BLENHEIM ESTATE

HOMES

Land East of Park View Woodstock

Environmental Statement Main Report

London
Birmingham
Bournemouth
Bristol

0203 664 6755

enquiries@torandco.com
torandco.com

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Traffic and transport

8 Traffic and transport

Introduction

8.1 David Tucker Associates undertook the traffic and transport assessment. The findings of the assessment are summarised in this chapter and the transport assessment (TA) is included as technical appendix F. Construction-related effects were scoped out of the assessment, which focused on post-construction effects. The references and data sources used in the assessment are shown in table 8.1.

Highways England, Transport Scotland, Welsh Government and Department for Infrastructure, 2020, Design Manual for Roads and Bridges, Sustainability and Environment Appraisal, LA 112 Population and Human Health
Institute of Environmental Assessment, 1993, Guidelines for the Environmental Assessment of Road Traffic
Institute of Environmental Management and Assessment, 2023, Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement
Ministry of Housing, Communities and Local Government, 2014, National Planning Practice Guidance: Travel plans, transport assessments and statements
Oxfordshire County Council, 2022, Oxfordshire Local Transport and Connectivity Plan

Table 8.1: References and data sources

Legislation and policy

National policy

8.2 Paragraph 109 of the National Planning Policy Framework (NPPF; 2024) states that transport issues should be considered from the earliest stages of plan-making and development proposals, using a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places. This should involve:

> *"a) making transport considerations an important part of early engagement with local communities;*
> *b) ensuring patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places;*
> *c) understanding and addressing the potential impacts of development on transport networks;*
> *d) realising opportunities from existing or proposed transport infrastructure, and changing transport technology and usage – for example in relation to the scale, location and density of development that can be accommodated;*
> *e) identifying and pursuing opportunities to promote walking, cycling and public transport use; and*
> *f) identifying, assessing and taking into account the environmental impacts of traffic and transport infrastructure – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains."*

8.3 Paragraph 115 states that, in assessing specific applications for development, it should be ensured that:

> *"a) sustainable transport modes are prioritised taking account of the vision for the site, the type of development and its location;*

b) safe and suitable access to the site can be achieved for all users;
c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and
d) 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 through a vision-led approach."

8.4 Paragraph 116 states 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, following mitigation, would be severe, taking into account all reasonable future scenarios.

8.5 The Ministry of Housing, Communities and Local Government published National Planning Practice Guidance: *Travel plans, transport assessments and statements* in March 2014, which provides guidance on the preparation of these documents.

Local

Oxfordshire Local Transport and Connectivity Plan (2022)

8.6 Key themes set out in the local transport and connectivity plan include the following:

- Environment: Sustainable communities that are resilient to climate change, enhance the natural and historic environment, improve biodiversity, reduce greenhouse gas emissions and are supported by a net zero transport network
- Health: Improved health and wellbeing and reduced health inequalities, enabled through active and healthy lifestyles, improved road safety and inclusive communities
- Healthy place shaping: Sustainable, well designed, thriving communities where healthy behaviours are the norm and that provide a sense of belonging, identity and community
- Productivity: A world leading business base that is sustainable, has created new jobs, products and careers for all communities and is supported by an effective, net zero transport network
- Connectivity: Communities are digitally connected, innovative technologies are supported and there is improved connectivity and mobility across the county, enabling greater choice and seamless interchange between sustainable modes
- Inclusivity: Barriers to access are removed and all communities are supported by an inclusive transport system to play a full role in society and have independence, choice and control

Cherwell Local Plan 2011-2031 Part 1 (adopted July 2015)

8.7 Policy SLE 4 of the adopted local plan states that 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 that support reductions in greenhouse gas emissions and reduce congestion. Development that is not suitable for the roads that serve the development and that has a severe traffic impact will not be supported.

Cherwell Local Plan 2011-2031 (Part 1) Partial Review – Oxford's Unmet Housing Need (adopted September 2020)

8.8 Policy PR4a of the adopted local plan partial review identifies necessary improvements to, and mitigations for, the highway network and infrastructure and services for public transport. These include improved bus services and facilities along the A44 / A4144 corridor linking Woodstock and Oxford, the enhancement of the off-carriageway cycle track / shared use path along the western side of the A44 and the provision of at least one pedestrian, cycle and wheelchair crossing over the A44, and the prioritisation of the A44 over the A4260 as the primary north-south through route for cars into and out of Oxford.

Cherwell Local Plan Review 2042 Proposed Submission Plan (Regulation 19) December 2024

8.9 Emerging policy is provided by the Cherwell Local Plan Review 2042 Proposed Submission Plan (Regulation 19). Relevant policies include Policy CSD 22: Sustainable Transport and Connectivity Improvements, Policy CSD 23: Assessing Transport Impact / Decide and Provide, Policy COM 15: Active Travel – Walking and Cycling, and Policy KID 3: Delivery of Transport Schemes within the Kidlington Area.

8.10 Policy KID H1: South-East of Woodstock, which allocates the site for development, includes requirements for enhancing public access through the site and green infrastructure connections between Woodstock and Kidlington and the wider surrounding countryside, providing links with surrounding public rights of way, creating crossings that link the new development to existing and proposed networks, a new footway and cycleway along the eastern side of the A4095 Upper Campsfield Road, a main site access from the A4095 Upper Campsfield Road and a secondary vehicular access, and a spine road suitable for bus operation with two pairs of bus stops.

8.11 A more detailed review of local and national planning policy is provided in the TA in technical appendix F.

Methodology

Traffic modelling

8.12 To quantify the existing traffic flows on the local road network, automatic traffic counts were undertaken on the following key road links in July 2024 (figure 8.1):

- A4095 Upper Campsfield Road
- A44 Woodstock Road
- A44 Oxford Road
- A44 Manor Road
- A4095 Grove Road

- Shipton Road

8.13 In addition, manual classified turning counts and queue lengths were undertaken at the following junctions:

- Bladon roundabout
- A4095 Upper Campsfield Road / A4260 Banbury Road
- A4095 Upper Campsfield Road / Shipton Road
- A44 Oxford Road / Cowells Road
- Shipton Road / Cowells Road
- A44 Oxford Street / Hensington Road / High Street

8.14 Trip generation from the proposed development was estimated using the residential trip rates agreed with Oxfordshire County Council for the Land North of Hill Rise, Woodstock development, which were based on the TRICS database. The proposed use class E floorspace will comprise uses that will be local to the site and Woodstock and that will not, in themselves, generate any material external traffic demand. They will result in a degree of internalisation of trips, which has not been explicitly modelled, and / or the modest diversion of existing trips from existing residents of Woodstock. Neither will have a material impact on the outcome of the traffic modelling.

8.15 Traffic surveys were undertaken in 2024 to inform the baseline traffic flows. The 2024 baseline traffic flows have been factored up to a future year of 2031, which represents the end of the local plan period, using TEMPro. There are a number of committed development sites in the vicinity of the site that have been included within the assessment. The Transport Research Laboratories' latest junction capacity assessment program Junctions 10 was used to model roundabouts and priority junctions. The following scenarios were modelled for the assessment, as set out in the TA in technical appendix F:

- 2024 baseline
- 2031 baseline (end of local plan period) plus committed developments
- 2031 baseline plus committed developments plus proposed development

8.16 Full details of the traffic modelling are provided in technical appendix F.

Assumptions and limitations

8.17 The assumptions and limitations are the same as those used in the preparation of the TA and are set out in detail in technical appendix F. For robustness, no allowance has been made in the calculation of overall trip generation for measures in the transport strategy or initiatives emerging from the travel planning process.

Effects assessed

8.18 The Institute of Environmental Management and Assessment's (2023) *Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement* advise that assessments of traffic-related effects should include impacts on severance of communities, road vehicle driver and passenger delay, non-motorised user delay, non-

motorised user amenity, fear and intimidation on and by road users, road user and pedestrian safety, and hazardous / large loads.

8.19 This chapter addresses the first six issues, as the nature of the proposed development means that it is not likely to generate hazardous loads. Definitions of each of the potential effects identified in the guidelines are set out below, together with explanatory text relating to the assessment criteria.

8.20 The IEMA guidance sets out two broad rules that have been taken into account in the assessment, as follows:

- 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 will increase by 10% or more

8.21 Where the predicted increase in traffic flows is lower than these thresholds, the guidelines suggest that the effects will be negligible and no further assessment is required. Increases in traffic flows of less than 10% are generally considered to be insignificant in environmental terms, as daily background traffic flows can vary by this amount.

Severance

8.22 Severance is the perceived division that can occur within a community when it becomes severed by major traffic infrastructure. This may result from difficulty in crossing a heavily trafficked road or a physical barrier created by infrastructure. Severance is difficult to measure and, by its subjective nature, is likely to vary between different groups within a single community. In addition to the volume, composition and speed of traffic, severance is also likely to be influenced by road width, the demand for movement across a road, and the presence of crossing facilities. All these factors are considered when determining the likely severance effect.

8.23 Volume LA 112 Population and Human Health of the Design Manual for Roads and Bridges (DMRB; 2020) provides guideline thresholds of community severance based on the two-way annual average daily traffic (AADT) flows on a link (table 8.2).

Level	Traffic flow (AADT)
Very large	>16,000 vehicles per day
Large	>8,000-16,000 vehicles per day
Medium	>4,000-8,000 vehicles per day
Small	<4,000 vehicles per day
Negligible	N/A

Table 8.2: DMRB pedestrian severance thresholds

Driver delay

8.24 Delay to drivers can occur at several points on the network surrounding a development site, including at the site entrance where there will be additional turning movements, on the roads passing the development site where there is likely to be additional traffic, at other key intersections along the roads that may be affected by increased traffic, and at side roads where the ability to find gaps in the traffic may be reduced, thereby lengthening delays.

8.25 The IEMA guidance states that computer modelling programs can be used to assess the changes in driver delay on the network as a result of a proposed development. The guidelines do not state specific thresholds to calculate the magnitude of the change; however, they advise that delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system.

8.26 The computer modelling program Junctions 10 has been used to assess the changes in driver delay at key junctions. The criteria used to assess driver delay are set out in table 8.3.

Level	Criteria for delay
Large	Over 55 seconds
Medium	46-55 seconds
Small	31-45 seconds
Negligible	Less than 30 seconds
Table 8.3: Driver delay thresholds	

Pedestrian delay

8.27 The assessment of pedestrian delay serves as a proxy for the delay that other types of non-motorised users may experience when crossing roads. The provision of crossing facilities, the general level of pedestrian activity, and the traffic volume, composition and speed are all factors that can affect pedestrian delay. The determination of what constitutes a material impact on pedestrian delay is generally left to the judgement of the assessor and knowledge of local factors and conditions.

8.28 Previous guidance produced by the Institute of Environmental Assessment (1993) suggested a lower threshold of 10 seconds delay and an upper threshold of 40 seconds delay for a link with no crossing facilities. It further advised that the lower threshold equates to a two-way flow of approximately 1,400 vehicles per hour in the peak periods. The pedestrian delay thresholds based on these thresholds are set out in table 8.4.

Level	Definition
Large	Link subject to a two-way flow of 5,600+ vehicles per hour
Medium	Link subject to a two-way flow of 3,500-5,600 vehicles per hour
Small	Link subject to a two-way flow of 1,400-3,500 vehicles per hour
Negligible	Link subject to a two-way flow of less than 1,400 vehicles per hour
Table 8.4: Pedestrian delay thresholds	

8.29 The new IEMA guidance states that definitive thresholds are not considered to be appropriate and that the assessor should use their judgement to determine whether pedestrian delay constitutes a significant effect. It suggests the following broad levels from the Department for Transport (2021) *TAG Unit A4-1 Social Impact Appraisal* can be used to classify pedestrian hindrance:

- None (negligible): Little or no hindrance to pedestrian movement
- Slight (small): All people wishing to make pedestrian movements will be able to so do, but there will probably be some hindrance to movement
- Moderate (medium): Pedestrian journeys will be longer or less attractive; some people are likely to be dissuaded from making some journeys on foot
- Severe (large): People are likely to be deterred from making pedestrian journeys to an extent sufficient to introduce a reorganisation of their

activities. In some cases, this could lead to a change in the location of centres of activity or to a permanent loss of access to certain facilities for a particular community. Those who do make journeys on foot will experience considerable hindrance

Pedestrian amenity

8.30 Pedestrian amenity is broadly defined as the relative pleasantness of a journey. It is affected by traffic flow, traffic composition and pavement width / separation from traffic. It encompasses the overall relationship between pedestrians and traffic, including fear and intimidation (which is discussed further below). However, amenity is a broader category, including consideration of the exposure to noise and air pollution and the overall relationship between pedestrians and traffic. The IEMA guidelines suggest a tentative threshold for judging the significance of effect on pedestrian amenity would be where the traffic flow (or its HGV component) is halved or doubled. They note that the assessment of amenity should pay full regard to specific local conditions.

Pedestrian fear and intimidation

8.31 The extent of pedestrian fear and intimidation is dependent on several factors, including the total volume of traffic, the heavy vehicle composition, vehicle speed, the proximity of traffic to people and / or the feeling of an inherent lack of protection created by factors such as a narrow pavement. The IEMA guidelines set out a weighting system to provide an approximation of the likelihood of pedestrian fear and intimidation occurring (table 8.5).

Average two-way traffic flows over 18 hr day (vehicles/hour) (a)	Total 18 hr HGV flow (b)	Average vehicle speed over 18 hr day (mph) (c)	Degree of hazard score
>1,800	>3,000	>40	30
1,200-1,800	2,000-3,000	30-40	20
600-1,200	1,000-2,000	20-30	10
Under 600	Under 1,000	Under 20	0
Table 8.5: Fear and intimidation degree of hazard			

8.32 The total score from all three elements (a, b and c) in table 8.5 is combined to provide a 'level' of fear and intimidation:

- Extreme fear and intimidation: total hazard score of 71+
- Great fear and intimidation: total hazard score of 41-70
- Moderate fear and intimidation: total hazard score of 21-40
- Small fear and intimidation: total hazard score of 0-20

8.33 The impact magnitude is then determined with reference to the change in the level of fear and intimidation from the baseline conditions, as follows:

- High (large): Two step changes in level
- Medium: One step change in level, but with a greater than 400 vehicle per hour increase in average 18-hour two-way vehicle flows and / or a greater than 500 vehicle increase in total 18-hour heavy vehicle flows
- Low (small): One step change in level, but with a less than 400 vehicle per hour increase in average 18-hour two-way vehicle flows and / or a less than 500 vehicle increase in total 18-hour heavy vehicle flows
- Negligible: No step change in level

Road safety

8.34 The IEMA guidance states that stakeholders commonly request a 'collision cluster' assessment to determine potential impacts on road safety. Collision clusters are identified by a detailed review of the baseline characteristics to determine the road safety sensitivity of discrete areas of the highway network. This is typically based on the number of personal injury collisions occurring within a defined period in a given study area. Impacts are assessed by examining collision data to identify any emerging patterns or factors that could be exacerbated by traffic or movement generation.

Assessment of significance

8.35 The significance of potential effects has been determined using criteria developed from best practice techniques and expert knowledge. Significance has been derived from measures of the sensitivity of the receptor affected and the magnitude or scale of the change. While the percentage change is an important determinant of impact magnitude, the absolute level of impact, such as the total flow of traffic or HGVs on a link, also needs to be considered. For example, an increase in traffic flow of 100% will lead to a negligible or small impact overall if the existing flows on the road are very low.

8.36 The traffic and transport sensitivity and magnitude criteria are shown in figures 8.2 and 8.3 respectively, with additional magnitude criteria provided in tables 8.2 to 8.5. These were combined using the matrix in figure 8.4 to determine the degree of effect, which was then used to determine significance. Effects that are moderate or above (including slight to moderate effects) are considered to be significant in EIA terms.

Baseline

Local and strategic highway network

8.37 The local highway network in the vicinity of the site is shown in figure 8.1. The main strategic access to the site from Woodstock is via the A44 Oxford Road, which provides access to Oxford approximately 12 km to the south. The A34, which provides strategic trunk road access to the M40 and M4, is around 8 km to the south.

8.38 The A44 Oxford Road varies in width between a single and dual carriageway. In the vicinity of the site, it is a single carriageway and is subject to a 50 mph speed limit. This reduces to 30 mph when entering the built-up area of Woodstock.

8.39 The A44 Oxford Road connects to the A4095 Upper Campsfield Road / A44 Woodstock Road / A4095 Bladon Road at a large priority roundabout (the Bladon roundabout) to the south of the site. The A4095 runs through the village of Long Hanborough to Witney. The A4095 Upper Campsfield Road runs from the Bladon roundabout along the site's eastern boundary to the A4260 Banbury Road and is approximately 2 km long. It is a single lane carriageway and is subject to the national speed limit, which reduces to 50 mph through Upper Campsfield village.

8.40 Shipton Road runs east-west from Upper Campsfield Road along the site's northern boundary to Hensington Road, which in turn links to the A44 Oxford

Road. Within Woodstock, Shipton Road provides access to existing residential areas and The Marlborough Church of England School. It is a single carriageway road that is approximately 6.5 m wide and is well marked and maintained between its western end and Randolph Avenue to the east of the school. It is also heavily traffic-managed and subject to a 20 mph speed limit in this area. Between the school and the A4095, including the section to the north of the site, the road becomes typically rural in nature and is subject to the national speed limit.

Existing baseline traffic flows

8.41 The existing baseline 2024 24-hour AADT flows on the local road network in the vicinity of the site are summarised in table 8.6. Shipton Road has not been included in the assessment because development trips, particularly those associated with travel to Woodstock Church of England Primary School, are likely to be limited in number and therefore it has not been specifically assessed.

Road link	All vehicles	HGVs
A4095 Upper Campsfield Road (north of site access)	9,555	286
A4095 Upper Campsfield Road (south of site access)	9,555	286
A44 Woodstock Road	20,223	798
A44 Oxford Road	14,511	452
A4095 Grove Road (Bladon)	12,588	314
A44 Manor Road	11,838	509

Table 8.6: 2024 baseline traffic flows

Public transport

Bus

8.42 Woodstock is well served by bus routes S3 and S7 providing high frequency services to Oxford and the surrounding areas. The nearest bus stops to the site are on the A44 Woodstock Road, immediately to the south east of the Bladon roundabout, and on the A44 Oxford Road, at the site access to Park View.

8.43 Bus service S3 connects Woodstock with Oxford city centre and railway station. Service S3 branches north of Woodstock, with routes to Chipping Norton and Charlbury. The service operates seven days a week, with departures every 30 minutes during the weekday and Saturday day-time. Sunday and evening departures are at hourly intervals. Bus service S7 also connects Woodstock with Oxford city centre, as well as Kidlington, Hanborough railway station and Witney. It operates seven days a week, with departures every 30 to 50 minutes during the day and evening departures every hour.

Rail

8.44 The regional and national rail network can be accessed at Oxford railway station. This provides frequent train services, typically one or two trains per hour on weekdays and at weekends, to a range of destinations, including Reading, London Paddington, Worcester, Hereford, Basingstoke, Bournemouth, Birmingham, Leeds, Newcastle and Manchester. Oxford Parkway station is adjacent to Water Eaton Park & Ride site. It provides two trains per hour to London Marylebone.

Pedestrians and cyclists

8.45 A shared pedestrian / cycle path extends along the south western side of the A44 from the Bladon roundabout to Cadogan Park. From here, it routes along Oxford Road and then onto New Road. There are no footways on the north eastern side of the A44 Oxford Road or the A4095 Upper Campsfield Road. The existing residential areas to the north west of the site are typically residential access roads with footways either side of the road. A footway runs along Shipton Road at the frontage of The Marlborough Church of England School to the new Marlborough Place residential area. The eastern end of the road is more rural in nature and does not have any footway provision.

8.46 National cycle network (NCN) route 5 runs on an off-road path along the A44 into Woodstock from the south. It runs on-road through the town centre along New Road, Shipton Road, Hensington Road and Green Lane, before rejoining an off-road path running northwards towards Banbury. To the south of Woodstock, the cycle route runs alongside the A44 towards Oxford.

Accidents

8.47 In order to establish the existing highway safety record in the vicinity of the site, personal injury collision data were obtained from Oxfordshire County Council for the period 01.01.19 to 31.12.23. The study area included the A4095 Upper Campsfield Road, Bladon roundabout, A44 Woodstock Road and A44 Oxford Road. There were 29 recorded collisions over the five-year period, none of which was fatal, seven of which were serious and 22 of which were slight.

8.48 Seven collisions occurred at the Bladon roundabout, of which one was serious and the remainder were slight. The majority of the collisions involved cars and two involved a cyclist and a pedestrian.

8.49 Two collisions occurred at the A4095 Upper Campsfield Road / A4260 Banbury Road junction. One was slight and involved a car and a motorcyclist. The other was serious and involved two cars. There were two slight collisions at the A44 Oxford Road / Cowells Road junctions, one involving a car and one involving a motorcyclist. There was one slight collision at the A44 Oxford Street / High Street junction, which involved two cars.

8.50 Further details on the accident data are provided in the TA in technical appendix F.

Receptors

8.51 The following receptors have been identified adjacent to the links within the study area and classified with reference to figure 8.2:

- A4095 Upper Campsfield Road (north of the site access): rural road with dwellings set back from the road (low sensitivity)
- A4095 Upper Campsfield Road (south of the site access): rural road with few dwellings fronting the road (low sensitivity)
- A44 Woodstock Road: dual carriageway with few dwellings (low sensitivity)

- A44 Oxford Road and Oxford Street: a combination of a shopping area with roadside frontage (medium sensitivity) and residential areas with adequate pavements (low sensitivity)
- A4095 Grove Road (Bladon): residential areas with adequate pavements (low sensitivity)
- A44 Manor Road: residential areas with frontage onto the road and narrow pavements in places (medium sensitivity)

Future baseline

8.52 The 2031 future baseline AADT flows in the absence of the proposed development have been modelled for all vehicles and HGVs (table 8.7).

Road link	All vehicles	HGVs
A4095 Upper Campsfield Road (north of site access)	10,093	302
A4095 Upper Campsfield Road (south of site access)	10,093	302
A44 Woodstock Road	22,302	843
A44 Oxford Road	15,542	477
A4095 Grove Road (Bladon)	13,593	332
A44 Manor Road	13,130	146
Table 8.7: 2031 baseline traffic flows		

Effects post-construction

Changes in traffic flows

8.53 The modelled 2031 'with development' traffic flows and changes as a result of the proposed development are set out in table 8.8.

Road link	All vehicles	HGVs
A4095 Upper Campsfield Road (north of site access)	11,053	9.5%
A4095 Upper Campsfield Road (south of site access)	13,379	32.6%
A44 Woodstock Road	25,526	14.5%
A44 Oxford Road	16,983	9.3%
A4095 Grove Road (Bladon)	14,530	6.9%
A44 Manor Road	13,485	2.7%
Table 8.8: 2031 'with development' AADT flows and change as a result of the proposed development		

8.54 If the IEMA guideline thresholds set out in paragraph 8.20 were followed, only impacts experienced along the A4095 Upper Campsfield Road (south of the site access) would need to be assessed, as this is the only road that exceeds the 30% assessment threshold. There are no specifically sensitive receptors along the road that exceeds the 10% assessment threshold (the A44 Woodstock Road). However, for completeness, a full assessment has been undertaken of all the road links in the study area.

Severance

8.55 Traffic flows on the A4095 Upper Campsfield Road (north of the site access), A44 Oxford Road, A4095 Grove Road and A44 Manor Road are predicted to increase by less than 10% as a result of the proposed development. Flows on the A44 Woodstock Road are predicted to increase by less than 15%. With reference to figure 8.3, all these changes are of negligible magnitude, leading to a negligible effect on severance that will not be significant.

8.56 Traffic flows on the A4095 Upper Campsfield Road (south of the site access) are predicted to increase by 32.6% in 2031 as a result of the proposed development. This is a change of small magnitude. However, in terms of the severance thresholds set out in table 8.2, traffic flows on this road link will be in the large severance category both with and without the proposed development in 2031. As no change is predicted in the severance category, and given that the proposed development will provide toucan crossings across the A4095 Upper Campsfield Road to the south of the site access roundabout and to the north of the Bladon roundabout, an overall negligible effect is predicted on severance that will not be significant.

Driver delay

8.57 Traffic modelling has been undertaken for the junctions in the study area to understand the implications of the proposed development on traffic flows and driver delay. Detailed modelling results can be found in the TA in technical appendix F and the findings are summarised in table 8.9.

Junction	Arm	Peak	2031 base	2031 with dev.
Bladon roundabout	A4095 Upper Campsfield Road	AM	50.29	274.36
		PM	9.55	13.40
	A44 Woodstock Road south	AM	4.57	4.86
		PM	7.07	9.72
	A4095 Grove Road	AM	8.63	9.84
		PM	7.51	9.38
	A44 Oxford Road north	AM	13.42	16.43
		PM	4.70	5.44
A4095 / A4260 Banbury Road	A4095 left turn out	AM	20.31	21.28
		PM	31.57	33.01
	A4095 right turn out	AM	0.00	0.00
		PM	40.12	42.85
	A4095 right turn in	AM	11.82	11.94
		PM	13.52	13.91
A44 Oxford Street / Hensington Road / High Street	High Street	AM	23.15	24.51
		PM	25.95	27.46
	A44 Oxford Street south	AM	6.78	6.75
		PM	5.13	5.16
	Hensington Road	AM	41.03	44.34
		PM	30.18	32.51
	A44 Oxford Street north	AM	7.94	8.03
		PM	8.99	9.03

Table 8.9: Modelled driver delays (seconds)

8.58 Table 8.9 shows that, with reference to the thresholds in table 8.3, the A44 Oxford Street / Hensington Road / High Street junction will have small levels of driver delay on the Hensington Road arm in both the baseline and 'with development' scenarios. There will be negligible levels of driver delay on the other three arms in both the baseline and 'with development' scenarios. The proposed development will therefore not lead to a significant increase in driver delay at this junction, which will also operate within capacity in both scenarios, and no significant adverse effects are predicted.

8.59 The A4095 Upper Campsfield Road / A4260 Banbury Road junction is predicted to have small levels of driver delay on the A4095 left turn out and the A4095 right turn out arms during the PM peak in both the baseline and 'with development' scenarios. There will be negligible levels of driver delay on these arms in the AM peak and on the A4095 right turn in arm in both peaks in both the baseline and 'with development' scenarios. The proposed

development will therefore not lead to a significant increase in driver delay at this junction, which will also operate within capacity in both scenarios, and no significant adverse effects are predicted.

8.60 The Bladon roundabout is predicted to experience large levels of driver delay on the A4095 Upper Campsfield Road arm in 2031 as a result of the proposed development. It is therefore proposed to provide mitigation through increasing the flare length on the A4095 Upper Campsfield Road arm. In addition, the existing splitter island on the A4095 Upper Campsfield Road will be extended to accommodate a staggered toucan crossing (more than 20 m from the circulatory). The crossing will connect into the 3 m wide footway / cycleway on the eastern side of the A4095 Upper Campsfield Road. The existing pedestrian priority crossings on the A44 Woodstock Road (southern arm) will be upgraded to toucan crossings to provide access to the shared footway / cycleway on the A44 and the bus stop.

8.61 The proposals to increase the flare length will reduce driver delay on the A4095 Upper Campsfield Road from 274.36 seconds in the 2031 AM peak 'with development' scenario to 11.81 seconds. As a result, no significant adverse effects are predicted on driver delay at the Bladon roundabout from the proposed development. Full modelling results for the revised layout are provided in the TA in technical appendix F.

Pedestrian delay

8.62 The potential for effects on pedestrian delay has been examined by considering vehicle flows in the AM and PM peaks, as these will be the periods with the greatest volumes of traffic. The results are set out in table 8.10.

Road link	Peak	2031 base	2031 with dev.
A4095 Upper Campsfield Road (north of site access)	AM	1,175	1,186
	PM	1,167	1,179
A4095 Upper Campsfield Road (south of site access)	AM	1,175	1,429
	PM	1,167	1,426
A44 Woodstock Road	AM	2,400	2,571
	PM	2,226	2,400
A44 Oxford Road	AM	1,693	1,731
	PM	1,456	1,494
A4095 Grove Road	AM	1,624	1,669
	PM	1,753	1,800
A44 Manor Road	AM	1,351	1,388
	PM	1,290	1,328

Table 8.10: Pedestrian delay

8.63 With reference to the thresholds in table 8.4, the A4095 Upper Campsfield Road (north of the site access) and A44 Manor Road are subject to negligible levels of pedestrian delay in all scenarios. The A44 Woodstock Road, A44 Oxford Road and A4095 Grove Road are subject to small levels of pedestrian delay in all scenarios. With reference to the criteria in paragraph 8.29, the negligible increases in traffic on these road links mean that there is likely to be little or no hindrance to pedestrian movement. The proposed development will therefore not lead to significant effects on pedestrian delay on these links.

8.64 The A4095 Upper Campsfield Road (south of the site access) is subject to negligible levels of pedestrian delay in the baseline and small levels of pedestrian delay with the proposed development in place, as the 'with

development' flows will be just above the 1,400-vehicle threshold. These changes relate to an increase of 254 vehicles in the AM peak and 259 vehicles in the PM peak, which equate to an average of around four additional vehicles every minute. With reference to the criteria in paragraph 8.29, the small increase in traffic as a result of the proposed development equates to a slight change in pedestrian delay, as all people wishing to make pedestrian movements will be able to so do, but there will probably be some hindrance to movement.

8.65 However, the proposed development will provide toucan crossings across the A4095 Upper Campsfield Road to the south of the site access roundabout and to the north of the Bladon roundabout. These measures will ensure that pedestrians and other non-motorised users will be able to cross the road and there will be a negligible effect on pedestrian delay as a result of the proposed development, which will not be significant.

Pedestrian amenity

8.66 The IEMA (2023) guidelines note that a tentative threshold for judging the significance of effect on pedestrian amenity would be where the traffic flow is halved or doubled, but that assessments should pay full regard to specific local conditions, including the overall relationship between pedestrians and traffic. None of the roads in the study area will experience a doubling of traffic flows as a result of the proposed development, which will also not increase HGV numbers. The largest increase in traffic flows will be on the A4095 Upper Campsfield Road (south of the site access), where flows will increase by 32.6%, well below the threshold of a doubling of flows. In addition, the proposed development will provide a new 3 m wide shared footway / cycleway with a 1 m verge on the eastern side of the A4095 Upper Campsfield Road from the site access roundabout to the Bladon roundabout, which will improve pedestrian amenity on this stretch of road. Overall, therefore, no significant adverse effects are predicted on pedestrian amenity as a result of the proposed development.

Pedestrian fear and intimidation

8.67 The potential for effects on pedestrian fear and intimidation has been assessed based on the criteria in table 8.5 and paragraphs 8.32 and 8.33. The average two-way traffic flows (vehicles per hour) over an 18-hour day are shown in table 8.11.

Road link	2031 base	2031 with dev.
A4095 Upper Campsfield Road (north of site access)	587	595
A4095 Upper Campsfield Road (south of site access)	587	724
A44 Woodstock Road	1,195	1,287
A44 Oxford Road	840	860
A4095 Grove Road (Bladon)	767	791
A44 Manor Road	666	671

Table 8.11: Average traffic flows over 18-hour day (vehicles/hour)

8.68 On the A4095 Upper Campsfield Road (north of the site access), the average two-way traffic flow over an 18-hour day is under 600 vehicles per hour, the total 18-hour HGV flow is under 1,000 and the average vehicle speed over an 18-hour day is 30-40 mph. This gives a total hazard score of 20, equating to a small level of fear and intimidation both with and without the proposed development.

8.69 On the A44 Oxford Road and the A4095 Grove Road, the average two-way traffic flow over an 18-hour day is between 600 and 1,200 vehicles per hour, the total 18-hour HGV flow is under 1,000 and the average vehicle speed over an 18-hour day is 30-40 mph. This gives a total hazard score of 30, equating to a moderate level of fear and intimidation both with and without the proposed development on these roads.

8.70 On the A44 Manor Road, the average two-way traffic flow over an 18-hour day is between 600 and 1,200 vehicles per hour, the total 18-hour HGV flow is under 1,000 and the average vehicle speed over an 18-hour day is 20-30 mph. This gives a total hazard score of 20, equating to a small level of fear and intimidation both with and without the proposed development.

8.71 The level of fear and intimidation will therefore not change as a result of the proposed development on any of these roads, which equates to a negligible magnitude of change with reference to paragraph 8.33. No significant effects are therefore predicted on pedestrian fear and intimidation on these roads.

8.72 On the A4095 Upper Campsfield Road (south of the site access), the average two-way traffic flow over an 18-hour day is under 600 vehicles per hour in the baseline but between 600 and 1,200 vehicles per hour with the proposed development in place. The total 18-hour HGV flow is under 1,000 and the average vehicle speed over an 18-hour day is 30-40 mph in both scenarios. This gives a total hazard score of 20 in the baseline and 30 with the proposed development, equating to small and moderate levels of fear and intimidation respectively. With reference to paragraph 8.33, the proposed development will lead to one change in step level with a less than 400 vehicle per hour increase in average 18-hour two-way vehicle flows, leading to a low (small) magnitude of change in pedestrian fear and intimidation. Combined with the low receptor sensitivity, this will be a slight adverse effect that will not be significant.

8.73 On the A44 Woodstock Road, the average two-way traffic flow over an 18-hour day is between 600 and 1,200 vehicles per hour in the baseline but between 1,200 and 1,800 vehicles per hour with the proposed development in place. The total 18-hour HGV flow is under 1,000 and the average vehicle speed over an 18-hour day is over 40 mph in both scenarios. This gives a total hazard score of 40 in the baseline and 50 with the proposed development, equating to moderate and great levels of fear and intimidation respectively. With reference to paragraph 8.33, the proposed development will lead to one change in step level with a less than 400 vehicle per hour increase in average 18-hour two-way vehicle flows, leading to a low (small) magnitude of change in pedestrian fear and intimidation. Combined with the low receptor sensitivity, this will be a slight adverse effect that will not be significant.

Pedestrian and cyclist facilities

8.74 New 3 m wide hoggin shared pedestrian / cycle paths are proposed to connect south eastwards and south westwards from the proposed residential development to the Bladon roundabout and the A44 Oxford Road respectively. An informal crossing point with dropped kerbing and tactile paving will be provided across the A44 Oxford Road at the site's south western corner. A 3 m wide shared footway / cycleway with a 1 m verge will be provided on the eastern side of the A4095 Upper Campsfield Road from

the site access roundabout to the Bladon roundabout. A toucan crossing will be provided across the A4095 Upper Campsfield Road to the south of the site access roundabout to connect this footway / cycleway to the site. In addition, the following measures are proposed to improve pedestrian and cycle accessibility to the site:

- A good level of street and path lighting will be provided
- On-site roads will be designed to a 20 mph speed limit
- Tactile and coloured surfacing will be used
- Signage will be provided to direct pedestrians and cyclists to key facilities and places of interest
- Cycle parking will be provided in accordance with Oxfordshire County Council's parking standards for new residential development
- Charging points and secure parking facilities will be provided communally for electric bicycles

8.75 The existing splitter island on the A4095 Upper Campsfield Road arm of the Bladon roundabout will be extended to accommodate a staggered toucan crossing, which will connect into the 3 m wide shared footway / cycleway on the eastern side of the A4095 Upper Campsfield Road. The existing pedestrian priority crossings on the A44 Woodstock Road (southern arm) will be upgraded to toucan crossings to provide access to the shared footway / cycleway on the A44 and the bus stop. These measures will improve pedestrian connectivity at the roundabout by allowing new pedestrian routes with controlled crossing points. Overall, a slight beneficial effect that will not be significant is predicted as a result of the improved availability of pedestrian and cyclist connections and facilities in the area.

Public transport

8.76 The pedestrian / cycle connections to the Bladon roundabout and the A44 Oxford Road discussed above will enable pedestrians and cyclists from the proposed development to access the existing bus services that run along the A44. The main road through the site will also be suitable for buses. No significant adverse effects are therefore predicted on public transport as a result of the proposed development.

Accidents and safety

8.77 As discussed in paragraph 8.48, seven collisions have occurred at the Bladon roundabout in the last five years. The proposed changes to the roundabout entrance will reduce queuing and improve its operation. This, together with the negligible to small increases in traffic flows as a result of the proposed development, mean that no significant adverse effects are predicted on accident rates on the local road network as a result of the proposed development.

Mitigation and monitoring

8.78 A comprehensive travel plan has been prepared for the proposed development to minimise single occupancy car use by residents and visitors accessing the site. This sets out a number of measures to promote more sustainable alternatives to the car, including walking, cycling, public transport and car sharing. The measures include the provision of travel information

packs to households, sustainable travel events and personalised travel planning.

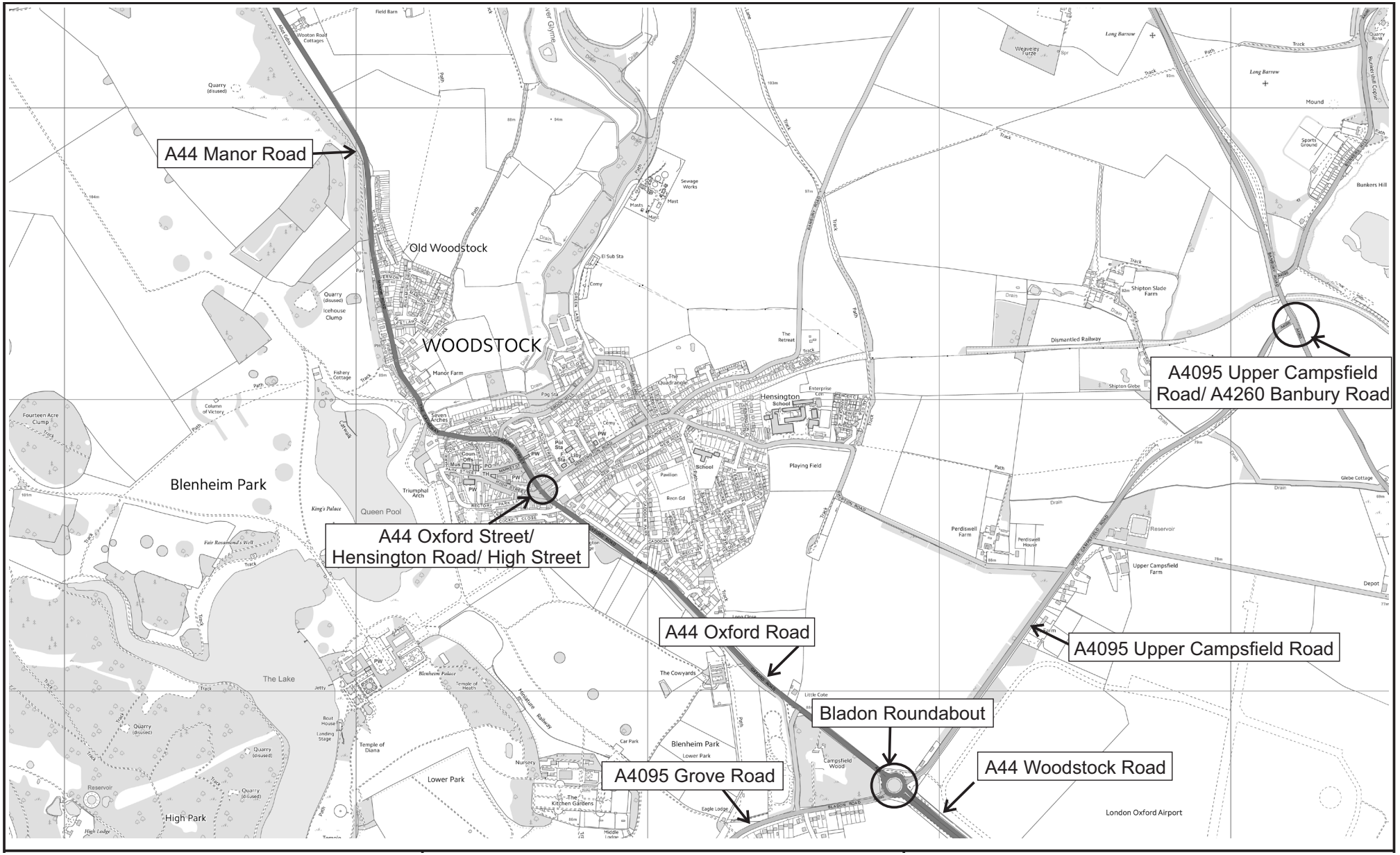
8.79 The travel plan will be monitored using travel surveys and remedial measures will be put in place if required. Further details on the travel planning strategy can be found in the travel plan submitted in support of the planning application.

Residual effects

8.80 No significant residual effects are predicted as a result of the proposed development.

Cumulative effects

8.81 As set out in chapter 3, the potential for cumulative effects with several other consented and committed developments in the area has been considered. The 2031 'with development' modelling for the above scenarios included traffic flows associated with the consented and committed developments, either directly through inclusion of development-specific flows within the modelling (where available) or indirectly through the TEMPro growth factors. Therefore, no significant cumulative traffic and transport effects are predicted. Further details of the inclusion of consented and committed development traffic in the modelling are provided in the TA in technical appendix F.



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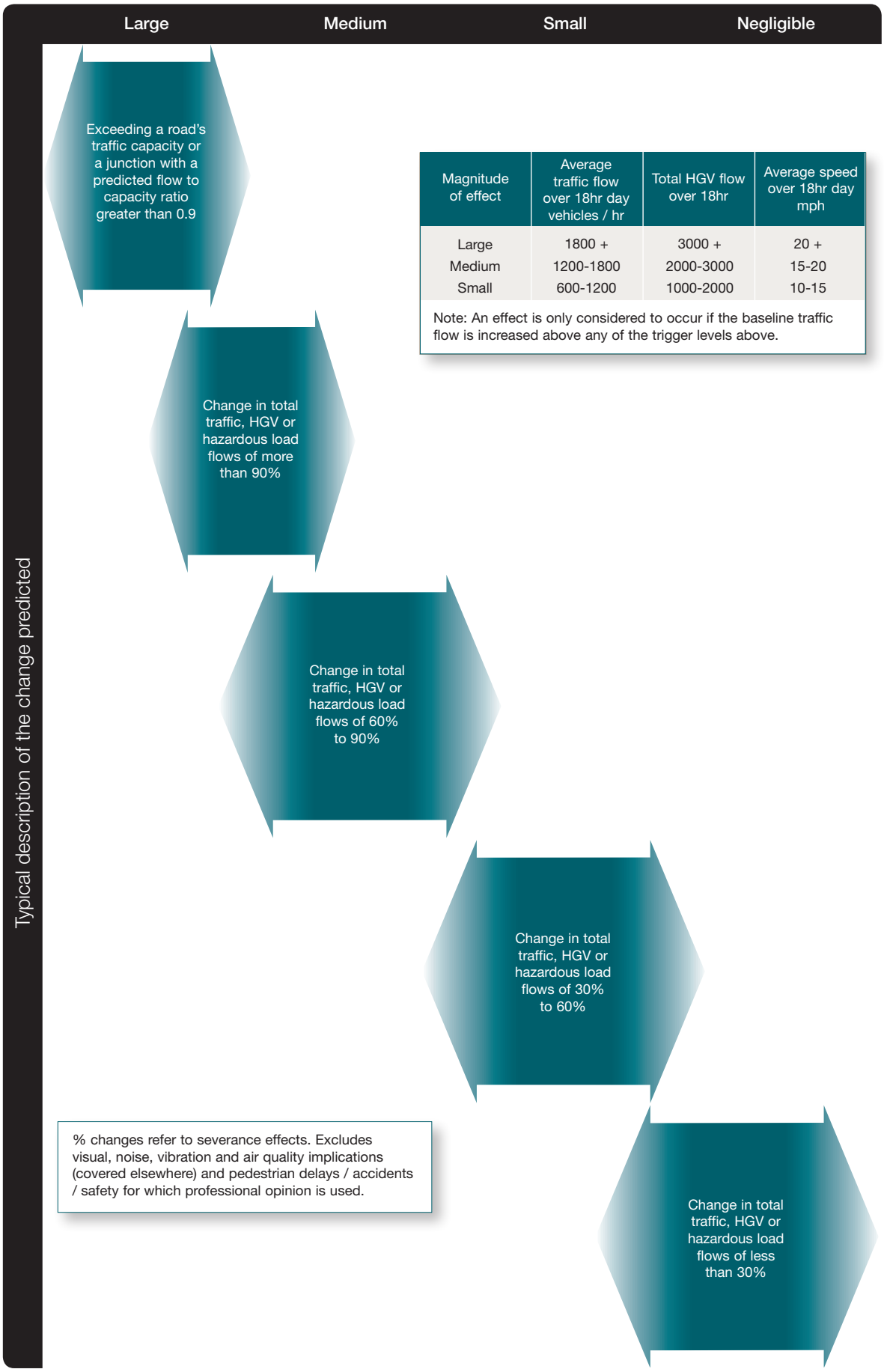
Land East of
Park View
Woodstock

Figure 8.1
Road links included in the assessment

Sensitivity of receptor – Traffic

Magnitude of change – Traffic

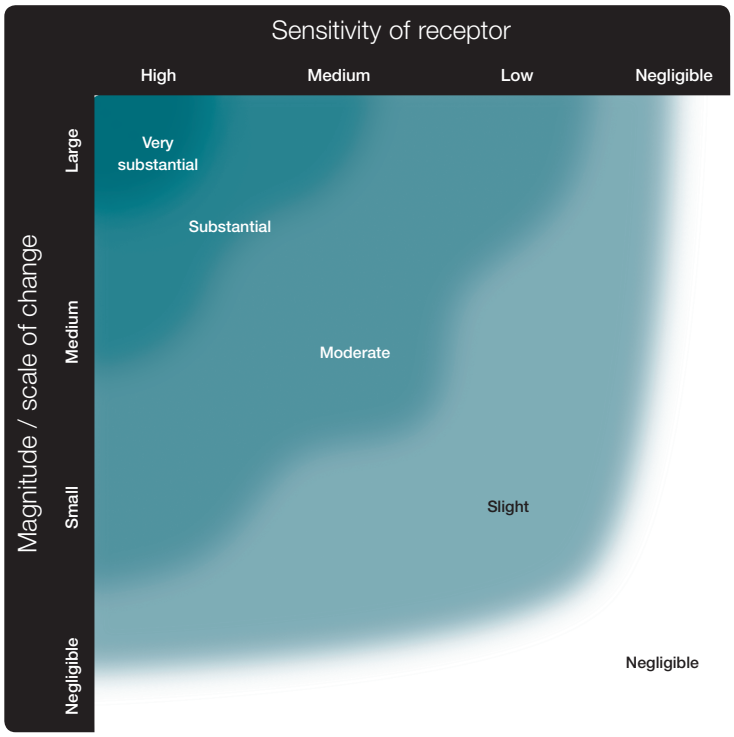


Magnitude of effect	Average traffic flow over 18hr day vehicles / hr	Total HGV flow over 18hr	Average speed over 18hr day mph
Large	1800 +	3000 +	20 +
Medium	1200-1800	2000-3000	15-20
Small	600-1200	1000-2000	10-15

Note: An effect is only considered to occur if the baseline traffic flow is increased above any of the trigger levels above.

% changes refer to severance effects. Excludes visual, noise, vibration and air quality implications (covered elsewhere) and pedestrian delays / accidents / safety for which professional opinion is used.

Determination of significance matrix – Traffic



Professional judgement can be used to vary the category where specific circumstances dictate, for example due to the vulnerability or condition of the receptor.

The reason for and nature of any variation will be made clear in the assessment.

Degrees of effect

Very substantial:
A change in total traffic, HGV or hazardous load flow of greater than 90% of the baseline on receptors of medium to high sensitivity; or a change in total traffic, HGV or hazardous load flow of 60 to 90% of the baseline on receptors of high sensitivity to traffic; or a change in total traffic, HGV or hazardous load flow of 30 to 60% of the baseline on receptors of the highest sensitivity to traffic.

Substantial:
A change in total traffic, HGV or hazardous load flows of greater than 90% of the baseline on receptors that are sensitive to traffic flow (e.g. hospitals, shopping centres and areas with narrow pavements); or a change in total traffic, HGV or hazardous load flows of 60 to 90% of the baseline on receptors of medium to high sensitivity to traffic; or a change in total traffic, HGV or hazardous load flows of 60% of the baseline on a receptor of high sensitivity to traffic such as schools, playgrounds and accident blackspots.

Moderate:
A change in total traffic, HGV or hazardous load flows in excess of 60% of the baseline on receptors of some sensitivity to traffic, such as churches, public open space, tourist attractions and residential areas with adequate pavements; or a change in total traffic, HGV or hazardous load flows of 30 to 60% of the baseline on receptors of medium sensitivity (e.g. hospitals, shopping centres and areas with narrow pavements) and high sensitivity (schools, playgrounds and accident blackspots).

Slight:
A change in total traffic, HGV or hazardous load flows of between 30 and 60% of the baseline on receptors of some sensitivity to traffic, such as churches, public open space, tourist attractions and residential areas with adequate pavements.

Negligible:
A change in total traffic, HGV or hazardous load flows of less than 30% of the baseline on receptors of very low sensitivity or sensitive receptors significantly distant from affected roads and junctions.

Significance

If the degree of effect is moderate or above, then the effect is considered to be significant.