Land east of Junction 11 of the M40, Banbury

Transport Assessment

DTA

Transport Planning Consultants

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Transport Assessment

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SJT\RT\23457-09b Transport Assessment

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Table of Contents

Drawings

Appendices

1.0 INTRODUCTION

1.1 Greystoke CB commissioned David Tucker Associates (DTA) to provide highways and transport advice to support the outline planning application for the construction of up to 140,000m² of employment floorspace (use class B8 with ancillary offices and facilities), and servicing and infrastructure including new site accesses, internal roads and footpaths, landscaping including earthworks to create development platforms and bunds, drainage features and other associated works including demolition of the existing farmhouse. All matters of detail (including access) are reserved. The illustrative site layout is included in **Appendix A**.

1.2 The current challenges for the logistics sector are set out in the 'Future of Freight Plan' (DfT, 2022) and Better Delivery: The Challenge for Freight (NIC, 2019). The DfT report aims for the logistics sector to be cost efficient, reliable, resilient, environmentally sustainable and valued by society. The NIC report identifies the growth in e-commerce, the need to transition to zero emission vehicles and the emergence of disruptive new technology. Decarbonising Transport (DfT, 2022) says that the planning system must contribute to the solution by delivering sufficient and appropriately located sites recognising that many of the existing ones will be unsuitable or no longer fit for purpose.

1.3 This development clearly strikes a balance between providing accessible local employment opportunities for residents within the (Cherwell) District and, the need for efficient freight operations where businesses have access to their markets within the M40 corridor, access to the Strategic Road Network (SRN) and intermodal freight facilities and international gateways (ports and airports). This reflects that the travel demand generated by the development is broader than simply the journey to work trips of employees.

1.4 For Banbury, the principal settlement in Cherwell District, there are few locations that could support commercial warehousing given the structure of the road network and reliance on links such as Hennef Way which constrains sites to the west of the M40, i.e., without prejudicing existing ones. Modelling shows that there are limits to which existing tidality of demand (inbound into Banbury in the AM peak and outbound in the PM peak) can increase without an adverse impact. The development demand does not reinforce this tidality and hence sites to the east of the M40 can support businesses, allow a close spatial relationship with Banbury such that employees will have travel choices and, minimise the increase of commercial traffic on local roads.

1.5 A planning application (LPA reference 22/01488/OUT) was previously made for development of the Site. Several technical issues with respect to the Transport Assessment (TA) were raised by the Local Highway Authority (LHA), Oxfordshire County Council (OCC), the neighbouring LHA West Northamptonshire Council (WNC), and National Highways (NH). During a

subsequent appeal (PI reference APP/C3105/W/11/22/3311992), there were significant areas of agreement which were reached including key parameters to be adopted within the Transport Assessment (TA). Detailed modelling work was not completed, and the appeal was ultimately withdrawn. Notwithstanding this, the agreed parameters (Statement of Common Ground, **Appendix B**) have been taken forward and these have informed the significant additional technical work, which is set out in this updated TA. This includes a new micro-simulation model, which has been developed for the A422 corridor including M40 Junction 11, and an independent road safety audit.

1.6 This TA includes the following headings:

- Chapter 1: Introduction
- Chapter 2: National and Local Policy
- Chapter 3: The Transport Vision (Decide and Provide)
- Chapter 4: Existing Conditions
- Chapter 5: Development Proposals
- Chapter 6: Traffic Generation and Distribution
- Chapter 7: Operational Assessment
- Chapter 8: Conclusions

1.7 This report concludes that the development provides modern warehousing within a strategic corridor where the impact on Oxfordshire communities is minimised in accordance with local policy. Moreover, the over-arching policy aims are met as the proximity to the principal settlement (Banbury) will reduce car-based commuting. Subject to the proposed mitigation, the development will have no material residual operational or safety impact on the local highway network or M40 Junction 11.

2.0 NATIONAL AND LOCAL POLICY

2.1 National Planning Policy Framework (September 2023)

2.1.1 In September 2023, the National Planning Policy Framework (NPPF) was updated. The NPPF confirms that the Government encourages sustainable development. This is highlighted in Paragraph 10 which confirms that:

> *"at the heart of the Framework is a presumption in favour of sustainable development"*

2.1.2 In specific relation to transport issues it is confirmed at para 104 and 105 that:

> *104 Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:*
>
> *a) the potential impacts of development on transport networks can be addressed;*
>
> *b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodates;*
>
> *c) opportunities to promote walking, cycling and public transport use are identified and pursued;*
>
> *d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and*
>
> *e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places.*
>
> *The planning system should actively manage patterns of growth in support of these objectives.*
>
> *105. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."*

2.1.3 The NPPF sets the following test in relation to development:

> *110. In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:*
>
> *a) appropriate opportunities to promote sustainable transport modes can be – or have been - taken up, giving the type of development and its location;*
>
> *b) safe and suitable access to the site can be achieved for all users;*
>
> *c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and*
>
> *d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.*
>
> *111. 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."*

2.1.4 Paragraph 112 of the NPPF goes on to say that:

> *112. Within this context, applications for development should:*
>
> *a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;*
>
> *b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;*
>
> *c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid necessary street clutter, and respond to local character and design standards;*
>
> *d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and*
>
> *e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations."*

2.2 DfT Circular 01/2022 (2022)

2.2.1 Circular 01/2022 was published in December 2022 by the Department for Transport (DfT) which sets out the way in which National Highways will engage with the development industry to deliver sustainable development and thus economic growth, whilst safeguarding the primary function and purpose of the strategic road network.

2.2.2 Transport Assessments are covered in paragraphs 47 through 54 inclusive with key extracts relevant to the proposed development as follows:

> *"developers should demonstrate that the development would be located in an area of high accessibility by sustainable transport modes and would not create a significant constraint to the delivery of any planned improvements to the transport network or allocated sites.*
>
> *A transport assessment for consideration by the company must also consider existing and forecast levels of traffic on the SRN, alongside any additional trips from committed developments that would impact on the same sections (link or junction) as the proposed development. Assumptions underpinning projected levels of traffic should be clearly stated to avoid the default factoring up of baseline traffic.*
>
> *An opening year assessment to include trips generated by the proposed development, forecasted growth and committed development shall be carried out to establish the residual transport impacts of a proposed development.*
>
> *Where a transport assessment indicates that a development would have an unacceptable safety impact or the residual cumulative impacts on the SRN would be severe, the developer must identify when, in relation to the occupation of the development, transport improvements become necessary."*

2.3 Decarbonising Transport (2020)

2.3.1 Decarbonising Transport is a policy paper of 2020 which sets out a vision of a net zero carbon transport sector. This will be achieved through six priority areas: accelerating modal shift to public and active transport, decarbonisation of road vehicles, decarbonising how we get our goods, place based solutions, UK as a hub for green transport, technology and innovation; and reducing carbon in a global economy.

2.4 Future of Freight Plan (2022)

2.4.1 Future of Freight is a policy paper of 2022 which sets out a long-term cross modal plan for the freight and logistics sector. The plan sets out a vision for a freight and logistics sector that is

cost efficient, reliable, resilient, environmentally sustainable and valued by society. The plan identifies that the planning system has a crucial role in promoting development that supports the efficient supply of goods by ensuring that sufficient land is being made available in the right places for freight operations.

2.5 Gear Change: a bold vision for cycling and walking (2020)

2.5.1 Gear Change is a policy paper of 2020 which set out the UK government's position on how to increase walking and cycling. The cycling and walking plan sets out the vision for half of all journeys in towns and cities to be made by active travel modes by 2030. All new key cycling infrastructure, such as cycle lanes and parking, must now adhere to the LTN 1/20.

2.6 Local Transport Note 1/20

2.6.1 Local Transport Note 1/20 Cycle Infrastructure Design is guidance to support delivery by local authorities of high-quality cycle infrastructure to support objectives to include cycling and walking levels. The needs of people of all ages and abilities are considered. The core design principles are that networks and routes should be Coherent; Direct; Safe; Comfortable and Attractive.

2.7 Cherwell Local Plan 2011-2031

2.7.1 This document seeks to look to the future and set out proposals to support the local economy and communities up to 2031. It forms part of the statuary Development Plan for Cherwell. The Plan was formally adopted by the Council on 20th July 2015.

2.7.2 The plan addresses several broad parameters, such as:

- *A strategy for development in Cherwell;*
- *Policies for development in Cherwell;*
- *Policies for Cherwell's places;*
- *Infrastructure, and*
- *Delivery*

SLE 1: Employment Development

Employment proposals at Banbury, Bicester and Kidlington will be supported if they meet the following criteria:

Have good access, or can be made to have good access, by public transport and other sustainable modes

SLE 4: Improved Transport and Connections

All development where reasonable to do so, should facilitate the use of sustainable modes of transport to make the fullest possible use of public transport, walking and cycling.

Saved policy TR1 (Cherwell Local Plan 1996)

Before proposals for development are permitted, the Council will require to be satisfied that new highways, highway improvement works, traffic-management measures, additional public transport facilities or other transport measures that would be required as a consequence of allowing the development to proceed will be provided.

2.8 Oxfordshire Local Transport and Connectivity Plan (2022)

2.8.1 The Oxfordshire Local Transport Plan (LTP5) sets out a vision to deliver *'a net-zero Oxfordshire transport and* travel *system that enables the county to thrive whilst protecting the environment and making Oxfordshire a better place to live for all residents'.*

2.8.2 Headline targets are to:

- *reduce 1 in 4 current car trips by 2030;*
- *deliver a net zero transport network by 2040;*
- *and have zero, or as close as possible, road fatalities or life changing injuries by 2050.*

Policy 36 – We will:

a) Only consider road capacity schemes after all other options have been explored.
b) Where appropriate, adopt a decide and provide approach to manage and develop the county's road network.
c) Assess opportunities for traffic reduction as part of any junction or road route improvement schemes.
d) Require transport assessments accompanying planning applications for new development to follow the County Council's 'Implementing 'Decide & Provide': Requirements for Transport Assessments' document.
e) Promote the use of the 'decide and provide' approach in planning policy development to support site assessment.

Policy 47 – We will develop and deliver a freight and logistics strategy based around the principles of:

- *Appropriate movement*
- *Efficient movement*
- *Net-zero movement*

- *Safe movement*
- *Partnership working*

Policy 48 – We will:

a) Promote rail freight as our priority for the long distance movement of goods.

b) Support a range of additional measures to improve the safety and efficiency of long distance goods movement.

2.9 OCC LTCP Freight and Logistics Strategy 2022 – 2050 (2022)

This strategy addresses some of the challenges associated with the movement of goods in Oxfordshire and sets out the actions required to deliver appropriate, efficient, clean and safe movement. The strategy also outlines how the freight system is essential if we are to meet broader air quality and net-zero objectives, as outlined in the main LTCP.

Action 27 – Seek to influence the location and design of new development

We will seek to influence the location and design of new development, particularly employment sites and any related transport infrastructure, so that these can function well, with appropriate freight access to and from the strategic transport network without adverse impacts on local communities, other road users and the environment. This includes ensuring new developments incorporate the needs of emerging technologies.

2.10 Implementing 'Decide and Provide': Requirements for Transport Assessments

2.10.1 This guidance expands the expectations for TA for the implementation of a 'decide and provide' approach based on the TRICS guidance.

3.0 THE TRANSPORT VISION (DECIDE AND PROVIDE)

3.1 Introduction

3.1.1 Responding to the challenges of sustainable development, economic growth, and the climate emergency requires more efficient patterns of travel demand to be planned for, both for our communities and businesses. This is reflected in National Government and Industry support for a vision led approach to transport planning rather than the traditional forecast led approach. For instance, paragraph 48 of Department for Transport Circular 01/22 states that 'where a transport assessment is required, this should start with a vision of what the development is seeking to achieve and then test a set of scenarios to determine the optimum design and transport infrastructure to realise this vision'. This will allow opportunities from technological and behavioural change to be better realised. This approach is also equivalent to the 'decide and provide' approach advocated by OCC for instance within Policy 36 of their LTCP.

3.1.2 The current challenges for the employment sector are set out in the 'Future of Freight Plan' (DfT, 2022) and Better Delivery: The Challenge for Freight (NIC, 2019). The DfT report aims for freight services to be cost efficient, reliable, resilient, environmentally sustainable and valued by society. The NIC report identifies the growth in e-commerce, the need to transition to zero emission vehicles and the *emergence* of disruptive new technology.

3.1.3 Decarbonising Transport (DfT, 2022) says the planning system must contribute to the solution by delivering sufficient and appropriately located sites recognising that many of the existing ones will be unsuitable or no longer fit for purpose. The development needs, therefore, to strike a balance between providing for efficient freight operations and providing accessible local employment opportunities for the workforce.

3.2 Vision

3.2.1 *Our vision is to create a sustainable employment development that will support healthy, active lifestyles by employees and visitors whilst minimising the impact of commercial traffic on the community. The development will provide modern employment units in the strategic M40 corridor, in an accessible location and well connected to the wider community. Our transport strategy for employee travel prioritizes walking, cycling and public transport over private cars. Our transport strategy for commercial vehicles routes traffic directly to the principal road network and avoids unsuitable routes.*

3.3 Meeting the Vision

3.3.1 The appraisal considers whether appropriate connectivity is achieved by all modes and scenarios where higher levels of sustainable travel are achieved and this has informed the Framework Travel Plan. Commercial demand is also considered to ensure that appropriate routeing to the principal road network is achieved.

3.3.2 The location of the site and the level of employee travel demand that will be generated is unlikely to trigger the need for significant reconfiguration of the local transport system. Where interventions are required, these will not be sensitive to mode share. In terms of junction modelling, therefore, this has been based on conservative assumptions based on historical precedent. The resultant demand forecasts are circa 10% higher in employee vehicular trips than targeted by the Vision and as such these performance metrics are worst cases.

4.0 EXISTING CONDITIONS

4.1 Site Location

4.1.1 Banbury is the principal urban centre within the Cherwell District of Oxford, with a population of circa 50,000 people. It is located adjacent to the strategic road network; the M40 motorway runs between London and the West Midlands Conurbation. The motorway is accessed from M40 Junction 11 in the northwest of the town.

4.1.2 The Site is located immediately adjacent to and north of the M40 Junction 11 gyratory between the A361 and A422 arms. The Site is approximately 3.2km north-east of Banbury Town Centre. It is immediately adjacent to the Frontier Park development (ref: 19/00128/HYBRID; 'Frontier Park') which is located between the A361 and M40 North arms.

4.2 Local and Wider Road Network

4.2.1 The site will be accessed from the A361. The A361 is a single carriageway road which measures approximately 7.5m in width. The road is subject speed limit of 40mph implemented as part of the Frontier Park development. The A361 runs between the M40/ A422/ A361 Roundabout to the A45 on the south-western boundary of Daventry.

4.2.2 The A422 is a dual carriageway road with each direction separated by a grass central reservation. The road is subject to the national speed limit of 70mph. The A422 becomes single carriageway and subject to a 50mph speed limit to the east of the B4525/ A422/ Mansion Hill Roundabout. The A422 runs between Banbury and the A43 to the south of Brackley.

4.2.3 The M40 motorway is a dual three-lane motorway which links London, Oxford, and Birmingham.

4.3 Existing Traffic Flows

4.3.1 To inform the traffic modelling a programme of traffic surveys was commissioned within the A422 corridor. Automatic Traffic Counts (ATC) were undertaken for a two-week period on the following roads from Thursday 22nd June to Wednesday 5th July 2023:

- *A361.*
- *A422.*
- *Hennef Way (between Wildmere Road and M40 J11).*
- *Hennef Way (between Wildmere Road and A4260).*
- *Hennef Way (between A4260 and Southam Road).*

4.3.2 The location of the ATCs and the full results can be seen in **Appendix C**. A summary of the five-day average flows for the peak periods and AADT for the week 1 survey is in **Table 1** below. The average mean speeds and 85th percentile speeds are summarised in **Table 2**.

Table 1 – Automatic Traffic Count Summary – Week 1

Time Period	Northbound	Southbound	Two-Way
A361			
08:00 – 09:00	278	499	777
17:00 – 18:00	562	387	949
AADT	5,083	4,890	9,973
A422			
	Eastbound	Westbound	Two-Way
08:00 – 09:00	924	1,055	1,979
17:00 – 18:00	980	940	1,920
AADT	11,166	11,622	22,788
Hennef Way (between Wildmere Road and M40 J11)			
	Eastbound	Westbound	Two-Way
08:00 – 09:00	1,400	2,132	3,532
17:00 – 18:00	1,727	1,714	3,441
AADT	21,893	23,295	45,188
Hennef Way (between Wildmere Road and A4260)			
	Eastbound	Westbound	Two-Way
08:00 – 09:00	1,568	1,838	3,406
17:00 – 18:00	1,597	2,026	3,623
AADT	22,797	24,997	47,794
Hennef Way (between A4260 and Southam Road)			
	Eastbound	Westbound	Two-Way
08:00 – 09:00	1,379	1,204	2,583
17:00 – 18:00	1,332	1,320	2,652
AADT	20,501	18,406	38,907

Table 2 – Average Mean Speeds and 85th Percentile Speeds

	Northbound	Southbound
A361		
Average Mean Speed	44.6	41.6
85th Percentile Speed	50.7	48.5
A422		
	Eastbound	Westbound
Average Mean Speed	48.7	72.4
85th Percentile Speed	56.3	83.6
Hennef Way (between Wildmere Road and M40 J11)		
	Eastbound	Westbound
Average Mean Speed	33.4	36.6
85th Percentile Speed	40.7	43.4
Hennef Way (between Wildmere Road and A4260)		
	Eastbound	Westbound
Average Mean Speed	45.1	42.1
85th Percentile Speed	53.3	49.4
Hennef Way (between A4260 and Southam Road)		
	Eastbound	Westbound
Average Mean Speed	41.6	39.5
85th Percentile Speed	48.0	47.1

4.3.3 In addition to the ATC's, manual classified turning counts and queue length surveys were undertaken at the following locations on Thursday 29th June 2023.

- *M40 (N) / A361 / A422 (E)/ M40 (S)/ A422 (W) – M40 Junction 11.*
- *Wildmere Road / A422 / Ermont Way / A422 Hennef Way roundabout.*
- *Access Road / Hennef Way / A4260 Concord Avenue / Holman Bridge roundabout.*
- *Southam Road (N)/ A422 Hennef Way / Southam Road (S) / A422 Roucote Avenue roundabout.*
- *B4525 Banbury Lane / Mansion Hill / A422 / Unnamed Road / A422 (W) roundabout.*
- *Wildmere Road (N) / Brookhill Way / Wildmere Road (S) / Wildmere Road.*
- *A423 Southam Road (N) / A423 Southam Road (S)/ Beaumont Road.*

4.3.4 Full results can be seen in **Appendix D.**

4.3.5 Pedestrian crossing demand data was collected at the following locations

- *A422 Hennef Way, just west of the A422/Wildmere Road/Ermont Way roundabout*
- *A423 Southam Road, just north of the A422/Southam Road roundabout*
- *A422 Hennef Way, just east of the A422/Southam Road roundabout*
- *A422 Ruscote Avenue, just west of the A422/Southam Road roundabout*

4.4 Personal Injury Collision Data

4.4.1 The existing road safety performance of the local road network has been assessed in the context of the additional demand that will generated by the proposed development. This has informed the site access design, the appraisal of the transport implications of the development and has been provided to the independent road safety auditors.

4.4.2 Personal Injury Collision (PIC) data was obtained from OCC for the full five-year period preceding the introduction of Covid-19 restrictions up to the most recent PICs published (1st January 2015 to 31st December 2021).

4.4.3 Further PIC data has been obtained from OCC from 31st December 2021 to 16th November 2023 and this is summarised below.

4.4.4 The study area includes the A361 between the M40 J11 gyratory and Banbury Road, the A422 between the M40 J11 gyratory and Banbury Lane, the M40 J11 slip roads, Hennef Way, and approximately 500m north and south of the Hennef Way/ Southam Road roundabout. The location of the PICs and the full output can be seen in **Appendix E**.

PIC Data – 1st January 2015 to 31st December 2021

4.4.5 In the five years preceding the introduction of Covid-19 restrictions (01/01/2015 to 31/12/2019) 83 PICs occurred in the study area – 70 slight, 11 serious, and 2 fatal. In the most recent five-year period (01/01/2017 to 31/12/2021) 79 PICs occurred in the study area – 68 slight, 11 serious, and 0 fatal.

4.4.6 As can be seen above, the two time periods have a similar level of PICs split similarly over the three severity classifications. Due to this, the most recent five-year period has been assessed as is standard with Transport Assessments. The fatal PICs which occurred in the years before 2017 have however been assessed in order for the assessment to be robust.

4.4.7 The first fatal PIC occurred on the A422 Hennef Way at the roundabout junction with Ermont Way. It occurred when vehicle 1 (pedal cycle) crossed the roundabout entry from west to central refuge and hit the nearside of vehicle 2 (HGV) travelling north on Ermont Way in the offside lane waiting to enter the roundabout. The PIC was very likely caused by vehicle 1 using a mobile phone, vehicle 1 impaired by drugs (illicit or medicinal), vehicle 1 executing a poor turn or manoeuvre, and vehicle 1 failing to look properly.

4.4.8 The second fatal PIC occurred on Beaumont Road approximately 100m west of the junction with the A423 Southam Road. It occurred when vehicle 1 (HGV) travelling west along Beaumont Road stopped ahead of an access for delivery. The HGV then started to reverse to the access when a person (stow away/ attempting to enter the country) believed to be alighting from under the HGV sustained a fatal injury. The PIC was very likely caused by the casualty failing to judge the vehicles path or speed.

4.4.9 Due to the nature of the fatal PICs, it is not considered that they would contribute to a significant accident issue within the study area, and it is unlikely to be related to Covid-19 that there were no fatal PICs in the most recent five-year period.

4.4.10 Of the 79 PICs which have occurred since 1st January 2017, 9 have involved vulnerable road users which have been assessed below. There have also been 2 PICs which have 'road layout' listed as a causation factor. On further assessment, it appears that these PICs have occurred more due to driver error than any road layout issues that require mitigation (car in the incorrect lane cutting in front of another car, and excessive speed leading to a junction overshoot).

4.4.11 The first PIC which involved a vulnerable road user was classified as 'slight' in severity and occurred on the A361 Southam Road on the footway on the eastern side of the road approximately 40m northeast of the junction with Marley Way. It occurred when a mobility scooter was travelling northeast on the footway and hit a pedal cycle travelling southeast also on the footway. The PIC was possibly caused by the mobility scooter being careless/ reckless/

in a hurry, failed to judge other persons path or speed, aggressive driving or passing too close to cyclist and possibly due to the pedal cycle travelling along the pavement.

4.4.12 The second PIC which involved a vulnerable road user was classed as 'slight' in severity and occurred on the A422 Hennef Way roundabout at the junction with the A4260 Concorde Avenue. It occurred when vehicle 1 (car) travelling west on the A422 Hennef Way on exiting the roundabout junction with the A4260 Concorde Avenue to continue west, hit a pedestrian crossing from the offside just west of the roundabout. The cause of the PIC was possibly due to the pedestrian failing to look properly and failing to judge the vehicles path or speed.

4.4.13 The third PIC which involved a vulnerable road user was classed as 'serious' in severity and occurred on the A422 Hennef Way roundabout at a toucan crossing approximately 40m southeast of the junction with the A423 Southam Road. It occurred when vehicle 1 (car) travelling southeast on the A422 in the offside lane failed to stop for a red signal at the toucan crossing and hit a pedestrian. The cause of the PIC was due to the vehicle failing to look properly and disobeying an automatic traffic signal.

4.4.14 The fourth PIC which involved a vulnerable road user was classed as 'slight' in severity and occurred on Waterworks Lane at the junction with Grimsbury Green. It occurred when vehicle 1 (car) travelling north on Waterworks Lane from the A422 roundabout turned right to Grimsbury Green but cut the corner and failed to give way to vehicle 2 (pedal cycle) travelling west of Grimsbury Green. The cause of the PIC was due to vehicle 1 being careless/ reckless/ in a hurry.

4.4.15 The fifth PIC which involved a vulnerable road user was classed as 'slight' in severity and occurred on the A361 Southam Road roundabout junction with the A422 Ruscote Avenue and Hennef Way. It occurred when vehicle 1 (car) travelling north on the A361 Southam Road overtook vehicle 2 (pedal cycle), also travelling north, intending to continue to the A423 Southam Road on immediate approach to the roundabout. Vehicle 1 went through a puddle suddenly splashing vehicle 2 causing the rider to fall. The cause of the PIC was due to a poor or defective road surface.

4.4.16 The sixth PIC which involved a vulnerable road user was classed as 'slight' in severity and occurred on the A422 Ruscote Avenue junction with Banbury Cross Retail Park. It occurred when vehicle 2 travelling east on the A422 Ruscote Avenue hit vehicle 2 (car) also travelling east as both vehicles exited the roundabout to continue east on the A422. Vehicle 2 stopped, and the passenger got out to speak to drive of vehicle 1 but vehicle 1 hit the pedestrian then fled the scene. The cause of the PIC was due to vehicle 1 executing a poot turn or manoeuvre and being careless/ reckless/ in a hurry.

4.4.17 The seventh PIC which involved a vulnerable road user was classed as 'serious' in severity and occurred on the A422 Ruscote Avenue junction with Lockheed Close. It occurred when vehicle 1 (car) travelling west having just exited the roundabout on the A422 Ruscote Avenue hit a pedestrian crossing from north to south pushing a bike across the road between cars. The cause of the PIC was due to vehicle 1 failing to look properly and possibly due to dazzling sun.

4.4.18 The eighth PIC which involved a vulnerable road user was classed as 'slight' in severity and occurred on the A361 Southam Road junction with an unclassified road approximately 100m south of Hennef Way. It occurred when vehicle 1 (car) travelling north, turned right to the A361 failing to see vehicle 2 (pedal cycle) travelling south of the footway and hit vehicle 2. The cause of the PIC was due to vehicle 1 failing to look properly.

4.4.19 The ninth PIC which involved a vulnerable road user was classed as 'slight' in severity and occurred on Ermont Way roundabout junction with the A422 Hennef Way. It occurred when vehicle 1 (car) travelling north on Ermont Way entered the roundabout to turn left to the A422 but failed to give way to vehicle 2 (pedal cycle) which had entered Ermont Way from the cycle track from Daventry Road then entered roundabout to continue north to Wildmere Road rather than using the toucan crossing.

PIC Data – 31st December 2021 to 16th November 2023

4.4.20 In the most recent period (31/12/2021 to 16/11/2023) 11 PICs occurred in the study area – 8 slight, 3 serious, and 0 fatal. There was 1 PIC that involved a vulnerable road user. The collision occurred on the Grimsbury Green junction with Link Road from Concorde Avenue roundabout. The collision occurred in 2023.

4.4.21 There were 4 PICs on the A422 Hennef Way, there were 2 PICs at the M40 Junction 11 with one south of the junction and the other on the entry slip road. There were 2 PICs on the A422 with the M40 Junction 11. There was 1 PIC on the A423 Southam Road with Beaumont Road, 1 PIC on Wildmere Road and 1 PIC on Grimsbury Green.

4.4.22 It is considered that there is currently no significant accident issue within the study area that would require intervention and that the proposed development will not be detrimental to the safe operation of the local highway network.

4.5 Public Transport Provision

Bus

4.5.1 A summary of these bus services can be seen in **Table 34** below.

Table 3 – Summary of Bus Services

Service	Route	Frequency		
		Monday-Friday	Saturday	Sunday
132	Banbury – Brackley – Tingewick – Buckingham	-	11:17 & 14:50 Inbound 11:22 & 14:57 Outbound	-
200	Banbury – Daventry	Hourly (06:28-18:27)	Hourly (07:52-19:35)	-
500	Banbury – Brackley	Hourly (05:55-23:11)	Hourly (06:57-23:35)	Hourly (07:07-19:58)
B9	Banbury Gateway – Hardwick	20-30mins (06:34-22:19)	30mins (07:29-22:19)	09:21, 17:21 & 18:21 Outbound 09:11, 17:11 & 18:00 Inbound

4.5.2 Frontier Park has implemented bus stops on the A361 on the site frontage. The bus stops have shelters and up to date timetable information, as well as being fully accessible for all users.

4.5.3 Pedestrian crossing points have been provided. The crossings benefit from dropped kerbs and tactile paving.

4.5.4 The bus stops are be served by the number 200 which currently runs along the A361 in both directions.

4.5.5 There are further stops approximately 1.3km south on Ermont Way. This stop is serviced by the numbers 132, 200, 500 and B9.

Rail

4.5.6 The closest railway station is Banbury Railway Station is approximately 3.5km from the centre of the site. This equates to a circa 42-minute walk, a circa 12-minute cycle or 5 minutes on the 200 bus service. There are 63 cycle storage spaces at the station and 978 pay and display car parking spaces, 14 of which are accessible.

4.5.7 The station has the services Chiltern Railways, Cross Country Trains and Great Western Railway. The services go to a variety of other stations such as Birmingham Moor Street, Southampton Central, Newcastle, London Marylebone, Bournemouth and Manchester Piccadilly. The station has parking, bicycle stands and ticket machines.

4.6 Walking and Cycling

4.6.1 As set out in Section 2 reducing car use by increasing active travel is supported by national and local government. Guidance (PPG13) from 2001, now withdrawn and not replaced, considered walking is practical for many trips up to 2km in length and cycling for trips up to 5 kilometres in length. The similarly dated Guidelines for Providing for Journeys on Foot (IHT, 2000) also

recommended a 'preferred maximum' of 2,000m. Although the evidence basis for this guidance is unclear it is likely to be reliant on data that is now 25-30 years old whereas more recent data is available.

4.6.2 The Propensity to Cycle tool (http://pct.bike) considers wider factors including the existing cycle demand (from 2011 Census), topography, behavioural change scenarios and technological change scenarios. It shows that topography is not a barrier within most of Banbury. Within the local area circa 4% of residents cycle to work. PCT considers that there is better than average potential for behavioural change where under the DfT Gear Change vision 9% of residents would cycle to work. The Dutch equivalent would however be 26% and the technology (e-bike) scenario 30%.

4.6.3 The LHA previously raised the importance of integration with local routes and the effect of distance. On integration the time of the previous application, the Frontier Park consents had yet to be implemented. As set out below this are a material consideration. On distance, the site these are a consideration but as demonstrated by the PCT it will reduce with technology within the timeframe of the OCC LCTP.

4.6.4 A pedestrian/cycle link, separate from vehicle traffic to Banbury Gateway Shopping Centre is provided via the Motorway underpass beneath the M40. There are 'Cyclists Dismount' signs either side of the underpass. Frontier Park has provided, a shared use footway/ cycleway along Wildmere Road between the existing cycle facility at Banbury Gateway Retail Park and Hennef Way.

4.6.5 Frontier Park has also provided a 2m wide footway leading from the northern side of the access and along the western side of the A361 as far as the new bus layby. A dropped kerb and tactile crossing with pedestrian refuge island leading to a 2m wide footway on the eastern side between the crossing and a new bus layby.

4.6.6 The plan showing the Frontier Park works are attached at **Appendix F** and the requirements for the provision of this link set out in the Section 106 agreement (from which **Appendix F** is extracted).

4.6.7 This link is an appropriate pedestrian/cycle link for the employees of Frontier Park, and therefore the employees of the Development to access Banbury.

4.6.8 National Cycle Route (NCR) 5 is approximately 5km south-west of the site. NCR 5 is a long-distance route which connects Reading and Holyhead via Oxford, Stratford-upon-Avon, Bromsgrove, Birmingham, Stoke-on-Trent, Chester, Colwyn Bay and Bangor.

4.7 Local Amenities

4.7.1 Accessibility by foot and cycle to local amenities was determined by measuring the distances from the site access to the local amenities.

4.7.2 The nearest food store, a Marks and Spencer Foodhall, is currently located approximately 800m west of the site in Banbury Gateway Shopping Park. This equates to a circa 10-minute walk or a circa 4-minute cycle.

4.7.3 The nearest hospital with an emergency department is Horton General Hospital which is located to the south of the town centre, approximately 3.9km from the site which equates to a circa 15-minute cycle or a circa 11-minute drive.

5.0 DEVELOPMENT PROPOSALS

5.1 Development Description

5.1.1 The development proposals are for an outline planning application for the construction of up to 140,000m² of employment floorspace (use class B8 with ancillary offices and facilities), and servicing and infrastructure including new site accesses, internal roads and footpaths, landscaping including earthworks to create development platforms and bunds, drainage features and other associated works including demolition of the existing farmhouse. All matters of detail (including access) reserved. The illustrative site layout is included in **Appendix A.**

5.2 Site Access

5.2.1 Vehicular access would be taken from the A361, and the proposed access arrangement is shown on **DTA Drawing 23457-07C-GA**.

5.2.2 The horizontal alignment of the A361 is substandard 100m radius bend prior to the approach to the M40 Junction 11 gyratory. Although the speed limit has been reduced to 40mph this is still four-step below desirable minimum. The tightness of the horizontal alignment is mitigated by lighting, chevron signs and double centrelines but forward visibility is reduced. As set out in Section 7 queuing on this section is forecast to increase in the reference cases relative to existing conditions.

5.2.3 The site access roundabout has been located on the apex of the bend removing the substandard bend. The directional change in the alignment in the future will occur with the roundabout. The roundabout has been designed in accordance with the Design Manual for Roads and Bridges (DMRB) CD116. No departures from standard have been identified,

5.2.4 A second access will be provided. This will be a ghost island priority junction to the north on the A361, similar in concept and form to the Frontier Park access. The accesses will be connected by internal roads.

5.2.5 The drawing also shows the location of the repositioned location of the bus stops and the pedestrian crossing point.

5.2.6 The interaction of this access in relation to the M40 J11 gyratory is discussed below in respect of the modelling.

5.2.7 On both accesses and the A361 entry onto the M40 Junction 11 gyratory vehicle tracking has been undertaken to demonstrate that the design vehicle (maximum legal articulated lorry (16.5m)) is accommodated within the proposed horizontal geometry (**Appendix L**).

5.2.8 An initial independent Road Safety Audit has been undertaken. This makes recommendations on signing and lighting that will be appropriately addressed at the detailed design stage. The report is attached at **Appendix M**.

5.3 Public Transport Strategy

5.3.1 Development of land adjacent to the site (Frontier Park) has been consented and found acceptable in terms of public transport accessibility. As part of their mitigation package, they are required to provided bus stops on the A361 and a contribution (of £100k towards enhanced bus services between the Frontier Park and Banbury town).

5.3.2 The LHA do not consider that the service is currently sustainable at existing levels of demands such that further support would be required to maintain services. At the time of the appeal a contribution of £600k was requested and this was accepted by the applicant. They remain willing to make a contribution towards public transport improvements.

5.3.3 The proposed development will provide direct connection to those bus stops and hence will benefit from the same transport accessibility as already agreed as acceptable. The LHA has agreed that the public transport infrastructure is appropriate and that no further contribution is required.

5.3.4 As an added benefit, a circular access route within the site will allow for buses to enter the site and that will support the provision of a new bus route between the site and Banbury Town Centre / Railway Station. This could be an improvement to the existing 200 or a wholly new shuttle service.

5.3.5 The estate road area including footpaths can be seen in the parameters plan. These show that the footways can be 2m in width as required by LHA in the pre-application response.

5.3.6 The strategy for accessing the site focuses on high quality public transport but there is clearly already an approved and accepted strategy for providing cycle and pedestrian access to the Frontier Park development which this site will benefit from.

5.4 Parking

5.4.1 Car parking numbers including accessible and electric vehicles spaces will be confirmed as part of a Reserved Matters application. They will be in line with the parking standards at the time of the application and will be of sufficient size.

5.5 Travel Plan

5.5.1 The site will be covered by a Framework Travel Plan (FTP) which will be agreed by condition.

6.0 TRAFFIC GENERATION AND DISTRIBUTION

6.1 Traffic Generation

6.1.1 The current policy requires consideration of uncertainty within the demand estimates. The traditional approach, of termed 'predict and provide', has been to derive demand estimates from similar development sites i.e., by extrapolation of historical precedent. This does not reflect alternative outcomes where travel behaviour changes over time as encouraged by prevailing policy including those set out in the LCTP.

6.1.2 Uncertainty within the demand estimates relate to variability with the operational demand within the proposed land use and the opportunities for behavioural change within the journey to work trips. These have been considered with variability in operational demand tested with respect to parcel distribution use, whereby there are more vans, and with more general commercial warehousing use. Variability in behavioural change terms within the journey to work trips has been considered with respect to targets considered to be achievable in Travel Plan terms. These do not affect however the nature and scale of off-site works to be provided by the development and hence the focus of the reporting of the operational performance of the network is the core scenario as per unadjusted TRiCS demand.

6.1.3 TRICS database contains surveys of the vehicle and multimodal trip generation of a wide variety of sites which are classified by land use and various other attributes. The database was interrogated for multimodal surveys for 'Land Use 02 – Employment/ F – Warehousing (Commercial)', with sites in London, Scotland, Ireland, and Wales manually excluded. The resulting TRICS printout are attached at **Appendix H**. These trip rates have been discussed and agreed with both NH and LHA.

6.1.4 The total vehicle and HGV trip rates are shown below in **Table 5** with the associated generation in **Table 6**.

Table 4 – Vehicle and HGV Trip Rates – Warehousing

	Vehicle Trip Rates			HGV Trip Rate		
	In	Out	Total	In	Out	Total
08:00-09:00	0.161	0.093	0.254	0.051	0.056	0.107
17:00-18:00	0.068	0.155	0.223	0.042	0.030	0.072
07:00-19:00	1.223	1.292	2.515	0.472	0.457	0.929

Table 5 – Vehicle and HGV Generation – Warehousing

	Total Vehicle Generation			HGV Generation		
	In	Out	Total	In	Out	Total
08:00-09:00	225	130	356	71	78	150
17:00-18:00	95	217	312	59	42	101
07:00-19:00	1712	1809	3521	661	640	1301

6.1.5 As can be seen above, the proposed development is expected to generate around 356 two-way vehicle movements in the AM peak period and 312 two-way vehicle movements in the PM peak period. This equates to approximately 5-6 two-way vehicle movements every minute.

6.1.6 The TRICS database was also interrogated for multimodal surveys for 'Land Use 02 – Employment/ G – Parcel Distribution Centres', with sites in London, Scotland, Ireland, and Wales manually excluded. The resulting TRICS printout are attached at **Appendix I**. The total vehicle and HGV trip rates are shown below in **Table 7**.

Table 6 – Vehicle and HGV Trip Rates – Parcel Distribution Centre

	Vehicle Trip Rates			HGV Trip Rate		
	In	Out	Total	In	Out	Total
08:00-09:00	0.067	0.378	0.445	0.022	0.111	0.133
17:00-18:00	0.378	0.378	0.756	0.044	0.000	0.044
07:00-19:00	2.982	3.805	6.787	0.688	0.955	1.643

6.1.7 For robustness it has been assumed that a maximum of 20% of the site could be used as parcel distribution centres and the remainder for B8 as derived above. The modelling has therefore been undertaken based on the following traffic generation.

Table 7 – Vehicle and HGV Generation – Sensitivity

	Total Vehicle Generation			HGV Generation		
	In	Out	Total	In	Out	Total
08:00-09:00	199	210	409	63	94	157
17:00-18:00	182	279	461	59	34	93
07:00-19:00	2205	2512	4717	721	779	1501

6.1.8 As can be seen above, the proposed development is expected to generate around 409 two-way vehicle movements in the AM peak period and 461 two-way vehicle movements in the PM peak period. This equates to approximately 7-8 two-way vehicle movements every minute.

6.2 Traffic Distribution

Light Vehicles

6.2.1 Light vehicles include cars and vans. The light vehicles distribution is based on the existing journey to work pattern reported in the 2011 Census and reported at a middle super output area level (MSOA). All destinations have been assigned between population weighted ward centroids using ARCGIS software. Routes are based on fastest routes based on typical conditions for a weekday (Monday) morning (8am). The resulting assignment is summarised in **Appendix G**. Note that the trip distribution is not constrained to home trips ends.

6.2.2 The parcel delivery operations include a significant element of servicing by light vehicles which are in practice likely to assign onto the local road network in a pattern more akin to the heavy vehicles. To test this, flow groups have been developed whereby half of the parcel delivery light vehicles are assigned as per the heavy vehicles.

HGVs

6.2.3 The distribution for heavy vehicles on the wider highway network has been derived using data included within the Base Year Freight Matrices (BYFM) published by the Department for Transport (2012). The BYFM consist of the number of vehicles per average day between a set of origin-destination zone pairs for a 2006 base year. These zones are based on all 408 local authority districts, unitary authorities and London Boroughs and point zones for the 88 largest ports, 5 main freight airports and 56 major concentrations of distribution centres. This approach has been accepted by NH and OCC.

6.2.4 The traffic has been distributed between the two access points based on the building locations shown in the illustrative site layout at **Appendix A**. This indicates that approximately 35% of the GFA is located to the north of the site and would therefore use the northern access. The remaining 65% of the GFA is located more southernly within the site and would therefore use the southern access point.

6.2.5 The distribution of heavy vehicles to each region and the route which the vehicles are expected to take can be seen in **Table 9** below.

Table 8 – BYFM Distribution

Region	Percentage	Routeing
East of England	11.4%	A422 E
East Midlands	10.8%	A361 N
North West of England	3.5%	M40 N
Scotland	0.6%	M40 N
South East of England	57.0%	M40 S – 48.1% A422 E – 7.3% A422 W – 1.7%
South West of England	5.5%	M40 N – 1.6% M40 S – 2.5%
Wales	0.3%	M40 N
West Midlands	7.5%	M40 N
Yorkshire and the Humber	3.4%	M40 N

6.2.6 The resulting assignment and development traffic generation by route is presented in **Table 10** below.

Table 9 – Proposed Traffic Assignment (Sensitivity Test Flows)

Link	Light Vehicles			HGVs		
	Assignment	AM	PM	Assignment	AM	PM
M40 N	14.2%	36	52	18.3%	29	17
M40 S	13.3%	34	49	50.6%	79	47
A422 E	17.1%	43	63	18.7%	29	17
A422 W	51.3%	129	189	1.7%	3	2
A361 N	4.1%	10	15	10.8%	17	10

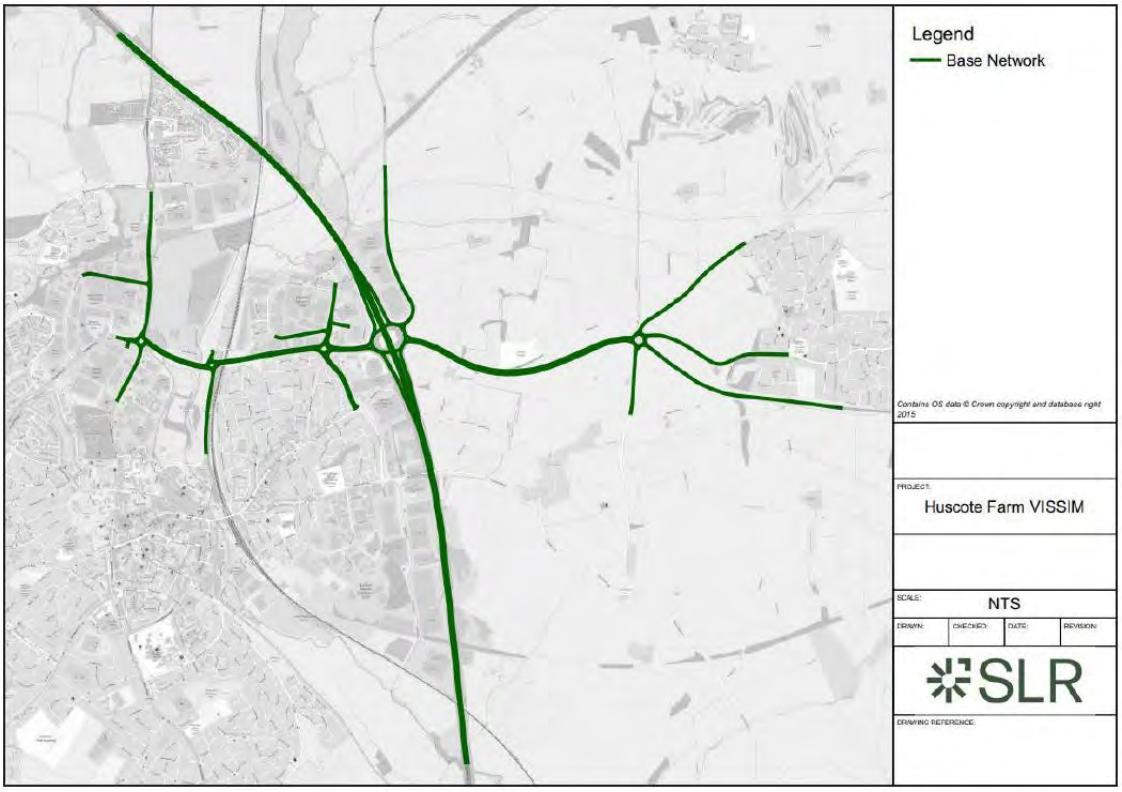
7.0 OPERATIONAL ASSESSMENT

7.1 VISSIM Model

7.1.1 The development proposals have been tested in the VISSIM model developed by SLR Consulting in liaison with the LHA and NH. The core study area encompasses Banbury Interchange (M40 J11) including the mainline and slip road merges and diverges, A422/B4525/Mansion Hill roundabout to the east, and the three roundabouts to the west up to Ruscote Avenue. The two signalised junctions on Southam Road/Beaumont Road and Wildmere Road/Brookhill Way are also included.

7.1.2 The extent of the study area is shown on **Figure 1** below.

Figure 1 VISSIM study area



7.2 Base Model Development

7.2.1 SLR report Local Model Validation Report Huscote Farm VISSIM (October 2023), **Appendix J**, sets out the methodology for developing the base model and presents the results from the Base model calibration and validation. The results show that the model achieves a pass rate of 100% for MCC turn count calibration, and journey times demonstrate a very close correlation to the observed which exceeds the industry standards as defined in WebTAG. This confirms that the model is suitable and appropriate for testing the operational implications of the development.

7.3 Forecasting

7.3.1 SLR report Forecasting Report Huscote Farm VISSIM (October 2023) sets out the approach taken to forecasting future year Reference Case and Development scenarios.

7.3.2 An opening year assessment has been undertaken for the future year 2026, along with a 2032 assessment representing 10 years after the date of the registration of the application, thereby satisfying the criteria set out in DfT Circular 01/2022.

7.3.3 Therefore, the following scenarios tested within the model are:

- 2026 Reference Case (2026 Ref), AM and PM.
- 2026 Do-Minimum Case (2026 DM), AM and PM.
- 2032 Reference Case (2032 Ref), AM and PM.
- 2032 Do-Minimum Case (2032 DM), AM and PM.

7.3.4 The 2026 and 2032 Reference Cases are comprised of Base demands, Frontier Park committed development demands, and background TEMPro growth. No adjustments have been made to baseline, committed development, or background growth demands following inclusion of development within the Do-Minimum scenarios.

7.3.5 Do-Something scenarios include the Do-minimum demand with off-site mitigation. These are:

- 2026 Do-Something Case (2026 DS), AM and PM.
- 2032 Do-Something Case (2032 DS), AM and PM.

7.3.6 The off-site mitigation comprises the signalisation of the A361 arm of Junction 11 gyratory. Fixed time signals have been added to the A361 and circulatory to create a Do-Something scenario, with the intention of creating set gaps in the circulating traffic to allow trips onto the roundabout from the A361 and reduce queues.

7.3.7 The results of the modelling work are set out SLR Forecasting Report attached at **Appendix K**.

7.3.8 A summary of the results as set out in the Forecasting Report is provided below. Full details of the journey time variation are presented in the Forecasting Report.

Table 10 AM Peak (07:30 - 08:30)

	AM Base	AM 2026 Ref	AM 2026 DM	AM 2026 DS	AM 2032 Ref	AM 2032 DM	AM 2032 DS
Average Delay per Vehicle in the Network (s)	53.9	67.1	94.9	79.8	100.4	128.0	108.1
Overall Delay per Vehicle (including time off network) (s)	54.0	67.2	103.4	80.3	112.2	157.3	129.0
Average Speed per Vehicle (mph)	41.2	39.1	35.0	36.9	34.8	31.6	33.6
Vehicles Active in the Network	877	987	1207	1113	1226	1369	1295
Vehicle Trips Completed	11971	12109	12272	12470	12488	12580	12824
Latent Demand at End of Peak Hour	0	0	96	2	171	415	257
Total Peak Hour Input Vehicle Numbers	12848	13096	13575	13585	13885	14364	14376
Total Delay (hrs)	192.3	244.0	355.2	301.0	382.3	495.9	423.7

Table 11 PM Peak (16:30 - 17:30)

	PM Base	PM 2026 Ref	PM 2026 DM	PM 2026 DS	PM 2032 Ref	PM 2032 DM	PM 2032 DS
Average Delay per Vehicle in the Network (s)	48.2	53.1	62.3	62.9	66.7	82.6	78.9
Overall Delay per Vehicle (including time off network) (s)	48.6	53.7	65.9	66.9	75.2	95.2	94.2
Average Speed per Vehicle (mph)	41.8	40.8	39.1	39.0	38.7	36.2	36.7
Vehicles Active in the Network	934	977	1085	1080	1114	1292	1259
Vehicle Trips Completed	13210	13449	13772	13773	14171	14410	14428
Latent Demand at End of Peak Hour	0	1	27	33	73	111	133
Total Peak Hour Input Vehicle Numbers	14144	14427	14884	14886	15358	15813	15820
Total Delay (hrs)	189.4	212.7	257.1	259.4	283.0	360.3	343.8

7.4 2026 Reference (2026 Ref)

7.4.1 Model results show that following the inclusion of Frontier Park and growth to 2026, average delay per vehicle within the modelled area increases by 13 seconds and 5 seconds in the AM and PM respectively compared to the Base scenario.

7.4.2 In the AM, journey times increase on Hennef Way eastbound approaches to Concord roundabout and the Ermont Way roundabout.

7.4.3 In the PM, the largest journey time change is on Ermont Way northbound (~40s increase compared to the Base). Elsewhere around the network, journey time changes are no more than 10 seconds on any one section.

7.5 2026 Do-Minimum (2026 DM)

7.5.1 With the development demands, average delay per vehicle increases by 28 seconds and 9 seconds compared to the 2026 Ref in the AM and PM respectively.

7.5.2 In the AM, the largest journey time change is on A361 southbound approach to the M40 Junction 11 gyratory. Compared to the 2026 Ref, journey times on this approach to Junction 11 increase by 4 minutes and 41 seconds. In the PM, there is a 40 second increase compared to the Ref.

7.5.3 Journey time changes are also seen in the AM peak on Hennef Way eastbound with queues occasionally propagating back to Southam Road. Overall journey times on Southam Road southbound increase by circa 40 seconds.

7.5.4 Journey time changes of circa 50 seconds compared to the Ref are also present on Ermont Way northbound for the PM peak. There is a small amount of latent demand from here.

7.6 2026 Do-Something (2026 DS)

7.6.1 The Do-Something scenarios introduce traffic signal control on the A361 entry to address the operational stress evident in the Do-minimum tests. In the AM model shows a reduction in journey times on the A361 approach to the Junction 11 gyratory relative to the Do-Minimum of minus 4 minutes and 40 seconds. There is no residual average delay per vehicle compared to the 2026 Ref Case.

7.6.2 There are still delays on Hennef Way eastbound in 2026 DS, however these are contained within this part of the network, with journey times on Southam Road only increasing by circa 40 seconds for the entire southbound approach and journey times on Ruscote Avenue eastbound approach to the roundabout remaining similar to the Ref value.

7.6.3 The PM model shows an increase in average delay per vehicle of 10 seconds compared to the 2026 Ref Case. The DS performs very similarly to the DM due to the A361 delays in the PM

being minor and so there is less scope for the mitigation to change performance overall. Remaining journey time increases in the DS compared to the Ref are primarily on Ermont Way northbound of around 45 seconds which are insufficient to cause detriment to the surrounding network.

7.7 2032 Reference (2032 Ref)

7.7.1 Average delay per vehicle increases by 47 seconds and 19 seconds in the AM and PM respectively compared to the Base scenario.

7.7.2 Like the 2026 Ref, in the AM journey times increase on Hennef Way eastbound. The queues on Hennef Way block back to Southam Road and cause journey time increases of around 5 minutes for the entire length of Southam Road southbound in the model.

7.7.3 Journey times also increase in the AM by just under 1 minute on A361 southbound compared to the Base. Growth and Frontier Park trips traversing Junction 11 mean there are fewer gaps for those from the A361, which combined with the additional trips arriving from the A361 means longer queues build.

7.7.4 In the PM, the largest journey time increases compared to the Base are on Ermont Way northbound. Average queues also increase on A422 West arm at Junction 11 (~70m average queue length increase compared to the Base). This is due to increased demands on the circulatory meaning the west arm entry is allocated less green time.

7.8 2032 Do-Minimum (2032 DM)

7.8.1 With development demands to 2032, average delay per vehicle increases by 28 seconds and 16 seconds compared to the Ref in the AM and PM respectively.

7.8.2 In the AM, like the 2026 DM, large journey time increases are observed on A361 southbound to Junction 11. In comparison to the Ref, journey times increase by circa 6 minutes due to the development trips adding to the existing queues on the A361. Latent demand exists from the development site accesses due to the trips being unable to enter the queues on the A361.

7.8.3 In the PM, the largest journey time increase is also on A361 southbound. This increase compared to the Ref is circa 1.5 minutes.

7.9 2032 Do-Something (2032 DS)

7.9.1 The AM model shows a change in average delay per vehicle of 8 seconds compared to the 2032 Ref Case.

7.9.2 The addition of signals on the A361 greatly reduces queues so that journey times on A361 southbound are now circa 30 second lower than those in 2032 Ref. Queueing on this approach is easily accommodated within the link and there is no blocking back to the site access. Similarly

in the northbound direction there is no blocking back from the site access to the M40 Junction 11 gyratory; the maximum reported queue is 19m.

7.9.3 Delays exist on Hennef Way eastbound and Southam Road southbound, with Southam Road experiencing latent demand. However, this delay is not too dissimilar to Ref values, as 2032 Ref queues are often at their maximum values on Hennef Way.

7.9.4 The PM model shows an increase in average delay per vehicle of 12 seconds compared to the 2032 Ref Case. Introduction of the signals on the A361 means journey times on the A361 halve in comparison to the DM values. Queues on this approach to Junction 11 are now only an average of 55m in length.

7.10 Merge/ Diverge Assessments

7.10.1 The operation of the M40 Junction 11 Grade Separated Roundabout Junction merges and diverges have seen assessed through the VISSIM modelling. No issues have been identified and no changes to their configuration is proposed.

7.11 Summary

7.11.1 The results show that the introduction of signals on the A361 is successful at resolving existing issues that might occur here and mitigates against the development impacts. Overall, the proposed signals on the A361 are successful at resolving both existing issues that may occur on the A361, and the development impacts. The network is considered to operate at a similar level to the Reference Cases.

8.0 CONCLUSION

8.1 DTA has been commissioned by Greystoke CB to provide highways and transport advice and to prepare a Transport Assessment (TA) report to support the outline planning application for the construction of up to 140,000 sqm of employment floorspace (use class B8 with ancillary offices and facilities), and servicing and infrastructure including new site accesses, internal roads and footpaths, landscaping including earthworks to create development platforms and bunds, drainage features and other associated works including demolition of the existing farmhouse. All matters of detail (including access) reserved.

8.2 The development site will be designed to prioritise foot and cycle movements along desire lines through the development, linking to the external access points. The additional demand from the development will support the continuation of the 200-bus service and the interim support funding of service will be provided.

8.3 The primary vehicle access to the site will be taken from the A361 and will involve the creation of a primary site access roundabout and a secondary standard priority junction.

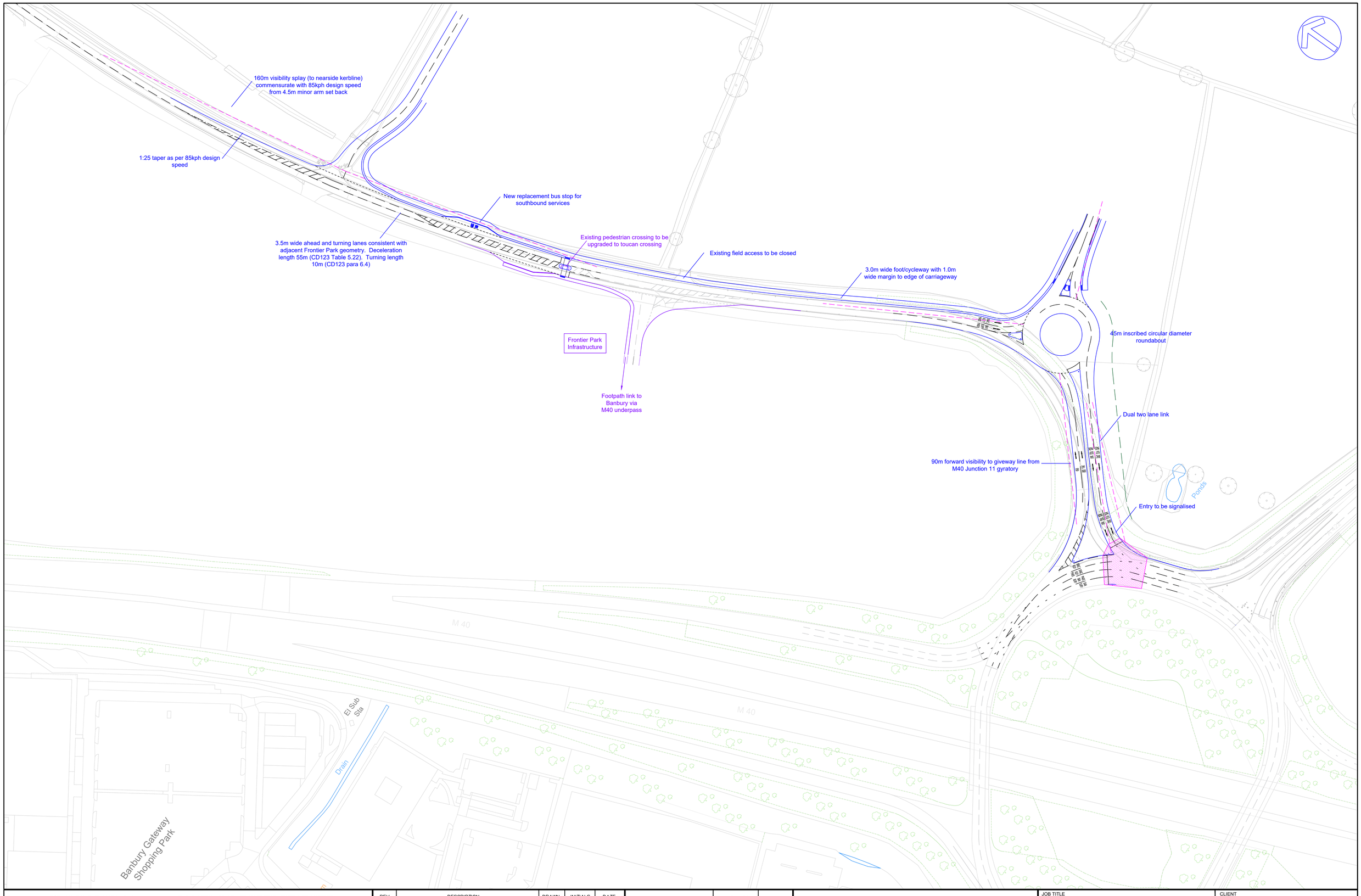
8.4 The local road network including M40 Junction 11 and the A422 corridor has been modelled in the microsimulation model VISSIM. The model shows:

- This model has been appropriately validated and fully covers the study area agreed with the NH and the LHAs;
- M40 junction 11 gyratory experiences queuing on the A361 approach in the reference case which will extend back to the site access;
- A361 queuing is addressed in full by the introduction of traffic signal control on this entry;
- M40 junction 11 slip roads accommodate the design flows;
- A422 corridor experiences stress during the peak hour periods in the reference case and the design flow scenarios;
- A422-B4525 roundabout accommodates the design flows;

8.5 A review of the latest five-year personal injury collision data for the surrounding area has been undertaken and does not indicate any existing highway safety issues within the study area.

8.6 Overall, the development provides modern warehousing within a strategic corridor where the impact on Oxfordshire communities is minimised in accordance with local policy. Moreover, the arching policy aims are met as the proximity to the principal settlement (Banbury) will reduce car-based commuting. Subject to the proposed mitigation, will has no material residual operational or safety impact on the local highway network or M40 Junction 11.

Drawings



REV	DESCRIPTION	DRAWN	INITIALS	DATE

DRAWING STATUS	CHECKED BY	DATE

david tucker associates
transport planning consultants
Forester House, Doctors Lane
Henley-in-Arden
Warwickshire B95 5AW
Tel: +44(0)1564 793598
Fax: +44(0)1564 793983
www.dtatransportation.co.uk

JOB TITLE	CLIENT
LAND AT M40 J11	GREYSTOKE

DRAWING TITLE

A361 ROUNDABOUT WITH SECONDARY ACCESS

SCALE	DRAWN BY	DATE	DRAWING No	REVISION
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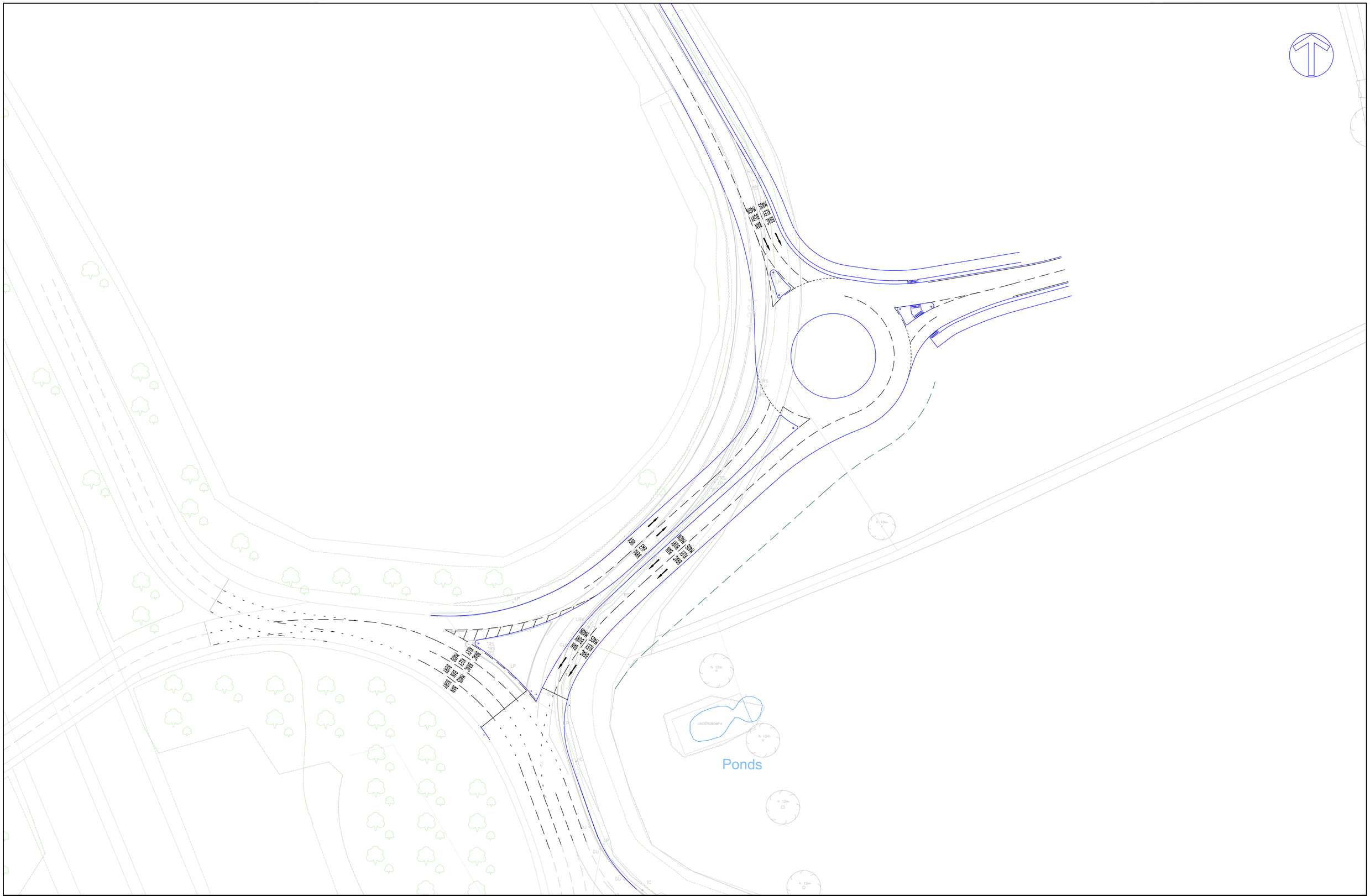

REV	DESCRIPTION	DRAWN	INITIALS	DATE

DRAWING STATUS	CHECKED BY	DATE

david tucker associates
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JOB TITLE	CLIENT
LAND AT M40 J11	GREYSTOKE

DRAWING TITLE

M40 Junction 11 Gyratory & Site Access Roundabout

SCALE	DRAWN BY	DATE	DRAWING No	REVISION
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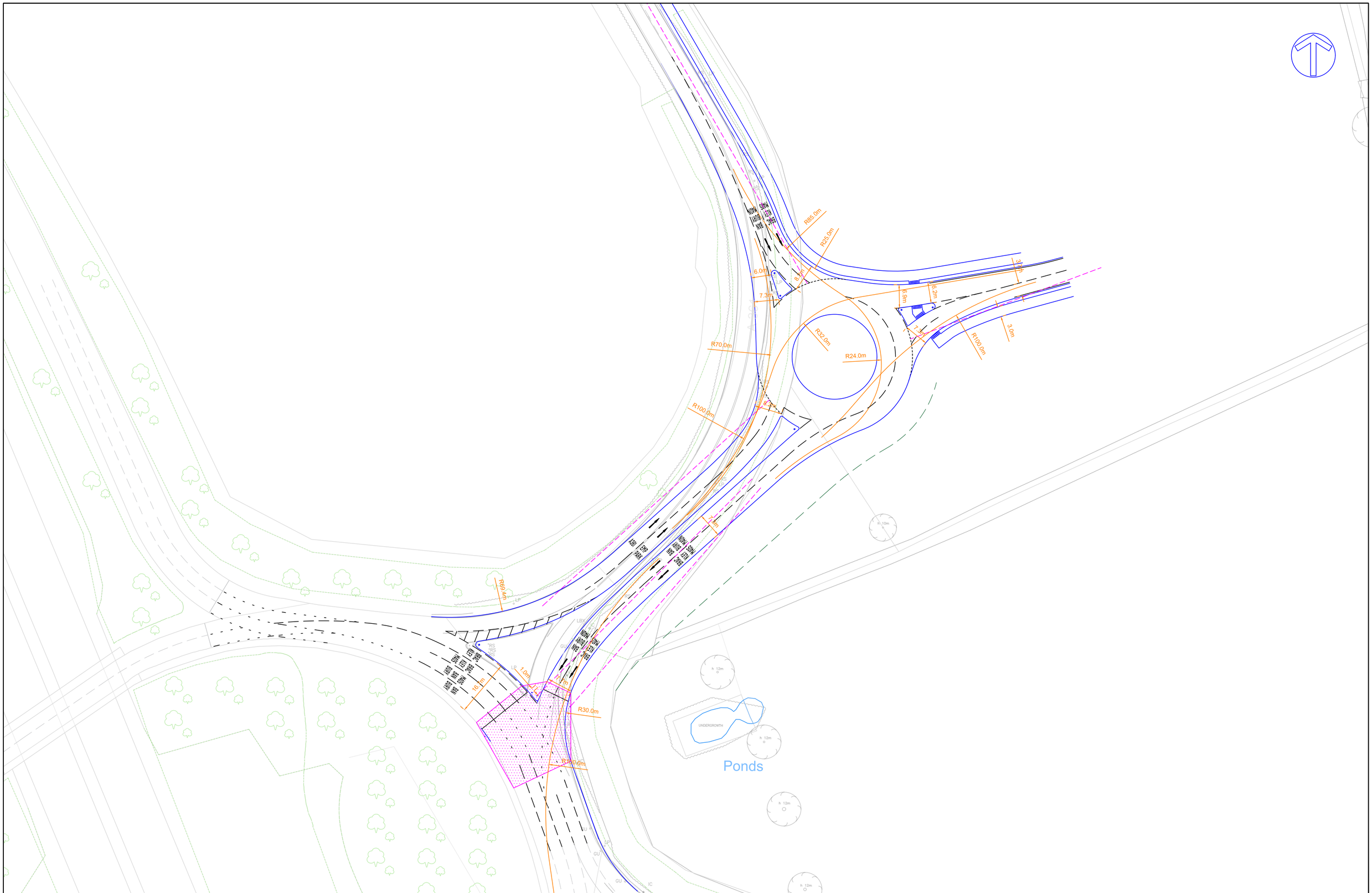

REV	DESCRIPTION	DRAWN	INITIALS	DATE

DRAWING STATUS	CHECKED BY	DATE

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JOB TITLE	CLIENT
LAND AT M40 J11	GREYSTOKE

DRAWING TITLE

M40 Junction 11 Gyratory & Site Access Roundabout

SCALE	DRAWN BY	DATE	DRAWING No	REVISION
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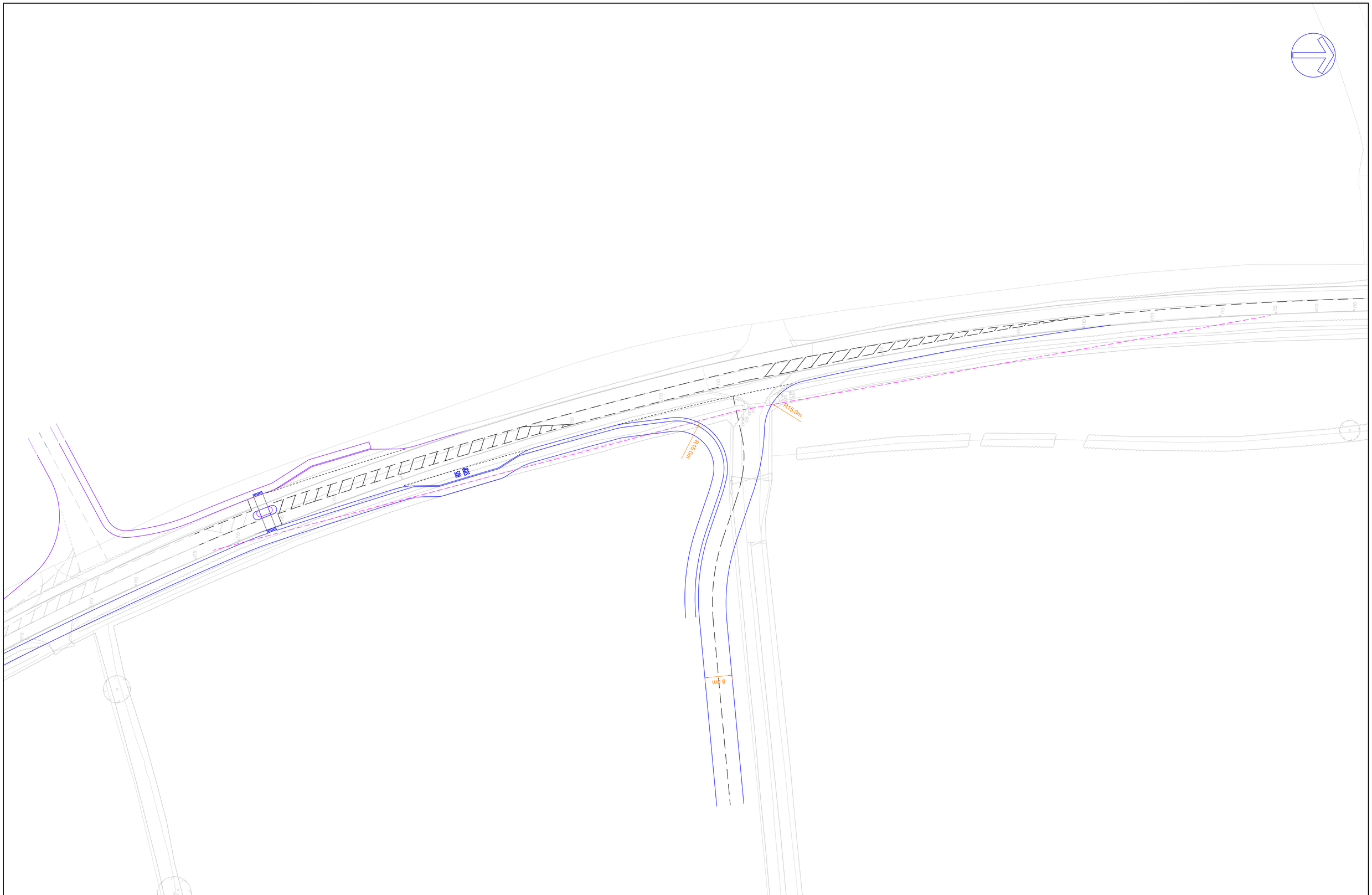

REV	DESCRIPTION	DRAWN	INITIALS	DATE

DRAWING STATUS	CHECKED BY	DATE

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Forester House, Doctors Lane
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JOB TITLE	CLIENT
LAND AT M40 J11	GREYSTOKE

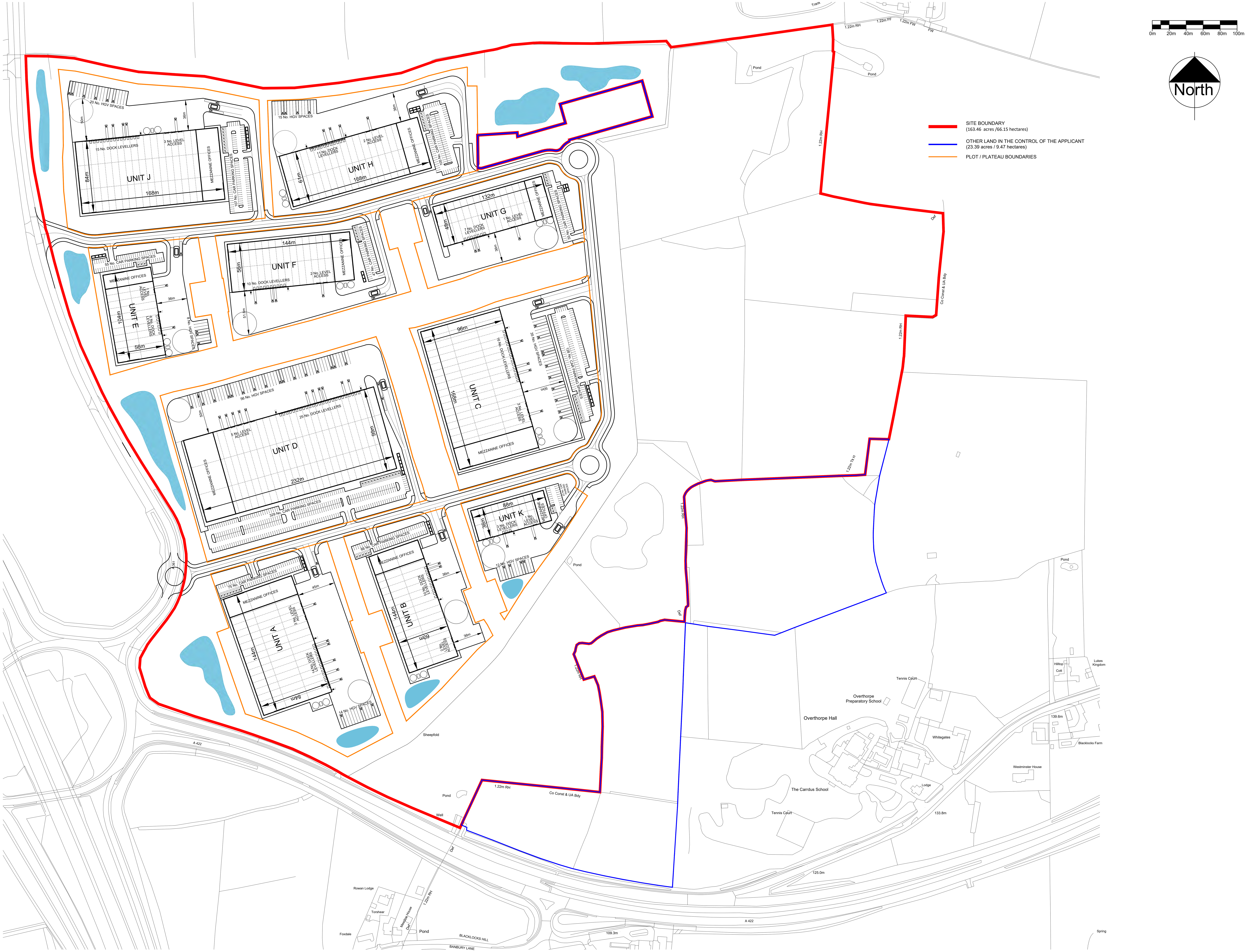
DRAWING TITLE

Site Access Priority Junction

SCALE	DRAWN BY	DATE	DRAWING No	REVISION
1:500@A1	RM	04/12/23	23457-07-04GA	C

Appendix A

Illustrative Site Layout



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NOTES:

Copyright Chetwoods (Birmingham) Limited. No implied licence exists.

Contractors must verify all dimensions on site before commencing any work or shop drawings. This drawing is not to be scaled. Use figured dimensions only.

Subject to statutory approvals and survey.

Building areas are liable to adjustment over the course of the design process due to the ongoing construction detailing developments.

Please note the information contained within this drawing is solely for the benefit of the employer and should not be relied upon by third parties.

The CDM hazard management procedures for the Chetwoods aspects of the design of this project are to be found on the "Chetwoods - Hazard Analysis and Design Risk Assessment" and/or drawings. The full project design teams comprehensive set of hazard management procedures are available from the Principle Designer appointed for the project.

NB.

- **SUBJECT TO SURVEYS, CONSTRAINTS & PLANNING.**
- **LAYOUT TO BE TRACKED.**
- **RED LINE INDICATIVE ONLY.**

Rev	Revision Description	Date	Author/ Reviewer
P8	Drawing title updated and schedules removed	05/05/22	AK/TW
P7	Minor graphical updates	03/05/22	MM/TW
P6	Updated blue boundary	29/04/22	SA/TW
P5	Updated layouts of units B, E, F & G	26/04/22	SA/TW
P4	Minor updates to units	26/04/22	AW/TW
P3	Minor updates to units	22/04/22	AW/TW
P2	All units updated	21/04/22	AW/TW
P1	First Issue	22/12/21	AW/TW

PRELIMINARY

32 Frederick Street,
Birmingham, B1 3HH

+44 (0)121 234 7500
www.chetwoods.com

Project
LAND EAST OF JUNCTION 11, M40, BANBURY

Client
GREYSTOKE CB

Drawing Title
ILLUSTRATIVE SITE LAYOUT

Scale	Size	Drawn	Checked	Date
1:2000	A1	AW	TW	21/12/2021

Project	Originator	Zone	Level	Type	Role	Number	Rev.
5166	CA	00	00	DR	A	05001	P8

Appendix B

Statement of Common Ground

Land East of Junction 11 of the M40 (OS parcel 5616), South West of Huscote Farm And East of Daventry Road, Banbury, Oxfordshire, OX17

Highways Statement of Common Ground

PINS Ref: APP/C3105/W/22/3311992
LPA Ref: 22/01488/OUT

Parties and Scope

This Transport Statement of Common Ground (TSOCG) addresses the specific matters relating to transport, access and highways that are agreed between the Appellant, Oxfordshire County Council (OCC) as Local Highway Authority, National Highways (NH) and Cherwell District Council (CDC) the Local Planning Authority.

Reasons for Refusal

In terms of the putative reasons for refusal those that specifically relate to this TSOCG are as follows:

1. The proposed development would be sited in a geographically unsustainable location with poor access to services and facilities and therefore future employees would be highly reliant on the private car to access their workplace, which would not reduce the need to travel and would result in increased car journeys and hence carbon emissions. The proposed development would therefore conflict with policies PSD1, SLE4 and ESD1 of the Cherwell Local Plan 2011-2031 Part 1 and Government guidance in the National Planning Policy Framework. This identified harm would significantly and demonstrably outweigh the benefits associated with the proposed development and therefore the development does not constitute sustainable development when assessed against the National Planning Policy Framework as a whole.

2. The appeal site is located in an unsustainable location for cycling and walking. The proposal is therefore contrary to policies SLE1 and SLE4 contained within the Cherwell Local Plan 2011-2031 Part 1 (CLP 2031 Part 1), saved policy TR1 contained within the Cherwell Local Plan 1996 (CLP 1996) and Government guidance within the National Planning Policy Framework.

3. The proximity of the access roundabout to M40 Junction 11 is likely to lead to severe congestion and potential safety issues arising from queuing on the M40 off slip. The proposal is therefore contrary to policies SLE1 and SLE4 contained within the Cherwell Local Plan 2011-2031 Part 1 (CLP 2031 Part 1), saved policy TR1 contained within the Cherwell Local Plan 1996 (CLP 1996) and Government guidance within the National Planning Policy Framework.

4. Any further development around Junction 11 of the M40 will add to the severe congestion and air quality problems on the A422, particularly along Hennef Way. This development does not demonstrate how it would mitigate its impact on these issues through adequate sustainable travel connections or by highway improvements. The proposal is therefore contrary to policies SLE1 and SLE4 contained within the Cherwell Local Plan 2011-2031 Part 1 (CLP 2031 Part 1), saved policies TR1 and ENV7 contained within the Cherwell Local Plan 1996 (CLP 1996) and Government guidance within the National Planning Policy Framework.

5. Safe and suitable operation of affected highway junctions has not been demonstrated by the use of a suitable analysis tool. It has been agreed with the Appellant's transport consultant and National Highways that microsimulation modelling (such as VISSIM) is required to accurately represent the flow of vehicles at all primary local junctions and the interaction between them. Without such analysis and resultant appropriate mitigation, the proposal is contrary to policies SLE1, SLE4 and INF1 contained within the Cherwell Local Plan 2011-2031 Part 1 (CLP 2031 Part 1), saved policy TR1 contained within the Cherwell Local Plan 1996 (CLP 1996) and Government guidance within the National Planning Policy Framework.

6. It has not been demonstrated that a signalised crossing of the A361 Daventry Road for pedestrians and cyclists may be incorporated at a safe and suitable location, and the associated access into the site has not been indicated. The proposal is therefore contrary to policies SLE1 and SLE4 contained within the Cherwell Local Plan 2011-2031 Part 1 (CLP 2031 Part 1), saved policy TR1 contained within the Cherwell Local Plan 1996 (CLP 1996) and Government guidance within the National Planning Policy Framework.

Relevant Planning Policy

PSD1, SLE1, SLE4, ESD1, INF1 of the Cherwell Local Plan 2011-2031 Part 1

Saved policy TR1 contained within the Cherwell Local Plan 1996 (CLP 1996)

The NPPF (July 2021) Paragraphs 104 to 113

Other Relevant / Potential Core Documents

OCC Local Transport and Connectivity Plan – July 2022

'Decide and Provide' guidance – TRICS Consortium 2021

DfT Circular 02/13 – The Strategic Road Network and Delivery of Sustainable Development

[DfT Circular 01/22 – 22nd December 2022 – noting published after appeal lodged]

Future of Freight Plan (DfT – 2022)

2021 DfT Decarbonising transport plan

APP/A0665/W/19/3220360: Land at The Hollies, School Lane, Hartford

APP/A0665/A/12/2179410: Land at Grange Farm, Hartford, Cheshire

APP/A0665/A/12/2179374: Land to the East of School Lane, Hartford, Northwich, Cheshire

Hawkhurst Parish Council, R (On the Application Of) v Tunbridge Wells Borough Council 2020 EWHC 3019

Matters Agreed

1. The application was supported by a transport evidence base which was prepared by DTA Transportation Limited. The reports submitted with the planning application included:
    - 23457-02a_Transport Assessment – 16th May 2022
    - 23457-05_Framework Travel Plan – 16th May 2022
    - 23457-06f_Transport Assessment Addendum – 26th October 2022
    - 23457-07c_ Update on Mitigation Design and Inputs to Vissim Modelling– 8th February 2023. (i.e., After the Appeal was lodged)

2. Pre and post application discussions were held with two Highway Authorities (Oxfordshire County Council and National Highways). The DTA pre-application submission and HA responses included:
    - 23457-01 Transport Strategy Report – 22nd December 2021
    - OCC Response – 9th February 2022
    - AECOM Technical Note 1 – 18th February 2022

3. The description of existing conditions as described in Section 3 of the TA is agreed, with the following exceptions:
    - Table 2 Service 500 now runs hourly Monday to Saturday
    - 3.5.5 Banbury Railway Station is approximately 3.5km from the centre of the site (see Google Earth snip at end of document). This equates to a circa 42-minute walk or a circa 12-minute cycle
    - 3.6.4 OCC dispute that the pedestrian/cycle link to Frontier Park is appropriate for the employees of the development to the east of the A361

4. The accident data (as updated in the 23457-07c_ Update on Mitigation Design and Inputs to Vissim Modelling (Appendix F) is agreed.

5. The contributions requested by OCC for the scheme as set out below are agreed, subject to the provision of an appropriate CIL Compliance schedule:
    a) Public Transport Services - £600,000 index-linked
    b) Travel Plan Monitoring - £2,563 index-linked

6. The approach to traffic generation assumptions as set out in Table 7 of the TA are agreed. This assumes up to 20% of the site could be used for parcel distribution and is summarised below.

Table 1 – Vehicle and HGV Generation – Agreed

	Total Vehicle Generation			HGV Generation		
	In	Out	Total	In	Out	Total
08:00-09:00	199	210	409	63	94	157
17:00-18:00	182	279	461	59	34	93
07:00-19:00	2,205	2,512	4,717	721	779	1501

7. The approach to distribution and assignment as described in Section 4 of Update on Mitigation Design and Inputs to Vissim Modelling are agreed.

8. The committed development flows for the adjacent Frontier Park (LPA Reference 19/00128/HYBRID) should be based on the consented scheme (Decision Notice 30th July 2020) as follows:

Table 2 Frontier Park (consented development)

	Arrival			Departure		
	Light vehicles	Heavy vehicles	Total (vph)	Light vehicles	Heavy vehicles	Total (vph)
Pre-peak AM 07:00 – 08:00	125	4	128	33	6	39
AM peak 08:00 – 09:00	183	12	195	32	12	43
PM peak 17:00 – 18:00	18	3	21	151	4	155

9. It is agreed that the Framework Travel Plan can be progressed and enhanced once more detail of the scheme and occupiers is known and this can be secured by planning condition.

Matters in dispute

Modelling Requirements

10. The extent to which the LinSig analysis submitted with the application, and subsequently amended, is an accurate representation of the highway network and is sufficient to demonstrate the acceptability of the proposals.

11. Reason 5 above does not accurately the Appellant's position. The Appellant does not agree that "microsimulation modelling (such as VISSIM) is required to accurately represent the flow of vehicles at all primary local junctions and the interaction between them."

Accessibility

12. The extent to which the site meets the proposition of Para 110 (a) of the NPPF in that "appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location".

Safe and suitable Access

13. The extent to which the site meets the proposition of Para 110 (b) of the NPPF in that safe and suitable access to the site can be achieved for all users".

Traffic Impact

14. The extent to which the site meets the proposition of Para 110 (d) and Para 111 of the NPPF in that "any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree".

Signed for Appellant

Simon Tucker
DTA Transportation Ltd

Signed for Oxfordshire CC

Roger Plater
Oxfordshire County Council

Signed for National Highways

Signed for Cherwell District Council


3.50 km
Measure distance
Click on the map to add to your path
Total distance: 3.50 km (2.17 mi)

Appendix C

Automatic Traffic Count Data

Site 1 - 52.0774329,-1.3128948

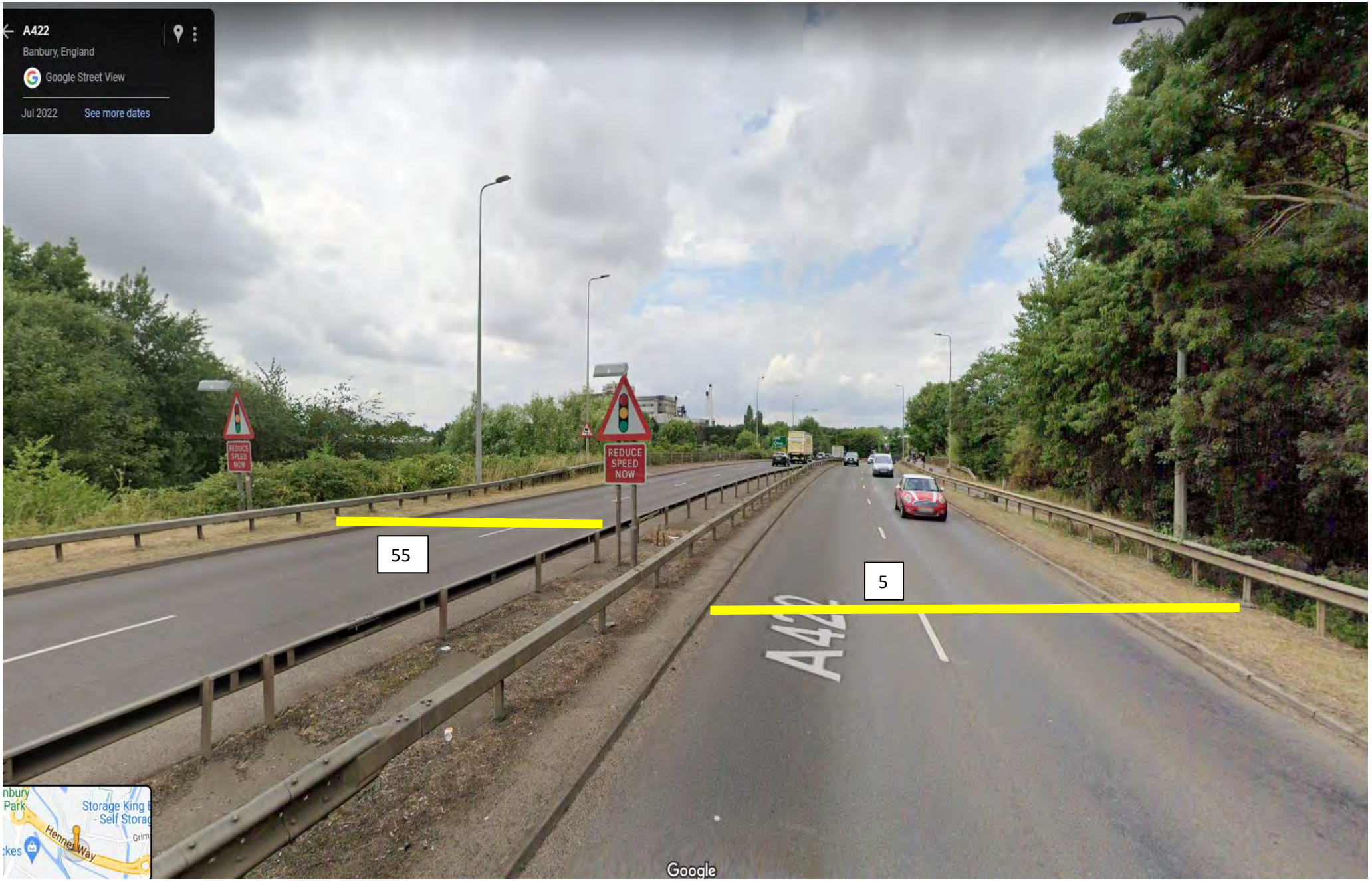
Site 2e - 52.0717404,-1.3067174

Site 2w - 52.0720346,-1.3082298

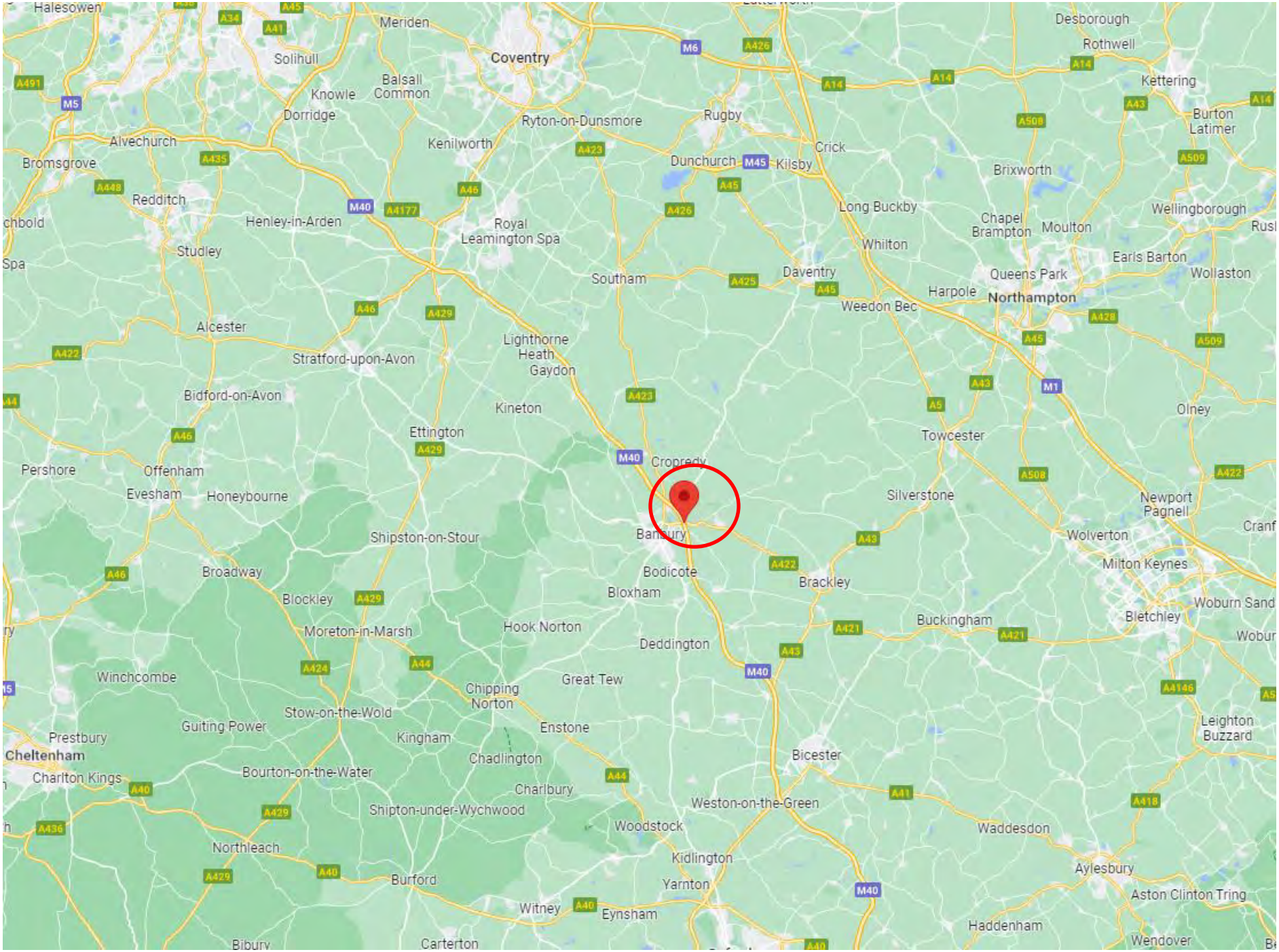
Site 3 & 33 - 52.0720343, -1.3168514

Site 4 & 44 - 52.0717249,-1.3258472

Site 5 & 55 - 52.0716348,-1.3344169

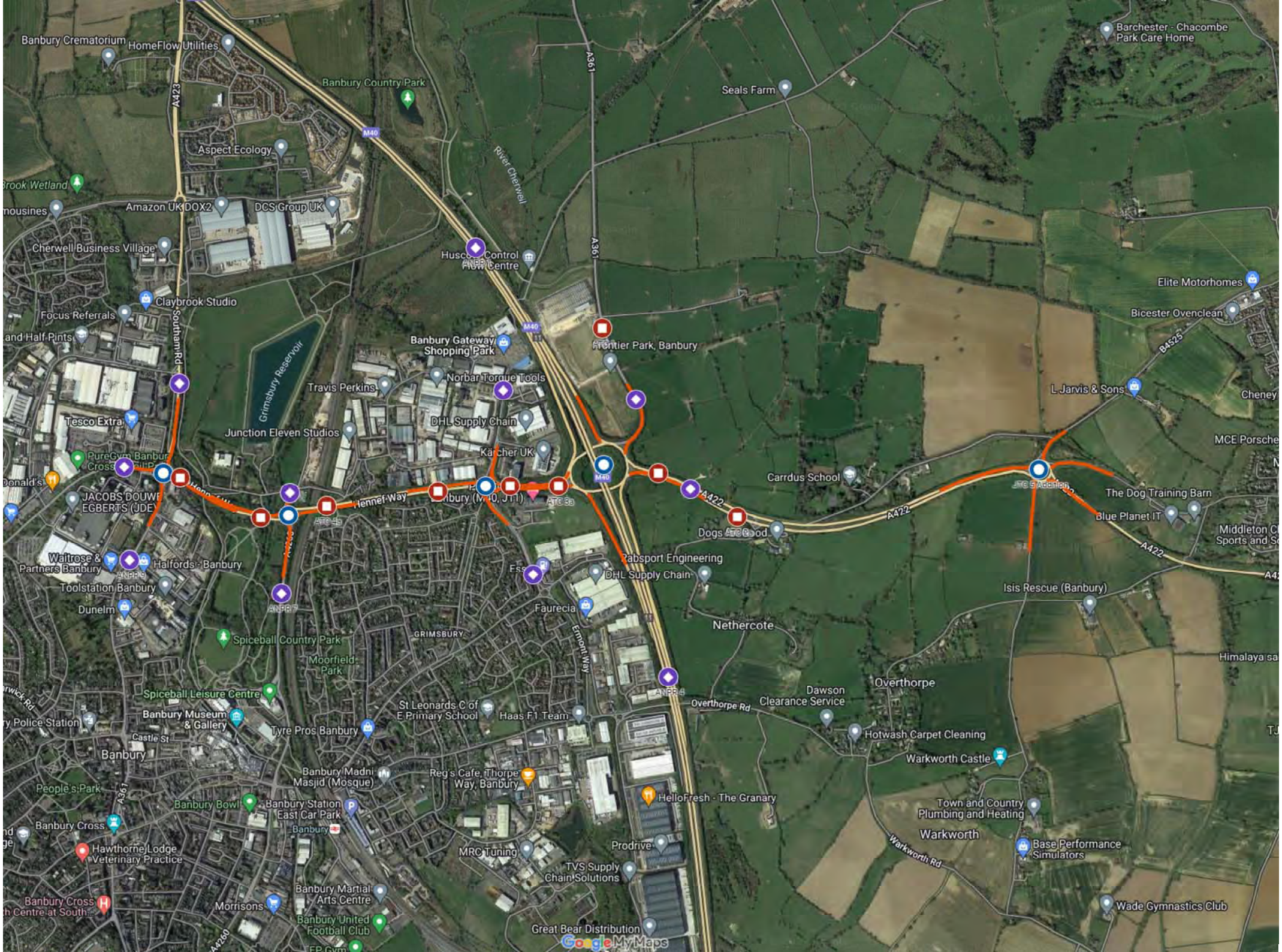



Banbury Country Park
Seals Farm
A4223
M40
River Cherwell
Fisher German Banbury
Amazon UK DOX2
DCS Group UK
Joma Jewellery
HEWITTS TYRES
Huscote Control Flow Centre
A361
Claybrook Studio
Focus Referrals
Pints
Southam Rd
Grimsbury Reservoir
Banbury Gateway Shopping Park
1
Travis Perkins
DHL Supply Chain - Cherwell 3
Tesco Extra
Junction Eleven Studios
Karcher Center Banbur
3
5
4
2 - Radar
PureGym Banbury Cross Retail Park
Storage King Banbury - Self Storage Units
Premier Inn Banbury (M40, J11) hotel
Carrdus School
Hennef Way
A422
Wickes
55
44
33
22 - Radar
A4260
Waitrose & Partners Banbury
Waitrose & Partners Shops
Chain Cherwell 1
ESSO EG ERMONT WAY
Rabsport Engineering
Fine Lady Bakeries Ltd Banbury
Dunelm
Faurecia
Nethercote
Spiceball Country Park
GRIMSBURY
John Nicholls Trading
Home Farmhouse & Associated OutBuildings
Moorfield Park
Overthorpe
Premier Inn Banbury Town Centre (Castle Quay) ho...
St Leonards C of E Primary School
The Evergreen Inn
Ascot Early Music Course


Halesowen
Meriden
Coventry
Solihull
Balsall Common
Knowle
Dorridge
Alvechurch
Bromsgrove
Redditch
Henley-in-Arden
Studley
Alcester
Stratford-upon-Avon
Bidford-on-Avon
Pershore
Offenham
Evesham
Honeybourne
Broadway
Winchcombe
Prestbury
Cheltenham
Charlton Kings
Guiting Power
Stow-on-the-Wold
Bourton-on-the-Water
Northleach
Burford
Bibury
Carterton
Witney
Eynsham
Yarnton
Kidlington
Woodstock
Shipton-under-Wychwood
Charlbury
Kingham
Chadlington
Chipping Norton
Great Tew
Enstone
Hook Norton
Moreton-in-Marsh
Blockley
Shipston-on-Stour
Ettington
Kineton
Lighthorne Heath
Gaydon
Royal Leamington Spa
Kenilworth
Ryton-on-Dunsmore
Southam
Dunchurch
Rugby
Crick
Kilsby
Daventry
Long Buckby
Whilton
Weedon Bec
Harpole
Northampton
Queens Park
Chapel Brampton
Moulton
Brixworth
Earls Barton
Wellingborough
Wollaston
Desborough
Rothwell
Kettering
Burton Latimer
Towcester
Silverstone
Olney
Newport Pagnell
Wolverton
Milton Keynes
Bletchley
Woburn Sand
Brackley
Buckingham
Deddington
Bloxham
Bodicote
Cropredy
Banbury
Bicester
Weston-on-the-Green
Waddesdon
Aylesbury
Aston Clinton
Tring
Haddenham
Wendover
Leighton Buzzard

Appendix D

Classified Turning Count Data


Banbury Crematorium
HomeFlow Utilities
Banbury Country Park
Barchester - Chacombe Park Care Home
Seals Farm
A361
A4423
M40
Aspect Ecology
River Cherwell
Amazon UK DOX2
DCS Group UK
Cherwell Business Village
Claybrook Studio
Focus Referrals
Southam Rd
Grimsbury Reservoir
Banbury Gateway Shopping Park
Frontier Park, Banbury
Elite Motorhomes
Bicester Ovenclean
B4525
Norbar Torque Tools
Travis Perkins
L Jarvis & Sons
Tesco Extra
DHL Supply Chain
Junction Eleven Studios
Kärcher UK
Carrdus School
A422
The Dog Training Barn
Blue Planet IT
Hennet Way
ATC 4a
ATC 3a
Dogs A to Good
Rabsport Engineering
DHL Supply Chain
Waitrose & Partners Banbury
Halfords - Banbury
Toolstation Banbury
Dunelm
ANPR 7
Isis Rescue (Banbury)
Faurecia
Nethercote
GRIMSBURY
Spiceball Country Park
Moorfield Park
Ermont Way
ANPR 4
Overthorpe
Overthorpe Rd
Dawson Clearance Service
Spiceball Leisure Centre
St Leonards C of E Primary School
Haas F1 Team
Banbury Museum & Gallery
Tyre Pros Banbury
Castle St
Banbury
Hotwash Carpet Cleaning
Warkworth Castle
Banbury Madni Masjid (Mosque)
Reg's Cafe, Thorpe Way, Banbury
HelloFresh - The Granary
People's Park
Banbury Bowl
Banbury Station East Car Park
Town and Country Plumbing and Heating
Warkworth
Banbury Cross
Hawthorne Lodge Veterinary Practice
MRC Tuning
Prodrive
Warkworth Rd
Base Performance Simulators
TVS Supply Chain Solutions
Banbury Martial Arts Centre
Morrisons
Wade Gymnastics Club
Banbury United Football Club
Great Bear Distribution
Google My Maps

Appendix E

Personal Injury Collision Data

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area TABULATIONS

Table 1 - Accidents by Month

	2018	2019	2020	2021	2022	2023	Total
January	-	2	1	-	-	-	3
February	1	4	1	1	1	-	8
March	-	-	-	-	1	-	1
April	2	2	-	1	1	-	6
May	2	-	1	2	1	-	6
June	3	-	-	2	-	2	7
July	2	-	1	1	-	-	4
August	2	1	3	-	1	-	7
September	3	-	2	1	-	1	7
October	-	-	1	-	2	-	3
November	3	1	1	2	1	-	8
December	3	1	1	1	-	-	6
TOTAL	21	11	12	11	8	3	66

Table 2 - Casualties by Month

	2018	2019	2020	2021	2022	2023	Total
January	-	2	1	-	-	-	3
February	1	7	1	1	1	-	11
March	-	-	-	-	1	-	1
April	3	2	-	1	1	-	7
May	2	-	1	2	2	-	7
June	4	-	-	2	-	3	9
July	2	-	1	1	-	-	4
August	2	1	3	-	2	-	8
September	5	-	2	2	-	1	10
October	-	-	3	-	2	-	5
November	4	1	1	2	1	-	9
December	3	2	1	1	-	-	7
TOTAL	26	15	14	12	10	4	81

Table 3 - All Accidents by Severity

	2018	2019	2020	2021	2022	2023	Total
Fatal	0	0	0	0	0	0	0
Serious	2	1	3	1	2	1	10
Slight	19	10	9	10	6	2	56
TOTAL	21	11	12	11	8	3	66

Table 4 - Casualties by Severity

	2018	2019	2020	2021	2022	2023	Total
Fatal	0	0	0	0	0	0	0
Serious	2	1	3	1	2	1	10
Slight	24	14	11	11	8	3	71
TOTAL	26	15	14	12	10	4	81

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area TABULATIONS

Table 5 - Pedestrian Accidents by Severity

	2018	2019	2020	2021	2022	2023	Total
Fatal	0	0	0	0	0	0	0
Serious	1	0	0	0	0	0	1
Slight	1	0	0	0	0	0	1
TOTAL	2	0	0	0	0	0	2

Table 6 - Cycle Accidents by Severity

	2018	2019	2020	2021	2022	2023	Total
Fatal	0	0	0	0	0	0	0
Serious	0	0	0	0	0	0	0
Slight	0	2	1	1	0	1	5
TOTAL	0	2	1	1	0	1	5

Table 7 - Motor Vehicle Only Accidents by Severity

	2018	2019	2020	2021	2022	2023	Total
Fatal	0	0	0	0	0	0	0
Serious	1	1	3	1	2	1	9
Slight	18	8	8	9	6	1	50
TOTAL	19	9	11	10	8	2	59

Table 8 - 60+ Accidents by Severity

	2018	2019	2020	2021	2022	2023	Total
Fatal	0	0	0	0	0	0	0
Serious	0	0	1	0	2	0	3
Slight	4	2	1	0	0	1	8
TOTAL	4	2	2	0	2	1	11

Table 9 - Child Accidents by Severity

	2018	2019	2020	2021	2022	2023	Total
Fatal	0	0	0	0	0	0	0
Serious	0	0	0	0	0	0	0
Slight	3	0	0	0	0	0	3
TOTAL	3	0	0	0	0	0	3

Table 10 - P2W Accidents by Severity

	2018	2019	2020	2021	2022	2023	Total
Fatal	0	0	0	0	0	0	0
Serious	1	0	2	1	0	1	5
Slight	2	1	2	2	0	0	7
TOTAL	3	1	4	3	0	1	12

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Friday 02/02/2018 Time 1830 Slight at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVE BANBURY
E: 445940 N: 241611 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Darkness: street lights present and lit

Vehicle Reference 1 Car Moving from E to W Going ahead other
Casualty Reference: 1 Age: 63 Male Pedestrian Severity: Slight Injured by vehicle: 1

Tuesday 10/04/2018 Time 1815 Slight at A422 HENNEF WAY RBT J/W ERMONT WAY & DAVENTRY ROAD BANBURY
E: 446711 N: 241764 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from W to E Going ahead other
Casualty Reference: 1 Age: 50 Male Driver/rider Severity: Slight Injured by vehicle: 1
Casualty Reference: 2 Age: 44 Female Passenger Severity: Slight Injured by vehicle: 1

Vehicle Reference 2 Car Moving from S to N Going ahead other

Tuesday 17/04/2018 Time 1059 Slight at A422 HENNEF WAY WBOUND CWAY APPROX 15M E OF RBT J/W ERMONT WAY BANBURY
E: 446788 N: 241736 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from E to W Stopping
Casualty Reference: 1 Age: 36 Female Driver/rider Severity: Slight Injured by vehicle: 1

Vehicle Reference 2 Goods 7.5 tonnes mgw and over Moving from E to W Going ahead but held up

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Saturday 19/05/2018 Time 1237 Slight at A422 HENNEF WAY RBT J/W AT M40 RBT JUNC 11 BANBURY
E: 447053 N: 241779 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Motorcycle over 500cc Moving from W to NE Going ahead left bend
Casualty Reference: 1 Age: 31 Male Driver/rider Severity: Slight Injured by vehicle: 1

Saturday 26/05/2018 Time 0335 Slight at A422 HENNEF WAY RBT J/W A4260 CONCCORDE AVENUE BANBURY
E: 445956 N: 241634 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Taxi/Private hire car Moving from W to E Going ahead other
Casualty Reference: 1 Age: 32 Male Driver/rider Severity: Slight Injured by vehicle: 1

Wednesday 06/06/2018 Time 1838 Slight at A422 HENNEF WAY RBT J/W A361 SOUTHAM ROAD BANBURY
E: 445532 N: 241769 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from E to W Going ahead other
Casualty Reference: 1 Age: 50 Female Driver/rider Severity: Slight Injured by vehicle: 1
Vehicle Reference 2 Car Moving from E to W Going ahead but held up

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Saturday 23/06/2018 Time 2344 Slight at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVENUE BANBURY
E: 445957 N: 241641 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from W to E Going ahead other
Casualty Reference: 1 Age: 18 Male Passenger Severity: Slight Injured by vehicle: 1
Casualty Reference: 2 Age: 17 Male Passenger Severity: Slight Injured by vehicle: 1

Thursday 28/06/2018 Time 0846 Serious at A422 HENNEF WAY RBT AT TOUCAN CROSSING 40M SE OF J/W A423 SOUTHAM ROAD BANBURY
E: 445564 N: 241774 Junction Detail: 0 Control
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from N to SE Going ahead other
Casualty Reference: 1 Age: 31 Female Pedestrian Severity: Serious Injured by vehicle: 1

Wednesday 18/07/2018 Time 1828 Slight at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVENUE BANBURY
E: 445978 N: 241594 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from S to N Stopping
Vehicle Reference 2 Car Moving from S to N Stopping
Casualty Reference: 1 Age: 10 Female Passenger Severity: Slight Injured by vehicle: 2

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Friday 27/07/2018 Time 2210 Slight at M40 NBOUND AT MP 123/8 BANBURY
E: 446762 N: 242540 Junction Detail: 0 Control
Fine without high winds Road surface Dry Darkness: no street lighting

Vehicle Reference 1	Goods over 3.5 tonnes and under 7.5 tonnes mgw	Moving from	SE	to N	Going ahead other
Vehicle Reference 2	Car	Moving from	SE	to	Parked

Casualty Reference: 1 Age: Male Driver/rider Severity: Slight Injured by vehicle: 2

Sunday 05/08/2018 Time 1201 Slight at A361 SOUTHAM ROAD J/W MARLEY WAY BANBURY
E: 445388 N: 241467 Junction Detail: 3 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1	Car	Moving from	SE	to NE	Turning right
Vehicle Reference 2	Motorcycle over 500cc	Moving from	NE	to S	Going ahead other
Vehicle Reference 3	Goods 3.5 tonnes mgw and under	Moving from	NE	to SE	Turning left

Casualty Reference: 1 Age: 69 Male Driver/rider Severity: Slight Injured by vehicle: 2

Friday 24/08/2018 Time 1022 Serious at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVENUE BANBURY
E: 445993 N: 241651 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1	Car	Moving from	S	to S	Turning right
Vehicle Reference 2	Motorcycle over 500cc	Moving from	N	to E	Turning left

Casualty Reference: 1 Age: 32 Male Driver/rider Severity: Serious Injured by vehicle: 2

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Thursday 06/09/2018 Time 2151 Slight at A422 HENNEF WAY RBT J/W ERMONT WAY BANBURY
E: 446717 N: 241726 Junction Detail: 1 Control 4
Fine without high winds Road surface Wet/Damp Darkness: street lights present and lit

Vehicle Reference 1	Car			Moving from S to N	Going ahead other	
Vehicle Reference 2	Car			Moving from E to W	Going ahead other	
Casualty Reference: 1	Age: 24	Male	Driver/rider	Severity: Slight	Injured by vehicle: 2	

Monday 10/09/2018 Time 1540 Slight at A422 HENNEF WAY WBOUND CWAY APPROX 50M W OF RBT J/W ERMONT WAY BANBURY
E: 446623 N: 241739 Junction Detail: 0 Control
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1	Goods 3.5 tonnes mgw and under			Moving from E to W	Changing lane to right	
Vehicle Reference 2	Car			Moving from E to W	Going ahead other	
Casualty Reference: 1	Age: 35	Female	Driver/rider	Severity: Slight	Injured by vehicle: 2	
Casualty Reference: 2	Age: 8	Female	Passenger	Severity: Slight	Injured by vehicle: 2	
Casualty Reference: 3	Age: 4	Female	Passenger	Severity: Slight	Injured by vehicle: 2	

Saturday 29/09/2018 Time 0517 Slight at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVENUE BANBURY
E: 445951 N: 241633 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Darkness: street lights present and lit

Vehicle Reference 1	Car			Moving from W to E	Going ahead other	
Vehicle Reference 2	Car			Moving from S to E	Turning right	
Casualty Reference: 1	Age: 60	Male	Driver/rider	Severity: Slight	Injured by vehicle: 2	

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Saturday 10/11/2018 Time 1256 Slight at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVENUE BANBURY
E: 446018 N: 241626 Junction Detail: 1 Control 4
Raining without high winds Road surface Wet/Damp Daylight
Vehicle Reference 1 Car Moving from E to S Turning left
Vehicle Reference 2 Car Moving from E to S Turning left
Casualty Reference: 1 Age: 38 Male Driver/rider Severity: Slight Injured by vehicle: 2

Wednesday 14/11/2018 Time 2204 Slight at WILDMERE RD J/W BROOKHILL WAY
E: 446780 N: 241917 Junction Detail: 3 Control 2
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from S to E Turning right
Vehicle Reference 2 Car Moving from N to S Going ahead other
Casualty Reference: 1 Age: 25 Female Driver/rider Severity: Slight Injured by vehicle: 2
Casualty Reference: 2 Age: 25 Female Passenger Severity: Slight Injured by vehicle: 2

Sunday 18/11/2018 Time 1808 Slight at A422 / M40 RBT AT JUNCTION 11 BANBURY
E: 447053 N: 241796 Junction Detail: 1 Control 2
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from W to E Going ahead other
Casualty Reference: 1 Age: 14 Male Passenger Severity: Slight Injured by vehicle: 1
Vehicle Reference 2 Car Moving from W to E Going ahead other

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Sunday 02/12/2018 Time 0808 Slight at A422 HENNEF WAY RBT J/W ERMONT WAY BANBURY
E: 446751 N: 241771 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Goods 7.5 tonnes mgw and over Moving from N to S Going ahead other
Casualty Reference: 1 Age: 44 Male Driver/rider Severity: Slight Injured by vehicle: 1

Wednesday 05/12/2018 Time 1137 Slight at A361 APPROX 400M NE OF RBT J/W M40 & A422 (J11) BANBURY
E: 447214 N: 242266 Junction Detail: 0 Control
Raining without high winds Road surface Wet/Damp Daylight
Vehicle Reference 1 Car Moving from N to N U-turn
Vehicle Reference 2 Car Moving from S to N Going ahead other
Casualty Reference: 1 Age: 60 Female Driver/rider Severity: Slight Injured by vehicle: 2

Saturday 29/12/2018 Time 1630 Slight at M40 SBOUND AT MP123/8 BANBURY (SOME UNCERTAINTY OVER EXACT LOCATION)
E: 446780 N: 242551 Junction Detail: 0 Control
Fine without high winds Road surface Dry Darkness: no street lighting
Vehicle Reference 1 Car Moving from SE to N Changing lane to left
Vehicle Reference 2 Car Moving from SE to N Going ahead other
Casualty Reference: 1 Age: Female Driver/rider Severity: Slight Injured by vehicle: 2

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Friday 18/01/2019 Time 1724 Slight at WATERWORKS LANE J/W GRIMSBURY GREEN BANBURY
E: 445989 N: 241720 Junction Detail: 3 Control 4
Raining without high winds Road surface Wet/Damp Darkness: no street lighting
Vehicle Reference 1 Car Moving from S to E Turning right
Vehicle Reference 2 Pedal Cycle Moving from NE to S Going ahead other
Casualty Reference: 1 Age: 58 Male Driver/rider Severity: Slight Injured by vehicle: 2

Saturday 26/01/2019 Time 2106 Slight at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVENUE BANBURY
E: 445959 N: 241636 Junction Detail: 1 Control 4
Raining without high winds Road surface Wet/Damp Darkness: street lights present and lit
Vehicle Reference 1 Goods 3.5 tonnes mgw and under Moving from E to W Going ahead other
Casualty Reference: 1 Age: 24 Male Driver/rider Severity: Slight Injured by vehicle: 1

Friday 15/02/2019 Time 1253 Slight at A422 HENNEF WAY NWBOUND CWAY APPROX 100M SE OF RBT J/W A423 SOUTHAM ROAD BANBURY
E: 445621 N: 241720 Junction Detail: 0 Control
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Goods 3.5 tonnes mgw and under Moving from SE to N Stopping
Vehicle Reference 2 Car Moving from SE to N Stopping
Casualty Reference: 1 Age: 51 Male Driver/rider Severity: Slight Injured by vehicle: 2

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Saturday 16/02/2019 Time 2200 Slight at A422 HENNEF WAY RBT J/W WATERWORKS LANE & A4260 CONCORDE AVENUE BANBURY
E: 445959 N: 241634 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from W to E Going ahead other
Casualty Reference: 1 Age: 31 Female Passenger Severity: Slight Injured by vehicle: 1

Sunday 17/02/2019 Time 1113 Slight at DAVENTRY ROAD J/W WILDMERE ROAD BANBURY
E: 446766 N: 241872 Junction Detail: 3 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from S to N Going ahead other
Casualty Reference: 2 Age: 62 Female Driver/rider Severity: Slight Injured by vehicle: 1
Casualty Reference: 3 Age: 63 Male Passenger Severity: Slight Injured by vehicle: 1
Casualty Reference: 4 Age: 35 Male Passenger Severity: Slight Injured by vehicle: 1
Vehicle Reference 2 Car Moving from W to SE Turning right
Casualty Reference: 1 Age: 62 Male Driver/rider Severity: Slight Injured by vehicle: 2

Tuesday 26/02/2019 Time 1915 Slight at A422 RBT J/W M40 & A361 &A422 MIDDLETON CHENEY ROAD BANBURY
E: 447235 N: 241915 Junction Detail: 1 Control 2
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from W to NE Turning left
Vehicle Reference 2 Car Moving from W to SE Going ahead right bend
Casualty Reference: 1 Age: 56 Female Driver/rider Severity: Slight Injured by vehicle: 2

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Sunday 07/04/2019 Time 0320 Serious at A422 HENNEF WAY WBOUND CWAY APPROX 300M W OF RBT J/W A4260 CONCORDE AVENUE BANBURY
E: 445694 N: 241680 Junction Detail: 0 Control
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from SE to N Going ahead other
Casualty Reference: 1 Age: 28 Male Driver/rider Severity: Serious Injured by vehicle: 1

Tuesday 30/04/2019 Time 1822 Slight at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVENUE BANBURY
E: 446005 N: 241652 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from W to E Going ahead other
Vehicle Reference 2 Car Moving from W to E Going ahead other
Casualty Reference: 1 Age: 27 Male Driver/rider Severity: Slight Injured by vehicle: 2

Tuesday 20/08/2019 Time 2144 Slight at A422 HENNEF WAY AT RBT J/W ERMONT WAY & DAVENTRY ROAD BANBURY
E: 446765 N: 241730 Junction Detail: 5 Control 4
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from E to W Starting
Vehicle Reference 2 Motor Cycle over 125 cc and up to 500cc Moving from N to S Going ahead other
Casualty Reference: 1 Age: 60 Male Driver/rider Severity: Slight Injured by vehicle: 2

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Thursday 28/11/2019 Time 0900 Slight at A361 SOUTHAM RD RBT J/W A422 RUSCOTE AVENUE & HENNEF WAY BANBURY
E: 445493 N: 241751 Junction Detail: 1 Control 4
Raining without high winds Road surface Wet/Damp Daylight

Vehicle Reference 1 Car Moving from S to N Overtaking moving vehicle O/S

Vehicle Reference 2 Pedal Cycle Moving from S to N Going ahead other

Casualty Reference: 1 Age: 36 Female Driver/rider Severity: Slight Injured by vehicle: 2

Thursday 19/12/2019 Time 1600 Slight at A422 J/W A422 / M40 RBT AT J11 BANBURY
E: 447054 N: 241790 Junction Detail: 1 Control 4
Raining without high winds Road surface Wet/Damp Darkness: no street lighting

Vehicle Reference 1 Car Moving from W to E Going ahead other

Vehicle Reference 2 Car Moving from W to E Going ahead but held up

Casualty Reference: 1 Age: 40 Female Driver/rider Severity: Slight Injured by vehicle: 2

Casualty Reference: 2 Age: Female Passenger Severity: Slight Injured by vehicle: 2

Thursday 30/01/2020 Time 1049 Slight at A422 HENNEF WAY J/W AT RBT ERMONT WAY BANBURY
E: 446741 N: 241723 Junction Detail: 1 Control 4
Fine without high winds Road surface Wet/Damp Daylight

Vehicle Reference 1 Goods 7.5 tonnes mgw and over Moving from S to W Going ahead other

Vehicle Reference 2 Car Moving from E to W Going ahead other

Casualty Reference: 1 Age: 40 Male Driver/rider Severity: Slight Injured by vehicle: 2

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Tuesday 18/02/2020 Time 1831 Slight at A361 SOUTHAM RBT J/WA422 HENNEF WAY & RUSCOTE AVENUE BANBURY
E: 445479 N: 241775 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from E to N Turning right
Vehicle Reference 2 Car Moving from E to W Going ahead other
Casualty Reference: 1 Age: 31 Male Driver/rider Severity: Slight Injured by vehicle: 2

Sunday 17/05/2020 Time 2022 Serious at A422 HENNEF WAY J/W CONCORDE AVE AT RBT BANBURY
E: 445994 N: 241608 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Motorcycle over 500cc Moving from E to W Going ahead other
Casualty Reference: 1 Age: 26 Male Driver/rider Severity: Serious Injured by vehicle: 1

Saturday 18/07/2020 Time 1738 Serious at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVENUE BANBURY
E: 446004 N: 241628 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from E to W Going ahead other
Casualty Reference: 1 Age: 61 Female Driver/rider Severity: Serious Injured by vehicle: 1

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Thursday 20/08/2020 Time 2205 Slight at A422 HENNEF WAY EBOUND CWAY APPROX 20 W OF RBT J/W WILDMERE ROAD BANBURY
E: 446673 N: 241758 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Darkness: street lights present and lit

Vehicle Reference 1	Car	Moving from W to E	Going ahead other	
Vehicle Reference 2	Car	Moving from W to E	Changing lane to left	
Casualty Reference: 1	Age: 32	Female	Passenger	Severity: Slight Injured by vehicle: 2

Wednesday 26/08/2020 Time 1530 Slight at ERMONT WAY AT J/W RBT A422 HENNEF WAY BANBURY
E: 446737 N: 241704 Junction Detail: 1 Control 4
Fine without high winds Road surface Wet/Damp Daylight

Vehicle Reference 1	Car	Moving from S to N	Going ahead other	
Vehicle Reference 2	Car	Moving from S to N	Going ahead other	
Casualty Reference: 1	Age: 28	Male	Passenger	Severity: Slight Injured by vehicle: 2

Saturday 29/08/2020 Time 1450 Slight at ERMONT WAY APPROX 40M S OF RBT J/W A422 AT J/W SLIP ROAD FROM A422 FOR LEFT TURNING VEHS
E: 446762 N: 241678 Junction Detail: 5 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1	Goods over 3.5 tonnes and under 7.5 tonnes mgw	Moving from E to S	Going ahead left bend	
Vehicle Reference 2	Motorcycle over 500cc	Moving from N to S	Going ahead other	
Casualty Reference: 1	Age: 44	Male	Driver/rider	Severity: Slight Injured by vehicle: 2
Vehicle Reference 3	Car	Moving from N to S	Going ahead other	

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Thursday 03/09/2020 Time 0745 Slight at A361 SOUTHAM RD OUTSIDE WICKES APPORX 90M S OF RBT J/W A422 HENNEF WAY BANBURY
E: 445488 N: 241664 Junction Detail: 0 Control
Raining without high winds Road surface Wet/Damp Daylight
Vehicle Reference 1 Motor Cycle over 50 cc and up to 125cc Moving from S to N Stopping
Casualty Reference: 1 Age: 46 Male Driver/rider Severity: Slight Injured by vehicle: 1

Thursday 17/09/2020 Time 1429 Slight at A361 SOUTHAM RD J/W UNCL RD 100 M SOUTH OF HENNEF WAY BANBURY
E: 445480 N: 241636 Junction Detail: 3 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from S to E Turning right
Vehicle Reference 2 Pedal Cycle Moving from N to S Going ahead other
Casualty Reference: 1 Age: 65 Female Driver/rider Severity: Slight Injured by vehicle: 2

Wednesday 21/10/2020 Time 0645 Slight at A422 J/W M40 RBT J/W A422 FROM MIDDLETON CHENEY BANBURY
E: 447284 N: 241816 Junction Detail: 1 Control 2
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from N to W Going ahead but held up
Vehicle Reference 2 Car Moving from N to W Going ahead but held up
Casualty Reference: 3 Age: 29 Female Driver/rider Severity: Slight Injured by vehicle: 2
Vehicle Reference 3 Car Moving from N to W Going ahead other
Casualty Reference: 1 Age: 48 Male Driver/rider Severity: Slight Injured by vehicle: 3
Casualty Reference: 2 Age: 35 Male Passenger Severity: Slight Injured by vehicle: 3

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Monday 02/11/2020 Time 0815 Slight at A422 HENNEF WAY RBT AT TOUCAN CROSSING 40M SE OF J/W A423 SOUTHAM ROAD BANBURY
E: 445556 N: 241777 Junction Detail: 0 Control
Fine without high winds Road surface Wet/Damp Daylight

Vehicle Reference 1 Goods 3.5 tonnes mgw and under Moving from N to SE Going ahead other

Vehicle Reference 2 Car Moving from N to SE Going ahead other

Casualty Reference: 1 Age: 25 Female Driver/rider Severity: Slight Injured by vehicle: 2

Thursday 10/12/2020 Time 1047 Serious at A422 ERMONT WAY RBT J/W MIDDLETON ROAD BANBURY
E: 446726 N: 241719 Junction Detail: 1 Control 4
Fine without high winds Road surface Wet/Damp Daylight

Vehicle Reference 1 Goods 3.5 tonnes mgw and under Moving from S to W Turning left

Vehicle Reference 2 Motor Cycle over 50 cc and up to 125cc Moving from E to W Going ahead other

Casualty Reference: 1 Age: 33 Male Driver/rider Severity: Serious Injured by vehicle: 2

Tuesday 16/02/2021 Time 0550 Slight at A422 HENNEF WAY J/W AT RBT A4260 CONCORDE AVE BANBURY
E: 445944 N: 241634 Junction Detail: 1 Control 4
Raining without high winds Road surface Wet/Damp Darkness: street lights present and lit

Vehicle Reference 1 Car Moving from W to E Going ahead other

Vehicle Reference 2 Car Moving from W to E Going ahead other

Casualty Reference: 1 Age: 55 Male Driver/rider Severity: Slight Injured by vehicle: 2

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Friday 23/04/2021 Time 1813 Slight at A422 RBT AT J11 ON APPROACH TO J/W M40 SBOUIND EXITG SLIP ROAD BANBURY
E: 447147 N: 241902 Junction Detail: 1 Control 2
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Motorcycle over 500cc Moving from S to NE Overtaking stat vehicle O/S
Casualty Reference: 1 Age: 33 Male Driver/rider Severity: Slight Injured by vehicle: 1

Vehicle Reference 2 Car Moving from S to NE Stopping

Monday 10/05/2021 Time 2029 Serious at A422 HENNEF WAY J/W A4260 CONCORDE AVE BANBURY
E: 446020 N: 241637 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Motorcycle over 500cc Moving from E to W Going ahead other
Casualty Reference: 1 Age: 47 Male Driver/rider Severity: Serious Injured by vehicle: 1

Friday 14/05/2021 Time 2351 Slight at A422 HENNEF WAY RBT J/W A260 CONCORD AVE BANBURY
E: 446000 N: 241630 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Darkness: street lights present and lit

Vehicle Reference 1 Car Moving from E to W Going ahead other
Casualty Reference: 1 Age: 29 Male Passenger Severity: Slight Injured by vehicle: 1

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Wednesday 02/06/2021 Time 1256 Slight at A361 SOUTHAM ROAD J/W MARLEY WAY BANBURY
E: 445380 N: 241456 Junction Detail: 3 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Goods vehicle - unknown weight Moving from S to NE Going ahead other

Vehicle Reference 2 Car Moving from S to NE Going ahead but held up

Casualty Reference: 1 Age: 44 Female Driver/rider Severity: Slight Injured by vehicle: 2

Saturday 12/06/2021 Time 1915 Slight at A361 SOUTHAM ROAD J/W MARLEY WAY BANBURY
E: 445387 N: 241463 Junction Detail: 3 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from N to S Going ahead other

Vehicle Reference 2 Car Moving from E to N Waiting to turn right

Casualty Reference: 1 Age: 30 Male Driver/rider Severity: Slight Injured by vehicle: 2

Saturday 31/07/2021 Time 1130 Slight at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVE BANBURY
E: 445978 N: 241597 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Motor Cycle over 50 cc and up to 125cc Moving from S to N Stopping

Casualty Reference: 1 Age: 17 Male Driver/rider Severity: Slight Injured by vehicle: 1

Vehicle Reference 2 Motor Cycle over 50 cc and up to 125cc Moving from S to N Stopping

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Saturday 18/09/2021 Time 1325 Slight at A422 RBT J/W M40 AT WBOUND A422 EXIT TO BANBURY
E: 447086 N: 241746 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from E to N Going ahead right bend
Vehicle Reference 2 Car Moving from E to W Going ahead other
Casualty Reference: 1 Age: 24 Male Driver/rider Severity: Slight Injured by vehicle: 2
Casualty Reference: 2 Age: 46 Female Passenger Severity: Slight Injured by vehicle: 2

Tuesday 09/11/2021 Time 0845 Slight at A361 SOUTHAM RD RBT J/W A422 HENNEF WAY BANBURY
E: 445516 N: 241806 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from N to S Going ahead other
Vehicle Reference 2 Car Moving from N to E Turning left
Casualty Reference: 1 Age: 35 Female Driver/rider Severity: Slight Injured by vehicle: 2

Friday 26/11/2021 Time 0805 Slight at ERMONT WAY RBT J/W A422 HENNEF WAY BANBURY
E: 446706 N: 241734 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from S to W Turning left
Vehicle Reference 2 Pedal Cycle Moving from S to N Going ahead other
Casualty Reference: 1 Age: 28 Male Driver/rider Severity: Slight Injured by vehicle: 2

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Thursday 02/12/2021 Time 0700 Slight at A423 SOUTHAM ROAD 75M NORTH OF BEAUMONT CLOSE BANBURY
E: 445556 N: 242268 Junction Detail: 3 Control 2
Fine without high winds Road surface Frost/Ice Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from N to S Stopping
Vehicle Reference 2 Car Moving from N to S Stopping
Casualty Reference: 1 Age: 50 Male Driver/rider Severity: Slight Injured by vehicle: 2

Friday 04/02/2022 Time 1700 Slight at A422 J/W A422 RBT J/W M40 RBT AT J11 BANBURY
E: 447223 N: 241914 Junction Detail: 1 Control 2
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from S to NE Going ahead other
Vehicle Reference 2 Car Moving from S to SE Starting
Casualty Reference: 1 Age: 45 Male Driver/rider Severity: Slight Injured by vehicle: 2

Tuesday 15/03/2022 Time 1710 Slight at WILDMERE ROAD 82 M NORTH OF HENNEF WAY RBT BANBURY
E: 446771 N: 241858 Junction Detail: 3 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from N to S Going ahead other
Vehicle Reference 2 Car Moving from N to S Going ahead but held up
Casualty Reference: 1 Age: 32 Male Driver/rider Severity: Slight Injured by vehicle: 2

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Monday 04/04/2022 Time 1627 Serious at M40 NBOUND APPROX 300M S OF JCT 11 MP 122/2A BANBURY
E: 447420 N: 241050 Junction Detail: 0 Control
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1	Goods 3.5 tonnes mgw and under	Moving from SE to N	Going ahead other		
Vehicle Reference 2	Goods over 3.5 tonnes and under 7.5 tonnes mgw	Moving from SE to N	Going ahead other		
Casualty Reference: 1	Age: 60	Male	Driver/rider	Severity: Serious	Injured by vehicle: 2

Saturday 21/05/2022 Time 1503 Serious at A422 HENNEF WAY APPROX 130M W OF RBT J/W WILDMERE ROAD & ERMONT WAY BANBURY
E: 446581 N: 241733 Junction Detail: 0 Control
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1	Car	Moving from E to W	Overtaking nearside		
Vehicle Reference 2	Car	Moving from E to W	Changing lane to left		
Casualty Reference: 1	Age: 80	Female	Passenger	Severity: Serious	Injured by vehicle: 2
Casualty Reference: 2	Age: 81	Male	Driver/rider	Severity: Slight	Injured by vehicle: 2

Wednesday 10/08/2022 Time 1645 Slight at A422 HENNEF WAY WBOUND CWAY APPROX 15M E OF RBT K/W ERMONT WAY & WILDMERE ROAD BA
E: 446782 N: 241737 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1	Goods 7.5 tonnes mgw and over	Moving from E to W	Changing lane to left		
Vehicle Reference 2	Car	Moving from E to W	Going ahead other		
Casualty Reference: 1	Age: 20	Female	Driver/rider	Severity: Slight	Injured by vehicle: 2
Casualty Reference: 2	Age: 21	Female	Passenger	Severity: Slight	Injured by vehicle: 2

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Thursday 06/10/2022 Time 1645 Slight at A422 RBT J/W SLIP ROAD TO JOIN M40 SBOUND BANBURY
E: 447271 N: 241781 Junction Detail: 1 Control 2
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from N to SE Turning left
Vehicle Reference 2 Car Moving from N to S Going ahead right bend
Casualty Reference: 1 Age: 33 Female Driver/rider Severity: Slight Injured by vehicle: 2

Wednesday 19/10/2022 Time 1420 Slight at A422 HENNEF WAY RBT J/W WILDMERE ROAD BANBURY
E: 446755 N: 241771 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from N to S Going ahead other
Vehicle Reference 2 Car Moving from W to E Going ahead other
Casualty Reference: 1 Age: 31 Male Driver/rider Severity: Slight Injured by vehicle: 2

Monday 07/11/2022 Time 0817 Slight at M40 SBOUND J/W ENTRY SLIP SLIP ROAD FROM JUNCTION 11 BANBURY
E: 447382 N: 241280 Junction Detail: 5 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from N to S Going ahead other
Casualty Reference: 1 Age: 39 Female Driver/rider Severity: Slight Injured by vehicle: 1
Vehicle Reference 2 Car Moving from N to S Going ahead other
Vehicle Reference 3 Car Moving from N to S Going ahead other

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Tuesday 06/06/2023 Time 1445 Slight at A422 HENNEF WAY RBT J/W ERMONT WAY & WILDMERE ROAD BANBURY
E: 446711 N: 241732 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from E to W Changing lane to left
Vehicle Reference 2 Car Moving from E to W Going ahead other
Vehicle Reference 3 Car Moving from E to W Going ahead other
Casualty Reference: 1 Age: 34 Female Driver/rider Severity: Slight Injured by vehicle: 3

Thursday 08/06/2023 Time 1437 Serious at A423 SOUTHAM ROAD J/W BEAUMONT ROAD BANBURY
E: 445553 N: 242173 Junction Detail: 3 Control 2
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Motorcycle over 500cc Moving from S to N Going ahead other
Casualty Reference: 1 Age: 43 Male Driver/rider Severity: Serious Injured by vehicle: 1
Vehicle Reference 2 Car Moving from N to W Turning right
Casualty Reference: 2 Age: 39 Male Driver/rider Severity: Slight Injured by vehicle: 2

Wednesday 27/09/2023 Time 0831 Slight at GRIMSBURY GREEN J/W LINK ROAD FROM CONCORDE AVENUE RBT BANBURY
E: 445983 N: 241719 Junction Detail: 7 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from S to E Turning right
Vehicle Reference 2 Pedal Cycle Moving from E to W Going ahead other
Casualty Reference: 1 Age: 60 Male Driver/rider Severity: Slight Injured by vehicle: 2

Accidents between dates **01/01/2018** **and** **13/11/2023** (70) months

Selection:
Selected using Manual Selection

Notes:
DTA data Banbury area NON CONFIDENTIAL

Accidents involving:

	Fatal	Serious	Slight	Total
Motor vehicles only (excluding 2-wheels)	0	5	44	49
2-wheeled motor vehicles	0	5	7	12
Pedal cycles	0	0	5	5
Horses & other	0	0	1	1
Total	0	10	56	66

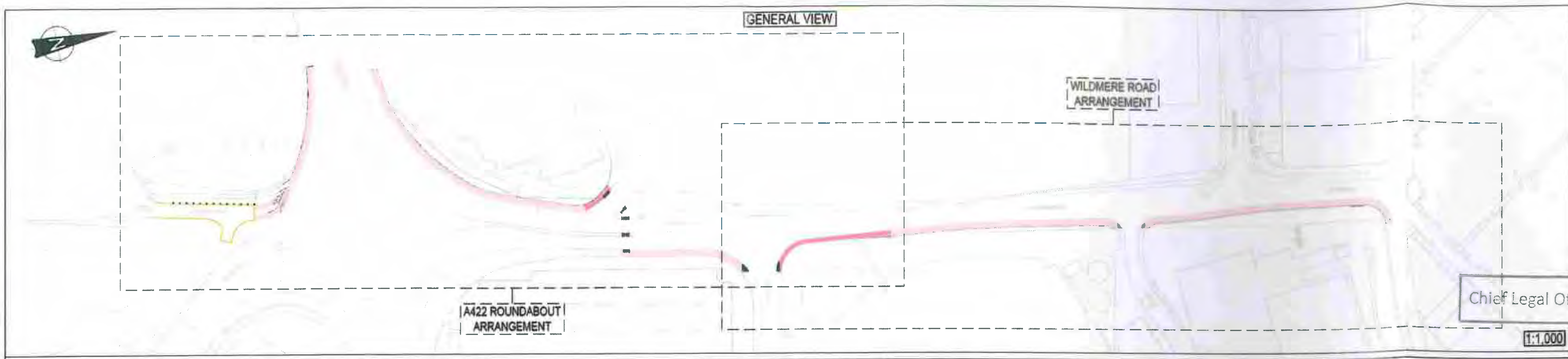
Casualties:

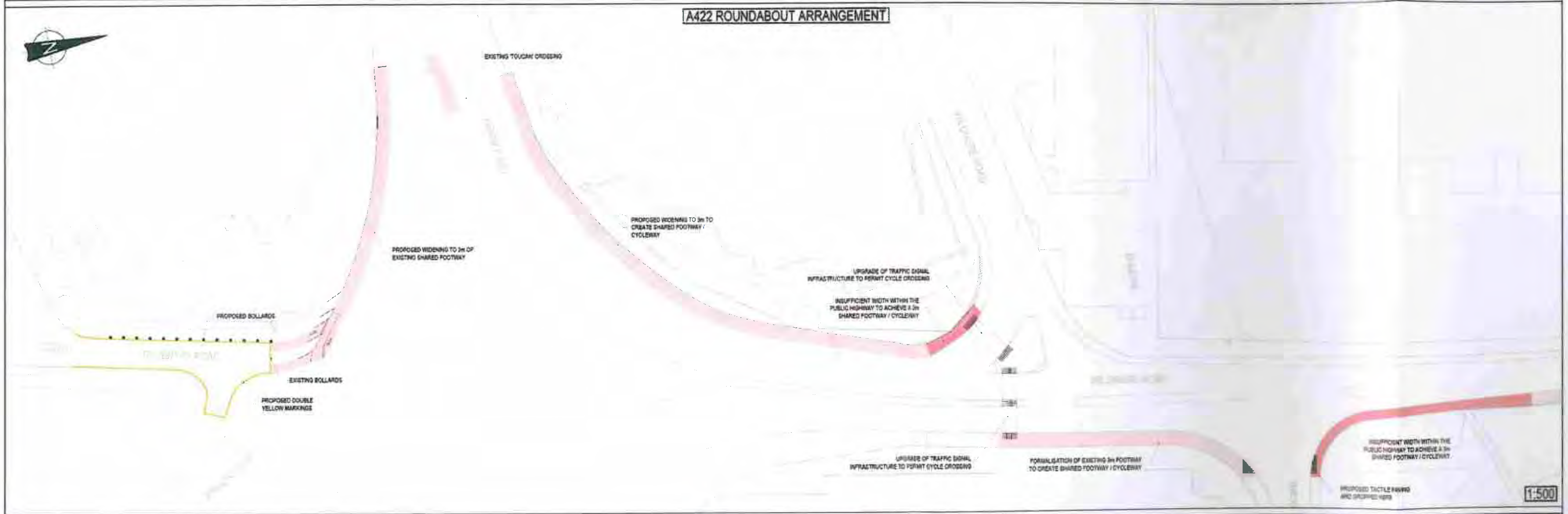
	Fatal	Serious	Slight	Total
Vehicle driver	0	3	40	43
Passenger	0	1	18	19
Motorcycle rider	0	5	7	12
Cyclist	0	0	5	5
Pedestrian	0	1	1	2
Other	0	0	0	0
Total	0	10	71	81

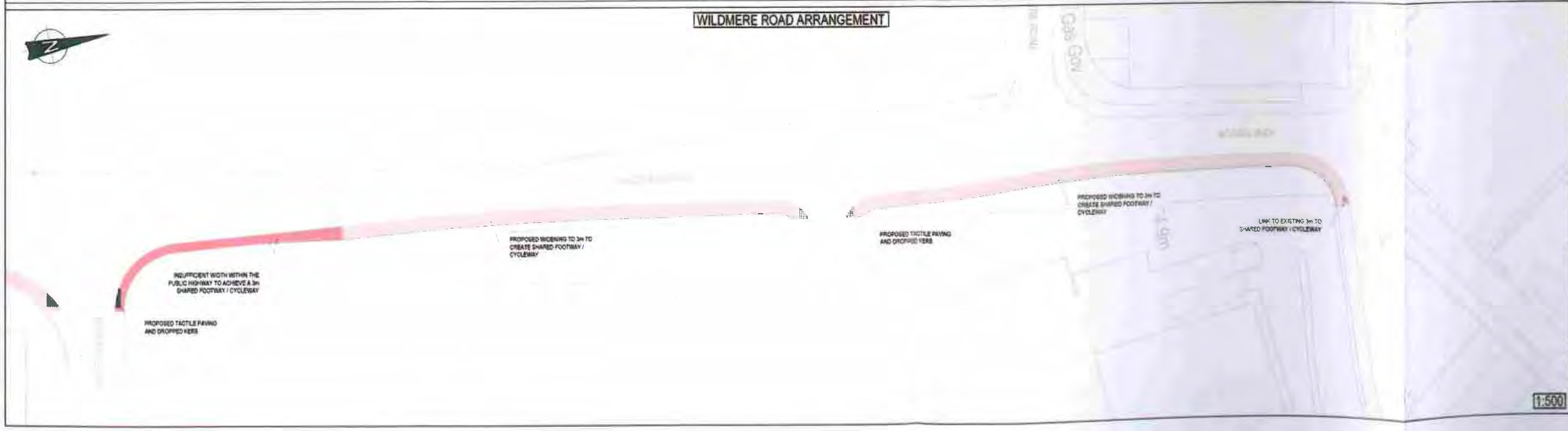
Number of casualties meeting the criteria: **81**

Appendix F

Footway/ Cycleway Plans from Frontier Park S106







GENERAL NOTES:

KEY:
- PROPOSED BACK OF SHARED FOOTWAY / CYCLEWAY
- PROPOSED ROAD MARKINGS
- PROPOSED BOLLARD
- 3m SHARED FOOTWAY / CYCLEWAY
- SHARED USE FOOTWAY / CYCLEWAY TO MAXIMUM AVAILABLE WIDTH WITHIN HIGHWAY

[redacted]

Chief Legal Officer/Designated Officer

[redacted]

Rev.	Description	Date	By	Chkd
P02	Shared lane updated following Highways comments	30/09/15	DD	JA

curtins

Status: PRELIMINARY

Project: BANBURY 15

Dwg Title: SHARED FOOTWAY / CYCLEWAY POTENTIAL IMPROVEMENTS

Size	Date	Drawn By	Designed By	Checked By
A1	29/10/15	DD	DD	JA
Scale AS STATED				

Project No	Originator	Volume	Level	Type	Role	Category / Number	Rev
69717	CUR	00	XX	DR	TP	75004	P02

Appendix G

Summary of Committed and Development Traffic Flows

FRONTIER PARK

	B2 Max (50,000m²)						
	Assume as per FIG 7						
	PreAM	ARR	DEP		ARR	DEP	2-way
B	M40N	14%	32%		18	15	33
C	A361	4%	12%		5	6	11
D	A422E	8%	1%		10	1	11
E	M40S	44%	18%		58	8	67
A	A422W	31%	37%		41	17	58
		100%	100%		133	47	179
	FIG 7						
	AM	ARR	DEP		ARR	DEP	2-way
B	M40N	14%	32%		29	18	47
C	A361	4%	12%		8	7	15
D	A422E	8%	1%		16	1	16
E	M40S	44%	18%		93	10	103
A	A422W	31%	37%		65	22	86
		100%	100%		211	58	269
	Fig 8						
	PM	ARR	DEP		ARR	DEP	2-way
B	M40N	3%	2%		1	4	5
C	A361	2%	2%		0	3	4
D	A422E	13%	32%		3	50	53
E	M40S	63%	13%		15	21	36
A	A422W	19%	51%		5	81	85
		100%	100%		24	159	183

DEVELOPMENT

		GIS SENSITIVITY (PARCEL DISTRIBUTION VARIANT)					
		PRE-AM					
		ARR			DEP		
		LV	HV	PCU	LV	HV	PCU
B	M40N	33	11	57	17	31	89
C	A361	12	6	26	7	18	49
D	A422E	38	11	63	20	32	93
E	M40S	44	29	112	30	86	228
A	A422W	92	1	94	37	3	44
D1	A422E BANBURY LANE	10	0	10	4	0	4
D2	A422E OTHER	23	11	48	14	32	87
D3	A422E WARWORTH RD	5	0	5	2	0	2
A1	A422W CONCORD	36	0	37	14	1	17
A2	A422W ERMONT WAY	14	0	14	6	0	6
A3	A422W RUSCOTE AVE	35	0	36	14	1	17
A4	A422W SOUTHAM ROAD	7	0	8	3	0	4
		218	58	352	111	170	502
		AM					
		ARR			DEP		
		LV	HV	PCU	LV	HV	PCU
B	M40N	20	12	46	18	17	58
C	A361	6	7	22	7	10	31
D	A422E	23	12	51	20	18	61
E	M40S	20	32	94	29	47	139
A	A422W	67	1	69	41	2	45
D1	A422E BANBURY LANE	7	0	7	4	0	4
D2	A422E OTHER	13	12	40	14	18	54
D3	A422E WARWORTH RD	4	0	4	2	0	2
A1	A422W CONCORD	26	0	27	16	1	17
A2	A422W ERMONT WAY	10	0	10	6	0	7
A3	A422W RUSCOTE AVE	25	0	26	16	1	17
A4	A422W SOUTHAM ROAD	5	0	6	3	0	4
		136	63	281	116	94	332
		PM					
		ARR			DEP		
		LV	HV	PCU	LV	HV	PCU
B	M40N	19	11	44	37	6	51
C	A361	8	6	23	14	4	22
D	A422E	22	11	47	43	6	57
E	M40S	34	30	103	53	17	92
A	A422W	40	1	42	100	1	101
D1	A422E BANBURY LANE	4	0	4	11	0	11
D2	A422E OTHER	15	11	41	27	6	41
D3	A422E WARWORTH RD	2	0	2	5	0	5
A1	A422W CONCORD	15	0	16	39	0	39
A2	A422W ERMONT WAY	6	0	6	15	0	15
A3	A422W RUSCOTE AVE	15	0	16	38	0	38
A4	A422W SOUTHAM ROAD	3	0	3	8	0	8
		123	59	259	246	34	323

Appendix H

TRICS Output – Commercial Warehousing

Calculation Reference: AUDIT-623801-220321-0325

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : F - WAREHOUSING (COMMERCIAL)
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	EX	ESSEX	1 days
	KC	KENT	1 days
03	SOUTH WEST		
	DV	DEVON	2 days
04	EAST ANGLIA		
	SF	SUFFOLK	1 days
06	WEST MIDLANDS		
	WM	WEST MIDLANDS	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	WY	WEST YORKSHIRE	1 days
09	NORTH		
	TW	TYNE & WEAR	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 190 to 50000 (units: sqm)
Range Selected by User: 190 to 80066 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/13 to 15/10/20

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Wednesday	1 days
Thursday	1 days
Friday	5 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	8 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town	7
Free Standing (PPS6 Out of Town)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	6
Commercial Zone	1
Out of Town	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

n/a	2 days
B8	6 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	1 days
5,001 to 10,000	2 days
10,001 to 15,000	1 days
15,001 to 20,000	2 days
25,001 to 50,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	1 days
125,001 to 250,000	4 days
250,001 to 500,000	2 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	4 days
1.1 to 1.5	4 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	8 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	8 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 DV-02-F-01 OPTICS WAREHOUSE DEVON
ALDERS WAY
PAIGNTON

Edge of Town
Industrial Zone
Total Gross floor area: 190 sqm
Survey date: FRIDAY 29/03/19 Survey Type: MANUAL

2 DV-02-F-02 LIDL DISTRIBUTION CENTRE DEVON
CHILLPARK BRAKE
NEAR EXETER
CLYST HONITON
Free Standing (PPS6 Out of Town)
Out of Town
Total Gross floor area: 50000 sqm
Survey date: WEDNESDAY 03/04/19 Survey Type: MANUAL

3 EX-02-F-01 SPORTS SUPPLEMENTS ESSEX
BRUNEL WAY
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Total Gross floor area: 6560 sqm
Survey date: FRIDAY 18/05/18 Survey Type: MANUAL

4 KC-02-F-02 COMMERCIAL WAREHOUSING KENT
MILLS ROAD
AYLESFORD
QUARRY WOOD
Edge of Town
Industrial Zone
Total Gross floor area: 11200 sqm
Survey date: FRIDAY 22/09/17 Survey Type: MANUAL

5 SF-02-F-03 ROAD HAULAGE SUFFOLK
CENTRAL AVENUE
IPSWICH
WARREN HEATH
Edge of Town
Industrial Zone
Total Gross floor area: 4700 sqm
Survey date: FRIDAY 18/09/15 Survey Type: MANUAL

6 TW-02-F-01 ASDA DISTRIBUTION CENTRE TYNE & WEAR
MANDARIN WAY
WASHINGTON
PATTISON IND. ESTATE
Edge of Town
Industrial Zone
Total Gross floor area: 31000 sqm
Survey date: FRIDAY 13/11/15 Survey Type: MANUAL

7 WM-02-F-02 LOGISTICS FIRM WEST MIDLANDS
SOVEREIGN ROAD
BIRMINGHAM
KINGS NORTON
Edge of Town
Commercial Zone
Total Gross floor area: 3625 sqm
Survey date: MONDAY 09/11/15 Survey Type: MANUAL

8 WY-02-F-02 DISTRIBUTION COMPANY WEST YORKSHIRE
STAITHGATE LANE
BRADFORD
NEWHALL
Edge of Town
Industrial Zone
Total Gross floor area: 10446 sqm
Survey date: THURSDAY 14/03/19 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
BD-02-F-02	during covid

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)
TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	3	20212	0.081	3	20212	0.046	3	20212	0.127
06:00 - 07:00	3	20212	0.135	3	20212	0.068	3	20212	0.203
07:00 - 08:00	8	14715	0.163	8	14715	0.073	8	14715	0.236
08:00 - 09:00	8	14715	0.161	8	14715	0.093	8	14715	0.254
09:00 - 10:00	8	14715	0.141	8	14715	0.082	8	14715	0.223
10:00 - 11:00	8	14715	0.088	8	14715	0.091	8	14715	0.179
11:00 - 12:00	8	14715	0.095	8	14715	0.100	8	14715	0.195
12:00 - 13:00	8	14715	0.094	8	14715	0.100	8	14715	0.194
13:00 - 14:00	8	14715	0.132	8	14715	0.130	8	14715	0.262
14:00 - 15:00	8	14715	0.082	8	14715	0.110	8	14715	0.192
15:00 - 16:00	8	14715	0.082	8	14715	0.109	8	14715	0.191
16:00 - 17:00	8	14715	0.082	8	14715	0.149	8	14715	0.231
17:00 - 18:00	8	14715	0.068	8	14715	0.155	8	14715	0.223
18:00 - 19:00	8	14715	0.035	8	14715	0.100	8	14715	0.135
19:00 - 20:00	3	20212	0.028	3	20212	0.054	3	20212	0.082
20:00 - 21:00	3	20212	0.041	3	20212	0.033	3	20212	0.074
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.508			1.493			3.001

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	190 - 50000 (units: sqm)
Survey date date range:	01/01/13 - 15/10/20
Number of weekdays (Monday-Friday):	8
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	1

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)
OGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	3	20212	0.026	3	20212	0.031	3	20212	0.057
06:00 - 07:00	3	20212	0.043	3	20212	0.043	3	20212	0.086
07:00 - 08:00	8	14715	0.041	8	14715	0.046	8	14715	0.087
08:00 - 09:00	8	14715	0.051	8	14715	0.056	8	14715	0.107
09:00 - 10:00	8	14715	0.055	8	14715	0.038	8	14715	0.093
10:00 - 11:00	8	14715	0.045	8	14715	0.046	8	14715	0.091
11:00 - 12:00	8	14715	0.037	8	14715	0.048	8	14715	0.085
12:00 - 13:00	8	14715	0.042	8	14715	0.042	8	14715	0.084
13:00 - 14:00	8	14715	0.035	8	14715	0.043	8	14715	0.078
14:00 - 15:00	8	14715	0.024	8	14715	0.025	8	14715	0.049
15:00 - 16:00	8	14715	0.040	8	14715	0.027	8	14715	0.067
16:00 - 17:00	8	14715	0.040	8	14715	0.034	8	14715	0.074
17:00 - 18:00	8	14715	0.042	8	14715	0.030	8	14715	0.072
18:00 - 19:00	8	14715	0.020	8	14715	0.022	8	14715	0.042
19:00 - 20:00	3	20212	0.010	3	20212	0.018	3	20212	0.028
20:00 - 21:00	3	20212	0.015	3	20212	0.015	3	20212	0.030
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.566			0.564			1.130

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Appendix I

TRICS Output – Parcel Distribution Centre

Calculation Reference: AUDIT-623801-220321-0341

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : G - PARCEL DISTRIBUTION CENTRES
TOTAL VEHICLES

Selected regions and areas:

05	EAST MIDLANDS		
	LN	LINCOLNSHIRE	1 days
	NT	NOTTINGHAMSHIRE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 1496 to 3000 (units: sqm)
Range Selected by User: 763 to 24154 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/13 to 11/05/21

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	2 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town	2

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	1
Commercial Zone	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

B8	2 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 500m Range:
All Surveys Included

Population within 1 mile:

10,001 to 15,000	1 days
25,001 to 50,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

125,001 to 250,000	1 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

1.1 to 1.5	2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	2 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	2 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	LN-02-G-01	PARCELFORCE WORLDWIDE		LINCOLNSHIRE
	WHISBY WAY			
	LINCOLN			
	BIRCHWOOD			
	Edge of Town			
	Industrial Zone			
	Total Gross floor area:		1496 sqm	
	Survey date: FRIDAY		*28/06/19*	*Survey Type: MANUAL*
2	NT-02-G-02	CITY LINK		NOTTINGHAMSHIRE
	MILLENIUM WAY			
	NOTTINGHAM			
	PHOENIX CENTRE			
	Edge of Town			
	Commercial Zone			
	Total Gross floor area:		3000 sqm	
	Survey date: MONDAY		*17/06/13*	*Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 02 - EMPLOYMENT/G - PARCEL DISTRIBUTION CENTRES
TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	1496	1.003	1	1496	0.134	1	1496	1.137
06:00 - 07:00	1	1496	1.671	1	1496	0.201	1	1496	1.872
07:00 - 08:00	2	2248	0.334	2	2248	0.712	2	2248	1.046
08:00 - 09:00	2	2248	0.067	2	2248	0.378	2	2248	0.445
09:00 - 10:00	2	2248	0.156	2	2248	0.156	2	2248	0.312
10:00 - 11:00	2	2248	0.156	2	2248	0.067	2	2248	0.223
11:00 - 12:00	2	2248	0.089	2	2248	0.067	2	2248	0.156
12:00 - 13:00	2	2248	0.178	2	2248	0.378	2	2248	0.556
13:00 - 14:00	2	2248	0.423	2	2248	0.178	2	2248	0.601
14:00 - 15:00	2	2248	0.200	2	2248	0.267	2	2248	0.467
15:00 - 16:00	2	2248	0.245	2	2248	0.356	2	2248	0.601
16:00 - 17:00	2	2248	0.356	2	2248	0.445	2	2248	0.801
17:00 - 18:00	2	2248	0.378	2	2248	0.378	2	2248	0.756
18:00 - 19:00	2	2248	0.400	2	2248	0.423	2	2248	0.823
19:00 - 20:00	2	2248	0.089	2	2248	0.222	2	2248	0.311
20:00 - 21:00	2	2248	0.111	2	2248	0.178	2	2248	0.289
21:00 - 22:00	1	3000	0.000	1	3000	0.000	1	3000	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			5.856			4.540			10.396

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	1496 - 3000 (units: sqm)
Survey date date range:	01/01/13 - 11/05/21
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 02 - EMPLOYMENT/G - PARCEL DISTRIBUTION CENTRES
OGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	1496	0.668	1	1496	0.134	1	1496	0.802
06:00 - 07:00	1	1496	0.535	1	1496	0.201	1	1496	0.736
07:00 - 08:00	2	2248	0.044	2	2248	0.423	2	2248	0.467
08:00 - 09:00	2	2248	0.022	2	2248	0.111	2	2248	0.133
09:00 - 10:00	2	2248	0.022	2	2248	0.022	2	2248	0.044
10:00 - 11:00	2	2248	0.044	2	2248	0.000	2	2248	0.044
11:00 - 12:00	2	2248	0.000	2	2248	0.022	2	2248	0.022
12:00 - 13:00	2	2248	0.067	2	2248	0.089	2	2248	0.156
13:00 - 14:00	2	2248	0.067	2	2248	0.067	2	2248	0.134
14:00 - 15:00	2	2248	0.067	2	2248	0.044	2	2248	0.111
15:00 - 16:00	2	2248	0.156	2	2248	0.044	2	2248	0.200
16:00 - 17:00	2	2248	0.044	2	2248	0.044	2	2248	0.088
17:00 - 18:00	2	2248	0.044	2	2248	0.000	2	2248	0.044
18:00 - 19:00	2	2248	0.111	2	2248	0.089	2	2248	0.200
19:00 - 20:00	2	2248	0.022	2	2248	0.044	2	2248	0.066
20:00 - 21:00	2	2248	0.044	2	2248	0.044	2	2248	0.088
21:00 - 22:00	1	3000	0.000	1	3000	0.000	1	3000	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.957			1.378			3.335

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

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Appendix J

VISSIM Local Model Validation Report

Local Model Validation Report

Huscote Farm VISSIM

David Tucker Associates

Prepared by:

SLR Consulting Limited

7th Floor, 36 Great Charles Street, Birmingham , B3 3JY

SLR Project No.: 431.000006.00000

16 October 2023

Revision: 01

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
01	15 September 2023	AC	AH	AC
	Click to enter a date.			
	Click to enter a date.			
	Click to enter a date.			
	Click to enter a date.			

Basis of Report

This document has been prepared by SLR Consulting Limited (SLR) with reasonable skill, care and diligence, and taking account of the timescales and resources devoted to it by agreement with David Tucker Associates (the Client) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.

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Table of Contents

Tables in Text

Figures in Text

Appendices

Acronyms and Abbreviations

LMVR	Local Model Validation Report
DTA	David Tucker Associates
BTM	Banbury Transport Model
NH	National Highways
DfT	Department for Transport
MCC	Manual Classified Count
ANPR	Automatic Number Plate Recognition
ATC	Automatic Traffic Counters

1.0 Introduction

1.1 SLR Consulting Ltd (SLR) has been approached by David Tucker Associates (DTA) to develop a VISSIM model in support of a live planning application for the construction of up to 140,000 sq m of employment floorspace, along with the associated infrastructure and access arrangements. The Reference Number for the planning application is 22/01488/OUT.

1.2 The development is situated on land to the east of Junction 11 of the M40 (Banbury Interchange).

1.3 This Local Model Validation Report (LMVR) covers the scope, methodology, and the outputs for the Base year model, which will provide the basis upon which the forecasting and development impact assessments can be undertaken.

2.0 Background

2.1 SLR is aware that there is an existing 2017 VISSIM Base model, which DTA had planned to use which is being developed by Stantec, with forecasting to be informed by the Banbury Transport Model (BTM).

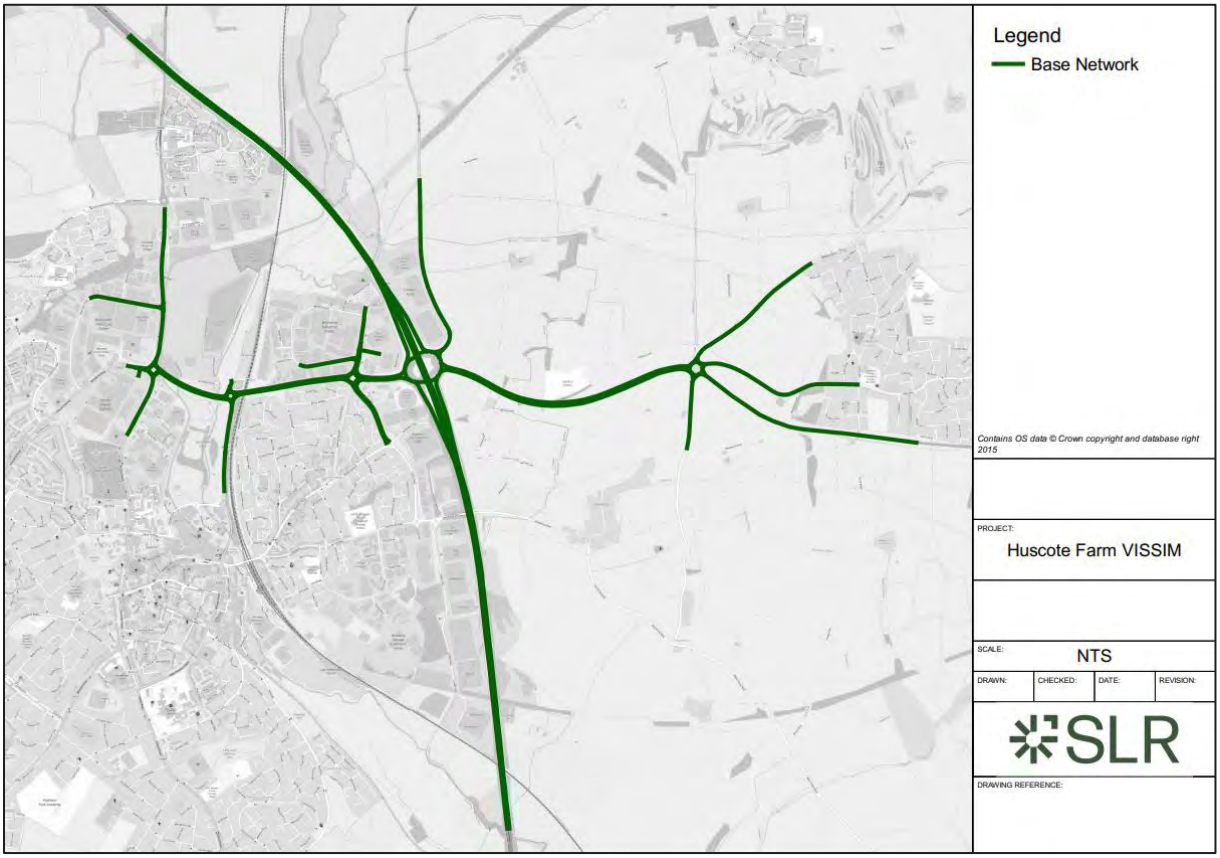
2.2 A significant benefit of creating a new model with new survey data is that the existing Base year of 2017 not only exceeds DfT guidance on model age, but also predates the COVID-19 pandemic which has had a significant impact on travel patterns and behaviours.

3.0 Model Scope

3.1 The core study area encompasses Banbury Interchange (M40 J11), A422/B4525/Mansion Hill roundabout to the east, and the three roundabouts to the west up to Ruscote Avenue. The two signalised junctions on Southam Road/Beaumont Road and Wildmere Road/Brookhill Way are also included.

3.2 Figure 1 below provides an overview of the study area:

Figure 1: VISSIM Core Study Area



3.3 The approach and exit links are coded such that observed queuing and other notable behaviours can be replicated within the modelling, whilst also allowing sufficient distance for lane changing from model input to junction approach.

4.0 Model Specifications & Parameters

4.1 The model has been developed, calibrated, and validated with the following specifications:

VISSIM Version:	VISSIM 2023.06
Simulation Resolution:	5
Number of Seeds:	10
Base Year:	2023
AM Simulation Period (Evaluation Period):	07:00-08:45 (07:30-08:30)
PM Simulation Period (Evaluation Period):	16:00-17:45 (16:30-17:30)
Assignment Method:	Dynamic Assignment
Calibration Assessment Criteria:	2023 Turn Counts
Validation Assessment Criteria:	2023 TomTom Journey Time Data

5.0 Survey Data

MCCs, ANPR & ATCs

5.1 The locations of the MCC, ANPR and ATC surveys are shown in Figure 2 below:

Figure 2: MCC, ANPR, and ATC Locations

5.2 Manual Classified Count (MCC) surveys and Automatic Number Plate Recognition (ANPR) data collection was carried out on Thursday 29th June 2023 between the hours of 07:00-10:00 and 16:00-19:00 for all junctions within the model area.

5.3 Automatic Traffic Counts (ATCs) were collected for the 2-week period from Thursday 22nd June 2023 to Wednesday 5th July 2023.

5.4 Peak hour determination was carried out by SLR using the MCC data. The total number of vehicles arriving at each surveyed junction for each hour on a rolling 15-minute basis within the 07:00-10:00 and 16:00-19:00 periods was calculated, and the sum of these taken to provide the number of surveyed trips arriving at all junctions. This gave peak hours of 07:45-08:45 and 16:30-17:30. This was compared to the total number of vehicles arriving at M40 J11 (due to the strategic significance of this junction), where peak hours were calculated as 07:30-08:30 in the AM, and 16:30-17:30 again in the PM. As the second busiest hour in the AM for all junctions is also 07:30-08:30 (only ~10 vehicles less than the total for 07:45-08:45), SLR has assumed this to be the most appropriate peak hour for the AM to align with what is more typically used.

5.5 The peak hours calculated from the MCCs have been compared to the peak hours determined from the ATC and ANPR surveys. From the ANPR data, the total vehicles travelling between each O-D was calculated for each hour on a rolling 15-minute basis. This gave peak hours of 07:30-08:30 and 16:30-17:30, aligning with the chosen hours from the MCCs. For the ATCs, the sum of total vehicles captured at each location was determined for each hour on a rolling 15-minute basis, again giving peak hours of 07:30-08:30 and 16:30-17:30.

Matrix Build

5.6 ANPR has been used to create the prior matrix to inform the initial step in matrix estimation. The origin-destination data has been processed for each 15-minute period within the AM and PM peak hours, giving trip distributions between each ANPR location. Since as ANPR sites 3 and 11 (see Figure 2) serve more than one zone in VISSIM, the counts at these locations were proportioned to the corresponding zones using the MCCs. For VISSIM zones that were not directly covered by an ANPR site (movements within A422/B4525/Mansion Hill roundabout, and trips to/from Wildmere Road/Brookhill Way), turn counts were informed by the MCCs using proportional calculations through adjacent junctions.

5.7 ANPR U-turn movements were reviewed, and a cap of 2-minutes applied to the site-in site-out time stamps. This ensures short-distance trips that return to their origin within the same time period are not double counted as U-turns.

5.8 Both ANPR and MCC data was disaggregated into Car, LGV, OGV1, and OGV2 which SLR has combined to create Lights and Heavies matrix levels.

5.9 The MCC surveys were used to calculate the split of Cars and LGVs within the Lights user class, and OGV1 and OGV2 within the Heavies user class. Total counts during the peak periods at all MCC sites were used to determine the split which is applied to the VISSIM Light and Heavy matrices.

5.10 30-minute warm-up and 15-minute cool down periods have also been included. Matrices for these periods have been created in the same way as those for the peak hours.

5.11 The peak hour matrices were minorly adjusted throughout the calibration process to ensure the initial VISSIM matrices (primarily informed by ANPR data) match the MCCs. ANPR distributions have been calculated to show the percentage split of trips across each destination ANPR zone from each origin. The ANPR distributions within the model remain similar to the raw ANPR distributions, with a maximum difference of 8% between the VISSIM distributions and the ANPR distributions. The complete distributions informed by the raw ANPR data compared to the distributions within the matrices in VISSIM are evidenced in **Appendix A**.

WebTRIS

5.12 June 2023 WebTRIS data has been used to inform trip numbers on the M40 mainline. Data has been extracted in 15-minute intervals to be input into the corresponding matrices for AM and PM.

5.13 All WebTRIS data was subject to sifting and sense-checking to ensure the derived average was representative and robust. Firstly, the data was processed to exclude non-neutral days leaving only Tuesday-Thursday dates, thereby excluding the traditionally quieter days within the week. The school holiday on 1st June was additionally excluded.

5.14 Secondly, the resulting dataset was further analysed to ensure no outliers existed. To help highlight and remove these outliers from the average, the statistical middle 50% (Interquartile Range [IQR]) was calculated which divided the dataset into four equal groups. By subtracting the first quarter (25%) from the third quarter (75%), the middle 50% remains. It is generally agreed that a suitable upper and lower bound for the dataset can be calculated by multiplying the IQR by 1.5, and applying this tolerance to either side of the middle 50%. Any values which fell outside of these boundaries were removed from the average value that was ultimately used for matrix development to ensure the data was representative and did not include any spurious data.

5.15 As an additional check, WebTRIS data for the on- and off-slips at Junction 11 has also been extracted and compared against the MCC data. The tables below demonstrate how the slip data matches well, providing evidence that the survey day is representative of typical conditions.

Table 1: AM WebTRIS vs MCC On-Slip and Off-Slip flows at Junction 11

	AM Peak Hour (07:30-08:30)					
	Lights			Heavies		
	WebTRIS	MCC	Difference	WebTRIS	MCC	Difference
NB Off-Slip	570	575	5	59	64	5
NB On-Slip	486	455	-31	63	48	-15
SB Off-Slip	773	703	-70	98	79	-19
SB On-Slip	666	697	31	71	66	-5

Table 2: PM WebTRIS vs MCC On-Slip and Off-Slip flows at Junction 11

	PM Peak Hour (16:30-17:30)					
	Lights			Heavies		
	WebTRIS	MCC	Difference	WebTRIS	MCC	Difference
NB Off-Slip	829	988	159	60	60	0
NB On-Slip	636	570	-66	33	43	10
SB Off-Slip	479	514	35	48	30	-18
SB On-Slip	544	575	31	38	26	-12

TomTom

5.16 Journey times were obtained from the TomTom database covering the month of June 2023, excluding Mondays, Fridays, Saturdays, and Sundays. Thursday 1st June was also excluded due to school holidays.

5.17 Average sample size as provided by the TomTom raw data is tabulated below:

Table 3: TomTom Sample Hit Rates

Time Period	Average Sample Size
07:30-07:45	659.26
07:45-08:00	695.78
08:00-08:15	674.01
08:15-08:30	674.13
16:30-16:45	638.45
16:45-17:00	641.65
17:00-17:15	627.22
17:15-17:30	653.41

Queue Lengths

5.18 Queue data was provided alongside the MCCs, again for Thursday 29th June 2023 with queue length surveyed at all approaches in 5-minute intervals.

6.0 Signals

6.1 There are three signalised junctions within the model extent (excluding separate signalised pedestrian crossings). These are:

i) M40 Junction 11

ii) Wildmere Road/Brookhill Way junction

iii) A423 Southam Road/Beaumont Road junction

6.2 Signal timing data was provided for each junction for Thursday 29th June 2023, the same date that the MCC and ANPR surveys were conducted.

6.3 Data was presented in terms of the times each signal changed state, which SLR has processed to determine the parameters governing the signal programs for each junction, for example intergreen times, maximum and minimum green times, and signal stages. The signal programs have been input using VAP due to each signalised junction operating on a demand-responsive basis.

6.4 Four signalised pedestrian crossings are also present within the model extent. These are located:

i) A422 Hennef Way, just west of the A422/Wildmere Road/Ermont Way roundabout

ii) A423 Southam Road, just north of the A422/Southam Road roundabout

iii) A422 Hennef Way, just east of the A422/Southam Road roundabout

iv) A422 Ruscote Avenue, just west of the A422/Southam Road roundabout

6.5 Pedestrian crossing data was collected in 15-minute intervals during the AM and PM periods. This was disaggregated into pedestrians and cyclists at each crossing. These values have been replicated in VISSIM, and use VAP programs to allow the crossings to be demand responsive.

7.0 Public Transport

7.1 Online data sources were interrogated to provide morning and evening peak timetables which were replicated in the modelling. The services included are as follows:

i) 77

ii) B4

iii) 200

iv) 500

v) B9

7.2 Bus dwell times use a linear distribution of 20-30s across the model, which is considered to be in line with industry standards.

8.0 Vehicle Speeds, Conflicts & Driving Behaviours

8.1 The model has utilised speed distributions as calculated from the DfT vehicle speed compliance statistics[1]. These are used to control vehicle entry speeds in the model and speed limit changes across the model extent. Since as no information is available regarding a 50mph speed distribution in the DfT statistics, the Transport for London VISSIM Template distribution has been used in cases where a 50mph speed limit is required.

8.2 Throughout the process of journey time validation, it became apparent that in some locations the unadjusted speed distributions resulted in speeds that were too slow across sections of the network. Each distribution contains a small number of vehicles that travel at the slower end of the distribution curve. On single lane sections of highway this results in modelled speeds that are too slow as all vehicles are beholden to the speed of the slowest vehicle ahead of them. Also some sections exhibited slow speeds where on-site observations suggested this would not occur in reality (such as on the A422 East of the roundabout with Banbury Lane, where road geometry and visibility mean that no vehicles would be expected to be driving at the slower end of the 50mph speed distribution; speeds which can be as low as 25mph if left unadjusted). Hence to reduce the issue of vehicles travelling at speeds at the lower end of the distribution holding up traffic behind them, additional speed distributions with the suffix “Adjusted” have been added and assigned to areas of the network where required. This has only been required for the 50mph speed distribution.

8.3 The model uses the ‘speed limitation in curves’ function present in versions of VISSIM from 2023. This means VISSIM will adjust a vehicle’s speed according to the brake radius reaction of a link, reducing the need for individual reduced speed areas to be added to the network. Some reduced speed areas have still been added to the network however if additional measures were required, for example to slow vehicles on an exit link leading up to a junction off the network, or to represent parked cars on the side of the road. The reduced speed areas used rely upon the VISSIM default km/h distributions as these generally contain a lower range at the extremes of the distribution curves compared with the TfL and DfT mph distributions, and where vehicle speeds are to be controlled due to physical or geometric reasons these tighter controls are necessary.

8.4 Conflicting movements between vehicles are primarily controlled by Priority Rules, which were adjusted as part of the calibration process and are unchanged between AM and PM peak periods. Conflict Areas are also included at some locations (e.g. bus lay-bys) where additional conflict management was considered necessary to prevent vehicles crossing over one another.

8.5 Three driving behaviours have been used in the model. Any non-strategic local roads have been set to the driving behaviour for urban roads, which was altered from the VISSIM default to ensure vehicle behaviour at an amber signal was set to “Stop same as red”, as per the latest accepted best practice. All strategic links were set to the VISSIM default Right-side rule behaviour, and a merge/diverge driving behaviour was added and used for any links where this behaviour is required.

[1] https://www.gov.uk/government/organisations/department-for-transport/series/speeds-statistics

Period Specific Differences

8.6 Both AM and PM model networks remain identical aside from one reduced speed area present in the PM but not the AM. This is on the Ruscote Avenue westbound exit link and uses a speed distribution of 12 km/h to slow vehicles on the approach to the Lockheed Close roundabout, just outside the model network. PM journey time data suggests that the PM peak experiences delays on this westbound section which also causes delay on Hennef Way westbound and Southam Road northbound approaches to the roundabout upstream. This has been cross-checked with Google Maps typical traffic data which shows slow vehicle speeds in this area in the PM peak.

9.0 Assignment and Convergence

9.1 The model includes the dynamic method of vehicle assignment and must therefore be converged to an acceptable level.

9.2 Throughout the model, no route choice exists aside from which lane vehicles use to merge from the on-slips to the M40. Hence, the only purpose of convergence is to ensure both lanes on each on-slip are appropriately used.

9.3 To converge the models, the simulation was run consistently until a series of criteria were met.

9.4 DMRB[2] and TfL[3] state that a model is considered to be converged when the following set of criteria are met:

- 95% of all path traffic volumes change by less than 5% for at least four consecutive iterations
- 95% of the travel times on all paths change by less than 20% for at least four consecutive iterations
- The percentage change in user costs or time spent within the network (V) should be less than 1% for four consecutive iterations

9.5 The final four runs were as follows:

Table 4: AM Convergence Results

Run Reference Number	Volume on Paths < 5%	Travel Times on Paths < 20%	Total Travel Time % Change from previous run
2	100.0%	100.0%	0.0%
3	100.0%	100.0%	0.0%
4	100.0%	100.0%	0.0%
5	100.0%	100.0%	-0.01%

Table 5: PM Convergence Results

Run Reference Number	Volume on Paths < 5%	Travel Times on Paths < 20%	Total Travel Time % Change from previous run
2	100.0%	98.1%	0.41%
3	100.0%	98.7%	0.0%
4	100.0%	99.0%	0.0%
5	100.0%	99.4%	0.0%

[2] Design Manual for Roads and Bridges, Volume 12, Section 2, Part 1, Chapter 4, Department for Transport 1996

[3] Traffic Modelling Guidelines, TfL Traffic Manager and Network Performance Best Practice Version 3.0, Transport for London 2010

9.6 Results show that both the AM and PM Base models converge to DMRB criteria on all 3 of the criteria, with 100% of volumes on paths changing by less than 5% for four consecutive runs, >98% of travel times on paths changing by less than 20%, and total travel time changing by 1%.

10.0 Calibration & Validation Results

Overview

10.1 The AM and PM models were run for 10 random seed runs as per best practice, starting at seed number 42 and increasing in increments of 1. The average results from all 10 runs are presented in this section.

Turn Count Calibration

10.2 Flow calibration is a process whereby modelled flow outputs are compared to the equivalent observed traffic flows across the network.

10.3 The Geoffrey E. Havers (GEH) statistic is a standard way of comparing the observed and modelled flows, as defined in DMRB, Volume 12, Chapter 4. The GEH value is similar to a chi-squared test and also incorporates both relative and absolute errors in order to give an overall measure of the accuracy of the modelled flow.

10.4 The GEH statistic has the benefit of removing bias that exists when comparing flows of different magnitudes using percentages, such that a difference of 10 in a flow of 100 vehicles per hour (vph) is less significant (GEH = 1) than a difference of 100 in a flow of 1000 vph (GEH = 3.2).

10.5 The GEH statistic is calculated by:

$$GEH = \sqrt{\frac{(M-C)^2}{(M+C)/2}}$$

Where:

GEH = GEH statistic

M = Modelled flow

C = Observed flow

10.6 An extract of the calibration guideline criteria is shown in the table overleaf:

Table 6: WebTAG Link Flow Criteria[4]

Criteria	Description of Criteria	Acceptability Guideline
1	Individual flows within 100 veh/h of counts for flows less than 700 veh/hr	>85% of Cases
	Individual flows within 15% of counts from 700 to 2700 veh/hr	>85% of Cases
	Individual flows within 400 veh/hr of counts for flows more than 2700 veh/hr	>85% of Cases
2	GEH <5 for individual flows	>85% of Cases

10.7 Turn count calibration results demonstrate that both AM and PM peak hour Base models exceed the guideline GEH pass-rate of 85%. The AM and PM Base models achieve 100% for both Lights and Heavies. A summary of the results can be seen in the following tables; full turn count results can be found in **Appendix B**

Table 7: AM and PM Turn Count Calibration Results - Lights

AM Peak Hour (07:30-08:30)		
GEH	**No. of Passes**	**% of Total**
<1	88	76%
<2	111	96%
<3	116	100%
<4	116	100%
<5	116	100%
PM Peak Hour (16:30-17:30)		
GEH	**No. of Passes**	**% of Total**
<1	84	72%
<2	110	95%
<3	115	99%
<4	116	100%
<5	116	100%

[4] TAG Unit M3.1, Para. 3.2.8 Table 2, Department for Transport January 2014

Table 8: AM and PM Turn Count Calibration Results - Heavies

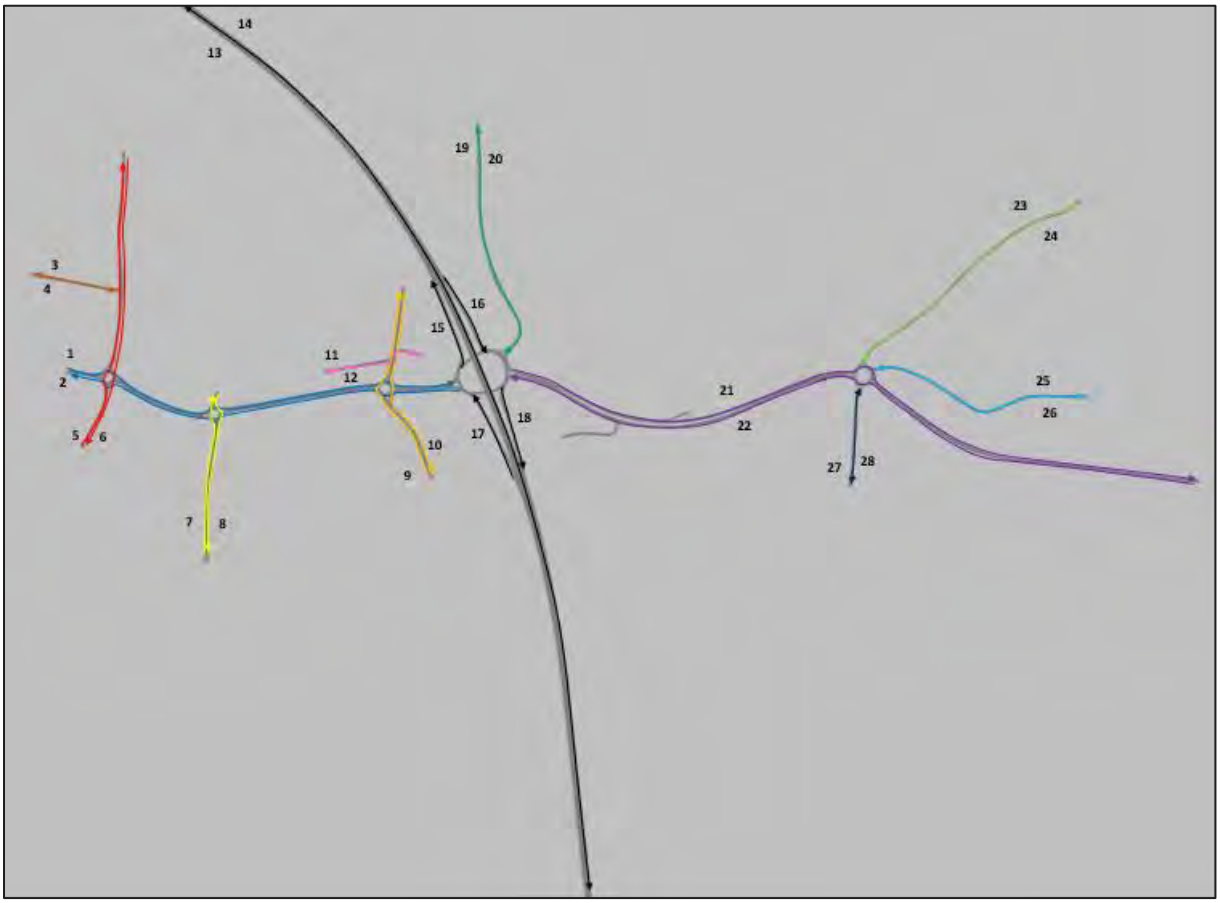
AM Peak Hour (07:30-08:30)		
GEH	**No. of Passes**	**% of Total**
<1	98	84%
<2	113	97%
<3	116	100%
<4	116	100%
<5	116	100%
PM Peak Hour (16:30-17:30)		
GEH	**No. of Passes**	**% of Total**
<1	92	79%
<2	112	97%
<3	116	100%
<4	116	100%
<5	116	100%

10.8 The results demonstrate that 100% of modelled turn counts achieve a GEH of less than 4, thereby exceeding DMRB guidance for turn count calibration in a microsimulation model.

Journey Time Validation

10.9 The model was validated to a total of 28 journey time routes covering the majority of the model extent. The figure below provides an illustration of the routes.

Figure 3: Journey Time Validation Routes



10.10 An extract of the journey time validation criteria is shown in the table below:

Table 9: WebTAG Journey Time Validation Criteria[5]

Criteria	Description of Criteria	Acceptability Guideline
1	Modelled times along routes should be within 15% of surveyed time (or 1 minute, if higher than 15%)	>85% of Cases

10.11 The TomTom observed data has been provided in 15-minute periods. SLR has calculated peak journey times by using the number of samples from each segment to calculate a weighted value. The modelled journey times have also been collected every 15-minutes and peak hour values weighted by flow from the model.

[5] TAG Unit M3.1, Para. 3.2.10 Table 3, Department for Transport January 2014

10.12 The results are tabulated below:

Table 10: AM Journey Time Validation Results

AM Peak Hour (07:30-08:30)							
Route Name		Obs	Mod	Diff	% Diff	Pass?	Pass 15%
1	Hennef Way EB	307	280	-27	-9%	Pass	Pass
2	Hennef Way WB	137	145	8	6%	Pass	Pass
3	Beaumont Road EB	58	50	-8	-13%	Pass	Pass
4	Beaumont Road WB	51	57	6	12%	Pass	Pass
5	Southam Road NB	110	106	-4	-4%	Pass	Pass
6	Southam Road SB	136	122	-14	-10%	Pass	Pass
7	Concord Avenue/Grimsbury Green NB	62	54	-8	-12%	Pass	Pass
8	Concord Avenue/Grimsbury Green SB	63	67	5	8%	Pass	Pass
9	Ermont Way/Wildmere Road NB	125	110	-15	-12%	Pass	Pass
10	Ermont Way/Wildmere Road SB	94	86	-8	-9%	Pass	Pass
11	Wildmere Road/Brookhill Way EB	75	75	0	-1%	Pass	Pass
12	Wildmere Road/Brookhill Way WB	74	84	11	14%	Pass	Pass
13	M40 NB	184	206	22	12%	Pass	Pass
14	M40 SB	189	211	22	12%	Pass	Pass
15	M40 On-Slip NB	28	26	-3	-9%	Pass	Pass
16	M40 Off-Slip SB	45	40	-5	-11%	Pass	Pass
17	M40 Off-Slip NB	43	48	4	10%	Pass	Pass
18	M40 On-Slip SB	26	24	-2	-7%	Pass	Pass
19	A361 NB	68	68	0	0%	Pass	Pass
20	A361 SB	127	125	-2	-1%	Pass	Pass
21	A422 EB	165	175	9	6%	Pass	Pass
22	A422 WB	187	180	-7	-4%	Pass	Pass
23	Banbury Lane NB	62	56	-5	-8%	Pass	Pass
24	Banbury Lane SB	64	69	5	8%	Pass	Pass
25	Mansion Hill EB	62	64	1	2%	Pass	Pass
26	Mansion Hill WB	65	74	9	14%	Pass	Pass
27	Overthorpe NB	33	28	-5	-14%	Pass	Pass
28	Overthorpe SB	27	24	-3	-10%	Pass	Pass

Table 11: PM Journey Time Validation Results

PM Peak Hour (16:30-17:30)							
Route Name		Obs	Mod	Diff	% Diff	Pass?	Pass 15%
1	Hennef Way EB	170	184	13	8%	Pass	Pass
2	Hennef Way WB	203	191	-13	-6%	Pass	Pass
3	Beaumont Road EB	59	63	3	6%	Pass	Pass
4	Beaumont Road WB	55	55	0	-1%	Pass	Pass
5	Southam Road NB	139	127	-12	-9%	Pass	Pass
6	Southam Road SB	124	123	-1	-1%	Pass	Pass
7	Concord Avenue/Grimsbury Green NB	66	63	-3	-5%	Pass	Pass
8	Concord Avenue/Grimsbury Green SB	63	53	-10	-16%	Pass	Fail
9	Ermont Way/Wildmere Road NB	185	189	4	2%	Pass	Pass
10	Ermont Way/Wildmere Road SB	123	118	-6	-5%	Pass	Pass
11	Wildmere Road/Brookhill Way EB	111	108	-3	-3%	Pass	Pass
12	Wildmere Road/Brookhill Way WB	105	103	-3	-3%	Pass	Pass
13	M40 NB	187	211	24	13%	Pass	Pass
14	M40 SB	183	206	22	12%	Pass	Pass
15	M40 On-Slip NB	28	26	-2	-8%	Pass	Pass
16	M40 Off-Slip SB	45	42	-2	-5%	Pass	Pass
17	M40 Off-Slip NB	39	43	4	10%	Pass	Pass
18	M40 On-Slip SB	25	23	-1	-6%	Pass	Pass
19	A361 NB	67	72	4	7%	Pass	Pass
20	A361 SB	77	88	11	14%	Pass	Pass
21	A422 EB	161	176	15	9%	Pass	Pass
22	A422 WB	174	172	-2	-1%	Pass	Pass
23	Banbury Lane NB	58	53	-4	-7%	Pass	Pass
24	Banbury Lane SB	62	70	8	13%	Pass	Pass
25	Mansion Hill EB	60	66	6	10%	Pass	Pass
26	Mansion Hill WB	64	72	8	12%	Pass	Pass
27	Overthorpe NB	30	29	-1	-2%	Pass	Pass
28	Overthorpe SB	27	24	-3	-10%	Pass	Pass

10.13 The results show that the AM and PM achieve a pass rate of 100% and 96% respectively.

10.14 The route which falls outside of the 15% criteria in the PM is Concord Avenue/Grimsbury Green SB. This does so by only 1s hence is considered acceptable in light of the other results.

10.15 The sectional breakdown of routes across the model can be found in **Appendix C.**

Queue Length Validation

10.16 Neither TfL, DMRB nor WebTAG provide any specific guidelines on queue assessments. DMRB actually states that *"precise validation of queue lengths can be difficult because of the volatility of the observed data"*[6].

10.17 Likewise, TfL identify that *"The level of accuracy in queue measurement surveys can often be lower than for other surveys as the definition of a queue can be subjective as well as difficult to identify."*[7], and *"Queue lengths are generally not used for validation purposes due to the difficulty in measuring them on street, however comparing modelled levels of queuing to those observed on street can indicate where inaccuracies may exist in a model."*[8]

10.18 Queue length surveys can provide an estimation of conditions at the site but cannot be expected to be replicated accurately within a model. Reasons for this include:

i) The tendency for the model results to fluctuate between different model runs;

ii) The day-to-day variance in real-life conditions at the site meaning that results taken from one day cannot be applied too rigidly; and

iii) The software's mathematical interpretation of queue lengths compared with the subjective nature of human interpretation during manual surveys.

10.19 Nevertheless, queue length data is a useful dataset with which to gather an understanding of the general pattern of delay across a junction.

10.20 In this case, the modelled queue length is defined as the maximum queue observed within any given 5-minute period. This is averaged across the hour and compared with the model equivalent to provide a general overview of queue conditions on all approaches. Results are reported within **Appendix D.**

[6] Design Manual for Roads and Bridges, Volume 12 Section 2, para 4.4.31 May 1996

[7] Traffic Modelling Guidelines Version 4.0, TfL September 2021, Para 2.3.4.4

[8] Traffic Modelling Guidelines Version 4.0, TfL September 2021, Para 2.4.2

ATC Validation

10.21 ATC data for the peak hours has been processed for the two-week period and compared to the modelled outputs at each site in both directions. The table below demonstrates the total vehicle comparison:

Table 12: AM and PM ATC Validation Results using 2-week ATC Data – Total Vehicles

AM Peak Hour (07:30-08:30)				
Site	**Location**	**Observed**	**Modelled**	**GEH**
1	A361 (North of M40 J11) NB	312	299	0.7
	A361 (North of M40 J11) SB	551	653	4.2
2	A422 (East of M40 J11) EB	1019	1003	0.5
	A422 (East of M40 J11) WB	1003	1193	5.7
3	A422 (West of M40 J11) EB	1455	1588	3.4
	A422 (West of M40 J11) WB	2064	2160	2.1
4	Hennef Way (East of A4260) EB	1571	1818	6.0
	Hennef Way (East of A4260) WB	1765	1669	2.3
5	Hennef Way (West of A4260) EB	1364	1419	1.5
	Hennef Way (West of A4260) WB	1111	1139	0.8
PM Peak Hour (16:30-17:30)				
Site	**Location**	**Observed**	**Modelled**	**GEH**
1	A361 (North of M40 J11) NB	647	757	4.1
	A361 (North of M40 J11) SB	352	340	0.7
2	A422 (East of M40 J11) EB	1084	1152	2.0
	A422 (East of M40 J11) WB	801	997	6.6
3	A422 (West of M40 J11) EB	1792	1925	3.1
	A422 (West of M40 J11) WB	1634	1698	1.6
4	Hennef Way (East of A4260) EB	1648	1735	2.1
	Hennef Way (East of A4260) WB	2116	2094	0.5
5	Hennef Way (West of A4260) EB	1397	1357	1.1
	Hennef Way (West of A4260) WB	1331	1515	4.9

10.22 GEH values greater than 5 are present in the AM for Site 2 WB and Site 4 EB, and in the PM again for Site 2 WB.

10.23 In all cases where the GEH is above 5, the modelled turn count is higher than the observed, demonstrating that the model is robust. Comparisons with the modelled outputs and the MCC/ANPR data shows that the model matches both of these well, and so it is likely that the ATC tubes have undercounted trips in these locations.

10.24 Furthermore, the ATC data has been processed for the singular day of Thursday 29th June 2023 to match the date of the MCC and ANPR surveys. This is presented in the table below:

Table 13: AM and PM ATC Validation Results using 29th June ATC Data – Total Vehicles

AM Peak Hour (07:30-08:30)				
Site	**Location**	**Observed**	**Modelled**	**GEH**
1	A361 (North of M40 J11) NB	273	299	1.5
	A361 (North of M40 J11) SB	598	653	2.2
2	A422 (East of M40 J11) EB	933	1003	2.2
	A422 (East of M40 J11) WB	1073	1193	3.6
3	A422 (West of M40 J11) EB	1529	1588	1.5
	A422 (West of M40 J11) WB	2016	2160	3.2
4	Hennef Way (East of A4260) EB	1520	1818	7.3
	Hennef Way (East of A4260) WB	1773	1669	2.5
5	Hennef Way (West of A4260) EB	1372	1419	1.3
	Hennef Way (West of A4260) WB	1129	1139	0.3
PM Peak Hour (16:30-17:30)				
Site	**Location**	**Observed**	**Modelled**	**GEH**
1	A361 (North of M40 J11) NB	794	757	1.3
	A361 (North of M40 J11) SB	333	340	0.4
2	A422 (East of M40 J11) EB	1048	1152	3.1
	A422 (East of M40 J11) WB	942	997	1.8
3	A422 (West of M40 J11) EB	1832	1925	2.1
	A422 (West of M40 J11) WB	1663	1698	0.9
4	Hennef Way (East of A4260) EB	1700	1735	0.8
	Hennef Way (East of A4260) WB	2115	2094	0.5
5	Hennef Way (West of A4260) EB	1446	1357	2.4
	Hennef Way (West of A4260) WB	1401	1515	3.0

10.25 The AM still demonstrates a GEH value above 5 for Site 4 EB. The modelled output is higher than the observed ATC value and so can be considered robust for this assessment. Journey time and queue data shows that there are delays in the AM on the eastbound approach to the A422/Wildmere Road/Ermont Way roundabout, and so it is likely that queuing occurred on this ATC tube and has affected the count.

10.26 The AM and PM now pass at ATC Site 2 WB. This ATC value is higher on the singular day compared to the 2-week average in both the AM and PM, and so demonstrates that the model is robust in using higher flows.

11.0 Summary & Conclusion

11.1 SLR Consulting Ltd (SLR) has been commissioned by David Tucker Associates (DTA) to develop a VISSIM model for the area surrounding M40 Junction 11, located east of Banbury, Oxfordshire, in support of a live planning application for the construction of up to 140,000 sq m of employment floorspace, along with the associated infrastructure and access arrangements.

11.2 This Local Model Validation Report sets out the methodology for developing the Base model and presents the results from the Base model calibration and validation exercise.

11.3 Results show that the model achieves a pass rate of 100% for MCC turn count calibration, and journey times demonstrate a very close correlation to the observed which exceeds the requisite industry standards for calibration and validation as defined in WebTAG. Hence this suggests that the model matches observed data and observed on-street traffic behaviour and is a suitable and robust Baseline upon which to confidently begin development testing.

Appendix A ANPR Distributions

Local Model Validation Report

Huscote Farm VISSIM

David Tucker Associates

SLR Project No.: 431.000006.00000

16 October 2023

AM Peak (07:30-08:30)

LIGHTS

Distribution using raw ANPR

	1	2	3	4	5	6	7	8	9	10	11	Total
1	0%	5%	38%	2%	6%	18%	19%	0%	2%	4%	6%	100%
2	2%	0%	9%	30%	2%	18%	18%	1%	5%	12%	3%	100%
3	19%	3%	0%	7%	4%	14%	25%	1%	4%	13%	10%	100%
4	1%	12%	10%	0%	5%	19%	18%	1%	7%	16%	13%	100%
5	13%	6%	13%	12%	0%	22%	15%	2%	2%	11%	4%	100%
6	11%	7%	16%	15%	5%	0%	6%	1%	3%	21%	15%	100%
7	16%	8%	27%	12%	5%	8%	0%	1%	1%	7%	14%	100%
8	0%	7%	3%	10%	3%	14%	24%	0%	0%	24%	14%	100%
9	4%	2%	6%	7%	3%	5%	1%	0%	0%	27%	45%	100%
10	4%	3%	19%	18%	6%	18%	8%	1%	8%	0%	14%	100%
11	1%	0%	11%	15%	3%	12%	15%	1%	22%	19%	0%	100%

Distribution in VISSIM Matrices

	1	2	3	4	5	6	7	8	9	10	11	Total
1	0%	5%	38%	0%	6%	18%	19%	0%	4%	4%	6%	100%
2	3%	0%	8%	32%	2%	19%	16%	1%	6%	10%	3%	100%
3	18%	5%	0%	7%	4%	13%	24%	2%	5%	13%	9%	100%
4	0%	12%	10%	0%	5%	19%	17%	1%	8%	16%	12%	100%
5	13%	6%	13%	12%	0%	22%	15%	2%	2%	11%	4%	100%
6	12%	3%	22%	16%	4%	0%	6%	1%	3%	19%	14%	100%
7	15%	7%	28%	11%	5%	11%	0%	1%	1%	7%	12%	100%
8	0%	7%	3%	10%	3%	14%	24%	0%	0%	24%	14%	100%
9	4%	2%	6%	7%	3%	9%	1%	0%	0%	26%	43%	100%
10	4%	2%	19%	18%	5%	18%	8%	1%	12%	1%	13%	100%
11	1%	0%	11%	15%	3%	12%	15%	1%	22%	19%	0%	100%

Difference

	1	2	3	4	5	6	7	8	9	10	11	Total
1	0%	0%	0%	-2%	0%	0%	0%	0%	1%	0%	0%	0%
2	1%	0%	0%	2%	0%	1%	-2%	0%	1%	-1%	0%	0%
3	-1%	2%	0%	0%	0%	-1%	0%	1%	1%	-1%	-1%	0%
4	-1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%
5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6	2%	-3%	5%	0%	0%	0%	0%	0%	0%	-2%	-1%	0%
7	0%	-2%	1%	0%	0%	3%	0%	0%	0%	0%	-3%	0%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	0%	0%	0%	4%	0%	0%	0%	-1%	-2%	0%
10	0%	-1%	-1%	0%	0%	0%	0%	0%	4%	1%	-1%	0%
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

HEAVIES

Distribution using raw ANPR

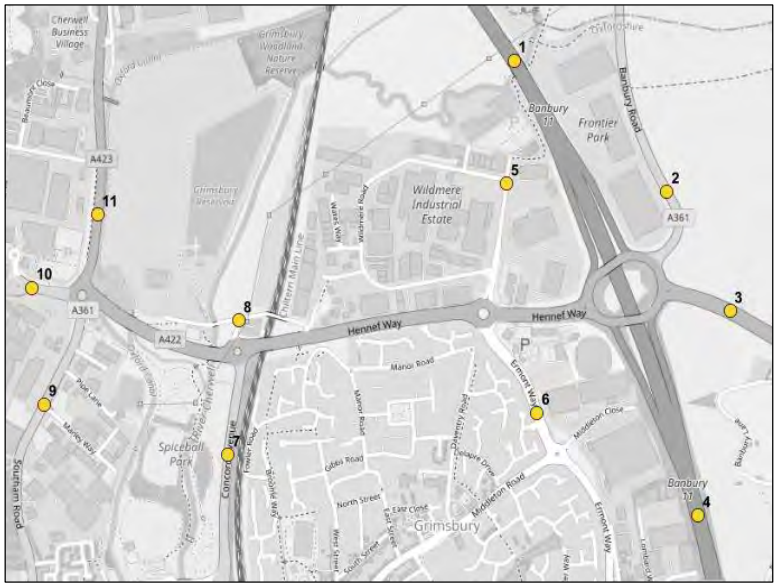
	1	2	3	4	5	6	7	8	9	10	11	Total
1	0%	8%	38%	1%	9%	16%	12%	1%	5%	3%	8%	100%
2	11%	0%	4%	37%	0%	11%	7%	7%	15%	4%	4%	100%
3	14%	6%	0%	6%	2%	22%	14%	10%	4%	12%	8%	100%
4	0%	17%	7%	2%	7%	25%	2%	0%	8%	8%	25%	100%
5	9%	9%	9%	27%	0%	18%	9%	9%	0%	0%	9%	100%
6	30%	8%	11%	30%	3%	0%	3%	0%	2%	5%	9%	100%
7	18%	12%	6%	12%	0%	24%	0%	6%	0%	12%	12%	100%
8	7%	60%	13%	0%	0%	0%	13%	0%	7%	0%	0%	100%
9	6%	45%	3%	16%	6%	6%	3%	0%	0%	6%	6%	100%
10	17%	8%	8%	29%	8%	8%	4%	0%	4%	0%	13%	100%
11	11%	2%	5%	14%	5%	5%	0%	25%	18%	16%	0%	100%

Distribution in VISSIM Matrices

	1	2	3	4	5	6	7	8	9	10	11	Total
1	0%	8%	38%	0%	9%	16%	12%	1%	5%	3%	8%	100%
2	10%	0%	3%	45%	0%	10%	6%	6%	13%	3%	3%	100%
3	14%	6%	0%	6%	2%	22%	14%	10%	4%	12%	8%	100%
4	0%	17%	7%	2%	7%	25%	2%	0%	8%	8%	25%	100%
5	9%	9%	9%	27%	0%	18%	9%	9%	0%	0%	9%	100%
6	27%	9%	9%	37%	2%	0%	4%	0%	1%	4%	7%	100%
7	18%	12%	6%	12%	0%	24%	0%	6%	0%	12%	12%	100%
8	8%	54%	15%	0%	0%	0%	15%	0%	8%	0%	0%	100%
9	6%	45%	3%	16%	6%	6%	3%	0%	0%	6%	6%	100%
10	17%	8%	8%	29%	8%	8%	4%	0%	4%	0%	13%	100%
11	11%	2%	5%	14%	5%	5%	0%	25%	18%	16%	0%	100%

Difference

	1	2	3	4	5	6	7	8	9	10	11	Total
1	0%	0%	0%	-1%	0%	0%	0%	0%	0%	0%	0%	0%
2	-1%	0%	0%	8%	0%	-1%	-1%	-1%	-2%	0%	0%	0%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6	-3%	1%	-2%	7%	-1%	0%	1%	0%	0%	-1%	-2%	0%
7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8	1%	-6%	2%	0%	0%	0%	2%	0%	1%	0%	0%	0%
9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%



PM Peak (16:30-17:30)

LIGHTS

Distribution using raw ANPR

	1	2	3	4	5	6	7	8	9	10	11	Total
1	0%	3%	39%	1%	6%	11%	21%	0%	3%	11%	5%	100%
2	8%	0%	12%	24%	6%	11%	24%	0%	3%	11%	1%	100%
3	22%	4%	0%	8%	4%	10%	21%	1%	3%	17%	9%	100%
4	1%	36%	7%	0%	5%	8%	11%	0%	2%	13%	17%	100%
5	9%	10%	12%	7%	0%	11%	21%	0%	3%	16%	11%	100%
6	11%	8%	10%	8%	8%	0%	15%	1%	4%	23%	11%	100%
7	11%	11%	30%	9%	10%	4%	0%	1%	1%	10%	13%	100%
8	0%	0%	21%	6%	0%	6%	29%	0%	0%	21%	18%	100%
9	4%	6%	10%	4%	3%	5%	3%	0%	0%	26%	38%	100%
10	4%	8%	18%	8%	7%	11%	11%	1%	11%	0%	21%	100%
11	4%	2%	12%	11%	4%	7%	21%	0%	19%	20%	0%	100%

Distribution in VISSIM Matrices

	1	2	3	4	5	6	7	8	9	10	11	Total
1	0%	3%	38%	0%	5%	11%	21%	0%	7%	11%	5%	100%
2	11%	0%	12%	23%	5%	11%	24%	0%	3%	10%	1%	100%
3	20%	11%	0%	8%	4%	10%	20%	1%	3%	14%	9%	100%
4	0%	38%	7%	0%	5%	8%	10%	0%	2%	12%	17%	100%
5	12%	3%	15%	7%	0%	11%	21%	0%	3%	16%	11%	100%
6	12%	6%	14%	9%	9%	0%	16%	1%	5%	21%	7%	100%
7	11%	9%	32%	9%	10%	4%	0%	1%	1%	10%	13%	100%
8	0%	0%	21%	6%	0%	6%	29%	0%	0%	21%	18%	100%
9	3%	5%	13%	4%	3%	8%	3%	1%	0%	27%	32%	100%
10	4%	6%	18%	9%	7%	11%	11%	0%	16%	0%	19%	100%
11	4%	2%	12%	11%	4%	7%	21%	0%	19%	20%	0%	100%

Difference

	1	2	3	4	5	6	7	8	9	10	11	Total
1	0%	0%	-1%	-1%	0%	0%	-1%	0%	4%	0%	0%	0%
2	2%	0%	0%	-1%	0%	0%	-1%	0%	0%	0%	0%	0%
3	-2%	7%	0%	0%	0%	0%	-1%	0%	0%	-2%	0%	0%
4	-1%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
5	3%	-7%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6	1%	-2%	4%	1%	1%	0%	1%	0%	1%	-2%	-4%	0%
7	0%	-2%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	-1%	-1%	3%	-1%	0%	3%	0%	1%	0%	1%	-5%	0%
10	0%	-1%	-1%	1%	0%	0%	0%	-1%	5%	0%	-2%	0%
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

HEAVIES

Distribution using raw ANPR

	1	2	3	4	5	6	7	8	9	10	11	Total
1	0%	7%	30%	0%	0%	19%	11%	4%	7%	0%	22%	100%
2	33%	0%	0%	33%	0%	11%	0%	0%	0%	0%	22%	100%
3	46%	0%	0%	0%	4%	19%	8%	0%	12%	8%	4%	100%
4	2%	23%	6%	0%	2%	36%	6%	0%	0%	4%	23%	100%
5	17%	0%	25%	25%	8%	17%	0%	0%	0%	0%	8%	100%
6	28%	13%	15%	15%	5%	0%	3%	0%	8%	5%	8%	100%
7	18%	18%	0%	9%	0%	36%	0%	0%	0%	0%	18%	100%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
9	13%	13%	38%	0%	0%	0%	0%	0%	0%	13%	25%	100%
10	13%	0%	25%	25%	0%	0%	13%	0%	13%	0%	13%	100%
11	26%	11%	7%	15%	0%	11%	4%	0%	19%	7%	0%	100%

Distribution in VISSIM Matrices

	1	2	3	4	5	6	7	8	9	10	11	Total
1	0%	7%	30%	0%	0%	19%	11%	4%	7%	0%	22%	100%
2	33%	0%	0%	33%	0%	11%	0%	0%	0%	0%	22%	100%
3	46%	0%	0%	0%	4%	19%	8%	0%	12%	8%	4%	100%
4	0%	16%	10%	0%	2%	38%	6%	0%	0%	4%	25%	100%
5	17%	0%	25%	25%	8%	17%	0%	0%	0%	0%	8%	100%
6	23%	14%	17%	17%	3%	0%	3%	0%	9%	6%	9%	100%
7	18%	18%	0%	9%	0%	36%	0%	0%	0%	0%	18%	100%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
9	13%	13%	33%	0%	0%	0%	0%	0%	0%	13%	27%	100%
10	13%	0%	25%	25%	0%	0%	13%	0%	13%	0%	13%	100%
11	26%	11%	7%	15%	0%	11%	4%	0%	19%	7%	0%	100%

Difference

	1	2	3	4	5	6	7	8	9	10	11	Total
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4	-2%	-7%	4%	0%	0%	2%	0%	0%	0%	0%	2%	0%
5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6	-5%	1%	2%	2%	-2%	0%	0%	0%	1%	1%	1%	0%
7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	1%	1%	-4%	0%	0%	0%	0%	0%	0%	1%	2%	0%
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Appendix B Turn Count Calibration Results

Local Model Validation Report

Huscote Farm VISSIM

David Tucker Associates

SLR Project No.: 431.000006.00000

16 October 2023

AM Turn Counts

				07:30-08:30 Total Lights					07:30-08:30 Total Heavies				
Junction Number	**Junction Name**	**From**	**To**	**Observed**	**Modelled**	**Difference**	**%**	**GEH**	**Observed**	**Modelled**	**Difference**	**%**	**GEH**
1	M40 J11	M40 North	A361	27	32	5	19%	0.9	6	7	1	17%	0.4
			A422 East	268	244	-24	-9%	1.5	38	29	-9	-24%	1.6
			M40 South	2083	2104	21	1%	0.5	280	285	5	2%	0.3
			A422 West	407	409	2	0%	0.1	35	44	9	26%	1.4
			M40 North	0	0	0	0%	0.0	0	0	0	0%	0.0
		A361	A422 East	47	45	-2	-4%	0.3	1	1	0	0%	0.0
			M40 South	154	181	27	18%	2.1	14	15	1	7%	0.3
			A422 West	351	362	11	3%	0.6	9	10	1	11%	0.3
			M40 North	20	18	-2	-10%	0.5	2	3	1	50%	0.6
			A361	0	0	0	0%	0.0	0	0	0	0%	0.0
		A422 East	M40 South	62	72	10	16%	1.2	1	3	2	200%	1.4
			A422 West	813	813	0	0%	0.0	40	34	-6	-15%	1.0
			M40 North	205	201	-4	-2%	0.3	8	6	-2	-25%	0.8
			A361	74	52	-22	-30%	2.8	5	3	-2	-40%	1.0
			A422 East	0	0	0	0%	0.0	0	0	0	0%	0.0
		M40 South	A422 West	460	444	-16	-3%	0.8	50	48	-2	-4%	0.3
			M40 North	1585	1580	-5	0%	0.1	238	242	4	2%	0.2
			A361	62	64	2	3%	0.3	12	11	-1	-8%	0.3
			A422 East	53	56	3	6%	0.4	1	4	3	300%	1.9
			M40 South	0	0	0	0%	0.0	1	1	0	0%	0.0
		A422 West	M40 North	230	247	17	7%	1.1	38	40	2	5%	0.3
			A361	80	101	21	26%	2.2	33	32	-1	-3%	0.2
			A422 East	590	608	18	3%	0.7	13	14	1	8%	0.3
			M40 South	480	491	11	2%	0.5	50	55	5	10%	0.7
			A422 West	0	0	0	0%	0.0	0	0	0	0%	0.0
2	A422 / Wildmere Rd / Ermont Way Roundabout	Wildmere Rd	A422 East	74	80	6	8%	0.7	14	14	0	0%	0.0
			Ermont Way	56	53	-3	-5%	0.4	2	3	1	50%	0.6
			A422 West	79	74	-5	-6%	0.6	8	6	-2	-25%	0.8
			Wildmere Rd	0	0	0	0%	0.0	0	0	0	0%	0.0
		A422 East	Ermont Way	488	455	-33	-7%	1.5	38	40	2	5%	0.3
			A422 West	1267	1259	-8	-1%	0.2	81	79	-2	-2%	0.2
			Wildmere Rd	267	304	37	14%	2.2	18	18	0	0%	0.0
			A422 East	0	0	0	0%	0.0	0	0	0	0%	0.0
		Ermont Way	A422 West	218	242	24	11%	1.6	9	13	4	44%	1.2
			Wildmere Rd	69	69	0	0%	0.0	3	3	0	0%	0.0
			A422 East	280	303	23	8%	1.3	54	63	9	17%	1.2
			Ermont Way	5	2	-3	-60%	1.6	2	0	-2	-100%	2.0
		A422 West	Wildmere Rd	299	298	-1	0%	0.1	9	9	0	0%	0.0
			A422 East	1029	1062	33	3%	1.0	67	66	-1	-1%	0.1
			Ermont Way	373	359	-14	-4%	0.7	11	10	-1	-9%	0.3
			A422 West	0	0	0	0%	0.0	0	0	0	0%	0.0
3	Concord Roundabout	Grimsbury Green	A422 East	11	10	-1	-9%	0.3	13	10	-3	-23%	0.9
			A4260 Concord Ave	10	7	-3	-30%	1.0	2	2	0	0%	0.0
			A422 West	9	11	2	22%	0.6	1	1	0	0%	0.0
			Grimsbury Green	0	0	0	0%	0.0	0	0	0	0%	0.0
		A422 East	A4260 Concord Ave	602	623	21	3%	0.8	27	26	-1	-4%	0.2
			A422 West	928	922	-6	-1%	0.2	62	66	4	6%	0.5
			Grimsbury Green	31	24	-7	-23%	1.3	9	7	-2	-22%	0.7
			A422 East	1	0	-1	-100%	1.4	0	0	0	0%	0.0
		A4260 Concord Ave	A422 West	139	136	-3	-2%	0.3	5	4	-1	-20%	0.5
			Grimsbury Green	8	10	2	25%	0.7	1	1	0	0%	0.0
			A422 East	603	601	-2	0%	0.1	12	12	0	0%	0.0
			A4260 Concord Ave	0	1	1	0%	1.4	0	0	0	0%	0.0
		A422 West	Grimsbury Green	9	17	8	89%	2.2	10	11	1	10%	0.3
			A422 East	1137	1124	-13	-1%	0.4	73	65	-8	-11%	1.0
			A4260 Concord Ave	214	201	-13	-6%	0.9	2	2	0	0%	0.0
			A422 West	0	0	0	0%	0.0	0	0	0	0%	0.0
4	A422 / Southam Rd Roundabout	Southam Rd North	A422 East	553	550	-3	-1%	0.1	31	30	-1	-3%	0.2
			Southam Rd South	208	186	-22	-11%	1.6	10	8	-2	-20%	0.7
			A422 West	169	164	-5	-3%	0.4	5	7	2	40%	0.8
			Southam Rd North	0	0	0	0%	0.0	0	0	0	0%	0.0
		A422 East	Southam Rd South	199	179	-20	-10%	1.5	15	15	0	0%	0.0
			A422 West	498	499	1	0%	0.0	25	20	-5	-20%	1.1
			Southam Rd North	388	387	-1	0%	0.1	35	36	1	3%	0.2
			A422 East	0	0	0	0%	0.0	0	0	0	0%	0.0
		Southam Rd South	A422 West	102	92	-10	-10%	1.0	2	2	0	0%	0.0
			Southam Rd North	176	151	-25	-14%	2.0	8	2	-6	-75%	2.7
			A422 East	122	123	1	1%	0.1	27	28	1	4%	0.2
			Southam Rd South	0	1	1	0%	1.4	0	0	0	0%	0.0
		A422 West	Southam Rd North	107	107	0	0%	0.0	3	3	0	0%	0.0
			A422 East	682	671	-11	-2%	0.4	20	21	1	5%	0.2
			Southam Rd South	108	97	-11	-10%	1.1	1	1	0	0%	0.0
			A422 West	15	9	-6	-40%	1.7	1	0	-1	-100%	1.4
5	Southam Rd / Beaumont Rd	Southam Rd North	Southam Rd South	885	864	-21	-2%	0.7	48	38	-10	-21%	1.5
			Beaumont Rd	72	72	0	0%	0.0	1	1	0	0%	0.0
		Southam Rd South	Beaumont Rd	156	162	6	4%	0.5	15	13	-2	-13%	0.5
			Southam Rd North	479	479	0	0%	0.0	27	28	1	4%	0.2
		Beaumont Rd	Southam Rd North	74	75	1	1%	0.1	1	1	0	0%	0.0
			Southam Rd South	41	33	-8	-20%	1.3	11	6	-5	-45%	1.7
6	Wildmere Rd Junction	Wildmere Rd North	Brookhill Way	9	9	0	0%	0.0	1	1	0	0%	0.0
			Wildmere Rd South	96	114	18	19%	1.8	17	11	-6	-35%	1.6
			Wildmere Rd West	0	0	0	0%	0.0	0	0	0	0%	0.0
		Brookhill Way	Wildmere Rd South	15	11	-4	-27%	1.1	3	2	-1	-33%	0.6
			Wildmere Rd West	0	0	0	0%	0.0	0	0	0	0%	0.0
			Wildmere Rd North	2	2	0	0%	0.0	0	0	0	0%	0.0
		Wildmere Rd South	Wildmere Rd West	284	281	-3	-1%	0.2	17	8	-9	-53%	2.5
			Wildmere Rd North	243	256	13	5%	0.8	18	19	1	6%	0.2
			Brookhill Way	138	134	-4	-3%	0.3	3	0	-3	-100%	2.4
		Wildmere Rd West	Wildmere Rd North	4	4	0	0%	0.0	0	0	0	0%	0.0
			Brookhill Way	0	0	0	0%	0.0	0	0	0	0%	0.0
			Wildmere Rd South	88	85	-3	-3%	0.3	12	11	-1	-8%	0.3
7	A422 / B4525 / Mansion Hill Roundabout	B4525 Banbury Lane	Mansion Hill	10	10	0	0%	0.0	1	1	0	0%	0.0
			A422 East	43	42	-1	-2%	0.2	0	0	0	0%	0.0
			Unnamed Rd South	43	43	0	0%	0.0	2	2	0	0%	0.0
			A422 West	457	448	-9	-2%	0.4	26	31	5	19%	0.9
			B4525 Banbury Lane	0	0	0	0%	0.0	2	2	0	0%	0.0
		Mansion Hill	A422 East	1	1	0	0%	0.0	0	0	0	0%	0.0
			Unnamed Rd South	15	15	0	0%	0.0	0	0	0	0%	0.0
			A422 West	220	214	-6	-3%	0.4	2	0	-2	-100%	2.0
			B4525 Banbury Lane	5	5	0	0%	0.0	0	0	0	0%	0.0
			Mansion Hill	0	0	0	0%	0.0	0	0	0	0%	0.0
		A422 East	Unnamed Rd South	30	29	-1	-3%	0.2	1	1	0	0%	0.0
			A422 West	453	457	4	1%	0.2	20	17	-3	-15%	0.7
			B4525 Banbury Lane	21	21	0	0%	0.0	1	1	0	0%	0.0
			Mansion Hill	0	0	0	0%	0.0	0	0	0	0%	0.0
			A422 East	0	0	0	0%	0.0	0	0	0	0%	0.0
		Unnamed Rd South	A422 West	29	34	5	17%	0.9	1	0	-1	-100%	1.4
			B4525 Banbury Lane	66	65	-1	-2%	0.1	0	0	0	0%	0.0
			Mansion Hill	6	6	0	0%	0.0	0	0	0	0%	0.0
			A422 East	26	26	0	0%	0.0	1	1	0	0%	0.0
			Unnamed Rd South	0	0	0	0%	0.0	0	0	0	0%	0.0
		A422 West	B4525 Banbury Lane	402	427	25	6%	1.2	34	36	2	6%	0.3
			Mansion Hill	84	89	5	6%	0.5	5	3	-2	-40%	1.0
			A422 East	369	371	2	1%	0.1	10	6	-4	-40%	1.4
			Unnamed Rd South	58	63	5	9%	0.6	4	3	-1	-25%	0.5
			A422 West	0	0	0	0%	0.0	0	0	0	0%	0.0

PM Turn Counts

				16:30-17:30 Total Lights					16:30-17:30 Total Heavies				
Junction Number	**Junction Name**	**From**	**To**	**Observed**	**Modelled**	**Difference**	**%**	**GEH**	**Observed**	**Modelled**	**Difference**	**%**	**GEH**
1	M40 J11	M40 North	A361	14	16	2	14%	0.5	2	2	0	0%	0.0
			A422 East	184	190	6	3%	0.4	11	6	-5	-45%	1.7
			M40 South	1992	1997	5	0%	0.1	186	187	1	1%	0.1
			A422 West	316	308	-8	-3%	0.5	17	18	1	6%	0.2
			M40 North	0	0	0	0%	0.0	0	0	0	0%	0.0
		A361	A422 East	39	39	0	0%	0.0	0	0	0	0%	0.0
			M40 South	57	74	17	30%	2.1	4	3	-1	-25%	0.5
			A422 West	197	178	-19	-10%	1.4	4	3	-1	-25%	0.5
			M40 North	40	35	-5	-13%	0.8	2	3	1	50%	0.6
			A361	0	1	1	0%	1.4	0	0	0	0%	0.0
		A422 East	M40 South	72	80	8	11%	0.9	0	0	0	0%	0.0
			A422 West	577	594	17	3%	0.7	8	14	6	75%	1.8
			M40 North	179	191	12	7%	0.9	18	11	-7	-39%	1.8
			A361	136	100	-36	-26%	3.3	1	0	-1	-100%	1.4
			A422 East	0	0	0	0%	0.0	0	0	0	0%	0.0
		M40 South	A422 West	548	544	-4	-1%	0.2	44	38	-6	-14%	0.9
			M40 North	2205	2204	-1	0%	0.0	251	252	1	0%	0.0
			A361	389	377	-12	-3%	0.6	11	10	-1	-9%	0.3
			A422 East	51	67	16	31%	2.1	5	2	-3	-60%	1.6
			M40 South	0	2	2	0%	2.0	0	0	0	0%	0.0
		A422 West	M40 North	351	357	6	2%	0.3	23	25	2	9%	0.4
			A361	236	243	7	3%	0.5	12	11	-1	-8%	0.3
			A422 East	871	841	-30	-3%	1.0	16	9	-7	-44%	2.0
			M40 South	446	416	-30	-7%	1.4	22	22	0	0%	0.0
			A422 West	0	0	0	0%	0.0	0	0	0	0%	0.0
2	A422 / Wildmere Rd / Ermont Way Roundabout	Wildmere Rd	A422 East	335	343	8	2%	0.4	16	18	2	13%	0.5
			Ermont Way	115	117	2	2%	0.2	5	4	-1	-20%	0.5
			A422 West	475	496	21	4%	1.0	4	1	-3	-75%	1.9
			Wildmere Rd	1	0	-1	-100%	1.4	1	0	-1	-100%	1.4
		A422 East	Ermont Way	270	258	-12	-4%	0.7	27	30	3	11%	0.6
			A422 West	1218	1202	-16	-1%	0.5	37	39	2	5%	0.3
			Wildmere Rd	167	159	-8	-5%	0.6	7	4	-3	-43%	1.3
			A422 East	0	0	0	0%	0.0	0	0	0	0%	0.0
		Ermont Way	A422 West	354	349	-5	-1%	0.3	6	10	4	67%	1.4
			Wildmere Rd	64	73	9	14%	1.1	2	2	0	0%	0.0
			A422 East	299	285	-14	-5%	0.8	23	23	0	0%	0.0
			Ermont Way	1	3	2	200%	1.4	0	0	0	0%	0.0
		A422 West	Wildmere Rd	226	240	14	6%	0.9	2	2	0	0%	0.0
			A422 East	1258	1234	-24	-2%	0.7	38	26	-12	-32%	2.1
			Ermont Way	254	231	-23	-9%	1.5	8	8	0	0%	0.0
			A422 West	0	0	0	0%	0.0	0	0	0	0%	0.0
3	Concord Roundabout	Grimsbury Green	A422 East	9	9	0	0%	0.0	2	0	-2	-100%	2.0
			A4260 Concord Ave	5	10	5	100%	1.8	0	0	0	0%	0.0
			A422 West	18	13	-5	-28%	1.3	1	1	0	0%	0.0
			Grimsbury Green	0	0	0	0%	0.0	0	0	0	0%	0.0
		A422 East	A4260 Concord Ave	778	782	4	1%	0.1	6	9	3	50%	1.1
			A422 West	1236	1255	19	2%	0.5	41	39	-2	-5%	0.3
			Grimsbury Green	21	12	-9	-43%	2.2	1	1	0	0%	0.0
			A422 East	0	0	0	0%	0.0	0	0	0	0%	0.0
		A4260 Concord Ave	A422 West	200	205	5	3%	0.4	2	2	0	0%	0.0
			Grimsbury Green	3	5	2	67%	1.0	0	0	0	0%	0.0
			A422 East	649	657	8	1%	0.3	10	9	-1	-10%	0.3
			A4260 Concord Ave	0	0	0	0%	0.0	0	0	0	0%	0.0
		A422 West	Grimsbury Green	9	15	6	67%	1.7	0	0	0	0%	0.0
			A422 East	1045	1034	-11	-1%	0.3	34	25	-9	-26%	1.7
			A4260 Concord Ave	293	280	-13	-4%	0.8	2	2	0	0%	0.0
			A422 West	0	0	0	0%	0.0	0	0	0	0%	0.0
4	A422 / Southam Rd Roundabout	Southam Rd North	A422 East	514	515	1	0%	0.0	23	19	-4	-17%	0.9
			Southam Rd South	170	161	-9	-5%	0.7	4	5	1	25%	0.5
			A422 West	168	164	-4	-2%	0.3	1	2	1	100%	0.8
			Southam Rd North	1	0	-1	-100%	1.4	0	0	0	0%	0.0
		A422 East	Southam Rd South	163	178	15	9%	1.1	8	8	0	0%	0.0
			A422 West	715	741	26	4%	1.0	7	9	2	29%	0.7
			Southam Rd North	568	555	-13	-2%	0.5	26	27	1	4%	0.2
			A422 East	1	0	-1	-100%	1.4	0	0	0	0%	0.0
		Southam Rd South	A422 West	169	147	-22	-13%	1.8	1	1	0	0%	0.0
			Southam Rd North	178	176	-2	-1%	0.2	2	2	0	0%	0.0
			A422 East	252	223	-29	-12%	1.9	5	4	-1	-20%	0.5
			Southam Rd South	0	3	3	0%	2.4	0	0	0	0%	0.0
		A422 West	Southam Rd North	184	167	-17	-9%	1.3	1	1	0	0%	0.0
			A422 East	580	592	12	2%	0.5	6	4	-2	-33%	0.9
			Southam Rd South	137	143	6	4%	0.5	1	1	0	0%	0.0
			A422 West	7	3	-4	-57%	1.8	0	0	0	0%	0.0
5	Southam Rd / Beaumont Rd	Southam Rd North	Southam Rd South	655	647	-8	-1%	0.3	11	19	8	73%	2.1
			Beaumont Rd	32	32	0	0%	0.0	0	0	0	0%	0.0
		Southam Rd South	Beaumont Rd	39	38	-1	-3%	0.2	3	7	4	133%	1.8
			Southam Rd North	847	860	13	2%	0.4	24	26	2	8%	0.4
		Beaumont Rd	Southam Rd North	166	166	0	0%	0.0	0	0	0	0%	0.0
			Southam Rd South	205	194	-11	-5%	0.8	5	6	1	20%	0.4
6	Wildmere Rd Junction	Wildmere Rd North	Brookhill Way	3	3	0	0%	0.0	0	0	0	0%	0.0
			Wildmere Rd South	563	526	-37	-7%	1.6	6	8	2	33%	0.8
			Wildmere Rd West	0	0	0	0%	0.0	0	0	0	0%	0.0
		Brookhill Way	Wildmere Rd South	130	126	-4	-3%	0.4	5	5	0	0%	0.0
			Wildmere Rd West	0	0	0	0%	0.0	0	0	0	0%	0.0
			Wildmere Rd North	5	5	0	0%	0.0	0	0	0	0%	0.0
		Wildmere Rd South	Wildmere Rd West	72	76	4	6%	0.5	8	5	-3	-38%	1.2
			Wildmere Rd North	328	379	51	16%	2.7	10	3	-7	-70%	2.7
			Brookhill Way	20	15	-5	-25%	1.2	2	1	-1	-50%	0.8
		Wildmere Rd West	Wildmere Rd North	6	6	0	0%	0.0	0	0	0	0%	0.0
			Brookhill Way	0	0	0	0%	0.0	0	0	0	0%	0.0
			Wildmere Rd South	323	305	-18	-6%	1.0	9	8	-1	-11%	0.3
7	A422 / B4525 / Mansion Hill Roundabout	B4525 Banbury Lane	Mansion Hill	11	11	0	0%	0.0	0	0	0	0%	0.0
			A422 East	20	19	-1	-5%	0.2	0	0	0	0%	0.0
			Unnamed Rd South	33	33	0	0%	0.0	0	0	0	0%	0.0
			A422 West	393	419	26	7%	1.3	4	1	-3	-75%	1.9
			B4525 Banbury Lane	0	0	0	0%	0.0	0	0	0	0%	0.0
		Mansion Hill	A422 East	4	5	1	25%	0.5	0	0	0	0%	0.0
			Unnamed Rd South	9	9	0	0%	0.0	0	0	0	0%	0.0
			A422 West	136	152	16	12%	1.3	1	0	-1	-100%	1.4
			B4525 Banbury Lane	1	1	0	0%	0.0	0	0	0	0%	0.0
			Mansion Hill	0	0	0	0%	0.0	0	0	0	0%	0.0
		A422 East	Unnamed Rd South	14	14	0	0%	0.0	0	0	0	0%	0.0
			A422 West	335	361	26	8%	1.4	20	22	2	10%	0.4
			B4525 Banbury Lane	10	10	0	0%	0.0	0	0	0	0%	0.0
			Mansion Hill	2	2	0	0%	0.0	0	0	0	0%	0.0
			A422 East	0	0	0	0%	0.0	0	0	0	0%	0.0
		Unnamed Rd South	A422 West	41	46	5	12%	0.8	1	0	-1	-100%	1.4
			B4525 Banbury Lane	112	111	-1	-1%	0.1	0	0	0	0%	0.0
			Mansion Hill	41	42	1	2%	0.2	0	0	0	0%	0.0
			A422 East	50	49	-1	-2%	0.1	2	2	0	0%	0.0
			Unnamed Rd South	0	0	0	0%	0.0	0	0	0	0%	0.0
		A422 West	B4525 Banbury Lane	358	371	13	4%	0.7	14	10	-4	-29%	1.2
			Mansion Hill	195	210	15	8%	1.1	0	0	0	0%	0.0
			A422 East	490	500	10	2%	0.4	14	7	-7	-50%	2.2
			Unnamed Rd South	52	51	-1	-2%	0.1	1	0	-1	-100%	1.4
			A422 West	0	0	0	0%	0.0	0	0	0	0%	0.0

Appendix C Journey Time Validation Results

Local Model Validation Report

Huscote Farm VISSIM

David Tucker Associates

SLR Project No.: 431.000006.00000

16 October 2023


1 NB
1 SB
28-2 EB
28-1 EB
28-3 SB
28-4 SB
28-10 NB
28-5 SB
28-9 NB
28-6 SB
28-8 WB
28-7 WB
12 NB
12 SB
32-1-EB
32-8-EB
32-2-EB
32-3-SB
32-7-NB
32-6-WB
32-4-SB
32-5-WB
24 NB
24 SB
25 NB
25 SB
13 EB
13 WB
14 NB
14 SB
20
NB/SB
18 NB
18 SB
4 NB
4 SB
19 EB
19 WB
6 EB
6 WB
17
NB/SB
21 EB
21 WB
9 EB
9 WB
7 EB
7 WB
8 EB
8 WB
10 EB
10 WB
26 EB
26 WB
15 NB
15 SB
22
NB/SB
5 NB
5 SB
23 NB
23 SB
27 NB
27 SB
11 EB
11 WB
2 NB
2 SB
16 NB
16 SB
29-1-EB
29-2-EB
29-10 NB
29-3 SB
29-9 NB
29-4 SB
29-5 SB
29-8 WB
29-7 WB
29-6 WB
31-1-EB
31-2-EB
31-8-NB
31-3-SB
31-7-NB
31-4-SB
31-6-WB
31-5-WB
30-2-EB
30-8-EB
30-1-EB
30-9-EB
30-7-NB
30-3-SB
30-4-SB
30-6-WB
30-5-WB
30-10-SB
3 NB
3 SB

AM Journey Time (Seconds)

No.	Description	Journey Time					
		Peak Hour 07:30-08:30					
		Observed	Modelled	Difference	% Difference	Pass?	Pass 15%?
1	1 NB	73	81	8	11%	Pass	Pass
2	1 SB	79	88	10	12%	Pass	Pass
3	2 NB	38	42	4	11%	Pass	Pass
4	2 SB	36	40	4	11%	Pass	Pass
5	3 NB	73	83	10	14%	Pass	Pass
6	3 SB	74	83	8	11%	Pass	Pass
7	4 NB	28	26	-3	-9%	Pass	Pass
8	4 SB	45	40	-5	-11%	Pass	Pass
9	5 NB	43	48	4	10%	Pass	Pass
10	5 SB	26	24	-2	-7%	Pass	Pass
11	6 EB	21	20	-1	-6%	Pass	Pass
12	6 WB	15	15	0	1%	Pass	Pass
13	7 EB	85	73	-12	-14%	Pass	Pass
14	7 WB	34	39	5	14%	Pass	Pass
15	8 EB	151	137	-14	-9%	Pass	Pass
16	8 WB	45	50	4	10%	Pass	Pass
17	9 EB	29	32	3	11%	Pass	Pass
18	9 WB	27	25	-2	-6%	Pass	Pass
19	10 EB	72	69	-3	-4%	Pass	Pass
20	10 WB	93	80	-13	-14%	Pass	Pass
21	11 EB	84	95	12	14%	Pass	Pass
22	11 WB	90	95	5	6%	Pass	Pass
23	12 NB	44	40	-3	-8%	Pass	Pass
24	12 SB	63	48	-14	-23%	Pass	Fail
25	13 EB	58	50	-8	-13%	Pass	Pass
26	13 WB	51	57	6	12%	Pass	Pass
27	14 NB	30	28	-2	-8%	Pass	Pass
28	14 SB	41	40	-1	-2%	Pass	Pass
29	15 NB	29	32	3	10%	Pass	Pass
30	15 SB	25	28	2	9%	Pass	Pass
31	16 NB	42	40	-2	-5%	Pass	Pass
32	16 SB	34	34	0	0%	Pass	Pass
33	17 NB	13	8	-5	-41%	Pass	Fail
34	17 SB	23	28	5	20%	Pass	Fail
35	18 NB	26	24	-3	-10%	Pass	Pass
36	18 SB	28	23	-6	-20%	Pass	Fail
37	19 EB	20	18	-1	-6%	Pass	Pass
38	19 WB	23	28	5	20%	Pass	Fail
39	20 NB	6	6	0	3%	Pass	Pass
40	20 SB	9	12	3	39%	Pass	Fail
41	21 EB	47	50	3	7%	Pass	Pass
42	21 WB	41	45	4	10%	Pass	Pass
43	22 NB	8	8	0	-2%	Pass	Pass
44	22 SB	13	14	1	5%	Pass	Pass
45	23 NB	76	64	-12	-16%	Pass	Fail
46	23 SB	38	30	-7	-19%	Pass	Fail
47	24 NB	68	68	0	0%	Pass	Pass
48	24 SB	127	125	-2	-1%	Pass	Pass
49	25 NB	62	56	-5	-8%	Pass	Pass
50	25 SB	64	69	5	8%	Pass	Pass
51	26 EB	62	64	1	2%	Pass	Pass
52	26 WB	65	74	9	14%	Pass	Pass
53	27 NB	33	28	-5	-14%	Pass	Pass
54	27 SB	27	24	-3	-10%	Pass	Pass
55	28-1 EB	17	20	3	16%	Pass	Fail
56	28-2 EB	2	1	0	-11%	Pass	Pass
57	28-3 SB	6	5	-1	-16%	Pass	Fail
58	28-4 SB	3	2	0	-8%	Pass	Pass
59	28-5 SB	8	15	7	86%	Pass	Fail
60	28-6 SB	2	2	0	8%	Pass	Pass
61	28-7 WB	18	19	1	5%	Pass	Pass
62	28-8 WB	4	4	0	-2%	Pass	Pass
63	28-9 NB	7	15	8	115%	Pass	Fail
64	28-10 NB	2	3	1	64%	Pass	Fail
65	29-1 EB	4	3	-1	-15%	Pass	Pass
66	29-2 EB	1	1	0	10%	Pass	Pass
67	29-3 SB	3	3	1	23%	Pass	Fail
68	29-4 SB	1	1	0	34%	Pass	Fail
69	29-5 SB	3	4	0	9%	Pass	Pass
70	29-6 WB	0	1	0	4%	Pass	Pass
71	29-7 WB	3	4	0	15%	Pass	Fail
72	29-8 WB	1	1	0	14%	Pass	Pass
73	29-9 NB	4	5	1	27%	Pass	Fail
74	29-10 NB	1	2	1	47%	Pass	Fail
75	30-1 EB	3	3	0	10%	Pass	Pass
76	30-2 EB	1	1	0	55%	Pass	Fail
77	30-3 SB	3	4	1	20%	Pass	Fail
78	30-4 SB	2	2	0	-11%	Pass	Pass
79	30-5 WB	2	2	0	5%	Pass	Pass
80	30-6 WB	2	2	0	7%	Pass	Pass
81	30-7 NB	3	3	0	-3%	Pass	Pass
82	30-8 EB	2	2	0	-6%	Pass	Pass
83	30-9 EB	11	8	-3	-25%	Pass	Fail
84	30-10 SB	13	14	1	5%	Pass	Pass
85	31-1 EB	3	2	-1	-20%	Pass	Fail
86	31-2 EB	2	1	-1	-62%	Pass	Fail
87	31-3 SB	2	3	1	28%	Pass	Fail
88	31-4 SB	1	2	1	50%	Pass	Fail
89	31-5 WB	2	3	1	24%	Pass	Fail
90	31-6 WB	1	1	0	-7%	Pass	Pass
91	31-7 NB	4	3	0	-7%	Pass	Pass
92	31-8 NB	2	2	0	0%	Pass	Pass
93	32-1 EB	2	2	0	4%	Pass	Pass
94	32-2 EB	2	2	0	-13%	Pass	Pass
95	32-3 SB	3	3	0	0%	Pass	Pass
96	32-4 SB	1	1	-1	-36%	Pass	Fail
97	32-5 WB	2	2	0	6%	Pass	Pass
98	32-6 WB	2	2	-1	-31%	Pass	Fail
99	32-7 NB	3	3	0	0%	Pass	Pass
100	32-8 EB	2	2	0	-14%	Pass	Pass

PM Journey Time (Seconds)

No.	Description	Journey Time					
		Peak Hour 16:30-17:30					
		Observed	Modelled	Difference	% Difference	Pass?	Pass 15%?
1	1 NB	74	83	9	12%	Pass	Pass
2	1 SB	75	86	11	14%	Pass	Pass
3	2 NB	38	42	4	11%	Pass	Pass
4	2 SB	35	39	4	11%	Pass	Pass
5	3 NB	75	86	11	14%	Pass	Pass
6	3 SB	73	81	8	11%	Pass	Pass
7	4 NB	28	26	-2	-8%	Pass	Pass
8	4 SB	45	42	-2	-5%	Pass	Pass
9	5 NB	39	43	4	10%	Pass	Pass
10	5 SB	25	23	-1	-6%	Pass	Pass
11	6 EB	29	28	0	-1%	Pass	Pass
12	6 WB	42	46	5	11%	Pass	Pass
13	7 EB	34	46	12	34%	Pass	Fail
14	7 WB	64	43	-21	-32%	Pass	Fail
15	8 EB	63	53	-10	-16%	Pass	Fail
16	8 WB	50	58	7	15%	Pass	Pass
17	9 EB	28	39	11	38%	Pass	Fail
18	9 WB	29	26	-3	-9%	Pass	Pass
19	10 EB	70	69	-1	-1%	Pass	Pass
20	10 WB	85	74	-10	-12%	Pass	Pass
21	11 EB	83	97	14	17%	Pass	Fail
22	11 WB	85	92	7	9%	Pass	Pass
23	12 NB	48	43	-5	-11%	Pass	Pass
24	12 SB	54	53	-1	-2%	Pass	Pass
25	13 EB	59	63	3	6%	Pass	Pass
26	13 WB	55	55	0	-1%	Pass	Pass
27	14 NB	37	38	0	1%	Pass	Pass
28	14 SB	36	36	0	0%	Pass	Pass
29	15 NB	45	40	-6	-13%	Pass	Pass
30	15 SB	26	27	1	4%	Pass	Pass
31	16 NB	51	49	-1	-3%	Pass	Pass
32	16 SB	34	34	0	1%	Pass	Pass
33	17 NB	10	8	-3	-25%	Pass	Fail
34	17 SB	24	13	-11	-46%	Pass	Fail
35	18 NB	27	25	-2	-7%	Pass	Pass
36	18 SB	44	32	-12	-27%	Pass	Fail
37	19 EB	17	18	0	2%	Pass	Pass
38	19 WB	47	39	-8	-16%	Pass	Fail
39	20 NB	7	11	5	70%	Pass	Fail
40	20 SB	18	21	3	17%	Pass	Fail
41	21 EB	93	79	-14	-15%	Pass	Pass
42	21 WB	41	43	2	5%	Pass	Pass
43	22 NB	9	13	4	43%	Pass	Fail
44	22 SB	21	29	8	39%	Pass	Fail
45	23 NB	137	130	-7	-5%	Pass	Pass
46	23 SB	35	29	-5	-15%	Pass	Pass
47	24 NB	67	72	4	7%	Pass	Pass
48	24 SB	77	88	11	14%	Pass	Pass
49	25 NB	58	53	-4	-7%	Pass	Pass
50	25 SB	62	70	8	13%	Pass	Pass
51	26 EB	60	66	6	10%	Pass	Pass
52	26 WB	64	72	8	12%	Pass	Pass
53	27 NB	30	29	-1	-2%	Pass	Pass
54	27 SB	27	24	-3	-10%	Pass	Pass
55	28-1 EB	16	22	6	38%	Pass	Fail
56	28-2 EB	2	1	0	-6%	Pass	Pass
57	28-3 SB	6	5	-1	-11%	Pass	Pass
58	28-4 SB	2	2	0	-15%	Pass	Pass
59	28-5 SB	6	13	7	109%	Pass	Fail
60	28-6 SB	1	2	0	24%	Pass	Fail
61	28-7 WB	15	22	7	45%	Pass	Fail
62	28-8 WB	5	5	0	-3%	Pass	Pass
63	28-9 NB	7	18	12	175%	Pass	Fail
64	28-10 NB	2	4	2	88%	Pass	Fail
65	29-1 EB	3	3	0	-8%	Pass	Pass
66	29-2 EB	1	1	0	21%	Pass	Fail
67	29-3 SB	3	3	1	25%	Pass	Fail
68	29-4 SB	1	1	0	36%	Pass	Fail
69	29-5 SB	3	4	0	5%	Pass	Pass
70	29-6 WB	0	1	0	3%	Pass	Pass
71	29-7 WB	3	4	1	16%	Pass	Fail
72	29-8 WB	1	1	0	15%	Pass	Pass
73	29-9 NB	4	5	1	36%	Pass	Fail
74	29-10 NB	1	2	1	57%	Pass	Fail
75	30-1 EB	3	3	0	13%	Pass	Pass
76	30-2 EB	1	1	0	55%	Pass	Fail
77	30-3 SB	3	4	0	3%	Pass	Pass
78	30-4 SB	2	2	0	-9%	Pass	Pass
79	30-5 WB	2	2	0	14%	Pass	Pass
80	30-6 WB	2	2	0	1%	Pass	Pass
81	30-7 NB	3	3	0	-1%	Pass	Pass
82	30-8 EB	2	2	0	-2%	Pass	Pass
83	30-9 EB	13	9	-3	-27%	Pass	Fail
84	30-10 SB	13	12	0	-3%	Pass	Pass
85	31-1 EB	2	2	0	17%	Pass	Fail
86	31-2 EB	1	1	0	-36%	Pass	Fail
87	31-3 SB	2	3	1	32%	Pass	Fail
88	31-4 SB	1	2	0	39%	Pass	Fail
89	31-5 WB	3	3	0	11%	Pass	Pass
90	31-6 WB	1	1	0	-17%	Pass	Fail
91	31-7 NB	3	3	0	12%	Pass	Pass
92	31-8 NB	1	2	1	36%	Pass	Fail
93	32-1 EB	2	2	0	12%	Pass	Pass
94	32-2 EB	2	2	0	-3%	Pass	Pass
95	32-3 SB	3	3	0	-3%	Pass	Pass
96	32-4 SB	2	1	-1	-46%	Pass	Fail
97	32-5 WB	3	3	0	-4%	Pass	Pass
98	32-6 WB	3	2	-1	-40%	Pass	Fail
99	32-7 NB	3	3	0	0%	Pass	Pass
100	32-8 EB	2	2	0	-10%	Pass	Pass

Appendix D Queue Length Validation Results

Local Model Validation Report

Huscote Farm VISSIM

David Tucker Associates

SLR Project No.: 431.000006.00000

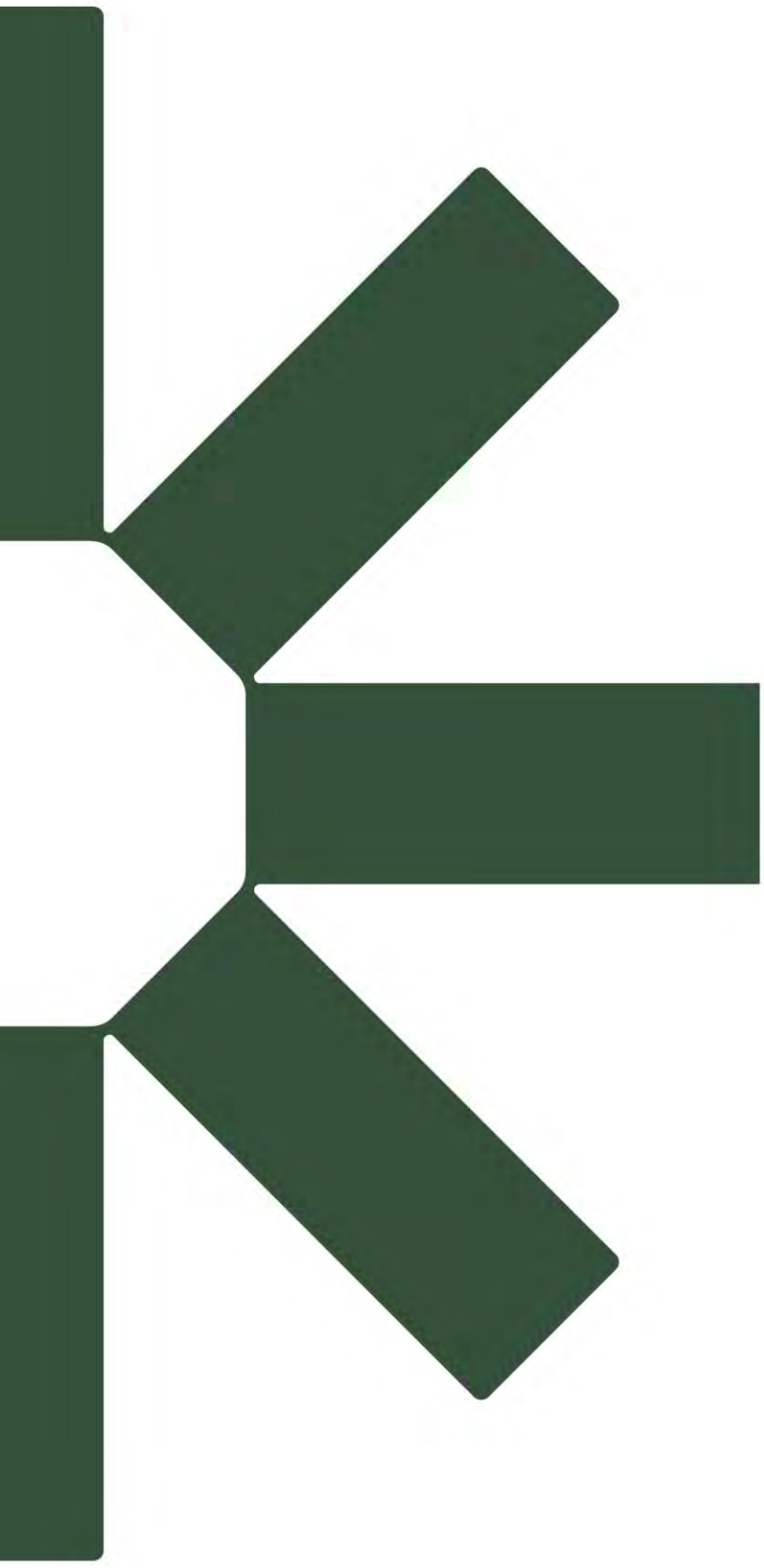
16 October 2023

AM Max Queue Lenaths (Vehicles)

Junction Number	Junction Name	No.	From	07:30 - 07:35			07:35 - 07:40			07:40 - 07:45			07:45 - 07:50			07:50 - 07:55			07:55 - 08:00			08:00-08:05			08:05-08:10			08:10-08:15			08:15-08:20			08:20-08:25			08:25-08:30			Peak Hour 07:30-08:30		
				Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Average Observed	Average Modelled	Difference
1	M40 J11	1	M40 North	8	10	2	10	11	1	10	10	1	8	10	2	11	13	2	9	9	0	5	11	6	12	10	-2	9	9	0	10	7	-2	6	8	2	7	8	1	9	10	1
		2	Internal Queue 1	8	13	6	8	13	5	11	17	5	10	16	6	14	13	0	9	13	4	6	12	6	10	16	6	10	14	4	11	16	4	11	12	1	10	13	3	10	14	4
		3	A361	22	11	-11	24	17	-7	30	16	-14	15	19	4	17	28	12	10	19	10	6	18	12	9	23	14	20	33	13	6	28	22	20	27	7	23	27	3	17	22	5
		4	A422 East	8	9	1	12	11	-1	23	14	-9	21	12	-9	23	15	-7	15	13	-2	17	13	-3	7	11	4	18	10	-8	15	13	-2	17	14	-3	9	15	7	15	13	-3
		5	Internal Queue 2	10	10	0	13	13	0	11	13	2	19	14	-5	20	13	-7	15	14	-1	19	12	-7	17	11	-5	23	11	-12	18	13	-5	20	15	-5	17	15	-3	17	13	-4
		6	M40 South	4	8	3	6	8	2	8	8	1	6	8	1	8	9	1	3	8	4	5	8	2	10	9	-1	11	7	-4	5	9	4	10	11	1	12	10	-2	7	9	1
		7	Internal Queue 3	2	10	9	8	17	9	7	15	8	7	14	7	6	17	11	6	18	12	3	17	13	5	13	8	4	13	9	5	14	9	4	19	14	6	21	15	5	16	10
		8	A422 West	10	14	5	13	15	2	24	17	-8	11	17	5	17	13	-3	7	13	6	16	12	-4	10	14	4	8	15	7	12	14	2	11	11	0	17	14	-3	13	14	1
		9	Internal Queue 4	9	5	-4	9	5	-4	13	5	-8	16	6	-10	10	6	-5	10	5	-4	10	5	-6	16	4	-11	14	4	-9	9	5	-3	8	5	-3	8	5	-3	11	5	-6
2	A422 / Wildmere Rd / Ermont Way Roundabout	1	Wildmere Rd	2	4	2	3	2	-1	2	3	1	2	3	1	3	3	0	3	2	-1	3	2	-1	4	2	-3	2	2	0	2	2	0	3	2	-1	3	2	-1	3	2	0
		2	A422 East	10	5	-6	4	7	3	7	8	1	6	9	3	23	11	-12	10	9	-1	3	12	8	5	6	1	13	7	-6	8	10	2	12	12	0	7	12	5	9	9	0
		3	Ermont Way	11	9	-3	6	8	2	5	9	4	5	10	5	19	17	-2	10	17	7	4	23	19	7	22	15	9	16	7	10	16	6	22	17	-4	10	35	25	10	17	7
		4	A422 West	17	39	22	28	68	40	62	74	12	90	82	-8	93	66	-27	93	69	-24	96	83	-13	89	95	6	94	83	-11	96	80	-16	96	63	-33	95	58	-37	79	72	-7
3	Concord Roundabout	1	Grimsbury Green	2	2	1	2	3	1	3	4	0	2	3	2	2	3	1	2	4	2	1	4	3	3	3	1	1	4	3	2	4	2	2	3	1	2	1	-1	2	3	1
		2	A422 East	3	3	0	2	6	4	3	4	1	3	5	3	3	8	5	8	6	-2	3	6	4	3	8	5	3	8	5	4	9	5	3	9	6	10	8	-2	4	7	3
		3	A4260 Concord Ave	3	4	0	7	3	-4	14	4	-10	13	6	-7	15	6	-9	6	8	2	6	6	0	7	6	-1	4	6	2	10	4	-6	16	6	-9	15	7	-8	10	6	-4
		4	A422 West	6	24	18	7	28	21	14	37	23	33	39	6	42	38	-4	43	30	-12	30	30	0	37	24	-13	32	30	-2	34	33	-1	31	22	-9	29	25	-4	28	30	2
4	A422 / Southam Rd Roundabout	1	Southam Rd North	10	12	1	4	17	12	6	25	19	5	6	1	5	5	0	20	7	-13	4	6	2	7	9	2	5	13	8	3	7	4	3	5	2	4	5	1	7	10	3
		2	A422 East	5	6	1	5	8	3	5	9	4	4	9	5	10	10	0	10	14	5	6	12	6	10	12	1	9	14	5	4	12	8	8	12	5	10	13	3	7	11	4
		3	Southern Rd South	3	2	0	3	3	0	2	2	0	8	4	-4	9	5	-4	7	5	-2	3	4	1	4	6	1	3	5	1	2	3	2	3	3	0	3	5	3	4	4	0
		4	A422 West	4	5	1	3	5	3	7	6	-1	11	5	-7	6	5	-1	3	6	3	5	7	1	3	6	4	3	6	3	3	4	1	4	4	-1	3	4	1	5	5	1
5	Southam Rd / Beaumont Rd	1	Southam Rd North	14	15	1	44	26	-19	37	19	-18	37	27	-10	19	26	7	37	24	-12	11	19	8	17	26	8	6	16	10	8	10	2	23	9	-14	14	8	-6	22	19	-4
		2	Southam Rd South	6	2	-4	6	5	-2	3	3	0	4	5	1	6	6	0	14	7	-7	15	6	-9	7	5	-2	3	5	2	3	2	-1	4	5	0	7	4	-3	7	5	-2
		3	Beaumont Rd LT	0	0	0	1	1	0	0	1	1	0	1	1	1	1	0	2	1	-1	1	1	0	2	1	-1	1	1	0	2	1	-1	2	1	0	2	1	0	1	1	0
		4	Beaumont Rd RT	3	2	0	2	3	1	3	3	-1	3	2	-1	2	4	3	3	3	0	2	2	0	3	3	0	1	2	1	2	1	-1	1	1	1	2	1	-1	2	2	0
6	Wildmere Rd Junction	1	Wildmere Rd North	2	0	-2	0	0	0	2	1	-1	0	1	1	0	0	0	0	0	0	0	0	0	1	0	-1	0	0	0	1	1	0	3	2	-1	1	2	1	1	1	0
		2	Brookhill Way	0	0	0	0	1	1	1	0	-1	1	1	0	1	1	0	1	1	0	0	0	0	1	1	0	0	1	1	3	2	-2	2	3	1	1	2	1	1	1	0
		3	Internal Queue NB	1	0	-1	2	1	0	2	0	-2	0	1	1	2	1	-1	1	2	1	0	0	0	3	1	-2	0	2	2	3	3	0	4	3	-1	0	3	3	1	1	0
		4	Internal Queue SB	3	2	-1	2	2	0	2	2	1	2	2	0	1	2	1	2	2	0	1	2	1	2	2	1	2	3	1	5	3	-2	3	3	1	1	3	2	2	2	0
		5	Wildmere Rd South	2	7	6	3	5	2	2	6	4	5	4	-1	5	5	0	5	4	-1	4	6	2	4	7	2	3	4	1	3	6	3	6	6	0	3	6	3	4	6	2
		6	Wildmere Rd West	3	5	2	3	2	-1	2	3	1	3	3	0	1	3	2	2	3	1	2	3	1	2	2	0	2	2	1	2	2	1	3	3	0	2	3	1	2	3	1
7	A422 / B4525 / Mansion Hill Roundabout	1	B4525 Banbury Lane	7	8	1	4	7	3	4	9	5	9	13	4	3	14	11	6	14	8	13	13	0	2	15	13	10	11	2	6	12	6	10	16	6	8	12	4	7	12	5
		2	Mansion Hill	1	3	2	3	4	1	3	3	0	3	4	0	2	4	3	3	4	2	3	5	2	3	4	1	3	4	1	3	4	1	4	4	0	7	3	-4	3	4	1
		3	A422 East	5	3	-3	3	2	0	4	3	-2	3	4	0	6	4	-2	1	3	2	3	2	0	4	3	-2	5	3	-2	5	4	-1	3	4	1	7	3	-4	4	3	-1
		4	Unnamed Rd South	2	1	-1	4	1	-3	1	2	1	2	2	0	2	3	1	1	2	1	3	3	-1	3	3	-1	3	2	-1	2	3	1	1	3	2	2	3	2	2	2	0
		5	A422 West	0	1	1	0	2	2	2	2	1	2	2	0	1	4	3	1	4	3	1	4	4	3	6	3	2	7	5	1	5	4	0	4	4	3	4	1	1	4	3

PM Max Queue Lengths (Vehicles)

Junction Number	Junction Name	No.	From	16:30 - 16:35			16:35 - 16:40			16:40 - 16:45			16:45 - 16:50			16:50 - 16:55			16:55 - 17:00			17:00 - 17:05			17:05 - 17:10			17:10 - 17:15			17:15 - 17:20			17:20 - 17:25			17:25 - 17:30			Peak Hour 16:30-17:30		
				Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Observed	Modelled	Difference	Average Observed	Average Modelled	Difference
1	M40 J11	1	M40 North	4	7	2	5	8	2	5	8	3	8	7	0	8	6	-2	4	6	2	5	7	2	5	6	1	7	6	-1	6	7	1	6	6	0	11	7	-5	6	7	0
		2	Internal Queue 1	5	21	16	6	23	17	10	24	15	8	25	17	8	20	13	6	23	16	4	22	18	6	24	18	8	23	16	9	28	19	4	21	17	6	22	17	7	23	16
		3	A361	4	5	0	3	3	1	5	5	0	5	5	-1	5	5	-1	4	5	1	3	4	1	4	5	1	5	7	2	5	7	2	5	7	2	10	5	-5	6	5	-1
		4	A422 East	12	7	-5	10	7	-3	13	6	-7	13	7	-6	9	8	-1	9	8	0	9	8	0	13	10	-3	11	9	-2	15	9	-6	15	9	-6	11	10	-2	12	8	-4
		5	Internal Queue 2	7	6	-1	10	7	-2	10	7	-2	7	7	0	12	8	-5	8	7	-1	7	7	0	11	8	-4	20	8	-12	17	7	-9	10	8	-3	20	6	-14	12	7	-4
		6	M40 South	8	11	3	10	12	1	10	15	5	12	15	2	10	11	1	11	14	3	10	11	2	12	14	1	10	13	3	14	13	-1	14	15	1	11	13	2	11	12	1
		7	Internal Queue 3	4	12	7	13	12	-1	6	14	8	7	12	5	3	11	8	8	12	5	4	12	7	11	14	2	10	15	5	8	15	7	11	18	7	9	15	6	8	13	5
		8	A422 West	28	16	-12	11	18	6	29	18	-10	18	17	-1	28	15	-13	15	18	3	17	18	1	14	26	12	29	28	-1	30	29	-1	30	23	-7	24	17	-7	23	20	-2
		9	Internal Queue 4	12	10	-2	7	8	1	10	8	-2	8	8	0	15	9	-5	9	11	3	13	9	-4	7	14	7	13	14	1	14	14	0	8	12	4	11	13	2	11	11	0
2	A422 / Wildmere Rd / Ermont Way Roundabout	1	Wildmere Rd	9	8	-1	12	11	-2	13	12	-1	12	11	-1	11	10	-1	10	9	-1	13	13	0	12	16	4	13	17	4	13	17	4	12	14	2	13	11	-2	12	12	0
		2	A422 East	9	5	-3	8	7	-1	8	10	2	12	11	-1	7	7	0	8	5	-2	4	6	2	10	7	-2	11	8	-4	16	10	-6	10	15	4	11	13	2	9	9	-1
		3	Ermont Way	15	25	10	19	29	20	21	37	16	15	45	30	15	40	25	14	36	22	8	42	34	25	53	28	49	71	22	52	70	18	53	56	3	55	47	-8	28	46	18
		4	A422 West	28	13	-15	14	8	-6	8	8	0	29	11	-17	14	12	-2	29	13	-16	11	16	4	12	14	1	14	11	-3	8	15	7	19	12	-7	19	17	-3	17	12	-5
3	Concord Roundabout	1	Grimsbury Green	1	2	1	1	1	0	3	2	-1	1	2	1	2	1	-1	3	1	-1	2	1	0	1	1	0	1	1	0	1	2	1	2	2	0	1	2	1	1	1	0
		2	A422 East	3	9	6	5	20	15	8	18	10	3	22	19	4	18	14	3	13	11	4	18	13	5	19	14	6	25	19	6	26	20	12	24	12	8	16	8	6	19	13
		3	A4260 Concord Ave	6	8	2	3	16	12	9	12	4	10	13	3	10	12	1	9	11	2	3	11	8	10	11	0	4	10	6	17	11	-6	32	12	-20	26	10	-16	12	11	0
		4	A422 West	8	14	6	11	19	7	11	26	15	4	23	18	10	14	4	10	11	1	11	11	0	9	9	0	8	16	8	9	13	4	13	11	-2	4	12	7	9	15	6
4	A422 / Southam Rd Roundabout	1	Southam Rd North	4	6	1	4	6	2	17	6	-10	3	8	5	5	4	-1	10	5	-5	9	6	-3	4	7	2	3	10	6	3	7	3	5	5	0	3	5	2	6	6	0
		2	A422 East	7	13	6	10	14	4	9	16	7	13	16	3	15	19	5	16	13	-3	14	14	1	16	18	3	41	16	-25	43	20	-23	45	20	-25	43	16	-27	22	16	-6
		3	Southam Rd South	6	5	-1	11	4	-7	10	5	-5	5	5	0	8	7	-1	4	8	3	6	7	1	8	7	-1	23	7	-16	12	5	-7	7	6	-1	4	5	1	9	6	-3
		4	A422 West	18	8	-11	18	6	-12	17	8	-10	19	9	-10	20	16	-4	17	8	-8	14	6	-8	9	12	3	6	13	7	14	9	-5	13	7	-6	18	11	-8	15	9	-6
5	Southam Rd / Beaumont Rd	1	Southam Rd North	16	10	-5	21	15	-6	21	13	-7	6	16	9	9	10	1	6	11	5	9	18	10	40	17	-23	39	19	-20	23	14	-9	12	12	0	7	12	5	17	14	-3
		2	Southam Rd South	14	20	6	37	20	-17	24	17	-7	10	17	6	4	25	21	15	22	7	11	16	5	14	20	6	22	21	0	17	16	-1	20	19	-1	17	17	-1	17	19	2
		3	Beaumont Rd LT	1	4	3	0	5	5	2	5	4	3	3	-1	2	2	1	3	3	0	3	4	0	3	5	2	3	10	7	2	4	3	3	3	-1	3	3	0	2	4	2
		4	Beaumont Rd RT	12	9	-3	18	12	-7	11	7	-4	4	7	3	3	7	4	8	7	0	5	8	2	15	9	-6	9	12	4	3	8	6	4	6	2	4	6	1	8	8	0
6	Wildmere Rd Junction	1	Wildmere Rd North	5	6	1	14	6	-8	10	10	0	4	7	3	3	6	2	4	7	2	34	7	-27	36	7	-28	23	8	-15	10	14	3	6	15	9	1	11	10	13	9	-4
		2	Broadhill Way	3	5	2	6	5	-1	4	4	-1	2	3	1	1	2	1	3	2	0	3	5	1	11	5	-6	10	6	-3	3	7	3	5	5	0	3	4	1	4	4	0
		3	Internal Queue NB	5	8	2	3	6	3	3	5	2	4	7	2	3	4	0	3	6	3	4	9	4	2	8	6	5	8	3	5	9	4	1	9	8	3	8	5	3	7	4
		4	Internal Queue SB	6	7	1	6	7	1	5	8	3	5	7	2	3	7	4	5	8	2	6	8	2	5	9	4	7	10	3	6	10	4	4	9	4	4	8	3	5	8	3
		5	Wildmere Rd South	3	11	7	4	9	5	5	9	4	8	10	2	3	13	9	3	10	7	4	9	4	6	7	1	8	9	1	3	9	6	1	11	10	3	9	5	4	10	5
		6	Wildmere Rd West	14	6	-8	20	7	-13	18	8	-10	3	7	5	3	6	4	43	6	-38	50	11	-39	51	21	-30	54	28	-26	10	26	15	6	8	2	4	5	1	23	12	-11
7	A422 / B4525 / Mansion Hill Roundabout	1	B4525 Banbury Lane	5	8	2	6	8	2	4	11	7	10	8	-2	9	11	2	6	7	1	6	12	6	5	11	6	10	16	6	10	12	3	3	12	9	3	10	6	6	10	4
		2	Mansion Hill	1	2	1	2	3	1	3	2	-1	3	3	0	1	2	2	3	2	-1	2	3	1	2	2	1	3	3	0	3	2	-1	2	3	1	2	3	1	2	3	0
		3	A422 East	3	2	0	2	2	0	1	2	1	3	2	0	4	2	-2	1	3	2	9	2	-6	3	3	0	2	3	1	3	3	0	4	2	-2	3	2	0	3	2	-1
		4	Unnamed Rd South	1	2	1	3	3	0	1	2	2	2	3	1	2	4	2	2	3	1	1	4	3	5	5	0	4	5	1	3	4	1	5	4	-1	3	4	1	3	4	1
		5	A422 West	1	3	2	3	4	1	0	4	4	0	7	7	1	7	6	3	3	0	1	7	6	1	5	4	3	8	5	4	7	3	3	7	5	3	4	0	2	5	4



Making Sustainability Happen

Appendix K

VISSIM Forecasting Report

Forecasting Report

Huscote Farm VISSIM

David Tucker Associates

Prepared by:

SLR Consulting Limited

7th Floor, 36 Great Charles Street, Birmingham , B3 3JY

SLR Project No.: 431.000006.00000

19 October 2023

Revision: 01

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
01	19 October 2023	AC	AH	AC
	Click to enter a date.			
	Click to enter a date.			
	Click to enter a date.			
	Click to enter a date.			

Basis of Report

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Table of Contents

Tables in Text

Figures in Text

Appendices

1.0 Introduction

1.1 SLR Consulting Ltd (SLR) has been commissioned by David Tucker Associates (DTA) to produce a series of models to assist in determining the impact of a development site (known as Huscote Farm) situated on the land to the east of Junction 11 of the M40 (Banbury Interchange).

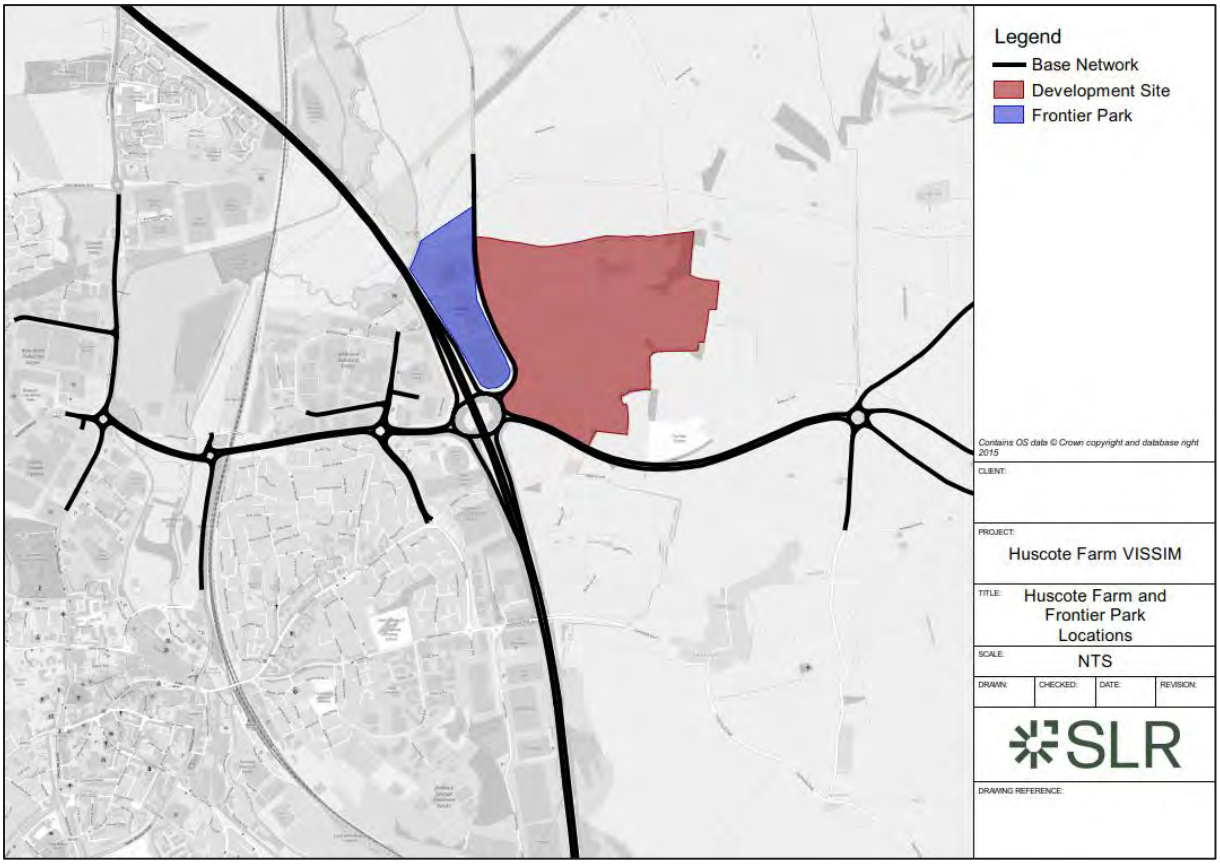
1.2 The Base VISSIM model has been developed for the year of 2023. An opening year assessment has been undertaken for the future year 2026, along with a 2032 assessment representing 10 years after the date of the registration of the application, thereby satisfying the criteria set out in DfT Circular 01/2022

1.3 This Report sets out the approach taken to forecasting of the 2023 Base VISSIM model to future year positions for the purposes of providing the Reference Case models against which development impacts can be assessed. This Report also details the creation of the development scenarios and the mitigation strategy implemented.

2.0 Frontier Park

2.1 Due to the proximity to the Huscote Farm site, Frontier Park has been included as an isolated committed development in the future year scenarios. The Figure below illustrates the Frontier Park site location alongside the Huscote Farm development site.

Figure 1: Huscote Farm and Frontier Park site locations



2.2 The Frontier Park site is located off the A361 at Junction 11, on the land between the M40 and A361. The access arrangement is a simple priority junction with a ghost island right turn lane. The site access has been coded into the model using a drawing provided by DTA taken from the Frontier Park Transport Assessment. The model includes the new bus laybys on the A361 and a reduced speed limit of 40mph past the site.

2.3 DTA has provided SLR with peak hour trip generation and distribution for the Frontier Park committed development. This gave the split of trips at M40 Junction 11, disaggregated between Lights and Heavies. To proportion trips to/from the zones off A422 East and West from/to Junction 11, SLR used trip distributions provided by DTA which as set out in the TA were based on 2011 census journey to work data and the Base Year Freight Matrices (BYFM).

2.4 The Frontier Park flows were used to create hourly Lights and Heavies matrices to input into VISSIM.

2.5 For the AM, Frontier Park trips were provided for a pre-AM peak (07:00-08:00) and AM peak hour (08:00-09:00). Since as the VISSIM AM peak hour used for the Base model is 07:30-08:30, the average of the two hourly matrices was calculated to provide a 07:30-08:30 Frontier Park matrix for VISSIM.

2.6 For the PM, Frontier Park trips were given only for the peak hour of 17:00-18:00. This hourly matrix has been input directly on to the 16:30-17:30 peak hour in VISSIM.

3.0 Growth Forecasting

3.1 In addition to the inclusion of the Frontier Park committed development, growth has also been applied using factors taken from the TEMPro database.

3.2 The 'High Growth' scenario factors have been taken from TEMPro v8.1 for both 2026 and 2032. The model spans three area levels in TEMPro and so origin/destination factors have been extracted for each so that growth factors can be calculated for trips between each zone. NTEM adjustments have been used for trips to/from the M40.

3.3 The average TEMPro factors applied to each scenario can be seen in the table below. These are an average of the individual factors applied to each movement between zones and so only provide an indication of the growth.

Table 1: Average TEMPro Factors

AM Peak		PM Peak	
2023-2026	2023-2032	2023-2026	2023-2032
1.0299	1.0917	1.0303	1.0919

3.4 In order for the Frontier Park trips to not be double counted, the total growth added to the model was capped to the TEMPro v8.1 factors.

3.5 Growth has been applied to the peak hour and additionally the warm-up and cool-down periods.

4.0 Development Trips

4.1 DTA provided SLR with development trip generation and distribution disaggregated between Car, LGV and HGV. These have been input into VISSIM as three separate vehicle classes.

4.2 Like the Frontier Park trips, development trips were provided for a pre-AM peak (07:00-08:00) and AM peak hour (08:00-09:00). These were applied to the VISSIM AM peak hour in the same way by averaging the two hourly matrices to give 07:30-08:30 development matrices. The PM development peak is 17:00-18:00 which has been applied directly on top of the VISSIM 16:30-17:30 peak hour.

4.3 The development site is served by two access points on the A361: a priority junction with a ghost island right turn lane just north of the Frontier Park access, and a three-arm roundabout to the south that connects to Junction 11.

4.4 Based on analysis provided in the Huscote Farm Transport Assessment, 65% of development trips are assumed to use the roundabout and 35% assumed to use the priority junction access.

4.5 The drawing of the development site access arrangements can be found in **Appendix A.** This drawing also shows the Frontier Park access.

5.0 Signals

5.1 In all Reference Cases, Do-Minimum and Do-Something scenarios, the VAP signals on the roundabout at Junction 11 have been replaced by fixed time signal plans. The decision to introduce fixed time signals was taken to ensure consistent offsets between the approach arms and circulating signal heads that follow. Early iterations of testing suggested that the variable signal plans, and therefore variable offsets, were not sufficient to accommodate the higher levels of traffic once growth and development were included, and measures needed to be taken to avoid unrealistic circulatory congestion.

6.0 Mitigation

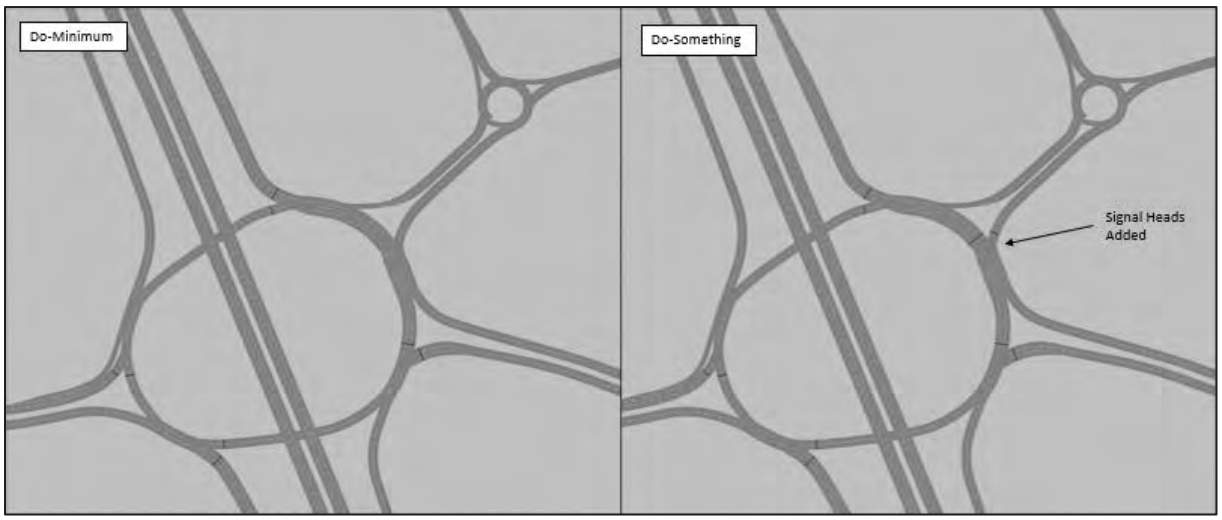
6.1 A Do-Something scenario has been tested for the development, where the A361 arm of Junction 11 becomes signalised.

6.2 Early testing of the Do-Minimum scenarios highlighted that the A361 experiences delays, particularly in the AM peak, when development trips add to queues on the approach to Junction 11.

6.3 Fixed time signals have been added to the A361 and circulatory to create a Do-Something scenario, with the intention of creating set gaps in the circulating traffic to allow trips onto the roundabout from the A361 and reduce queues.

6.4 The Figure below shows the VISSIM network before and after the signals have been added on the A361.

Figure 2: Signal Mitigation on A361 at Junction 11



7.0 Scenarios

7.1 The following scenarios have been tested:

1) 2026 Reference Case (2026 Ref), AM and PM
2) 2026 Do-Minimum Case (2026 DM), AM and PM
3) 2026 Do-Something Case (2026 DS), AM and PM
4) 2032 Reference Case (2032 Ref), AM and PM
5) 2032 Do-Minimum Case (2032 DM), AM and PM
6) 2032 Do-Something Case (2032 DS), AM and PM

7.2 Traffic demands in the 2026 and 2032 Reference Cases are comprised of Base demands, Frontier Park committed development demands, and background TEMPro growth demands. No adjustments have been made to baseline, committed development, or background growth demands following inclusion of development.

7.3 In both Reference Case scenarios, the network remains consistent with the Base network (aside from the signal changes at Junction 11 and the Frontier Park access addition).

7.4 Aside from the site accesses (Huscote Farm and Frontier Park) and signal changes at Junction 11, the Do-Minimum and Do-Something scenario networks remain consistent with the Base.

8.0 Demand Summary

8.1 The following tables present a summary of the VISSIM peak hour demands contained within each scenario:

Table 2: AM Peak Hour Demand Summary

	Base Lights	Base Heavies	Growth Lights	Growth Heavies	Frontier Park Lights	Frontier Park Heavies	Dev Lights	Dev Heavies	Total
2023 Base	10929	996	-	-	-	-	-	-	11926
2026 Ref	10929	996	112	9	186	17	-	-	12249
2026 DM/DS	10929	996	112	9	186	17	291	193	12732
2032 Ref	10929	996	791	72	186	17	-	-	12991
2032 DM/DS	10929	996	791	72	186	17	291	193	13475

Table 3: PM Peak Hour Demand Summary

	Base Lights	Base Heavies	Growth Lights	Growth Heavies	Frontier Park Lights	Frontier Park Heavies	Dev Lights	Dev Heavies	Total
2023 Base	12446	680	-	-	-	-	-	-	13126
2026 Ref	12446	680	175	8	169	6	-	-	13485
2026 DM/DS	12446	680	175	8	169	6	369	93	13947
2032 Ref	12446	680	943	52	169	6	-	-	14296
2032 DM/DS	12446	680	943	52	169	6	369	93	14758

9.0 Modelling Results

9.1 Each scenario will be discussed in detail in the following section.

2026 Reference (2026 Ref)

9.2 Model results show that following the inclusion of Frontier Park and growth to 2026, average delay per vehicle increases by 13s and 5s in the AM and PM respectively compared to the Base scenario.

9.3 In the AM, journey times increase on Hennef Way eastbound approaches to Concord roundabout and the roundabout with Ermont Way. This is a result of the additional trips adding to existing congestion on Hennef Way, and also increasing the number of conflicting trips at the roundabouts so there are fewer gaps for vehicles approaching eastbound.

9.4 In the PM, the largest journey time increase is on Ermont Way northbound (~40s increase compared to the Base). This is due to growth and Frontier Park trips heading east to west at the roundabout reducing the number of gaps for Ermont Way. Elsewhere around the network, journey time increases are no more than 10s on any one section.

2026 Do-Minimum (2026 DM)

9.5 Following the inclusion of the development demands, average delay per vehicle increases by 28s and 9s compared to the 2026 Ref in the AM and PM respectively.

9.6 In the AM, the largest journey time increase is on A361 southbound. Compared to the Ref, journey times on this approach to Junction 11 increase by nearly 5 minutes. There are over 200 trips departing from the development site in the AM peak and heading towards Junction 11, which results in long queues on the A361 when vehicles give way to the trips on the roundabout. This causes latent demand from the development site as traffic is unable to get onto the A361.

9.7 Journey time increases are also seen in the AM on Hennef Way eastbound with queues occasionally blocking back to Southam Road. Overall journey times on Southam Road southbound increase by ~40s as a result of this blocking back.

9.8 Like the AM, journey times on A361 southbound also increase in the PM, although this is only ~40s increase compared to the Ref and so not as large an impact as in the AM. Existing delays on this approach in the Base and Ref for the PM are lower than in the AM and so there is more capacity to handle the development trips.

9.9 Journey time increases of ~50s compared to the Ref are also present on Ermont Way northbound for the PM peak. This is due to the development traffic increasing the number of trips from east to west at the roundabout, further reducing the number of gaps for Ermont Way and causing a small amount of latent demand from here.

2026 Do-Something (2026 DS)

9.10 The AM model shows an increase in average delay per vehicle of 13s compared to the 2026 Ref Case.

9.11 The addition of the signals on the A361 at Junction 11 significantly reduces the journey times on the A361 so that these are now in line with those in the Ref. There are still delays on Hennef Way eastbound in 2026 DS, however these are contained within this part of the network, with journey times on Southam Road only increasing by ~40s for the entire southbound approach and journey times on Ruscote Avenue eastbound approach to the roundabout remaining similar to the Ref value.

9.12 The PM model shows an increase in average delay per vehicle of 10s compared to the 2026 Ref Case. The DS performs very similarly to the DM due to the A361 delays in the PM being minor and so there is less scope for the signals to provide benefit. Remaining journey time increases in the DS compared to the Ref are primarily on Ermont Way northbound of around 45s which are unlikely to cause detriment to the surrounding network.

2032 Reference (2032 Ref)

9.13 Model results show that following the inclusion of Frontier Park and growth to 2032, average delay per vehicle increases by 47s and 19s in the AM and PM respectively compared to the Base scenario.

9.14 Like the 2026 Ref, in the AM journey times increase on Hennef Way eastbound as a result of the additional traffic. The queues on Hennef Way block back to Southam Road and cause journey time increases of around 5 minutes for the entire length of Southam Road southbound in the model. The latent demand in this scenario is attributable to Southam Road north.

9.15 Journey times also increase in the AM by just under 1 minute on A361 southbound compared to the Base. Growth and Frontier Park trips traversing Junction 11 mean there are fewer gaps for those from the A361, which combined with the additional trips arriving from the A361 means longer queues build.

9.16 In the PM, the largest journey time increases compared to the Base are on Ermont Way northbound. Trips from Ermont Way often struggle to get onto the roundabout in the Base, and the additional trips in 2032 further reduce the number of gaps for Ermont Way. Average queues also increase on A422 West arm at Junction 11 (~70m average queue length increase compared to the Base). This is due to the increase in demands at the conflicting signal head on the circulatory meaning the west arm is allocated less green time.

2032 Do-Minimum (2032 DM)

9.17 Following the inclusion of the development demands to 2032, average delay per vehicle increases by 28s and 16s compared to the Ref in the AM and PM respectively.

9.18 In the AM, like the 2026 DM, large journey time increases are observed on A361 southbound to Junction 11. In comparison to the Ref, journey times increase by ~6 minutes due to the development trips adding to the existing queues on the A361. Latent demand exists from the development site accesses due to the trips being unable to enter the queues on the A361.

9.19 Latent demand is also present in the AM from Southam Road north. Compared to the Ref, journey times increase on Southam Road by ~1.5 minutes because of the congestion on Hennef Way eastbound blocking back. The additional delay is caused by development trips

heading to the site adding to the eastbound traffic and also increasing the number of conflicting trips at Concord roundabout and Ermont Way roundabout. The reported journey times on Hennef Way do not show large increases however, due to this stretch of Hennef Way already being filled with slow moving traffic in the Ref.

9.20 In the PM, the largest journey time increase is also on A361 southbound. This increase compared to the Ref is ~1.5 minutes due to over 250 development trips travelling from the site to Junction 11 and having to give way at the roundabout.

9.21 Like the 2026 DM, there are journey time and latent demand increases on Ermont Way in the PM because of the westbound development traffic reducing the number of gaps available for Ermont Way.

9.22 Journey times on the M40 northbound off-slip increase in PM 2032 DM compared to the Ref by ~30s. There are around 60 development trips originating from M40 south which queue in the right-hand lane on the off-slip to head to the A361. Maximum queue lengths are over 100m from the start of the slip however, and so pose no issue to the mainline.

2032 Do-Something (2032 DS)

9.23 The AM model shows an increase in average delay per vehicle of 8s compared to the 2032 Ref Case.

9.24 Like AM 2026 DS, the addition of signals on the A361 greatly reduces queues so that journey times on A361 southbound are now ~30s lower than those in 2032 Ref. Delays exist on Hennef Way eastbound and Southam Road southbound, with Southam Road experiencing latent demand. However, this delay is not too dissimilar to Ref values, as 2032 Ref queues are often at their maximum values on Hennef Way.

9.25 The PM model shows an increase in average delay per vehicle of 12s compared to the 2032 Ref Case. Introduction of the signals on the A361 means journey times on the A361 halve in comparison to the DM values. Queues on this approach to Junction 11 are now only an average of 55m in length.

9.26 Elsewhere around the network in the PM, like the DM there are journey time increases compared to the Ref on Ermont Way northbound. This increase is ~40s and so unlikely to cause large impacts on the surrounding area over and above what is already seen in the Ref. Also like the DM, journey times on the northbound off-slip have increased by ~40s compared to the 2032 Ref. The queues here are contained within the length of the slip and do not impact the mainline.

10.0 Journey Time Variation

10.1 To further evidence that some of the remaining journey time impacts in the DS scenarios are not significantly above what is observed in the Reference Cases, graphs have been produced showing the variation in journey times for some key areas of interest.

10.2 In the AM, Hennef Way eastbound experiences high levels of delay with queues impacting Southam Road. The following graphs illustrate that in both future years, average journey times on Hennef Way and Southam Road in the DS scenarios fall within the variation present within the Reference Cases. The only exception to this is for Southam Road southbound in the 2032 DS where the average journey time from 07:45-08:00 is ~30s higher than the maximum journey time in the Ref. The maximum Ref journey time later exceeds the average DS journey time by ~400s and so the DS can still be considered to perform within Reference Case variation.

Figure 3: A422 Hennef Way Eastbound Journey Time Variation (AM Peak)

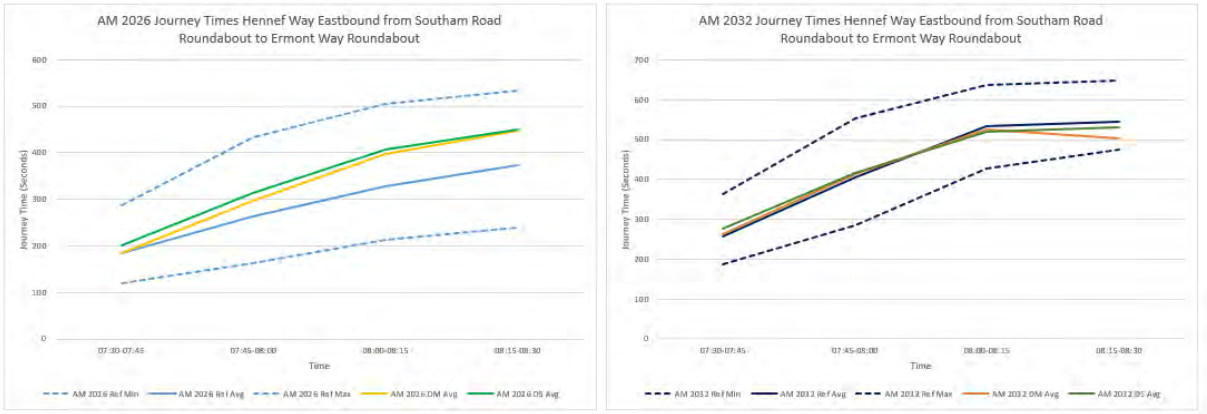
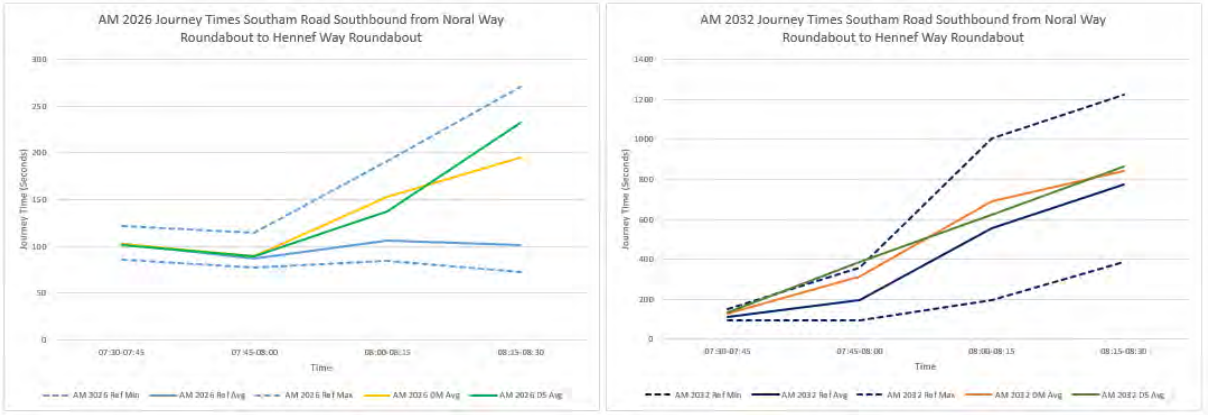
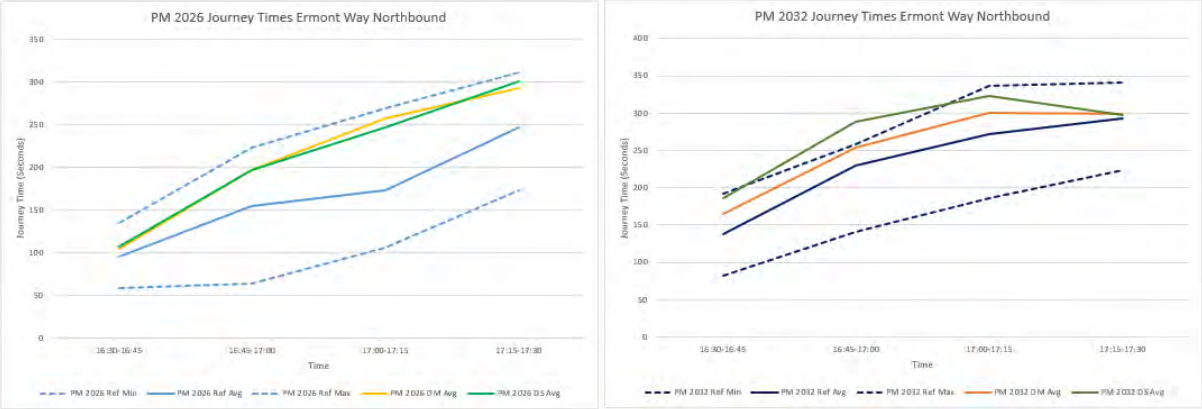


Figure 4: A423 Southam Road Southbound Journey Time Variation (AM Peak)



10.3 In the PM, Ermont Way northbound experiences congestion in all future years. The following graphs demonstrate that average journey times in the DS scenarios fall within the variation present within the Reference Cases. The exception to this is in the 2032 DS scenario, the average journey time is above the maximum reported journey time for the Reference Case for 16:45-17:00. This is only ~30s above the Ref value and considering the maximum Ref value later exceeds the average DS value, the DS can be regarded as not causing significant impact above the Reference Case.

Figure 5: Ermont Way Northbound Journey Time Variation (PM Peak)



11.0 Summary & Conclusion

11.1 SLR Consulting Ltd (SLR) has been commissioned by David Tucker Associates (DTA) to produce a series of models to assist in determining the impact of a development site (known as Huscote Farm) situated on the land to the east of Junction 11 of the M40 (Banbury Interchange).

11.2 SLR has included the following scenarios in the assessment:

- 2023 Base
- 2026 Reference
- 2026 Do-Minimum
- 2026 Do-Something
- 2032 Reference
- 2032 Do-Minimum
- 2032 Do-Something

11.3 The modelling demonstrates that following the inclusion of development through an unmitigated network, queues and delays exist on the A361 approach to Junction 11, particularly in the AM peak. The introduction of signals on the A361 is successful at resolving existing issues that might occur here and mitigates against the development impacts.

11.4 Elsewhere in the AM, Hennef Way eastbound experiences high levels of congestion which impacts Southam Road when queues block back. The delays are not considered to be significant over those that are present in the Reference Cases however.

11.5 In the PM, Ermont Way demonstrates delay in all future year scenarios, with development trips unlikely to cause a severe impact on the surrounding network over and above what is already present in the Reference Cases. In 2032, the northbound off-slip at Junction 11 shows journey time increases when development trips add to queues in the right-hand lane. Queues on the off-slip remain over 100m from the start of the slip and pose no issue to the mainline.

11.6 Overall, the proposed signals on the A361 are successful at resolving both existing issues that may occur on the A361, and the development impacts. The network is considered to operate at a similar level to the Reference Cases.

Appendix A Development Site Access Drawing

Forecasting Report

Huscote Farm VISSIM

David Tucker Associates

SLR Project No.: 431.000006.00000

19 October 2023

160m visibility splay (to nearside kerbline) commensurate with 4.5m minor arm set back

1:25 taper as per 85kph design speed

New replacement bus stop for southbound services

3.5m wide ahead and turning lanes consistent with adjacent Frontier Park geometry. Deceleration length 55m (CD123 Table 5.22). Turning length 10m (CD123 para 6.4)

Existing pedestrian crossing

3.0m wide foot/cycleway with 1.0m wide margin to edge of carriageway

Frontier Park Infrastructure

Footpath link to Banbury via M40 underpass

45m inscribed circular diameter roundabout

Dual two lane link

90m forward visibility to giveway line from M40 Junction 11 gyratory

Entry to be signalised

Ponds

M40

El Sub Sta

Drain

Banbury Gateway Shopping Park

94.9m

REV	DESCRIPTION	DRAWN	INITIALS	DATE

DRAWING STATUS	CHECKED BY	DATE

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JOB TITLE	CLIENT
LAND AT M40 J11	GREYSTOKE

DRAWING TITLE

A361 ROUNDABOUT WITH SECONDARY ACCESS

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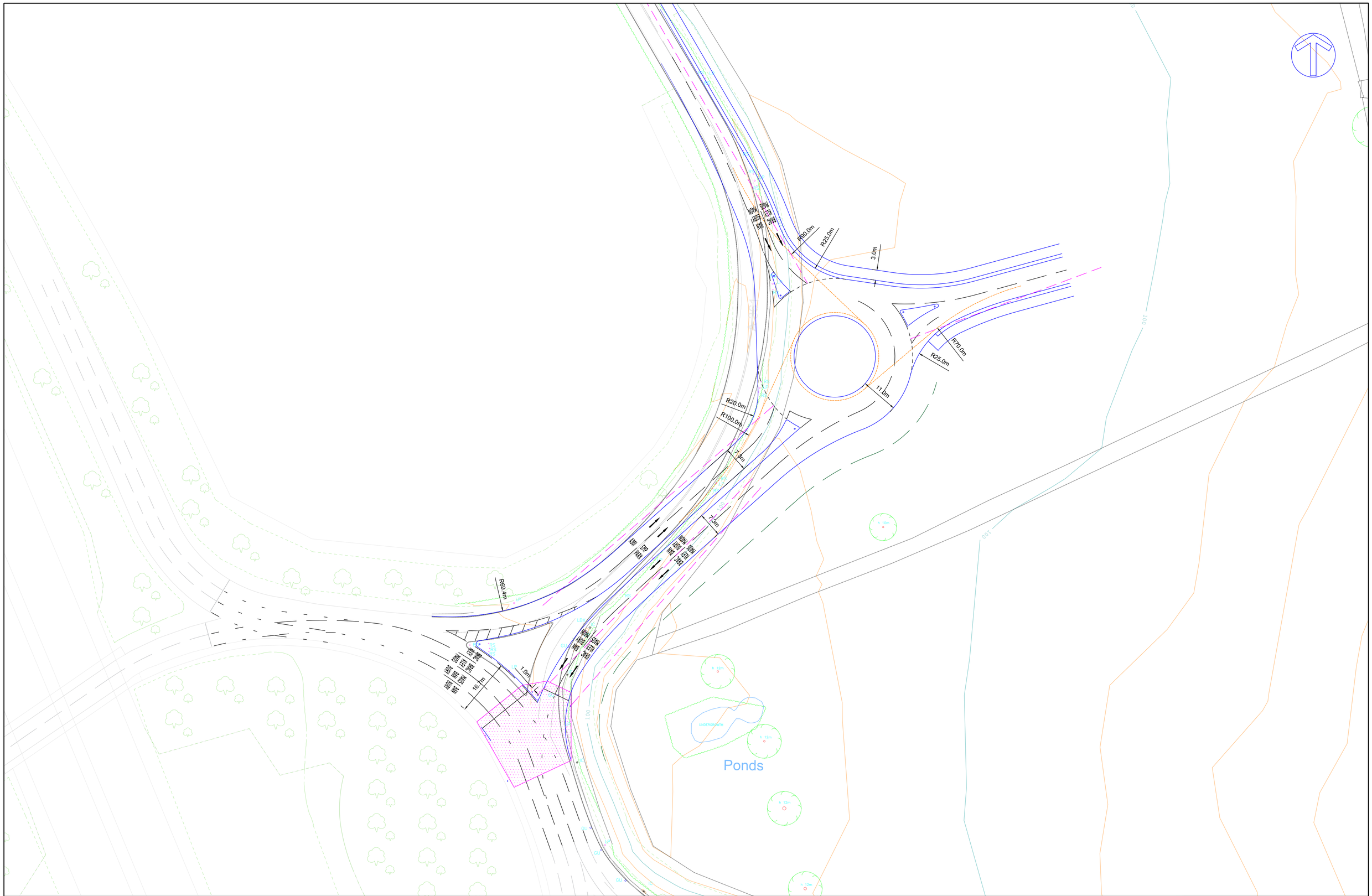

REV	DESCRIPTION	DRAWN	INITIALS	DATE

DRAWING STATUS	CHECKED BY	DATE

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JOB TITLE	CLIENT
LAND AT M40 J11	GREYSTOKE

DRAWING TITLE

M40 Junction 11 Gyratory & Site Access Roundabout

SCALE	DRAWN BY	DATE	DRAWING No	REVISION
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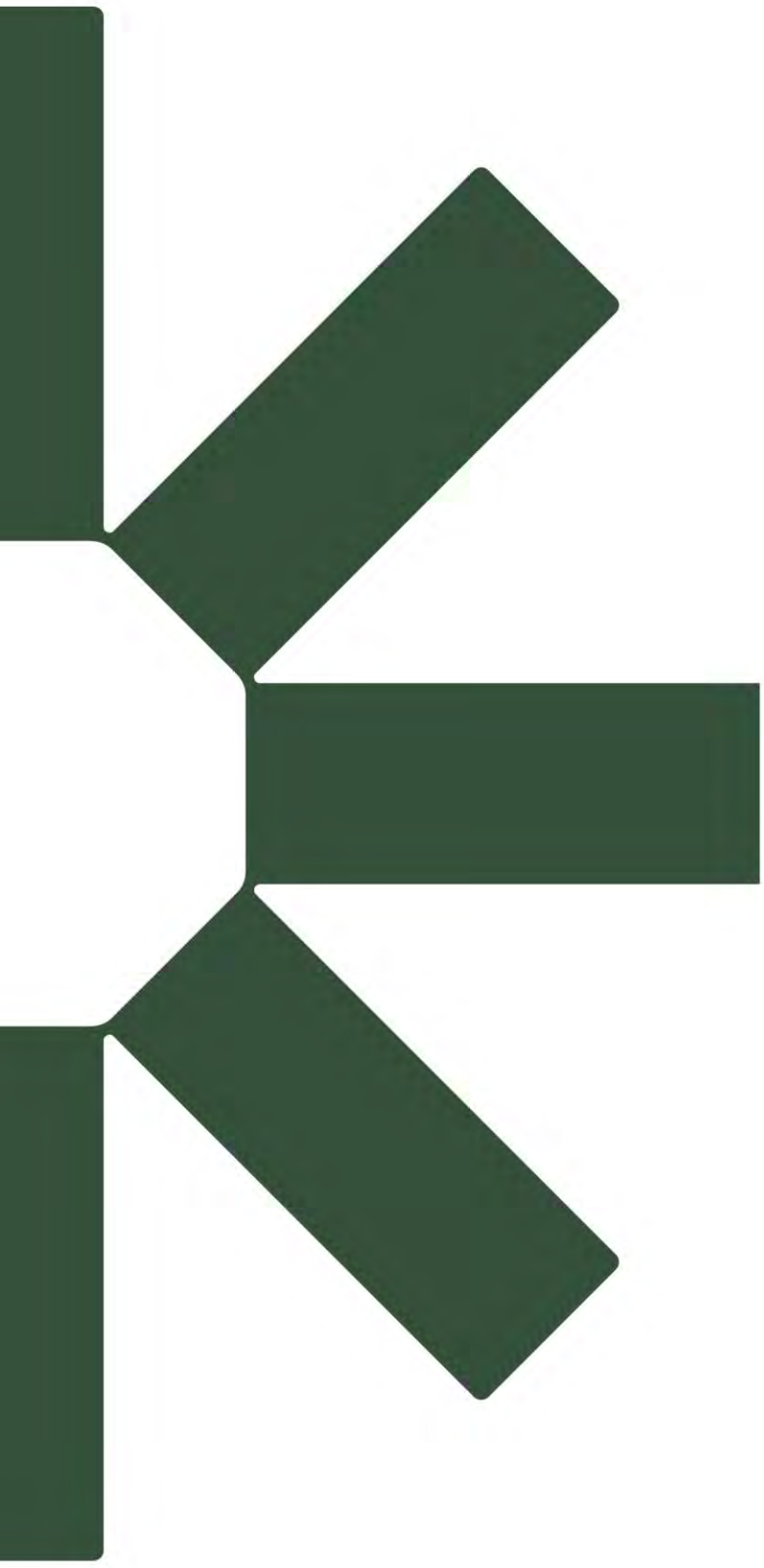
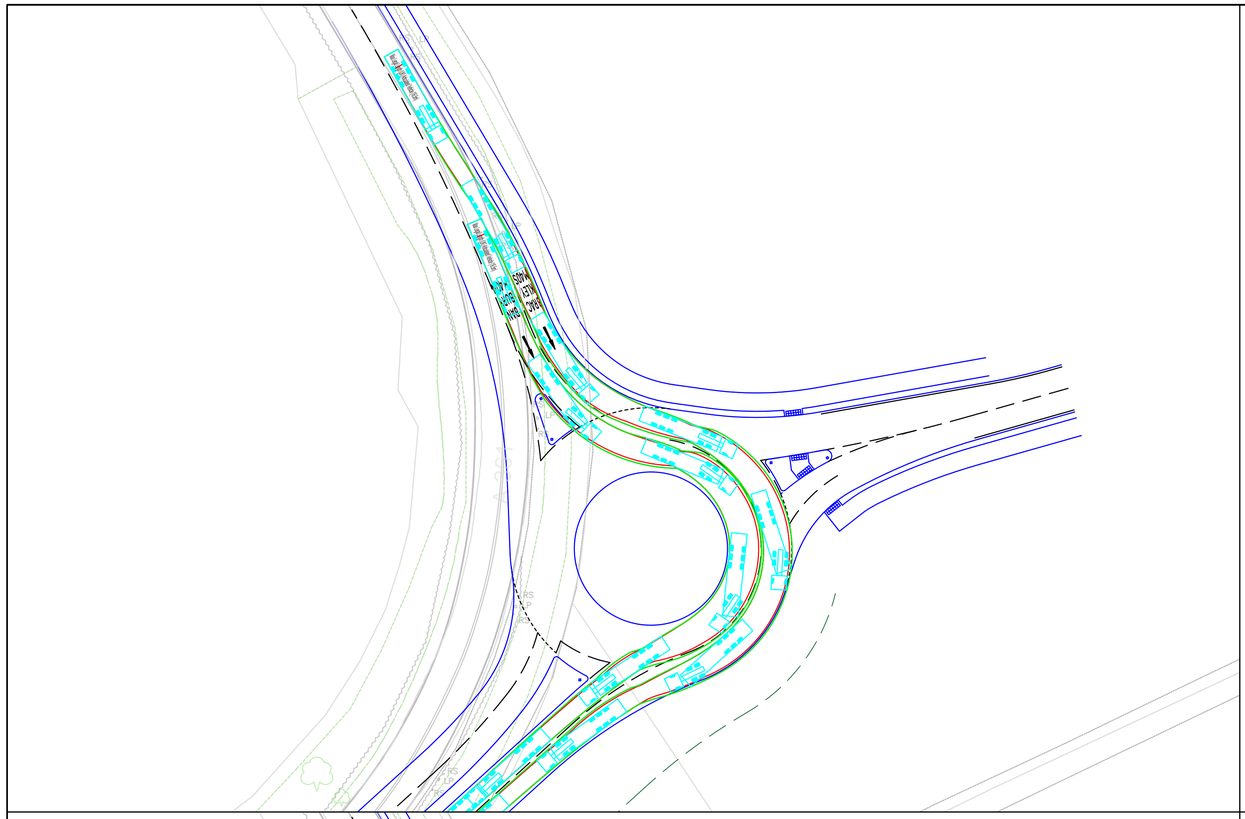
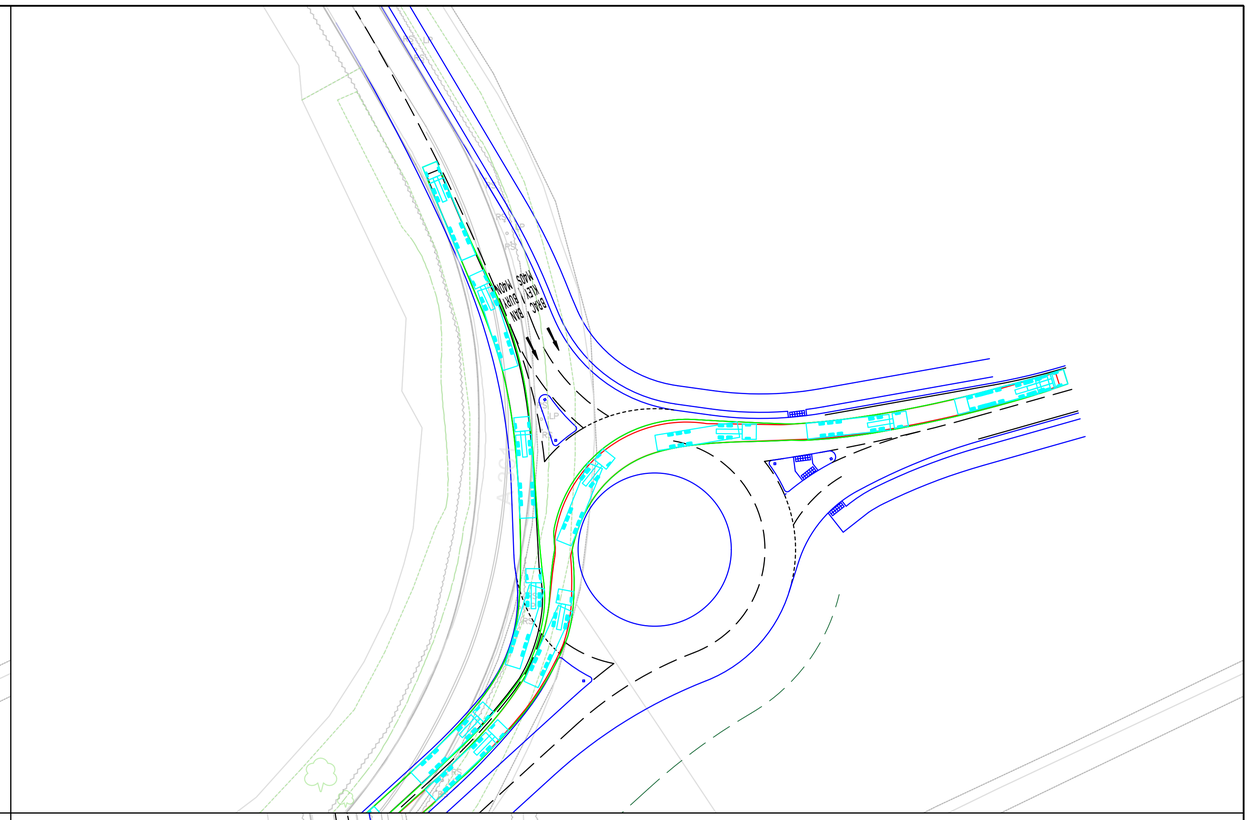


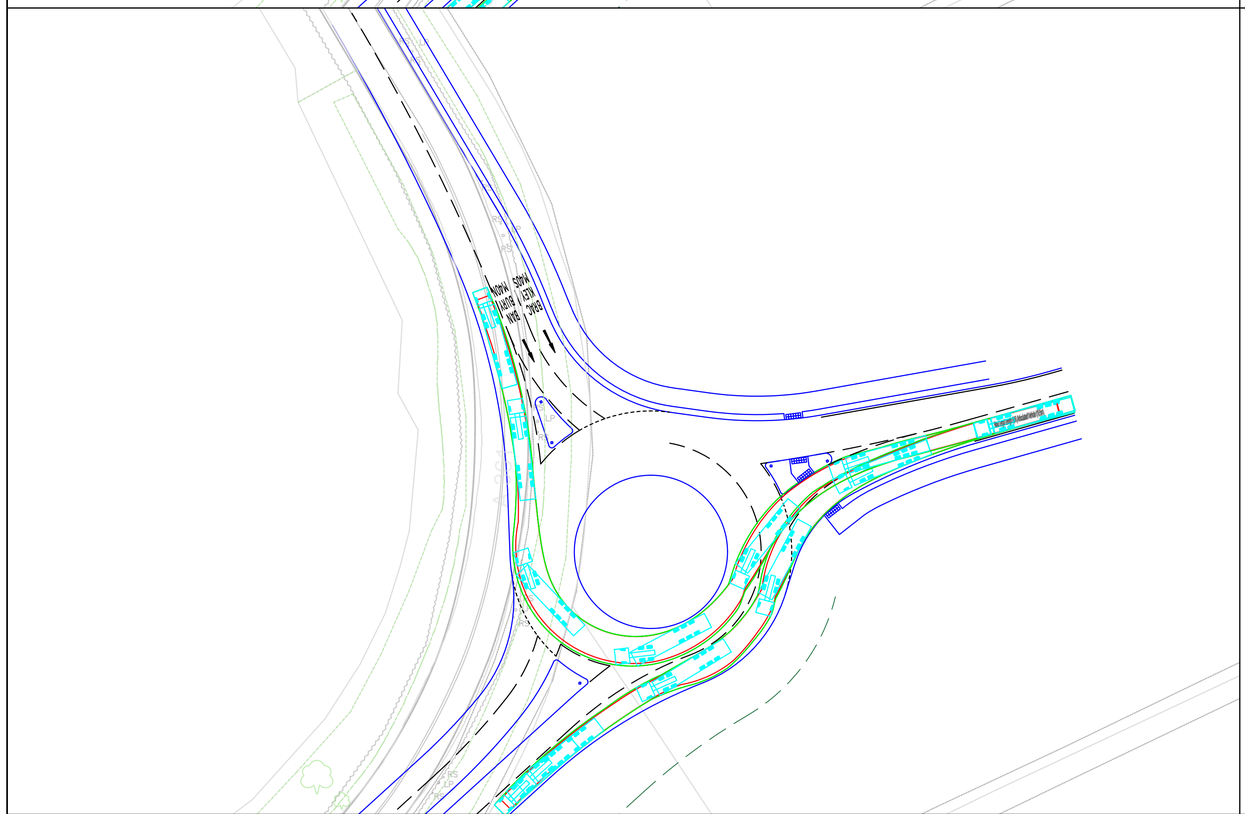
Making Sustainability Happen

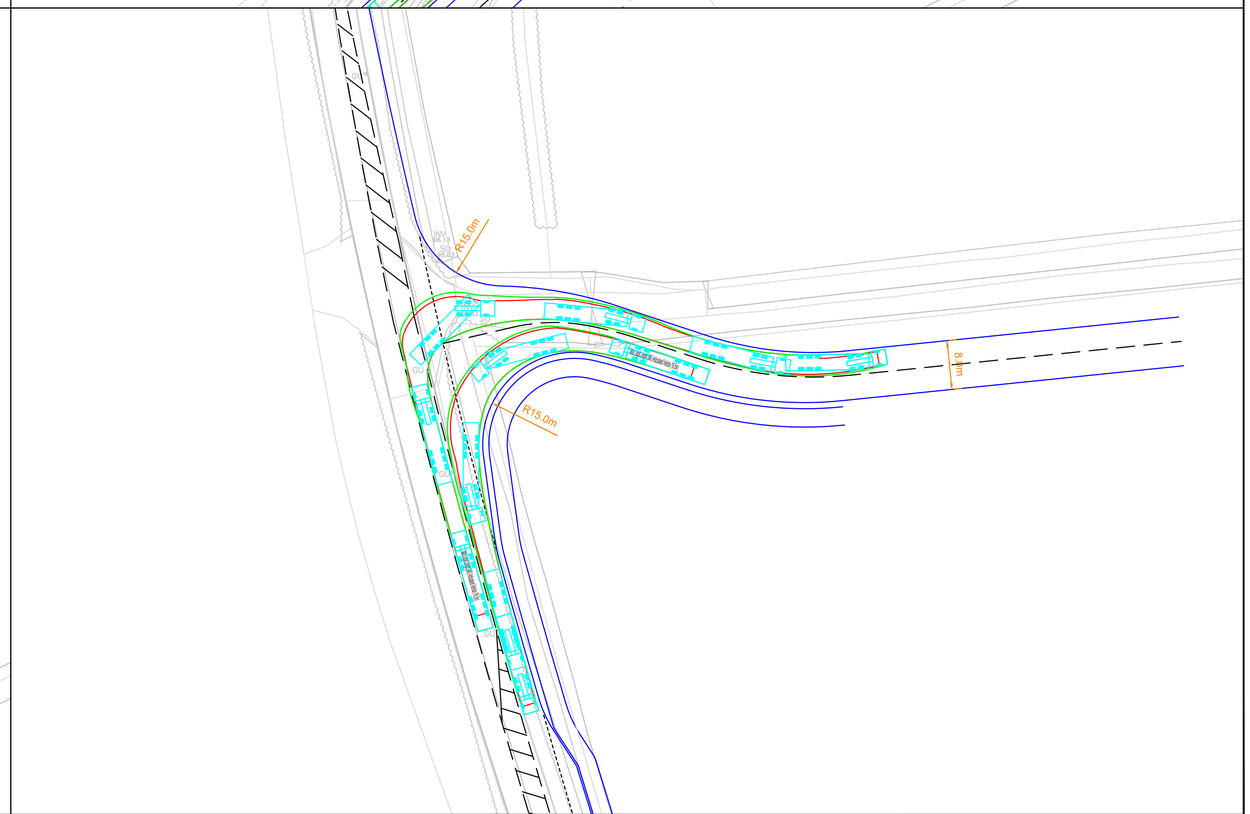
Appendix L

Swept Path Analysis









REV	DESCRIPTION	DRAWN	INITIALS	DATE

DRAWING STATUS	CHECKED BY	DATE

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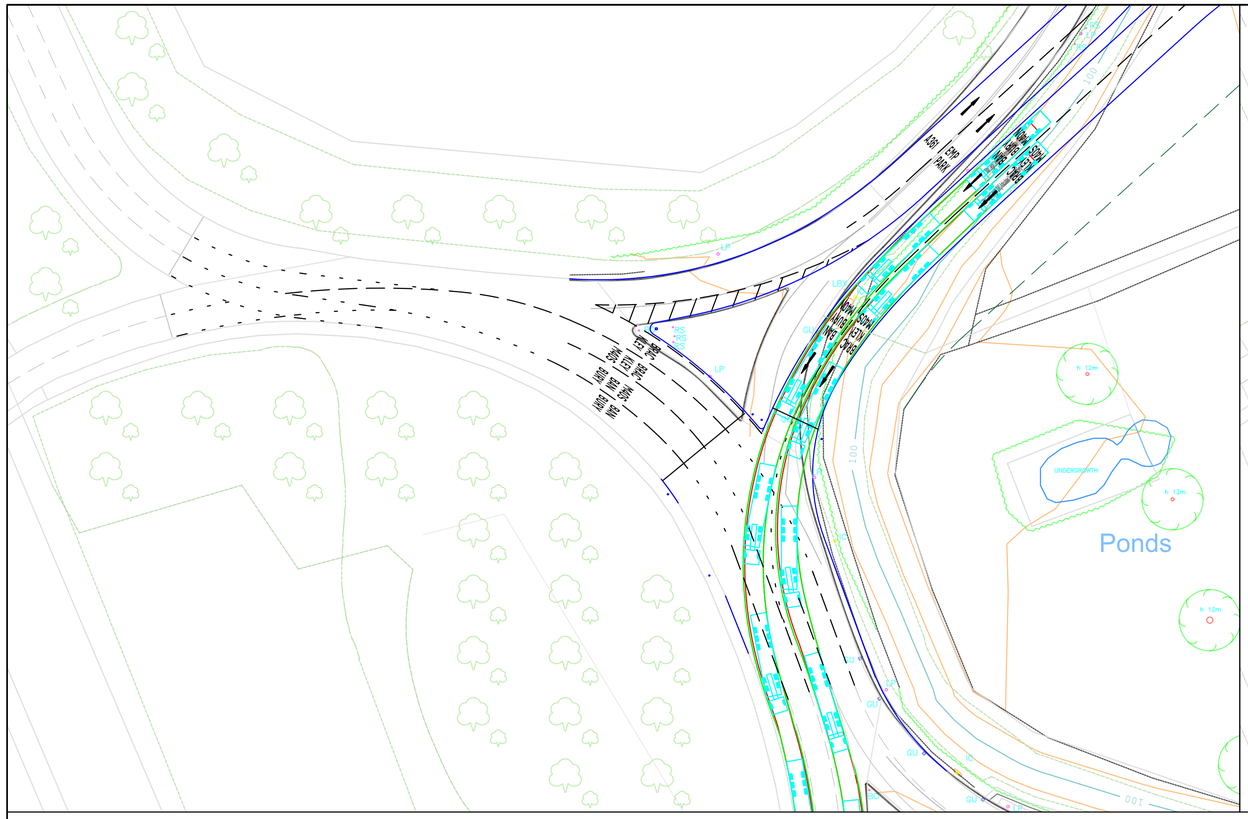
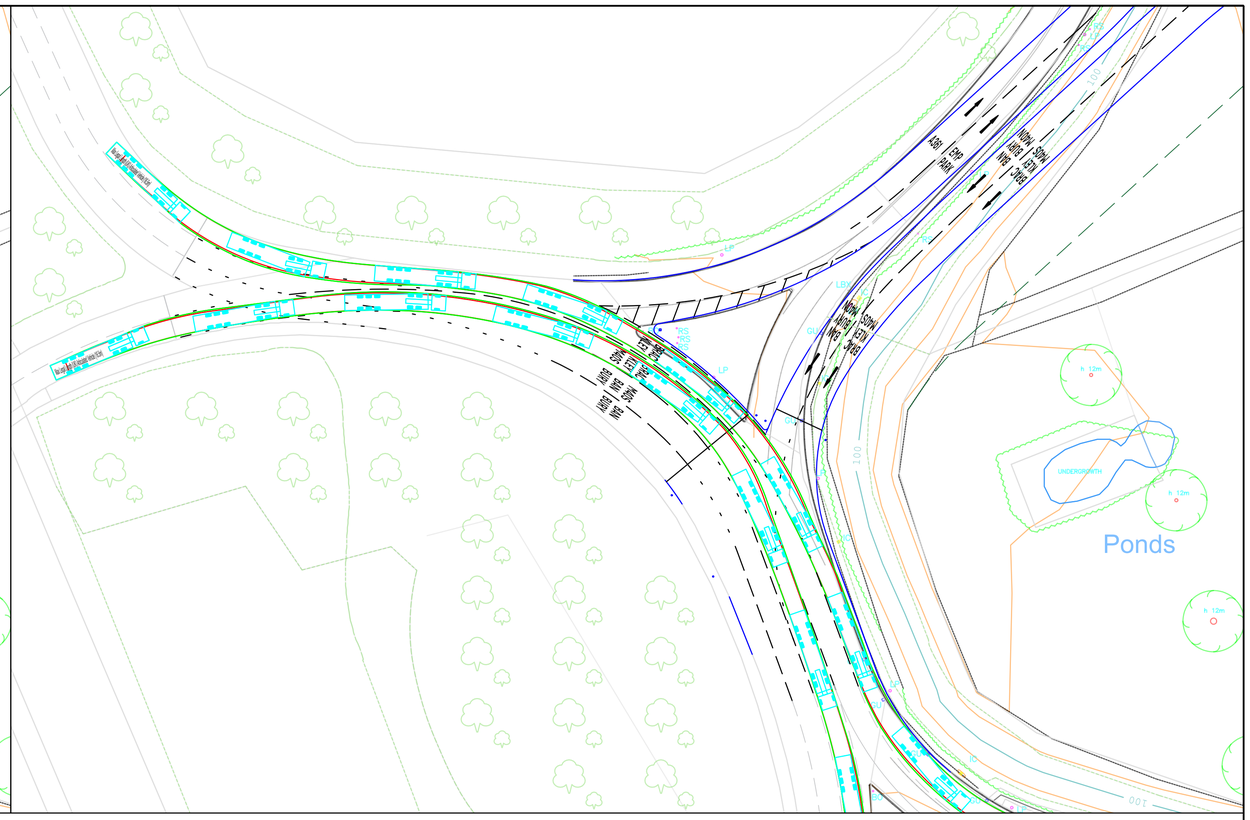
JOB TITLE	CLIENT
LAND AT M40 J11	GREYSTOKE

DRAWING TITLE

A361 Site Access Tracking

SCALE	DRAWN BY	DATE	DRAWING No	REVISION
1:500@A1	RM	27/11/23	23459-07-06TRK	A





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JOB TITLE	CLIENT
LAND AT M40 J11	GREYSTOKE

DRAWING TITLE

M40 Junction 11 Tracking

SCALE	DRAWN BY	DATE	DRAWING No	REVISION
1:500@A1	RM	27/11/23	23459-07-07TRK	B

Appendix M

Independent Road Safety Audit

LAND AT M40 J11

Site Access and Highway Works

Stage 1 Road Safety Audit
Overseeing Organisation: Oxfordshire County Council

December 2023

Gateway RSE

Road Safety Engineering

Project:	Land at M40 J11 Site Access and Highway Works
Document:	Stage 1 Road Safety Audit
Design Organisation:	DTA Transport Planning
Overseeing Organisation:	Oxfordshire County Council
Client:	Greystoke
Gateway RSE ref:	SG/WP/2311-11 RSA1 v1.0
Issue date:	01/12/2023
Status:	Issued as Version 1.0
Authorised by:	SG

Gateway RSE

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CQMS Safety Scheme

SSIP

CONTENTS

Appendices

1 INTRODUCTION

1.1 This report describes a Stage 1 Road Safety Audit (RSA) of highway works on the A461 northeast of Banbury, within the District of Cherwell and the County of Oxfordshire. The audit brief, dated 27th November 2023, describes the scheme as site accesses, a shared foot/cycleway and off-site highway works, all associated with a 140,000 sqm of B8 warehousing development.

1.2 The A361 is a 2-lane single carriageway road running broadly northeast from Junction 11 of the M40. It is lit, with no footways, and is subject to a 40mph speed limit, changing to 50mph approximately 580 metres northeast of the M40 junction.

1.3 The proposed main site access comprises a 45 metre ICD roundabout to be located approximately 120 metres northeast of the M40 junction. The secondary site access will be a priority-controlled junction with a ghost island, some 420 metres further to the northeast (just within the 40mph speed limit). The section of the A361 between the new roundabout and the M40 J11 will be realigned, and signal control will be introduced at the M40 junction itself, with corresponding amendments to carriageway markings.

1.4 This Road Safety Audit was carried out by Steve Giles and Wendy Palmer and consisted of a desktop study and a site visit, which was carried out between 12:15 and 14:30 on Tuesday 28th November 2023, when the weather was fine and the road surfaces dry. No significant traffic congestion was observed, whilst no pedestrian or cycle movements occurred along the A361.

1.5 The terms of reference for this RSA are as described in the Design Manual for Roads and Bridges (DMRB) document GG119. The Audit Team is independent of the project design team and has not been involved in the design process in any other capacity. The audit considers only the potential road safety implications of the scheme and has not verified compliance of the design with any other criteria.

1.6 The Audit Team has not been made aware of any Departures from Standard. Whilst reference may be made to design standards, this report is not intended to provide a design check.

1.7 Recommendations are aimed at addressing the identified potential road safety problems. However, there may be other acceptable ways to overcome a problem, considering wider constraints and opportunities; the Auditors would be pleased to discuss such alternative solutions as appropriate. The recommendations contained herein do not absolve the Designer of his/her responsibilities.

Collision Data

1.8 Personal Injury Collision (PIC) information was provided by the Designers, DTA Transport Planning. This indicates that three PICs occurred on the A361 in the vicinity of the site during the period 01/01/2018 to 13/11/2023.

1.9 One collision was approximately 400 metres northwest of the M40 junction and involved a car performing a U-turn (southbound to northbound) in queuing traffic caused by roadworks. It collided with a northbound car, which left the carriageway and struck a tree, causing slight injuries to the driver.

1.10 The other two collisions were at the M40 junction, close to the A361 exit. Both appear to have resulted from late lane changes by car drivers and resulted in slight injuries.

Previous Road Safety Audit(s)

1.11 The Audit Team is not aware of any previous RSA having been undertaken of this scheme.

2 PROBLEMS IDENTIFIED BY THIS ROAD SAFETY AUDIT

General Matters

2.1 The Audit Team raises no concerns in respect of general matters.

Local Alignment

2.2 The Audit Team raises no concerns in respect of local alignment.

Junctions

2.3 Problem

Collisions due to junction overshoots.

Location: At the new roundabout

Drivers approaching the new roundabout at 40mph on the A361 may misread the junction and fail to give way, particularly at night, or when traffic exiting the development is light. This could lead to vehicle collisions on the circulating carriageway or vehicles striking the central island.

Recommendation

Ensure that full deflection is achieved on the roundabout approaches and provide clear signage (including correctly located chevron/arrow signs) to highlight the presence/layout of the new roundabout. Ensure that the junction is adequately lit and review the need for high friction surfacing. Following construction, provide temporary 'New Road Layout' signs.

Walking, Cycling and Horse Riding

2.4 The Audit Team raises no concerns in respect of walking, cycling and horse riding.

Road Signs, Carriageway Markings and Lighting

2.5 The Audit Team raises no concerns in respect of road signs, carriageway markings and lighting.

3 AUDIT TEAM STATEMENT

3.1 We certify that this Road Safety Audit has been carried out in accordance with DMRB document GG119.

Audit Team Leader

Steve Giles
BEng (Hons), IEng, FIHE, MCIHT, MICE, CMILT, MSoRSA, HE Cert Comp
Senior Road Safety Engineer

Signed: [redacted]

Date: 01/12/2023

Audit Team Member(s)

Wendy Palmer
MCIHT, MSoRSA, FIHE, HE Cert Comp
Senior Road Safety Engineer

Signed: [redacted]

Date: 01/12/2023

APPENDIX A
Items Considered by this RSA

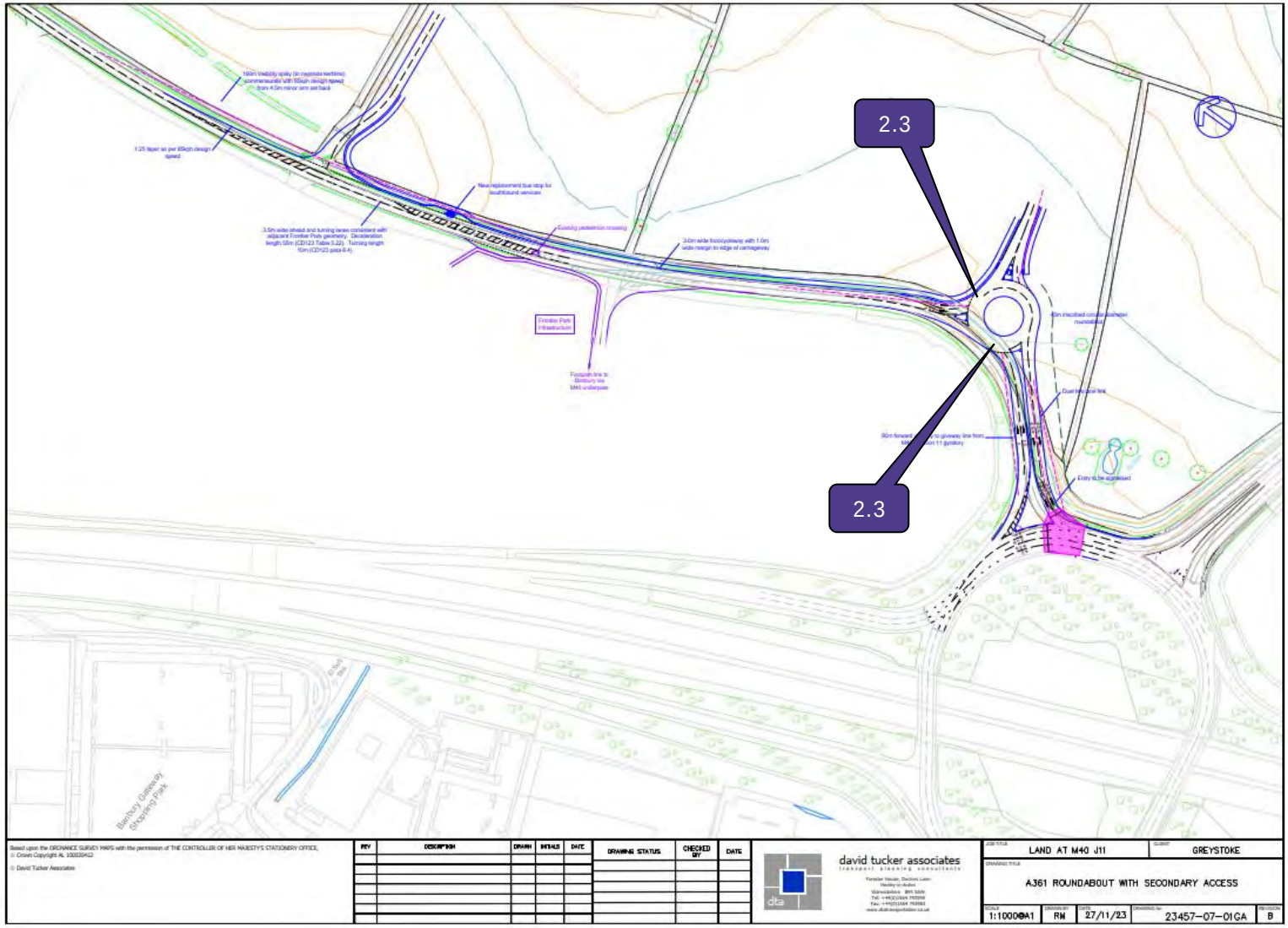
Items Considered by this Road Safety Audit

Document ref.	Rev.	Originator	Title
23457-07-01GA	B	DTA	A361 Roundabout with Secondary Access
23457-07-03GA	B	DTA	M40 Junction 11 Gyratory & Site Access Roundabout
23457-07-04GA	B	DTA	Site Access Priority Junction
23457-07-05GA	B	DTA	M40 Junction 11 Gyratory & Site Access Roundabout
23457-07-06TRK	A	DTA	A361 Site Access Tracking
23457-07-07TRK	B	DTA	M40 Junction 11 Tracking

Additional/background information provided to the Audit Team

- Audit Brief dated 27/11/2023 (DTA Transport Planning)
- Proposed Site Layout, drawing 5166/CA/00/00/DR/A05001/P1 (Chetwoods)

APPENDIX B
Location Plan(s)


2.3
2.3
Frontier Park Infrastructure
Footpath link to Banbury via M40 underpass
Existing pedestrian crossing
New replacement bus stop for southbound services
3.5m wide ahead and turning lanes consistent with adjacent Frontier Park geometry. Deceleration length 55m (CD123 Table 5.22). Turning length 10m (CD123 para 6.4)
3.0m wide footcycleway with 1.0m wide margin to edge of carriageway
Banbury Gateway Shopping Park
LAND AT M40 J11
GREYSTOKE
A361 ROUNDABOUT WITH SECONDARY ACCESS
david tucker associates
1:1000@A1
RM
27/11/23
23457-07-01GA
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