, Bournemouth and Manchester Piccadilly. The station has parking, bicycle stands and ticket machines.

Walking and Cycling

8.3.10 At present there are no pedestrian footways along the A361. Following the Frontier Park development, a 2m wide footway leading from the northern side of the access and along the western side of the A361 as far as the new bus layby. A dropped kerb and tactile crossing with pedestrian refuge island leading to a 2m wide footway on the eastern side between the crossing and a new bus layby is also being provided as part of Frontier Park.

8.3.11 A pedestrian/ cycle link to Banbury Gateway Shopping Centre is provided via the Motorway underpass beneath the M40. There are 'Cyclists Dismount' signs either side of the underpass. As part of the outline consent for Frontier Park, a shared use footway/ cycleway along Wildmere Road between the existing cycle facility at Banbury Gateway Retail Park and Hennef Way is to be provided. Once this link is completed, it is considered to be an appropriate pedestrian/ cycle link for the employees of Frontier Park,

and therefore the employees of the development to the east of the A361 considered in this report, to access Banbury.

8.3.12 National Cycle Route (NCR) 5 is approximately 5km south-west of the site. NCR 5 is a long-distance route which connects Reading and Holyhead via Oxford, Stratford-upon-Avon, Bromsgrove, Birmingham, Stoke-on-Trent, Chester, Colwyn Bay and Bangor.

Local Amenities

8.3.13 Accessibility by foot to local amenities was determined by measuring the distances from the site access to the local amenities. It is generally considered that for distances under 2km, walking offers the greatest potential to replace short car trips. For distances under 5km, cycling also has the potential to substitute for short car trips.

8.3.14 The nearest food store, a Marks and Spencer Foodhall, is currently located approximately 1.6km west of the site in Banbury Gateway Shopping Park. This equates to a circa 19-minute walk or a circa 5-minute cycle. The walking route to this store is likely to be shortened when Frontier Park is built.

8.3.15 The nearest hospital with an emergency department is Horton General Hospital which is approximately 3.9km from the site which equates to a circa 15-minute cycle or a circa 11-minute drive.

Baseline Survey Information

Existing Traffic Flows

8.3.16 An Automatic Traffic Count (ATC) was undertaken on the A361 at the speed limit change between Friday 3rd December 2021 and Thursday 9th December 2021. Whilst the counts were not undertaken during a 'neutral month', they are only used for the speeds collected in order to assess the visibility splays which are required at the site access points. This also means that it is considered that the flows do not need to be compared with a pre-Covid year as the flows are not being used within the assessment. At the time of traffic count there were roadworks on the M40 Junction 11 roundabout and a reduced speed limit to the south of the site on the A361, however the reduced speed limit was not where the ATC was located.

8.3.17 ATCs were also undertaken along Hennef Way, North Bar Street and the A422 between Monday 28th February 2022 and Sunday 6th March 2022.

8.3.18 The location of the ATCs and the full results are provided in **Appendix 8.1: Transport Assessment**. A summary of the results can be seen in **Table 8.7** below.

Table 8.7: Automatic Traffic Count Summary

Direction	Total Vehicles	5-day Average	7-day Average	Average 85th %ile Speed	Average Mean Speed
A361					
Northbound	29042	4593	4149	57.2	50.4
Southbound	27184	4195	3883	54.3	47.6
Hennef Way					
Eastbound	142686	21805	20384	49.3	41.3
Westbound	161139	24730	23020	55.7	48.6
North Bar Street					
Northbound	66475	9848	9496	27.9	22.8
Southbound	70608	10355	10087	26.2	20.4
A422					
Eastbound	33177	5075	4740	64.9	57.0
Westbound	34514	5368	4931	64.6	57.7

8.3.19 Classified Turning Counts (CTCs) were also undertaken at the M40/ A422/ A361 Roundabout and the A422/ Hennef Way Roundabout between 07:00-10:00 and 16:00-19:00 on Tuesday 1st March 2022. These counts include queue counts at each arm of the junctions. The location of these and the full results are provided in the Transport Assessment..

Personal Injury Collisions

8.3.20 PIC data has been obtained from OCC for the full five-year period preceding the introduction of Covid-19 restrictions up to the most recent PICs published (1st January 2015 to 31st December 2021). The study area includes the A361 between the M40 J11 roundabout and Banbury Road, the A422 between the M40 J11 roundabout and Banbury Lane, the M40 J11 slip roads, Hennef Way, and approximately 500m north and south of the Hennef Way/ Southam Road roundabout. The location of the PICs and the full output are provided in the Transport Assessment.

8.3.21 In the five years preceding the introduction of Covid-19 restrictions (01/01/2015 to 31/12/2019) 83 PICs occurred in the study area – 70 slight, 11 serious, and 2 fatal. In the most recent five-year period (01/01/2017 to 31/12/2021) 79 PICs occurred in the study area – 68 slight, 11 serious, and 0 fatal.

8.3.22 As can be seen above, the two time periods have a similar level of PICs split similarly over the three severity classifications. Due to this, the most recent five-year period has been assessed as is standard with Transport Assessments. The fatal PICs which occurred in the years before 2017 have however been assessed in order for the assessment to be robust.

8.3.23 The first fatal PIC occurred on the A422 Hennef Way at the roundabout junction with Ermont Way. It occurred when vehicle 1 (pedal cycle) crossed the roundabout entry from west to central refuge and hit the nearside of vehicle 2 (HGV) travelling north on Ermont Way in the offside lane waiting to enter the roundabout. The PIC was very likely caused by vehicle 1 using a mobile phone, vehicle 1 impaired by

drugs (illicit or medicinal), vehicle 1 executing a poor turn or manoeuvre, and vehicle 1 failing to look properly.

8.3.24 The second fatal PIC occurred on Beaumont Road approximately 100m west of the junction with the A423 Southam Road. It occurred when vehicle 1 (HGV) travelling west along Beaumont Road stopped ahead of an access for delivery. The HGV then started to reverse to the access when a person (stow away/ attempting to enter the country) believed to be alighting from under the HGV sustained a fatal injury. The PIC was very likely caused by the casualty failing to judge the vehicles path or speed.

8.3.25 Due to the nature of the fatal PICs, it is not considered that they would contribute to a significant accident issue within the study area, and it is unlikely to be related to Covid-19 that there were no fatal PICs in the most recent five-year period.

8.3.26 Of the 79 PICs which have occurred since 1st January 2017, 9 have involved vulnerable road users which have been assessed below. There have also been 2 PICs which have 'road layout' listed as a causation factor. On further assessment, it appears that these PICs have occurred more due to driver error than any road layout issues that require mitigation (car in the incorrect lane cutting in front of another car, and excessive speed leading to a junction overshoot).

8.3.27 The first PIC which involved a vulnerable road user was classified as 'slight' in severity and occurred on the A361 Southam Road on the footway on the eastern side of the road approximately 40m northeast of the junction with Marley Way. It occurred when a mobility scooter was travelling northeast on the footway and hit a pedal cycle travelling southeast also on the footway. The PIC was possibly caused by the mobility scooter being careless/ reckless/ in a hurry, failed to judge other persons path or speed, aggressive driving or passing too close to cyclist and possibly due to the pedal cycle travelling along the pavement.

8.3.28 The second PIC which involved a vulnerable road user was classed as 'slight' in severity and occurred on the A422 Hennef Way roundabout at the junction with the A4260 Concorde Avenue. It occurred when vehicle 1 (car) travelling west on the A422 Hennef Way on exiting the roundabout junction with the A4260 Concorde Avenue to continue west, hit a pedestrian crossing from the offside just west of the roundabout. The cause of the PIC was possibly due to the pedestrian failing to look properly and failing to judge the vehicles path or speed.

8.3.29 The third PIC which involved a vulnerable road user was classed as 'serious' in severity and occurred on the A422 Hennef Way roundabout at a toucan crossing approximately 40m southeast of the junction with the A423 Southam Road. It occurred when vehicle 1 (car) travelling southeast on the A422 in the offside lane failed to stop for a red signal at the toucan crossing and hit a pedestrian. The cause of the PIC was due to the vehicle failing to look properly and disobeying an automatic traffic signal.

8.3.30 The fourth PIC which involved a vulnerable road user was classed as 'slight' in severity and occurred on Waterworks Lane at the junction with Grimsbury Green. It occurred when vehicle 1 (car) travelling north on Waterworks Lane from the A422 roundabout turned right to Grimsbury Green but cut the corner and failed to give way to vehicle 2 (pedal cycle) travelling west of Grimsbury Green. The cause of the PIC was due to vehicle 1 being careless/ reckless/ in a hurry.

8.3.31 The fifth PIC which involved a vulnerable road user was classed as 'slight' in severity and occurred on the A361 Southam Road roundabout junction with the A422 Ruscote Avenue and Hennef Way. It occurred when vehicle 1 (car) travelling north on the A361 Southam Road overtook vehicle 2 (pedal cycle), also travelling north, intending to continue to the A423 Southam Road on immediate approach to the roundabout.

Vehicle 1 went through a puddle suddenly splashing vehicle 2 causing the rider to fall. The cause of the PIC was due to a poor or defective road surface.

8.3.32 The sixth PIC which involved a vulnerable road user was classed as 'slight' in severity and occurred on the A422 Ruscote Avenue junction with Banbury Cross Retail Park. It occurred when vehicle 2 travelling east on the A422 Ruscote Avenue hit vehicle 2 (car) also travelling east as both vehicles exited the roundabout to continue east on the A422. Vehicle 2 stopped, and the passenger got out to speak to driver of vehicle 1 but vehicle 1 hit the pedestrian then fled the scene. The cause of the PIC was due to vehicle 1 executing a poor turn or manoeuvre and being careless/ reckless/ in a hurry.

8.3.33 The seventh PIC which involved a vulnerable road user was classed as 'serious' in severity and occurred on the A422 Ruscote Avenue junction with Lockheed Close. It occurred when vehicle 1 (car) travelling west having just exited the roundabout on the A422 Ruscote Avenue hit a pedestrian crossing from north to south pushing a bike across the road between cars. The cause of the PIC was due to vehicle 1 failing to look properly and possibly due to dazzling sun.

8.3.34 The eighth PIC which involved a vulnerable road user was classed as 'slight' in severity and occurred on the A361 Southam Road junction with an unclassified road approximately 100m south of Hennef Way. It occurred when vehicle 1 (car) travelling north, turned right to the A361 failing to see vehicle 2 (pedal cycle) travelling south of the footway and hit vehicle 2. The cause of the PIC was due to vehicle 1 failing to look properly.

8.3.35 The ninth PIC which involved a vulnerable road user was classed as 'slight' in severity and occurred on Ermont Way roundabout junction with the A422 Hennef Way. It occurred when vehicle 1 (car) travelling north on Ermont Way entered the roundabout to turn left to the A422 but failed to give way to vehicle 2 (pedal cycle) which had entered Ermont Way from the cycle track from Daventry Road then entered roundabout to continue north to Wildmere Road rather than using the toucan crossing.

8.3.36 It is considered that there is currently no significant accident issue within the study area that would require intervention and that the proposed development will not be detrimental to the safe operation of the local highway network.

8.4 ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

Construction

8.4.1 As set out in **Chapter 3: Application Site and Proposed Development**, it is anticipated the Proposed Scheme will be constructed in phases with initial works to provide the infrastructure (i.e. roundabout, T-junction and Spine Road) anticipated to start in 2024. Alongside this construction within Development will commence and be completed by 2025.

8.4.2 'Peak construction', in terms of the maximum number of vehicle movements, is anticipated to be associated with construction of the units within Development Plots – Zones A – D. It has been estimated there will be 250 car and HGV movements per day generated during peak construction.

Traffic Impact

8.4.3 The following sections set out the impacts which have been identified, along with an indication of the significance of the resulting effects in the absence of any mitigation.

Severance

8.4.4 Severance is the perceived division that can occur within a community when it becomes separated by a major traffic route. Whilst the IEA Guidelines refer to the effect of traffic on severance of 30 %, 60 % and 90 % producing 'slight', 'moderate' and 'substantial' changes in severance respectively, it is suggested that caution be applied to relying on these quanta of change. The consideration of severance in this assessment has had due regard to specific local conditions.

8.4.5 The sensitivity of the traffic impacts is considered to be low (**Table 8.1**). Taking total traffic volumes – in accordance with the IEA Guidelines – the level of traffic related to the operational phase is less than 30% on all links. The magnitude of overall traffic increase can, therefore, in accordance with **Table 8.2** be categorised as negligible for all the links.

8.4.6 Adopting the methodology set out in **Tables 8.1-8.4**, the low sensitivity (**Table 8.1**) and negligible magnitude of impact (**Table 8.2**) results in a **insignificant** effect of severance as a result of the proposals (**Table 8.4**).

Driver Delay

8.4.7 Traffic delays to 'non-development' traffic can occur:

- At the site entrances where there will be additional turning movements;
- On the highways passing the site where there may be additional flow; and
- At key junctions on the nearby highway network.

8.4.8 Impact on driver delay is based on the quantum of change in traffic levels against interpretation of the local highway link capacity expressed in terms of predicted flows.

8.4.9 The construction of the Site would result in a negligible impact (**Table 8.2**) on a medium sensitivity receptor (**Table 8.1**) which would result in a **insignificant** effect on driver delay.

Pedestrian Delay and Amenity

8.4.10 Given the range of local factors and conditions which can influence pedestrian delay, the guidance suggests it is not considered wise to set down any thresholds, but instead it is recommended that assessors use their judgement to determine whether pedestrian delay is a significant impact.

8.4.11 There are no footways on the A361. It is, therefore, concluded that the construction of the Site will have an insignificant effect on pedestrian delay and amenity.

8.4.12 Adopting the methodology set out in **Tables 8.1-8.4**, the pedestrian routes within the vicinity of the site are considered to be low sensitivity receptors (**Table 8.1**). The magnitude of the impact is negligible (**Table 8.2**) and overall, this is considered to be an **insignificant** effect (**Table 8.4**). As already indicated, in common with standard assessment practice, minor effects and below are not considered to be significant in environmental assessment terms.

Fear and Intimidation

8.4.13 This again relates to pedestrians, and shares characteristics with pedestrian and non-motorised users and is based on the thresholds set out in **Table 8.5**.

8.4.14 Adopting the methodology set out in **Tables 8.1-8.4**, the pedestrian routes within the vicinity of the site are considered to be low sensitivity receptors (**Table 8.1**). The magnitude of the impact is negligible (**Table 8.2 & 8.5**) and overall, this is considered to be an **insignificant** effect (**Table 8.4**). As already indicated, in common with standard assessment practice, minor effects and below are not considered to be significant in environmental assessment terms.

Accidents and Safety

8.4.15 The PIC record for the local highway network has been obtained from OCC for the full five-year period preceding the introduction of Covid-19 restrictions up to the most recent PICs published (1st January 2015 to 31st December 2021). The impact of additional traffic from the proposals is considered in terms of the magnitude of traffic increase and existing accident record data.

8.4.16 Adopting the methodology set out in **Tables 8.1-8.4**, the vicinity of the site is considered to be low sensitivity receptors (**Table 8.1**). The magnitude of the impact is negligible (**Table 8.2 & 8.5**) and overall, this is considered to be an **insignificant** effect (**Table 8.4**). As already indicated, in common with standard assessment practice, minor effects and below are not considered to be significant in environmental assessment terms.

Hazardous and Abnormal Loads

8.4.17 The IEA Guidelines acknowledge that most developments will not result in increases in the number of movements of hazardous/dangerous loads. Regarding the Proposed Development, it is highly unlikely that any hazardous or abnormal loads will access the site.

8.4.18 Adopting the methodology set out in **Tables 8.1-8.4**, the low sensitivity (**Table 8.1**) and negligible magnitude of impact (**Table 8.2**) results in an **insignificant** effect of hazardous or abnormal loads as a result of the proposals (**Table 8.4**). As already indicated, in common with standard assessment practice, minor effects and below are not considered to be significant in environmental assessment terms.

Operation

8.4.19 This section contains an assessment of the potential impacts to traffic and transportation as a result of the operational phase of the Proposed Development.

Traffic Growth

8.4.20 The assessment has considered two scenarios a) year of opening (2025) and b) 10 years after year of application (in accordance with Circular 02/13) which is 2032.

8.4.21 The base traffic flows will be factored up using Trip End Model Presentation Program (TEMPro). The Middle Super Output Area (MSOA) of Cherwell 004, in which the site is located has been assessed. The resulting factors are shown in **Table 8.8**.

Table 8.8: Tempro Growth Factors

Road Type	Growth Years	AM	PM
Principle	2022-2025	1.0315	1.0307
	2022-2032	1.0917	1.0900
Motorway	2021-2025	1.0437	1.0428
	2022-2032	1.1300	1.1282

Proposed Traffic Generation

8.4.22 The detailed derivation of trip generation is set out in the Transport Assessment. To assess the proposed traffic movements from the development the TRICS database was interrogated (TRICS v7.8.4 online). This database contains surveys of the vehicle and multimodal trip generation of a wide variety of sites which are classified by land use and various other attributes. The database was interrogated for multimodal surveys for 'Land Use 02 – Employment/ F – Warehousing (Commercial)', with sites in London, Scotland, Ireland, and Wales manually excluded. It was also interrogated for parcel distribution uses (also B8) which are forecast to amount to upto 20% of the total assessed floor area.

8.4.23 The assessed forecast traffic generation rates are summarised below.

Table 8.9: Vehicle and HGV Generation

	Total Vehicle Generation			HGV Generation		
	In	Out	Total	In	Out	Total
08:00-09:00	199	210	409	63	94	157
17:00-18:00	182	279	461	59	34	93
07:00-19:00	2205	2512	4717	721	779	1501

8.4.24 As can be seen above, the proposed development, with the sensitivity included, is expected to generate around 409 two-way vehicle movements in the AM peak period and 461 two-way vehicle movements in the PM peak period. This equates to approximately 7-8 two-way vehicle movements every minute.

Proposed Traffic Distribution

8.4.25 The light vehicle traffic has been distributed using the 2011 Census Journey to Work data for the Middle Super Output Area (MSOA) of Cherwell 004 within which the proposed development is located. A summary of the journey to work data can be seen in Table 8.10 below.

Table 8.10: 2011 Census Journey to Work Data for Cherwell 004 MSOA

Residence	Percentage
Cherwell	52.7%
South Northamptonshire	13.9%
Stratford-upon-Avon	5.2%
Daventry	4.0%
West Oxfordshire	3.1%
Warwick	2.7%
Aylesbury Vale	1.7%
Coventry	1.0%
Other	15.7%

8.4.26 The distribution for heavy vehicles on the wider highway network has been derived using data included within the Base Year Freight Matrices (BYFM) published by the Department for Transport (2012). The BYFM consist of the number of vehicles per

average day between a set of origin-destination zone pairs for a 2006 base year. These zones are based on all 408 local authority districts, unitary authorities and London Boroughs and point zones for the 88 largest ports, 5 main freight airports and 56 major concentrations of distribution centres.

8.4.27 The outputs from the model have been analysed through the ArcGIS package to determine likely route of vehicles. The Geographic Information System (GIS) assumed routing has been sense checked using Google maps and a review of the suitability of the network.

8.4.28 The distribution of heavy vehicles to each region can be seen in **Table 8.11** below.

Table 8.11: BYFM Distribution

Region	Percentage
East of England	11.4%
East Midlands	10.8%
North West of England	3.5%
Scotland	0.6%
South East of England	57.0%
South West of England	5.5%
Wales	0.3%
West Midlands	7.5%
Yorkshire and the Humber	3.4%

8.4.29 The distribution of the light and heavy vehicles has been analysed using Google Maps and the proposed traffic assignment can be seen in Table 8.12 below.

Table 8.12: Proposed Traffic Assignment

Link	Light Vehicles			HGVs		
	Assignment	AM	PM	Assignment	AM	PM
M40 N	12.5%	32	46	16.9%	26	16
M40 S	8.5%	22	31	50.6%	79	47
A422 E	18.0%	45	66	18.7%	29	17
A422 W	53.5%	135	197	1.7%	3	2
A361 N	7.5%	19	28	10.8%	17	10

Traffic Impact

8.4.30 The percentage change for total vehicles and then also, for completeness, for HGVs is shown in **Table 8.13** for the proposed operational traffic flows.

Table 8.13: Traffic Impact on the Surrounding Road Network for Proposed Traffic Flows

Locations	Base Traffic Flow – AADT		Proposed Traffic Flow		Percentage Increase	
	Totals	HGVs	Totals	HGVs	Totals	HGVs
M40 N	90,486	14,659	882	371	1.0%	2.5%
M40 S	92,286	15,506	1,460	1,112	1.6%	7.2%
A422 E	9,670	446	1,143	411	11.8%	92.3%
A422 W	43,404	3,350	2,215	37	5.1%	1.1%
A361 N	8,032	310	544	237	6.8%	76.6%

8.4.31 The following sections set out the impacts which have been identified, along with an indication of the significance of the resulting effects in the absence of any mitigation.

Severance

8.4.32 Severance is the perceived division that can occur within a community when it becomes separated by a major traffic route. Whilst the IEA Guidelines refer to the effect of traffic on severance of 30 %, 60 % and 90 % producing 'slight', 'moderate' and 'substantial' changes in severance respectively, it is suggested that caution be applied to relying on these quanta of change. The consideration of severance in this assessment has had due regard to specific local conditions.

8.4.33 The sensitivity of the traffic impacts is considered to be low (**Table 8.1**). Taking total traffic volumes – in accordance with the IEA Guidelines – the level of traffic related to the operational phase is less than 30% on all links. The magnitude of overall traffic increase can, therefore, in accordance with **Table 8.2** be categorised as negligible for all the links.

8.4.34 For completeness, a similar exercise has been undertaken in respect of HGVs only. For HGVs, the increase is above 90% along the A422 E and above 60% along the A361 N.

8.4.35 Since the total vehicle percentage increase is considered negligible in significance (**Table 8.4**), the HGV percentage increases have been considered as a worst-case. The magnitude of the impact can be considered substantial (**Table 8.2**) since the increase along the A422, adjacent to Middleton Cheney, is above 90%.

8.4.36 Adopting the methodology set out in **Tables 8.1-8.4**, the low sensitivity (**Table 8.1**) and significant magnitude of impact (**Table 8.2**) results in a **moderate** effect of severance as a result of the proposals (**Table 8.4**).

8.4.37 A routeing and signage strategy is to be confirmed for the site through condition. This will result in the residual impact being **minor**.

Driver Delay

8.4.38 Traffic delays to 'non-development' traffic can occur:

- At the site entrances where there will be additional turning movements;
- On the highways passing the site where there may be additional flow; and
- At key junctions on the nearby highway network.

8.4.39 Impact on driver delay is based on the quantum of change in traffic levels against interpretation of the local highway link capacity expressed in terms of predicted flows.

8.4.40 The modelling presented in the TA confirms that without mitigation the scheme would result in a moderate impact (**Table 8.2**) on a medium sensitivity receptor (**Table 8.1**) which would result in a **moderate** effect on driver delay.

8.4.41 Mitigation is therefore proposed to deal with this as discussed in the Transport Assessment which results in the residual impact being **minor**.

Pedestrian Delay and Amenity

8.4.42 Given the range of local factors and conditions which can influence pedestrian delay, the guidance suggests it is not considered wise to set down any thresholds, but instead it is recommended that assessors use their judgement to determine whether pedestrian delay is a significant impact.

8.4.43 There are no footways on the A361. It is, therefore, concluded that the proposals will have an insignificant effect on pedestrian delay and amenity.

8.4.44 Adopting the methodology set out in **Tables 8.1-8.4**, the pedestrian routes within the vicinity of the site are considered to be low sensitivity receptors (**Table 8.1**). The magnitude of the impact is minor/ slight (**Table 8.2**) and overall, this is considered to be a **minor** effect (**Table 8.4**). As already indicated, in common with standard assessment practice, minor effects are not considered to be significant in environmental assessment terms.

Fear and Intimidation

8.4.45 This again relates to pedestrians, and shares characteristics with pedestrian and non-motorised users and is based on the thresholds set out in **Table 8.5**.

8.4.46 Adopting the methodology set out in **Tables 8.1-8.4**, the pedestrian routes within the vicinity of the site are considered to be low sensitivity receptors (**Table 8.1**). The magnitude of the impact is negligible (**Table 8.2 & 8.5**) and overall, this is considered to be a **minor** effect (**Table 8.4**). As already indicated, in common with standard assessment practice, minor effects are not considered to be significant in environmental assessment terms.

Accidents and Safety

8.4.47 The PIC record for the local highway network has been obtained from OCC for the full five-year period preceding the introduction of Covid-19 restrictions up to the most recent PICs published (1st January 2015 to 31st December 2021). The impact of additional traffic from the proposals is considered in terms of the magnitude of traffic increase and existing accident record data.

8.4.48 Adopting the methodology set out in **Tables 8.1-8.4**, the vicinity of the site is considered to be low sensitivity receptors (**Table 8.1**). The magnitude of the impact is negligible (**Table 8.2 & 8.5**) and overall, this is considered to be a minor effect (**Table 8.4**). As already indicated, in common with standard assessment practice, minor effects are not considered to be significant in environmental assessment terms.

Hazardous and Abnormal Loads

8.4.49 The IEA Guidelines acknowledge that most developments will not result in increases in the number of movements of hazardous/dangerous loads. Regarding the Proposed Development, it is highly unlikely that any hazardous or abnormal loads will access the site.

8.4.50 Adopting the methodology set out in **Tables 8.1-8.4**, the low sensitivity (**Table 8.1**) and negligible magnitude of impact (**Table 8.2**) results in a **negligible** effect of hazardous or abnormal loads as a result of the proposals (**Table 8.4**).

Decommissioning

8.4.51 Given the nature and intended longevity of the Proposed Development's operational life, decommissioning has not been considered relevant as part of this study. Accordingly, the EIA is to focus on the potential likely significant effects of the Proposed Development during construction and operational phases only.

8.5 MITIGATION AND ENHANCEMENT

Mitigation by Design

8.5.1 As detailed in the Transport Assessment the scheme is accompanied by a Framework Travel Plan. The objectives of that document are to encourage non-car use by staff and therefore reduce the potential environmental impacts.

8.5.2 The proposed roundabout site access allows for the removal of a substandard bend on the approach to M40 Junction 11. At present the road bends through a centreline radius of 100m through 90° which is four design steps below desirable minimum at 70kph (six design steps below desirable minimum at 100kph). The roundabout allows the alignment of the A361 to be straightened in accordance with CD109 prior to the immediate approaches which are designed in accordance with CD116. The roundabout has been designed in accordance with the best practice guidance set out in DMRB CD116.

Additional Mitigation

8.5.3 In addition to the above, the following measures are included (or expected to be included as part of any planning consented).

Table 8.14: 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	A contribution to OCC to fund wider capacity enhancements on the Hennef Way Corridor.		X	
2	Public Transport Enhancements – a contribution increasing the frequency of Service 200		X	
3	Further improvements to bus stop infrastructure		X	
4	Provision of EV Charging	X		
5	Routeing and Signage Strategy			X

8.6 CUMULATIVE AND IN-COMBINATION EFFECTS

8.6.1 The Transport Assessment which supports this chapter has taken into account cumulatively development from the adjacent consented Frontier Park (Land adjacent to M40 J11, Banbury – ref: 21/02467/F). It considers the impact of that and future growth on the network in accordance with growth forecasts agreed with the Highway Authorities.

8.6.2 The Frontier Park proposal is for a mixed-use development including a 240-bed hotel, 4 storey office building, roadside services, coffee shop drive-through and petrol filling station with ancillary retail store. The proposal is intended to be determined at an April 2022 Planning Committee. The development was deemed to not need an EIA. This planning application under determination is immediately west to the Application Site. If granted planning permission, it is likely the development will be under construction when the Application Site's development begins.

8.6.3 The conclusions on potential impacts therefore take full account of the cumulative affects of the development.

8.7 SUMMARY

Introduction

8.7.1 This chapter has provided an assessment of the potential significant effects of the proposed outline planning application for the construction of up to **"Outline planning application for the construction of up To 140,000 sqm of employment floorspace (use class B8 with ancillary offices and facilities) and servicing and infrastructure including new site accesses, internal roads and footpaths, landscaping including earthworks to create development platforms and bunds, drainage features and other associated works including demolition of the existing farmhouse. All matters of detail reserved."**

8.7.2 This Chapter considers the potential traffic and transport implications of the development proposals both during the construction period and once the site is fully operational.

Baseline Conditions

8.7.3 The Site is well connected to the local and wider road network with the M40 Junction 11 approximately 500m south. There are currently no significant accident issues within the study area that would require intervention as part of the Proposed Development.

8.7.4 At present, all forms of public transport are over 1km from the Proposed Development, but bus stops are to be built along the A361 adjacent to the western boundary as part of the Frontier Park site which would improve accessibility.

8.7.5 At present there are no pedestrian footways along the A361. As part of the Frontier Park development a footway is being built to allow pedestrian access to the new bus stops. There is a pedestrian/ cycle link provided via the Motorway underpass beneath the M40 which gives access to Banbury Gateway Shopping Centre and the main facilities which will be accessed from the Proposed Development.

Likely Significant Effects

8.7.6 It is estimated there will be 250 car and HGV movements per day generated during peak construction. The vast majority of HGV and car movements generated during the construction period would be expected to route to/ from the M40.

8.7.7 Overall, the residual effect of the proposed development on highways during the construction phase is concluded to be negligible.

8.7.8 Once operational, the development site could generate around 6,300 two-way trips over a 24-hour weekday period, of which approximately 2,200 would be HGVs. The highest number of vehicle trips would route through the A40 north and south.

Mitigation and Enhancement

8.7.9 The primary mitigation during the construction phase will include initial temporary access to the Site to enable preparation for construction and the construction of the new site access roundabout.

8.7.10 A Construction Management Plan would be prepared and the mitigation measures within it implemented throughout the construction phase. The aim of this will be to ensure the contractors meet the requirements of all relevant environmental legislation, agreements, authorisations and commitments.

8.7.11 The primary mitigation during the operational phase will include offsite improvements to J11 to improve capacity.

8.7.12 The site layout can incorporate direct connections to the adjacent existing and proposed bus infrastructure to facilitate public transport to and from the Site. An internal bus loop can be provided as part of the scheme.

8.7.13 The proposed internal access road will include a 3m wide segregated shared footpath and cycleway along the southern side of the access road.

Conclusion

8.7.14 The effects of the Proposed Development with regard to the construction and operation phase have been considered in detail including the effect of driver delay, pedestrian delay, fear and intimidation, and accidents and safety. Overall, in transport

terms the residual effects are not considered to be significant for either the construction or operational phase of the Proposed Development.

Table 8.15: 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								
Severance	This effects pedestrians.	Temporary / Direct	Low	Negligible	Local	Insignificant Adverse	None	Insignificant Adverse
Driver Delay	This effects road users.	Temporary / Direct	Medium	Negligible	Local	Insignificant Adverse	None	Insignificant Adverse
Pedestrian Delay and Amenity	This effects pedestrians.	Temporary / Direct	Low	Negligible	Local	Insignificant Adverse	None	Insignificant Adverse
Accidents and Safety	This effects road users.	Temporary / Direct	Low	Negligible	Local	Insignificant Adverse	None	Insignificant Adverse
Hazardous or Abnormal Loads	This effects pedestrians and road users.	Temporary / Direct	Low	Negligible	Local	Insignificant Adverse	None	Insignificant Adverse
Fear and Intimidation	This effects pedestrians.	Temporary / Direct	Low	Negligible	Local	Insignificant Adverse	None	Insignificant Adverse
Operation								
Severance	This effects pedestrians.	Permanent / Direct	Low	Significant	Local	Moderate Adverse	Routeing Strategy	Minor Adverse
Driver Delay	This effects road users.	Permanent / Direct	Medium	Moderate	Local	Moderate Adverse	Improvements to M40 J11 gyratory	Minor Adverse
Pedestrian Delay and	This effects	Permanent /	Low	Minor/ Slight	Local	Minor	None	Minor

ENVIRONMENTAL STATEMENT

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Receptor/ Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation/ Enhancement Measures	Residual Effects
Amenity	pedestrians.	Direct				Adverse		Adverse
Accidents and Safety	This effects road users.	Permanent / Direct	Low	Negligible	Local	Minor Adverse	None	Minor Adverse
Hazardous or Abnormal Loads	This effects pedestrians and road users.	Permanent / Direct	Low	Negligible	Local	Negligible Adverse	None	Negligible Adverse
Fear and Intimidation	This effects pedestrians.	Permanent / Direct	Low	Negligible	Local	Minor Adverse	None	Minor Adverse
Cumulative and In-combination								
Severance	This effects pedestrians.	Permanent / Direct	Low	Significant	Local	Moderate Adverse	Routeing Strategy	Minor Adverse
Driver Delay	This effects road users.	Permanent / Direct	Medium	Moderate	Local	Moderate Adverse	Improvements to M40 J11 gyratory	Minor Adverse
Pedestrian Delay and Amenity	This effects pedestrians.	Permanent / Direct	Low	Minor/ Slight	Local	Minor Adverse	None	Minor Adverse
Accidents and Safety	This effects road users.	Permanent / Direct	Low	Negligible	Local	Minor Adverse	None	Minor Adverse
Hazardous or Abnormal Loads	This effects pedestrians and road users.	Permanent / Direct	Low	Negligible	Local	Negligible Adverse	None	Negligible Adverse
Fear and Intimidation	This effects pedestrians.	Permanent / Direct	Low	Negligible	Local	Minor Adverse	None	Minor Adverse

