CONTENTS

4.1 INTRODUCTION

4.1.1 This chapter provides an assessment of the traffic and transport effects of the Proposed Development, both during construction and once the Proposed Development is complete and occupied / operational and has been produced by Markides Associates, a Transport Planning Consultancy that has extensive experience in assessing the transport impacts associated with new development proposals. This includes assessments of the impacts of development on this site as part of previous planning applications.

4.1.2 The chapter describes the assessment methodology, baseline conditions at the site and surroundings, the likely significant environmental effects, the mitigation measures required to prevent, reduce or offset any significant adverse effects and the likely residual effects after these measures have been employed.

4.1.3 The content of this chapter has been informed by the Transport Assessment (TA), which is a stand-alone document that has been submitted as part of the planning application, also produced by Markides Associates.

4.1.4 The TA describes the accessibility of the Site in terms of proximity to trip attractors typical of residential developments and the availability of alternative modes of travel to the private car. The TA estimates the travel demands generated by the scale of the development and assesses how these demands can be accommodated within the transport infrastructure that will be in place when the development takes place, identifying a mitigation strategy where necessary.

4.2 RELEVANT POLICY

National Planning Policy Framework

4.2.1 The NPPF sets out Government planning policy, provides a framework within which local planning policies should be produced and is a material consideration in planning decisions.

4.2.2 The NPPF sets out that *"significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes,"* (Paragraph 103).

4.2.3 The paragraph continues, however, by acknowledging that such a requirement should be seen in the context of the Site location, stating *"However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."*

4.2.4 In assessing specific applications for development, the NPPF states that it should be ensured that:

- *"appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- *safe and suitable access to the site can be achieved for all users; and*
- *any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree, (Paragraph 108)."*

4.2.5 The NPPF outlines 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,"* (Paragraph 109).

4.2.6 With regards to car parking, the NPPF does not include any standards and recommends that local planning authorities should set standards based on the accessibility of the development, the type, mix and use of development, the availability of public transport and local car ownership levels.

Planning Practice Guidance (2014)

4.2.7 The Government has adopted the national Planning Practice Guidance (PPG) dated March 2014, which provides comprehensive guidance compatible with the NPPF, replacing much of

the previous guidance including, in the case of transport, the Department for Transport's Guidance on Transport Assessment (2007).

4.2.8 PPG 2014 identifies the requirements for an Environmental Impact Assessment, stating that the aim is to ensure *'that a local planning authority when deciding whether to grant planning permission for a project, which is likely to have significant effects on the environment, does so in the full knowledge of the likely significant effects, and takes this into account in the decision making process.'*

Local Transport Plan 4 - Connecting Oxfordshire (2015-2031)

4.2.9 To ensure that the County's transport systems are fit to support population and economic growth, Oxfordshire County Council has developed a new Local Transport Plan. Connecting Oxfordshire, the Local Transport Plan 4 for Oxfordshire, was adopted in September 2015. It sets out the transport vision, goals and objectives, to ensure that they support the Local Enterprise Partnership's Strategic Economic Plan as well as District Council Local Plans and other council strategies.

4.2.10 The four goals that previous Local Plan referred to, have now been consolidated into three:

- Support jobs and housing growth and economic vitality;
- Reduce transport emissions, enhance air quality and support the transition to a low carbon economy; and
- Protect and enhance Oxfordshire's environment and improve quality of life (including public health, safety and individual wellbeing).

4.2.11 Policies that are included in the new LTP4 and are related to the new developments are:

- Policy 01: Oxfordshire County Council will work to ensure that the transport network supports sustainable economic and housing growth in the county, whilst protecting and where possible enhancing its environmental and heritage assets and supporting the health and wellbeing of its residents.
- Policy 02: Oxfordshire County Council will manage and, where appropriate, develop the county's road network to reduce congestion and minimise disruption and delays, prioritising strategic routes.
- Policy 03: Oxfordshire County Council will support measures and innovation that make more efficient use of transport network capacity by reducing the proportion of single occupancy car journeys and encouraging a greater proportion of journeys to be made on foot, by bicycle, and/or by public transport.
- Policy 04: Oxfordshire County Council will prioritise the needs of different types of users in developing transport schemes or considering development proposals, taking into

account road classification and function/purpose, the characteristics and function of the place and the need to make efficient use of transport network capacity.

4.2.12 Therefore, OCC's policies highlight that development should be located in areas that are accessible by sustainable modes of travel, with proposed site layouts supporting pedestrian and cyclist movement, thereby reducing the reliance on travel by private car. Also, where additional vehicular movements are generated, and these materially impact upon the performance of the existing local highway network, this impact should be mitigated, including the adoption of routeing arrangements for construction vehicle access.

4.2.13 The Bicester Area Strategy has been also updated as a part of the new LTP4. Policies that are included in the new Bicester Strategy are described below.

- BC1: Improve access and connections between key employment and residential sites and the strategic transport system. This will be achieved by improving connectivity to the strategic highway, including future proposals for the A34, Junctions 9 and 10 of the M40.Also, improvements on eastern peripheral corridor such as upgrading the link to dual carriageway on the A4421 between the Buckingham Road and Gavray Drive are also mentioned within the Strategy.
- BC2: Reduce the proportion of journeys made by private car by implementing a Sustainable Transport Strategy. This will achieved by implementing Bicester town centre highway modifications, enhancing pedestrian, cycle and public transport links to the Bicester Village Station and Bicester North Station and key employment sites, improving Bicester's bus services along key routes, providing bus priority where feasible to ease movements, significantly improving public transport connectivity with other key areas of economic growth within Oxfordshire, providing improved public transport infrastructure, improving access to Bicester Village, providing new sections of urban pedestrian and cycle routes to better connect residential developments with the town centre and key employment destinations
- BIC3: Increase people's awareness of the travel choices available in Bicester, which should improve public health and wellbeing. One of the action that help this to be achieved is by discouraging undesirable routeing of traffic by developing a signage strategy

4.2.14 The main changes between the previous Bicester Area Strategy and the new are related to:

- Infrastructure Improvements: 1) Investigating Options for infrastructure improvements and bus priority on A41. 2) Progressing Way finding Project for Bicester with the aim of improving signage across the town.
- Sustainable Transport Strategy: 1) Better support of the Cherwell District Council's Sustainable Transport Strategy, including schemes such as Central Corridor Cycle Improvements 2) Cycle friendly measures must be incorporated into all new road schemes and new housing developments 3) References to improve walking facilities 4)

Options for relaxing the cycle ban on Sheep Street 5) Secure sustainable transport measures in all major new development

- Traffic management: 1) A strategic system of Variable Message Signs for Bicester
- Scheme delivery: 1) Intention to provide a detailed delivery plan for future infrastructure programmes.

Adopted Cherwell Local Plan 2011-2031

4.2.15 The main transport related policy within the Adopted Plan is Policy SLE4:

'Policy SLE4: Improved Transport and Connections
The Council will support the implementation of the proposals in the Movement Strategies and the Local Transport Plan to deliver key connections, to support modal shift and to support more sustainable locations for employment and housing growth.
We will support key transport proposals including:

- *Transport Improvements at Banbury, Bicester and at the Former RAF Upper Heyford in accordance with the County Council's Local Transport Plan and Movement Strategies*
- *Projects associated with East-West rail including new stations at Bicester Town and Water Eaton*
- *Rail freight associated development at Graven Hill, Bicester*
- *Improvements to M40 junctions.*

Consultation on options for new link and relief roads at Bicester and Banbury will be undertaken through the Local Transport Plan (LTP) review process. Routes identified following the strategic options appraisal work for LTP4 will be confirmed by the County Council and will be incorporates in Local Plan Part 2.
New development in the District will be required to provide financial and / or in-kind contributions to mitigate the transport impacts of development.
All development where reasonable to do so, should facilitate the use of sustainable modes of transport to make the fullest possible use of public transport, walking and cycling. Encouragement will be given to solutions which support reductions in greenhouse gas emissions and reduce congestion. Development which is not suitable for the roads that serve the development and which have a severe traffic impact will not be supported.'

4.2.16 In addition to the general transport policy, the development site is covered by Policy Bicester 13. This includes the following specific transport related items:

- Retention of Public Rights of Way and a layout that affords good access to the countryside.
- New footpaths and cycleways should be provided that link with existing networks, the wider urban area and schools and community facilities. Access should be provided over the railway to the town centre.

- A linked network of footways which cross the central open space, and connect Langford Village, Stream Walk and Bicester Distribution Park.
- A layout that maximises the potential for walkable neighbourhoods and enables a high degree of integration and connectivity between new and existing communities.
- A legible hierarchy of routes to encourage sustainable modes of travel. Good accessibility to public transport services with local bus stops provided. Provision of a transport assessment and Travel Plan.
- Additional bus stops on the A4421 Charbridge Lane will be provided, with connecting footpaths from the development. The developer will contribute to the cost of improving local bus services.

4.3 ASSESSMENT METHODOLOGY

Scope

4.3.1 In September 2020, the Applicant submitted a Request for a Scoping Opinion for the site (20/02469/SCOP). This was supported by an Environmental Impact Assessment Scoping Report, which included a specific section on the proposed content of the Transportation and Access chapter of the ES.

4.3.2 This Scoping Report stated that the ES will address the following Transportation and Access related effects:

- Temporary generation of heavy goods vehicles (HGVs) during the demolition and construction works to include any traffic movements associated with the potential importation of fill;
- Effects of the development on accessibility by sustainable modes; and
- Effects of the development on traffic flows and capacities of the local highway network.

4.3.3 A Scoping Response was received from CDC in November 2020, which confirmed that *"OCC as Local Highway Authority has advised that the proposed methodology, that will be used in the determining the environmental impact of the proposed scheme, is appropriate. Further detailed scoping for the Transport Assessment is recommended through the County's formal pre-application process."*

4.3.4 In addition to the ES Scoping, a pre-application response relating to the application was also provided by the Local Planning Authority, which included information from the Highway Authority. This identified that the proposals should allow for improvements to pedestrian / cycle facilities at the site accesses on Gavray Drive and also allowed for footway / cycleway improvements on the north side of Gavray Drive.

Data sources

4.3.5 The following data sources were used in the compilation of the assessment:

- Junction turning count traffic surveys, undertaken 14th May 2014;
- Link flow automatic traffic count (ATC) surveys for each of the junction approach arms, undertaken 10th – 16th May 2014;
- Personal Injury Accident data 2016 to 2021, sourced from OCC;
- Future year traffic predictions from OCC's SATURN model of Bicester; and
- Public transport timetable information, publicly available.

4.3.6 Development related trip generation calculations were made using the industry standard TRICS database, with trip rates agreed with OCC. These have then been assigned to the

surrounding road network based on data for the Gavray Drive zones of the Bicester SATURN model.

4.3.7 Future year traffic flow data incorporating traffic growth, committed developments and committed highway infrastructure improvement has been provided by OCC from their Bicester SATURN model.

Assessment approach

4.3.8 The scale and extent of the assessment has been undertaken in accordance with Institute of Environmental Assessment (IEA) Guidelines. These guidelines state that the assessment should be limited to highway links subject to traffic flow increases of more than 30% or where the number of Heavy Goods Vehicles (HGVs) will increase by more than 30%.

4.3.9 These guidelines also state that specifically sensitive areas or receptors should be included where traffic flows are predicted to increase by 10% or more. Sensitive areas or receptors could include congested junctions, schools, accident hotspots and/or cyclists and pedestrians.

4.3.10 The assessment encompasses a study area that extends to those junctions assessed within the TA that supports the application. This study area encompasses the following junctions:

- Gavray Drive / Mallards Way
- Gavray Drive / A4421 Wretchwick Way
- Peregrine Way / A4421 Wretchwick Way
- Peregrine Way / A4421 Wretchwick Way / A4421 Neunkirchen Way
- A41 / London Road / A4421 Seelschield Way / Gravenhill Road

4.3.11 Beyond the extent of the study area the impact of the development will have dissipated to a level that detailed assessment is not required.

4.3.12 Anticipated traffic flows for the years 2026 have been provided by OCC for weekday peak periods at the junctions listed. The SATURN model baseline scenarios include traffic associated with committed developments (i.e. those with planning consent) and development identified within the adopted Local Plan. As the site on Gavray is allocated within the Local Plan, the baseline SATURN model for 2026 already include traffic assumptions for development traffic associated with development on the site.

4.3.13 The SATURN model takes the following developments into account for 2026:

- Bicester Community Hospital 14 units

- Gavray Drive 180 units
- Graven Hill 1571 units
- Kingsmere 950 units
- Land at Skimmingdish Lane 45 units
- Land south of Church Lane 11 units
- Land south of Talisman Road 125 units
- NWB Eco-town Exemplar 303 units
- NWB Phase 2 1505 units
- SE Bicester 1175 units
- South West Bicester Phase 2 709 units
- St Edburg's School 10 units
- Winners Bargain Centre 42 units
- Bessemere Close / Launton Road 70 units
- Upper Heyford 665 units
- Windfall allowance 70 units

4.3.14 The SATURN model also allows for the following employment development assumptions by 2026:

- NW Bicester 53,000sqm B1/B2/B8
- Graven Hill 46,619sqm mixed A/B/C/D
- Bicester Business Park 60,000sqm B1
- Bicester Gateway 14,972sqm B1 and hotel
- NE Bicester Business Park 48,308sqm B1ac/B2/B8
- Wretchwick Green 38,946sqm B1c/B8
- SE Bicester 62,708sqm B8 and B1a
- Land West of M40 32,736sqm B1/B2/B8
- Land East of M40 45,500sqm B1/B2/B8
- Bicester Village Phase 4 5181sqm A1
- Kingsmere Retail Park 9242sqm A/D class
- McDonals Drive-Thru 548sqm
- Heyford Park 191sqm

4.3.15 The SATURN model also includes infrastructure associated with other committed and allocated development sites in the area. This includes the assumption that by 2026 a new link road between the Gavray Drive / A4421 roundabout and the A41 east of Bicester is in place.

4.3.16 The peak hour traffic flows from the SATURN model have been converted to daily flows by applying factors derived from the ATC surveys undertaken in 2014 on the same roads.

4.3.17 To obtain 2026 traffic flows without any additional residential development on Gavray Drive, it is necessary to subtract the traffic associated with the development of 180 units from the SATURN flows provided by OCC. With development traffic is then estimated by adding on the vehicle trips associated with 250 units on the site. The traffic generation of the proposals is summarised in **Table 4.1**.

Table 4.1: Traffic Generation of Proposed Development

Unit Numbers	AM Peak			PM Peak			Daily		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
250 residential units	70	96	165	99	83	182	685	722	1407

4.3.18 This traffic is assigned to the road network using distribution data for the site extracted from the OCC SATURN model.

Significance criteria

4.3.19 The significance level attributed to each effect has been assessed based on the magnitude of change due as a result of the development and the sensitivity of the affected receptor to change. The assessment of potential effects of the development has taken into account both the construction and operational phases. Any effect during the construction phase is considered to be short to medium term, with effects associated with the operational phase considered to be long term.

4.3.20 Effects, which are beneficial or adverse, have therefore been identified as either:

- Major effect: where the development could be expected to have a very significant, long term effect on the highway and public transport networks;
- Moderate effect: where the development could be expected to have a noticeable long term effect on the highway and public transport networks;
- Minor effect: where the development could be expected to result in a small, barely noticeable, localised and short term effect on the highway and public transport networks; and
- Negligible: where no discernible effect is expected as a result of the development on the highway and public transport networks.

4.3.21 For highway or public transport networks there are often no set thresholds of significance for the magnitude of effect or sensitivity of receptors as each area will have a unique set of conditions and principles, in which case there has been a need for interpretation and professional judgement based on knowledge of the Site and/or the availability of quantitative data.

4.3.22 For this particular assessment, consideration is given to the change in daily vehicle movements on each of the links within the study area during the construction and

operational phases, the change in bus and rail patronage during the AM peak period and a review of the impact on pedestrian amenity / severance.

4.3.23 The thresholds that have therefore been adopted to determine the magnitude of change as a result of the development are set out in **Table 4.2.**

Table 4.2: Magnitude of Impacts

	Negligible	Small	Moderate	Large
Change in average HGV two-way daily link flows during construction	Less than 10%	10-20%	20-30%	Greater than 30%
Change in average daily link flows during operation	Less than 10%	10-20%	20-30%	Greater than 30%
Change in AM peak hour public bus patronage (one-way) during operation	Less than 10% of total capacity	10-20% of total capacity	20-30% of total capacity	Greater than 30% of total capacity
Change in pedestrian amenity, safety and severance	Less than 30% change in daily flow	30% to 60% change in flow	60% to 90% change in daily	More than 90% change in daily flow

4.3.24 In terms of sensitivity of receptors, given there is no immediate residential frontage to any of the highway links within the study area, they are considered to have a low sensitivity, with a 10m landscape buffer between the Gavray Drive carriageway and those existing units to the south offering some protection.

4.3.25 In terms of total public bus capacity as a receptor, given the additional capacity that will be delivered as a result of the significant investment in rail infrastructure that is currently occurring and the number of bus services that are accessible from within the town centre, this receptor is considered to have a low sensitivity to change.

4.3.26 In terms of pedestrian amenity, safety and severance, existing networks are likely to have spare capacity to accommodate additional demand, with the assessment taking a more qualitative approach. The focus is therefore on the magnitude of change rather than sensitivity for this receptor. More detailed consideration of safety will have been undertaken by reviewing historical Personal Injury Accident (PIA) data.

4.3.27 When the magnitude of change and sensitivity of a receptor is considered together, the following significance matrix detailed in **Table 4.3** is applicable.

Table 4.3: Significance of Effects

MAGNITUDE	SENSITIVITY			
	High	**Medium**	**Low**	**Negligible**
Large	Major	Major	Moderate	Minor
Moderate	Major	Moderate	Minor	Negligible
Small	Moderate	Minor	Minor	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

Uncertainties and limitations

4.3.28 The forecast flows are based on a strategic transport model that is only available for weekday peak periods. There is an element of uncertainty associated with any forecasting methodology, including SATURN modelling, which should be born in mind. This assessment supplements the original assessment that was submitted with the application that relies on a different forecasting methodology, if both indicate similar outcomes this would increase the confidence in the conclusions drawn.

4.4 BASELINE CONDITIONS

Introduction

4.4.1 A future year baseline scenario of 2026 has been adopted, when the Proposed Development is anticipated to the fully operational. The baseline traffic flows for this year have been derived from data from the 2026 SATURN model, as described in the assessment methodology section.

Existing Highway Network

4.4.2 The local highway network is indicated on Figure 3.5 of the TA.

4.4.3 Gavray Drive, which forms the Site's southern boundary and from which it is accessed, is a single carriageway road, subject to a 30mph speed limit, providing access to residential development to the south via Mallards Way and Whimbrel Close. A number of bell mouth junctions have been constructed along the northern side of Gavray Drive to enable future development of the Site, even though the area is currently open grassland. Gavray Drive terminates just short of the rail line.

4.4.4 The A4421 Wretchwick Way forms part of Bicester's Eastern Distributor Route, connecting the A41 in the south to the A421 to the north, and is subject to a 50mph speed limit. Where it passes the Site it is a wide single carriageway. The junction between Gavray Drive and Wretchwick Way is located at the south-east corner of the Site and takes the form of a normal three-armed roundabout.

4.4.5 To the south of Gavray Drive, Wretchwick Way provides access to Peregrine Way, which is effectively a large crescent acting as the main spine road to the Langford Village development. The northern connection between Peregrine Way and Wretchwick Road takes the form of a ghost island priority junction, whilst the southern junction is a normal three arm roundabout.

4.4.6 To the south of this roundabout the A4421 is dualled before joining the A41 at a large five-arm roundabout. As well as the A41, this roundabout also gives access to the town centre via the B4100 London Road. The fifth arm provides access to the emerging Graven Hill development.

4.4.7 ATCs undertaken between the 10th and 16th of May 2014 recorded the existing traffic flows and HGV proportions on the local highway network. **Table 4.4** summarises the results of

these surveys, detailing the average two way daily traffic flows, average HGV proportions, average traffic speeds in each direction and the average weekday traffic flows during peak periods.

Table 4.4: 2014 Observed Traffic Flows

Count location	Avg two-way daily traffic flow	Avg two-way HGV proportion	AM Peak Avg two way weekday PCU	PM Peak Avg two way weekday PCU
A4421 Charbridge Lane	11392	9.9%	1246	1280
Gavray Drive	1646	5.3%	135	138
A4421 Wretchwick Way	10340	11.2%	1261	1312
A4421 Neunkirchen Way	13626	8.0%	1461	1499
A41 South	19693	6.4%	2234	2237
A41 North	21576	8.3%	2142	2120
London Road	9794	5.3%	932	1184

4.4.8 It is readily apparent from **Table 4.4** that the volume of traffic on Gavray Drive is relatively low when compared with the rest of the highway network study area.

4.4.9 Junction capacity tests have been undertaken as part of the TA, with results indicating that each of the junctions within the study area operate within capacity under existing traffic flows.

4.4.10 Accident data has been obtained from OCC for the most-recent five-year period in the vicinity of the Site. A total of eight accidents were recorded in the study area, which resulted in 11 slight and one serious injury. A detailed assessment of the PIA data is set out within the TA, a copy of which is submitted with the planning application.

Pedestrian and Cycle Site Accessibility

4.4.11 Gavray Drive is a 7.3m wide single carriageway road with a 2m wide footway on the northern side of the carriageway and a 3m shared use footway/cycleway on the southern side, which forms part of the National Cycle Network Route 51 between Oxford and Milton Keynes.

4.4.12 Gavray Drive terminates to the west at the rail line and there is no link across the railway provided at this point. However, the shared footpath cycleway continues from Gavray Drive and on to Laughton Road via a DDA compliant footbridge over the north/south railway line. This link benefits from street lighting along its length. The bridge is already well used by pedestrians walking from the Banbury Fields and Langford Village. The northern section is less well used, but usage would increase as a result of the development proposals.

4.4.13 Immediately to the north of where this footpath connects to Launton Road there is a toucan crossing provided to give access for pedestrian and cyclists using the shared footway/cycleway on the western side of Launton Road. The footway on the western side of Launton Road is generally 3m wide, but as it approaches the town centre, it narrows in places to less than 2m and cyclist dismount markings are provided to improve safety.

4.4.14 This route will form an important link from the site to the centre of Bicester, which is approximately 1.2km from the development site.

4.4.15 To the east of the site, Wretchwick Way is a busy road and forms part of the Eastern Distributor Road around Bicester. It is well lit and a 3 metre wide footway/cycleway runs along the length of the western side of the carriageway.

4.4.16 There are also several shared use pedestrian/cycle links from Gavray Drive running to the south through Langford Village and the open space then runs along the watercourse. These are generally for use by pedestrians and cyclists, although most have a thermoplastic marking running along the centre to segregate the two user groups. These routes provide good access to the local centre and primary school in Langford Village and beyond into the town centre and Bicester Town Station to the south.

4.4.17 In addition, there is a Public Rights of Way (PRoW) network running through and around the Site. Footpath 129/3/30 runs northeast from Gavray Drive and across the footbridge over the railway, then under the railway. The path continuous towards Charbridge Lane. Footpath 129/4/20 runs southeast along the southern side of the Gavray Drive and then continuous southeast through the site towards A4421 Charbridge Lane. These footpaths are proposed to be retained and incorporated within development masterplan.

4.4.18 Cycle distances of up to 5 miles are generally considered as reasonable by most members of the cycling community and such journeys would take up to 27.5 minutes. On this basis, the whole of Bicester, Ambrosden, Middleton Stoney, Upper Arncott and Marsh Gibbon are all accessible within a 30 minute cycle ride.

Public Transport Network

4.4.19 In the recent years there has been a reduction in the number of routes served across the County. Following the cancelation of the Bicester Circular bus service (22 and 23) the closest bus stops to the site are Bicester Village Station and Granville Way bus stops.

4.4.20 Bicester Village Station bus stop is located approximately 1km (12 mins' walk) from the site on London Road and provides access to bus services 27, 29, H5 and 505.

4.4.21 Granville Way bus stop is located on Launton Road, approximately 1km (12 mins' walk) from the site. The bus stop provides access to route 28 bus services.

4.4.22 In addition to these locally accessible services, there are also a number of services that can be accessed from the town centre.

4.4.23 There is an opportunity to provide additional bus stop on Launton Road in the vicinity of Longfields and the footbridge over the north/south railway line. The bus stop, if implemented, would provide access to bus services within 300m of the Site. In addition, it is understood that as part of the Wretchwick Green development, bus stops are to be introduced on the A4421 to the north of Gavray Drive and appropriate crossing facilities will accompany these. A new service is to be funded by S106 contributions that will utilise these stops.

4.4.24 Bicester benefits from having two national railway stations, Bicester North and Bicester Village Station.

4.4.25 Bicester North, which acts as the main station for the town, is operated by Chiltern Railways and provides access to Birmingham, Stratford-upon-Avon, Banbury, and London Marylebone. The station is located approximately 2km from the Site via a pedestrian route via Gavray Drive and a footpath toward Laughton Road over the railway line and then via Longfields and another pedestrian route over the Chiltern mainline to access the station from Queens Avenue via the north.

4.4.26 In terms of service frequency, there are two services during peak hours to London Marylebone, with a journey time of just below 1 hour, 1 service to Birmingham with a journey time between 45 minutes and 1 hour, and 1 service to Banbury with a journey time of 16 minutes.

4.4.27 Bicester Village Station, previously called Bicester Town and also operated by Chiltern Railways, is located approximately 1.1km from the Site via the residential estates to the

south. The station provides two services during peak hours to London Marylebone, with a journey time of just below 1 hour and two services to Oxford with a journey time below 20 minutes.

4.4.28 The station has two car parks; between them they provide 230 standard spaces, plus 18 spaces for passengers with reduced mobility. The station also has parking for 60 pedal cycles and 18 motorcycles.

4.4.29 The East West Rail scheme will re-establish a rail link between Cambridge and Oxford. Phase 2 of the project will upgrade and reconstruct sections of line that link Bicester to Bletchley and Milton Keynes. Main construction work started in Spring 2020 and is due for completion in Spring 2024.

Projected Future Baseline

4.4.30 The future baseline flows used for this assessment are the 2026 scenarios as set out above. The 2026 'Do Minimum' data is set out in **Table 4.5** for each of the identified links.

Table 4.5: 2026 Baseline Flows

Count location	Avg two-way daily traffic flow	Avg two-way HGV proportion	AM Peak Avg two way weekday PCU	PM Peak Avg two way weekday PCU
A4421 Charbridge Lane	20899	10%	1988	2051
Gavray Drive	1619	6%	55	81
A4421 Wretchwick Way	10016	12%	1332	1063
A4421 Neunkirchen Way	11950	9%	1121	1347
A41 South	18360	7%	1854	1966
A41 North	30985	9%	2400	2823
London Road	7213	6%	589	844

4.5 POTENTIAL EFFECTS

Construction stage

4.5.1 Likely significant transportation and access related effects that may arise from construction include:

- Increase in vehicle movements associated with construction staff accessing the site;
- Increase in proportion of daily HGV movements within the local highway network along route that construction vehicle are most likely to use and that will be agreed with OCC / CDC;
- Reduction in amenity and safety for pedestrians and cyclists.

4.5.2 The number of construction employees on site during peak activity, based on project experience, will be in the order of 40-60 employees, not all of which will arrive to the site by car. This is less than the total number of residents when the site is fully occupied.

4.5.3 In terms of construction vehicle routeing, the site benefits from being located within close proximity to the strategic A4421, which ensures that construction vehicles are not reliant on access via adjacent residential areas, other than via Gavray Drive.

4.5.4 It has been assumed that all construction vehicles route via the A4421 south and then A41 west.

Likely Significant Effect – Proportion of HGV Movements

4.5.5 The scheme has been designed to achieve a cut / fill balance across the site and there is therefore not anticipated to be any need to the removal or importation of any significant volumes of earth as part of the construction process.

4.5.6 For the construction phase, assuming a two year delivery programme, based on project experience it is estimated that there will be a peak of 81 construction vehicle movements per week, which equates to approximately 15 movements per day.

4.5.7 **Table 4.6** details the change in daily HGV proportions on the local highway network as a result of this additional HGV traffic during this period of construction. It is based on the construction route described above and each arrival movement generating an equivalent departure movement, i.e. two way flow.

Table 4.6: Change in HGV Proportion During Construction

Count location	Receptor Sensitivity	2026 HGV %age	Daily Construction Traffic Movements	HGV %age during Construction	Magnitude of Change	Significance
A4421 Charbridge Lane	Low	10%	0	10%	Negligible	Negligible
Gavray Drive	Low	6%	30	7.8%	Negligible	Negligible
A4421 Wretchwick Way	Low	12%	30	12.3%	Negligible	Negligible
A4421 Neunkirchen Way	Low	9%	30	9.3%	Negligible	Negligible
A41 South	Low	7%	0	7%	Negligible	Negligible
A41 North	Low	9%	30	9.1%	Negligible	Negligible
London Road	Low	6%	0	6%	Negligible	Negligible

4.5.8 Using the Significance Matrix in **Table 4.3**, it can be seen that the additional HGV traffic will result in a **negligible temporary** effect, across the receptors based on their sensitivity which would not be considered significant for the purposes of environmental impact assessment.

Likely Significant Effect – Reduction in amenity and safety for pedestrians and cyclists

4.5.9 The introduction of construction vehicle movements turning from the site to Gavray Drive, and therefore crossing the site access, will result in a reduction in amenity and perceived safety of pedestrians.

4.5.10 However, as there are existing footways away from the carriageway edge, the magnitude of effect on pedestrian amenity and safety is considered to be a **minor temporary adverse** effect.

4.5.11 Cyclists benefit from off-road cycle routes running parallel with Gavray Drive and the A4421 and so the magnitude of effect on cyclist amenity and safety is a **minor temporary adverse** effect.

Post-completion stage

4.5.12 The post-completion stage of the proposed development will see the occupation of up to 250 residential units, accessed from Gavray Drive.

Likely Significant Effect – Change in average daily two way link flows during operation

4.5.13 **Table 4.7** details the change in average daily two-way link flows as a result of the development during operation. It should be noted that the development will be fully occupied in 2026 and the traffic flow data is based on output from OCC's SATURN model of Bicester for this year.

Table 4.7: 2026 Change in Daily Two-way Flow

LINK	2026 Base (Do Minimum)		2026 Base (Do Something)		% Change (Total Vehicles)
	Total Vehicles	% HGV	Total Vehicles	% HGV	
A4421 Charbridge Lane	20899	10%	21555	10%	3.1%
Gavray Drive	1619	6%	2605	6%	60.1%
A4421 Wretchwick Way	10016	12%	10346	12%	3.3%
A4421 Neunkirchen Way	11950	9%	12187	9%	2%
A41 South	18882	7%	18828	7%	0%
A41 North	30463	9%	30931	9%	1.5%
London Road	7213	6%	7450	6%	6%

4.5.14 **Table 4.7** demonstrates that Gavray Drive will experience a **minor long term adverse** effect in relation to the daily change in two-way traffic flows. The remaining links will experience a **negligible long term adverse** effect.

4.5.15 Gavray Drive along the frontage of the Proposed Development site, will experience the greatest proportion of additional development traffic as this is the main access link to the Proposed Development.

Likely Significant Effect – Change in AM peak hour public bus patronage

4.5.16 A multi-modal trip generation assessment within the Travel Plan that was submitted as part of the planning application has demonstrated that approximately 3% of commuting trips are undertaken by bus. On the assumption that this is representative of all journey purposes, there are anticipated to be a total of 9 outbound bus trips during the AM peak as a result of the development.

4.5.17 There are three bus services that operate with an hourly frequency that (28, 29 and H5) that can be accessed from the development. Assuming a capacity of 48 passengers for each of these buses, the additional trips account for just 14% of total capacity if it is assumed that all bus trips are reliant on these services.

4.5.18 Cased on this impact, using the Significance Matrix in **Table 4.3**, it can be seen that this will result in a **minor long term adverse** impact.

Likely Significant Effect – Change in pedestrian amenity, safety and severance

4.5.19 The measurement and prediction of severance is difficult, but relevant factors include road width, traffic flow, vehicle speed, the presence of crossing facilities, and the number of movements across the affected route.

4.5.20 The Guidelines refer to the Department for Transport's *'Manual of Environmental Appraisal'*, which suggests that changes in traffic flow of 30%, 60%, and 90% would be likely to produce 'slight', 'moderate', and 'substantial' changes in severance, respectively. It is advised that these broad indicators should be used with care and regard paid to specific local conditions.

4.5.21 The Guidelines state that *"Changes in the volume, composition or speed of traffic may affect the ability of people to cross the roads. In general, increases in traffic levels are likely to lead to greater increase in delay. Delays will also depend upon the general level of pedestrian activity, visibility and general physical conditions of the site."*

4.5.22 Referring to **Table 4.7** it can be seen that Gavray Drive will experience a **minor long term adverse** effect in relation to pedestrian severance. The remaining links will experience a **negligible long term adverse** effect.

4.5.23 Pedestrian amenity is broadly defined as *"the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic"*. This definition also considers exposure to air pollution and noise. The Guidelines suggest as a tentative threshold for judging the significance of changes to

pedestrian amenity, would be where traffic flows are either halved or doubled. There are no locations where traffic flows are anticipated to double as a result of the development and therefore the effect on pedestrian amenity is anticipated to be **minor long term adverse**.

4.6 MITIGATION MEASURES

Construction stage

4.6.1 Notwithstanding the significance of effect on receptors of construction has been shown to be minor adverse, a number of measures will be implemented to mitigate the general effect of additional construction vehicles, which will be finalised within a Construction Environmental Management Plan that is likely to be a requirement conditioned in any planning permission.

4.6.2 These measures include:

- Agreeing routes to and from the Site, avoiding residential and congested routes as far as possible;
- Scheduling deliveries to avoid morning and evening peak hours;
- Controlled working hours;
- On-site loading and unloading;
- Encouraging the construction workforce to access the Site using public transport;
- Wheel washers will be provided for transport vehicles leaving the Site;
- Operation of plant will be carried out in such a way that noise is minimised;
- Re-use and recycle excavated materials and waste as much as possible;
- Avoid lorries leaving the Site empty wherever possible (i.e. anything that needs to leave the Site to be taken on delivery lorries if at all practicable), and
- Signage and hoarding used to control pedestrian access around the Site.

Post-completion stage

4.6.3 Notwithstanding the significance of effect on receptors that has been calculated to be minor adverse, a residential TP will be implemented to ensure there is no increase in the number of vehicle movements to/from the Site as well as well as encouraging modal shift. In particular, single occupancy vehicle trips will be discouraged in favour of promoting more sustainable modes of travel.

4.6.4 TP measures will include:

- All new residents will be provided with a 'Sustainable Travel Information Pack', which will include various mapping, timetable and contact information to encourage sustainable travel;
- Personalised Travel Planning;
- Formation of a Walking Bus to local schools;
- Formation of Bicycle User Group; and
- The implementation of a car sharing database;

4.7 RESIDUAL EFFECTS

Construction stage

4.7.1 The residual effects during the construction phase following the implementation of the CEMP and the CTMP are likely to be temporary **minor temporary adverse** as a result of the construction of the Proposed Development.

Post-completion stage

4.7.2 **Minor long term adverse** effects are identified as a result of the proposed development and these will remain even with the introduction of mitigation measures.

Summary of effects

4.7.3 The effects identified are summarised in **Table 4.8** below:

Table 4.8: Summary of effects

Potential effect	Significance (pre-mitigation)	Mitigation measure	Significance of residual effect
Construction stage			
Change in HGV Proportions During Construction	**Negligible**	CEMP	**Negligible**
Reduction in amenity and safety for pedestrians and cyclists	**Minor Adverse**	CEMP	**Minor Adverse**
Post-completion stage			
Change in average daily link flows on Gavray Drive	**Minor Adverse**	Travel Plan	**Minor Adverse**
Change in average daily link flows on remainder of the highway network	**Negligible**	Travel Plan	**Negligible**
Change in AM peak hour public bus patronage	**Minor Adverse**	Travel Plan	**Minor Adverse**

Reduction in amenity and safety for pedestrians and cyclists on Gavray Drive	**Minor Adverse**	Improved crossing facilities on Gavray Drive.	**Minor Adverse**
Reduction in amenity and safety for pedestrians and cyclists on rest of highway network	**Negligible**		**Negligible**

4.8 CUMULATIVE EFFECTS

4.8.1 Committed developments are included within the data provided by OCC from the SATURN model and no further assessment for other sites is needed.

4.8.2 The only other cumulative effect that needs to be considered is the construction of the East-West Rail scheme in the area. The ES that supported the East-West Rail scheme does not identify any significant change in traffic levels in the Gavray Drive area and we have therefore concluded that no further assessment of this is required.