9 Transport and Access

9.1 Introduction

9.1.1 This chapter of the ES has been prepared by David Tucker Associates and assesses the likely significant transport effects of the Development.

9.1.2 The chapter is supported by the following technical appendices:

- Appendix 9.1: Transport Assessment Report (TAR); and
- Appendix 9.2: Framework Travel Plan(s).

Competence

9.1.3 The Transport Assessment, Travel Plans and this ES chapter have been prepared by David Tucker Associates (DTA Transportation Ltd). DTA is a special firm of consultants providing transport planning advice and design services to a wide range of public and private clients.

9.1.4 The company is a member of the Association of European Transport. Key members of staff are Chartered and affiliated with the Institution of Civil Engineers, the Chartered Institution of Highways and Transportation, the Chartered Institute of Logistics and Transport.

9.1.5 The principal authors of this section were Simon Parfitt MSc BA (Hons) CILT, Director with over twenty six years' experience in the appraisal of transport and traffic implications of developments and Richard McCulloch BEng (Hons), Associate Director at David Tucker Associates with over sixteen years' experience in the appraisal of transport and traffic implications including environmental impact appraisal.

9.2 Legislation, Planning Policy and Guidance

Legislation

9.2.1 There is no legislation of relevance to the Transport Assessment (TAR).

Planning Policy Context

9.2.2 A detailed review of national, regional and local transportation and land-use policies as well as how the Development meets these policy objectives is provided in the TAR (Appendix 9.1).

National

9.2.3 The National Planning Policy Framework (February 2019)[1] (NPPF) sets out the Government's policies to achieve sustainable development. It is the key national planning policy relevant to the Development.

9.2.4 The Department for Transport (DfT) Circular 02/2013 - The Strategic Road Network and the Delivery of Sustainable Development (2013)[2] sets out the need for sustainable development and economic growth, whilst safeguarding the Strategic Road Network.

Regional

9.2.5 There is no regional policy of relevance to the Development.

Local

9.2.6 The following local planning policy is relevant to the Development:

- Oxfordshire Local Transport Plan 2015-2031 adopted September 2015[3], updated 2016[4]; and,
- Cherwell Local Plan (2011-2031) adopted July 2015, updated December 2016[5].

Guidance

9.2.7 The following guidance is relevant to the Development:

- Institute of Environmental Management and Assessment ('IEMA'), Assessment Guidelines on the Environmental Assessment of Road Traffic (1993)[6] ('IEMA Guidelines');
- Planning Practice Guidance (Live Document)[7];
- Guidance on Transport Assessment (DfT, 2007)[8]; and,
- Design Manual for Roads and Bridges (DMRB, various)[9].

9.3 Assessment Methodology

Consultation

9.3.1 The scope of the TAR has been discussed and agreed with highways officers at Oxfordshire County Council ('OCC') during extensive pre-application liaison. An initial TA Scoping Report was prepared in July 2018 and discussed at a scoping meeting held on 30th July 2018. This included c.40,000m² B1c/B2 employment floorspace quantum and without the inclusion of the health and racquets club.

9.3.2 A "TA Scoping Note – Additional Information" dated 21st November 2018 was prepared and submitted in advance of a further meeting with OCC and CDC on the 14th December 2018. This Scoping Note reflected the presence of health and racquet club in addition to c.37,000sqm of employment floorspace. Since the Scoping stage, the quantum of employment floor area has reduced, but the Scoping exercise remains entirely valid and robust.

9.3.3 OCC prepared a formal pre-app response dated 7th January 2019 which is provided in Appendix 9.1. A subsequent meeting took place with OCC and CDC on 5th April 2019 to further clarify the agreed scope. A final response from OCC dated 17th April 2019 is also attached in Appendix 9.1.

9.3.4 Table 9.1 summarises key comments raised by OCC in the pre-app response and how the assessment has responded to them.

Table 9.1: Response Summary

Consultee (Date) and Comment	Response
OCC Comment (7th January 2019)	
Cycle and pedestrian link should be provided directly into the health and racquet club from Wendlebury Road.	A cycle and pedestrian link is included within the design of the Development.
Further clarification required regarding trip forecasts.	This information was provided to OCC during pre-app discussions.
Interview surveys of health and racquet club (David Lloyd) sites should be agreed and data clearly explained.	Agreement was reached later in January on survey methodology and data provided.

Consultee (Date) and Comment	Response
An upgrade of Wendlebury Road will be required to cater for additional traffic and cycle/pedestrian access.	A corridor improvement focusing on cycle access is included within the design of the Development.
Requirement for an interim future year (2026) assessment with and without a South East Perimeter Road and 2031 assessment with South East Perimeter Road. All runs with and without application proposals.	Model runs were commissioned. Data were received from OCC and forms basis of network appraisal for the purpose of the assessment.
Consideration to be given to additional bus stop.	The access design does not prejudice a bus stop location on Wendlebury Road site frontage, but the detail depends on how OCC develop future bus services in the area. To assist with this, part of the Development mitigation, is the agreement to provide a contribution towards local bus services.
OCC Comment (7th January 2019 and 5th April 2019)	
Consideration to be given to additional bus stop.	The access design does not prejudice a bus stop location on Wendlebury Road site frontage, but the detail depends on how OCC develop future bus services in the area. To assist with this, part of the Development mitigation, is the agreement to provide a contribution towards local bus services.
OCC Comment (17th April 2019)	
health and racquet club access would need to be assessed. Bus contribution would be required. SEPR contribution required and calculated from Supplementary Planning Documents formula.	The health and racquet club access is assessed within the TAR. To assist with this, part of the Development mitigation, is the agreement to provide a contribution towards local bus services. Part of the Development mitigation is the agreement to provide a contribution towards South East Perimeter Road.

Study Area and Scope

9.3.5 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.

9.3.6 The study area for the assessment of transport effects was informed by the OCC Bicester Traffic Model and assignment of the site traffic to the local network. The study area was subject to percentage impact assessment as presented in the TAR, with further link analysis presented in this ES Chapter.

9.3.7 Percentage impact changes on the A41 corridor from the M40 Junction 9 to Rodney House Roundabout to the north east; and on Oxford Road between the A41 and Middleton Stoney Road were calculated. The percentage change at the A41/ Vendee Drive roundabout at between 5% and 10%; with all other junctions well below the 5% threshold and therefore did not require to be assessment within the ES.

9.3.8 Notwithstanding this, a series of off-site junction assessments were undertaken and presented in the TAR for:

- A41/Vendee Drive;
- A41/Pioneer Way;
- A41/Lakeview Drive;
- A41/Oxford Road;
- Oxford Road/Pringle Drive;
- Oxford Road/Middleton Stoney Road

9.3.9 The junction locations are shown at Appendix 9.1 Figure 2. As these assessments were not triggered by an ES threshold exceedance, they are not described within this chapter, but are described in detail at Appendix 9.1 Section 6.

9.3.10 Detailed junction assessments were undertaken for those junctions within that area for which the identified threshold impact arises.

Establishing Existing and Baseline Conditions

9.3.11 A number of Site visits were undertaken between November 2017 and April 2019 in response to the development of the access strategy and the requirements of traffic appraisal hence at differing times of the day, including both peak morning and afternoon periods. These are detailed in the TAR (Appendix 9.1) and summarised in Section 9.4.

9.3.12 Public transport servicing information was obtained from the operators of local bus and train services.

9.3.13 Public rights of way and cycle route information was obtained from the local highway authority (OCC) and Sustrans.

9.3.14 Journey to work data from the 2011 Census was obtained from nomisweb.

9.3.15 Trip generator comparator sites were extracted from the TRICS database and new surveys were commissioned to understand the travel demand characteristics of a health and racquets club.

9.3.16 A detailed topographical survey was undertaken which covers the Site and adjacent sections of the local highway network.

9.3.17 A local highway authority (OCC) search was undertaken to identify the extents of highway maintainable at public expense (HMPE).

9.3.18 Personal injury accident data was obtained from OCC to understand existing conditions for the most recent available five year period (01/01/2014 to 31/12/2018). An extensive study area was obtained including the A41 corridor from south of the Vendee Drive roundabout up to the Oxford Road roundabout extending north up Queen's Avenue to the Bucknall Road junction on Buckingham Road. Only a small proportion of this study area would experience a change in travel demand that could have a bearing on road safety performance.

9.3.19 There is significant planned development within Bicester and therefore traffic flows patterns have been established from OCC traffic models. Baseline traffic flows are taken to be 2026 and 2031 for the

operational assessment. This is reflective of OCC's traffic model outputs and their requirement for appraisal, as distinct from reviewing the operation of the current network and its flows.

9.3.20 Committed development flows were included within the traffic model outputs in line with the Uncertainty Log provided by OCC and included within the TAR. Transport Assessments for adjacent sites were reviewed to understand the nature of planned mitigation and access works that would have a bearing on the development.

Assessment Scenarios

Construction

9.3.21 The construction of the Development will take place in a phased manner, with an anticipated start around 2020. The Development is anticipated to be built out over a period of approximately three years. The health and racquet club is anticipated to take between 12 and 18 months to build.

9.3.22 Notwithstanding the baseline years of 2026 and 2031, these would be unlikely to coincide with the construction period. As such, estimates of network traffic flows for 2021, assumed to be during the construction period, have been derived as part of this appraisal, from the 2026 OCC model flows. Factors derived from TEMPRO were applied to the 2026 model outputs.

Completed Development

9.3.23 The assessment considers the likely significant environmental effects from Development traffic on the capacity and safety of the surrounding road network, as well as, implications for public transport, pedestrian and cycling movements.

9.3.24 The time periods used for assessment purposes are the highway peak periods, which are 08:00-09:00 (AM Peak) and 17:00-18:00 (PM Peak) on a weekday, which are the busiest times on the local and strategic highway network. The flow for each highway link was assessed, 'with' and 'without Development' traffic in order to determine the anticipated change in traffic, per link. The change in traffic per link is then analysed for their environmental effect. Table 9.2 sets out the scenarios that were assessed within this chapter.

Table 9.2: Transport Assessment Scenarios

Assessment	Description
Scenario 1: Application 1 – Employment Development Only	23,376sqm of B1 development across the Application 1 site
Scenario 2: Application 1 – Employment & health and racquet club	16,801sqm of B1 development and health and racquets club across the Application 1 site
Scenario 3: Application 1 - Employment Development & Application 2	33,568sqm of B1 development across the Application 1 and Application 2 site
Scenario 4: Application 1 - Employment & health and racquets club & Application 2	26,995sqm B1 development across the Application 1 and Application 2 site and a health and racquets club on the Application 1 site

9.3.25 In all cases, the maximum quantum of B1a office floorspace is capped at 35% of the gross B1 floorspace to be delivered. Table 9.3 sets out the maximum amount of B1a floorspace for each Scenario.

Table 9.3: Floorspace Schedule (maximum B1a office component)

Scenario	Floorspace Maximum Office
Scenario 1	8,190 sqm
Scenario 2	5,880 sqm
Scenario 3	11,760 sqm
Scenario 4	9,450 sqm

9.3.26 At the requirement of the highway authority, the assessment was based on the 2026 and 2031 traffic flow forecasts from the OCC Bicester traffic model. Traffic flow forecasts, provided by OCC, provide data for the following assessment years:

- 2026;
- 2031 - Without South East Perimeter Road; and,
- 2031 - With South East Perimeter Road.

9.3.27 The South East Perimeter Road (SEPR) is a road scheme promoted by OCC and is referred to support development within Bicester. Land is safeguarded at Graven Hill joining the A41 at the Pioneer Road junction. OCC envisage that the SEPR will need to extend westwards to join the A41 north of M40 Junction 9. This western section of the SEPR is not fully funded.

Cumulative Assessment

9.3.28 The OCC model, for both the 2026 and 2031 traffic flow forecasts, provides a comprehensive listing of committed infrastructure and development site traffic which are incorporated. This list is included at Appendix D of the TAR and sets out the planning assumptions including the development locations and the anticipated delivery of this planned and committed developments. It should be noted that the cumulative schemes described in detail within Chapter 3: EIA Methodology, Figure 3.1 and Appendix 3.3 are included within the committed developments listed in Appendix D. Background traffic growth is also incorporated. As a result, when considering the effects of the Completed Development, the 2026 and 2031 traffic flows are effectively cumulative development baseline flows and the analysis is effectively a cumulative analysis. Therefore, no separate cumulative effects assessment is provided within this chapter.

Identifying Likely Significant Effects

9.3.29 Development traffic can be allocated to categories under the two component parts, i.e. construction and operational phases. The effects of the Development were identified by reviewing the anticipated construction programme and operational requirements for the Development, along with knowledge from undertaking EIA's of similar developments.

9.3.30 The IEMA Guidelines were used to ensure that the environmental effects arising due to predicted changes in traffic levels are addressed.

9.3.31 The potential for likely significant effects from the Development on sensitive receptors is assessed for both the construction and operational phases. The highway link flows in the 'without Development' are compared with 'with Development' conditions to assess the effect of the Development on the transport network using the IEMA Guidelines.

9.3.32 The IEMA Guidelines set out the environmental impacts that could be considered as potentially significant whenever a new development is likely to give rise to changes in traffic flows as follows:

- Severance;
- Driver delay;
- Pedestrian (and Cyclist delay);
- Pedestrian and Cyclist Amenity;
- Fear and Intimidation;
- Accidents and safety; and
- Hazardous loads.

9.3.33 Hazardous loads were scoped out of this assessment as there would be no requirement for unusual or hazardous Heavy Good Vehicle ('HGV') movements in either the construction or operational phases of the Development.

9.3.34 Potential effects of traffic on designated ecological sites were assessed within Chapter 7: Biodiversity and associated appendices and should be read in conjunction with this chapter.

Severance

9.3.35 Severance is defined as the division that can occur within a community when it becomes separated by a major traffic artery and describes a series of factors that separate people from places and other people. Such division may result from the difficulty of crossing a heavily trafficked road and a physical barrier created by the road itself. Threshold levels of 30%, 60% and 90% changes in traffic flow are described in the IEMA Guidelines as being slight, moderate and substantial changes respectively. The absolute volume, speed and composition of the baseline traffic will influence the relevance of these proportions.

Driver Delay

9.3.36 Delays to non-development traffic typically occur at junctions, where additional traffic from the Development can add to the level of queuing and delays to journey time through that part of the highway network. However, the effects are only likely to be significant when the traffic on the highway network is predicted to be at or close to the capacity of the system.

Pedestrian and Cyclist Amenity

9.3.37 Pedestrian and cyclist amenity are broadly defined as the relative pleasantness of a journey, which can be affected by the volume of traffic passing on the adjacent highway, composition of traffic and the footway / cycleway provision itself.

9.3.38 The IEMA Guidelines suggest tentative thresholds of significance would be where the traffic flow is halved or doubled.

Pedestrian (and Cyclist) Delay

9.3.39 The IEMA Guidelines suggest that the volume, composition and / or speed of traffic may affect the ability of pedestrians and cyclists, who are riding off-road, to cross roads, particularly at uncontrolled crossings or where no crossings exist. The IEMA Guidelines do not set any thresholds, recommending instead that assessors use their judgement to determine the significance of the impact.

Fear and Intimidation

9.3.40 Fear and intimidation are dependent on the volume of traffic, composition (especially HGV), speed and the proximity of pedestrians to traffic. Whilst there are no established thresholds, examples are cited with hourly flows of 600-1800 vehicles and daily HGV flows of 1000-3000.

Accidents and Safety

9.3.41 The existing pattern of personal injury accidents on the local road network provides an indication of locations which are likely to be sensitive to changes in traffic patterns. Professional judgement was applied to historic accident data records for the local highway network and the scale of development traffic forecast to consider the likely significant effects of the Development.

Determining Effect Significance

Sensitivity of Receptor

9.3.42 The significance criteria within the IEMA Guidelines provide definitions of environmentally sensitive receptors, as well as, affected groups and special interests. It further advises that the traffic effects from Development should be considered in respect of these receptors.

9.3.43 Table 9.4 provides the definitions of receptor sensitivity applied in the assessment. Sensitivity value was assigned to links based on professional judgement during the site visit.

Table 9.4: Receptor Sensitivity Descriptors

Value (Sensitivity)	Descriptor
High	Receptor with the greatest sensitivity to changes in traffic flows such as accident blackspots, points of access to schools and colleges. Urban and residential roads (including Homes Zones) used by pedestrians without pavements.
Medium	Proximity to congested junctions, hospitals, community centres, areas with narrow or poor-quality pavements and unsegregated cycleways. Conservation Areas.
Low	Residential and employment areas with appropriate pavements and crossing facilities, public open space, nature conservation areas and areas with Listed Buildings.
Negligible	Receptors with a very low sensitivity to traffic flows and/or distant from affected roads and junctions.

Magnitude of Impact

9.3.44 In accordance with the IEMA Guidelines, the following rules were applied to define the scale and extent of the assessment:

- Rule 1: Include highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%).
- Rule 2: Include any other specifically sensitive areas where traffic flows have increased by 10% or more.

9.3.45 Magnitude of change and the sensitivity of the affected receptor / resource were assessed using scales of high, medium, low and negligible (as shown in Chapter 3: EIA Methodology). However, the absolute level of an impact is also important, e.g. the total flow of traffic or HDVs on a link. This is because an increase

of, say, 100% in the traffic flow on a road is likely to still lead to negligible or minor impacts if the existing flows are low.

9.3.46 Table 9.5 provides the definitions of magnitude of impact applied in the assessment.

Table 9.5: Magnitude of Impact Descriptors

Magnitude	Descriptor
High	Major change in quality and integrity
Medium	Change, but not adversely affecting the integrity/benefit to or additional key characteristics.
Low	Some measurable change in quality and integrity
Negligible	Very minor change in quality and integrity

Significance Criteria

9.3.47 The significance of an effect is determined by the interaction of two factors:

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

9.3.48 The significance of levels of traffic change varies depending upon the environmental impact criteria being considered, e.g. severance and driver delay. Reference is made to the IEMA Guidelines on each criterion. Reference is made to DMRB Vol II Section 2 Part 5 HA205/08 – Determining Significance of Environment Effects[10] in terms of definitions of measures of the magnitude of impact and significance of effect.

9.3.49 Table 9.6 shows how the significance of effect was determined based on the sensitivity of the receptor and the magnitude of the impact.

Table 9.6: Assessment of Significance of Effect

Sensitivity of Receptor	Magnitude of Impact			
	High	Medium	Low	Negligible
High	Substantial	Substantial	Moderate	Minor
Medium	Substantial	Moderate	Minor	Negligible
Low	Moderate	Minor	Minor	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

Assumptions and Limitations

9.3.50 The TAR (Appendix 9.1) assumes that the Outline Component of Application 1 and Application 2 (i.e. the employment floorspace of the Development) will draw travel demand from the existing Bicester travel to work catchment area as described in the most recent Census journey to work statistics. Travel demand patterns were assigned to the local road network based on the Census geography. In terms of the Detailed Component of Application 1 (i.e. the health and racquets club) the catchment area includes the Bicester hinterland, with trips assigned on a pro rata basis related to population.

9.3.51 The highway authority supplied traffic forecast model data for years 2026 and 2031 which incorporates a series of committed development and infrastructure schemes. The traffic from committed development, cannot be disaggregated on a site by site basis.

9.3.52 Traffic generation estimates of the Outline Component of Application 1 and Application 2 within the TAR address the potential spread of travel demand generation based on different uses within a B1 land use class. Estimates were therefore based on the worst case (highest vehicular demand) calculated from either, Science Park across the employment floorspace; or Knowledge Industry (35% B1a office floorspace plus 65% B1c floorspace). The final uses will be subject to market requirements and identified at detailed design.

9.3.53 The exact nature of the employment floorspace of the Outline Component of the Application 1 and Application 2 planning applications will be confirmed by reserved matters applications, although the above assumptions are considered to represent a reasonable "worst case" scenario.

9.4 Existing Conditions

Site Location

9.4.1 As outlined within Chapter 2: Site Description and Setting, the Site is located approximately 1.65km south of Bicester Town Centre in Oxfordshire with Oxford approximately 16km to the south west.

9.4.2 The Site, part of allocated Local Plan employment site Bicester 10, is located to the east of Wendlebury Road to the south of Bicester. The remaining part of Bicester 10 sits to the west of Wendlebury Road and is the subject of a planning consent ('Bicester Gateway') for B1 (office) and hotel (the latter of which is currently being constructed).

Strategic Road Network

9.4.3 The Strategic Road Network (SRN) is managed by Highways England on behalf of the Department of Transport. The SRN comprises roads of regional and national importance including the motorways and trunk roads. The nearest point of access to the SRN is M40 Junction 9 which provides access to both A34 Trunk Road and M40 motorway. The A34 is a dual carriageway which runs from Junction 9 south towards the south coast with interchanges with other parts of the SRN including M4 and M27. The M40 is a three lane motorway which runs between London and Birmingham with interchanges with other parts of the SRN including M25, M42, A43 and A46. The A43 Trunk Road is accessed from M40 Junction 10 and links the M40 to M1 Junction 15A.

Local Highway Network

9.4.4 Wendlebury Road is a single carriageway road and is approximately 5.5m wide on the Site frontage, is unlit and subject to National speed limit. Bicester Gateway promoted a reduction in speed limit to 40mph. It is not known when this change will occur. Approximately half way along the western Site boundary, Wendlebury Road forms a T-junction with the Vendee Drive link. There are no footways on Wendlebury Road to the south of the T-junction, but it does form part of the National Cycle Network Route 51.

9.4.5 To the north, a footway/cycleway on the western side of the carriageway falls just short of the Bicester Avenue Garden Centre. This continues to be part NCN 51. Beyond the garden centre, this continues along a carriageway to the junction between Wendlebury Road and the A41, before reverting to an off carriageway facility adjacent to the A41 as it heads towards Bicester town centre.

9.4.6 The T-junction with the Vendee Drive link is the subject of a consented scheme to implement a mini-roundabout identified as part of the office component of consent on Bicester Gateway development to the west of Wendlebury Road.

9.4.7 The Vendee Drive link which connects Wendlebury Road to the A41 is an unlit 7m wide single carriageway. It comprises a northern sided footway.

9.4.8 The Vendee Drive link joins a 5 arm roundabout with the A41, Vendee Drive to the west and the Bicester Park and Ride site. The roundabout has a diameter of approximately 65-70m.

9.4.9 Near the Site, the A41 is a two-lane dual carriageway subject to a 40mph speed limit with a south-west to north-east alignment. To the south-west, it links to the M40/A34 signalised roundabout junction under national speed limit. To the north-west, it leads towards Bicester before moving east towards Aylesbury.

9.4.10 To the west of the A41, Vendee Drive is wide single carriageway which forms part of a perimeter road section in the south west quadrant of Bicester. Vendee Drive bounds the emerging Kingsmere housing development. Vendee Drive benefits from a continuous footway/cycleway on the northern side.

9.4.11 The Bicester Park and Ride site comprises 580 parking bays, with bus services between Bicester and Oxford.

9.4.12 To the north, the Wendlebury Road junction with the A41 forms a left in, left out arrangement.

9.4.13 On the A41, between the Vendee Drive roundabout and the Wendlebury Road junction, a signalised pedestrian crossing is to be installed as part of the hotel development within Bicester Gateway which is currently underway on Wendlebury Road.

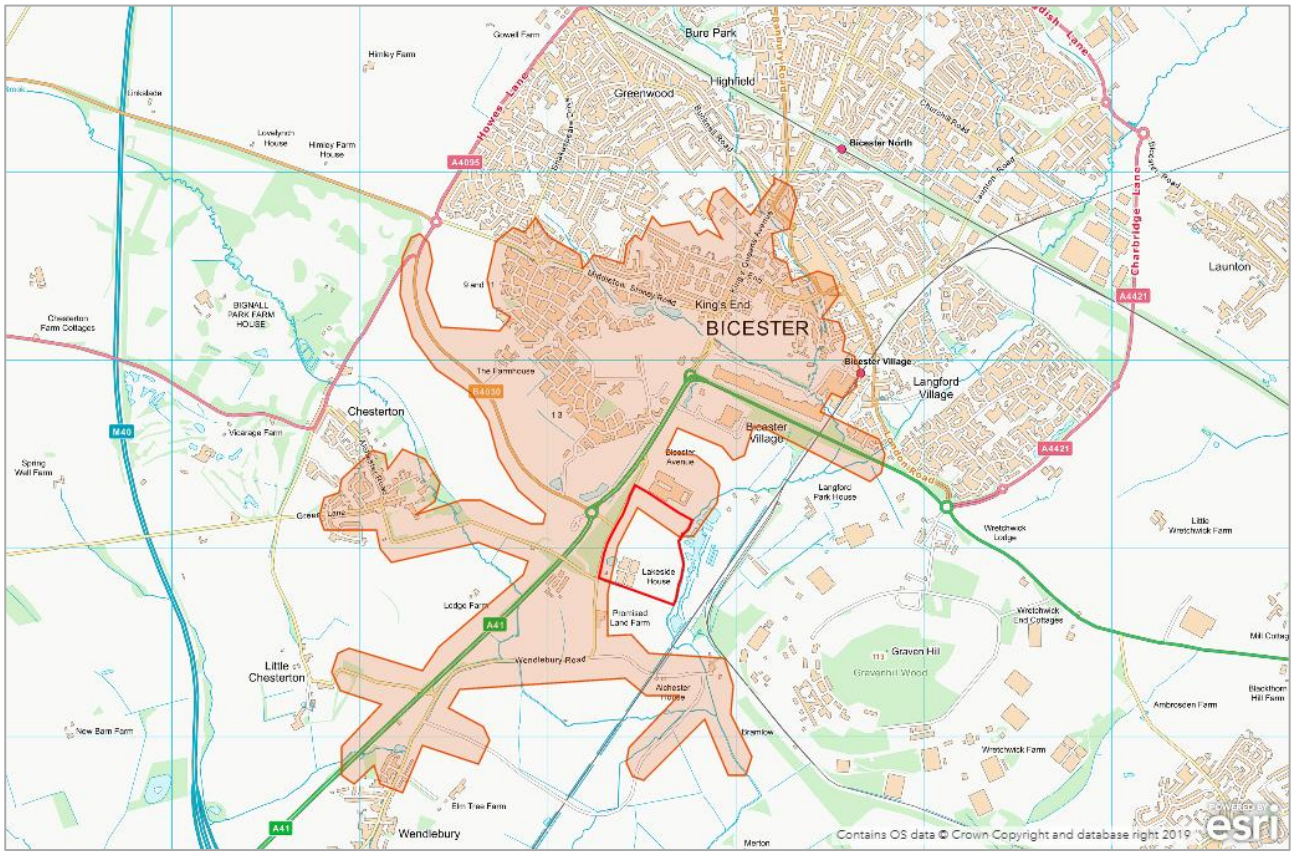
9.4.14 To the north on the A41, there are a series of traffic signal junctions of varying configuration.

Walking and Cycling

9.4.15 Walking is a convenient mode for most people for trips up to around 2.0km in length which translates into approximately 20 minutes of walking. This walking catchment for the Site is shown on Figure 9.1. As can be seen from this plan, the Site is well located with respect to nearby existing and planned residential areas. The key linkages are the routes to the north and west. At present there is a discontinuous footway on the western side of the carriageway on Wendlebury Road but there is an existing connection along the northern side of Vendee Drive connecting to the existing north – south provision on the A41. As part of the Bicester Gateway development, a new controlled pedestrian crossing will be provided on A41 linking into the Kingsmere residential development and associated walking and cycling routes.

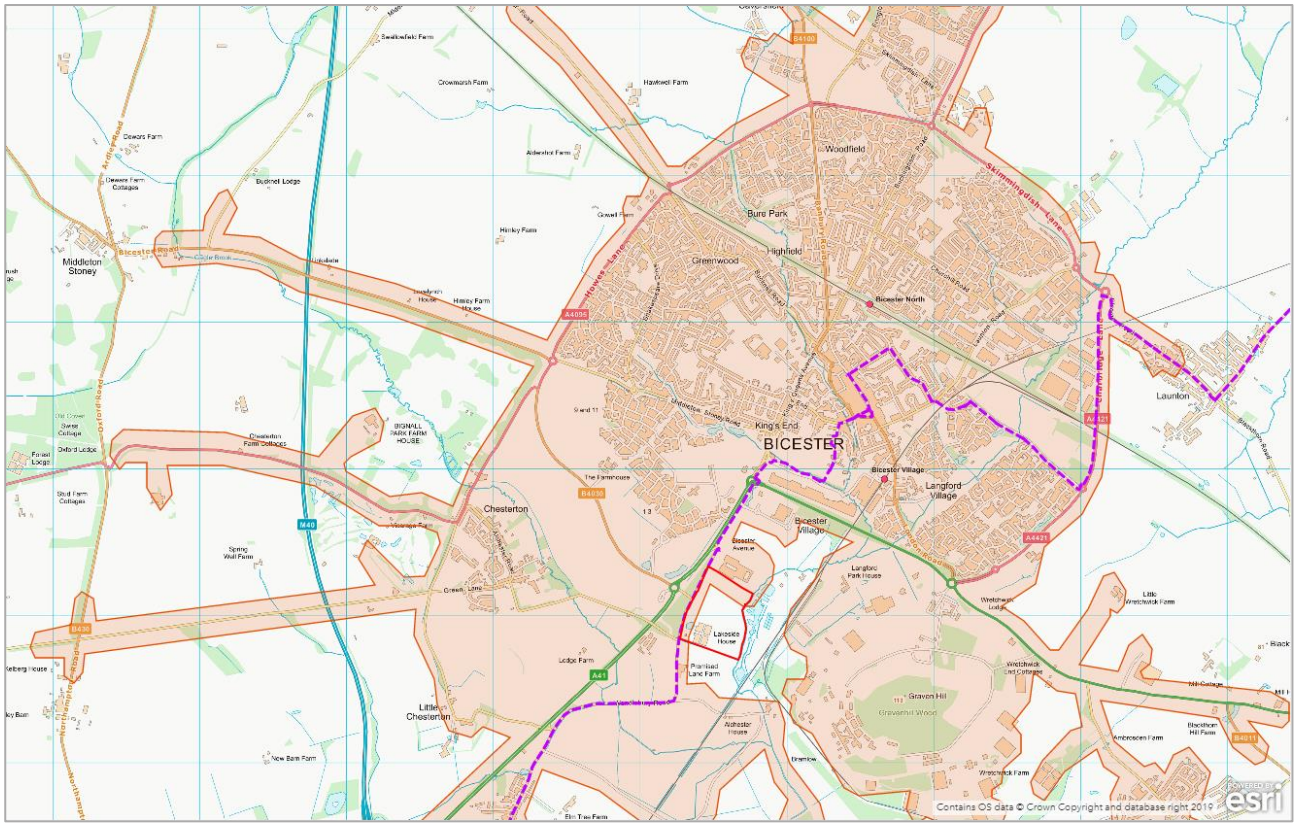
9.4.16 Cycling is a convenient mode for most people for trips up to around 5km in length which equates to a 20-minute journey time in an urban environment. This wider catchment area is shown on Figure 9.2. This catchment covers Bicester and many of the surrounding villages in the immediate hinterland. In practice there will be many people for whom trips well in excess of 5km is feasible.

Figure 9.1: Walking catchment (based on currently available routes).



Note that Langford lane has been diverted (to the south) to provide a grade separated crossing but this is not reflected within the above isochrones plot.

Figure 9.2: 5km Cycling catchment (based on existing routes).



9.4.17 In towns, many cyclists will choose to use the local road network. In Bicester, however, there is a developing network of dedicated cycle routes, including around the orbital routes such as Vendee Drive, that will be expanded in the future as the new residential suburbs are developed, e.g. the eco-town. Within these new residential areas, homes will generally be provided with cycle storage to current requirements. The level of cycle use reported within the 2011 Census is unlikely to reflect travel characteristics for developments that have taken place since that time.

9.4.18 There are also regional cycle routes. The National Cycle Network is a network of signed paths and routes for walking and cycling. This includes some on-street running section such as along Wendlebury Road in the vicinity of the Site. Wendlebury Road forms part of NCN 51, the Varsity Way Cycle Route from Oxford to Cambridge. Cyclists also have the choice of using the existing dedicated pedestrian/cycleway which runs alongside the southbound carriageway of the A41.

Public Transport

9.4.19 The A41 corridor is an existing bus corridor. Part of the bus access strategy for the Bicester 10 site allocation, which the Site forms part of, was developed for the consented Bicester Gateway development. This included improvements to the A41 bus boarding points and a new signal-controlled pedestrian crossing.

9.4.20 The principle A41 corridor bus service is the S5 gold service operated by Stagecoach which aspires to offer a premium service (interior specification, WIFI etc). This service runs between Oxford and Bicester with four buses an hour each way during daytime periods (Monday through to Saturday). The services start at around 0600 and run through to 2300-2330. There are a further two night bus services on a Friday night after midnight. On Sundays there is a reduced frequency of two buses an hour each way.

9.4.21 The Route 26 service is also operated by Stagecoach. This service runs between the Bicester North Station via the town centre, along the A41 before looping back through the Kingsmere development. There are two buses an hour during daytime periods Monday through to Saturday (approximately 7am – 7pm). There are no evening services and no Sunday service.

9.4.22 Bicester benefits from two railway stations within the town; Bicester Village and Bicester North. These stations are situated approximately 1.5km and 2.3km to the north east from the Site respectively.

9.4.23 Both train stations are managed by Chiltern Railways. Trains from Bicester Village provide a half hourly service between London Marylebone and Oxford. Bicester North Station provides hourly services to Birmingham and Banbury, as well as, twice hourly services to London.

9.4.24 There are no formal public rights of way within the Site. Public footpath 161/8 is a rural link extending from the south western corner of the Site.

Accidents and Safety

9.4.25 Within the study area, there were 70 reported incidents in the sixty-month period from 1st January 2014 to 31st December 2018. Eight incidents are classified as serious including 3 incidents involving cyclists and 1 incident involving a pedestrian. Details are attached in Appendix E of the TAR (Appendix 9.1). The remaining 62 incidents were classified as slight including 5 incidents involving cyclists and 5 incidents involving pedestrians.

9.4.26 There have been no reported incidents on Wendlebury Road.

9.4.27 The A41 – Vendee Drive roundabout is a busy five arm at grade roundabout junction with dual carriageway approaches on the A41 arms. The junction currently carries around 11 million vehicle movements/year which is likely to increase to around 14 million movements/year by 2036. The majority of these occur without incident. In the last five years, there were eleven reported accidents at the roundabout, an average of 2.2 incidents/year. Nine incidents were classified as slight and two as serious. Eight occurred at the A41 South entry including the two serious incidents, however five of the incidents involved drivers medically impaired (including by alcohol or drugs) or where the vehicle was involved in the course of crime. DMRB TD16/07 "Geometric Design of Roundabouts"[11] reports that the average 5 arm roundabout with dual carriageway approaches had 3.8 accidents per year of which 7.1% are fatal or serious. The junction is therefore statistically performing better than average, and the relatively high severity rate is skewed by other contributory factors.

9.4.28 Notwithstanding this, more recently it is understood that a fatal accident occurred during week beginning 17th June 2019, for which detailed circumstances are not available at the time of writing.

9.4.29 The highway authority previously advised that it was undertaking studies of the safety record at the roundabout. There is no published information available in this record.

9.4.30 The A41 – Oxford Road (Bicester Bypass) roundabout is a large at grade roundabout which was recently remodelled as a signalised roundabout with a cut-through. In the last five years, there were eight reported incidents at this location including one serious incident. TD16/07 reports that the average 4 arm roundabout with dual carriageway approaches had 2.65 accidents per year of which 7.1% are fatal or serious. This junction is also performing better than average. The serious incident involved a cyclist crossing at the puffin crossing on the eastern arm. The contributory factors were not related to the layout. There was an incident involving a pedestrian, but it was reported that this was preceded by an argument, and not related to the layout. A further incident took place during roadworks and hence was atypical.

9.4.31 Overall, it is considered that the local road network is performing better than expected for the volume of vehicular traffic demand carried.

Baseline Traffic Flows

9.4.32 Baseline traffic flows and the traffic generation from a series of committed development sites within the vicinity are included within the baseline flows provided by OCC from their Bicester Model. 24Hr traffic flows derived from these model outputs are summarised in Table 9.7. These are expressed as two-way flows in passenger car units. These sites are listed in full for 2026 and 2031 in Appendix C of the TAR (Appendix 9.1).

Table 9.7: Baseline traffic flows.

Jn Ref	Description	From Arm	2026	2031	
				Without SEPR	With SEPR
7	A4421 Seelscheid Way / A41 / London Road / Graven Hill Road north "Rodney House" Roundabout	A: London Rd (North)	3387	3895	3902
		B: A4421 (East)	6918	6790	6622
		C: A41 (South)	10323	11789	9252
		D: Graven hill Rd (West)	3537	3728	3956
		E: A41 (North)	14407	15861	11303
8	A41 / Oxford Road /Services roundabout	A: Oxford Rd (North)	25985	28233	27466
		B: A41 (East)	26870	28999	21236

		C: A41 (South)	35527	37749	29910
		D: Unlabelled Rd (West)	3357	3152	3154
9	Oxford Road / Pingle Drive roundabout	A: Oxford Rd (North)	24395	26172	25597
		B: Pingle Dr (East)	6120	8304	8310
		C: Oxford Rd (South)	26190	28612	27879
10	Oxford Road/ Kings End/Middleton Stoney Road	Kings End	18692	18729	19156
		Oxford Road S	24398	26179	25603
		Middleton Stoney Road	11956	12320	11949
11	A41 Oxford Road / Vendee Drive roundabout	A: A41 (North)	29154	31883	24399
		B: Vendee Dr Link Rd (East)	2104	2574	2272
		C: A41 (South)	31643	33709	27029
		D: P&R (West)	773	1191	1193
		E: Vendee Dr (North)	11832	12791	13257
12	M40 Junction 9	A: M1 North	21717	23390	24113
		B: A41 East	17139	18042	20759
		C: M1 South	6412	7142	7105
		D: A34 West	55677	58773	59183
22	A41 Oxford Road/ Tesco	Oxford Road N	35535	37722	29859
		Tesco	21813	24291	24316
		Oxford Road S	28492	30466	22733
23	A41 Oxford Road/ Premier Inn	Oxford Road N	32730	35405	27674
		Premier Inn	2909	3245	2929
		Oxford Road S	30442	32998	25448
24	A41 Oxford Road/ Wendlebury Road	Oxford Road N	14401	15888	10933
		Wendlebury Road	2996	3085	2916

9.4.33 Similarly, there are a number of changes that will be made to the wider network by 2026 and 2031 and again these are listed in Appendix D.

9.4.34 In terms of the traffic flow data provided by OCC, these are available in 2031 with and without potential major highway infrastructure initiative referred as the SEPR. OCC is promoting this and has collected monies from a number of public and private developer sources. If constructed the SEPR would link the A41 to the south of the Site, to the A41 via the Graven Hill development site to the east of the Site.

Summary of Receptors and Sensitivity

9.4.35 All road links and junctions within the study area were assessed and assigned sensitivity primarily based on the criteria set out in Table 9.4 and the assessors' experience and judgement. The results of the analysis is shown in Table 9.7 for those links and junctions for which a change in traffic flow of 30% was identified.

Table 9.8: Summary of Receptor Sensitivity

Link / Junction	Sensitivity
Junction of Wendlebury Road and Vendee Drive Link	Negligible
Wendlebury Road Link	Medium
Vendee Drive Link	Low

9.4.36 Wendlebury Road comprises NCN51, for part of the route to the north this is unsegregated and there is no footway present. This section of Wendlebury Road is considered to be of medium sensitivity.

9.4.37 The Vendee Drive Link is adjacent to an area consented for employment development and a hotel is currently under construction. It has pavement facilities appropriate to the location and, hence, is considered to be of low sensitivity.

9.5 Scheme Design and Management

Construction

9.5.1 A Construction Traffic Management Plan (CTMP) will be prepared to control traffic during the temporary period of construction, which is expected to be secured by planning condition. This will include measures to control HGV movements in respect of timing, routing and wheel washing. Other measures to control construction work on Site will also be implemented.

9.5.2 With Scenarios 2 and 4, it is possible that construction of the health and racquets club may be concurrent with the Outline Component of Application 1 and Application 2 or separate. As such, it is envisaged that separate CTMPs will be required for each land use or phase of development.

9.5.3 Access junctions to the Site are designed in accordance with best practice guidance to ensure that appropriate access to the Site can be achieved. The alignment of Wendlebury Road is such that temporary construction access can be readily delivered. This would be agreed with OCC and expected to be secured by planning condition.

Completed Development

9.5.4 The design of the Development includes the provision of fully technically compliant Site access junctions.

9.5.5 In the event that the Development does not include the health and racquets club, i.e. solely comprising the Outline Component of Application 1 and Application 2 (Scenario 1 and 3), this will comprise a single point of vehicular access. This will be in the form of a new roundabout at the junction of Wendlebury Road and the Vendee Drive Link. It will incorporate pedestrian and cycle routeing movements.

9.5.6 In the event that the Development does include the health and racquets club (Scenario 2 and 4), the health and racquets club will be served via a new priority controlled T-junction onto Wendlebury Road. The B1 employment elements would be independently served by a new roundabout at the junction of Wendlebury Road and Vendee Drive Link incorporating pedestrian and cycle routeing movements.

9.5.7 Enhancements to Wendlebury Road between the new access roundabout and the A41 left in/left out junction will be provided as part of the Development. This will enhance pedestrian and cyclist facilities delivering a comprehensive off-carriageway route and forming part of NCN 51. It will be supported by a footpath linking from Wendlebury Road to the A41 providing convenient access to the new crossing installed on the A41 as part of the Bicester Gateway development (LPA reference 16/02586/OUT).

9.5.8 Further mitigation will comprise the following elements:

- Travel Plan(s) for employment land uses and health and racquet club. The Travel Plans will be applied to seek to reduce reliance on the private car for staff and visitor journeys. They will be secured via S106 agreement.

- Financial contribution towards local bus service enhancement. The contribution will be used to go towards enhancement of local bus services. Whilst a precise figure is not yet known, this will be agreed with OCC. There is precedent for this approach at Bicester 4, and OCC have advised that this is their preferred approach and the contribution is anticipated to form part of the S106 agreement.
- Financial contribution towards strategic highway infrastructure (Bicester SEPR). The concept of a contribution is agreed with OCC. The precise figure is not yet agreed, although OCC have identified that the contribution figure will be in accordance with the adopted CDC Developer Contributions SPD and calculated in accordance with the formula agreed for other sites including Bicester 4 (LPA reference 17/02534/OUT). This formula is based upon the number of peak hour trips generated and the contribution would form part of the S106 agreement.

9.6 Construction - Assessment of the Effects

Traffic Flows

9.6.1 During the construction of the proposed Development it will be necessary for various plant, equipment and materials to be transported to the Site. Construction traffic will approach and leave the Site via the Vendee Drive link and onto the A41, arriving from either the north or the south. For the purposes of the assessment, 100% construction HGV traffic is assumed to route via both directions, hence double counting but assessing a 'worst case'.

9.6.2 The routes taken by construction traffic on the local highway network beyond the A41 will be the subject of discussions between the developer and the planning and highway authorities but will not be allowed to route through predominantly residential parts of the highway network.

9.6.3 The daily number of HGV movements associated with the construction of the Development is difficult to estimate with certainty. The number of HGV movements will depend upon the preferred construction techniques and the construction phase. However, it is estimated that there would be 20 average daily two-way HGV movements during the main construction phase of the Outline Component of Application 1 and Application 2 (i.e. Scenario 3). This estimate is based upon experience of similar schemes.

9.6.4 To cover the eventuality that the Outline Component of Application 1 and Application 2 is constructed concurrently with the health and racquets club (i.e. Scenario 4), data on construction phase traffic movements was provided by David Lloyd Leisure Ltd. The most intensive period for HGV movements is the circa 16-week period during construction of the club substructure. During this period, an average of 8 HGV movements per day are forecast. This figure across the full build programme reduces to an average of 4 two-way HGV movements per day. Therefore, concurrent construction of Outline Component of Application 1, Application 2 and the health and racquets club (i.e. Scenario 4) would give rise to a "worst case" of 28 HGV movements per day.

9.6.5 Throughout the various stages of the construction programme, it is estimated that there would be approximately 40 construction personnel present on-site for the Outline Component of Application 1 and Application 2, of whom 75% are estimated to drive to the Site. Therefore, there are likely to be 30 vehicles parked on-site at any one time. With the construction of the health and racquet club, it is estimated that there would be 10-30 employee vehicles parked on-site per day. This traffic would be additional to the construction traffic related to the outline components.

HGV construction site traffic movements (2021)

9.6.6 The estimated traffic movements for Scenario 1 and Scenario 3 will be similar, but the latter would extend for a slightly longer construction period reflecting the additional employment floorspace to be

constructed as part of Application 2. The estimated percentage increase on the affected links are set out in Table 9.8 in terms of daily HGV movements.

Table 9.8: Estimated Daily HGV Movements During Construction for Scenarios 1 and 3 (2021)

Link	Baseline HGV flows (2-way)	Predicted increase in HGV movements	Percentage Increase %
Vendee Drive Link	27	20	74
A41 (south of site)	1755	20	1
A41 (north of site)	1482	20	1

9.6.7 The estimated traffic movements for Scenarios 2 and 4 could be higher if the construction of the health and racquet club coincided with construction of the Outline Component of Application 1 and Application 2. Under this worst case scenario, the estimated percentage increase on the affected links are set out in Table 9.9 in terms of daily HGV movements.

Table 9.9: Estimated Daily HGV movements During Construction for Scenarios 2 and 4 (2021) – Worst Case where Outline Component of Application 1 and Application 2 and health and racquet club construction occur at the same time

Link	Baseline HGV flows (2-way)	Predicted increase in HGV movements	Percentage Increase %
Wendlebury Road (between Vendee Drive and DL access)	<10	8	c.100
Vendee Drive Link	27	28	104
A41 (south of site)	1755	28	2
A41 (north of site)	1482	28	2

9.6.8 The following impact assessment relates equally to all four assessment scenarios (i.e. Scenarios 1 to 4). All construction effects are considered to be temporary and short-term, unless otherwise stated.

Severance

9.6.9 Given the low levels of daily flows generated by construction traffic and the routeing, no significant severance effect will result on A41, Wendlebury Road or the Vendee Drive Link.

9.6.10 The Wendlebury Road link is of medium sensitivity due to its limited footway provision, but with very limited demand for pedestrians to cross during the construction period. Therefore, the overall significance of the effect is temporary and negligible. The pedestrian and cyclist enhancements on Wendlebury Road will be provided by first occupation or shortly thereafter. This would reduce the link's sensitivity from medium to negligible in the later construction phases.

9.6.11 The Vendee Drive link is of low sensitivity. Whilst the percentage change for the Vendee Drive link is high, the change in absolute numbers is negligible. Therefore, the overall significance of the effect is temporary and negligible.

9.6.12 As set out in Table 9.7, A41 currently carries high volumes of traffic and the absolute and relative changes in demand is negligible.

Driver delay

9.6.13 Construction traffic routing will be managed to use suitable highway links. Given the low levels of traffic flows generated by construction traffic and the routing, there will be no significant effect on driver delay on Wendlebury Road, the Vendee Drive Link or at the junction between the two. Background traffic peak hour movements are unlikely to coincide with any peak (however limited in overall numbers) in construction traffic. The sensitivity of the receptor on Wendlebury Road is medium and the magnitude of the effect is negligible and therefore the overall significance of the effect is Negligible. Similarly, the significance of the effect on Vendee Drive Link is Negligible.

Cyclist/Pedestrian delay and Amenity

9.6.14 Pedestrian activity will not be significantly affected by construction traffic and the recommended routing. Routing of vehicles reflects the objective of avoiding the areas of residential development affected and hence pedestrian activity. The sensitivity of the receptors on Wendlebury Road and Vendee Drive are medium to low and the magnitude of the effect is high in percentage terms, but very modest in absolute HGV numbers. Therefore, the overall significance of the effect is considered to be Negligible. It is proposed that footway enhancement on Wendlebury Road will be in place prior to Site occupation.

Accidents and Safety

9.6.15 The expected changes in traffic are too small in comparison with base flows to have any statistically meaningful effects upon the local accident rate record. The sensitivity of the receptor on Wendlebury Road is medium and Vendee Drive is low, and the magnitude of the effect is negligible. Therefore, the overall significance of the effect is Negligible.

Mitigation, Monitoring and Residual Effects

9.6.16 As set out under 'Scheme Design and Management' the Applicant has committed to ensuring that the contractor(s) implement CTMPs throughout construction of the Development which would include standard control measures for minimising, managing and monitoring construction effects.

9.6.17 In order to mitigate the potential effects of construction traffic the developer will ensure that a CTMP will be implemented by the contractor/s. Details of the types of measures to be included in the CTMP and are summarised in section 9.5 Scheme Design and Management.

9.6.18 On-going monitoring of construction traffic would form part of the CTMPs and would be the responsibility of the Contractor.

9.6.19 Effective implementation of the CTMPs, including restrictions on vehicle routing, working times and delivery times, would minimise potential adverse effects associated with construction activity, although some residual effects would remain. Overall, however, there will be no significant residual effects as a result of construction traffic arising from the Development under any of the four Scenarios.

9.7 Completed Development - Assessment of Effects

Site Access

9.7.1 The Outline Component of Application 1 and Application 2 will be accessed from a new roundabout junction that will be constructed on the Wendlebury Road at its junction with the Vendee Drive Link. The geometry of the roundabout will accord with the relevant guidance in the Design Manual for Roads and Bridges (currently TD 16/07)[12]. This junction will replace an existing simple T-junction arrangement or a

mini-roundabout junction (if implemented before the Bicester Gateway development). Due consideration is afforded to the access proposals for the Bicester Gateway development in the proposed design.

9.7.2 The proposed Site access junction design fully meets current standards in relation to visibility and was subject to vehicle tracking to ensure that maximum legal articulated lorries can be accommodated. It was also subject to an independent Stage 1 Road Safety Audit. The Audit resulted in revisions to the detail by which cyclists route through the junction along Wendlebury Road.

9.7.3 The Detailed Component of Application 1 (i.e. health and racquet club) will be accessed via a simple T-junction on Wendlebury Road and was also subject to Stage 1 Road Safety Audit. Due consideration has been afforded to the access proposals for the Bicester Gateway development.

9.7.4 Detailed assessments of the Site access junctions; and the A41/Vendee Drive/Park and Ride roundabout and other off-site junctions as referred at para 9.3.8 have also been undertaken and are set out in detail within the TAR (Appendix 9.1 Section 6).

Operational Traffic Flows

9.7.5 Traffic generation distribution and assignment methodology and worst case peak hour and daily vehicular trip generation forecasts for the Development are set out in Tables 9.10 and 9.11 for the four scenarios.

Table 9.10: Development Traffic Generation – Peak Hours – Total Traffic

	AM Peak			PM Peak		
	Ins	Outs	Total	Ins	Outs	Total
Scenario 1	196	24	220	18	157	175
Scenario 2	184	48	232	86	157	243
Scenario 3	281	35	316	26	226	252
Scenario 4	269	59	328	94	225	319

Table 9.11: Development Traffic Generation – Daily – Total Traffic

	Ins	Outs	Total
Scenario 1	655	675	1330
Scenario 2	1117	1161	2278
Scenario 3	940	969	1909
Scenario 4	1403	1455	2858

9.7.6 The effects of the Development generated traffic on the wider highway network were considered to allow a thorough investigation of the potential effects which may result. Tables included in the TAR Appendix 9.1 show the predicted traffic flows on the relevant network for each of the following combinations based upon traffic model data provided by the highway authority, OCC:

- AM Peak, PM Peak, Daily;
- 2026 and 2031 (each including committed development and infrastructure);
- Without SEPR (2026 and 2031) and With SEPR (2031 only); and,

- Scenarios 1-4.

9.7.7 Both Site access junctions provide access for pedestrian and cycle movements, as well as, vehicular movements. Traffic capacity junction assessments are presented in the TAR (Appendix 9.1 Section 6) and show both to be working well within practical capacity.

Without South East Perimeter Road 2026

9.7.8 The percentage increase in traffic flows for each scenario in year 2026 is shown Without the SEPR in Tables 9.12 to 9.14. In each Scenario, the higher employment traffic flow figures have been used.

Table 9.12: AM Peak percentage Increase in Traffic with Development (Without South East Perimeter Road) in 2026

AM PEAK	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Wendlebury Road (North)	37.0%	37.0%	53.3%	52.9%
Wendlebury Road (South)	3.0% Est	3.0% Est	3.0% Est	3.0% Est
Vendee Drive Link	70.2%	76.0%	101.1%	107.4%
Vendee Drive (North)	5.4%	6.0%	7.7%	8.4%
A41 (North)	0.3%	0.9%	0.5%	1.0%
A41 (South)	2.0%	1.6%	2.8%	2.5%
A41/Vendee Drive Roundabout	3.6%	3.9%	5.1%	5.5%
A41/Oxford Road Services Roundabout	2.2%	2.4%	3.1%	3.4%
M40 Junction 9	0.8%	0.6%	1.1%	1.0%

Table 9.13: PM Peak percentage Increase in Traffic with Development (Without South East Perimeter Road) in 2026

PM PEAK	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Wendlebury Road (North)	2.0%	7.2%	3.0%	8.2%
Wendlebury Road (South)	3.0% Est	3.0% Est	3.0% Est	3.0% Est
Vendee Drive Link	75.6%	94.4%	109.3%	127.3%
Vendee Drive (North)	4.3%	6.4%	6.2%	8.2%
A41 (North)	2.6%	3.4%	3.8%	4.5%
A41 (South)	1.7%	1.7%	2.5%	2.4%
A41/Vendee Drive Roundabout	4.8%	6.0%	6.9%	8.1%
A41/Oxford Road /Services Roundabout	1.1%	2.5%	2.4%	3.3%
M40 Junction 9	0.7%	0.8%	1.0%	1.1%

Table 9.14: Daily percentage Increase in Traffic with Development (Without South East Perimeter Road) in 2026

DAILY	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Wendlebury Road (North)	14.1%	18.0%	18.0%	24.1%
Wendlebury Road (South)	3.0% Est	3.0% Est	3.0% Est	3.0% Est

DAILY	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Vendee Drive Link	72.4%	86.5%	86.5%	117.7%
Vendee Drive (North)	4.7%	6.2%	6.2%	8.2%
A41 (North)	1.5%	2.2%	2.2%	2.8%
A41 (South)	1.8%	1.6%	1.6%	2.4%
A41/Vendee Drive Roundabout	4.1%	5.0%	6.0%	6.7%
A41/Oxford Road/Services Roundabout	1.6%	2.5%	2.7%	3.3%
M40 Junction 9	0.7%	0.8%	1.1%	1.1%

Without the South East Perimeter Road 2031

9.7.9 The percentage increase in traffic flows for each Scenario in year 2031 is shown Without the SEPR in Tables 9.15 to 9.17. In each Scenario, the higher employment traffic flow figures were used.

Table 9.15: AM Peak percentage Increase in Traffic with Development (Without South East Perimeter Road) in 2031

AM PEAK	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Wendlebury Road (North)	28.0%	28.0%	40.4%	40.0%
Wendlebury Road (South)	3.0% Est	3.0% Est	3.0% Est	3.0% Est
Vendee Drive Link	53.3%	57.7%	76.8%	81.6%
Vendee Drive (North)	5.0%	5.5%	7.1%	7.8%
A41 (North)	0.3%	0.8%	0.5%	0.9%
A41 (South)	1.9%	1.5%	2.7%	2.4%
A41/Vendee Drive Roundabout	3.6%	3.9%	5.1%	5.5%
A41/Oxford Road /Services Roundabout	2.2%	2.4%	3.1%	3.4%
M40 Junction 9	0.8%	0.6%	1.1%	1.0%

Table 9.16: PM Peak percentage Increase in Traffic with Development (Without South East Perimeter Road) in 2031

PM PEAK	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Wendlebury Road (North)	2.3%	8.4%	3.5%	9.5%
Wendlebury Road (South)	3.0% Est	3.0% Est	3.0% Est	3.0% Est
Vendee Drive Link	65.4%	81.7%	94.5%	110.1%
Vendee Drive (North)	4.0%	5.9%	5.8%	7.6%
A41 (North)	2.4%	3.1%	3.4%	4.1%
A41 (South)	1.6%	1.5%	2.3%	2.2%
A41/Vendee Drive Roundabout	4.8%	6.0%	6.9%	8.1%
A41/Oxford Road /Services Roundabout	1.1%	2.5%	2.4%	3.3%

PM PEAK	Scenario 1	Scenario 2	Scenario 3	Scenario 4
M40 Junction 9	0.7%	0.8%	1.0%	1.1%

Table 9.17: Daily percentage Increase in Traffic with Development (Without South East Perimeter Road) in 2031

DAILY	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Wendlebury Road (North)	13.7%	17.5%	17.5%	23.4%
Wendlebury Road (South)	3.0% Est	3.0% Est	3.0% Est	3.0% Est
Vendee Drive Link	59.1%	70.6%	70.6%	96.1%
Vendee Drive (North)	4.3%	5.7%	5.7%	7.6%
A41 (North)	1.4%	2.0%	2.0%	2.6%
A41 (South)	1.7%	1.5%	1.5%	2.3%
A41/Vendee Drive Roundabout	3.8%	4.5%	5.5%	6.2%
A41/Oxford Road /Services Roundabout	1.5%	2.3%	2.5%	3.1%
M40 Junction 9	0.7%	0.7%	1.0%	1.1%

With the South East Perimeter Road 2031

9.7.10 The percentage increase in traffic flows for each Scenario in year 2031 with the SEPR in Tables 9.18 to 9.20. In each Scenario, the higher employment traffic flow figures were used.

Table 9.18: AM Peak percentage Increase in Traffic with Development (With South East Perimeter Road) in 2031

AM PEAK	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Wendlebury Road (North)	33.1%	33.1%	47.7%	47.3%
Wendlebury Road (South)	3.0% Est	3.0% Est	3.0% Est	3.0% Est
Vendee Drive Link	61.5%	66.6%	88.6%	94.2%
Vendee Drive (North)	4.8%	5.3%	6.8%	7.4%
A41 (North)	0.4%	1.1%	0.6%	1.2%
A41 (South)	2.3%	1.9%	3.4%	3.0%
A41/Vendee Drive Roundabout	3.6%	3.9%	5.1%	5.5%
A41/Oxford Road /Services Roundabout	2.2%	2.4%	3.1%	3.4%
M40 Junction 9	0.8%	0.6%	1.1%	1.0%

Table 9.19: PM Peak percentage Increase in Traffic with Development (With South East Perimeter Road) in 2031

PM PEAK	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Wendlebury Road (North)	2.2%	8.1%	3.4%	9.2%
Wendlebury Road (South)	3.0% Est	3.0% Est	3.0% Est	3.0% Est
Vendee Drive Link	73.2%	91.3%	105.7%	123.1%

PM PEAK	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Vendee Drive (North)	3.8%	5.7%	5.6%	7.4%
A41 (North)	3.0%	3.8%	4.3%	5.1%
A41 (South)	1.9%	1.9%	2.8%	2.7%
A41/Vendee Drive Roundabout	4.8%	6.0%	6.9%	8.1%
A41/Oxford Road Services Roundabout	1.1%	2.5%	2.4%	3.3%
M40 Junction 9	0.7%	0.8%	1.0%	1.1%

Table 9.20: Daily percentage Increase in Traffic with Development (With South East Perimeter Road) in 2031

DAILY	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Wendlebury Road (North)	14.5%	18.5%	18.5%	24.8%
Wendlebury Road (South)	3.0% Est	3.0% Est	3.0% Est	3.0% Est
Vendee Drive Link	67.0%	80.1%	80.1%	109.0%
Vendee Drive (North)	4.2%	5.5%	5.5%	7.3%
A41 (North)	1.8%	2.5%	2.5%	3.3%
A41 (South)	2.1%	1.9%	1.9%	2.8%
A41/Vendee Drive Roundabout	4.5%	5.4%	6.6%	7.4%
A41/Oxford Road Services Roundabout	1.8%	2.7%	3.0%	3.6%
M40 Junction 9	0.7%	0.7%	1.0%	1.0%

9.7.11 As previously outlined within paragraphs 9.3.44 the IEMA Guidelines suggest that *"detailed environmental studies will only be triggered where road links experience a change in traffic greater than 30%, or more than 10% where the links contain sensitive interest".*

9.7.12 Tables 9.12 to 9.20 indicate that the following links (or junctions), in all Scenarios, are expected to experience increase traffic flows which will exceed 30%:

- Vendee Drive Link;
- Wendlebury Road (North of Development); and;
- The junction of Wendlebury Road and the Vendee Drive Link.

9.7.13 No further links (or junctions) exceed the 10% threshold, the threshold relevant to links with sensitive interest. Therefore, there is no further requirement for further assessment on these links as the percentage thresholds in Rule 2 of the IEMA Guidelines is not surpassed. It is considered that the overall effect on these links would be negligible in line with the IEMA Guideline.

Scenario 1: Application 1 – Employment Development

9.7.14 Traffic flows are shown to increase on the Vendee Drive link by a maximum of 76% during the PM Peak; and by a maximum of 37% in the AM peak on Wendlebury Road in 2026.

9.7.15 Traffic flows are shown to increase on the Vendee Drive link by a maximum of 65% during the PM Peak; and by a maximum 28% on Wendlebury Road during the AM Peak in 2031 (Without SEPR).

9.7.16 Traffic flows are shown to increase on the Vendee Drive link by a maximum of 73% during the PM Peak; on Wendlebury Road by a maximum 33% during the AM Peak in 2031 (With SEPR).

9.7.17 The forecasted future traffic flows are well within the practical link capacity for both year 2026 and 2031 with the Development in place; and within the practical junction capacity of the new Site access at the junction of Wendlebury Road/Vendee Drive.

Severance

9.7.18 The demand to cross the Vendee Drive link is liable to stem from committed development on the employment element of Bicester Gateway and possibly the Site. The sensitivity of the link is low and the magnitude of impact is medium. Therefore, the overall significance of the effect is Minor Adverse (not significant).

9.7.19 Pedestrian infrastructure at the Site access roundabout will provide safe and convenient means to cross the link. With the implementation of the crossing facilities at the Site access roundabout, any impact on severance is addressed. With this in place the residual severance effect is Negligible and Permanent.

9.7.20 The Wendlebury Road link is of medium sensitivity and the magnitude of impact is low. However, with the pedestrian and cyclist enhancements, sensitivity of the receptor reduces to negligible and significance of effect is Negligible and Permanent.

Drivers Delay

9.7.21 In terms of drivers delay on the Vendee Drive link and Wendlebury Road, the link capacity is sufficient to accommodate Development traffic on both links for both year 2026 and 2031 (With and Without SEPR). The junctions at either end have spare capacity. The impact is therefore Minor Adverse (not significant) and Permanent in terms of classification, but with no need for further mitigation.

Pedestrian and Cyclist Delay and Amenity

9.7.22 With the implementation of the crossing facilities at the Site access roundabout, and the enhancements to alternative routes via Wendlebury Road, the effect on pedestrian and cyclist delay/amenity is Negligible and Permanent.

9.7.23 The pedestrian infrastructure on Vendee Drive link is reflective of the desire lines that currently exist and will continue to exist with the Development. Pedestrian and cyclist enhancements on Wendlebury Road are liable to reduce the need for pedestrians to use the Vendee Drive link. The Vendee Drive link is of low sensitivity, and medium magnitude of impact and the effect is therefore of Minor Adverse (not significant) and Permanent.

Fear and Intimidation

9.7.24 The level of traffic flow and HGV flow on both links is significantly below any level at which fear and intimidation becomes a factor. Any effect is Negligible and Permanent.

Accidents and Safety

9.7.25 The impact on both links is minor in terms of classification, but the Vendee Drive link design is fully to standard and the Wendlebury Road link will be enhanced as part of the Site mitigation. The implementation of the Site access is fully standards compliant. The effect is therefore Minor Adverse (not significant) and Permanent with no need for further mitigation.

Scenario 2: Application 1 – Employment and Health and Racquets Club

9.7.26 Traffic flows are shown to increase on the Vendee Drive link by a maximum of 94% (vs 76% Scenario 1) during the PM Peak; and on Wendlebury Road by a maximum 37% during the AM Peak in 2026.

9.7.27 Traffic flows are shown to increase on the Vendee Drive link by a maximum of 82% (vs 65% Scenario 1) during the PM Peak; and on Wendlebury Road by a maximum 28% during the AM Peak in 2031 (Without SEPR).

9.7.28 Traffic flows are shown to increase on the Vendee Drive link by a maximum of 91% (vs 73% Scenario 1) during the PM Peak; and on Wendlebury Road by a maximum 33% during the AM Peak in 2031 (With SEPR).

9.7.29 As a result, the significance of effects for Scenario 2 are equivalent to effects identified in Scenario 1 for severance, drivers delay, pedestrian and cyclist delay and amenity, fear and intimidation, and accidents and safety.

Scenario 3: Application 1 – Employment and Application 2

9.7.30 Traffic flows are shown to increase on the Vendee Drive link by a maximum of 109% (vs 76% Scenario 1) during the PM Peak; and on Wendlebury Road by a maximum 53% during the AM Peak in 2026.

9.7.31 Traffic flows are shown to increase on the Vendee Drive link by a maximum of 95% (vs 65% Scenario 1) during the PM Peak; and on Wendlebury Road by a maximum 40% during the AM Peak in 2031 (Without SEPR).

9.7.32 Traffic flows are shown to increase on the Vendee Drive link by a maximum of 106% (vs 73% Scenario 1) during the PM Peak; and on Wendlebury Road by a maximum 48% during the AM Peak in 2031 (With SEPR).

9.7.33 As a result, the significance of effects for Scenario 3 are equivalent to effects identified in Scenario 1 for severance, drivers delay, pedestrian and cyclist delay and amenity, fear and intimidation, and accidents and safety.

Scenario 4: Application 1 – Employment and Health and Racquets Club and Application 2

9.7.34 Traffic flows are shown to increase on the Vendee Drive link by a maximum of 127% (vs 76% Scenario 1) during the PM Peak; and on Wendlebury Road by a maximum 53% during the AM Peak in 2026.

9.7.35 Traffic flows are shown to increase on the Vendee Drive link by a maximum of 110% (vs 65% Scenario 1) during the PM Peak; and on Wendlebury Road by a maximum 40% during the AM Peak in 2031 (Without SEPR).

9.7.36 Traffic flows are shown to increase on the Vendee Drive link by a maximum of 123% (vs 73% Scenario 1) during the PM Peak; and on Wendlebury Road by a maximum 47% during the AM Peak in 2031 (With SEPR).

9.7.37 As a result, the significance of effects for Scenario 4 are equivalent to effects identified in Scenario 1 for severance, drivers delay, pedestrian and cyclist delay and amenity, fear and intimidation, and accidents and safety.

Mitigation, Monitoring and Residual Effects

9.7.38 Mitigation measures are set out in Scheme Design and Management section of this chapter.

9.7.39 Mitigation measures arising from the TAR and the requirements of OCC include funding towards local bus services. The effect traffic link flows is not quantified in either the TAR or this chapter, but the effect should be to increase the modal shift away from the private car usage. The contribution should assist in this for both the Development and background traffic and hence improve the operational performance of local highway links.

9.7.40 The Travel Plan implementation for land uses on the Site should result in a similar modal shift away from private car use. The benefit is likely to relate to Site traffic only.

9.7.41 The financial contribution towards the SEPR is to bring forward major highway infrastructure promoted by OCC. The objective of the SEPR is to provide more resilience to the local Bicester traffic network, by removing east-south A41 through movements, hence providing traffic relief to A41 junctions between A41/A4421 and the A41/Vendee Drive roundabout.

9.7.42 No significant residual adverse effects remain from the Development proposals following the implementation these measures.

9.8 Cumulative Effects

9.8.1 The cumulative effect of Development across the area is established by the appraisal of the 2026 (Without SEPR) and 2031 (Without and With SEPR) traffic model flows. The model runs include each of the committed developments identified by CDC, together with additional sites. OCC provided an “up to date” best estimate of the extent of development which is expected to be complete by 2026 and 2031.

9.8.2 The cumulative impact assessment is therefore inherent within the Completed Development impact assessment provided of the environmental effects within Sections 9.6 and 9.7. Further, the TAR provides a comprehensive highway capacity and safety appraisal of the network with all the committed development in place. This is tested with (2031) and without (2026 and 2031) the SEPR.

Construction

9.8.3 The cumulative impact during the construction phase is equivalent to the impact set out within Section 9.6 for each of the Scenarios in turn.

Completed Development

9.8.4 The cumulative impact during the operational phase is equivalent to the impact set out within Section 9.7 for each of the Scenarios in turn.

Table 9.21: Summary of Effects of the Development

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Magnitude	Mitigation and Monitoring	Residual Effect
Construction (Scenarios 1 to 4)						
Severance	Medium/Low Wendlebury Road/ Vendee Drive Link	Local	Temporary	Negligible	CTMP	Negligible
Driver Delay	Medium/Low Wendlebury Road/ Vendee Drive Link	Local	Temporary	Negligible	CTMP	Negligible
Pedestrian Delay and Amenity	Medium/Low Wendlebury Road/ Vendee Drive Link	Local	Temporary	Negligible	CTMP	Negligible
Fear and Intimidation	Medium/Low Wendlebury Road/ Vendee Drive Link	Local	Temporary	Negligible	CTMP	Negligible
Accidents and Safety	Negligible	Local	Temporary	Negligible	CTMP	Negligible
Completed Development (Scenarios 1 to 4)						
Severance	Medium/Low Wendlebury Road/ Vendee Drive Link	Local	Permanent	Medium to Minor	Crossing Facilities/ Footway and Cycleway	Minor Adverse (not significant) to Negligible
Driver Delay	Medium/Low Wendlebury Road/ Vendee Drive Link	Local	Permanent	Minor	Travel Plan/ Bus Contribution /SEPR Contribution	Minor Adverse (not significant)
Pedestrian Delay and Amenity	Medium/Low Wendlebury Road/ Vendee Drive Link	Local	Permanent	Medium to Minor	Crossing Facilities/ Footway and Cycleway	Minor Adverse (not significant) to Negligible

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Magnitude	Mitigation and Monitoring	Residual Effect
Fear and Intimidation	Medium/Low Wendlebury Road/ Vendee Drive Link	Local	Permanent	Minor	Crossing Facilities/ Footway and Cycleway	Negligible
Accidents and Safety	Medium/Low Wendlebury Road	Local	Permanent	Minor	Crossing facilities/ Travel Plan/ Bus Contribution/ SEPR Contribution	Minor Adverse (not significant)
Cumulative Effects (Scenarios 1 to 4)						
Severance	Medium/Low Wendlebury Road/ Vendee Drive Link	Local	Permanent	Medium to Minor	Crossing Facilities/ Footway and Cycleway	Minor Adverse (not significant) to Negligible
Driver Delay	Medium/Low Wendlebury Road/ Vendee Drive Link	Local	Permanent	Minor	Travel Plan/ Bus Contribution/ SEPR Contribution	Minor Adverse (not significant)
Pedestrian Delay and Amenity	Medium/Low Wendlebury Road/ Vendee Drive Link	Local	Permanent	Medium to Minor	Crossing Facilities/ Footway and Cycleway	Minor Adverse (not significant) to Negligible
Fear and Intimidation	Medium/Low Wendlebury Road/ Vendee Drive Link	Local	Permanent	Minor	Crossing Facilities/ Footway and Cycleway	Negligible
Accidents and Safety	Medium/Low Wendlebury Road/ A41 signal junctions/ Vendee Drive Link	Local	Permanent	Minor	Crossing facilities/ Travel Plan/ Bus Contribution/ SEPR Contribution	Minor Adverse (not significant)

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[5]Adopted Cherwell Local Plan 2011-2031 Part 1 (https://www.cherwell.gov.uk/downloads/download/45/adopted-cherwell-local-plan-2011-2031-part-1-incorporating-policy-bicester-13-re-adopted-on-19-december-2016)
[6] The Institute of Environmental Management and Assessment (1993) The Guidelines for the Environmental Assessment of Road Traffic.
[7] CLG (March 2014) Planning Practice Guide.
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[10] DMRB Vol II Section 2 Part 5 HA205/08 – Determining Significance of Environment Effects
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