

## 4. Transport

### 4.1. Introduction

4.1.1. This chapter has been prepared by DTA Transportation. The aim of this chapter is to consider the potential traffic and transportation effects that are likely to arise with the proposed development.

4.1.2. The proposal relates to the change in the development mix for land allocated for 'Social/Community' and 'Other Uses' on the Land Use – Parameter Plan 4 (P22-3093\_DE\_O13). See **Chapter 2 – Proposed Development and Amendments** for full details of the amendments sought through the S73 application and the parameters for the EIA Assessment of this ES Addendum 1.

### 4.2. Assessment Approach

#### Methodology

##### Study Area

4.2.1. The extent of the study area encompasses that in the original Transport chapter of the 2014 Environmental Statement. This included the entirety of Bicester for the purposes of initial assessment in order to be able to identify links where traffic levels are forecast to increase.

4.2.2. The Institute of Environmental Management and Assessment (IEMA) Guidelines for Environmental Assessment of Traffic and Movement (referred to as 'IEMA Guidelines') suggests that the study area for the assessment of environmental effects arising from a traffic and transport perspective should consider highway links which fall within two rules, as stated below:

- Rule 1: Include in the EIA highway links where traffic flows will increase by more than 30% (or the number of Heavy Goods Vehicles (HGV) will increase by more than 30%); and
- Rule 2: Include in the EIA any other specifically sensitive area where traffic flows will increase by 10% or more.

4.2.3. The 30% threshold of Rule 1 is based upon research and experience, with less than a 30% increase in traffic flow generally considered to result in imperceptible changes in the environmental effects of traffic and transport. At a simple level, the guidance considers that projected changes in total traffic flow of less than 10% creates no discernible environmental effects, hence the threshold of Rule 2.

#### Assessment of Significance

4.2.4. The assessment of (direct) environmental effects arising from the proposed development, as a result of construction and operational traffic generated by the proposed development has been undertaken in line with IEMA Guidelines for the assessment of environmental effects arising from road traffic, specifically severance and increase in fear and intimidation, pedestrian amenity, pedestrian delay, and increases in driver delay. The definition of each of the direct effects, as set out within IEMA Guidelines is set out in Table 4.1 below.

Table 4.1: Environmental Effect

Environmental Effect	Definition of Effect
Severance and Increase in Fear and Intimidation	<p>The perceived division that can occur within a community when it becomes separated by a major traffic artery; or a complex series of factors that separate people from places and other places (i.e. may result from the difficulty of crossing a heavily traffic road; physical barrier created by the road itself; or relate to quite minor flows if they impede pedestrian access to essential facilities).</p> <p>Increases in fear and intimidation relates to the ability for pedestrians to cross roads using their own judgement taking into account approach speed and type of traffic. It also accounts for proximity of passing traffic to pedestrians and cyclists travelling alongside the edge of the road.</p>
Pedestrian Amenity	The relative pleasantness of a journey being undertaken by a pedestrian and cyclists and how this can be influenced by changes in traffic flows/composition and a number of other factors.
Pedestrian Delay	The reduced ability of pedestrians and cyclists trying to cross a road resulting in an increase in overall journey time, as a result of additional vehicular trips associated with the Proposed Scheme.
Driver Delay	The perceived increase in time spent on a journey or at junctions as a result of additional vehicular trips associated with the Proposed Scheme.

Criteria for Receptor Sensitivity

4.2.5. The sensitivity of affected receptors has been considered on a scale of high, medium, low or negligible in accordance with the criteria set out in Table 4.2 below.

Table 4.2: Criteria for Receptor Sensitivity

Significance Criteria	Description of Criteria
High	Road links near to hospitals, schools, colleges, playground and/or retirement homes.
Medium	Road links at congested junctions or near to shops/business, pedestrian/cyclists' infrastructure, areas of ecological/nature conservation value, residential properties located close to a highways/carriageway.
Low	Road links near to sites of tourist/visitor attractions, places of worships, residential areas set back from a highway.
Negligible	Road links located way from affected highways link.

Criteria for Magnitude of Change

- 4.2.6. The magnitude of change has been considered as the change experienced from the current baseline conditions at the sensitive receptor and has been considered on a scale of high, medium, small or negligible.
- 4.2.7. Similar to determining sensitivity, the IEMA Guidelines does not provide prescriptive criteria for the determination of magnitude of change for all effects, placing an onus on the application of professional judgement and an understanding of the current baseline situation. Nonetheless, for a number of the effects, the guidance does suggest some key 'criteria' that can help in reaching a conclusion of magnitude of change.
- 4.2.8. As such, the criteria and key considerations utilised within the assessment for each effect is set out below.

**Severance and Increase in Fear and Intimidation**

- 4.3. The IEMA Guidelines sets out a number of factors that need to be considered when determining severance, including road width, traffic flow and composition, traffic speeds, the availability of crossing facilities and the number of movements that are likely to cross the affected route.
- 4.4. The criteria used in reaching a conclusion on magnitude of change for severance and increases in fear and intimidation is set out in Table 4.3 below. As there are multiple factors taken into consideration, a greater focus may be placed on one factor than another, based on professional judgement and an understanding of the existing baseline and receptors.

**Table 4.3: Severance and Increase in Fear and Intimidation**

Sensitivity	Typical Descriptors
<b>High</b>	A substantial change in traffic flows (taken as ≥90% change) occurring as a result of additional / removal of traffic or redistributed traffic.
	Noteworthy change in traffic speeds or delay (more than 60 seconds).
	Considerable change in road widths resulting in loss / creation of infrastructure for non-motorised users.
	Loss / creation (or enhancement) of crossing infrastructure resulting in greater difficulty / improvement in crossing ability for non-motorised users.
<b>Medium</b>	A notable change in traffic flows (taken as 31 – 60% change) occurring as a result of additional / removal of traffic or redistributed traffic.
	Modest change in traffic speeds or delay (40–60 seconds).
<b>Low</b>	Partial change in road widths resulting in loss / creation of infrastructure for non-motorised users.
	A partial change in traffic flows (taken as 10 – 30% change) occurring as a result of additional /removal of traffic or redistributed traffic.
	Limited change in traffic speeds or delay (30–40 seconds).
	Limited changes to existing road widths resulting in loss / creation of infrastructure for non-motorised users.
<b>Negligible</b>	No changes to crossing infrastructure.
	Nominal change in traffic flows (taken as ≤10% change) occurring as a result of additional / removal of traffic or redistributed traffic.
	No change in traffic speeds or delay (less than 30 seconds).

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	No change to existing road widths.
	No changes to crossing infrastructure.

**Pedestrian Amenity**

- 4.5. Pedestrian amenity relates to the relative pleasantness of a journey, and is affected by traffic flow, traffic composition and pavement width/separation of pedestrians from general traffic. The IEMA Guidelines references guidance contained within the Manual for Environment Appraisal (MEA), which suggests that “a tentative threshold for judging the significance of changes in pedestrian amenity would be where the traffic flow (or its lorry component) is halved or doubled”.
- 4.6. The magnitude of the change on a highway link and its associated sensitive receptors is addressed as set out in Table 4.5. The impact can be adverse or beneficial in its magnitude of change, which is determined based upon of the application of relevant guidance and professional judgement.

**Table 4.5: Pedestrian Amenity**

Sensitivity	Typical Descriptors
<b>High</b>	Traffic volumes (total vehicles or HGVs) increase by more than 150%, or decrease by more than 100%;
	Major changes to footway widths and/or provision of new dedicated infrastructure for pedestrians and cyclists; and / or
	Major change to amenity features such as landscaping and public realm.
<b>Medium</b>	Traffic volumes (total vehicles or HGVs) increase by 125-149%, or decrease by 75-99%;
	Considerable changes to footway widths and improvement of existing infrastructure for pedestrians and cyclists; and / or
	Considerable change to amenity features such as landscaping and public realm
<b>Low</b>	Traffic volumes (total vehicles or HGVs) increase by 100-124% or decrease by 50-74%;
	Minor, localised changes to footway widths, with no change to provision of dedicated infrastructure for pedestrians and cyclists; and / or
	Minor, localised changes to amenity features such as landscaping and public realm.
<b>Negligible</b>	Traffic volumes (total vehicles or HGVs) do not increase by more than 100%, or decrease by more than 50%;
	No change to footway widths or dedicated infrastructure for pedestrians and cyclists; and / or
	No change to amenity features such as landscaping and public realm.

**Pedestrian Delay**

- 4.7. Increased traffic flows can result in pedestrian delay for a particular walking journey where the ability to cross roads is affected. This, therefore, could affect an individual’s desire to make a particular walking journey. Increases in the volume and speed or changes in the composition of

traffic are most likely to result in pedestrian delay, with the level of severity dependent on the general level of pedestrian activity and the physical condition of crossing points.

4.8. The determination of what constitutes a material impact on pedestrian delay is generally left to the professional judgement of the assessor and the knowledge of local factors and conditions. However, the IEMA Guidelines suggest “a lower threshold of 10 seconds delay and an upper threshold of 40 seconds delay, for a link with no crossing facilities”. It further advises that the lower threshold equates to a two-way flow of approximately 1,400 vehicles per hour on links with insufficient or no pedestrian facilities at desire lines and links subject to pedestrian footfall.

4.9. With the above factors in mind, a professional judgement has been undertaken to pedestrian delay based on traffic flows and operation of junctions.

**Driver Delay**

4.10. A delay to drivers generally occurs at junctions where opposing vehicle manoeuvres are undertaken, with vehicles having to give or receive priority depending on the type of junction arrangement. The IEMA Guidelines states that computer modelling programs can be used to assess the changes in driver delay on the network as a result of a development. Although the Guidelines do not state specific thresholds to calculate the magnitude of the change, they do advise that delays are only likely to be significant when the traffic on the network surrounding a development is already at, or close to, the capacity of the system.

4.11. A delay to drivers is considered for highway links that are demonstrating a low, medium or high adverse change against the severance indicator. This indicator has been chosen because it represents an increase in the flow of traffic on a highway link as a result of the Proposed Scheme. It is therefore in these locations that driver delay is most likely to be affected.

Significance Scale of Effect Criteria

4.11.1. The level of effect has been informed by the magnitude of change due to the proposed development and the evaluation of the sensitivity of the affected receptor. The significance matrix is set out in Table 4.6 below.

**Table 4.6: Significance Matrix**

Magnitude of Change	Sensitivity of Receptor			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Negligible
Medium	Major	Moderate	Minor to Moderate	Negligible
Low	Moderate	Minor to Moderate	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

4.11.2. The magnitude of the effect and the sensitivity of the receptor under consideration has been used to determine the significance of the effect. For the assessment criteria outlined in this section the following scale of significance and terminology has been used:

- Substantial adverse.
- Moderate adverse.

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- Minor adverse.
- Negligible.
- Minor beneficial.
- Moderate beneficial.
- Substantial beneficial.

### Legislative and Policy Framework

#### National Planning Policy

4.11.3. The applicable planning policy of relevance to transport and access matters includes:

- National Planning Policy Framework (December 2024)
- Department for Transport Circular 01/2022.
- The strategic road network – Planning for the Future (Highways England).
- Local Transport and Connectivity Plan 2022–2050 (July 2022).
- Cherwell Local Plan 2011–2031.

#### Local Planning Policy

- Local Transport and Connectivity Plan 2022–2050 (July 2022).
- Cherwell Local Plan 2011–2031.

#### Guidance

- Institute of Environmental Management and Assessment (IEMA) Guidance for Environmental Assessment of Traffic and Movement (2023).

## 4.12. Baseline Conditions

### Site Description and Context

4.12.1. The Site is located to the west of the A4095 Howes Lane and is bound to the south by Middleton Stoney Road. The Site is situated to the west of existing residential areas of Bicester, namely Highfield and west Bicester and is approximately 5km from the town centre (measured to the Himley Farm buildings enclosed within the red line boundary).

4.12.2. Bicester lies approximately 24km to the north east of Oxford and 28km to the south east of Banbury. The M40 is located 2km to the west, with access to the town from Junction 9 via the A41. The Site can also be accessed via Junction 10 of the M40 Motorway, which is located approximately 8km to the north-west. The Site comprises agricultural land and Himley Farm with Grade II listed farm buildings. The village of Bucknell is located to the north of the Site and Middleton Stoney to the west.

### Pedestrian and Cycle Provision

- 4.12.3. A shared footway/ cycleway is provided along the B4030 from Empire Road to the B4030/ Vendee Drive/ Howes Lanes/ Middleton Stoney Road roundabout connecting into existing footway provision. There is no footway/ cycleway provision on Howes Lane.
- 4.12.4. The majority of Bicester is located within 5km of the Site and therefore accessible by cyclists.
- 4.12.5. National Cycle Network Route 51 passes through Bicester in a south west to north east alignment, linking Launton village, Gavray Drive, Tubbs Crossing, Sheep Street, Bicester Village and Wendlebury. A combination of on-road routes and off-road traffic free route sections form the route passing through Bicester via the town centre and both stations (Bicester North and Bicester Town).

### Bus Services

- 4.12.6. There are bus stops located on the B4030 comprising a flag with timetable information. The bus stops are served by bus route 25 which routes from Lower Heyford to Bicester. The service operates on an hourly basis Monday to Saturday.
- 4.12.7. There is a further bus stop on Wensum Crescent to the east of the Site. It is served by bus route 21 which is the Bicester town service and operates a 30-minute service Monday to Saturday.

### Rail Services

- 4.12.8. Bicester benefits from two railway stations in the town; Bicester North and Bicester Village. These stations are situated approximately 3.1km and 3.7km from the proposed site respectively.
- 4.12.9. Bicester North station provides an hourly service to Birmingham Snow Hill and to Banbury, and trains up to 3 times an hour to London Marylebone. Bicester North station has a ticket office and machines, refreshment facilities, toilets, car parking (530 spaces) and cycle parking (65 spaces).
- 4.12.10. Trains from Bicester Village are every 30 minutes between Oxford and London Marylebone. Bicester Village station has a ticket office and machines, refreshment facilities, toilets, waiting rooms, car parking (223 spaces) and cycle parking (50 spaces).

### Personal Injury Collisions

- 4.12.11. A review of personal injury collisions on [www.crashmap.co.uk](http://www.crashmap.co.uk) for the latest five-year period identified there were four recorded collisions along the site frontage on the B4030. There were three slight collisions and one serious collision. Two of the slight collisions occurred in 2018 with one involving two vehicles and two casualties and the other involving three vehicles and one casualty. The other slight collision occurred in 2021 and involved one vehicle and one casualty. The serious collision occurred in 2022 and involved two vehicles and two casualties.
- 4.12.12. There were two slight collisions at the B4030/ Vendee Drive/ Howes Lane/ Middleton Stoney Road roundabout. Both collisions occurred on the Vendee Drive arm. One collision occurred in

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2021 involving one vehicle and one casualty and the other collision occurred in 2022 and involved two vehicles and one casualty.

4.12.13. There was one slight collision on Howes Lane north of the junction with Shakespeare Drive. The collision occurred in 2019 and involved two vehicles and two casualties.

4.12.14. There was one slight collision at Howes Lane/ Bucknell Road junction. The collision occurred in 2022 and involved two vehicles and one casualty.

### 4.13. Assessment of Likely Significant Effects

#### Effects during Construction

4.13.1. The potential significance of effects during the construction phase is the same as identified in the original Transport chapter of the 2014 Environmental Statement, and are identified as:

- Potential effect on pedestrian amenity, severance and fear and intimidation due to the increase in vehicle flows and the change in flow composition i.e. an increase in large type vehicles. The effect of an increase in HGV traffic associated with the construction is anticipated to be temporary and of minor adverse significance.
- Potential increase in driver and pedestrian delays due to the additional vehicles associated with the development on the highway network together with possible temporary traffic management. The effect of an increase in vehicle flow is anticipated to be temporary and of minor adverse significance.

#### Effects during Operation

4.13.2. The original Transport chapter of the 2014 Environmental Statement confirms the potential and residual effects of the development at Table 8.19. These concluded for all effects that any residual adverse effect would be minor or negligible.

4.13.3. Based on the above assessment criteria any changes in traffic generation of that forecast from the Local Centre (land allocated for 'Social/Community' and 'Other Uses') would need to be significant (and more than 10% at least) to alter the overall conclusions on residual impact.

4.13.4. On that basis, the proposed changes to Condition 44 are intended to ensure that overall traffic generation of the Site does not materially exceed that previously found to be acceptable (subject to the overall agreed mitigation package).

4.13.5. The original Transport Assessment (TA) for the Site dates to December 2014. An addendum was produced in October 2016. The mix of local centre uses tested in the TA aligns with the limits set in Condition 44.



Table 6.2 Non-residential Uses

Land use	GIA (m <sup>2</sup> )	Notes
Hotel	2,600	Based on 40 room hotel/ 62m <sup>2</sup> per resident
Veterinary surgery	2,000	Based on discussion with possible occupant
Primary school	2,750	Based on typical 2FE primary school + nursery
Extra care/ retirement village	9,000	Based on 100 unit facility
Pub/ community	400	
Retail	700	
Health facility	1,500	Based on typical GP surgery + ancillary facilities
Office	1,000	
Nursery	100	
Energy Centre	375	
Water Treatment Plant	450	

- 4.13.6. To calculate the number of trips generated by these land uses the original TA (2014) obtained person trips from the TRICS database and then estimated the internal and external trips from assumptions regarding containment.
- 4.13.7. The target level of containment was for at least 35% of trips to be within NW Bicester and 60% to be within Bicester as a whole.
- 4.13.8. For retail, leisure, community and health care uses, the proportion of trips which would be linked to other land uses was estimated, allowing a 30% reduction in the trip generation. Internal trips were excluded from the total trip count as they would be double counted with the trips made by residents.
- 4.13.9. The 2031 target mode split for external trips within, and outside Bicester was then applied to the respective number of person trips by each mode, to calculate the trips generated from car drivers, car passengers, bus passengers, bicycles and pedestrians.
- 4.13.10. The detailed outcome of this approach is not set out in the original TA (2014), and it is not therefore possible to directly relate external traffic generation back to the TA for each use. Therefore, for robust assessment of the impacts of the changes to Condition 44, trip rates are considered firstly on the basis of Garden Gate trips which includes all vehicular movements to and from each element. There will be a significant level of linked and bypass trips related to all uses and therefore the residual external impact will be lower as discussed below.
- 4.13.11. To inform this assessment, an updated TRICS assessment (See **Appendix 4.1**) has been undertaken for the various land uses and this has been expanded to also include the provision of discount food retail store. The results are summarised in Table 4.7 below.
- 4.13.12. For the avoidance of doubt the development mix includes a water treatment works which will only require infrequent access for maintenance and that is therefore excluded from explicit assessment.

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Table 4.7: Trip Rates

	TRIP RATES								
	AM			PM			12 Hours		
Use	In	Out	Total	In	Out	Total	In	Out	Total
Hotel	0.14	0.76	0.90	0.58	0.42	1.00	5.02	5.06	10.07
Veterinary Surgery	2.32	1.16	3.48	1.80	2.06	3.87	23.07	22.94	46.00
Pub/ Community	-	-	-	-	-	-	-	-	-
Retail	7.89	7.01	14.90	12.55	12.99	25.54	136.88	137.32	274.21
Office	2.61	0.24	2.85	0.00	1.94	1.94	7.92	8.26	16.17
Health Facility	3.40	1.61	5.01	1.24	2.42	3.66	30.16	28.63	58.79
Nursery	6.58	5.19	11.77	5.19	7.22	12.41	29.37	30.07	59.44
Retail - Discount Food Store	2.95	2.02	4.97	5.10	5.29	10.39	57.82	57.51	115.32

4.13.13. Trip rates were not included for the 'Pub / Community' land use as the only available surveys on the TRICS database were from the weekend. This is unlikely to have a significant peak hour traffic generation in any event.

4.13.14. Table 4.8 below sets out the resultant trip generation assuming no internalisation.

Table 4.8: Trip Generation

	GFA	TRIP GENERATION								
		AM			PM			12 Hours		
Consent		In	Out	Total	In	Out	Total	In	Out	Total
Hotel	2600	4	20	23	15	11	26	130	131	262
Veterinary Surgery	2000	46	23	70	36	41	77	461	459	920
Pub/ Community	400	-	-	-	-	-	-	-	-	-
Retail	700	55	49	104	88	91	179	958	961	1919
Office	1000	26	2	29	1	19	19	79	83	162
Health Facility	1500	51	24	75	19	36	55	452	429	882
Nursery	100	7	5	12	5	7	12	29	30	59
Total	8300	189	124	313	164	206	369	2111	2094	4204

4.13.15. Of the above it was noted that the veterinary surgery was tested in the original TA (2014) based on health facility trip rates. These are slightly higher than the updated TRICS assessment in the AM and across the day (around 25%) but comparable in the PM peak and across the day. The quantum of floor space for the vet surgery in particular was large and is said in the TA to be based on discussions with an operator. The average size of veterinary surgeries in TRICS is closer to 400 sqm.

4.13.16. The assessment has also been updated to reflect the inclusion of a discount food store (2,500 sqm) and 300 sqm of local shop retail. Furthermore, the floor spaces of the other uses have been reviewed. For the purposes of this assessment other non-traffic generation uses (i.e. the waste treatment works and energy centre) have been excluded from the assessment.

4.13.17. On that basis a revised trip rate assessment for all Garden Gate trip generation is provided below:

Table 4.9: Trip Generation

Revised 44		Garden Gate TRIP GENERATION								
		AM			PM			12 Hours		
Consent	GFA	In	Out	Total	In	Out	Total	In	Out	Total
Hotel	2000	3	15	18	12	8	20	100	101	201
Veterinary Surgery	300	7	3	10	5	6	12	69	69	138
Pub/ Community	500	0	0	0	0	0	0	0	0	0
Retail	300	24	21	45	38	39	77	411	412	823
Office	1000	26	2	29	1	19	19	79	83	162
Health Facility	500	17	8	25	6	12	18	151	143	294
Nursery	500	33	26	59	26	36	62	147	150	297
Discount Food Store	2500	74	51	124	127	132	260	1445	1438	2883
<b>Total</b>	<b>7600</b>	<b>180</b>	<b>111</b>	<b>292</b>	<b>204</b>	<b>245</b>	<b>448</b>	<b>2402</b>	<b>2396</b>	<b>4798</b>

- 4.13.18. The above, at a garden gate level would increase flows from the Site by around 600 trips per day. Furthermore, trips to and from all community uses will, by definition, be very localised. The total number of wholly new trips related to retail uses is likely to be less than 5% of total movements. This is on the basis that food store retail trips will unlikely be from outside Bicester and those that are will either be diverting from other food stores in the area (and therefore potentially more local) or generated from new housing which is assessed elsewhere.
- 4.13.19. The same approach would apply to the nursery provision (which would be used by either local residents or local employees on their way to work). The 35% for vet and office has been retained from the original assessment and the hotel has been assumed to be 100% new trips.
- 4.13.20. In that basis Table 4.10 and Table 4.11 below compares the level of “primary trips” generated by the proposals both in terms of the current consent and the proposed changes to it.

Table 4.10: Trip Generation – Existing Consent

Existing Consent		Primary TRIP GENERATION								
		AM			PM			12 Hours		
	Primary	In	Out	Total	In	Out	Total	In	Out	Total
Hotel	100%	4	20	23	15	11	26	130	131	262
Veterinary Surgery	35%	16	8	24	13	14	27	161	161	322
Pub/ Community	0		0	0	0	0	0	0	0	0
Retail	5%	3	2	5	4	5	9	48	48	96
Office	35%	9	1	10	0	7	7	28	29	57
Health Facility	5%	3	1	4	1	2	3	23	21	44
Nursery	5%	0	0	1	0	0	1	1	2	3
Discount Food Store	5%	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>35</b>	<b>33</b>	<b>67</b>	<b>34</b>	<b>39</b>	<b>72</b>	<b>392</b>	<b>392</b>	<b>784</b>

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Table 4.11: Trip Generation – Proposed

Proposed		Primary TRIP GENERATION								
		AM			PM			12 Hours		
	Primary	In	Out	Total	In	Out	Total	In	Out	Total
Hotel	100%	3	15	18	12	8	20	100	101	201
Veterinary Surgery	35%	2	1	4	2	2	4	24	24	48
Pub/ Community	0	0	0	0	0	0	0	0	0	0
Retail	5%	1	1	2	2	2	4	21	21	41
Office	35%	9	1	10	0	7	7	28	29	57
Health Facility	5%	1	0	1	0	1	1	8	7	15
Nursery	5%	2	1	3	1	2	3	7	8	15
Discount Food Store	5%	4	3	6	6	7	13	72	72	144
<b>Total</b>		<b>22</b>	<b>23</b>	<b>44</b>	<b>24</b>	<b>28</b>	<b>52</b>	<b>260</b>	<b>261</b>	<b>521</b>

4.13.21. The overall net difference from the existing consent to the proposed is shown in Table 4.12 below.

Table 4.12: Net Difference in Trip Generation from Consented to Proposed

		Primary TRIP GENERATION								
		AM			PM			12 Hours		
	Primary	In	Out	Total	In	Out	Total	In	Out	Total
Hotel	100%	-1	-5	-5	-3	-3	-6	-30	-30	-61
Veterinary Surgery	35%	-14	-7	-20	-11	-12	-23	-137	-137	-274
Pub/ Community	0	0	0	0	0	0	0	0	0	0
Retail	5%	-2	-1	-3	-2	-3	-5	-27	-27	-55
Office	35%	0	0	0	0	0	0	0	0	0
Health Facility	5%	-2	-1	-3	-1	-1	-2	-15	-14	-29
Nursery	5%	2	1	2	1	2	2	6	6	12
Discount Food Store	5%	4	3	6	6	7	13	72	72	144
<b>Total</b>		<b>-13</b>	<b>-10</b>	<b>-23</b>	<b>-10</b>	<b>-11</b>	<b>-20</b>	<b>-132</b>	<b>-131</b>	<b>-263</b>

4.13.22. As can be seen from the above, the primary trip generation is low and, in all cases, lower than the originally assessed traffic generation of the site.

4.13.23. Table 8.12 of the original Transport ES chapter (2014) highlighted those highway links where a 10% or more increase in traffic is forecast from the Development compared to the 2031 Reference Case. The impact on the following links of more than 10% is identified in Table 4.13 below.

Table 4.13: 2031 Reference Case Flows

Location	AM	PM
Middleton Stoney Rd, W of Howes Lane	519	642
Bucknell Road, S of Lords Lane	516	932
Banbury Rd, S of A4095	764	929
Shakespeare Drive, S of Howes Lane	138	85
M40 J10 northbound off slip road	759	523

Shakespeare Drive, E of Middleton Stoney Road	950	873
The Approach, W of Bucknell Road	401	507
Ardley Road, N of Bucknell	349	533
Middleton Road, W of Bucknell	32	30
B4030 Middleton Stoney Road, NW of NWB	522	642

4.13.24. The 2031 reference case flows with the development is set out in Table 4.14.

**Table 4.14: 2031 Reference Case Flows with Development Flows**

Location	AM	PM
Middleton Stoney Rd, W of Howes Lane	759	922
Bucknell Road, S of Lords Lane	569	954
Banbury Rd, S of A4095	851	1004
Shakespeare Drive, S of Howes Lane	176	121
M40 J10 northbound off slip road	838	573
Shakespeare Drive, E of Middleton Stoney Road	999	972
The Approach, W of Bucknell Road	507	566
Ardley Road, N of Bucknell	387	539
Middleton Road, W of Bucknell	107	155
B4030 Middleton Stoney Road, NW of NWB	583	752

Severance and Fear and Intimidation

4.13.25. The likely impact on severance and fear and intimidation for each of the selected highway links was set out in Table 8.13 of the original Transport ES chapter (2014). There were three highway links identified where the development flows would have an effect on severance and fear and intimidation. The increased traffic on Middleton Road would likely to have a substantial adverse effect and the increased traffic on Middleton Stoney Road and Shakespeare Drive south of Howes Lane is likely to have a minor adverse effect.

4.13.26. The change in development flows is -23 trips in the AM peak and -20 trips in the PM peak and therefore lower than the originally assessed traffic generation of the Site. This would not change the conclusion of the effect on severance and fear and intimidation.

Pedestrian Amenity

4.13.27. The likely impact on pedestrian amenity for each of the selected highway links was set out in Table 8.14 of the original Transport ES chapter (2014). There would likely to be an adverse effect on pedestrian amenity on Middleton Road resulting in a substantial adverse effect.

4.13.28. The change in development flows is -23 trips in the AM peak and -20 trips in the PM peak and therefore lower than the originally assessed traffic generation of the Site. This would not change the conclusion of the effect on pedestrian amenity.

Pedestrian Delay

4.13.29. The assessment of pedestrian delay in the original Transport ES chapter (2014) highlighted that all links were below the threshold volume of traffic (1,400 vehicle per hour). The effect of pedestrian delay on the links is negligible effect.

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- 4.13.30. The change in development flows is -23 trips in the AM peak and -20 trips in the PM peak and therefore lower than the originally assessed traffic generation of the site. This would not change the conclusion of the effect on pedestrian delay.

### Driver Delay

- 4.13.31. The likely impact on driver delay for each of the selected highway links was set out in Table 8.15 of the original Transport ES chapter (2014). There were three highway links identified where the development flows would have an effect on driver delay. The significance of the impact was minor adverse on the B4030 Middleton Stoney Road, substantial adverse on Banbury Road, south of the A4095 and substantial adverse on Shakespeare Drive.
- 4.13.32. The change in development flows is -23 trips in the AM peak and -20 trips in the PM peak and therefore lower than the originally assessed traffic generation of the Site. This would not change the conclusion of the effect on driver delay.

### **Summary of Significance of Effects (Before Mitigation)**

- 4.13.33. Table 4.15 below provides a summary of the significance of effects.

Table 4.15: Significance of Effects (before Mitigation)

Environmental Effect	Sensitivity of Receptor	Impact Magnitude	Nature of Impact (Permanent / Temporary)	Effect and Significance
<b>CONSTRUCTION</b>				
Severance and Fear and Intimidation	Minor Adverse	Minor Adverse	Temporary	Minor Adverse
Pedestrian Amenity	Minor Adverse	Minor Adverse	Temporary	Minor Adverse
Pedestrian Delay	Minor Adverse	Minor Adverse	Temporary	Minor Adverse
Driver Delay	Minor Adverse	Minor Adverse	Temporary	Minor Adverse
<b>OPERATION</b>				
Severance and Fear and Intimidation	<p>The sensitivity of the receptor on Middleton Stoney Road and Shakespeare Drive South of Howes Lane is medium.</p> <p>The sensitivity of the receptor on Middleton Road is high.</p> <p>The sensitivity of the receptor on the other links is negligible.</p>	<p>The impact magnitude on Middleton Stoney Road and Shakespeare Drive South of Howes Lane is medium.</p> <p>The impact of magnitude on Middleton Road is high.</p> <p>The impact of magnitude on the other links is negligible.</p>	Permanent	<p>The effect on Middleton Stoney Road and Shakespeare Drive South of Howes Lane is of minor adverse.</p> <p>The effect on Middleton Road is of substantial adverse.</p> <p>The effect on the other links is negligible.</p>
Pedestrian Amenity	<p>The sensitivity of the receptor on Middleton Road is medium.</p> <p>The sensitivity of the receptor on the other links is negligible.</p>	<p>The impact magnitude of pedestrian amenity on Middleton Road is medium.</p> <p>The impact of magnitude on the other links is negligible.</p>	Permanent	<p>The effect on Middleton Road is of substantial adverse.</p> <p>The effect on the other links is negligible.</p>
Pedestrian Delay	The sensitivity of the receptor on all links is negligible.	The impact of magnitude on all links is negligible.	Permanent	The effect on all links is negligible.

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Driver Delay	<p>The sensitivity of the receptor on the B4030 Middleton Stoney Road is medium.</p> <p>The sensitivity of the receptor on Banbury Road, south of the A4095 and Shakespeare Drive is high.</p> <p>The sensitivity of the receptor on the other links is negligible.</p>	<p>The impact of magnitude on the B4030 Middleton Stoney Road is medium.</p> <p>The impact of magnitude on Banbury Road, south of the A4095 and Shakespeare Drive is high.</p> <p>The impact of magnitude on the other links is negligible.</p>	Permanent	<p>The effect of driver delay on the B4030 Middleton Stoney Road is minor adverse.</p> <p>The effect of driver delay on Banbury Road, south of the A4095 and Shakespeare Drive is substantial adverse.</p> <p>The effect on the other links is negligible.</p>
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**4.14. Mitigation, Enhancement and Residual Effects**

**Mitigation by Design**

4.14.1. Mitigation is set out in the original Transport chapter of the Environmental Statement (2014). Given the conclusions have not changed in respect of the significance of effects, it is therefore not necessary to revisit the mitigation measures originally proposed.

**Residual Effects**

4.14.2. A summary of the residual effects which is consistent with the original Transport chapter of the Environmental Statement is set out in Table 4.16 below.

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Table 4.16: Residual Significance of Effects (with Mitigation)

Environmental Effect	Sensitivity of Receptor	Impact Magnitude	Nature of Impact (Permanent/ Temporary)	Residual Effect and Significance
<b>CONSTRUCTION</b>				
Severance and Fear and Intimidation	Minor Adverse	Minor Adverse	Temporary	Minor Adverse
Pedestrian Amenity	Minor Adverse	Minor Adverse	Temporary	Minor Adverse
Pedestrian Delay	Minor Adverse	Minor Adverse	Temporary	Minor Adverse
Driver Delay	Minor Adverse	Minor Adverse	Temporary	Minor Adverse
<b>OPERATION</b>				
Severance and Fear and Intimidation	<p>The sensitivity of the receptor on Middleton Stoney Road and Shakespeare Drive South of Howes Lane is medium.</p> <p>The sensitivity of the receptor on Middleton Road is high.</p> <p>The sensitivity of the receptor on the other links is negligible.</p>	<p>The impact magnitude on Middleton Stoney Road and Shakespeare Drive South of Howes Lane is medium.</p> <p>The impact of magnitude on Middleton Road is high.</p> <p>The impact of magnitude on the other links is negligible.</p>	Permanent	<p>The residual effect on Middleton Stoney Road is permanent effect of negligible significance.</p> <p>The residual effect on Shakespeare Drive South of Howes Lane is permanent effect of minor adverse significance.</p> <p>The residual effect on Middleton Road is permanent effect of minor adverse significance.</p> <p>The residual effect on all links is a permanent effect of negligible significance.</p>

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<p>Pedestrian Amenity</p>	<p>The sensitivity of the receptor on Middleton Road is medium.</p> <p>The sensitivity of the receptor on the other links is negligible.</p>	<p>The impact magnitude on Middleton Road is medium.</p> <p>The impact of magnitude on the other links is negligible.</p>	<p>Permanent</p>	<p>The residual effect on Middleton Road is permanent effect of minor adverse significance.</p> <p>The residual effect on all links is a permanent effect of negligible significance.</p>
<p>Pedestrian Delay</p>	<p>The sensitivity of the receptor on all links is negligible.</p>	<p>The impact of magnitude on all links is negligible.</p>	<p>Permanent</p>	<p>The residual effect on all links is a permanent effect of negligible significance.</p>
<p>Driver Delay</p>	<p>The sensitivity of the receptor on the B4030 Middleton Stoney Road is medium.</p> <p>The sensitivity of the receptor on Banbury Road, south of the A4095 and Shakespeare Drive is high.</p> <p>The sensitivity of the receptor on the other links is negligible.</p>	<p>The impact of magnitude on the B4030 Middleton Stoney Road is medium.</p> <p>The impact of magnitude on Banbury Road, south of the A4095 and Shakespeare Drive is high.</p> <p>The impact of magnitude on the other links is negligible.</p>	<p>Permanent</p>	<p>The residual effect on Banbury Road, south of the A4095 and Shakespeare Drive is permanent effect of minor adverse significance.</p> <p>The residual effect on the other links is a permanent effect of negligible significance.</p>

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### 4.15. Cumulative Effects

- 4.15.1. The original Transport Assessment (2014) and original Transport chapter of the Environmental Statement (2014) considered the cumulative effects through the testing of the proposed development in the Bicester Saturn model which included a future year assessment of 2031. This included all committed and planned growth in the area.
- 4.15.2. Given the conclusions have not changed in respect of the significance of effects, it is therefore not necessary to revisit the cumulative effects.

### 4.16. Summary

#### Introduction

- 4.16.1. This chapter has been prepared by DTA Transportation. The aim of this chapter is to consider the potential traffic and transportation effects that are likely to arise with the proposed development.

#### Baseline Conditions

- 4.16.2. The Site is located to the west of the A4095 Howes Lane and is bound to the south by Middleton Stoney Road. The Site is situated to the west of existing residential areas of Bicester, namely Highfield and west Bicester and is approximately 5km from the town centre (measured to the Himley Farm buildings enclosed within the red line boundary).
- 4.16.3. Bicester lies approximately 24km to the north east of Oxford and 28km to the south east of Banbury. The M40 is located 2km to the west, with access to the town from Junction 9 via the A41. The Site can also be accessed via Junction 10 of the M40 Motorway, which is located approximately 8km to the north-west. The Site comprises agricultural land and Himley Farm with Grade II listed farm buildings. The village of Bucknell is located to the north of the Site and Middleton Stoney to the west.

#### Pedestrian and Cycle Provision

- 4.16.4. A shared footway/ cycleway is provided along the B4030 from Empire Road to the B4030/ Vendee Drive/ Howes Lanes/ Middleton Stoney Road roundabout connecting into existing footway provision. There is no footway/ cycleway provision on Howes Lane.
- 4.16.5. The majority of Bicester is located within 5km of the Site and therefore accessible by cyclists.
- 4.16.6. National Cycle Network Route 51 passes through Bicester in a south west to north east alignment, linking Launton village, Gavray Drive, Tubbs Crossing, Sheep Street, Bicester Village and Wendlebury. A combination of on-road routes and off-road traffic free route sections form the route passing through Bicester via the town centre and both stations (Bicester North and Bicester Town).

#### Bus Services

- 4.16.7. There are bus stops located on the B4030 comprising a flag with timetable information. The bus stops are served by bus route 25 which routes from Lower Heyford to Bicester. The service operates on an hourly basis Monday to Saturday.

- 4.16.8. There is a further bus stop on Wensum Crescent to the east of the site. It is served by bus route 21 which is the Bicester town service and operates a 30-minute service Monday to Saturday.

### Rail Services

- 4.16.9. Bicester benefits from two railway stations in the town; Bicester North and Bicester Village. These stations are situated approximately 3.1km and 3.7km from the proposed site respectively.
- 4.16.10. Bicester North station provides an hourly service to Birmingham Snow Hill and to Banbury, and trains up to 3 times an hour to London Marylebone. Bicester North station has a ticket office and machines, refreshment facilities, toilets, car parking (530 spaces) and cycle parking (65 spaces).
- 4.16.11. Trains from Bicester Village are every 30 minutes between Oxford and London Marylebone. Bicester Village station has a ticket office and machines, refreshment facilities, toilets, waiting rooms, car parking (223 spaces) and cycle parking (50 spaces).

### **Likely Significant Effects**

- 4.16.12. The assessment of (direct) environmental effects arising from the proposed development, as a result of construction and operational traffic generated by the proposed development has been undertaken in line with IEMA Guidelines for the assessment of environmental effects arising from road traffic, specifically severance and increase in fear and intimidation, pedestrian amenity, pedestrian delay, and increases in driver delay.
- 4.16.13. The change in development flows is -23 trips in the AM peak and -20 trips in the PM peak and therefore lower than the originally assessed traffic generation of the Site. This would not change the conclusion of the significance of effect on severance and fear and intimidation, pedestrian amenity, pedestrian delay and driver delay.

### **Mitigation and Enhancement**

- 4.16.14. Mitigation is set out in the original Transport chapter of the Environmental Statement. Given the conclusions have not changed in respect of the significance of effects, it is therefore not necessary to revisit the mitigation measures originally proposed.

### **Conclusion**

- 4.16.15. Table 4.17 provides a summary of effects, mitigation and residual effects.

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Table 4.17: Summary of Effects, Mitigation and Residual Effects

Receptor / Receiving Environment	Description of Effect	Nature of Effect *	Sensitivity Value**	Magnitude of Effect**	Geographical Importance ***	Significance of Effects ****	Mitigation / Enhancement Measures	Residual Effects ****
<b>Construction</b>								
Local community, residents and pedestrians and cyclist users of the local road network	Severance and Fear and Intimidation	Temporary/ Direct	Not Applicable	Minor Adverse	Local	Minor Adverse <b>Not Significant</b>	No further mitigation proposed	Minor Adverse <b>Not Significant</b>
Pedestrian users of the local road network	Pedestrian Amenity	Temporary/ Direct	Not Applicable	Minor Adverse	Local	Minor Adverse <b>Not Significant</b>	No further mitigation proposed	Minor Adverse <b>Not Significant</b>
Pedestrian users of the local road network	Pedestrian Delay	Temporary/ Direct	Not Applicable	Minor Adverse	Local	Minor Adverse <b>Not Significant</b>	No further mitigation proposed	Minor Adverse <b>Not Significant</b>

Motorised Users	Driver Delay	Temporary/ Direct	Not Applicable	Minor Adverse	Local	Minor Adverse  <b>Not Significant</b>	No further mitigation proposed	Minor Adverse  <b>Not Significant</b>
<b>Operation</b>								
Local community, residents and pedestrians and cyclist users of the local road network	Severance and Fear and Intimidation	Permanent/ Direct	<b>Not Applicable</b>	The impact magnitude on Middleton Stoney Road and Shakespeare Drive South of Howes Lane is medium.  The impact of magnitude on Middleton Road is high.  The impact of magnitude on the other links is negligible.	Local	The effect on Middleton Stoney Road and Shakespeare Drive South of Howes Lane is of minor adverse.  The effect on Middleton Road is of substantial adverse.  The effect on the other links is negligible.	No further mitigation proposed	The residual effect on Middleton Stoney Road is permanent effect of negligible significance.  The residual effect on Shakespeare Drive South of Howes Lane is permanent effect of minor adverse significance.  The residual effect on Middleton Road is permanent effect of minor adverse significance.  The residual effect on all links is a

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						<b>Not Significant</b>		permanent effect of negligible significance.  <b>Not Significant</b>
Pedestrian users of the local road network	Pedestrian Amenity	Permanent/Direct	<b>Not Applicable</b>	The impact magnitude on Middleton Road is medium.  The impact of magnitude on the other links is negligible.	Local		No further mitigation proposed	The residual effect on Middleton Road is permanent effect of minor adverse significance.  The residual effect on all links is a permanent effect of negligible significance.  <b>Not significant</b>
Pedestrian users of the local road network	Pedestrian Delay	Permanent/Direct	<b>Not Applicable</b>	The impact of magnitude on all links is negligible.	Local		No further mitigation proposed	The residual effect on all links is a permanent effect of negligible significance.  <b>Not significant</b>



<p>Motorised Users</p>	<p>Driver Delay</p>	<p>Permanent/ Direct</p>	<p><b>Not Applicable</b></p>	<p>The impact of magnitude on the B4030 Middleton Stoney Road is medium.</p> <p>The impact of magnitude on Banbury Road, south of the A4095 and Shakespeare Drive is high.</p> <p>The impact of magnitude on the other links is negligible.</p>	<p>Local</p>		<p>No further mitigation proposed</p>	<p>The residual effect on Banbury Road, south of the A4095 and Shakespeare Drive is permanent effect of minor adverse significance.</p> <p>The residual effect on the other links is a permanent effect of negligible significance.</p> <p><b>Not significant</b></p>
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