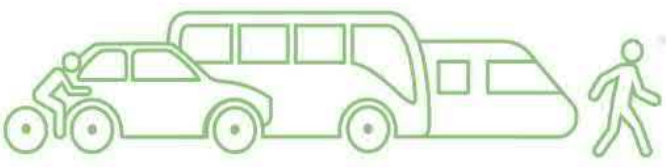
VTP CONSULTATION RESPONSES

PART 3 OF 3
ATTACHMENTS 7-10

VELOCITY
Transport Planning

ATTACHMENT 7

VTP TECHNICAL NOTE – SPINE ROAD SUITABILITY ASSESSMENT



VELOCITY
Transport Planning

1 INTRODUCTION

1.1 SCOPE

1.1.1 Velocity Transport Planning (VTP) has been appointed by Firethorn Trust (the Applicant) to provide highways and transport planning advice for an outline planning application relating to the development of up to 530 dwellings on land which forms part of the North West Bicester Eco Town development, located in Oxfordshire.

1.1.2 The Application Site falls within the administrative area of Cherwell District Council (CDC) and within the authority of Oxfordshire County Council (OCC) who are the local highway authority.

1.1.3 The Proposed Firethorn Development description for the outline planning application, planning reference: 21/01630/OUT, is as follows:

> *"Outline planning application for residential development (within Use Class C3), open space provision, access, drainage and all associated works and operations including but not limited to demolition, earthworks, and engineering operations, with the details of appearance, landscaping, layout and scale reserved for later determination."*

1.2 OCC CONSULTATION RESPONSE

1.2.1 An OCC consultation response to the outline planning application and Transport Assessment (TA) produced by VTP was received on 6th July 2021.

1.2.2 The OCC consultation response requested further information to be provided on several transport aspects across the application. A summary of the OCC consultation response is provided below:

- OCC requested further clarity on the proposed access points to the site and connectivity to the adjacent parcels of land;
- OCC noted issues regarding construction access and visibility that required further clarification;
- OCC requested further information be provided on the impacts of construction traffic within the Environmental Statement;
- OCC noted inaccuracies regarding sustainable transport accessibility that required amending; and
- OCC requested further information be provided to identify the suitability of the existing Elmsbrook Spine Road to accommodate additional traffic and any mitigation measures that may be required.

1.2.3 A comprehensive response to the wider OCC comments is currently being prepared by VTP to respond to the points raised. This Technical Note (TN) has been prepared to address the OCC comments in relation to the suitability of the existing Elmsbrook Spine Road.

1.2.4 For completeness, the OCC comment on the Elmsbrook Spine Road (referred to hereafter as the 'Spine Road') is replicated below:

"The TA does not assess the impact of development traffic on the Elmsbrook spine road. Local objectors have highlighted the congestion experienced currently, particularly at school start and finish times. The roads have been designed with tight geometry and narrowings to slow traffic down, with one long narrowing only 4.1m wide, north of the school. It is debatable whether the road was designed with the eastern parcel in mind, since the NW Bicester masterplan shows no dwellings on this site. Safety issues due to lack of formal crossing points have also been highlighted, and the applicant has offered a contribution towards a zebra crossing. Further work should be carried out by the applicant to assess the suitability of the link for the development traffic and NMUs, and this may result in further mitigation being required."

1.3 REPORT STRUCTURE

1.3.1 Following this introduction, this TN is structured as follows:

- **Section 2** – Background of the Spine Road;
- **Section 3** – Methodology and Cumulative Impact;
- **Section 4** – Spine Road Suitability; and
- **Section 5** – Conclusions.

2 BACKGROUND OF THE SPINE ROAD

2.1 THE ELMSBROOK SPINE ROAD

2.1.1 The Spine Road is identified as being the existing single carriageway road from the priority junction of the B4100 with Braeburn Avenue to the north of the Elmsbrook development, through the existing Elmsbrook development, to the priority junction of the B4100 with Charlotte Avenue to the south east of the Elmsbrook development.

2.1.2 The Elmsbrook development, also known as the Exemplar scheme, secured planning permission on the 10th of July 2012 (Planning Ref 10/01780/HYBRID) for the following:

> "*Development of Exemplar phase of NW Bicester Eco Town to secure full planning permission for 393 residential units and an energy centre (up to 400 square metres), means of access, car parking, landscape, amenity space and service infrastructure and outline permission for a nursery of up to 350 square metres (use class D2), a community centre of up to 350 square metres (sui generis), 3 retail units of up to 770 square metres (including but not exclusively a convenience store, a post office and a pharmacy (use class A1)), an Eco-Business Centre of up to 1,800 square metres (use class B1), office accommodation of up to 1,100 square metres (use class B1), an Eco-Pub of up to 190 square metres (use class A4), and a primary school site measuring up to 1.34 hectares with access and layout to be determined*."

2.1.3 Condition 60 of the permitted Elmsbrook development related to the extent of adoptable highways within the Elmsbrook development and stated as follows:

> "*Prior to the commencement of a phase, identified in condition 2 and notwithstanding the details shown on drawing nos. 7154 -UA001881-3 & 7155- UA001881-3 a revised plan of adoptable highways including vision splays shall be submitted to and approved in writing prior to the commencement of development of that phase. The roads, lanes and community streets shall thereafter be constructed in accordance with the proposed details.*
>
> *Reason: To ensure an adequate construction and maintenance of roads, lanes and Community Streets in accordance with TRI of the Cherwell Local Plan*."

2.1.4 Condition 60 of the Elmsbrook development has been discharged through a series of consents related to Planning Application 15/00535/DISC and whilst a Section 38 Agreement has been entered into for the Spine Road, it is understood that the Spine Road has yet to be adopted by OCC. As such, the Spine Road is currently a private road within the control of the Elmsbrook Applicant, identified as being A2Dominion Developments Ltd.

2.1.5 The following Drawings prepared by Hyder Consulting present the General Arrangement of the Spine Road, the full versions of which are included in **ATTACHMENT 1** of this TN:

- 7234/UA001881/11 - Spine Road (S38) General Arrangement Sheet 1 of 4
- 7239/UA001881/14 - Spine Road (S38) General Arrangement Sheet 2 of 4
- 7240/UA001881/14 - Spine Road (S38) General Arrangement Sheet 3 of 4
- 7241/UA001881/12 - Spine Road (S38) General Arrangement Sheet 4 of 4

2.2 THE NORTH WEST BICESTER DEVELOPMENT

2.2.1 The 530 units being applied for by the Applicant are included within the NW Bicester Masterplan. Cherwell District Council (CDC) adopted the NW Bicester SPD in February 2016, which is identified as delivering the following development content:

- Up to 6,000 "true" zero carbon homes;
- Employment opportunities providing at least 4,600 new jobs;
- Up to four primary schools and one secondary school;
- Forty percent green space, half of which will be public open space;
- Pedestrian and cycle routes;
- New links under the railway line and to the existing town;
- Local centres to serve the new and existing communities; and
- Integration with existing communities.

2.2.2 The NW Bicester SPD includes a Masterplan for the overall proposals at Fig 10 of the SPD, an extract of which is set out below a **Figure 2-1** for ease of reference:

Figure 2-1: North West Bicester Masterplan

Figure 10: North West Bicester Masterplan – Masterplan Framework

2.2.3 It is noted that the Spine Road is included on the above SPD Masterplan and whilst not particularly clear, it is noted that the Spine Road, from its junction of the B4100 with Braeburn Avenue to a point where the existing Gagle Brook Primary School is located, is identified as being a Secondary Road including footpath/cycleway. From the Gagle Brook Primary School to the junction of the B4100 with Charlotte Avenue, the Spine Road is identified as being a Primary Road with segregated footpath/cycleway.

3 METHODOLOGY AND CUMULATIVE IMPACT

3.1 PROPOSED FIRETHORN DEVELOPMENT

3.1.1 Whilst it is accepted that the planning application is for up to 530 dwellings, the TA that supports the application considered a total of 550 dwellings. As such, the calculations presented within this TN that relate to the proposed Firethorn development, reference the higher figure of 550 dwellings and should therefore be considered robust.

3.1.2 With respect to the suitability of the Spine Road, it is proposed to undertake this assessment utilising the agreed trip generation information presented within the VTP TA that supported the planning application.

3.1.3 Based on principles of the NW Bicester SPD, the TA assumed that 60% of the total person trips from the area would be via sustainable modes, with private car usage making up the remaining 40% of the mode share.

3.1.4 It is proposed to extrapolate the mode share to determine how the remaining 60% of sustainable trips from the site would be spread across the various modes of transport. Utilising the journey to work census profile presented in Table 7-5 of the VTP TA, the proportions across the other modes have been adjusted to reflect the NW Bicester SPD mode share for car trips of 40%.

3.1.5 The anticipated baseline mode share and the adjusted mode share profile is presented below in **Table 3-1**.

Table 3-1: Adjusted Modal Split

METHOD OF TRAVEL	BASELINE MODAL SHARE	ADJUSTED MODE SHARE
Underground/Light Rail	0.1%	0.1%
Train	4.4%	9.3%
Bus/Minibus/Coach	4.3%	9.1%
Taxi	0.1%	0.2%
Motorcycle/Scooter	0.6%	1.3%
Driving a Car/Van	71.6%	40.0%
Passenger in a Car/Van	6.2%	13.1%
Bicycle	3.4%	7.2%
On Foot	9.2%	19.4%
Other	0.2%	0.3%
Total	**100%**	**100%**

3.1.6 The agreed total person trip generation, as presented in Table 7-10 of the VTP TA, has then been applied across the adjusted mode share to determine the number of trips per mode, as per the methodology utilised within the TA. The multi modal trip generation assessment for two-way trips is provided below in **Table 3-2**.

Table 3-2: Adjusted Proposed Firethorn Development Multi Modal Trip Generation

METHOD OF TRAVEL	ADJUSTED MODE SHARE	AM PEAK	PM PEAK	DAILY
Underground	0.1%	1	1	6
Train	9.3%	69	62	518
Bus/Minibus/Coach	9.1%	68	61	506
Taxi	0.2%	2	1	12
Motorcycle/Scooter	1.3%	9	8	71
Driving a Car/Van	40.0%	298	268	2,230
Passenger in a Car/Van	13.1%	98	88	730
Bicycle	7.2%	54	48	400
On Foot	19.4%	145	130	1,083
Other	0.3%	2	2	18
Total	**100%**	**745**	**670**	**5,574**

3.1.7 With respect to non-motorised users, it is acknowledged that with the exception of motorcycles/scooters and taxi users, all other trips may at some point be either a walking trip or a cycling trip.

3.1.8 To determine the total number of pedestrian trips that the development may generate, including linked pedestrian trips, it is assumed that all rail/underground trips will at some point be a pedestrian trip.

3.1.9 There are bus stops located within close proximity of the proposed Firethorn development and whilst residents will walk to the bus stops, they are not considered to have an impact on the critical constraint of the Spine Road, which is set out in more detail within this TN.

3.1.10 For rail/underground trips, it will be assumed that 50% of this total will be a pedestrian trip only, with the remainder all associated with cycle trips. This is considered as a representative assumption, as it is likely there is a comparable number of people that would cycle to the station as the number of people that would walk to the station.

3.1.11 Based on the assumptions above, it is estimated that approximately 24% of trips from the application site could at some point be a pedestrian trip and approximately 12% of trips from the application site could be a cycle trip. Overall, this equates to a total of 180 two-way walking trips in the AM peak and 162 two-way walking trips in the PM peak, as well as 89 two-way cycling trips in the AM peak and 80 two-way cycling trips in the PM peak.

3.1.12 As a robust assessment, it is assumed that all pedestrian and cycle trips that are associated with the proposed Firethorn development, including those that are linked with other sustainable modes of transport, will connect with the Spine Road at a point generally located to the south of the existing bus gate between Braeburn Avenue and Charlotte Avenue. As such, 100% of these combined trips are considered to cross the existing bridge on Charlotte Avenue located to the west of the Eco Business Centre, identified as being the critical constraint along the Spine Road and a sensible location to undertake our analysis.

3.1.13 The reason this bridge is considered to be a critical constraint is that not only is it constructed already, but there are footways of 2.0m width provided either side of the existing carriageway, which is identified as being generally 6.0m in width, with two road narrowing features either end of the bridge where informal crossing facilities are provided that reduce the width of the carriageway to approximately 4.1m.

3.2 ELMSBROOK TRIP GENERATION

3.2.1 Reference is also made to the consented and partially built phases of the Elmsbrook development, which will generate trips that will impact the capacity of the Spine Road in terms of vehicle trips, pedestrian trips, and cycle trips.

3.2.2 As a robust assessment, it will be assumed that all pedestrian and cycle trips from the Elmsbrook development will impact the Spine Road at the point where the bridge on Charlotte Avenue is located. This is considered to be a robust assessment, but sensible to ensure that no pedestrian/cycle trips associated with the consented scheme are missed. **Figure 3-1** presents an extract of this existing bridge from the S38 Adoption Plan.

Figure 3-1: Extract of Charlotte Avenue Bridge

3.2.3 It is acknowledged that additional pedestrian and cycle trips associated with the Gagle Brook Primary School from outside of the Elmsbrook development, in particular from Caversfield, currently also impact this bridge crossing along the Spine Road. However, it is expected that once the further phases of the NW Bicester Masterplan are built out, the Gagle Brook Primary School is expected to not only increase in size but should accommodate primary school children from predominantly the NW Bicester development with a reduced level of capacity for children living in Caversfield.

3.2.4 The Elmsbrook TA applied a 17.4% internalisation ratio to the total person trips. However, as all trips associated with the Elmsbrook development are considered to be internal anyway, i.e. will have an impact on the bridge crossing, it is not deemed appropriate to apply the internalisation factor. The total person trips have been extracted from Table 8.2 of the Elmsbrook TA, with the TA suggesting that the full scheme could generate a total of 1,018 two-way total person trips in the AM peak and 709 two-way total person trips in the PM peak.

3.2.5 As the TA for the Elmsbrook development did not undertake a multi modal assessment, it is proposed to split the total person trips by the adjusted proportions set out within **Table 3-1** of this TN as the travel profiles are likely to be the same. It is also noted that this assumption increases the number of sustainable trips identified for the Elmsbrook development, as the Elmsbrook TA assessed vehicle trips at generally between 50%-60%, rather than the 40% as identified within the adopted NW Bicester SPD.

3.2.6 Using the adjusted mode share, the reconfigured multi modal trip generation for the Elmsbrook development is presented in **Table 3-3**.

Table 3-3: Adjusted Elmsbrook Development Multi Modal Trip Generation

METHOD OF TRAVEL	ADJUSTED MODE SHARE	AM PEAK	PM PEAK	DAILY
Underground	0.1%	1	1	6
Train	9.3%	95	66	637
Bus/Minibus/Coach	9.1%	92	64	612
Taxi	0.2%	2	1	12
Motorcycle/Scooter	1.3%	13	9	92
Driving a Car/Van	40.0%	407	284	*2,722*
Passenger in a Car/Van	13.1%	133	93	887
Bicycle	7.2%	73	51	486
On Foot	19.4%	198	138	1,323
Other	0.3%	3	2	23
Total	**100%**	**1,018**	**709**	**6,803**

3.2.7 As the original TA for the Elmsbrook development did not include details of the Daily trips by mode, the AM and PM details have been factored up to Daily flows by mode based on a consistent factor to that which is identified for the proposed Firethorn development.

3.2.8 Based on the assumptions presented within this TN, it is estimated that approximately 24% of trips from the Elmsbrook development could at some point be a pedestrian trip and approximately 12% of trips from the Elmsbrook development could be a cycle trip. Overall, this equates to a total of 246 two-way walking trips in the AM peak and 172 two-way walking trips in the PM peak, as well as 121 two-way cycling trips in the AM peak and 85 two-way cycling trips in the PM peak. Again, it is acknowledged that these figures are robust as any walking and cycling trips from the occupied development to the east of the bridge crossing on Charlotte Avenue would have a limited impact on this constrained point.

3.2.9 It is acknowledged that the car driver trip generation presented in the Table above exceeds the trip generation set out within the Elmsbrook TA, which estimated a total of 303 two-way car trips in the AM peak and 239 two-way car trips in the PM peak in 2016, which would fall to 269 two-way car trips in the AM peak and 215 two-way car trips in the PM peak in 2026. The increase presented in the Table above is equivalent to a 34% and 19% increase across the respective AM and PM peak hours from the 2016 car trips, and a 51% and 32% increase from the AM and PM trips that the Elmsbrook TA estimated would be generated by the scheme in 2026.

3.2.10 It is proposed to utilise the car trips calculated using the multi modal assessment above, which accounts for the multi modal split targets set out within the NW Bicester SPD and the future aspirational targets for mode shift within OCC.

3.3 CUMULATIVE PEDESTRIAN AND CYCLE IMPACT

3.3.1 It is noted that in the future, once the remaining developments within the NW Bicester Masterplan come forward, in particular the adjacent development of the Hallam Land proposals, there may be additional vehicle, pedestrian and cycle trips that may route via the Spine Road, and in particular across the bridge, from the adjacent development sites. These additional trips are afforded the opportunity to access the Spine Road via the "Future Phase Link" near the Gagle Brook Primary School and as identified on the extract presented at **Figure 3-1**.

3.3.2 However, it is also considered that based on the layout of the NW Bicester Masterplan shown within Fig 10 of the NW Bicester SPD (**Figure 2-1** of this TN), these developments will likely introduce a number of additional pedestrian and cyclist routes which will improve permeability to the south - towards Bicester.

3.3.3 As travel towards the south is deemed as the primary desire line from the wider NW Bicester Masterplan, including the existing Elmsbrook development and the proposed Firethorn development, it is likely that the majority of these future pedestrian and cycle trips from other sites within the NW Bicester Masterplan will instead use these new direct routes. In addition, it is also regarded that a significant proportion of the pedestrian and cycle trips from both the proposed Firethorn development and the Elmsbrook development will divert onto these new routes – freeing up pedestrian and cycle capacity along the bridge crossing of the Spine Road. For robustness, it will therefore be assumed that no pedestrian or cycle trips from the proposed Firethorn development or the Elmsbrook development will utilise these potential future routes.

3.3.4 Utilising the same assumptions for both the proposed Firethorn development and the Elmsbrook development that 24% of the total person trips could at some point be a pedestrian trip, the cumulative impact on the bridge crossing of the Spine Road equates to a total of 426 two-way pedestrian trips in the AM peak, a total of 333 two-way pedestrian trips in the PM peak, and a total of 2,990 two-way pedestrian trips Daily. It is also noted that these pedestrian trips would be shared among the footways on both sides of the road, with a general assumption that this would be shared 50/50 between each side of the road.

3.3.5 With respect to cycling, the assessment undertaken suggests that the cumulative impact of both sites will result in a total of 210 two-way cycle trips in the AM peak, a total of 164 two-way cycle trips in the PM peak, and a total of 1,470 two-way cycle trips Daily.

3.4 WIDER NW BICESTER LOCAL PLAN DEVELOPMENT

3.4.1 Traffic flows along the full length of the Spine Road have been provided by the OCC commissioned Bicester Transport Model (BTM) for a future year of 2031 excluding the proposed Firethorn development. A manual assessment of the traffic associated with the proposed Firethorn development was undertaken utilising agreed trip rates and distribution for the proposed Firethorn development of 550 dwellings, which is slightly higher than the application figure of 530 dwellings, which ensures a robust assessment.

3.4.2 In order to undertake an assessment of the suitability of the Spine Road in terms of traffic flows, this TN has considered two different assessment methodologies to establish the level of traffic flows that would be associated with the permitted Elmsbrook development. Any remaining traffic flows from the future year of 2031 are therefore considered to be associated with the adjacent Local Plan developments.

3.4.1 The Elmsbrook development was granted planning permission on the 10th of July 2012, and it was supported by a Transport Assessment and Technical Note 2A – Exemplar Site – Trip Rates and Traffic Generations (November 2010). Table 15 of Technical Note 2a included the total person trips predicted to be generated by the Elmsbrook development split between vehicular trips and non-vehicular trips for a future year of 2016 and a 2026. **Table 3-4** summarises these total person trips for both 2016 and 2026 and the full Technical Note is included at **ATTACHMENT 2** of this TN.

Table 3-4: Exemplar Site Vehicular and Non-Vehicular Trip Generation

Year	AM Peak Hour (08:00-09:00)						PM Peak Hour (17:00-18:00)					
	Arrivals			Departures			Arrivals			Departures		
	Veh	Non-V	Total	Veh	Non-V	Total	Veh	Non-V	Total	Veh	Non-V	Total
2016	268	266	534	270	215	485	201	154	355	211	144	355
2026	244	290	534	241	244	485	180	175	355	190	164	355

3.4.2 Whilst Technical Note 2a provides AM and PM total person trips, it does not clarify the AADT Flows. In addition, the traffic data obtained from the BTM is also provided in peak hour flows. In order to factor this data up to obtain 24-hour AADT flows, an AM peak hour to Daily AADT factor of 9.6 was used, as per the methodology set out within the supporting Transport ES Chapter and Environmental Impact Assessments

Assessment 1

3.4.3 The first assessment considers the vehicular trips identified directly from the figures presented at Table 15 of Technical Note 2a that supported the Elmsbrook development, but with an assumption that 70% of the total vehicular trips will utilise the Charlotte Avenue junction with the B4100 and the remaining 30% of the vehicular trips would utilise the Braeburn Avenue junction with the B4100. It is acknowledged that the existing bus gate would prevent vehicular trips between Phases 1 & 2 of the Elmsbrook development to the south of the bus gate, from accessing Phases 3 & 4 of the Elmsbrook development to the north of the bus gate.

3.4.4 Assuming that the future year assessment of 2026 is likely to be the future scenario for assessment against the 2031 traffic flows from the BTM, the 2016 assessment will not be considered.

3.4.5 By deducting the vehicular flows agreed for the 2026 Elmsbrook development from the 2031 BTM traffic flows, the remaining traffic is assumed to be associated with the adjacent Local Plan developments.

3.4.6 The traffic associated with the proposed Firethorn development can manually be added to the 2031 BTM flows to establish the increase in traffic associated with the development being applied for.

3.4.7 **Table 3-5** summarises these flows for the full Spine Road by separating these to consider Braeburn Avenue and Charlotte Avenue.

Table 3-5: Assessment 1 - Traffic Data Link Assessment

SCENARIO	BRAEBURN AVENUE (LINK 16)		CHARLOTTE AVENUE (LINK 17)	
	AM PEAK	AADT	AM PEAK	AADT
Base 2031 (from the BTM)	173	1,661	525	5,040
Elmsbrook (from Tech Note 2a)	80	772	188	1,801
Adjacent Local Plan Sites (BTM less Elmsbrook)	93	889	337	3,239
Firethorn Development (As per the TA)	186	1,786	112	1,075
Total	359	3,446	637	6,115

3.4.8 The information presented above identifies that the maximum expected number of two-way vehicle movements across the bridge on Charlotte Avenue would be in the order of 6,115 vehicles per day. Of these, total two-way AADT flows of 1,075 (17.6%) are attributed to the proposed Firethorn development. Based on the above methodology, total two-way AADT flows of 1,801 (29.5%) are attributed to the permitted Elmsbrook development, and the remaining total two-way AADT flows of 3,239 (53.0%) are attributed to traffic flows utilising this route from the adjacent Local Plan developments.

3.4.9 Due to the limitations of the information that is available, the above results have been derived from the BTM flows and by assigning a level of traffic from the Elmsbrook development to the Braeburn Avenue link that is in line with the figures presented in Technical Note 2a from November 2010. This is identified as being 80 two-way movements in the AM peak hour.

3.4.10 It is acknowledged that there is no opportunity for the adjacent Local Plan developments to access Braeburn Avenue due to the bus only gate that prevents vehicular access from Charlotte Avenue to Braeburn Avenue. However, as we are utilising the flows that have been derived from the BTM for Braeburn Avenue and the permitted vehicle trips associated with the Elmsbrook development, there is an identified discrepancy.

Assessment 2

3.4.11 The BTM has identified a total of 173 vehicle movements on Braeburn Avenue, which could only be associated with Phases 3 & 4 of the Elmsbrook development due to the layout of the scheme and the fact that the bus only gate prevents access along the Spine Road.

3.4.12 By undertaking a simple review of the predicted level of traffic that could be generated by Phase 3 (89 dwellings) and Phase 4 (138 dwellings) of the Elmsbrook development and by utilising the up-to-date agreed trip rates that have been applied to the Firethorn development, the cumulative total of 227 dwellings would generate 123 two-way vehicle trips in the AM peak hour. This accounts for the difference in trip rates that have been applied to both private and affordable units.

3.4.13 This increase in development traffic is representative of approximately 154% more than that which was originally presented within Technical Note 2a, and it could therefore be assumed that all the traffic associated with the Elmsbrook development should be increased by this figure. It should be noted that there is no clear indication from the 2031 Base flows, which include the Elmsbrook development, just how much of this traffic is attributed to the Elmsbrook development. No details of trip rates, distribution or development content are set out, but as the Elmsbrook development was not only permitted when the BTM was updated, but was partially occupied in 2016, it is assumed that the BTM must have accurately considered the Elmsbrook development.

3.4.14 The results of this alternative assessment, which is effectively a sensitivity test that applies a higher level of traffic generation to the Elmsbrook development from that which was set out in the original assessment, that has been undertaken to determine traffic data associated with the adjacent Local Plan developments is presented in **Table 3-6**.

Table 3-6: Assessment 2 - Traffic Data Link Assessment

SCENARIO	BRAEBURN AVENUE (LINK 16)		CHARLOTTE AVENUE (LINK 17)	
	AM PEAK	AADT	AM PEAK	AADT
Base 2031	173	1,661	525	5,040
Elmsbrook (Revised trip rates)	123	1,1181	288	2,769
Adjacent Local Plan Sites (BTM less Elmsbrook)	50	480	237	2,271
Firethorn Development (As per the TA)	186	1,786	112	1,075
Total	359	3,446	637	6,115

3.4.15 The above sensitivity test does not propose to alter the level of agreed traffic generation from the proposed Firethorn development, nor does it propose to change the Base 2031 data from the BTM. As such, any increase in traffic associated with the Elmsbrook development must decrease the traffic predicted to be associated with the adjacent Local Plan developments. Whilst the proposed Firethorn development would still generate total two-way AADT flows of 1,075 (17.6%), the adjusted Elmsbrook development total two-way flows are identified as being 2,769 (45.3%) and the consequential flows associated with the adjacent Local Plan developments are identified as being 2,271 (37.1%).

Summary

3.4.16 The above assessments have identified that the proposed Firethorn development is predicted to have a 17.6% impact on the Spine Road at the critical point of the Charlotte Avenue bridge crossing.

3.4.17 As the level of traffic associated with the Elmsbrook development is not clearly defined from the BTM 2031 base flows, two methodologies have been adopted to identify that the traffic associated with the Elmsbrook development would range from having a 29.5% to 45.3% impact on the bridge crossing.

3.4.18 Finally, traffic associated with the adjacent Local Plan developments has been derived by subtracting the traffic associated with the Elmsbrook development from the 2031 Base traffic data from the BTM. As such, the adjacent Local Plan developments would range from having a 53.0% to 37.1% impact on the bridge crossing.

4 CUMULATIVE NETWORK IMPACT

4.1 SPINE ROAD SUITABILITY - PEDESTRIANS

4.1.1 OCC have no guidance on how to undertake an assessment of the suitability of various footway widths based on the anticipated levels of pedestrian flows.

4.1.2 As a result, reference is instead made to Appendix B of the Transport for London (TfL) Pedestrian Comfort Guidance for London (2019) document which sets out the recommended footway widths based on the number of pedestrian flows per hour (PPH). It is acknowledged that this guidance is for use in London, however in this instance it is appropriate as the document considers a range of footway widths and the associated 'comfort' based on a range of pedestrian flows.

4.1.3 The appropriate extract from this guidance is included at **ATTACHMENT 3** of this TN.

4.1.4 The cumulative assessment suggests that there will be a peak of approximately 426 two-way pedestrian movements or 426 PPH in total, with around half of the cumulative pedestrians assumed to utilise one footway on one side of the road at a time - which falls within an area classified as having a 'Low Flow' within the guidance, which includes all footways below 600PPH.

4.1.5 For 'Low Flow' routes, the TfL guidance document notes that the preferred width is 2.9m, however goes on to state (emphasis added):

> *"In high street or tourist areas the total width can be reduced to 2.6m if there is no street furniture (except street lights) to allow space for people walking in couples or families and with prams etc.*
>
> ***In other areas, low flow streets can be 2m wide if there is no street furniture. This total width is required for two users to pass comfortably and to meet DfT minimum standards**."*

4.1.6 VTP Drawing **4600-1100-T-025 Rev B** – Spine Road Footway Detail, a copy of which is included at **ATTACHMENT 4**, demonstrates that the majority of the footway widths are in excess of 2m.

4.1.7 On this basis, it is deemed that the existing pedestrian environment within the extents of the Spine Road is already appropriate to accommodate the likely demand from both the Elmsbrook development and the proposed Firethorn development.

4.2 SPINE ROAD SUITABILITY - CYCLISTS

4.2.1 In order to assess the suitability of the Spine Road for cyclists, reference is made to the Department for Transport (DfT) Local Transport Note (LTN) 1/20, dated July 2020. LTN 1/20 sets out the following key parameters which are discussed further within this section.

Parameter 1 - Recommended widths for Shared Pedestrian / Cyclist facilities

4.2.2 Table 6-3 of LTN 1/20 sets out the recommended widths for shared use cycle routes carrying up to 300 PPH, with it being recommended a shared footway width of 3.0m should be allowed for with cycle flows of up to 300 cyclists per hour. For cycle flows in excess of 300 cyclists per hour, a shared footway width of 4.5m is recommended. It is noted that the cumulative assessment of cyclists identifies a peak of 210 two-way cycle movements in the AM peak hour.

4.2.3 An extract of Table 6-3 taken directly from LTN 1/20 is replicated in **Figure 4-1**

Figure 4-1: LTN 1/20 Table 6-3 Extract

Table 6-3: Recommended minimum widths for shared use routes carrying up to 300 pedestrians per hour

Cycle flows	Minimum width
Up to 300 cyclists per hour	3.0m
Over 300 cyclists per hour	4.5m

Parameter 2 - Inclusive Cycling and Requirement for Protection from Motor Traffic

4.2.4 Figure 4.1 of LTN 1/20 sets out the requirement for protected cyclist infrastructure to accommodate the different types of cyclists, based on the speed of the road and anticipated 24-hour traffic flows. Figure 4.1 suggests that requiring cyclists to share the carriageway with general traffic, with traffic flows in excess of 6,000 vehicles per day, will only be suitable for a few cyclists and will exclude most potential users.

4.2.5 For completeness, an extract of Figure 4.1 of LTN 1/20 is provided in **Figure 4-2**.

Figure 4-2: LTN 1/20 Figure 4.1 Extract

LTN 1/20 Interpretation

4.2.6 By applying the criteria within Parameter 1, considering that the number of cumulative pedestrian trips generated along the critical bridge crossing on the Spine Road will be shared across two footways, there will be less than 300PPH on each side of the road and less than 300 cyclists per hour. On that basis, LTN 1/20 suggests that a shared footway width of 3.0m is appropriate.

4.2.7 In relation to the existing footway width along the Spine Road, it is acknowledged that the vast majority of the Spine Road benefits from footways in excess of 3.0m, with the primary constraint identified at the bridge crossing of Charlotte Avenue, where it narrows to around 2.0m on both sides of the carriageway.

4.2.8 It is also noted that there are alternative routes available via side streets and the dedicated link between the two bridges on Charlotte Avenue that effectively bypasses the Gagle Brook Primary School. This link is presented on the VTP Drawing **4600-1100-T-025 Rev B**, a copy of which is contained at **ATTACHMENT 4**.

4.2.9 On that basis, it is considered that the majority of the Spine Road complies with the recommendations of LTN 1/20, with only the bridge crossing on Charlotte Avenue not meeting the recommendations of LTN 1/20.

4.2.10 With respect to Parameter 2, it is noted that the total traffic flows in the Base 2031 Do Something scenario exceeds 6,000 vehicles per day on Charlotte Avenue. It has been identified that the existing footway provision on either side of the bridge crossing is only 2.0m in width, which is suitable for pedestrians, but too narrow to accommodate both pedestrians and cyclists in accordance with LTN1/20, which identifies a minimum width of 3.0m for shared use. As such, LTN 1/20 suggests that the bridge crossing will only be suitable for some cyclists and will exclude some/most potential users.

4.2.11 It is also acknowledged that the Base 2031 (without traffic associated with the proposed Firethorn development) scenario exceeds 5,000 vehicles per day on Charlotte Avenue, which when applying the criteria set out in LTN 1/20 would still only be suitable for some cyclists and will exclude some/most potential users. Therefore, even without the addition of traffic flows, pedestrians and cyclists associated with the proposed Firethorn development, there is an existing constraint at this bridge crossing on Charlotte Avenue due to a lack of a segregated pedestrian/cycle route, which may not make cycling accessible for all.

4.3 MITIGATION

4.3.1 With respect to the link capacity on the critical part of the Spine Road, identified as being the bridge crossing of Charlotte Avenue, it is accepted that there is an existing design constraint which does not fully comply with the recommendations set out within LTN 1/20. For ease of reference, the traffic data from the BTM for the 2301 Base Year, which excludes any traffic associated with the proposed Firethorn development, identifies a total of approximately 5,050 two-way vehicle movements a day. This figure increases to approximately 6,150 two-way movements per day when the traffic from the Firethorn development is added to the 2031 Base flows. As noted within this TN, the traffic from the Firethorn development would account for approximately 17.6% of the total traffic on this link.

4.3.2 Figure 10 of the NW Bicester SPD identifies that the section of Charlotte Avenue that links the adjacent Local Plan developments near the Gagle Brook Primary School with the B4100, would be designated as a '*Primary Road with segregated footpath/cycleway'.* As the NW Bicester SPD was adopted after the Elmsbrook development had not only achieved planning consent, but this section of Charlotte Avenue had been constructed and achieved technical approval from OCC, the need to improve this existing stretch of Charlotte Avenue had already been identified. However, the NW Bicester APD does not propose any mitigation to improve this stretch of Charlotte Avenue to ensure that it could be a '*Primary Road with segregated footpath/cycleway'.*

4.3.3 It is acknowledged that the recommendations set out within LTN1/20 were developed after the design for Charlotte Avenue had been approved and implemented. It is however noted that LTN 1/20 is a guidance document only.

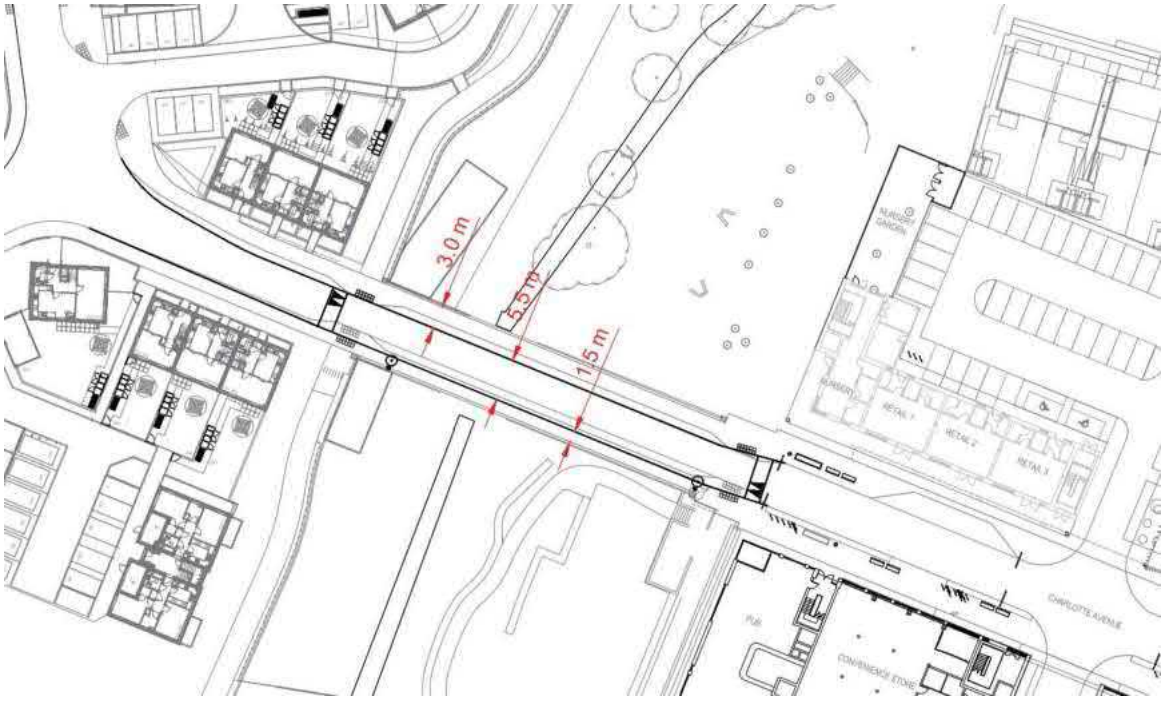
4.3.4 Notwithstanding the above, a series of mitigation options have been considered to suggest potential improvements that might ensure more appropriate compliance with LTN 1/20, as far as is reasonably practicable, which are summarised below.

Option 1 - Bridge Improvements

4.3.5 It is noted that the existing width across the key constraint. i.e. the bridge on Charlotte Avenue, is in the order of 10.0m. Existing footways of approximately 2.0m are provided on either side of the bridge and the road narrowings at either end of the bridge reduce the carriageway width of Charlotte Avenue to 4.1m. As such, the general carriageway width across the bridge and between the road narrowings either side of the bridge is approximately 6.0m.

4.3.6 VTP Drawing **4600-1100-T-029 Rev A** – Bridge Footway Provision proposes a physical improvement to the layout of Charlotte Avenue across the bridge to introduce a '*segregated footpath/cycleway*'. The full plan is included at **ATTACHMENT 4** of this TN and **Figure 4-3** presents an extract from this.

Figure 4-3: Bridge Crossing of Charlotte Avenue



4.3.7 Figure 4.1 of LTN 1/20 recommends that for carriageways that accommodate 6,000+ vehicle movements per day, a cycle lane should be provided to accommodate the majority of cyclists. Table 6-3 of LTN 1/20 recommends that for shared routes that accommodate up to 300 pedestrians per hour and up to 300 cyclists per hour, a width of 3.0m should be provided for a segregated shared route. If these figures are exceeded for a shared route, then the recommended width is 4.5m.

4.3.8 As it has been shown that the maximum hourly flows for pedestrians across the bridge might be in the order of 426 movements in the AM peak hour and the maximum number of cyclists might be 210 movements in the same period, the combined flows would just exceed the recommended combined total of 600 movements that could be accommodated within a single 3.0m shared route.

4.3.9 Assuming that the shared width of 3.0m provided for up to 300 pedestrians and up to 300 cyclists is shared between these different groups equally, i.e. 1.5m is available for pedestrians and 1.5m is available for cyclists, by providing an additional 1.5m footway on the southern side of the bridge for pedestrians only, there is the opportunity to allow for a reduction in pedestrian movements on the northern side of the bridge to utilise the shared footpath/cycleway. Assuming 126 pedestrians use the southern side, this would leave the maximum recommendation of up to 300 pedestrians on the shared route, which would therefore comply with the LTN 1/20 guidance.

4.3.10 By introducing the 3.0m wide shared footpath/cycleway on the northern side of the bridge and a narrow 1.5m footway on the southern side of the bridge, the remaining carriageway width would be 5.5m. This is considered to be an acceptable width for two-way traffic flows. Figure 7.1 of Manual for Street (MfS) notes that a width of 5.5m can accommodate two HGVs passing each other, which is considered to be a rare requirement for the Spine Road as no through traffic is expected to use this route.

4.3.11 It is acknowledged that the VTP proposals would recommend the removal of the road narrowings at either end of the bridge, which are acknowledged to act as a traffic calming feature. The VTP proposals suggest that a raised table might be introduced to act as a similar traffic calming feature at this location, which would not restrict the capacity of Charlotte Avenue, just help to reduce vehicles speeds to ensure that the design speed of 20mph is adhered to.

4.3.12 The VTP proposals show how the amendments to the bridge crossing might tie into the existing Spine Road without the need for substantial highway works and no disruption to the built development.

4.3.13 As the NW Bicester SPD recognised that in order to accommodate the traffic associated with the full development set out within the SPD, which includes that proposed at the Firethorn development, if it is proposed by OCC to deliver an improvement along this route to comply with the adopted SPD, a proportionate contribution to this improvement would be expected from the Firethorn development.

Option 2 - Traffic Reduction from other developments within Local Plan:

4.3.14 As per the assessment presented within this TN, it is evident that the vast majority of the traffic that has been identified as having an impact on the critical bridge crossing of Charlotte Avenue in the Base 2031 Do Something scenario (i.e. including the proposed Firethorn development) is associated with the adjacent Local Plan development, which accounts for between approximately 37% to 53% of the total traffic.

4.3.15 To reduce the level of traffic predicted to utilise the Spine Road, an appropriate measure could be implemented to restrict all or some access for vehicular traffic from the adjacent Local Plan development, effectively preventing this traffic joining the Spine Road and allowing access for pedestrians and cyclists only. A similar condition has been proposed for the proposed Firethorn development at the site access to the western parcel located to the south of the existing bus gate.

4.3.16 With the removal of some or all of this traffic, there would only be between approximately 2,900 to 3,850 daily vehicle movements across the bridge on Charlotte Avenue, which falls within the LTN 1/20 thresholds whereby cycling on the carriageway would be suitable for most people, or at the worst only exclude a small number of cyclists – which forms a substantive improvement from the Base 2031 scenario, whereby most cyclists are excluded.

4.3.17 The mechanism by which OCC could restrict vehicular access to the adjacent Local Plan development could be discussed further with the applicant(s) of the adjacent development at the appropriate time. If this traffic is to be restricted from accessing the Spine Road, there may be a need to update the BTM to reflect this change in traffic distribution.

Option 3 - Further Traffic Restriction from the Proposed Firethorn Development

4.3.18 As an additional measure to support Option 2, the access points from the proposed Firethorn development could be restricted to no longer utilise Charlotte Avenue and instead access directly onto the B4100. In this scenario, it is noted that the Eastern Parcel will require the proposed temporary construction access arrangement to be made permanent. If this were to become a permanent means of access, it is likely that the arrangement of this junction would have to be reconsidered to provide a right turn lane from the B4100.

4.3.19 In this scenario, only the traffic associated with the existing Elmsbrook development might therefore be required to cross the bridge on Charlotte Avenue, which would therefore result in approximately 1,800 to 2,800 daily vehicle movements. This adjusted level of daily vehicular trips would make cycling accessible and suitable for almost all users.

Option 4 - Shared Surface

4.3.20 As a further Option which could be developed further and to supplement the measures outlined above, the bridge crossing of Charlotte Avenue could be converted into a shared surface. It is noted that this measure would need to be implemented as part of a complementary measure to Option 2 or Option 3, which would restrict the amount of traffic that accesses the Spine Road and reduces the forecasted levels of traffic to the point whereby a shared surface would be appropriate.

4.4 SPINE ROAD SUITABILITY - VEHICLES

4.4.1 In relation to the suitability of the Spine Road for vehicles and whether it can accommodate the anticipated volumes of traffic, it is acknowledged that there is no current guidance or design criteria to determine this.

4.4.2 Reference is therefore made to the now superseded Design Manual for Roads and Bridges (DMRB) Volume 5 Section 1, TA 77/99. Table 2 of DMRB TA 77/99 sets out the capacities of Urban Roads, with the one-way hourly flows in each direction.

4.4.3 Of the road types set out within DMRB, it is considered that the Urban All Purpose Road Type 4 (UAP4) forms the most relevant comparison, as it is defined as an urban road carrying predominantly local traffic, providing access to local shops and businesses, with pedestrian crossings at grade and a speed limit of less than 30mph.

4.4.4 Table 2 of DMRB does not assess the capacity for roads below 6.1m width, so the ratio of flow to carriageway width will be extrapolated to provide an indication of the potential capacity along the Spine Road. Whilst it is acknowledged that this approach has limitations and is acknowledged as having too few examples to provide reliable data within the notes of TA 77/99, it is considered this approach provides an approximate indication of what level of traffic is appropriate, based on recorded and observed trends.

4.4.5 The extrapolated data suggests that every 1m of carriageway width can accommodate under 120 one-way hourly vehicles or a two-way capacity of under 200 two-way hourly vehicles.

4.4.6 The capacity of the Spine Road will be assessed for the average Spine Road width of 5.5m and the areas where the carriageway narrows to its tight point - which are identified as having a width of 4.1m.

4.4.7 The results of the Spine Road assessment and extrapolated values relevant to the Spine Road are presented in **Table 4-1**.

Table 4-1: Extrapolated DMRB TA 77/99 Assessment

CARRIAGEWAY WIDTH (UAP 4)	ONE WAY HOURLY CAPACITY (60% OF TWO WAY FLOW)	TWO WAY HOURLY CAPACITY (100%)
7.3m	1,140	1,900
6.75m	900	1,500
6.1m	750	1,250
5.5m	655	1,091
4.1m	482	804

4.4.8 **Table 4-1** suggests that a carriageway width of 5.5m will be able to accommodate a two-way capacity of up to 1,091 vehicles per hour, whilst a carriageway width of 4.1m will be able to accommodate a two-way capacity of up to 804 vehicles per hour.

4.4.9 In the future Base 2031 Do Something scenarios, there will be a total of 359 two-way AM peak hour vehicular trips on Braeburn Avenue and 636 two-way AM peak hour vehicular trips on Charlotte Avenue. As these flows are identified as being below the values extrapolated from DMRB, even in scenarios where the carriageway will reduce to 4.1m in width (804 two-way vehicles per hour), it is considered that the Spine Road is appropriate to accommodate the anticipated levels of vehicular traffic.

5 CONCLUSIONS

5.1 OVERVIEW

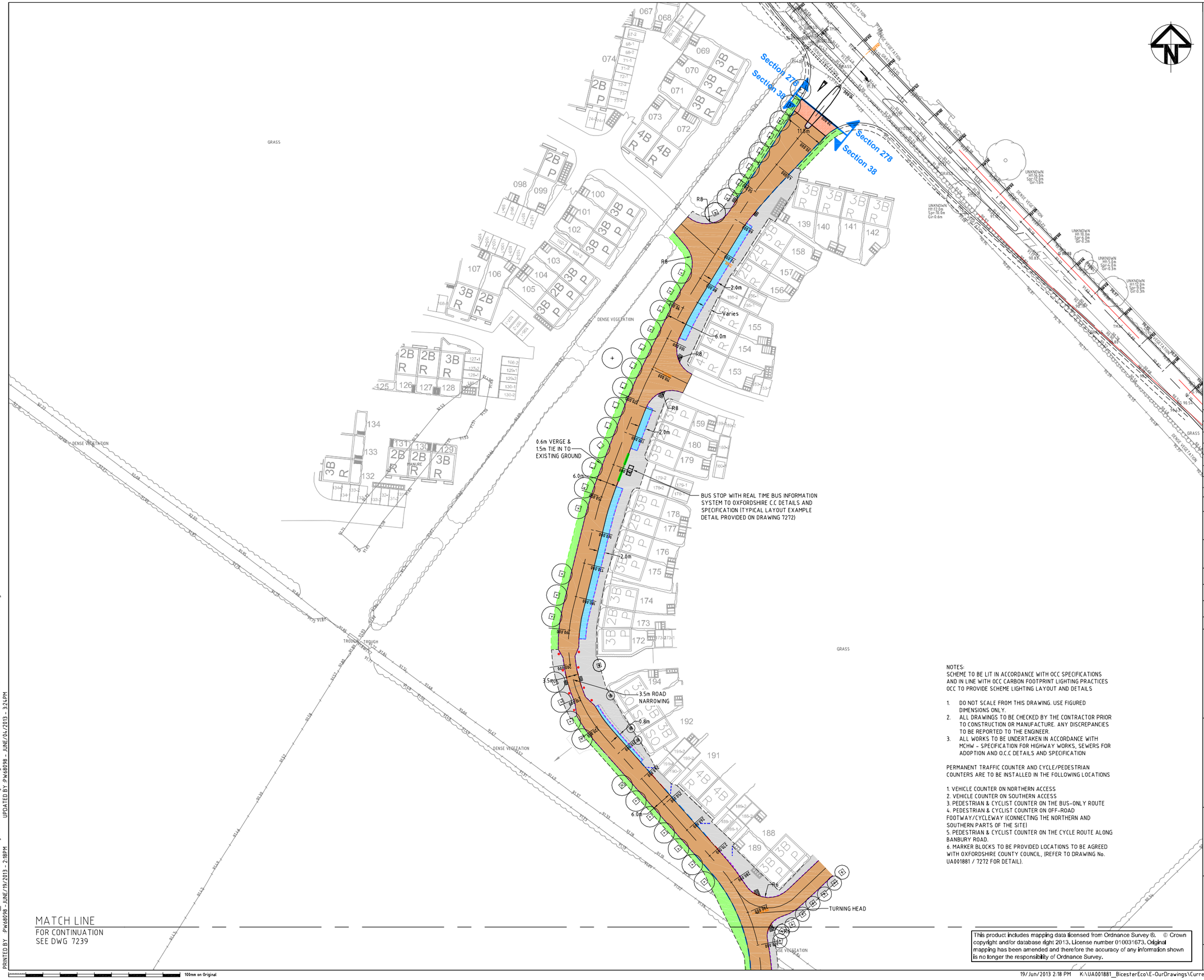
5.1.1 A summary of the suitability of the Spine Road is provided below in **Table 5-1**, which sets out whether the Spine Road complies with the parameters and criteria identified within this TN, as well as identifying whether any mitigation is required to satisfy these requirements.

Table 5-1: Spine Road Suitability Summary

MODE OF TRANSPORT	SUITABILITY CRITERIA	COMPLIANCE	MITIGATION NEEDED
Pedestrians	TfL Pedestrian Comfort Level Guidance - suggests minimum footway width of 2m in areas where pedestrian flows are less than 600 PPH	Yes - footways of at least 2m are provided	-
Cyclists	LTN 1/20 - minimum width of 3m for shared pedestrian and cyclist facilities. Traffic flow in order of 6,000 vehicles per day requires protected cycle facilities to ensure cycling is inclusive to all.	No	A series of options have been proposed to improve the provision in line with LTN 1/20, to be discussed and agreed with OCC
Vehicles	Superseded DMRB TA 77/99 has been extrapolated to determine that carriageway widths of 5.5m and 4.1m can accommodate two-way hourly flows in the order of 1,091 and 804 hourly vehicles	Yes - projected traffic flows fall below 804 two-way hourly flows in the future Base 2031 Do Something scenario	-

ATTACHMENT 1

S38 PLANS FOR EMSBROOK SPINE ROAD



KEY

- PROPOSED ADOPTABLE CARRIAGEWAY
- PROPOSED ADOPTABLE FOOTWAY
- PROPOSED ADOPTABLE FOOTWAY/CYCLEWAY
- PROPOSED ADOPTABLE VERGE
- PROPOSED ADOPTABLE ROADSIDE SUDS FEATURE
- PROPOSED SUDS/POND FEATURE
- POND MAINTENANCE ACCESS (3.0m Wide)
- PROPOSED COMMUNITY STREET CONNECTION
- GATEWAY FEATURE (DETAIL IN ABEYANCE)
- VISIBILITY SLAY - CONDITIONED RELATING TO HOUSEHOLD COVENANT
- UNCONTROLLED CROSSING POINT
- 40m FORWARD VISIBILITY SPLAY
- 2.4m x 33m VISIBILITY SPLAY
- 2m x 2m VISIBILITY SPLAY
- PROPOSED BOLLARD
- PROPOSED TREE AND TREE PIT (REFER TO DRAWING No. UA001881-707-018 FOR DETAILS)
- FULLY ENCLOSED 3 BAY PASSENGER SHELTER, DETAILS T.B.C BY OXFORDSHIRE C.C.

NOTES:
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PERMANENT TRAFFIC COUNTER AND CYCLE/PEDESTRIAN COUNTERS ARE TO BE INSTALLED IN THE FOLLOWING LOCATIONS

1. VEHICLE COUNTER ON NORTHERN ACCESS
2. VEHICLE COUNTER ON SOUTHERN ACCESS
3. PEDESTRIAN & CYCLIST COUNTER ON THE BUS-ONLY ROUTE
4. PEDESTRIAN & CYCLIST COUNTER ON OFF-ROAD FOOTWAY/CYCLEWAY (CONNECTING THE NORTHERN AND SOUTHERN PARTS OF THE SITE)
5. PEDESTRIAN & CYCLIST COUNTER ON THE CYCLE ROUTE ALONG BANBURY ROAD.
6. MARKER BLOCKS TO BE PROVIDED LOCATIONS TO BE AGREED WITH OXFORDSHIRE COUNTY COUNCIL, (REFER TO DRAWING No. UA001881 / 7272 FOR DETAIL).

MATCH LINE
FOR CONTINUATION
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Issue	Description	Date
11	TREE LAYOUT REVISED	25/03/13
10	HIGHWAY BOUNDARY REVISED	06/11/12
09	SPINE ROAD TREE LAYOUT REVISED	26/10/12
08	GENERAL REVISIONS	19/10/12
07	MINOR REVISIONS	27/07/12
06	REVISED TO OCC COMMENTS	MAR 12
05	CARRIAGEWAY WIDTHS & BUS STOPS REVISED	02 Dec 11
04	FUTURE BUS STOP AND SPEED TABLE ADDED	04 NOV 11

Status: DRAFT

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Client: a2dominion

Hyder Consulting (UK) Limited
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Fax: +44 (0)870 000 3906

Project: BICESTER ECO DEVELOPMENT EXEMPLAR SITE

Title: SPINE ROAD (S38) GENERAL ARRANGEMENT SHEET 1 OF 4

Drawing No.	Project No.	Issue
7238	UA001881	11

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FOR CONTINUATION
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MATCH LINE

TURNING HEAD

DENSE VEGETATION

4.0m

BUS ONLY LINK
4.0m CARRIAGEWAY

TEMPORARY FIELD ACCESS
WITH ASSOCIATED CATTLE
CROSSING (DETAIL TBC)

GRASS

TROUGH

DENSE VEGETATION

4.0m

TURNING HEAD

15m TIE IN TO
EXISTING GROUND

6.0m

7.0m

4.1m

BADGER SETT

OVERGROWN

MATCH LINE
FOR CONTINUATION
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Issue	Description	Date
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Project: BICESTER ECO DEVELOPMENT EXEMPLAR SITE

Title: SPINE ROAD (S38) GENERAL ARRANGEMENT SHEET 2 OF 4

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MATCH LINE

DENSE VEGETATION
BADGER SETT
OVERGROWN
BADGER SETT

ROAD NARROWING 4.1m CARRIAGEWAY WITH 1m MAINTENANCE STRIPS ON WATERCOURSE CROSSING

WATERCOURSE CROSSING

SCHOOL SITE BOUNDARY

CYCLE STAND

VEHICLE ACCESS VIA FOOTWAY CROSSOVER

BUS STOP WITH REAL TIME BUS INFORMATION SYSTEM TO OXFORDSHIRE C.C DETAILS AND SPECIFICATION (TYPICAL LAYOUT EXAMPLE DETAIL PROVIDED ON DRAWING 7272)

CAR CLUB SPACE

POTENTIAL FUTURE BUS STOP LOCATION WITH CYCLE STAND

ROAD NARROWING 4.1m CARRIAGEWAY WITH 1m MAINTENANCE STRIPS/ ON WATERCOURSE CROSSING

WATERCOURSE CROSSING

FUTURE PHASE LINK

VILLAGE STREET

DENSE VEGETATION

CULVERT

CHANNEL

BRIDGE SOFFIT LEVEL 82.76

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- PROPOSED BOLLARD
- PROPOSED TREE AND TREE PIT (REFER TO DRAWING No. UA001881-707-018 FOR DETAILS)
- FULLY ENCLOSED 3 BAY PASSENGER SHELTER, DETAILS T.B.C BY OXFORDSHIRE C.C.

Issue	Description	Date
14	ROAD CROSSING ADDED AT CH. 631	17/05/13
13	TREE LAYOUT REVISED	25/03/13
12	HIGHWAY BOUNDARY REVISED	06/11/12
11	SPINE ROAD TREE LAYOUT REVISED	26/10/12
10	GENERAL REVISIONS	18/10/12
09	MASTERPLAN REVISED	05/10/12
08	FOOTPATHS REVISED	07/09/12
07	MINOR REVISIONS	11/07/12
06	REVISED TO OCC COMMENTS	MAR 12
05	CARRIAGEWAY WIDTHS & BUS STOPS REVISED	02 DEC 11
04	FUTURE BUS STOP AND SPEED TABLE ADDED	04 NOV 11

Status: DRAFT

Scales	1:500	Author M.LLEWELLIN
Original Size	A1	Checker S.A.DAVIES
Height Datum	O.S.	Approver S.A.DAVIES
Grid	O.S.	© Copyright reserved

Filename: 7238-7241-UA001881-UP21D-S38-14-GENERAL ARRANGEMENT.DWG

Client: a2dominion

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Project: BICESTER ECO DEVELOPMENT EXEMPLAR SITE

Title: SPINE ROAD (S38) GENERAL ARRANGEMENT SHEET 3 OF 4

Drawing No.	Project No.	Issue
7240	UA001881	14

CAD FILE : K:\UA001881_BicesterEco\E-OurDrawings\Current\Civil Engineering\7238-7241-UA001881-UP21D-S38-14-GENERAL ARRANGEMENT.dwg
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NOTES:
SCHEME TO BE LIT IN ACCORDANCE WITH OCC SPECIFICATIONS AND IN LINE WITH OCC CARBON FOOTPRINT LIGHTING PRACTICES
OCC TO PROVIDE SCHEME LIGHTING LAYOUT AND DETAILS

1. DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR PRIOR TO CONSTRUCTION OR MANUFACTURE. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
3. ALL WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH MCHW - SPECIFICATION FOR HIGHWAY WORKS, SEWERS FOR ADOPTION AND O.C.C DETAILS AND SPECIFICATION

PERMANENT TRAFFIC COUNTER AND CYCLE/PEDESTRIAN COUNTERS ARE TO BE INSTALLED IN THE FOLLOWING LOCATIONS

1. VEHICLE COUNTER ON NORTHERN ACCESS
2. VEHICLE COUNTER ON SOUTHERN ACCESS
3. PEDESTRIAN & CYCLIST COUNTER ON THE BUS-ONLY ROUTE
4. PEDESTRIAN & CYCLIST COUNTER ON OFF-ROAD FOOTWAY/CYCLEWAY (CONNECTING THE NORTHERN AND SOUTHERN PARTS OF THE SITE)
5. PEDESTRIAN & CYCLIST COUNTER ON THE CYCLE ROUTE ALONG BANBURY ROAD.
6. MARKER BLOCKS TO BE PROVIDED LOCATIONS TO BE AGREED WITH OXFORDSHIRE COUNTY COUNCIL, (REFER TO DRAWING No. UA001881 / 7272 FOR DETAIL).

KEY

- PROPOSED ADOPTABLE CARRIAGEWAY
- PROPOSED ADOPTABLE FOOTWAY
- PROPOSED ADOPTABLE FOOTWAY/CYCLEWAY
- PROPOSED ADOPTABLE VERGE
- PROPOSED ADOPTABLE ROADSIDE SUDS FEATURE
- PROPOSED SUDS/POND FEATURE
- POND MAINTENANCE ACCESS (3.0m Wide)
- PROPOSED COMMUNITY STREET CONNECTION
- GATEWAY FEATURE (DETAIL IN ABEYANCE)
- VISIBILITY SLAY - CONDITIONED RELATING TO HOUSEHOLD COVENANT
- UNCONTROLLED CROSSING POINT
- 40m FORWARD VISIBILITY SPLAY
- 2.4m x 33m VISIBILITY SPLAY
- 2m x 2m VISIBILITY SPLAY
- PROPOSED BOLLARD
- PROPOSED TREE AND TREE PIT (REFER TO DRAWING No. UA001881-707-018 FOR DETAILS)
- FULLY ENCLOSED 3 BAY PASSENGER SHELTER, DETAILS T.B.C BY OXFORDSHIRE C.C.

WATERCOURSE CROSSING
VILLAGE STREET
BUS STOP WITH REAL TIME BUS INFORMATION SYSTEM TO OXFORDSHIRE C.C DETAILS AND SPECIFICATION (TYPICAL LAYOUT EXAMPLE DETAIL PROVIDED ON DRAWING 7272)
SPEED TABLE EFFECT (COMMUNITY STREET CONNECTION)
SPEED TABLE (COMMUNITY STREET CONNECTION)
ELECTRIC VEHICLE CHARGING POINT
CAR CLUB SPACE
TURNING HEAD (EXEMPLAR PHASE ONLY)
FOR CONTINUATION SEE DWG 7240
MATCH LINE
Section 38
Section 278
DENSE VEGETATION
BRIDGE SOFFIT LEVEL 82.76
CAB
TROUGH
TRACK
FLAT BLOCKS 1 (RENT)
FLAT BLOCKS 2 (RENT)
FLAT BLOCKS 3 (RENT)
FLAT BLOCKS 4 (RENT)
BUS STOP

Issue	Description	Date
12	TREE LAYOUT REVISED	25/03/13
11	HIGHWAY BOUNDARY REVISED	06/11/12
10	SPINE ROAD TREE LAYOUT REVISED	26/10/12
09	GENERAL REVISIONS	19/10/12
08	FOOTPATHS REVISED	07/09/12
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Project: BICESTER ECO DEVELOPMENT EXEMPLAR SITE

Title: SPINE ROAD (S38) GENERAL ARRANGEMENT SHEET 4 OF 4

Drawing No.	Project No.	Issue
7241	UA001881	12

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ATTACHMENT 2

TN2A – TRIP RATES AND TRAFFIC GENERATION (NOVEMBER 2010)

TECHNICAL NOTE 2a:
Trip Rates and Traffic Generations: Exemplar Site

Issue date	16th November 2010
Prepared by	Janice Hughes, Hyder
Subject	NW Bicester Exemplar Site – Trip Rates and Traffic Generations
Reference	0002-UA001881-NEL-03
Sent to	Jacqui Cox (OCC)
	Michael Deadman (OCC)
	Kathryn Kennell (Hyder)
	Dan Hammond (Hyder)
	Philip Harker (Hyder)

1 Introduction

Following a meeting that took place on 6th September 2010 with representatives of Oxfordshire County Council (OCC), Cherwell District Council, Halcrow and Hyder Consulting, it was agreed that Hyder would prepare a Technical Note setting out the proposed development trip rates for the NW Bicester site.

A previous version of this Technical Note was issued on 6th October 2010, which has now been superseded by this revised note to reflect alterations to the proposed development schedule for the Exemplar Site. It is therefore considered appropriate to circulate this note once more to reflect the revised and final traffic generations for the proposed Exemplar Site development. It is important to note that the applied trip rates have not changed from those included within the previous version of the Technical Note dated 6th October 2010.

For clarity, this note deals with the Exemplar Site and Technical Note 2b will address the Masterplan Site.

This note therefore sets out the methodology for total person and vehicular trip rates and also addresses the relationship between the trip rates and modal share targets for the proposed development.

Trip rates have been examined separately for each of the main land use categories anticipated to form part of the exemplar. Trip rates are given for the AM and PM peak hours (8-9am and 5-6pm) and in total for the 12 hour (7am-7pm) period.

At the end of the technical note, the anticipated vehicle and non vehicular generation for the Exemplar Site is summarised, based on the trip rates set out in the note. Issues of reduction for containment are also discussed.

2 Proposed Land Uses

Table 1 below provides a schedule of the proposed Exemplar Site land uses. These may be subject to later amendment but are considered to be robust (i.e. worst case) numbers of dwellings and floorspace.

Table 1: Exemplar Site Development Schedule (Full and Outline Application)

Land Use	Floorspace / Units
Residential - Total	**393 units** 69.2% Market housing = 270 units 30.8% Affordable housing = 123 units

Land Use	Floorspace / Units
Primary School	1 form entry with nursery, assume 135 pupils
Retail	Co-operative local store 550m2 Post Office 150m2 Pharmacy 110m2 Hairdressers 110m2
Community Facilities	Eco Pub 190m2 Community hall 580m2 Children's nursery 40 spaces/350m2 Allotments
Eco Business Centre	1,800m2 B1 floorspace
B1 Offices	1,100m2 B1 floorspace
Energy Centre	400m2

This Technical Note addresses the trip rates associated with the land uses as given above. Trip rates are not assessed for the green infrastructure or woodland cemetery provision.

3 Total Person Trip Rates

The following sections provide a summary of total person trip rates for each of the proposed land uses at the Exemplar Site. These total person trip rates have been obtained from the TRICS database. The TRICS (multi-modal survey) sites that have been used to generate total person trip rates were selected based on their similarity to the development proposals at the Exemplar Site.

3.1 Market and Affordable Housing

The TRICS residential sites used in the assessment are detailed in **Table 2** and **Table 3**. The number of dwellings in the selected sites is relatively low given a lack of information for larger sites.

The initial total person trip rates are shown in the tables. It can be seen that overall each private household is estimated to make **4.41** outbound and **4.11** inbound trips in a 12 hour period (**8.51** in total, two-way). This can be compared to the 2007 Travel Diary Survey which recorded each household making an average of **9.78** trip stages over the day, of which a proportion are between other off site origins and destinations. The total trips derived from TRICS are thus considered to robustly reflect the Bicester situation.

Table 2: Private Residential Dwellings Total Person Trip Rates (per dwelling)

	Arrivals	Departures	Total
AM Peak Hour	0.236	0.862	**1.098**
PM Peak Hour	0.616	0.377	**0.993**
12 hour	4.105	4.407	**8.512**

Table 3: Affordable Residential Dwellings Total Person Trip Rates (per dwelling)

	Arrivals	Departures	Total
AM Peak Hour	0.189	0.690	**0.878**
PM Peak Hour	0.493	0.302	**0.794**
12 hour	3.284	3.526	**6.810**

3.2 Education – Primary School

The education trip rates have been derived from TRICS data for primary schools. **Table 4** summarises total person trips to/from primary schools as derived from TRICS. The TRICS

dataset indicates that 42% and 78% of total person trips are by vehicle modes in the morning and evening peak hours respectively.

Table 4: Primary School Total Person Trip Rates (per pupil)

	Arrivals	Departures	Total
AM Peak Hour	1.275	0.257	**1.532**
PM Peak Hour	0.026	0.052	**0.078**
12 hour	2.344	2.289	**4.633**

3.3 Retail – Local Shops

The total person trip rates for retail have been taken from TRICS for local shopping areas. **Table 5** shows total person trip rates per 100m2 of gross retail floorspace.

Table 5: Retail (Local Shopping) Total Person Trip Rates (per 100sqm)

	Arrivals	Departures	Total
AM Peak Hour	14.642	13.487	**28.129**
PM Peak Hour	9.030	9.538	**18.568**
12 hour	133.697	136.844	**270.541**

3.4 Eco Pub Trip Rates

Total person trip rates for the proposed Eco Pub have been obtained from the TRICS database, and **Table 6** shows trip rates per 100m2 of gross retail floorspace. These trip rates do not take account of the likely increased containment of trips within the site i.e. those people who live within the Eco Town and who will represent a large proportion of customers.

Table 6: Eco Pub Total Person Trip Rates (per 100sqm)

	Arrivals	Departures	Total
AM Peak Hour	0.000	0.000	**0.000**
PM Peak Hour	10.835	7.017	**17.852**
12 hour	97.430	97.570	**195.000**

3.5 Community Hall

Total person trip rates for the proposed community hall have been extracted from the TRICS database, and are shown in **Table 7** below.

Table 7: Community Hall Total Person Trip Rates (per 100sqm)

	Arrivals	Departures	Total
AM Peak Hour	1.068	0.519	**1.587**
PM Peak Hour	1.802	0.950	**2.752**
12 hour	23.150	23.985	**47.135**

3.6 Education – Children's Nursery

Total person trip rates have been derived from TRICS for a children's day care nursery per 100sqm and are shown in **Table 8** below. Whilst it is likely that the modal share by car will be high for dropping off children, many vehicle trips will be linked to journeys to work.

Table 8: Children's Nursery Total Person Trip Rates (per 100sqm)

	Arrivals	Departures	Total
AM Peak Hour	5.109	2.282	**7.391**
PM Peak Hour	1.737	5.007	**6.744**
12 hour	18.528	18.698	**37.226**

3.7 Employment – Office

Total person trip rates for office uses have been derived from TRICS for office sites, and these have been summarised in **Table 9** below.

Table 9: Office Total Person Trip Rates (per 100sqm)

	Arrivals	Departures	Total
AM Peak Hour	4.080	0.322	**4.402**
PM Peak Hour	0.379	3.370	**3.749**
12 hour	17.966	17.173	**35.139**

It is worth noting that the trip rates presented in **Table 9** do not take account of containment of trips within the site i.e. those people who live within the Eco Town as well as work there.

3.8 Exemplar Site – Total Person Trip Rate Summary

Table 10 summarises the total person trip rates for the proposed Exemplar Site land uses based on the trip rates presented in **Table 2** to **Table 9**.

Table 10: Summary of Total Person Trip Rates – Exemplar Site

Land Use(s)	Morn Peak (8-9am)			Evening Peak (5-6pm)		
	Arr	Dep	Tot	Arr	Dep	Tot
Residential - Private	0.236	0.862	1.098	0.616	0.377	0.993
***Residential - Affordable**	0.189	0.690	0.878	0.493	0.302	0.794
Primary School	1.275	0.257	1.532	0.026	0.052	0.078
Local Shops	14.642	13.487	28.129	9.030	9.538	18.568
Eco Pub	0.000	0.000	0.000	10.835	7.017	17.852
Community Hall	1.068	0.519	1.587	1.802	0.950	2.752
Children's Nursery	5.109	2.282	7.391	1.737	5.007	6.744
Eco Business Centre	4.080	0.322	4.402	0.379	3.370	3.749
Factor of **0.80** applied to account for affordable housing generating 20% fewer trips than private housing						

4 Mode Share

Detailed in **Table 11** is a summary of mode share for each of the proposed land uses at the Exemplar Site by vehicular and non-vehicular travel modes. These mode shares have primarily been derived from the multi-modal information that has been obtained from the TRICS database. With regards to modal share of household trips (i.e. the generation from residential uses) the modal share from the 2007 Bicester Travel Diary Mode Share for all daily trips has been used, as detailed in **Table 12**.

Table 11: TRICS/ 2007 Travel Diary derived mode share for the Exemplar Site

Land Use(s)	Morn Peak (8-9am)			Evening Peak (5-6pm)		
	Veh	Non-V	Tot	Veh	Non-V	Tot
Residential - Private	67.5%	32.5%	100%	67.5%	32.5%	100%
Residential - Affordable	67.5%	32.5%	100%	67.5%	32.5%	100%
Primary School	42%	58%	100%	78%	22%	100%
Local Shops	42%	58%	100%	57%	43%	100%
Eco Pub	0%	0%	0%	88%	12%	100%
Community Hall	50%	50%	100%	65%	35%	100%
Children's Nursery	81%	19%	100%	71%	29%	100%
Eco Business Centre	74%	26%	100%	77%	23%	100%

Table 12: 2007 Bicester Travel Diary Mode Share - All Daily Trip Purposes

Method of Travel	%age	%age	Mode
Car driver	47.4%	64.4%	Car
Car passenger	17.0%		
Light goods van	2.9%	3.1%	Goods vehicles
Heavy goods vehicle	0.2%		
Bus passenger	3.5%	32.5%	Non vehicular modes
Train passenger	0.5%		
Motorcycle	0.4%		
Bicycle	3.4%		
Walk	23.3%		
Taxi	0.5%		
Coach passenger	0.2%		
School bus	0.7%		
Community transport	0.0%		
Total	100%	100%	

It has been calculated that the proposed mix and scale of development at the Exemplar Site would result in **61%** of all trips being undertaken by vehicle modes, with **39%** utilising non-vehicular modes (based on the mode share data extrapolated from TRICS and the 2007 Bicester Travel Diary Survey).

The guidance in the annex to PPS1 sets out the aim of achieving at least 50% of trips arising from the development (i.e. from resident households) by non car modes. It is recognised that prior to the development of the masterplan site (i.e. the 5,000 homes (3,000 by 2026) and related land uses), it will be more challenging to achieve the 50:50 target modal share. The development of the adjacent parts of the overall site will lead to a step change in bus services (from 30 minute to 15 minute frequencies) and considerably enhanced provision for walking and cycling. A target modal share for 2016 (i.e. the short term post development of the exemplar site) is therefore proposed as **55%** vehicle modes and **45%** non vehicle modes. This would achieve a higher non vehicular modal share or trips than Bicester at present, with a **50%** non vehicular modal share being the target for 2026.

Detailed in **Table 13** is a summary of the vehicular and non-vehicular mode share targets in 2016 for the Exemplar Site by each land use, which given the current development mix would give a 55:45 modal share. **Table 14** shows the target modal share by land use in 2026 to give a

50:50 modal share. These target mode shares are considered to appropriately reflect the future level of accessibility at the site in the two assessment years.

Table 13: Summary of Mode Share Targets – Exemplar Site, 2016

Land Use(s)	Morn Peak (8-9am)			Evening Peak (5-6pm)		
	Veh	Non-V	Tot	Veh	Non-V	Tot
Residential - Private	60%	40%	100%	60%	40%	100%
Residential - Affordable	60%	40%	100%	60%	40%	100%
Primary School	30%	70%	100%	30%	70%	100%
Local Shops	50%	50%	100%	50%	50%	100%
Eco Pub	0%	0%	0%	45%	55%	100%
Community Hall	50%	50%	100%	50%	50%	100%
Children's Nursery	70%	30%	100%	70%	30%	100%
Eco Business Centre	70%	30%	100%	70%	30%	100%

Table 14: Summary of Mode Share Targets – Exemplar Site, 2026

Land Use(s)	Morn Peak (8-9am)			Evening Peak (5-6pm)		
	Veh	Non-V	Tot	Veh	Non-V	Tot
Residential - Private	55%	45%	100%	55%	45%	100%
Residential - Affordable	55%	45%	100%	55%	45%	100%
Primary School	30%	70%	100%	30%	70%	100%
Local Shops	40%	60%	100%	40%	60%	100%
Eco Pub	0%	0%	0%	45%	55%	100%
Community Hall	40%	60%	100%	40%	60%	100%
Children's Nursery	70%	30%	100%	70%	30%	100%
Eco Business Centre	65%	35%	100%	65%	35%	100%

5 Person Trip Generation

Using the modal share targets in 2016 and 2026, the peak hour generation of vehicular and non vehicular trips has been calculated and are summarised in **Table 15**. It should be noted that vehicular trips relates to person trips in vehicles, rather than actual vehicle numbers (i.e. traffic generation). They also include both internal and external trips to the development site.

Table 15: Exemplar Site Vehicular and Non Vehicular Trip Generation

Year	Morning peak hour (8-9am)						Evening peak hour (5-6pm)					
	Arrivals			Departures			Arrivals			Departures		
	Veh	Non-V	Tot	Veh	Non-V	Tot	Veh	Non-V	Tot	Veh	Non-V	Tot
2016	268	266	534	270	215	485	201	154	355	211	144	355
2026	244	290	534	241	244	485	180	175	355	190	164	355

6 Non-Vehicle Modes

The total person trips generated by the exemplar land uses by non-vehicle modes are shown in **Table 16** for 2016 and 2026. **Table 16** shows the existing modal share in Bicester from the 2007 Travel Diary Surveys for comparison and puts forward an indicative target modal share for each non vehicle mode, as a proportion of total trips in 2016 and 2026. The growth in train passengers is an indicative figure assuming the implementation of the Evergreen 3 Chiltern Railways proposal.

Table 16: Non Vehicle Modes Share 2016 and 2026

	2007 Bicester		2016 Exemplar		2026 Exemplar	
Car driver	47.40%	Vehicle 67.5%	34.90%	Vehicle 55%	29.90%	Vehicle 50%
Car passenger	17.00%		17.00%		17.00%	
Light goods van	2.90%		2.90%		2.90%	
Heavy goods vehicle	0.20%		0.20%		0.20%	
Bus passenger	3.50%	Non Vehicle 32.5%	5.50%	Non Vehicle 45%	7.50%	Non Vehicle 50%
Train passenger	0.50%		3.00%		3.00%	
Motorcycle	0.40%		0.60%		0.60%	
Bicycle	3.40%		6.00%		7.00%	
Walk	23.30%		28.00%		30.00%	
Taxi	0.50%		0.50%		0.50%	
Coach passenger	0.20%		0.20%		0.20%	
School bus	0.70%		0.70%		0.70%	
Community transport	0.00%		0.50%		0.50%	
Total	100%	100%	100.00%	100%	100%	100%

Using the percentages of person trips given in the above table, the forecast numbers of bus passengers in the AM and PM peak hours in 2016 and 2026 are shown in **Table 17**.

Table 17: Exemplar Site Forecast Bus Patronage 2016 and 2026

Bus Patronage	2016	2026
AM arrival	15	22
AM depart	12	18
AM total	27	40
PM arrival	8	13
PM depart	8	12
PM total	16	25

7 Traffic Generation

7.1 Vehicle Occupancies

It is important to note that the trip rates included within the preceding sections relate to total people, meaning that it is necessary to calculate and apply appropriate vehicle occupancy rates in order to forecast the level of development traffic that could be generated by the Exemplar Site (relevant to each of the proposed land uses). Detailed in **Table 18** is a summary of vehicle occupancies by trip purpose, which have been sourced from the 2007 Bicester Travel Diary Survey.

Table 18: Vehicle Occupancies by Trip Purpose

Land Use(s)	Morn Peak (8-9am)			Evening Peak (5-6pm)		
	Arr	Dep	Tot	Arr	Dep	Tot
Residential - Privately Owned	1.5	1.5	**1.5**	1.5	1.5	**1.5**
Residential - Affordable Housing	1.5	1.5	**1.5**	1.5	1.5	**1.5**
Primary School	2.2	2.2	**2.2**	2.2	2.2	**2.2**
Local Shops	1.5	1.5	**1.5**	1.5	1.5	**1.5**
Eco Pub	1.6	1.6	**1.6**	1.6	1.6	**1.6**
Community Hall	1.6	1.6	**1.6**	1.6	1.6	**1.6**
Children's Nursery	2.2	2.2	**2.2**	2.2	2.2	**2.2**
Eco Business Centre/B1 Office	1.1	1.1	**1.1**	1.1	1.1	**1.1**

Detailed in **Table 19** and **Table 20** is a summary of the development traffic generations associated with the Exemplar Site in 2016 and 2026, based on the application of the vehicle occupancies to person trips by vehicle by each land use.

Table 19: Exemplar Site Traffic Generation (Internal and External) 2016

Land Use(s)	Calculation Factor			Units / pupils / sq.m	Morning peak hour (8-9am)		Evening peak hour (5-6pm)	
					Arr	Dep	Arr	Dep
Residential - Private	Per	no of	units	270	25	92	66	38
Residential - Affordable	Per	no of	units	123	9	33	24	14
Primary School	Per	no of	pupils	135	23	5	0	1
Local Shops	Per	100	sq.m	920	44	41	27	29
Eco Pub	Per	100	sq.m	190	0	0	6	4
Community Hall	Per	100	sq.m	580	2	1	3	2
Children's Nursery	Per	100	sq.m	350	6	3	2	5
Eco Business Centre + B1 Office	Per	100	sq.m	2,900	74	6	7	61

Land Use(s)	Calculation Factor	Units / pupils / sq.m	Morning peak hour (8-9am)		Evening peak hour (5-6pm)	
			Arr	Dep	Arr	Dep
Total			**184**	**180**	**136**	**154**

Table 20: Exemplar Site Traffic Generation (Internal and External) 2026

Land Use(s)	Calculation Factor	Units / pupils / sq.m	Morning peak hour (8-9am)		Evening peak hour (5-6pm)	
			Arr	Dep	Arr	Dep
Residential - Private	Per no of units	270	23	84	60	35
Residential - Affordable	Per no of units	123	8	31	22	13
Primary School	Per no of pupils	135	23	5	0	1
Local Shops	Per 100 sq.m	920	36	33	22	23
Eco Pub	Per 100 sq.m	190	0	0	5	3
Community Hall	Per 100 sq.m	580	2	1	3	1
Children's Nursery	Per 100 sq.m	350	6	3	2	5
Eco Business Centre + B1 Office	Per 100 sq.m	2,900	69	5	6	57
Total			**166**	**161**	**122**	**139**

7.2 Containment of Trips

It is recognised that the Exemplar Site, as the first phase of the Eco Town, will not include a full range of employment to 'contain' vehicle trips within the site, in comparison to the full Masterplan. Nevertheless, alongside the residential development will be a primary school, children's nursery, foodstore, pharmacy, public house, community centre/ multi faith centre, allotments, public open space and an eco business centre. Many of the day to day needs of residents will thus be met within the site. Whilst people will still 'travel' to them, these trips will predominately be on foot or cycle and will not take place on the external road network.

The level of likely containment of household vehicle trips has been estimated for each journey purpose and proportioned for total trips made per household in a day, as shown in **Table 21**. The overall containment level for the Exemplar Site is estimated as **17.4%.**

Table 21: Estimated Containment of Trips within Exemplar Site

Trip Purpose from Household	Proportion of Total Trips (2007 Bicester Travel Diary Survey)	Level of Containment (Estimated)
Place of work	0.28	5%
On employers business	0.09	0%
Educational attendance	0.17	30%
Shopping	0.18	30%
Other services	0.08	30%
Visiting friends/ relatives	0.09	10%
Recreation/ leisure	0.11	20%
Total	**1.00**	**17.4%**

7.3 External Traffic Generations

Using the estimated total level of containment for the Exemplar Site **(17.4%)** as a reduction on total traffic movements would result in the traffic generations on the external road network as presented in **Table 22 and Table 23** for 2016 and 2016 respectively. The traffic generations have been derived by applying the reduction factor of **17.4** (to reflect containment) to the development traffic generations presented in **Table 19 and Table 20** respectively.

Table 22: Forecast Development Traffic Generations, 2016

Land Use(s)	Morn Peak (8-9am)			Evening Peak (5-6pm)		
	Arr	Dep	Tot	Arr	Dep	Tot
Residential - Private	21	76	97	54	31	85
Residential - Affordable	8	28	36	20	11	31
Primary School	19	4	23	0	1	1
Local Shops	37	34	71	23	24	57
Eco Pub	0	0	0	5	3	8
Community Hall	2	1	3	3	1	4
Children's Nursery	5	2	7	2	5	7
Eco Business Centre + B1 Office	61	5	66	6	50	56
Total	**153**	**150**	**303**	**113**	**126**	**239**

Table 23: Forecast Development Traffic Generations, 2026

Land Use(s)	Morn Peak (8-9am)			Evening Peak (5-6pm)		
	Arr	Dep	Tot	Arr	Dep	Tot
Residential - Private	19	69	88	50	29	79
Residential - Affordable	7	25	32	18	10	28
Primary School	19	4	23	0	1	1
Local Shops	29	27	56	18	19	37
Eco Pub	0	0	0	5	3	8
Community Hall	1	1	2	2	1	3
Children's Nursery	5	2	7	2	5	7
Eco Business Centre + B1 Office	57	4	61	5	47	52
Total	**137**	**132**	**269**	**100**	**115**	**215**

ATTACHMENT 3

EXTRACT FROM TFL PEDESTRIAN COMFORT GUIDANCE (2019)

Appendix B: Recommended Widths

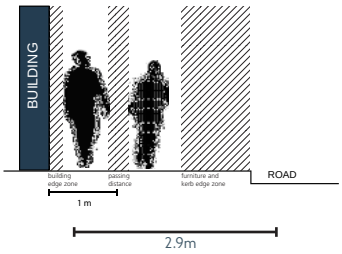
This diagram shows recommended footway widths for different levels of flow, based on the research carried out for this project. They show the total width of the footway rather than the clear footway width.

This information provides an initial indication as to comfortable footway widths in different environments in advance of a full Pedestrian Comfort Assessment.

Pedestrian comfort levels are defined on Figure 8 on page 13.

Low Flow

< 600 pph



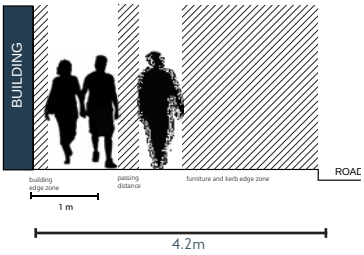
The recommended minimum footway width (total width) for a site with low flows is **2.9 m**. This is enough space for comfortable movement and a large piece of street furniture such as guard rail, cycle parking (parallel with the road), a bus flag for a low activity bus stop or a busy pedestrian crossing.

In high street or tourist areas the total width can be reduced to **2.6m** if there is no street furniture (except street lights) to allow space for people walking in couples or families and with prams etc.

In other areas, low flow streets can be **2m** wide if there is no street furniture. This total width is required for two users to pass comfortably and to meet DfT minimum standards.

Active Flow

600 to 1,200 pph



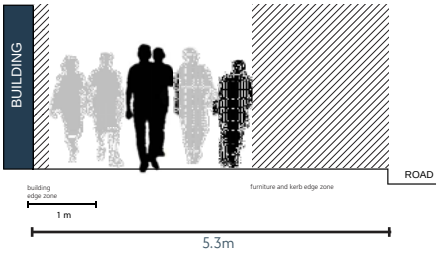
The recommended minimum footway width (total width) for a site with active flows is **4.2m**. This is enough space for comfortable movement and a large piece of street furniture such as a wayfinding sign, a bench or a bus shelter.

In high street or tourist areas the width can be reduced to **3.3m** if there is no street furniture (except street lights). This width allows two groups to pass.

In other areas, active flow streets can be **2.2m** wide if there is no street furniture. This width is required for the level of flow and to meet DfT minimum standards.

High Flow

> 1,200 pph



At this level of flow the recommended minimum footway width (total width) is **5.3 m**. This is enough space for comfortable movement up to 2,000 pph and a large piece of street furniture such as a wayfinding sign, a bench, a bus shelter or a busy pedestrian crossing.

In areas such as transport interchanges more space may be required if there are multiple bus stops on one footway. See Appendix B: Street Furniture on page 26 for more information.

If there is no street furniture, the width can be reduced to **3.3m**. This is enough space for comfortable movement up to 2,000 pph.

ATTACHMENT 4

VTP DRAWINGS

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Transport Planning

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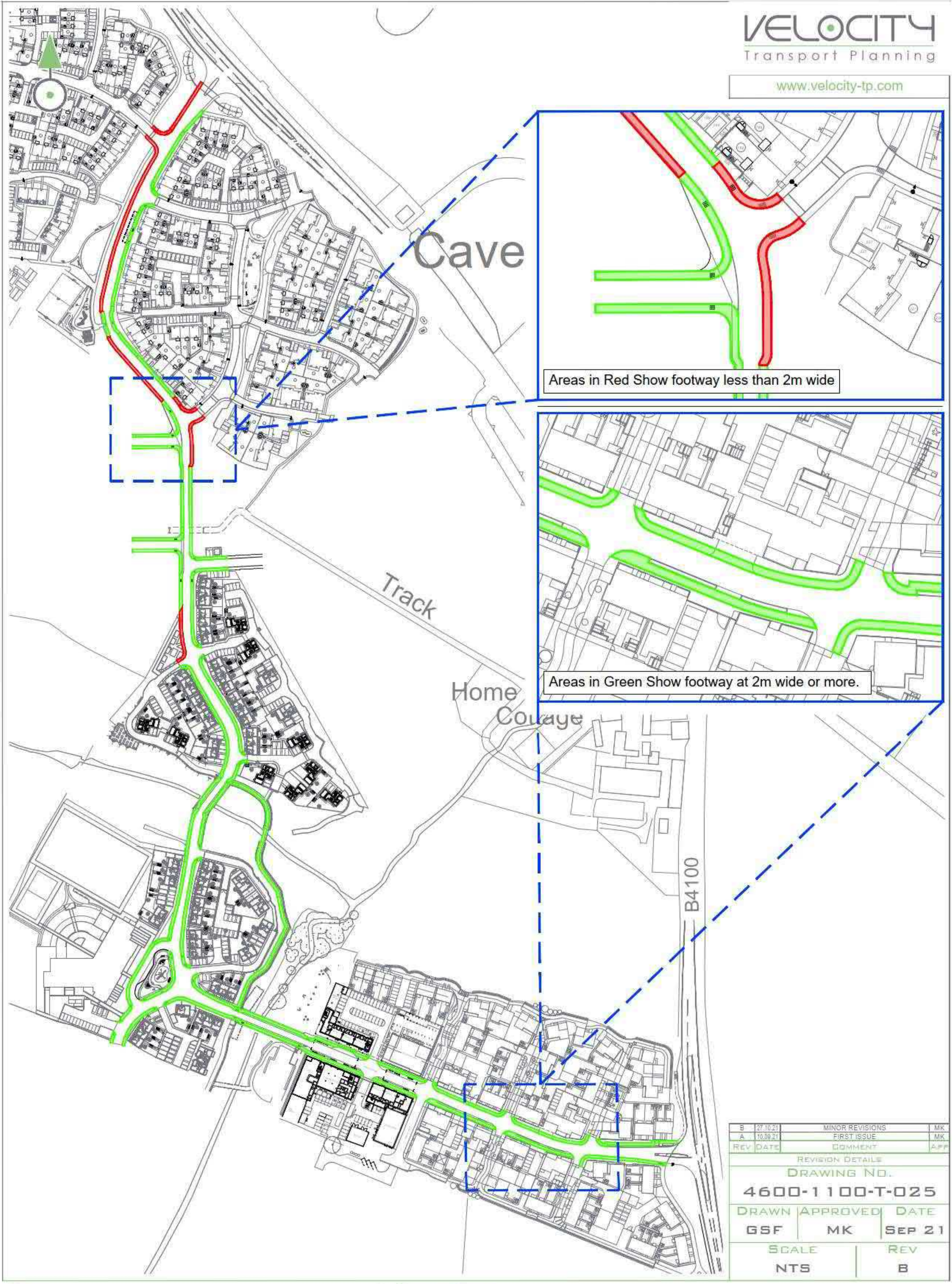


Rev	Date	Comment	App
B	27.10.21	MINOR REVISIONS	MK
A	10.09.21	FIRST ISSUE	MK

Revision Details

Drawing No.
4600-1100-T-025

Drawn	Approved	Date
GSF	MK	Sep 21

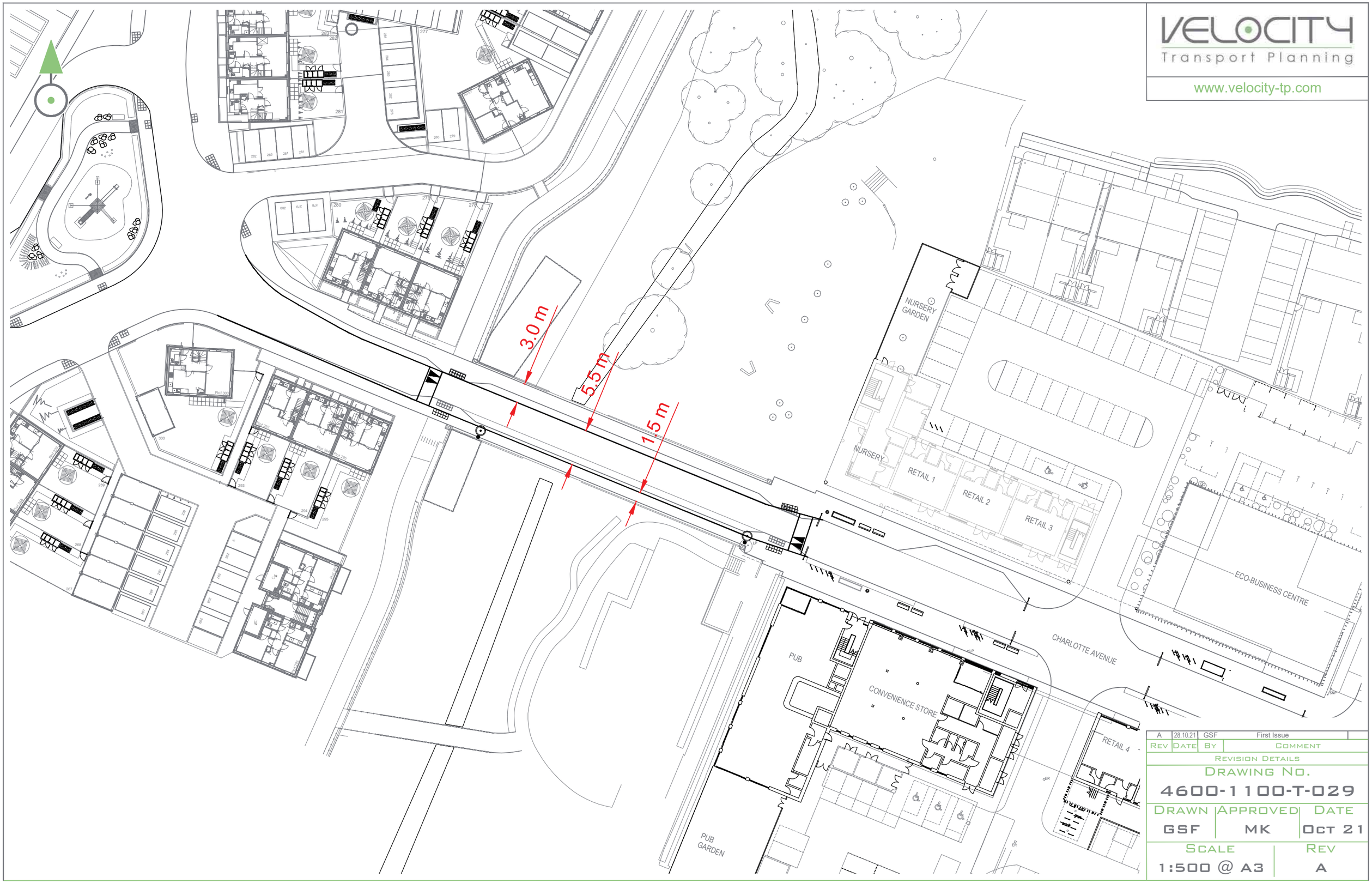
Scale	Rev
NTS	B

Client
Firethorn Trust

Project
NW Bicester

Drawing Title
Spine Road
Footway detail

VELOCITY
Transport Planning
www.velocity-tp.com



Rev	Date	By	Comment
A	28.10.21	GSF	First Issue

Revision Details

Drawing No.
4600-1100-T-029

Drawn	Approved	Date
GSF	MK	Oct 21

Scale	Rev
1:500 @ A3	A

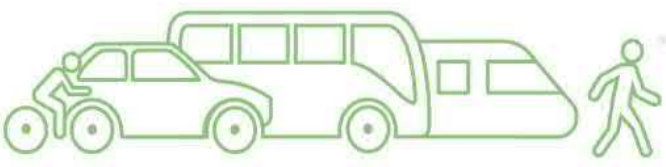
Client
Firethorn Trust

Project
NW Bicester

Drawing Title
Bridge footway provision

ATTACHMENT 8

NATIONAL HIGHWAYS CONSULTATION RESPONSE



VELOCITY
Transport Planning

Developments Affecting Trunk Roads and Special Roads

Highways England Planning Response (HEPR 16-01)
Formal Recommendation to 21/01630/OUT

From: Divisional Director
South East Region
Highways England
planningSE@highwaysengland.co.uk

To: Caroline Ford, of Cherwell District Council

CC: transportplanning@dft.gov.uk
spatialplanning@highwaysengland.co.uk

Council's Reference: 21/01630/OUT

Our Reference: #91757

Location: Land at North West Bicester, Home Farm, Lower Farm and SGR2, Caversfield

Proposal: Outline planning application for residential development (within Use Class C3), open space provision, access, drainage and all associated works and operations including but not limited to demolition, earthworks, and engineering operations, with the details of appearance, landscaping, layout and scale reserved for later determination

Referring to the notification of an Outline Planning Application for the above proposal at Land at North West Bicester notice is hereby given that Highways England's formal recommendation is that we:

~~a) offer no objection;~~

~~b) recommend that conditions should be attached to any planning permission that may be granted (see Annex A – Highways England recommended Planning Conditions);~~

c) recommend that planning permission not be granted for a specified period (see Annex A – further assessment required);

~~d) recommend that the application be refused (see Annex A – Reasons for recommending Refusal).~~

Highways Act Section 175B is not relevant to this application.[1]

This represents Highways England's formal recommendation and is copied to the Department for Transport as per the terms of our Licence.

Should you disagree with this recommendation you should consult the Secretary of State for Transport, as per the Town and Country Planning (Development Affecting Trunk Roads) Direction 2018, via transportplanning@dft.gov.uk.

Signature: 	**Date: 28/07/2021**
Name: Patrick Blake	**Position:** Area 3 Spatial Planning Manager Highways England planningSE@highwaysengland.co.uk
Highways England: Bridge House, 1 Walnut Tree Close, Guildford, Surrey, GU1 4LZ **Patrick.Blake@highwaysengland.co.uk**	

[1] Where relevant, further information will be provided within Annex A.

Annex A Highways England recommended further assessment required

HIGHWAYS ENGLAND ("we") has been appointed by the Secretary of State for Transport as strategic highway company under the provisions of the Infrastructure Act 2015 and is the highway authority, traffic authority and street authority for the Strategic Road Network (SRN). The SRN is a critical national asset and as such we work to ensure that it operates and is managed in the public interest, both in respect of current activities and needs as well as in providing effective stewardship of its long-term operation and integrity.

Statement of Reasons

M40 Junction 9 Impact Assessment

The impact of the development is not shown south at Junction 9 of the M40, development flows can be seen to travel south on the B4100, A4095 and subsequently Vendee Drive towards this junction but no further distribution is provided in the diagrams nor mentioned in the text. The highest flow shown being +83 southbound in the AM peak on Vendee Drive. We are content with the trip generation and distribution methodology, however more information is required to show the traffic impact and distribution at Junction 9 of the M40.

Recommendation

Highways England recommends that Local Planning Authority does not grant planning permission for the application for a period of 56 days (Ref: P21/10042/FUL) from the date of this recommendation to enable further assessment to be undertaken.

Reason

To allow Highways England to understand the impact of the development on the safe and efficient operation of the Strategic Road Network and provide the Local Planning Authority with fully informed advice.

National Highways Planning Response (NHPR 21-09)
Formal Recommendation to an Application for Planning Permission

From: Nichola Bell (Regional Director)
Operations Directorate
Southeast Region
National Highways
PlanningSE@highwaysengland.co.uk

To: Caroline Ford, Cherwell District Council

CC: transportplanning@dft.gov.uk
spatialplanning@highwaysengland.co.uk

Council's Reference: 21/01630/OUT

Location: Land at North West Bicester, Home Farm, Lower Farm and SGR2, Caversfield

Proposal: Outline planning application for residential development (within Use Class C3), open space provision, access, drainage and all associated works and operations including but not limited to demolition, earthworks, and engineering operations, with the details of appearance, landscaping, layout and scale reserved for later determination

National Highways Ref: 91757

Referring to the consultation on the planning application referenced above, in the vicinity of the M40, A34 and A43 that forms part of the Strategic Road Network, notice is hereby given that National Highways' formal recommendation is that we:

~~a) offer no objection (see reasons at Annex A);~~

~~b) recommend that conditions should be attached to any planning permission that may be granted (see Annex A – National Highways recommended Planning Conditions & reasons);~~

c) recommend that planning permission not be granted for a specified period (see reasons at Annex A);

~~d) recommend that the application be refused (see reasons at Annex A)~~

Highways Act 1980 Section 175B is not relevant to this application.[1]

This represents National Highways' formal recommendation and is copied to the Department for Transport as per the terms of our Licence.

Should the Local Planning Authority not propose to determine the application in accordance with this recommendation they are required to consult the Secretary of State for Transport, as set out in the Town and Country Planning (Development Affecting Trunk Roads) Direction 2018, via transportplanning@dft.gov.uk and may not determine the application until the consultation process is complete.

Signature:	[redacted]	**Date: 21/09/2021**

Name: Patrick Blake

Position:
Area 3 Spatial Planning Manager
National Highways
planningSE@highwaysengland.co.uk

National Highways
Bridge House, 1 Walnut Tree Close, Guildford, Surrey, GU1 4LZ

Patrick.Blake@highwaysengland.co.uk

[1] Where relevant, further information will be provided within Annex A.

Annex A National Highway's assessment of the proposed development

National Highways has been appointed by the Secretary of State for Transport as a strategic highway company under the provisions of the Infrastructure Act 2015 and is the highway authority, traffic authority and street authority for the Strategic Road Network (SRN). The SRN is a critical national asset and as such we work to ensure that it operates and is managed in the public interest, both in respect of current activities and needs as well as in providing effective stewardship of its long-term operation and integrity.

We have previously provided detailed comments for this application most recently on the 28th July 2021.

Since this time, we have not received a re-consultation on additional information provided. National Highways are concerned with proposals that have the potential to impact on the safe and efficient operation of the SRN in this case the M40, A34 and A43.

Recommended Non-Approval

It is recommended that the application should not be approved for a period of 56 days (Ref: 21/01630/OUT) from the date of this recommendation to enable further assessment to be undertaken.

Reason: To allow Highways England to understand the impact of the development on the safe and efficient operation of the Strategic Road Network and provide the Local Planning Authority with fully informed advice

Mark Kirby

Subject: FW: 21/01630/OUT Land at North West Bicester, Home Farm, Lower Farm and SGR2, Caversfield

Attachments: Development Sites in the Context of Application 1.pdf; CDC North West Bicester SPD (Feb 2016) - Fig 10 Masterplan.pdf; Diag 10-14.pdf

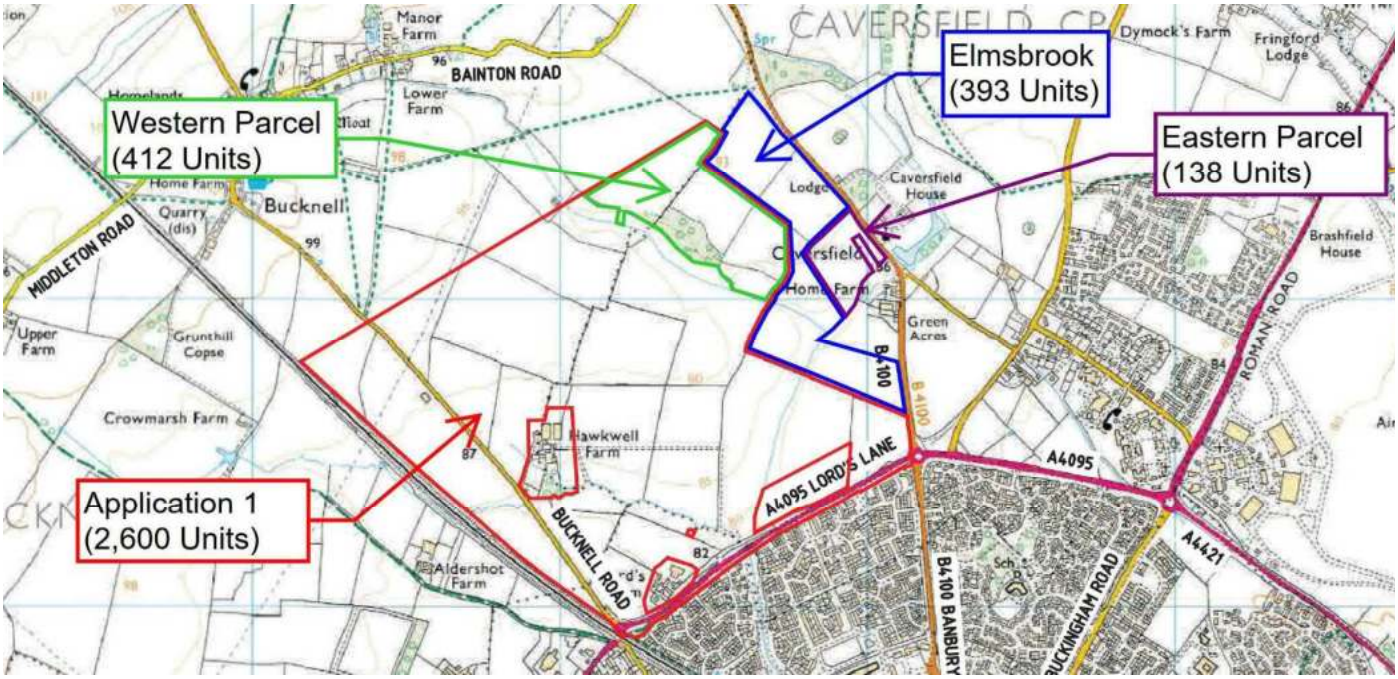
Switch-MessageId: 8ebd0cfb407f4ce7aed42eb111872ab7

From: Mark Kirby
Sent: 10 November 2021 10:12
To: Colclough, Joseph <Joseph.Colclough@jacobs.com>
Cc: Nock, George <George.Nock@jacobs.com>; Carr, Chris <Chris.Carr@jacobs.com>; Blake, Patrick <patrick.blake@highwaysengland.co.uk>; Ginn, Beata <Beata.Ginn@highwaysengland.co.uk>; Claudio Ricci <CRicci@velocity-tp.com>; Caroline Ford <Caroline.Ford@Cherwell-DC.gov.uk>
Subject: RE: 21/01630/OUT Land at North West Bicester, Home Farm, Lower Farm and SGR2, Caversfield

Morning Joe,

Further to our recent telephone discussion and your email below requesting further clarification on the assumptions regarding traffic flows associated with the respective parcels at the Firethorn Development, I have provided a sketch plan that I trust helps clarify the position that I set out in my email dated the 14th of October 2021 (below).

My earlier email identified that the WYG Technical Note: '*Peripheral Routes Assessment Technical Note Cherwell Local Plan Main Modifications to Growth for Bicester'* dated October 2014 confirmed at paragraph 3.1 that there were discussions with the Highways Agency as part of the Evidence Base which discussed the impact of the future scenarios that assessed the Local Plan developments at M40 Jct 9. These future scenarios included the 2,600 units at the Application 1 site (Planning Ref 14/01384/OUT), identified on the extract below (in red). The Application 1 site boundary includes the Western Parcel of the Firethorn Development for 412 units (in green), which therefore means that the traffic associated with his development parcel is included within the 2,600 units assessed as part of the 2014 WYG work, which was signed off. The permitted Elmsbrook Development of 393 units (shown in blue) is excluded from the Application 1 boundary, but was included in the assessment of M40 Jct 9 as this scheme was consented in July 2012 (Planning Ref 10/01780/HYBRID). The remaining Eastern Parcel of the Firethorn Development (shown in purple) is for a further 138 units. Whilst all of the development parcels identified in the extract below form part of the North West Bicester Masterplan (Fig 10 from the adopted SPD attached), which identifies a total of 6,000 dwellings and 4,600 new jobs, as set out in Policy Bicester 1: North West Bicester Eco-Town and the Adopted SPD (Feb 2016), it is acknowledged in my earlier email that the SPD Masterplan identifies that the Eastern Parcel was proposed to be green space, i.e. no built development was identified. As such, the traffic data that we provided you with clarifies the traffic flows predicted to pass through the M40 Jct 9 associated with this Eastern Parcel only.



In summary, the attached Traffic Flow Diagrams identify that the additional traffic associated with the Eastern Parcel will generate 21 vehicle movements on the approach to the M40 Jct 9 from the north in the AM and 7 will depart the M40 Jct 9 towards the north, equating to a total of 28 two-way movements in the Peak Hour. In the PM Peak Hour (Diagram 14), the Eastern Parcel will generate 10 vehicle movements on the approach to the M40 Jct 9 from the north and 15 will depart the M40 Jct 9 towards the north, equating to a total of 25 two-way movements in the Peak Hour. As NH have already confirmed that this level of traffic flow on the approach to the SRN at M40 Jct 10 and the A43 would not have a significant impact, it is considered that these traffic flows would also have a less than significant impact.

I trust that the above further clarification helps identify that there would be less than 30 two-way movements passing through the M40 Jct 9 in either of the Peak Hours that might be associated with the Eastern Parcel only. As noted, the traffic associated with the Western Parcel has already been considered at this junction. As such, we would seek NH's confirmation that no further assessment of the M40 Jct 9 would be required.

It is worth noting that had the proposal for the Firethorn Development considered all of the 530 units being applied for on the Western Parcel with the Eastern Parcel being retained as open space, then we would suggest that all of this traffic associated with the Application Site would already have been considered as part of the Application 1 assessment.

You suggested that a meeting might help to clarify this for those copied at NH and I would be more than happy to discuss this matter as part of an MS Teams call, if that suits you. Please suggest a time and date that you might be available and I will ensure that I can attend.

Kind regards,

Mark Kirby
Associate Director, Velocity Transport Planning
Mob: 07385 382 701

From: Colclough, Joseph <Joseph.Colclough@jacobs.com>
Sent: 05 November 2021 15:33
To: Mark Kirby <mkirby@velocity-tp.com>
Cc: Nock, George <George.Nock@jacobs.com>; Carr, Chris <Chris.Carr@jacobs.com>; Blake, Patrick <patrick.blake@highwaysengland.co.uk>; Ginn, Beata <Beata.Ginn@highwaysengland.co.uk>
Subject: RE: 21/01630/OUT Land at North West Bicester, Home Farm, Lower Farm and SGR2, Caversfield

[EXTERNAL] This message was sent from outside your organization

Hi Mark,

Good to speak just now.

As per our phone call, could you provide some more info on: your assumptions regarding the vehicle trips and their association with the different land parcels, your concerns with modelling the M40 Jct 9, providing a new validated 2021 base year and consideration of committed development.

A meeting would be good once you have responded to discuss these items and the modelling methodology.

Kind regards

Joe

Joseph Colclough
Jacobs| Senior Consultant | Cities & Places
Joseph.Colclough@jacobs.com
Cottons Centre | Cottons Lane | London | SE1 2QG | United Kingdom

---

From: Mark Kirby <mkirby@velocity-tp.com>
Sent: 14 October 2021 14:49
To: Blake, Patrick <patrick.blake@highwaysengland.co.uk>
Cc: Caroline.Ford@Cherwell-DC.gov.uk; Planning SE <planningse@highwaysengland.co.uk>; Beata.Ginn <Beata.Ginn@highwaysengland.co.uk>; Colclough, Joseph <Joseph.Colclough@jacobs.com>; Nock, George <George.Nock@jacobs.com>; Carr, Chris <Chris.Carr@jacobs.com>; Claudio Ricci <CRicci@velocity-tp.com>
Subject: [EXTERNAL] RE: 21/01630/OUT Land at North West Bicester, Home Farm, Lower Farm and SGR2, Caversfield

Dear Patrick,

Many thanks for your recent email and for confirming that the impact of the proposed development of up to 550 units (530 have been applied for, but the traffic associated with 550 has been assessed) at both the M40 Jct 10 and Baynards Green are not considered to be significant, as presented on the flow diagrams that were recently submitted. For ease of reference, the flow diagrams are attached. Diagram 10 presents the agreed distribution profile, Diagrams 11 and 12 present the proposed development (550 units) traffic flows for the AM and PM peak hours respectively.

However, I note that in regard to M40 Jct 9, two-way trips of 113 in the AM Peak and 101 in the PM Peak, that are associated with the 550 dwellings at the application site, is of concern to National Highways (NH).

Whilst I acknowledge that NH have no plans to improve M40 Jct 9 and therefore there is no contribution strategy in place, I thought it might be beneficial to set out the position as we understand it in relation to the Local Plan Developments that have already been assessed at the SRN and that are included within the BTM (Bicester Transport Model). The BTM was developed by WYG (now Tetra Tech) in order to assess the likely impact of the developments identified within the adopted Local Plan.

The technical work for the BTM was outlined within the WYG Technical Note: '*Peripheral Routes Assessment Technical Note Cherwell Local Plan Main Modifications to Growth for Bicester'* dated October 2014, which is attached for reference. As per paragraph 3.1 of the Technical Note, we note that there were discussions with the Highways Agency as part of the Evidence Base which discussed the impact of the future scenarios that assessed the Local Plan developments at M40 Jct 9.

As the assessments that utilised the BTM were accepted and the Local Plan was adopted, we have assumed that the findings of this work were deemed to be acceptable to all parties and that an agreement was reached. However, the note and discussions referred to are not available within the public domain.

You will appreciate that our development site is included within the Cherwell Local Plan 2011-2031 (Part 1 adopted 20 July 2015) as part of the North West Bicester Eco Town, identified at '*Policy Bicester 1: North West Bicester Eco Town'*. A review of the uncertainty logs associated with the BTM identified that 2 substantial schemes associated with the North West Bicester site were included within the BTM, namely Application 1 (14/01384/OUT) and Application 2 (14/01968/OUT). For completeness, I have attached the Site Location Plans for these Applications.

Whilst it is acknowledged that only the western parcel is included within the Application 1 boundary, this does form the majority of the proposed development at the application site. Our traffic assessment assumes that 412 units will be associated with the western parcel, and a further 138 units would be associated with the eastern parcel. It is also acknowledged that the eastern parcel does form part of the wider North West Bicester allocation, but this part of the allocated site is identified as green space, see attached SPD Masterplan. As such, it is perfectly reasonable to assume that any vehicle trips associated with the western parcel are included within the BTM assessment that was undertaken to support the Local Plan, but any vehicle trips associated with the eastern parcel would be in addition.

Based on the above, we have provided additional traffic flow diagrams setting out the vehicle movements associated with only the eastern parcel on the surrounding highway network. Diagram 13 identifies that there would be a total of 29 two-way movements at M40 Jct 9 in the AM peak hour, and Diagram 14 identifies that there would be a total of 25 two-way movements at M40 Jct 9 in the PM peak hour.

The traffic flows associated with the eastern parcel only, i.e. those that are in addition to what has already been assessed and agreed through the BTM assessments, are identified as being less than those that it has already been agreed would not be considered significant.

Based on the above, are you able to confirm agreement with our methodology and confirm that no further assessment of M40 Jct 9 is required as the majority of traffic associated with the allocated development has already been considered as part of the review of the Local Plan?

Kind regards,

Mark Kirby
Associate Director, Velocity Transport Planning
Mob: 07385 382 701

From: Blake, Patrick <Patrick.Blake@highwaysengland.co.uk>
Sent: 12 October 2021 16:07
To: Mark Kirby <mkirby@velocity-tp.com>
Cc: Caroline.Ford@Cherwell-DC.gov.uk; Planning SE <planningse@highwaysengland.co.uk>; Ginn, Beata <Beata.Ginn@highwaysengland.co.uk>; Colclough, Joseph <Joseph.Colclough@jacobs.com>; Nock, George <George.Nock@jacobs.com>; Carr, Chris <Chris.Carr@jacobs.com>
Subject: FW: 21/01630/OUT Land at North West Bicester, Home Farm, Lower Farm and SGR2, Caversfield

Dear Mark,

Thank you for sending the information we requested through. We have reviewed the information you provided and acknowledge that the trips at M40 Jct 10 (17 two-way total vehicle movements – AM Peak Hour, 15 two-way total vehicle movements – PM Peak Hour) and the A43 Baynards Green Roundabout (35 two-way total vehicle movements – AM Peak Hour, 31 two-way total vehicle movements – PM Peak Hour) are of a level that would not be considered significant. However in regard to M40 Jct 9, two way trips of 113 in the AM Peak and 101 in the PM Peak are of concern to us.

Currently National Highways have no identified or programmed improvement to Junction 9 of the M40, an historic improvement was made in 2012. No such contribution strategy is defined to allow for purely financial mitigation. The impact at M40 Jct 9 you have identified will need to be modelled to ascertain the safe operation of the SRN will not be compromised.

At Jct 9 of the M40 we therefore require a year of opening with an 'all development traffic' modelling assessment to be undertaken and ten years after the date of application registration, as per DfT Circular 02/13. Factors for growth should be generated with a methodology explaining how these were obtained. Committed Development schemes should be investigated, and an explanation of inclusion/exclusion provided. A description of the forecast year of opening and future assessment year would be required.

Based on the findings of the modelling exercise described above, we would look for you to provide targeted mitigation measures to mitigate any such impact deemed to affect SRN operation.

Kind regards

Patrick Blake, Area 3 Spatial Planning Manager
Nationa Highways | Bridge House | 1 Walnut Tree Close | Guildford | Surrey | GU1 4LZ
Tel: +44 (0) 300 4701043 | **Mobile**: + 44 (0) 7825 024024
Web: http://www.highways.gov.uk
GTN: 0300 470 1043

From: Mark Kirby <mkirby@velocity-tp.com>
Sent: 21 September 2021 14:52
To: Blake, Patrick <patrick.blake@highwaysengland.co.uk>; Caroline.Ford@Cherwell-DC.gov.uk
Cc: Planning SE <planningse@highwaysengland.co.uk>; Colclough, Joseph <Joseph.Colclough@jacobs.com>; Nock, George <George.Nock@jacobs.com>; Ginn, Beata <Beata.Ginn@highwaysengland.co.uk>; transportplanning@dft.gov.uk; Spatial Planning <SpatialPlanning@highwaysengland.co.uk>
Subject: [EXTERNAL] RE: 21/01630/OUT Land at North West Bicester, Home Farm, Lower Farm and SGR2, Caversfield

Afternoon Patrick,

Further to your recent consultation response in relation to the above mentioned planning application (copy below), you requested that further details be provided in relation to the predicted number of development traffic flows that would pass through Junctions 9 and 10 of the M40, which forms part of the Strategic Road Network (SRN). It is noted that the A43 also forms part of the SRN and as such, the A43 approaches to the Baynards Green Roundabout Junction will form part of the SRN, whilst the B4100 approaches form part of the Local Road Network.

As noted within your initial response, the distribution and assignment of the development generated vehicular trips has been undertaken using the distribution from the existing 'Home Farm Application'. You acknowledged that the information submitted with the application only demonstrated that +13 vehicle trips have been assigned to the A43 northbound during the AM peak hour, which is acknowledged to be the highest impact at this part the SRN. However, the impact is not shown at Junction 9 of the M40.

Attached is an updated set of Traffic Flow Diagrams that present the following information:

- Diagram 10 – Agreed Distribution Profile (Including updated distribution at Junction 9)
- Diagram 11 – Proposed Development Traffic Flows (Total Vehicles) – AM Peak Hour
- Diagram 12 – Proposed Development Traffic Flows (Total Vehicles) – AM Peak Hour

In summary, the following traffic flows are associated with the following junctions as part of the SRN:

- M40 Junction 9:
    - 113 two-way total vehicle movements – AM Peak Hour
        - 83 vehicle trips approaching Junction 9 from the north east as a maximum
    - 101 two-way total vehicle movements – PM Peak Hour

        - 61 vehicle trips departing Junction 9 towards the north east as a maximum
- M40 Junction 10:
    - 17 two-way total vehicle movements – AM Peak Hour
        - 12 vehicle trips approaching Junction 10 from the north as a maximum
    - 15 two-way total vehicle movements – PM Peak Hour
        - 9 vehicle trips departing Junction 10 towards the north as a maximum
- A43 Baynards Green Roundabout Junction:
    - 35 two-way total vehicle movements – AM Peak Hour
        - 13 vehicles departing Baynards Green Roundabout towards the north as a maximum
    - 31 two-way total vehicle movements – PM Peak Hour
        - 10 vehicles approaching Baynards Green Roundabout from the north as a maximum

I trust that this additional information provides the clarity that you require to establish the level of impact associated with the development proposals on the SRN. It is acknowledged that junction improvement schemes have been identified for these junctions on the SRN and as such, we await your feedback with regards what contribution may be required from the proposed development to mitigate the identified impact.

Should you require any further information from us in this regard, please feel free to contact me.

Kind regards,

Mark Kirby
Associate Director, Velocity Transport Planning
Mob: 07385 382 701

From: Blake, Patrick <Patrick.Blake@highwaysengland.co.uk>
Sent: 28 July 2021 15:51
To: Caroline.Ford@Cherwell-DC.gov.uk
Cc: Planning SE <planningse@highwaysengland.co.uk>; Colclough, Joseph <Joseph.Colclough@jacobs.com>; Nock, George <George.Nock@jacobs.com>; Ginn, Beata <Beata.Ginn@highwaysengland.co.uk>; transportplanning@dft.gov.uk; Spatial Planning <SpatialPlanning@highwaysengland.co.uk>
Subject: 21/01630/OUT Land at North West Bicester, Home Farm, Lower Farm and SGR2, Caversfield

For the attention of: Caroline Ford

Site: Land at North West Bicester, Home Farm, Lower Farm and SGR2, Caversfield

Proposal: Outline planning application for residential development (within Use Class C3), open space provision, access, drainage and all associated works and operations including but not limited to demolition, earthworks, and engineering operations, with the details of appearance, landscaping, layout and scale reserved for later determination

Application Number: 21/01630/OUT

Our Reference: # 91757

Dear Caroline,

Highways England (we) has been appointed by the Secretary of State for Transport as strategic highway company under the provisions of the Infrastructure Act 2015 and is the highway authority, traffic authority and street authority for the strategic road network (SRN). The SRN is a critical national asset and as such Highways England works to ensure that it operates and is managed in the public interest, both in respect of current activities and needs as well as in providing effective stewardship of its long-term operation and integrity.

In the case of this development proposal, our interest is in the M40, A34 and A43.

Having examined the Transport Assessment we note that the proposed development is for the creation of up to 530 dwellings on land which forms part of the North West Bicester Eco Town development located in Oxfordshire in England.

This site lies along both sides of the consented North West part of the Bicester Eco Town development (Planning Ref 10/01780/hybrid), effectively forming two parcels. A further two Outline Applications have been submitted representing additional phases of the Eco Town Development, both have resolutions to grant subject to S106 contribution agreement.

The methodology used for the trip generation assessment is consistent with that set out in the 'Interim Access & Travel Strategy' (Hyder Consulting, March 2014) document prepared to support the assessment of the wider North West Bicester Masterplan and has been used to forecast the predicted travel demand for the development by all modes of travel.

No baseline traffic surveys have been undertaken, 'Due to COVID-19'. Traffic flows from the Bicester Transport Model (BTM) have been obtained. Traffic modelling has been undertaken using the data from the BTM for the future year of 2031, which includes all committed and planned developments, as set out within the adopted Cherwell District Council Local Plan and as such it is the maximum growth scenario. The 2031 Future year traffic flows derived from the BTM have been used to undertake local network analysis and junction capacity testing.

The distribution and assignment of the development generated vehicular trips has been undertaken using the distribution from an existing 'Home Farm Application' at the site. The TA appraises 550 dwellings as a worse case. Impact on the SRN is only shown north of the site on the A34 in the TA flow diagrams, with +13 trips assigned to the A34 northbound during the AM peak being the highest impact here. However, the impact is not shown south at Jct 9 of the M40, development flows can be seen to travel south on the B4100, A4095 and subsequently Vendee Drive towards Jct 9 but no further distribution is provided in the diagrams nor mentioned in the text. The highest development flow shown being +83 trips southbound in the AM peak on Vendee Drive. We are content with the trip generation and distribution methodology, however more information is required to show the traffic impact at Junctions 9 and 10 of the M40.

The TA scoping note states that the transport consultants consider the historic traffic impact assessments by WYG, Hyder and others in historic applications already account for the majority of the proposed scheme and have established the offsite strategic highway improvements necessary to deliver the NW Bicester Masterplan. The transport consultants also state that with this in mind the applicant will be agreeing to proportionate financial contributions to these strategic improvements. To be clear, the Jct 9 M40 pinchpoint improvement is already in place.

Construction traffic will access the Site via the routes included in the permitted Construction Traffic Management Plan from the existing permitted development, identified as follows:

- From the North, North West and Midlands (M40 Junction 10, A43, B4100);
- From the North East (M1 Junction 13, A421, A43, B4100);
- From the East (A41, A4421, A4095, B4100); and
- From the South/South West (M40 Junction 9, A41, A4421, A4095, B4100).

Based on the above points we conclude that the impact on the SRN needs further detail until we are satisfied with the application. We suggest a holding recommendation until details are provided on the traffic impact for Jct 9 of the M40.

Recommendation

Highways England recommends that the Local Planning Authority does not grant planning permission for the application (Ref: 21/01630/OUT) for a period of 56 days from the date of this recommendation to enable further assessment to be undertaken.

Reason: To allow Highways England to understand the impact of the development on the safe and efficient operation of the Strategic Road Network and provide the Local Planning Authority with fully informed advice.

Please find attached our formal response outlined in the HEPR document.

Kind Regards

Patrick Blake, Area 3 Spatial Planning Manager
Highways England | Bridge House | 1 Walnut Tree Close | Guildford | Surrey | GU1 4LZ
Tel: +44 (0) 300 4701043 | **Mobile**: + 44 (0) 7825 024024
Web: http://www.highways.gov.uk
GTN: 0300 470 1043

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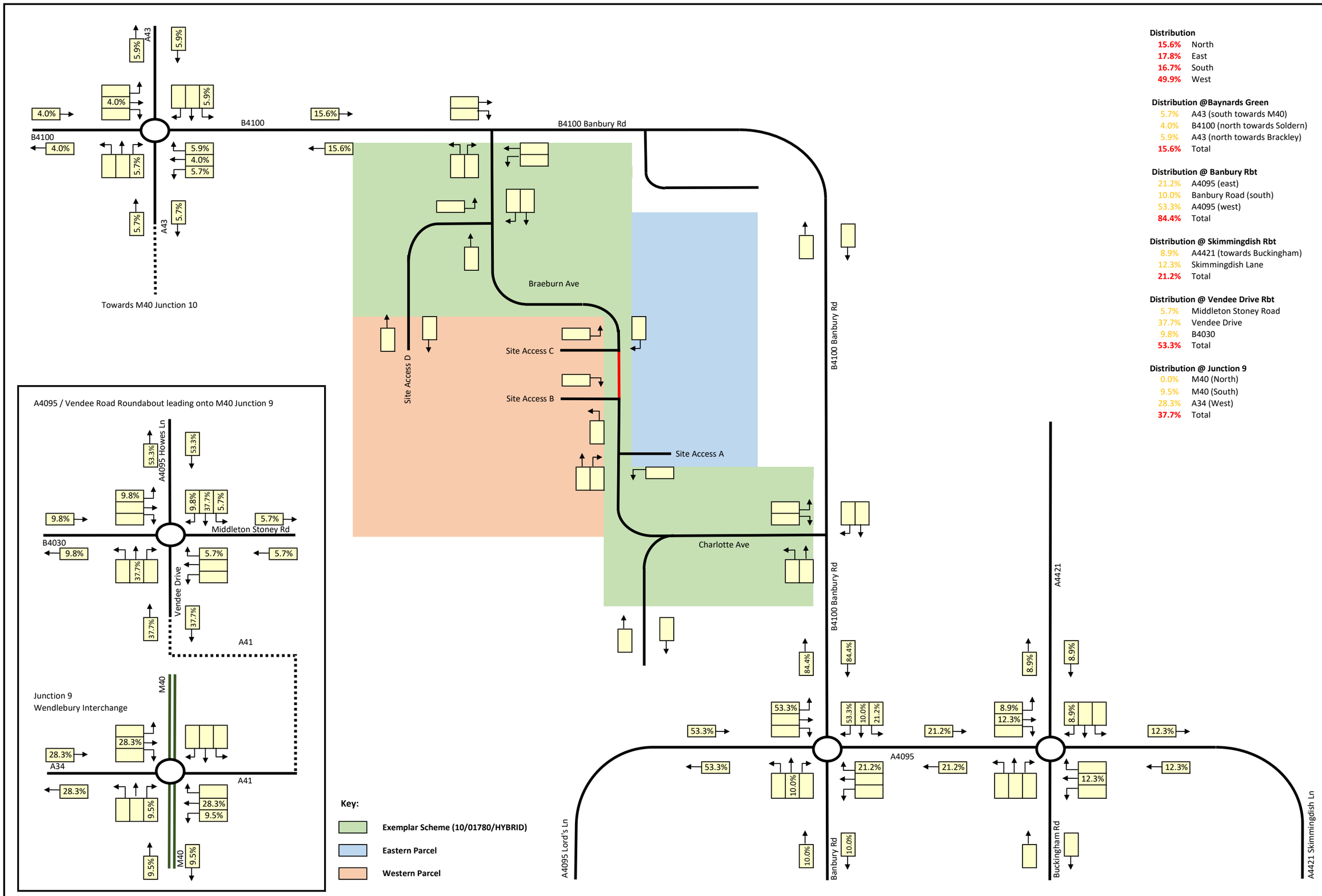


Distribution

15.6%	North
17.8%	East
16.7%	South
49.9%	West

Distribution @Baynards Green

5.7%	A43 (south towards M40)
4.0%	B4100 (north towards Soldern)
5.9%	A43 (north towards Brackley)
15.6%	Total

Distribution @ Banbury Rbt

21.2%	A4095 (east)
10.0%	Banbury Road (south)
53.3%	A4095 (west)
84.4%	Total

Distribution @ Skimmingdish Rbt

8.9%	A4421 (towards Buckingham)
12.3%	Skimmingdish Lane
21.2%	Total

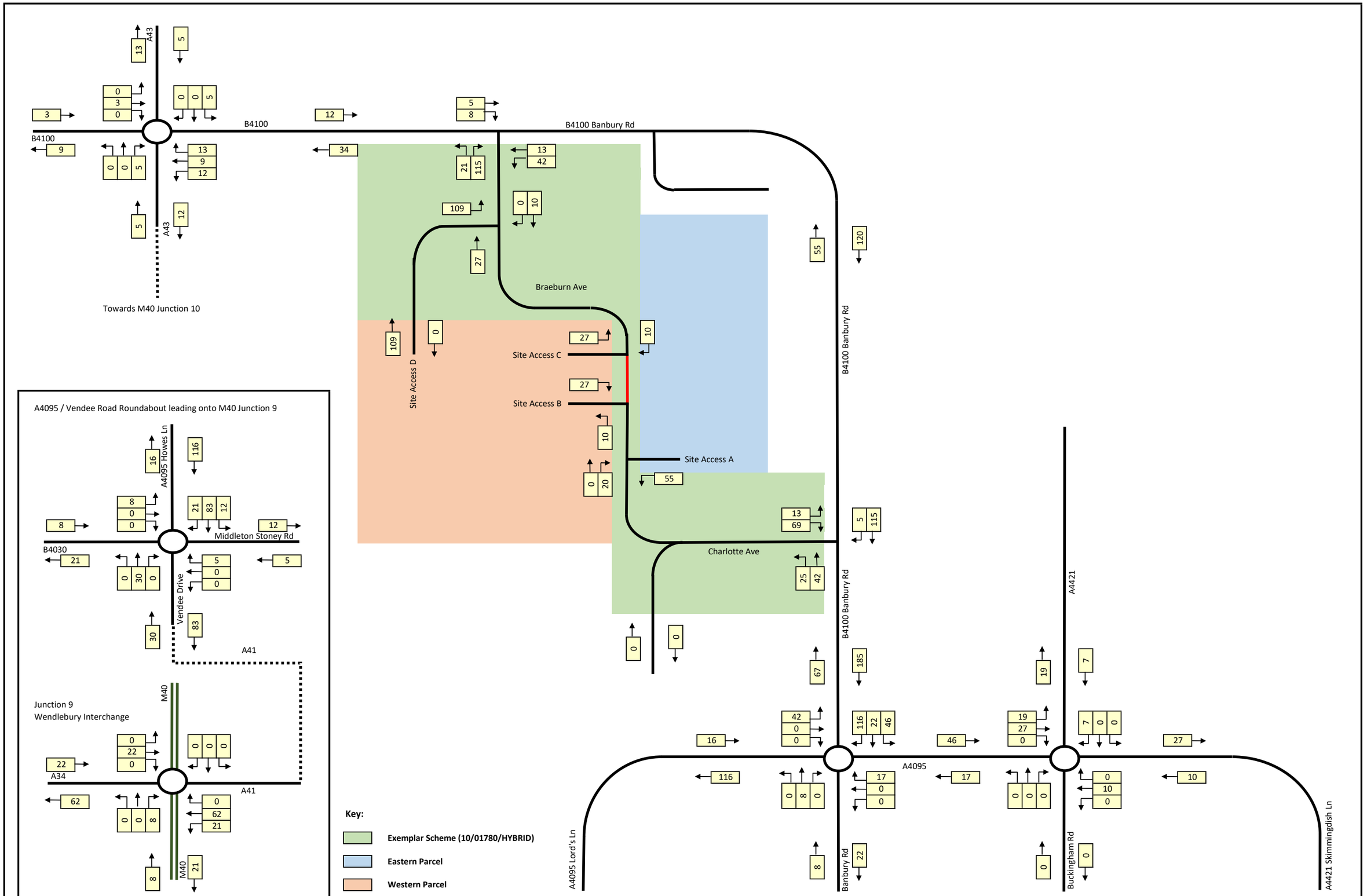
Distribution @ Vendee Drive Rbt

5.7%	Middleton Stoney Road
37.7%	Vendee Drive
9.8%	B4030
53.3%	Total

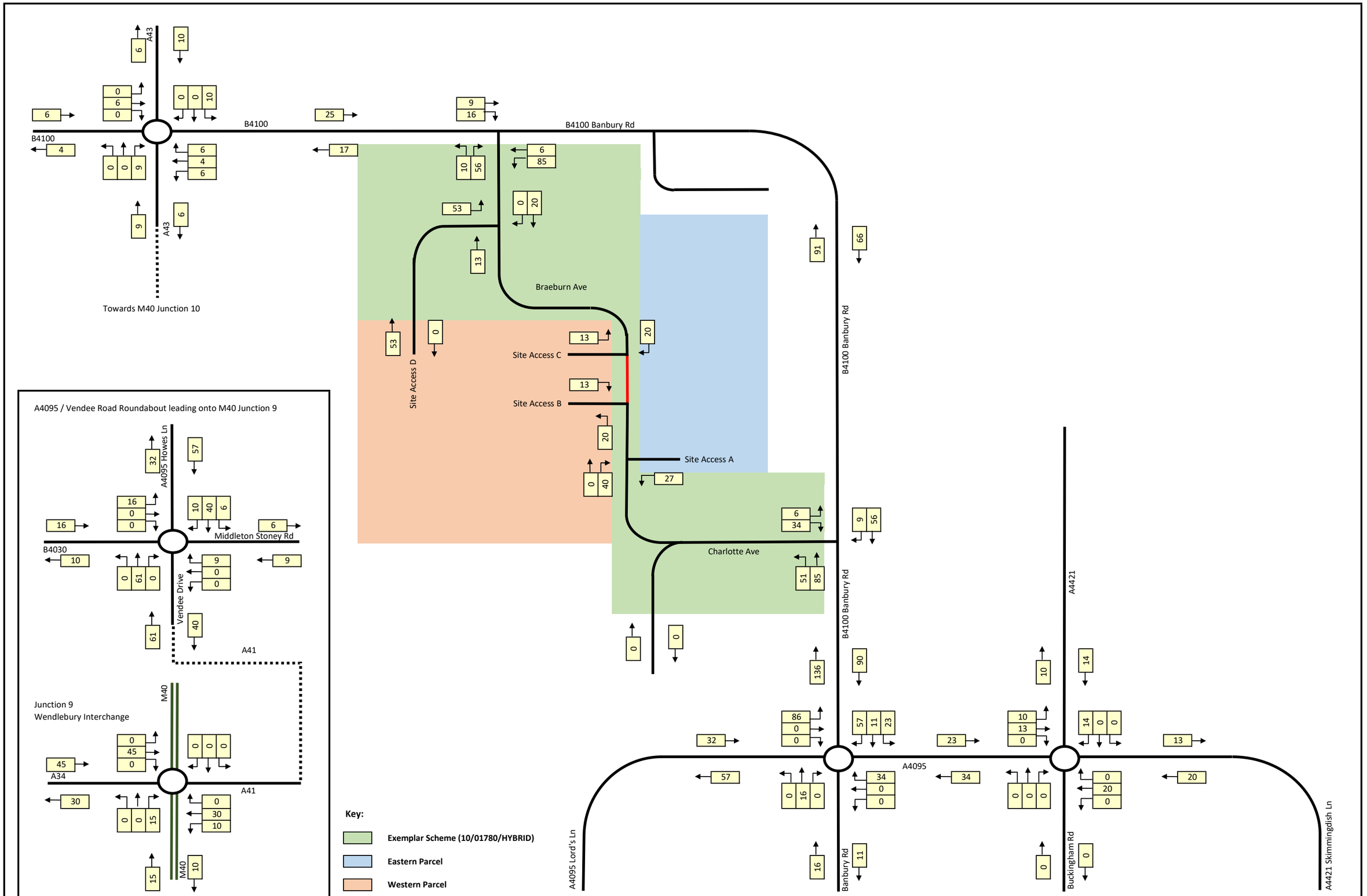
Distribution @ Junction 9

0.0%	M40 (North)
9.5%	M40 (South)
28.3%	A34 (West)
37.7%	Total

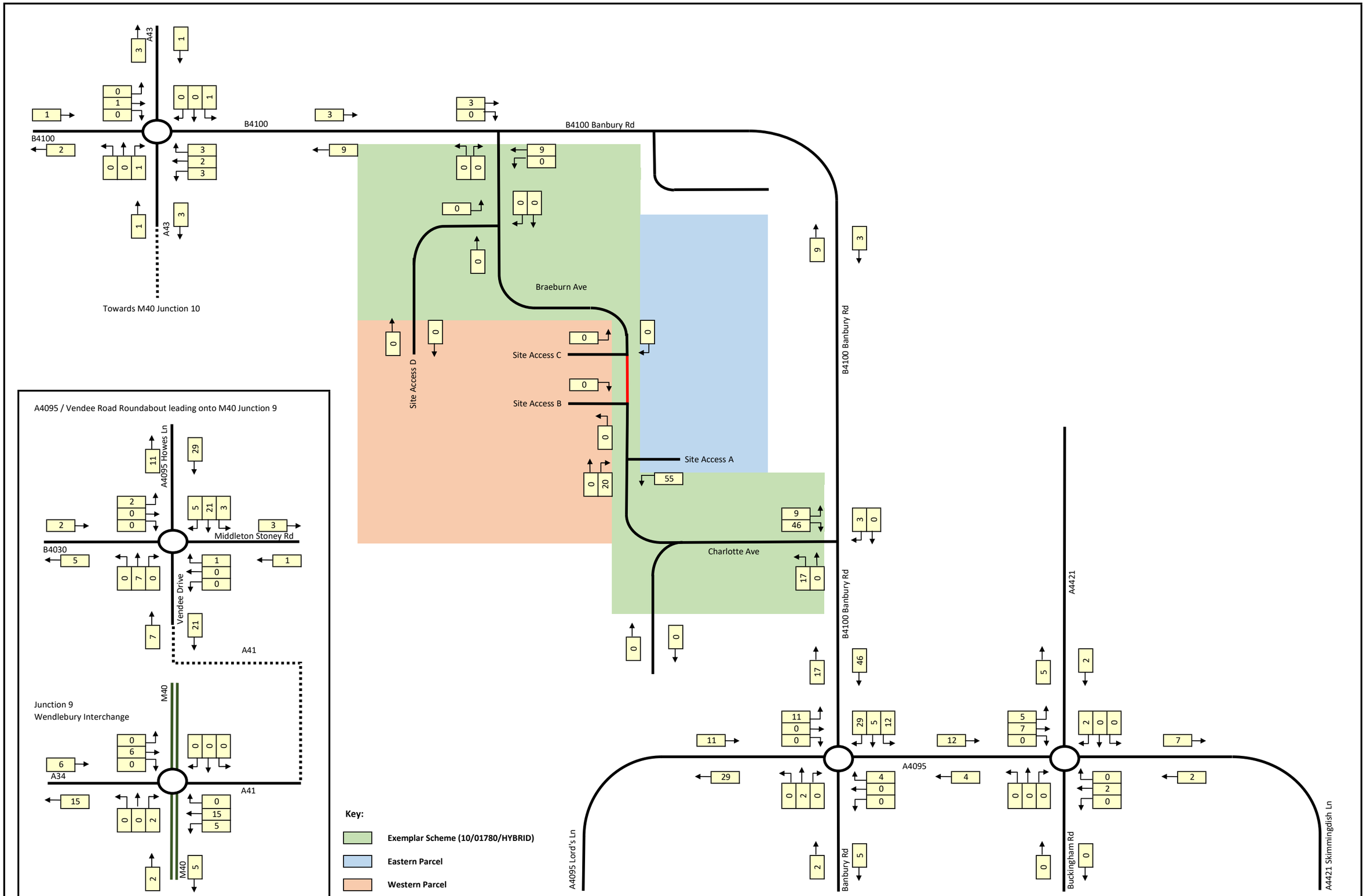
Project: **Land at North West Bicester**	Client: Firethorn TRUST	Title: **Proposed Development** **Agreed Distribution Profile (Including updated distribution at Junction 9)**	Date: **25/08/2021** Diagram: **10**	VELOCITY Transport Planning www.velocity-tp.com



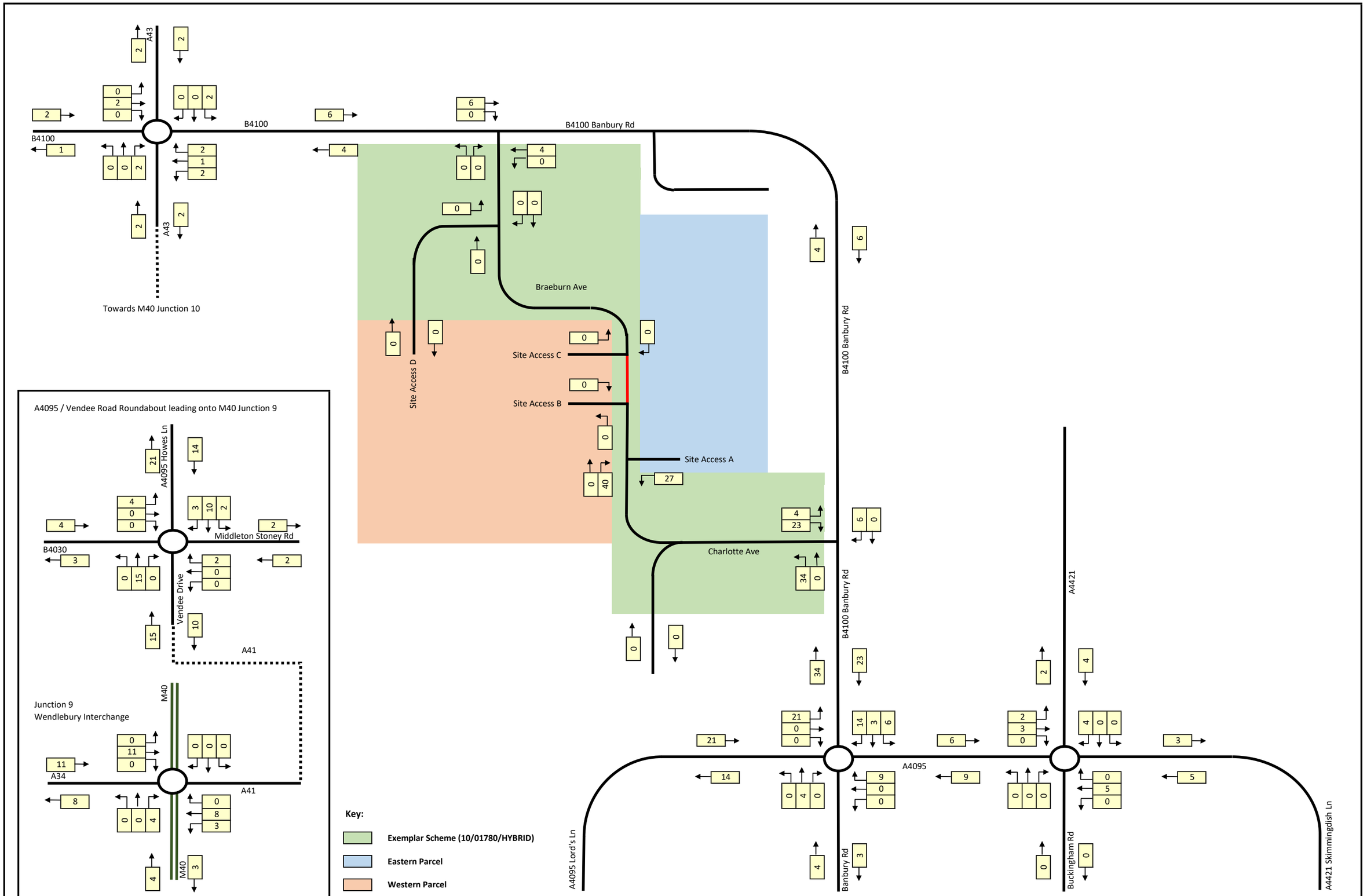
Project:	Client:	Title:	Date:	
Land at North West Bicester	Firethorn TRUST	**Proposed Development Traffic Flows (Total Vehicles - Total Development - 550 Units)** **AM Peak Hour**	**13/10/2021** Diagram: **11**	VELOCITY Transport Planning www.velocity-tp.com



Project:	Client:	Title:	Date:	
Land at North West Bicester	Firethorn TRUST	**Proposed Development Traffic Flows (Total Vehicles - Total Development - 550 Units)** **PM Peak Hour**	**13/10/2021** Diagram: **12**	VELOCITY Transport Planning www.velocity-tp.com



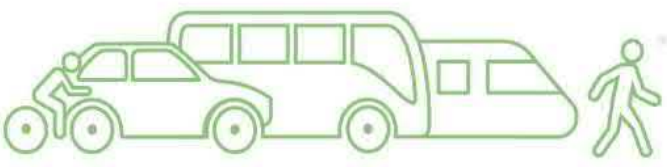
Project:	Client:	Title:	Date:	
Land at North West Bicester	Firethorn TRUST	**Proposed Development Traffic Flows (Total Vehicles - Eastern Parcel - 138 Units)** **AM Peak Hour**	**13/10/2021** Diagram: **13**	VELOCITY Transport Planning www.velocity-tp.com



Project: **Land at North West Bicester**	Client: Firethorn TRUST	Title: **Proposed Development Traffic Flows (Total Vehicles - Eastern Parcel - 138 Units)** **PM Peak Hour**	Date: **13/10/2021** Diagram: **14**	VELOCITY Transport Planning www.velocity-tp.com

ATTACHMENT 9

BICESTER BUG CONSULTATION RESPONSE



VELOCITY
Transport Planning

BICESTERBUG

Bicester Bike Users Group

Submissions on proposed housing in NW Bicester
21/01630/OUT
22 June 2021
Version 1.1

1. SUMMARY

BicesterBUG generally welcomes the aspirations of the development proposals however, the provision for active travel is still underwhelming and insufficient thought appears to have been given to walking and cycling with regards to making it the default option for local journeys and commuting.

Though the plans are currently only in outline, Bicester Bike Users' Group ('Bicester BUG') has concerns about the traffic flows and active travel provision through and to the development. Our concerns are mirrored by a more thorough analysis of the traffic modelling by Rob Dakin and the Elmsbrook Community Organisation. These reflect that fact that little has changed since the non-statutory consultation earlier in 2020.

Further engagement by Bicester BUG with the developers and planning authority would be appreciated to enable the plans to develop as recommended under LTN1/20.

2. COMMENTS

2.1 Aspirations for Active Travel

The proposal does not make sufficient effort to attain the aims of the EcoBicester Planning Policy Standards, namely:

> *"enable at least 50 per cent of trips originating in North West Bicester or on any other large mixed-use development, to be made by non-car means, with the potential for this to increase over time to at least 60 per cent"*

Nor would the current designs be sufficient to permit the attainment of the policy goal of a 200% increase (tripling) of cycling and a 50% increase in walking as committed to in the Oxfordshire County Council ('OCC') Local Walking and Cycling Plan ('LCWIP') for Bicester 2020.

In order to achieve these aspirations, a more ambitious plan for walking and cycling might have been expected, yet to date only a typical generic development street outline has been offered. The design would benefit from the input of a designer with experience of riding in urban environments and skills in active travel infrastructure, as per Summary Principle 20 of LTN 1/20 "All designers of cycle schemes must experience the roads as a cyclist."

The Department for Transport is clear on the issue of how to provide suitable active travel infrastructure: 'Cycling facilities should be regarded as an essential component of the site access and any off-site highway improvements that may be necessary. Developments that do not adequately make provision for cycling in their transport proposals should not be approved. This may include some off-site improvements along existing highways that serve the development.' (Emphasis added, DfT 2020, 14.3.12).

2.2 Pedestrian and Cycle Routes and Facilities

There are few dedicated pedestrian and cycle routes. For an eco-development, the design focus seems to have been mainly, if not wholly, on the motor car. A more ambitious development might have focussed on ensuring swift cycle access to and through the development with the minimum of interruptions. Instead, active travel seems to have been something of an afterthought.

Cherwell Design Standards has high aspiration for cycle storage provision, which is currently not mentioned. Bike storage has been poorly implemented in the existing Exemplar (aka Elmsbrook) (e.g. bike shed layouts unfit for bike storage) therefore the development should aim to address this serious enabling issue for cycling.

New cycling and walking infrastructure should comply with the Department for Transport Local Transport Note ('LTN') 1/20 Standards, including measures such as segregated off-road cycle paths and priority for cycle tracks over minor roads.

The plans should also be compliant with the Bicester Local Cycling and Walking Infrastructure Plan ('LCWIP').

Experience with Elmsbrook development has shown that assuming cyclists will use the carriageway is incorrect. The shared pavement facilities are the preferred option for the majority of cyclists.

Dedicated, off-carriageway provision ought therefore to be included in the plans, both as a practical matter and to comply with the current standards.
The statement by the developer that because the roads will be 20mph they will be therefore safe and inviting for cycling is not true. LTN1/20 Figure 4.1 states that where traffic volumes are 2000 pcu/24hr or more then mixing traffic with cycling will be "not suitable for all people and will exclude potential users and/or have safety concerns", given the additional housing numbers and the developer's own projections (Transport and Access Table 6.6) the estimation of 4000+ pcu/24hrs (Do minimum) and 5000+ pcu/hr (Do Something) means on carriageway cycling will not be accessible to all. We also note that Transport and Access ,Table 6.9 does not account for the increase in cycling and walking envisaged by OCC which also invalidates the assessment of 'Pedestrian/Cyclist Fear & Intimidation' data presented in Transport and Access ,Table 6.10 and supports our conclusion that active travel provision is insufficient both in terms of type and scale.

Given that Rob Dakin's modelling calls into serious question the robustness of the traffic modelling, we are deeply sceptical of the suitability of using the main carriageways within the development as the high quality cycle infrastructure which is required under the Government's LTN 1/20 guidance and which would enable the modal share of cycling required by the Eco Bicester plan and OCC LCWIP for Bicester.

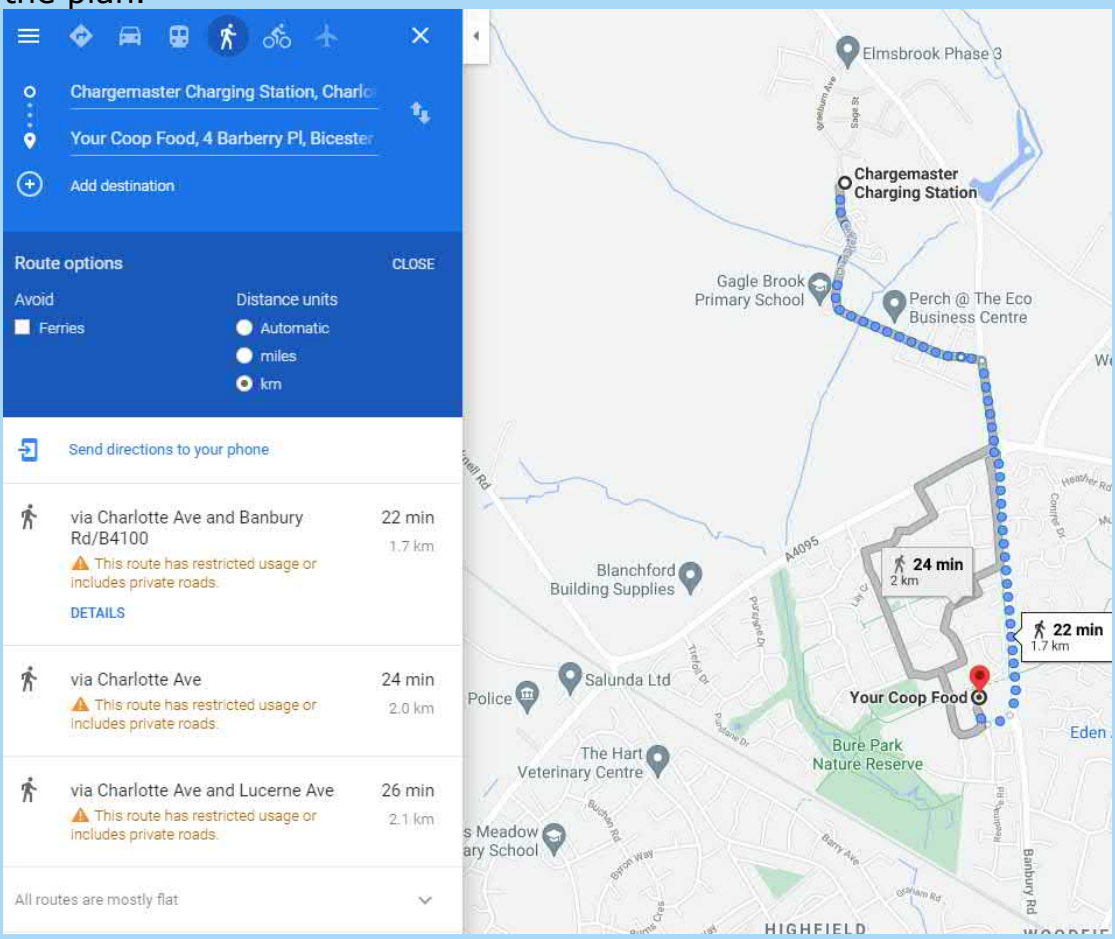
The poor modelling of cycling and walking numbers undermines the quality of the transport proposals and has implications for the need for improvement to surrounding active travel infrastructure. We note that the applicant has acknowledged the impact on the B4100/Charlotte avenue junction with regards to motorised transport and has suggested mitigating changes, but this is not the case for cycling and walking.

2.3 Links to the Local Cycling and Walking Network

Firstly, the statement that the Bicester LWIP has only been recommended for approval rather than voted on and accepted by OCC is out of date. Secondly, it is clearly implied from the documents that the existing network of cycling and walking provision adjoining and linking to the site is deemed to be of sufficient quality. This is not the case. For example, there is no 'off-carriageway continuous cycle route' from the Site to Bicester North train station nor to Bicester Village train station. The assessment of the travel time to the stations in section 4.5.3 of Appendix 6.2 of the application has a speed of 320m/s which is clearly incorrect (corresponding to 1152km/h) and an over optimistic estimation of travel time of 6/9 minutes to Bicester North and Bicester Village station respectively.

The nature of the shared paths and numerous waits at toucan crossings as well as non-continuous cycle routes make these estimates highly optimistic. Improvements to the routes should be made to improve these active/public travel connections. In addition, the existing shared path infrastructure (where existing) is not of high quality or in line with current LTN 1/20 standards. Consideration must be given as part of this planning application to remedying these deficiencies in the existing network.

Table 4.2 in Appendix 6.2 of the application contains incorrect (lower than reality) walking distances to local amenities. For example the walking distance to Jardines Pharmacy and Coop is 1.7km not 1km as indicated (see googlemap screenshot below). This undermines the diligence of the travel planning for active travel and the credibility of the plan.



Residents from the east of the development could be expected to use the B4100 to directly access Bicester town by pedal cycle, but the road is shared with fast moving and heavy traffic and as such is completely unsuitable for the vast majority of cyclists. This should also be addressed.

Given the ongoing consultation to upgrade the Roundabout at Banbury Road/Skimmingdish Lane with the potential for fully segregated cycleways around the junction in the CYCLOPS form then

we strongly suggest upgrading the shared path connection to Charlotte Avenue with segregated walkway and segregated cycleway so as to integrate into the new junction and cope with the increased volumes of pedestrians and cyclists.

2.4 Missing Links to local centres and Bicester

Although prominence is given to maintaining a view of St Lawrence's Church, no provision for active travel access is made to actually access the church. This is a serious oversight and ought to be remedied.

The proposed Pedestrian/Cycle route from Caversfield assumes that the Fringford Road already provides a safe cycling route, which is not the case. It is stated in the proposal that "This footway is considered to be wide enough to accommodate young cyclists that might wish to travel to the Primary School without the need to use the carriageway." This is a proposal that is not in accordance with the law and highway code, the pathway would need to be upgraded to an official shared path for this to be the case. Note that shared paths are no longer preferred in LTN 1/20.

In order to connect to neighbouring communities, active travel links to the site via Aunt Ems Lane (the lane between the B4100 and the Fringford Road) should be included in the plans. BicesterBUG rejects the notion that the Fringford road offers a suitable route, as outlined above. We reiterate that one low cost possibility would be to provide a dedicated active travel corridor between NW Bicester and Caversfield by closing Aunt Ems Lane to motor vehicle traffic. We note that the developer has assessed the connection(in ES vol 2 Appendix 6.1 and 6.2 Transport assessment), we disagree with the assessment and contend that with minor changes suitable active travel provision can be constructed. The reasoning that the existing route via skimmingdish lane is shorter than an alternative via Aunt Em's lane and the east development parcel (e.g. via Home Farm) is not proven

Alternatively, Aunt Ems Lane could be made one-way for motor traffic from the B4100 to the Fringford Road to maintain access, allowing the current E-Bound lane to be segregated into a bi-directional active travel route. This option would provide safe access between the proposed development, Caversfield, the church and the school. The addition of a path along the eastern side of the B4100 from aunt em's lane to St Lawrence Church and a crossing to the proposed development site would make a valuable addition to the active travel connectivity of the development and the wider area. This would unlock active travel access to the church which is currently not possible from Elmsbrook or Caversfield.

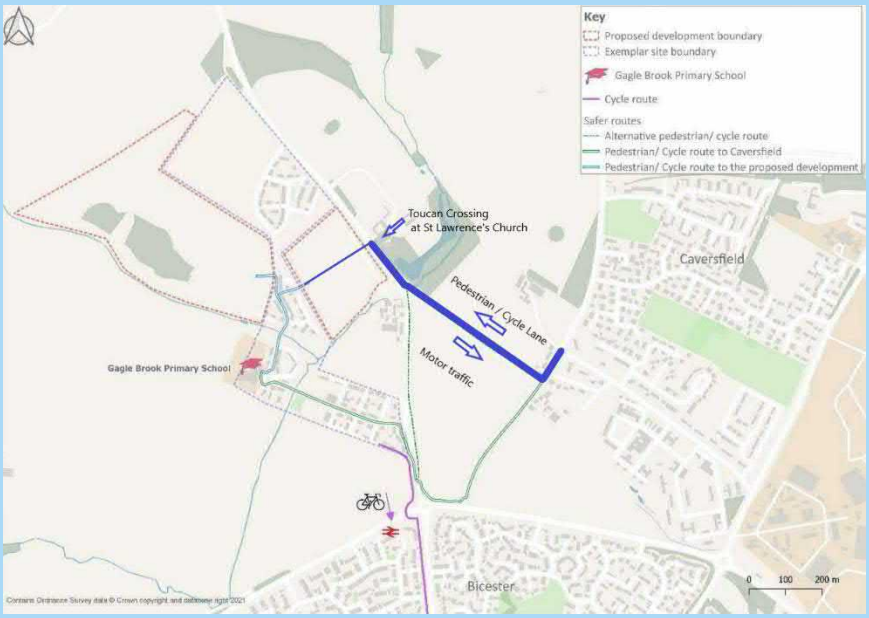


Figure 1: Aunt Em's Lane Connection (taken from Fig 5.3 of Appendix 6.2)

2.5 Vehicle Access

The proposed access to the development along Charlotte Avenue and Braeburn Avenue will have a negative impact on the walking and cycling provision along those routes. This will be especially problematic on the Charlotte avenue route where this will pass Gagle Brook Primary School. Consideration should be given to creating an access point at Home Farm or a Park and Stride facility which could serve both the school, church and business centre.

The proposed traffic control lights at the junction of Charlotte Avenue and the B4100 are a result of insufficient effort on the part of the developer to mitigate car traffic through modal shift to active travel. The doubt shown in the traffic modelling by Rob Dakin implies that the vehicle levels could be in excess of the already borderline levels further reducing the attractiveness of walking and cycling. The traffic lights themselves would provide and *additional* barrier to active travel by restricting free movement of pedestrians and cyclists across Charlotte avenue through increased traffic and offset (non desire line) controlled crossings.

2.6 Public Transport

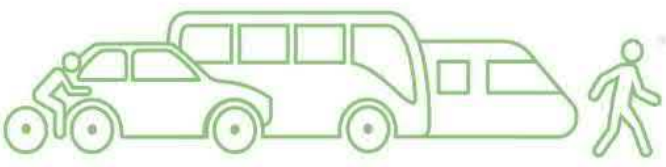
The bus stop on the east side of the B4100 north of the Toucan crossing needs to be linked to these active travel paths, it is currently on a grass verge inaccessible to most users.

3. REFERENCES

EcoBicester Planning Standards
https://portal.oxfordshire.gov.uk/content/publicnet/other_sites/EcoBicester/standards.html
Cherwell Design Guide SPD (2017)
Oxfordshire County Council (2020), Local Walking and Cycling Plan for Bicester
Department for Transport (2020), Local Transport Note 1/20

ATTACHMENT 10

ELMSBROOK COMMUNITY ASSOCIATION CONSULTATION RESPONSE



VELOCITY
Transport Planning

Firethorn 21/01630/OUT Transport Assessment – Analysis, Short Version

Dear Reader,

While there are no obvious errors in the work performed for this document, please read carefully through the following steps, analysing parts of its conclusions, and assumptions, to see why we are concerned that NPPF parag. 108 (b) would not be met (*"It should be ensured that safe and suitable access can be achieved for all users."*)

Item 1: The Critical Conclusion and how it is evidenced:

The significant concluding result is stated in Table 9-1, in section 9.2 "Junction Assessment" – which is reproduced:

Table 9-1: B4100 Banbury Road/Charlotte Avenue – 2031 - Do Something PICADY

	AM PEAK HOUR			PM PEAK HOUR		
ARM	RFC	QUEUE (PCU)	DELAY (S)	RFC	QUEUE (PCU)	DELAY (S)
B4100 (N)	-	-	-	-	-	-
Charlotte Avenue	0.87	5.2	79.67	0.77	3.1	56.10
B4100 (S)	0.09	0.1	7.61	0.01	0.0	7.89

The critical figure here is the flow capacity (RFC) for vehicles exiting Charlotte Avenue, which is found to be 0.87. This is "slightly over" the recommended maximum capacity of 0.85, enabling the conclusion from 9.2.3:

> This demonstrates that the existing priority junction would provide sufficient capacity to accommodate the 2031 Do Something flows, which consist of the Do Minimum flows extracted from the BTM with the proposed development traffic flows manually added to the network. However, it is acknowledged that the existing priority junction is expected to operate close to the recommended maximum capacity of 0.85 RFC in the future.

What this also implies, however, is: if there is any error in the methodology/set up for the simulations and calculations which determine this, then the above conclusion will not hold – and in that scenario, the existing junctions would be found unable to sustain the additional volume of traffic due to the proposed new homes.

Item 2: Scope and Baseline Model information

Information as to the Baseline Model which the developers were instructed to use comes from:

> 11.1.13 As agreed during scoping discussions with OCC and HE, the Bicester Transport Model (BTM) has been confirmed as the appropriate tool to identify the forecast future year traffic flows. This traffic generation has been used at the request of OCC as the basis for assessing the traffic impact.

From the Appendix 6.1, Part 2.pdf document, further details are given regarding the BTM:

> **3.8 BASELINE TRAFFIC**
>
> 3.8.1 It is noted that the 'Bicester SATURN Model' was originally developed in 2007 but following a series of vehicle counts undertaken in 2012/2013, a revised base year of 2012 was developed.
>
> 3.8.2 A review of the NW Bicester Outline Planning Application 1 (14/01384/OUT), which considered a total of 2,600 dwellings associated with the wider NW Bicester Masterplan for development located to the north of the railway line including the majority of the application site (with the exception of the Eastern Parcel, which was considered as part of application 18/00484/OUT) includes significant data analysis based on the 2012 'Bicester SATURN model''.

Further detail indicates that the modelling carried out in 2021, aimed at predicting traffic in 2031, is using a Base Model from 2012, released in 2014, largely based on 2007 data. However, this model therefore ignores issues with the 2010/11 Hyder TA and TP for NW Bicester Exemplar Phase, which was shown in 2018-19 to significantly underestimate the true peak traffic flows, based on 2x surveys, 4 months of Traffic Monitoring data (Sept-Dec 2019), and presented to members of OCC and CDC on 29/1/19, 5/12/19 and (showing trends met) 9/9/20. Not only is it not using the latest version of the model, it is missing known additional features which need to be incorporated.

Item 3: Examples showing evidence that the Conclusion cannot be trusted

A. Evidence from within the calculations using the Baseline Model:

The assumptions for trip generation for the ~400 new homes should be no different to that for the existing ~220 homes which exit Elmsbrook via the Braeburn Avenue B4100 junction (Phases 3 and 4). This is because there are no other effecting factors (e.g. School, Business Centre). The most relevant information for understanding the key peak hour (8-9 AM) from the models is shown in Appendix F, in Diagrams 6 and 8.

Diagram 6 shows that the model predicts, in 2031, if only the Exemplar site is present, then the Braeburn Avenue-B4100 junction has 70 Departures, 8-9 AM, for ~220 homes. Diagram 8 shows (for 2031), Exemplar PLUS Proposed Development shows the Braeburn Avenue-B4100 junction has 136 Departures, 8-9 AM, for ~620 homes.

The latter is just one (of many) examples of **nonsensical results:** if the model enabled the new homes to be treated the same as the Exemplar's 220, then the new total number of Departures should be ~197 homes – i.e. 61 more than the 136 predicted.

(Note: this equates to a reduction 31%, which is similar to the assumed 35% figure for "trip containment within NW Bicester" – however, this is not a viable cause: the 2010 modelling estimated 17% containment, and the full traffic modelling in that report used a 30% estimate, so the actual difference would be a lot smaller. Note also, these are *vehicle trips only*, whereas experience suggests that containment within NW Bicester is almost all walking, some cycling – and this is unlikely to change with the proposed development's location.)

B. Evidence from anomalous results within the Baseline Model:

Diagrams 6 and 8 also show 243 vehicles leaving Phase 2 via Cranberry Avenue, and 82 vehicles entering this way. Sadly, this is impossible: the road stops, and beyond is a large field. Diagram 1 (for 2016) actually has *negative* values for trips here – which is another type of anomaly. The reason *why* this is happening seems to be found in Appendix E, which contains a list of what developments (industrial, commercial, residential, etc.) are included in the Model. Here, the NW Bicester Data is incorrect:

Development Name	Description	Note	Dev Type	Total Dev Units/ Area	2021	2026	2031
NWB Eco-town Exemplar	See 2017 AMR for planning information		*C3Dwellings*		213	303	303
NWB Phase 2	See 2017 AMR for planning information		*C3Dwellings*		405	1505	2605

The Exemplar is 393 total, not 303, and is currently ~260 homes built (2021) not 213 – despite slow build, and will be 393 by 2026. (Is this a typo in the document…or the model itself?) Likewise, "NWB Phase 2" is currently 0 homes built, not 405 (as of 2021) – possibly the BTM assumes that these 405 homes are accessed via Cranberry Avenue.

Irrespective: any model which produces such results therefore cannot be trusted to be accurately predicting exits via Charlotte Avenue (for instance – where is this "differential" of (243 minus 82 =) 161 vehicles going to go?!

This also highlights that the BTM used must only include works proposed at/before the time of model creation several years ago. But what about all the other planning proposals since – including many already started, and in the Cherwell Local Plan? And all other differences between the plans then and now? For example, what about the Bicester Heritage site growth, further phases added at the Heyfords, road layout changes…? Surely it is critical that the modelling/simulations use *the latest up to date information*, to determine the true traffic growth?

C. Comparison of Traffic Simulation with Real Traffic Data, from Autumn 2019

Traffic Simulations used for the original 2014 planning application were compared with 2x traffic surveys and Traffic Monitoring data (Sept-Dec 2019) for vehicles entering Charlotte Avenue during the 8-9 AM Peak hour. The Simulations – which used the 2012 SATURN model, were shown to underestimate vehicle traffic by 97% overall, and by 417% for the School. Since the BTM used for simulations *pre-dates this finding*, it cannot contain any attempt to rectify the significant differences. (There is no reason to assume traffic trends in reality will suddenly reduce.)

(*Recall:* if the 2031 model predictions were to underestimate true traffic flows by even a small fraction of the above findings, then the RFC for Charlotte Avenue would be higher than 0.85. The impact would be serious.)

D. Comparison of School Demographic Assumptions with existing evidence

In point 7.4.4, it is assumed that "all primary school children from the proposed development" would attend Gagle Brook School – however, we've already seen evidence (from the Exemplar Phase) that this isn't true. (1) Families moving from elsewhere in Bicester to the new development are likely to keep their children at their existing school, with existing friends. Likewise, (2) where families move to Elmsbrook and have older children also, at Secondary School with a site-sharing Primary School, we've seen parents send their child there – to a more established school, and single drop-off run. Also, (3) cases where parents choose to send their children to a Private School. The model does not appear to allow for alternatives such as these. Presumably statistics for such choices exist, and could be incorporated, if significant enough?

The results in Table 7-8, regarding Person Trips for Education Purpose by Mode, are also confusing. There's no school on the land – so what are the Education *Arrivals* for in the morning? – especially non-Car ones – is this a count of people from outside the Proposed Development picking up kids living inside it?? If this data is meant to be inclusive of GBS, it's far short of true data, and has transport mode assumption errors too, based on the GBS annual Travel Surveys.

E. Significant Omissions from the Model, first reported to OCC and CDC in January 2019

There are 2 single flow direction "bottlenecks", each side of the bridge on Charlotte Avenue, on Phase 2, i.e. between the Eco Business Centre (ECB) and Gagle Brook School (GBS). These are to make it safer for children crossing to the 2 entrances to the park. These are not included anywhere in the Transport Assessment modelling – of 2010, 2014, 2018 or 2021 – and yet they will prove to be *very significant, very soon.* This is because they are only 5-6 car lengths apart, and only 5-6 car lengths from access to the entrances to the EBC, Energy Centre and Community Hub/Café (due to be built in 2021-22).

Work presented to CDC Planning Department on 9/9/2020 demonstrated how the lack of parking for GBS (due to errors in demographic assumptions and analysis of the Transport Mode, made in the original Exemplar planning) and growth of the EBC, plus building of the Community Hub/Café, will start to cause serious issues from September 2021 onwards – i.e. completely ignoring the impact of the proposed development's additional impact! So let's now consider what that impact will be:

Differencing the 2031 predictions (Diagram 8 in Appendix F) with 2016 (Diagram 1 in Appendix F), we can subtract the contribution of "Phase 1 only", so we can calculate the predicted volumes going through the "bottleneck" by the Phase 1-2 Park: Arrivals = 350 – 16 = 334. Departures = 242 – 59 = 183. TOTAL = 334 + 183 = 517 vehicles.

This equates to 1 vehicle every 10.8 seconds going towards the School, and 1 vehicle every 19.7 seconds going towards the B4100 junction. And these 517 vehicles have to go through *two single-car bottlenecks.* This in itself would create tailbacks in either direction, causing issues with the EBC/Hub entrance; however, when you consider the parking situation outside the school as well, the effective "bottleneck region" is extended a long distance.

There are no road crossings outside the School, and the on-road parking situation is already dire, with the school at 70 pupils out of a capacity 230. Cars are parked on both sides on all available spaces on the roads, currently as safely as they can, but as the school grows, with no parking solution yet determined (despite constant pressure since 2018 from Residents, GBS itself, and Parents), this will inevitably go further through the estate both ways along Charlotte Avenue – making much more of it only single-car passable.

This is going to build up as the delays occur, and cause tailbacks all the way through Phase 2, and with the additional traffic from the proposed development, by the time the school goes from 30% to 100% capacity, even if the percentage car trips falls from currently 56% to say 30%, the traffic will likely be jammed all the way through Phase 1 to the B4100 – for much of the morning peak hour. It will also make things VERY DANGEROUS for those travelling on-foot or by bicycle to the School, who cross over Charlotte Avenue here.

NB also: even if the 2x bottlenecks are removed – i.e. making road crossing more dangerous for children going to the park – the School parking problem will still cause the above issues. And even if the School demographic not only meets its legal 50% vehicle travel target (last measured at 56%, in October 2020), but meets the original headmaster's goal of just 25% - even then, it will still require enough parking such that these tailbacks are created.

F. Base Flows and Percentage Change

In "ES Chapter 6 TRANSPORT.pdf", 6.108, Table 6.6 indicates that the Charlotte Avenue Link (stated in Table 6.5 to be of "High" Link Sensitivity) is modelled as having 703 vehicles (18 hour AAWT) in 2016, which increases to 4446 in 2031 "Do Minimum" (532% increase), and Table 6.7 shows this increases to 5184 (a further 16.6% increase) for the 2031 "Do Something" case (i.e. this includes the Traffic Lights at the B4100 junction). Table 6.7 also shows that the Braeburn Avenue increase between the two 2031 cases is high – 83.9% to "Do Something" – but NB this cannot be compared to 2016, because Phases 3-4 were not built then.

Comparing back to Table 6.2 Criteria for Magnitude of Change, the following can be noted:

- The modelling suggests both junctions have Severance, Driver Delay and Pedestrian/Cyclist Delay and Amenity all scoring in the "Medium" Magnitude of Impact category; however, Fear & Intimidation scores "High" – these points are not mentioned in the report. (This is because Delays, see Table 9-1 above, are calculated at 79.67 seconds, and the 18 hour AAWT vehicle count is between 3500 and 5600.)
- If the modelling underestimates true trip generation by as little as 14% (calculated based on Delay Times), then ALL of the above are pushed into the "High" category. Note that evidence from the preceding points, especially Item 3C, suggest that the underestimation might be significantly more than 14%.
- However, irrespective of whether these are "High" or "Medium", Table 6.4 indicates that for a "High" Sensitivity Link (which Charlotte Avenue is, see Table 6.5), for either High or Medium Magnitude of Change, will experience a "**Major**" Adverse Impact – and this is described in Table 6.3 as "…A negative effect on the receptor that will have an impact on the wider area or that may be in breach of standards or legislation."
- However, in the report, 6.130 only concludes that Braeburn Avenue will have a "moderate" adverse effect, and the others (i.e. including Charlotte Avenue) will have "negligible." This appears to be only looking at some of the data, and only comparing the two 2031 cases. Point 6.137 later concludes Charlotte Avenue's driver delay impact will be "Moderate" – Table 6.8 shows the modelling predicts the proposed development will increase the Charlotte Avenue exit delay in 2031 from 23.08 seconds to 79.67 seconds; the latter is the value in Table 9-1, which is also stated as a queue length of 5.2 cars. However, we are already seeing queue lengths of 5 cars, regularly, in 2021, under lockdown restrictions!
- 6.81 actually states that traffic levels are assumed to be lower in future, due to the pandemic. Speaking as a professional noise assessment consultant, who recently studied this for Motorways: *this simply cannot be assumed in the long-term!* It cannot be used to imply the traffic will be lower irrespective of other issues.

G. Financial Contribution Calculations

We note also the following points raised in the assessment:

> 6.1.4 It is acknowledged that the majority of the proposed development has already been considered as part of the Traffic Impact Assessment that was undertaken for the Application 1 scheme (14/01384-OUT), which was modelled by White Young Green (WYG) on behalf of A2 Dominion using OCC's 'Bicester SATURN Model'. This modelling was undertaken for the full 6,000 homes and it was agreed with OCC that the difference in traffic generation between Application 1 development and the full NW Bicester Eco Town can then be used to quantify the traffic impact of that application, which included the majority of the development proposals which are the subject of this scoping note.
>
> 6.1.5 With the above in mind, it is considered reasonable to accept that the assessment of the NW Bicester Masterplan undertaken by Hyder, WYG, PBA and other applications that have come forward to date, have clearly established the off-site strategic highway improvements that are required to deliver the wider NW Bicester Masterplan. As such, the applicant for the current proposals will be agreeing to proportionate financial contributions to these strategic improvements. Further details in this regard are set out within the Scoping report.

Would the calculated financial contributions be accurate, however – bearing in mind the above issues/analysis?

Conclusion – key points:

As highlighted in "ES Chapter 6 TRANSPORT.pdf" as part of the application, regarding the NPPF:

> 6.8 Paragraph 109 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 would be severe.*"

The following conclusions relate directly to this latter point:

- If the model has not been updated to reflect any of the above issues, how can we trust the figures?
- The figures are clearly likely to be significant underestimates of the true traffic flows and queue lengths.
- But the RFCs are predicted at over 0.85 already – so the result is likely to be significantly worse than predicted: critically, the planned simple change to the Charlotte Avenue-B4100 junction (Traffic lights) are *very unlikely* to be anything like a significant enough mitigation to the potentially significant issues.
- (Even if only issues A, C or D above were the issue, the junction would be overloaded, and the conclusions cannot be supported. However, when issue E is also included, the exacerbation is considerably worse.)
- Based on the available sets of evidence and content of the Transport Assessment for 21/01630/OUT, we are very concerned that – if this application were submitted as-is, the future cumulative impact for both the NW Bicester Ecotown and the wider traffic on the B4100 and Bicester Ring Road might indeed be severe.

The conclusion of "the existing junction would provide sufficient capacity" unfortunatelty can neither be justified, nor could it be accepted as having been determined by the best information available in 2021. Indeed, it is highly likely that such a simulation would not be sufficient – and further design variations will need investigation to determine what is actually viable/optimum.

Please note: we do not wish to 'scupper' the Firethorn development: we have been very impressed with Firethorn and their consultants so far, and are supportive of many aspects of the Outline planning application. We just don't want to see the future of NW Bicester Ecotown damaged by a decision based on flawed information – when this is avoidable.

We would therefore very much like to help offer and discuss constructive solutions to the issues raised above.

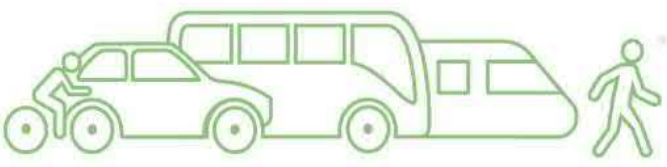
It seems clear that an up-to-date modelling of the true situation is required, i.e. using the most recent BTM and further updating it to factor in all of the points raised in Item 3 above. It would seem very prudent to ensure that such a model were able to predict the September to December 2019 Traffic Monitoring/2x Survey results with reasonable accuracy, before going any further. The true 'picture' for 2031 could then be simulated *to the best of currently available knowledge*, and the conclusions revisited.

If, as we suspect, the conclusion no longer holds (i.e. due to unsupportably high RFC values), we have a number of ideas of different design aspects which could be discussed, and viable candidates could then be simulated.

Also:

The School parking/drop-off/collect issue will get worse in September 2021, irrespective of the Firethorn planning application: CDC also need to take action to resolve this. At the presentation on 9 Sept. 2020 (hosted jointly by the Elmsbrook Parking and Traffic Group, Gagle Brook School and the Eco Business Centre), members of CDC Planning verbally acknowledged the seriousness of the issue; however, no further action has yet been taken, in terms of further engagement with the community, School or Business Centre, i.e. beyond what both School and Business Centre had already been doing (these activities are detailed on slide 21 of the shared presentation).

As noted in the presentation: even if the school meets its boldest target for minimising vehicle trips, there would still be enough cars at pick-up and drop-off times to create traffic issues, once the school reaches full capacity. This issue not only affects all of Elmsbrook Phases 1 and 2; it will impact at least 130 homes of the proposed development. **It is not going to disappear: we would welcome further discussion of ideas for actions on this, as soon as possible.**



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