OXFORDSHIRE
STRATEGIC RAIL FREIGHT INTERCHANGE

DCO Submission

Environmental Statement

Chapter 3: Transport
Appendix 3.1: Transport Assessment Part 01 of 11 – Report and Appendix 1

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On behalf of
Oxfordshire Railfreight Limited

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TRANSPORT ASSESSMENT

OXFORDSHIRE SRFI

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EXECUTIVE SUMMARY

The purpose of this Transport Assessment (TA) is to assess the impact of the proposed Oxfordshire Strategic Rail Freight Interchange (OxSRFI) - the subject of a Development Consent Order (DCO) application for a Nationally Significant Infrastructure Project (NSIP) - on the surrounding transport infrastructure, and to demonstrate that the development can be satisfactorily accessed by all relevant travel modes. It assesses and describes the relationship between the Proposed Development and the existing and future baseline transport infrastructure to determine the effect of the development on that infrastructure, and the need to provide improvements to accommodate the Proposed Development in a sustainable manner and reduce impacts to acceptable levels. In doing so, it presents the Sustainable Transport Strategy and Public Transport Strategy, that will maximise the use of sustainable modes of travel, along with presenting the highway mitigation strategy for the Proposed Development.

A Framework Travel Plan has also been prepared as a separate document. The Framework Travel Plan sets out the targets and measures that will be implemented at the Proposed Development to ensure that employees and visitors of the site use healthier 'active travel' and lower carbon transport options in contrast with single occupancy vehicle trips.

The scope of this TA report is as follows:

- Existing and future baseline conditions on the transport networks surrounding the site are reviewed.
- The Proposed Development is described, and the measures embedded into the design of the Proposed Development to mitigate potential adverse impacts are presented, including the Sustainable Transport Strategy, Public Transport Strategy, HGV Routeing Strategy and embedded Highway Works.
- The phasing of the Proposed Development and mitigation measures are described.
- The agreed development trip generation forecasts, modal split, and agreed development traffic distributions are presented.
- The agreed assessment methodology, transport modelling process, and assessment scenarios are summarised.
- The evolution of the highway mitigation strategy is presented.
- Predicted changes in traffic flow on the highway network are analysed as part of the strategic transport modelling.
- Additional highway mitigation measures are identified and the suitability of the embedded Highway Works and additional mitigation measures to accommodate residual traffic impacts is confirmed via detailed modelling, including VISSIM micro-simulation.
- The construction effects of the Proposed Development are assessed.

The key findings of this TA are as follows:

i) Development of OxSRFI, once fully operational, would remove over 53 million HGV miles per year from the highway network. This equates to over £61 million per year in monetised environmental benefits as calculated using the methodology set out in the Department for Transport's Guide to Mode Shift Revenue Support Scheme. The proposed development would provide a distribution hub, meaning that HGV journey distances would be reduced, reducing overall HGV mileage on the road network and helping to achieve the Government's objective of a modal shift from road freight to rail.

ii) OxSRFI is forecast to generate 1,418 and 1,752 two-way person trips during the morning and evening peak hours. As part of the Sustainable Transport Strategy a significant package of connectivity improvements will provide new and enhanced means of sustainable travel to and

from key employee catchment areas and OxSRFI. This will ensure that the OxSRFI is provided with appropriate public transport links, high quality active travel connectivity, and car share opportunities, therefore maximising the use of sustainable modes of travel. The use of active travel modes and public transport will be actively targeted through the Travel Plan process, which will also include the promotion of car sharing at OxSRFI.

iii) The proposed Public Transport Strategy will deliver high quality bus links to and from OxSRFI. The Applicant will provide a Bus Service Contribution that will be used by Oxfordshire County Council to fund the delivery of bus services to and from OxSRFI and Heyford Park, Bicester, and Banbury. Passenger rail travel will be facilitated with direct bus links to Bicester and its railway stations, to provide for rail travel as part of a multi-modal journey to and from OxSRFI.

iv) HGV movements associated with OxSRFI will be controlled via the HGV Routeing Strategy. All operational HGVs going to and from the Main Site will be routed via the proposed B430 Ardley Bypass and improved M40 Junction 10. At Junction 10 HGVs can then travel north or south on the M40 and northeast on the A43, from where there is access to the B4100 to Bicester.

v) The scale of development requires a transport strategy that seeks to manage travel demand from the outset, whilst providing appropriate access to serve the development and addressing the impact of the development traffic on the existing local highway and strategic road networks. The Proposed Development therefore includes various embedded highway improvements, including alterations to Junction 10 of the M40 motorway and to the A43, both of which meet thresholds for nationally significant highway works and the application therefore also includes two highway NSIPs as part of the DCO.

vi) The infrastructure improvement measures are shown diagrammatically on the Highway Works Overview Plan, **drawing OxSRFI-BWB-GEN-XX-SK-CH-041** and the Walking, Cycling and Public Rights of Way Strategy Overview Plan, **drawing ADC1794-DR-42** that are provided in this TA, and include the following works:

- Construction of a new partially signal controlled roundabout on the B430 just south of the Chiltern Main Line Railway. This will provide the Principal Access to the Main Site for all vehicular traffic and is configured to require all departing HGVs to travel north to M40 Junction 10 using the new Ardley Bypass.
- Construction of the Ardley Bypass to the east of Ardley village connecting the Principal Access with the reconfigured Ardley Roundabout (part of the J10 highway improvements).
- The proposed J10 highway improvements include a new dedicated exit slip road to the A43 northbound with a new bridge over the M40 removing A43 bound traffic from the Ardley Roundabout and Cherwell Roundabout junctions, enlarging and signalising Ardley Roundabout, relocated and amended slip roads, widening of the A43, and amendments to the Cherwell, Padbury and Baynard's Green roundabouts.
- Construction of the Heyford Park Link Road (HPLR), a new single carriageway road with off-carriageway active travel routes, which will provide a link from the B430 north of Middleton Stoney to Heyford Park, linking at its western end with Camp Road.
- The Secondary Access will be provided on the HPLR. This will be restricted to use by buses, cyclists, pedestrians, and emergency access only. All other vehicular traffic will use the Principal Access.

- Construction of the Middleton Stoney Relief Road (MSRR), a new single carriageway road around the northeast of Middleton Stoney village, connecting the B430 and B4030 and linking with the HPLR and providing off-carriageway active travel routes.
- The J9 Highway Improvements to increase capacity from the A34 to M40 northbound at M40 Junction 9 and improve road safety on the A34 approach to the junction.
- Footway and cycleway connectivity improvements, including:
  - New pedestrian and cycle facilities with Toucan crossings at the A43 Baynard's Green junction providing an off-carriageway route for users between the B4100 arms and linking with the local services located north of the junction.
  - A new foot and cycle link alongside the A43 between Cherwell Roundabout and the A43 Baynard's Green Roundabout to connect with new pedestrian and cycle facilities that would be provided at the Baynard's Green junction.
  - New signal-controlled crossings at Ardley Roundabout and Cherwell Roundabout linking the existing footway on the southern side of the M40 overbridge with the public bridleway to the east and providing connectivity with Stoke Wood.
  - The B430 north of the Principal Access would be closed to vehicular traffic (which will now use the Ardley Bypass) and a high-quality pedestrian and cycle link will be created, providing a connection to Ardley via a downgraded Station Road.
  - Shared footway/cycleway alongside the proposed HPLR and the MSRR.
  - A segregated footway and cycleway along the HPLR providing a link from the Secondary Access to the Heyford Park development and the areas to the west of the OxSRFI site.
  - New and enhanced footway/cycleway links to Bicester, comprising:
    - A Toucan crossing on the B430 for pedestrians and cyclists linking with the Cherwell Valley Greenway, combined with a reduction of the speed limit on this section of the B430 from derestricted to 40mph.
    - Reallocation of road space at the Middleton Road bridge over the M40 to provide an off-carriageway route for walkers, cyclists, and horse riders. Traffic is to be controlled by traffic lights in a shuttle arrangement.
    - A new shared footway/cycleway connecting from the enhanced Middleton Road bridge to the shared footway/cycleway to be provided alongside the MSRR.
    - Reduced speed limit on Ardley Road, Middleton Road, and Bicester Road from derestricted to 40mph.
    - Reduced speed limit on the B430 within Ardley from 30mph to 20mph, and the B430 Station Road south of Ardley and north of the Ardley Station Bridge from derestricted to 20mph.
    - Signage scheme for cyclists using Ardley Road, Middleton Road, and Bicester Road.
  - New shared footway/cycleway along the western side of the B430 linking with the above-described facilities and providing connectivity to the Principal Access and Ardley to the north, and Middleton Stoney to the south (via the provisions alongside the MSRR).
  - New signal control pedestrian crossing and enhanced footway provision at the B430/B4030 crossroads in Middleton Stoney, and a zebra crossing on the B430 Ardley Road near to the proposed new bus stops within the village.
- Works to enable and improve active travel and recreational use by pedestrians, cyclists and horse riders, including:
  - Changes and enhancements to the PRoW network
  - Chilgrove Drive bridleway connection

  - Aves Ditch bridleway connections
  - Ardley Bypass PRoW works
  - Quarry Cottages turning head and PRoW connection.

- Other Local Highway Works:
  - Removal of the B430/Upper Heyford Road junction following the opening of the HPLR.
  - Amendments (change in priority) of the Camp Road/Chilgrove Drive/Upper Heyford Road junction if the HPLR is constructed and open prior to the improvements to be delivered at this junction by the Heyford Park development.
  - 7.5T environmental weight restriction zone (except for access) around the villages to the north and west of the Main Site.

- Financial contribution to OCC via the S106 for:
  - A scheme to provide advisory cycle lanes on Bicester Road between Bicester and Bucknell as part of the cycle strategy.
  - Signalisation of the A4095/B4030 Roundabout to increase capacity and enhance active travel facilities[1].
  - A 'monitor and manage' fund to be used to by National Highways to implement a capacity improvement scheme at the A43 Barleymow roundabout should the requirement to implement the scheme be triggered.

vii) The results of the transport modelling demonstrate the suitability of the proposed access strategy and M40 Junction 10 and A43 trunk road improvements to mitigate the impact of the development traffic, whilst also allowing the road network to function in a safer and more efficient manner than would otherwise be the case. The proposed highway works at M40 Junction 10 and the A43 Baynard's Green are shown to deliver substantial operational improvements, with significant reductions in average vehicle delay and allowing more traffic to use the junction complex than would otherwise be able to do so due to existing congestion.

viii) Assessment of the residual traffic impacts at the remaining study area junctions has been undertaken using industry standard assessment tools. With the highway mitigation strategy, including the additional mitigation in place, the residual impact of the Proposed Development is demonstrated to be reduced to acceptable levels.

ix) The implementation of a range of relevant and appropriate measures embedded within the Construction Environmental Management Plan, including restricted construction times and the use of Construction Traffic Management Plans, will prevent significant adverse transport effects during the construction phase of the Proposed Development.

It is concluded that the Proposed Development would comply with the National Policy Statement for National Networks, helping reduce overall HGV mileage on the road network and assisting to achieve the Government's objective of a modal shift from road freight to rail. With the improvements presented within this TA and accompanying Framework Travel Plan, the Proposed Development will significantly improve public transport, pedestrian, and cyclist provisions, providing travel opportunities for non-car-based modes of transport. The embedded mitigation measures provide the required access and connection to the strategic road network and will significantly improve the highway network performance at M40 Junction 10 and the A43 Baynard's Green junction, and more generally across the study area due to the additional network capacity and positive traffic reassignment effects.

[1] Subject to agreement with OCC, in the absence of which highway works will be delivered by the Applicant instead.

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OxSRFI-BWB-GEN-XX-SK-CH-SK041	Highway Works Overview (Phases 1 & 2)
OxSRFI-BWB-GEN-XX-SK-CH-SK054	Highway Works Phase 1 Pre-occupation
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1.0 INTRODUCTION

1.1 ADC Infrastructure Limited are commissioned by Oxfordshire Railfreight Limited (the Applicant) to assess the transport and infrastructure requirements of a proposed Strategic Rail Freight Interchange (SRFI) in Oxfordshire; the subject of a Development Consent Order (DCO) application for a Nationally Significant Infrastructure Project (NSIP), to be known as OxSRFI.

1.2 The Main Site is to the southwest of M40 Junction 10, approximately 6km from Bicester, between the B430 to the east and the former Upper Heyford Airfield and Heyford Park village to the west. It is immediately south of the Chiltern Main Line Railway, part of the Strategic Rail Freight network.

1.3 The Proposed Development includes various embedded highway improvements, including alterations to Junction 10 of the M40 motorway and to the A43, both of which meet thresholds for nationally significant highway works and the application therefore also include two highway NSIPs as part of the DCO.

1.4 The main components of the Proposed Development are set out below and should be read in conjunction with the Parameters Plan (DCO **Document 2.5**):

- An intermodal rail freight terminal, including rail connections and improvements to the Chiltern Main Line including works to Ardley Tunnel, rail sidings, container storage, HGV parking and associated buildings;
- Up to 603,850 sqm (approx. 6.5 million square feet) of warehousing and ancillary buildings, plus up to 201,283 sqm of additional floorspace in the form of mezzanines.
- The retention, rejuvenation and re-use of Ashgrove Farm and associated buildings, including Ashgrove Cottages, as part of a 'Central Hub' to provide estate management, training and communal facilities to serve the site;
- A secure, dedicated HGV Parking area including driver welfare facilities;
- New road infrastructure and works to the existing road network, including improvements to M40 J10 and junctions on the A43, provision of the Principal Access and associated works on the B430, a bypass to the village of Ardley linking the site directly with M40 J10, a relief road around the north eastern side of the village of Middleton Stoney, a link road connecting the B430 to Camp Road, improvements to M40 J9 and other highway improvements at junctions on the local highway network and related traffic management measures;
- New and improved pedestrian and cycle infrastructure both on the Main Site and in the surrounding area connecting the Main Site to local communities;
- Demolition of existing structures within the Application Site;
- Earthworks to create development areas, construct the rail freight terminal and connections to the Mainline and form landscape screen mounding;
- The retention of key landscape features together with new strategic landscaping, general planting and biodiversity enhancements.
- On and off-site works associated with utilities including for foul drainage connections.

1.5 Oxfordshire County Council (OCC) is the local highway authority responsible for the transport network within Oxfordshire. National Highways has responsibility for the Strategic Road Network (SRN), which near the Proposed Development comprises the M40 Motorway, M40 Junctions 10 and 9, the A43 and the A34.

1.6 The scale of development requires a balanced and comprehensive transport strategy that seeks to managed travel demand from the outset, whilst providing appropriate access to serve the

development and addressing the impact of the development trips on the existing local highway network and SRN.

1.7 Both national and local policy recognise the importance of providing and promoting sustainable transport options to new developments, and OxSRFI will provide high-quality pedestrian, cycle, and public transport improvements to link with nearby communities, and actively promote the use of these travel modes through the Travel Plan, to reduce the number of vehicle trips generated.

1.8 An application for a DCO has been prepared. It will be submitted to the Examining Authority for consideration. The Examining Authority will examine the application before making a recommendation to the Secretary of State for Transport who will make the final decision.

1.9 The assessment of the transport impacts of the Proposed Development is based on comprehensive transport modelling and consultation processes, for which a Transport Working Group (TWG) was established. The TWG comprises representatives from the two highway authorities described above, Cherwell District Council (CDC) who are the local planning authority, the Applicant and their consultant team, and where appropriate, National Highways' term consultant (Aecom). The members of the Transport Working Group are set out below:

- National Highways (and their term consultant Aecom, as appropriate)
- Oxfordshire County Council (OCC)
- Cherwell District Council (CDC)
- Oxfordshire Railfreight Limited (the Applicant)
- ADC Infrastructure Limited (Applicant consultant)
- BWB Consulting Limited (Applicant consultant)
- Oxalis Planning Limited (Applicant consultant)

1.10 The Applicant also contacted West Northamptonshire Council (WNC) who are a neighbouring highway authority to discuss their attendance at the TWG meeting. WNC advised that they did not consider there was need for them to join the TWG, but they have received copies of all TWG meeting notes.

1.11 Other than during the public pause of the project[2], the TWG have met regularly (approximately monthly) since November 2020, and those meetings have continued throughout the preparation of the DCO submission. Where appropriate, sub-meetings and workshop sessions that allowed a more detailed focus on a particular topic also took place, such as with regards to the M40 Junction 10 options assessment, the footway, cycleway and public rights of way strategy, development of the public transport strategy, agreement of assessment scenarios and transport modelling, and assessment of construction traffic. These meetings were attended by relevant specialists from the TWG organisations and outcomes were reported back at the TWG meetings.

1.12 The TWG have agreed the Transport Assessment (TA) methodology, scope and inputs via a series of transport related document and technical notes. This TA report therefore presents the formal TA for the scheme. It brings together in one place the findings from the TWG approved supporting documents. Together with the Environmental Statement (ES) Transport Chapter, they support the DCO application for the Proposed Development in accordance with the submitted Parameters Plan.

[2] The Applicant paused the scheme between April 2023 and August 2024.

1.13 This TA incorporates the supporting documents as appendices. These include the **Sustainable Transport Strategy** (STS), the **Public Transport Strategy** (PTS) and the **heavy goods vehicle (HGV) Routeing Strategy**. A separate **Framework Travel Plan** has also been prepared and is appended to the ES (ES Appendix 3.2).

1.14 These key transport related documents and technical notes are listed at **Table 1.1** and are appended to this TA at **Appendices 1 to 45**. A further 31 appendices to this TA (**Appendices 46 to 76**) provide supplementary information, such as assessment flows and modelling output. Information provided within the supporting documents is intended to be complementary and the documents are intended to be read in conjunction with one another and this TA.

1.15 The purpose of this TA is to demonstrate that the proposed development can be satisfactorily accessed by all relevant travel modes and that the proposed STS and PTS provide the development with high quality active travel connectivity, public transport links, and car share opportunities, and that the embedded Highway Works, alongside the HGV routeing strategy, are sufficient in scale to ensure that any adverse residual impact of the Proposed Development with regards to transport matters are reduced to acceptable levels.

1.16 This TA does not present the rail freight strategy, which is considered in a separate report[3].

1.17 A package of Highway Works is presented to demonstrate to the highways authorities that suitable mitigation measures will be provided. To confirm that the proposed Highway Works are appropriate in scale and layout, assessment of the OxSRFI scheme and the proposed embedded Highway Works has been undertaken using OCC's approved strategic transport model, the Bicester Transport Model (BTM). Further detailed analysis of key junctions has then been undertaken using micro-simulation and industry standard assessment tools.

1.18 Tetra Tech Limited maintain and operate the BTM on OCC's behalf. All strategic transport modelling using the BTM has therefore been undertaken independently by Tetra Tech.

1.19 The detailed geometric design of the Highway Works has been advanced to a sufficient stage to confirm that they are implementable, with only matters of detail to be agreed with the highways authorities as set out in the DCO protective provisions.

1.20 This TA does not provide detailed information on the internal layout of the development plots within the Main Site. That will be subject to separate design and approval in accordance with the relevant design standards and guidance at the appropriate time.

1.21 The scope of this TA is therefore as follows:

- In **Chapter 2** the relevant transport policies are reviewed.
- In **Chapter 3** the existing and future baseline conditions on the transport networks surrounding the site are described.
- In **Chapter 4** the Proposed Development and the measures embedded into the design of the Proposed Development to mitigate potential adverse impacts are described, including the Sustainable Transport Strategy, Public Transport Strategy, HGV Routeing Strategy and Highway Works.
- In **Chapter 5** the phasing of the Proposed Development is described.
- In **Chapter 6** the trip generation forecasts, modal split and vehicle trip distribution, as agreed with the TWG, is presented.

[3] DCO Document 7.2A (Rail Report)

- In **Chapter 7** the transport modelling methodology and assessment process is summarised.
- In **Chapter 8** the evolution of the highway mitigation strategy is set out.
- In **Chapter 9** a summary of the strategic transport modelling is provided along with the study area for detailed assessment.
- **Chapter 10** presents the assessment traffic flows.
- In **Chapter 11** the operation of the embedded Highway Works are assessed and their suitability to accommodate residual traffic impacts is confirmed using micro-simulation and detailed junction modelling. The findings from the assessment of the capacities of affected wider study area junctions are also presented.
- In **Chapter 12** an assessment of the opening year is presented, and the proposed phasing of the highway mitigation works is confirmed as being suitable.
- In **Chapter 13** the impact of the construction traffic is assessed.
- **Chapter 14** presents the summary and conclusions.

Table 1.1: Key supporting transport documents appended to this TA

Document name	Topic	Author	Reference	Appendix
Sustainable Transport Strategy	STS	ADC	ADC1794-RP-AK v4	1
Personal Injury Accident Assessment Technical Notes	PIA	ADC	ADC1794-RP-PIA-TN v2, ADC1794-RP-PIA-TNA-v2 ADC1794-RP-PIA-TN ASA-v2	2
Walking, Cycling & Horse-Riding Assessment Report	WCHAR1	ADC	ADC1794-RP-F-v6	3
Walking, Cycling & Horse-Riding Assessment Review Report	WCHAR2	BWB	OxSRFI-BWB-GEN-XX-RP-CH-0014-P01	4
Public Transport Strategy	PTS	ADC	ADC1794-RP-L2-v5	5
HGV Routeing Strategy	HGV RS	BWB	OxSRFI-BWB-GEN-XX-RP-CH-0005-P05	6
TN3: Trip Generation	Trip Generation	ADC	ADC1794-RP-J-v3	7
Road Freight to Rail Freight HGV Mileage Saving	Trip Generation	ADC	ADC1794-RP-AJ-v3	8
TN3 Addendum: Opening Year Trip Generation	Trip Generation	ADC	ADC1794-RP-J1-v1	9
Light Vehicle Trip Distribution	Strategic Modelling	Tetra Tech	Tetra Tech TN4	10
TN4: HGV Trip Distribution	Strategic Modelling	ADC	ADC1794-RP-K-v4	11
TN2: Transport Modelling Methodology	Modelling Methodology	ADC	ADC-1794-RP-H-v3	12
Summary of Agreed Transport Modelling Scenarios	Modelling Methodology	ADC	ADC1794-RP-AB-v9	13
BTM Forecasting Report	Strategic Modelling	Tetra Tech	Tetra Tech Forecasting Report	14
TN5: M40 Junction 10 Options Report	Highway Works	ADC/BWB	ADC1794-RP-M-v3	15
TN6: M40 Junction 10 Options Report 'Traffic Flow Derivations'*	Traffic flows	ADC	ADC1794-RP-N-v2	16
TN5 Addendum: M40 J10 Options Report 'Response to National Highways comments on Options 11, 13, 18, and 19'	Highway Works	ADC/BWB	ADC1794-RP-M1-v2	17
Scope of Highway Design Pre-DCO	Highway Works	BWB	OxSRFI-BWB-XX-RP-CH-001-S4-P5	18
TN8: 40 Junction 10 Options 3A and 3B	Highway Works	ADC/BWB	ADC1794-RP-Q-v4	19
TN9: M40 Junction 10 Option 25	Highway Works	ADC/BWB	ADC1794-RP-T-v3	20
TN9 Addendum: M40 Junction 10 Option 25a	Highway Works	ADC/BWB	ADC1794-RP-T1-v2	21
TN10: M40 Junction 10 Highway Improvement	Highway Works	ADC/BWB	ADC1794-RP-U-v2	22
TN11: Embedded Highway Works Phasing	Highway Works	ADC	ADC1794-RP-AF-4	23
TN13:M40 Junction 10 Option 28	Highway Works	ADC/BWB	ADC1794-RP-Ai-v4	24
Middleton Stoney Relief Road and Heyford Park Link Road Options Report	Highway Works	Oxalis Planning	MSRR/HPLR Options Report (March 2022)	25

TN12: M40 Junction 9	Highway Works	ADC	ADC1794-RP-AG-v2	26
Stage 2 Transport Modelling	Strategic Modelling	ADC	ADC1794-RP-AN-v3	27
Stage 3 Transport Modelling (Interim Report)	Detailing Modelling	ADC	ADC1794-RP-AO-v3	28
M40 Junction 9 Technical Note	Detailing Modelling	ADC	ADC1794-RP-AT-v2	29
A43 Corridor Technical Note	Detailing Modelling	ADC	ADC1794-RP-AQ-v3	30
M40 Junction 10 Design Strategy Record	Highway Works	BWB	OxSRFI-BWB-GEN-XX-RP-CH-0007-S3-P02	31
Ardley Bypass Design Strategy Record	Highway Works	BWB	OxSRFI-BWB-GEN-XX-RP-CH-0011 -S3-P02	32
Heyford Park Link Road Design Strategy Record	Highway Works	BWB	OxSRFI-BWB-GEN-XX-RP-CH-0012-S3-P02	33
Middleton Stoney Relief Road Design Strategy Record	Highway Works	BWB	OxSRFI-BWB-GEN-XX-RP-CH-0010-S3-P02	34
M40 J9 DSR	Highway Works	BWB	OxSRFI-BWB-GEN-XX-RP-CH-0015-S3-P01	35
Interim Road Safety Audit and Response Report	Road Safety Audit	BWB	OXSRFI-BWB-GEN-RSA-RP-TR-0001_RSA1_P02 OxSRFI-BWB-GEN-XX-SH-CH-006_OxSRFI Interim RSA1 Audit log-S2-P01	36
Calculation of Construction Traffic	Traffic flows	ADC	ADC1794-RP-AM-v4	37
Construction Traffic Management Plan	Construction	ADC	AD1794-RP-AR-v4	38
B430 Ardley Station Bridge and Construction Traffic	Construction	ADC	ADC1794-RP-AU-v3	39
Directional Signing Strategy	Highway Works	BWB	various	40
M40 Junction Motorway Technology Strategy	Highway Works	BWB	various	41
VISSIM Modelling Impact Assessment Report - OxSRFI core scheme and Sensitivity Testing	Mirco-simulation	Modelling Group	MG0163 OxfordSRFI R 01-A_Final_MIAR-CoreScheme&SensTest	42
VISSIM Modelling Impact Assessment Report	Mirco-simulation	Modelling Group	MG0163 OxfordSRFI_R_01-D_Final_MIAR	43
B4030 Middleton Stoney Corridor	Detailed Modelling	ADC	ADC1794-RP-AP-v2	44
Wider Study Area Transport Modelling	Detailed Modelling	ADC	ADC1794-RP-AV-v2	45

2.0 PLANNING POLICY CONTEXT

General

2.1 This section considers the relevant national and local policies together with guidance on transport and land use.

Committed development and infrastructure schemes

2.2 The proposed Main Site predominantly consists of agricultural land used for mixed arable and grazing purposes and includes the Ashgrove farmstead (Ashgrove Farm) which comprises several farm building and residences, including Ashgrove Cottages. The farmstead includes a listed building. The OxSRFI scheme includes for the retention, rejuvenation and re-use of Ashgrove Farm and associated buildings, including Ashgrove Cottages as part of a 'Central Hub' to provide estate management, and ancillary facilities to serve the Proposed Development.

2.3 Also within the Main Site is the Biffa operated 'In-Vessel Composting' (IVC) Facility which is an operational commercial food and garden waste composting facility. The IVC facility comprises a weighbridge, reception building, composting tunnels, office and welfare facility, bio filter and maturation pad. The site receives waste from use collection which is turned into bagged compost product. The IVC Facility lease finishes in 2030 and the operator will vacate the site at that time if the OxSRFI scheme has been approved. The operations would cease on-site and buildings and structures would be demolished as part of delivering OxSRFI. The current facility supports relatively low employment levels (assumed to be 10 Full Time Employees (FTE)).

2.4 There is an underground reservoir in the south-east part of the Main Site to the north of the proposed Heyford Park Link Road which will remain. In connection with the reservoir there are some substantial water mains. It is likely that some of the water mains will be diverted in agreement with Thames Water.

2.5 The Main Site is not therefore subject to extant planning consents of significance in terms of traffic generation and therefore no account of existing land uses at the Main Site has been made in this TA.

2.6 There are a number of development schemes with planning consent in vicinity of the site, whose traffic effects need to be taken into account. In addition, committed or planned highway infrastructure, and some other major development sites that are the subject of planning applications but are not yet committed, have been included where agreed with the TWG. These schemes, together with relevant and potential Local Plan allocations have been incorporated into the transport modelling work undertaken to assess the impact of the Proposed Development. Further details of the committed development and infrastructure schemes is given at **Chapter 3** and **Chapter 7** of this TA.

Relevant Transport Policy

2.7 The key transport-related policies and guidance of relevance to the Proposed Development are contained within the following documents:

- National Networks National Policy Statement (March 2024);
- National Planning Policy Framework (December 2024);
- National Planning Practice Guidance: Travel Plans, Transport Assessments and Statements (March 2014);

- DfT Circular 01/2022 'Strategic Road Network and the Delivery of Sustainable Development' (DfT, 2022);
- Oxfordshire County Council - Local Transport and Connectivity Plan (LTCP) – 2022-2050 (July 2022);
- LTCP supporting strategies:
  - Active Travel Strategy (July 2022)
  - Freight and Logistics Strategy (July 2022)
  - Innovation Framework (July 2023)
  - Mobility Hub Strategy (July 2022)
  - Implementing 'Decide and Provide': Requirements for Transport Assessments (September 2022)
  - OxRAIL 2040: Plan for Rail (November 2025)
- The Cherwell Local Plan 2011-2031 Part 1 Adopted (July 2015) (Incorporating Policy Bicester 13 re-adopted on 19 December 2016).
- Cherwell Local Plan Review 2042 (Proposed Submission Document) (December 2024)

2.8 Chapter 3 (Section 3.3) of the ES includes a full review of the above policies, and so that is not repeated here.

Overall compliance with Policy

2.9 The Proposed Development is being progressed with due regard to the above policy documents, with particular emphasis given to the specific guidance and requirements for SRFI and other NSIPs set out in the NPS. The proposals include improvements and alterations to the sustainable travel infrastructure and public transport services, along with changes to the SRN and local highway network.

2.10 In summary, the various policy documents are aligned with regard to the need for developments to be sited in sustainable locations with access to existing facilities and services. In the case of an SRFI, it is also necessary to identify a suitable location to provide the required connection to the rail freight network, with excellent connections to the SRN. The Proposed Development site achieves these requirements and, as such, meets with the Government objectives in NPS. It can therefore be concluded that the Proposed Development meets relevant policy guidelines and meets the specific requirements in terms of transport.

2.11 A separate Planning Statement (part of the application package) also considers the relevant policy context for the proposed development.

3.0 TRANSPORT NETWORK REVIEW

Site location

3.1 Distinction is made between the OxSRFI Application Site, which is the land encompassed within the Order Limits, which is the maximum extent of land affected by the Proposed Development, and the Main Site, which is the area to be occupied principally by the Rail Terminal and Warehousing (the SRFI) and incorporating the proposed Heyford Park Link Road (HPLR).

3.2 The OxSRFI Main Site is shown in **Figure 3.1**. It is located to the southwest of M40 Junction 10, approximately 6km from Bicester, between the B430 to the east and the former Upper Heyford Airfield and Heyford Park village to the west. It is immediately south of the Chiltern Main Line Railway.

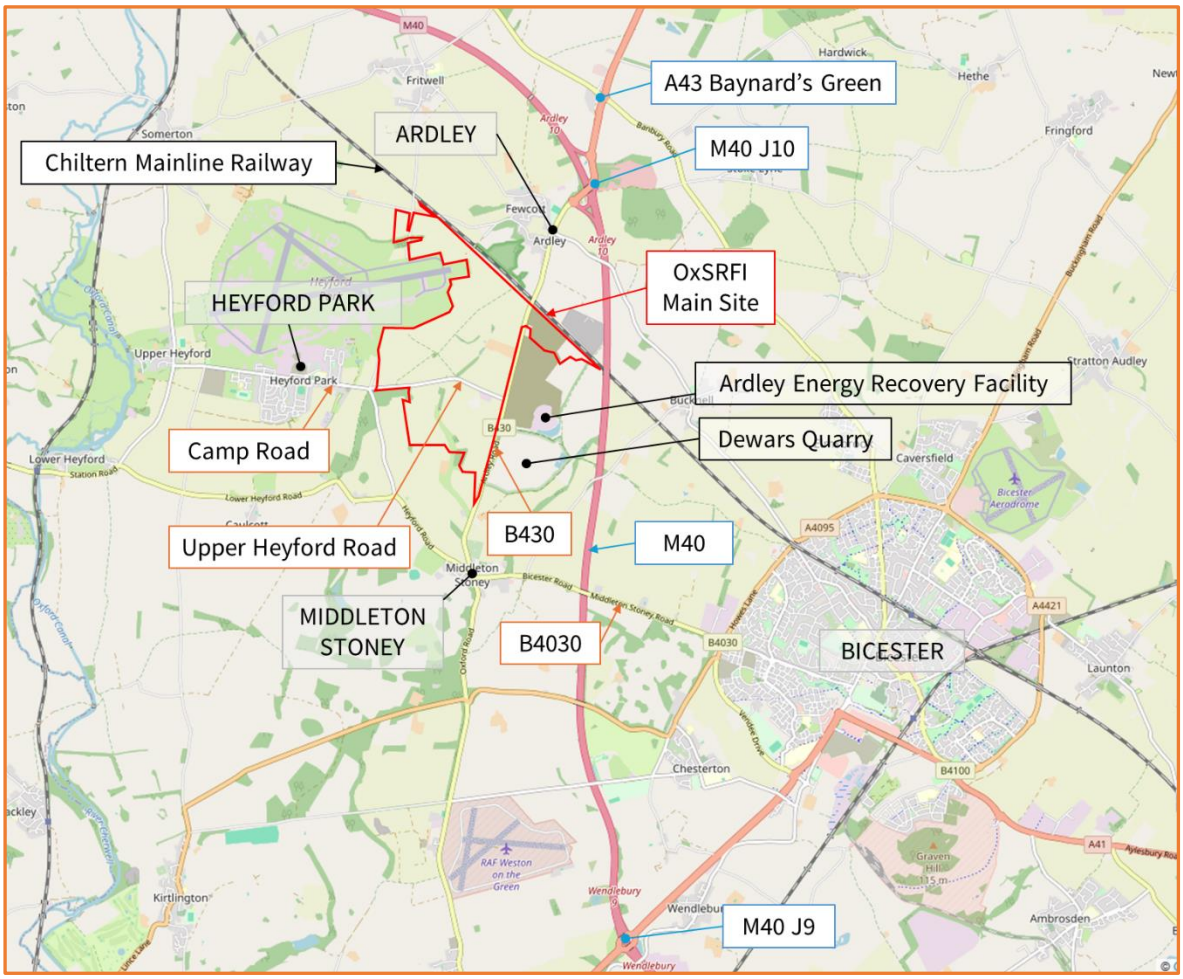


Figure 3.1: OxSRFI Main Site location

3.3 To the east of the Main Site and east of the B430 is the Viridor Ardley Energy Recovery Facility as well as the Ardley Fields Household Waste and Recycling facility and Ardley Landfill Site. Further south of the waste facilities is the active Dewars Farm minerals quarry.

3.4 The village of Ardley is located to the northeast of the Main Site and north of the Chiltern Main Line Railway and is separated from the Main Site by intervening agricultural land and established woodland.

3.5 The village of Middleton Stoney is located approximately 2km to the south of the Main Site, separated by intervening agricultural land and associated landscape and field boundary features. Within the intervening land lies the farmstead of Manor Farm.

3.6 As most of the freight in the UK is moved by road, the NPS states that proposed SRFI should have good road access, as this will allow rail to effectively compete with and work alongside road freight to achieve a modal shift to rail. The Main Site is situated at the intersection between nationally significant road and rail corridors, as shown at **Figure 3.2**. It is a strategically significant location for logistics and distribution activity being located along the M40 between London and Birmingham and with the Chiltern Main Line – part of the Strategic Rail Freight network – running adjacent to it.

Figure 3.2: location of OxSRFI site adjacent to the strategic road and rail networks

3.7 The location is therefore well placed to expand the existing network of SRFIs, with good access to both Midlands and South-Eastern markets and distribution networks.

Baseline highway network

Strategic Road Network

3.8 The M40 Motorway runs between London and Birmingham and is a strategic route for local, regional, national, and international traffic and plays an important role in England's SRN as a direct motorway link between the West Midlands and the South and a major route between the two largest cities in the UK. Near Junction 10 it comprises a standard 3-lane motorway with hard shoulders.

3.9 The closest point of access to the SRN from the Main Site is at Junction 10 of the M40, approximately 1.6km to the north of the Main Site when accessed via the B430. The M40 connects Birmingham (and the M42 and M5) to the north, and the M25 and London to the south. At the M40 Junction 10 there is also direct access to the A43, which is also part of the SRN. The A43 heads northeast from Junction 10 and connects to the M1 at Junction 15A. The Cherwell Valley

motorway service area (MSA) is accessed from the Cherwell Roundabout at Junction 10. To access M40 Junction 10 from the Main Site currently involves travelling through the village of Ardley.

3.10 The layout of M40 Junction 10 was altered in 2015 as part of works carried out under Highways England's (now National Highways) Pinch Point Programme. The works involved the modification of the northern roundabout (Padbury Roundabout) to remove the M40 southbound merge slip road, with all southbound traffic now joining the M40 at what was previously the slip road from the motorway services. As part of the works the MSA roundabout (Cherwell Roundabout) was signalised.

3.11 The Pinch Point scheme was not intended as a long-term fix for the junction and assessment work undertaken by National Highways has identified the time period from 2021 to 2026 as the tipping point for the Pinch Point improvement scheme at the junction, at which point the junction performance will deteriorate. In addition, National Highways has identified that the A43/B4100 roundabout (Baynard's Green Roundabout), to the north of M40 Junction 10, currently operates over capacity, with the performance forecast to deteriorate significantly in future years and adversely impacting the operation of M40 Junction 10.

3.12 National Highways identified improvement schemes at the Padbury Roundabout at M40 Junction 10 and at the Baynard's Green Roundabout, to safeguard the operation of these junctions through to 2031. Those schemes were to be delivered through a combination of the OCC Housing Growth Deal funding and developer contributions. The highway works to deliver the Padbury Roundabout were completed in 2025. However, following a reduction in funding, the Growth Deal scheme at Baynard's Green Roundabout was withdrawn in October 2022.

3.13 Assessment undertaken by National Highways also shows that by 2031 the Cherwell Roundabout and B430/A43/M40 northbound off-slip roundabout (Ardley Roundabout) will also operate over capacity. The M40 southbound on-slip at the Cherwell Roundabout breaks down due to the merge type, whereas the Ardley Roundabout breaks down because of the right-turn demand from the M40 northbound off-slip. The breakdown of traffic flow at the Cherwell Roundabout has a knock-on impact at the Padbury Roundabout.

3.14 National Highways identified potential improvement schemes at the Cherwell Roundabout and the Ardley Roundabout, but these are not committed and do not have funding. Even with these additional improvements, the operation of M40 Junction 10 would be at the tipping point by the 2034 assessment year, and assessment work undertaken by the Applicant (TN5 'M40 Junction 10 Options Report', **Appendix 15**) has shown that these potential improvements would not have capacity to accommodate traffic from the Proposed Development.

3.15 Although less direct, access from the Main Site to the SRN via the M40 could also be possible via Junction 9, which is a 10.5km drive to the south of the site, when accessed via the B430, passing through the village of Middleton Stoney, and then via the B4030 and A41.

3.16 To the south, the A34 runs in a northeast to southwest direction and connects Bicester (via the A41) to Oxford. It continues further south, connecting with the M4 at Newbury and the M3 at Winchester. From the Main Site the most direct route to the A34 is via the B430 through Middleton Stoney and the village of Weston-on-the-Green, although there is a 7.5 Tonne weight restriction on the overbridge at the A34/B430 interchange restricting movements to and from the A34 southbound. Access to the A34 from Bicester is from M40 Junction 9.

3.17 The B430 between the A34 and M40 Junction 10 is a diversion route for SRN traffic if there is an emergency which requires closure of the A34 or the M40 motorway between junctions 9 and 10. In such situations the environmental weight restriction on the overbridge is disapplied/suspended.

Local Road Network

3.18 The B430 runs along the eastern boundary of the Main Site between Junction 10 of the M40 to the north and the A34 to the south. The speed limit along the B430 is derestricted, with sections of 30mph restriction through Ardley and a 30mph speed limit on the approaches to Middleton Stoney with a 20mph speed limit within the village. There is a 40mph speed limit on the section of the B430 adjacent to RAF Weston-on-the-Green and through Weston-on-the-Green, although a traffic regulation order has been approved for the speed limit through the village to be reduced to 30mph.

3.19 The B430 provides access to the Viridor 'Ardley Energy from Waste' facility which is located directly to the east of the Main Site. The facility is subject to a HGV routeing agreement with OCC that requires all HGV traffic to access Junction 10 of the M40 via the B430 to the north.

3.20 Upper Heyford Road (sometimes referred to as the Unnamed Road) passes through the Main Site. It connects the B430 to Camp Road and provides the connection to Heyford Park. Although resurfaced in 2025, the road was previously in a poor state of repair.

3.21 Camp Road continues west towards Heyford Park and Upper Heyford. Chilgrove Drive is currently a dead-end which runs to the west of the Main Site. It connects to Camp Road at its southern end. As part of the Heyford Park development (see future baseline section below) the Chilgrove Drive junction is to be upgraded to provide a new signal-controlled layout. Other accesses to the Heyford Park development will be taken from Camp Road.

3.22 The village of Ardley is approximately 1km to the north of the Main Site. The B430 runs through the east of the village, with the main village centre to the west of the B430. To access the Main Site from M40 Junction 10 it is currently necessary to pass through Ardley on the B430 and over the Chiltern Main Line railway bridge (known as the Ardley Station Bridge), which narrows slightly, meaning there is less than the required 5.5m minimum carriageway width at the bridge for HGVs to pass one another. Although no personal injury collision has been reported at the bridge within the last five years, OCC have advised that recent vehicle impacts have occurred to the bridge parapets, for which the existing road layout is likely to be a significant contributory factor.

3.23 The village of Middleton Stoney is approximately 2km south of the Main Site, accessed by the B430 which runs through the village in a north-south direction, connecting to the A34 to the south, and in doing so also passing through the village of Weston-on-the-Green.

3.24 In the centre of Middleton Stoney there is a traffic signal controlled staggered crossroads junction between the B430 and the B4030. The B4030 runs through the village in an east-west direction connecting to the A44 to the west, and to the east it connects with Bicester and in turn the A41, from where access to M40 Junction 9 can be gained.

3.25 There is a committed highway improvement scheme at the staggered crossroads at Middleton Stoney associated with the 2008 planning approval at the Heyford Park site. The committed highway improvement scheme retains the existing signalised junction, but widens the B430 Oxford Road approach, providing a right turn flare for vehicles turning into the B4030 Bicester

Road and provides a short right turn bay for vehicles turning into B4030 Heyford Road. However, this scheme has not yet been implemented and OCC advised that it is unlikely to come forward and that it be excluded from the infrastructure schemes included in the uncertainty log for the strategic transport modelling. Assessment work undertaken to support the Local Plan allocation at Heyford Park concluded that highway impacts at that junction would be severe unless other highway mitigation measures are also implemented.

3.26 The Heyford Park planning application therefore proposed a 'Middleton Stoney Mitigation Package', that would comprise the following measures:

- A bus gate on the B4030 to the west of the village, including a change in priority at the junction of the B4030 with the unnamed road running north to Camp Road.
- The introduction of more frequent 15-minute bus services between the Heyford Park development and Bicester via Middleton Stoney during weekdays.
- The introduction of a cycle route between Heyford Park and Middleton Stoney.
- A weight restriction on the B4030 to the east of Middleton Stoney to reduce the number of HGVs passing through the village.
- The preparation of a full Travel Plan setting out measures aimed at reducing journeys by the private car, especially between Heyford Park and Bicester.

3.27 The Heyford Park scheme received a resolution to grant planning permission subject to the S106 Agreement at the 5 November 2020 Planning Committee meeting. Nevertheless, due to the strength of feeling against the bus gate, which it is understood was considered by residents to simply move traffic from the B4030 Heyford Road to the B430 Ardley Road, without reducing traffic flow through the village, it was agreed that rather than implement the Middleton Stoney Mitigation Package of improvement works, a 'monitor and manage' option will be implemented. The S106 Agreement was signed on 8 September 2022 and includes a 'Middelton Stoney Traffic Monitoring Strategy' which includes the consideration of whether to implement the bus gate mitigation package or continue with mitigating congestion at the B430/B4030 crossroads within the village, or an alternative scheme.

3.28 The Heyford Park developer will provide a financial contribution equivalent to the cost of the proposed Middleton Stoney Mitigation Package and including an additional sum for traffic monitoring. This traffic monitoring will then be carried out by OCC in the intervening period before the need for a bus gate is required. This period is likely to be several years, dependent on the rate of construction at Heyford Park. In this way, the monies are available to deliver the Middleton Stoney Mitigation Package, if it is still shown as necessary, or an alternative solution of equivalent benefit can then be delivered by OCC within the amount of the financial contribution as specified.

3.29 It is clear from the above that the means of dealing with the Heyford Park traffic impact through Middleton Stoney are not yet fully resolved and that the existing constraints would make it difficult to cater for further traffic impacts associated with the Proposed Development.

3.30 The Middleton Stoney Relief Road (MSRR) that forms part of the embedded highways works (see Chapter 4) does not require the bus gate and, together with the proposed Heyford Park Link Road (HPLR) would provide an alternative solution to address the congestion at the crossroads and reduce traffic flows through the village.

Baseline walking conditions

3.31 The Guidelines for Providing for Journeys on Foot[4] document describes acceptable walking distances for pedestrians without mobility impairment. For commuting the preferred maximum walking distance is approximately 2km. **Figure 3.3** shows the 2km preferred maximum walking distance isochrone from the centre of the OxSRFI Main Site, in 400m increments.

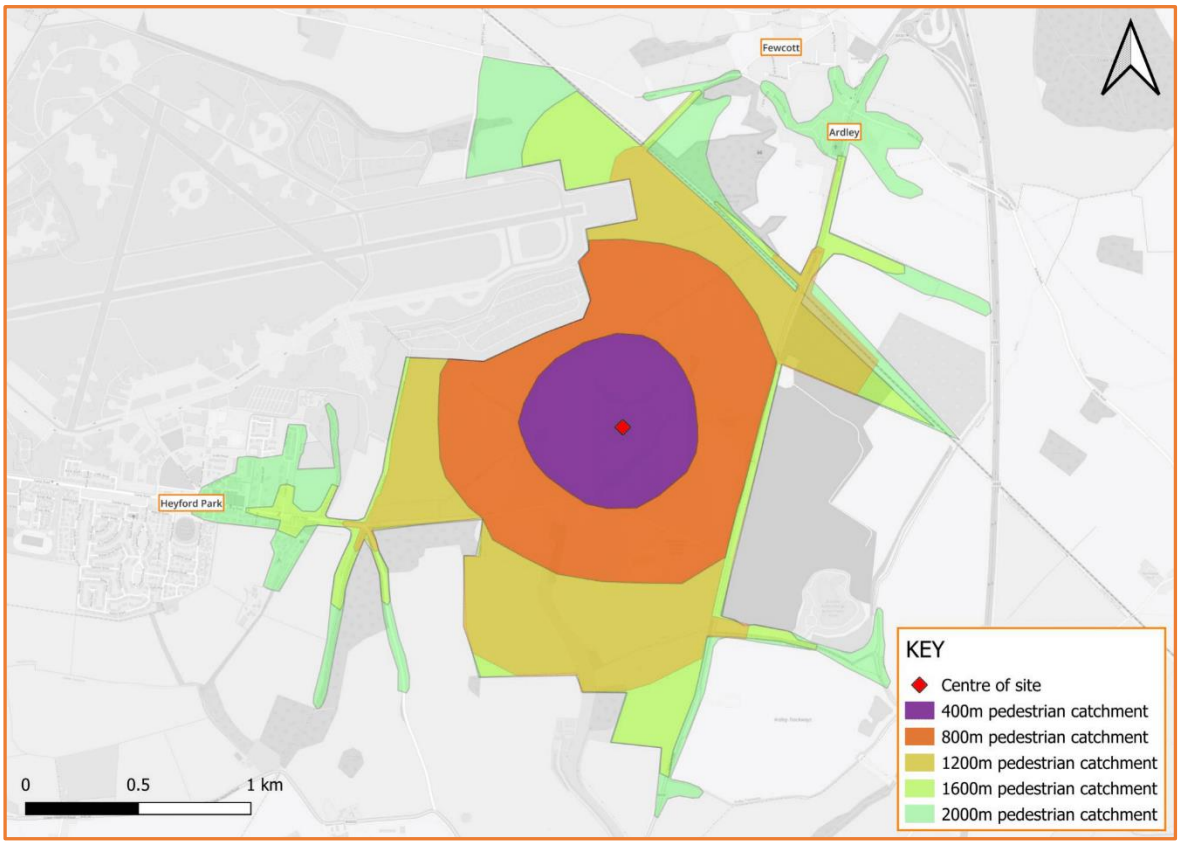


Figure 3.3: 2km pedestrian catchment isochrone from the centre of OxSRFI Main Site

3.32 As shown, and due to the locational requirements for SRFI to be located near to the strategic road and rail networks[5], there is limited population within a short walk of the site. However, Ardley village and the eastern part of Heyford Park are situated within the 2km pedestrian catchment and are within an acceptable walking distance. These two locations may generate walking trips to and from the site, but the pedestrian facilities connecting these locations are currently limited to public rights of way (PRoW).

3.33 Whilst there is a footway network within Heyford Park, there is currently no footway provided on Upper Heyford Road, a single carriageway road which links the B430 with Camp Road and Heyford Park. The speed limit on Upper Heyford Road is derestricted, changing to 30mph at its junction with Chilgrove Drive and the road to Middleton Stoney. Camp Road is subject to a 20mph speed limit through the Heyford Park development.

3.34 The B430 is a single carriageway road that links the A34 to the south and M40 Junction 10 to the north. It is generally rural in nature and so has limited walking facilities. It passes through the villages of Weston-on-the-Green, Middleton Stoney, and Ardley, where footways are generally provided throughout each settlement.

[4] Guidelines for Providing for Journeys on Foot, the Institution of Highways and Transportation, 2000.
[5] As acknowledged in the National Policy Statement for National Networks 2024 (para 3.103).

3.35 At M40 Junction 10 there is an existing footway across the northern section of the junction, running between the Ardley Roundabout on the west of the motorway and the Padbury Roundabout to the northeast of the motorway. At the northern end of the footway there is an at-grade crossing with a pedestrian refuge at the central island across the A43, which is located on the southern arm of the Padbury Roundabout. The crossing facility links with a grass verge, from which access can be gained to Bridleway 367/21 that runs to the north and west of the Cherwell Valley Services. The connection between the A43 and Bridleway 367/21 is overgrown and steep. At the southern end of the footway, it terminates on the B430 arm of the Ardley Roundabout, there is no footway provided along the B430 into Ardley although a connection to the village is possible via the PRoW network.

3.36 There are currently no footways at the A43 Baynard's Green Roundabout, and no provision for pedestrian access to the services located on the northwestern corner of the junction.

Baseline cycling conditions

3.37 Local Transport Note (LTN) 1/20 'Cycle Infrastructure Design' states that "…two out of every three personal trips are less than five miles [8km] in length - an achievable distance to cycle for most people".

3.38 **Figure 3.4** shows the cycling catchment isochrones up to 10km from the centre of the OxSRFI Main Site. Heyford Park, Bicester, Ardley, Middleton Stoney and many of surrounding villages are within cycling distance of the OxSRFI Main Site.

3.39 Bicester has a high number of designated cycle routes, both on and off-street which form a well-connected network as shown in **Figure 3.5**. There are additional opportunities for potential routes to come forwards as part of the future development of the North-West Bicester development and the realigned Howes Lane Strategic Link Road (routes shown in green).

3.40 Outside of Bicester there is limited dedicated cycle infrastructure provided on the road network within the cycle catchment area, other than a shared footway/cycleway on the southern side of Camp Road within Heyford Park, and a section of shared footway/cycleway located in Weston-on-the-Green, on the eastern side of the B430.

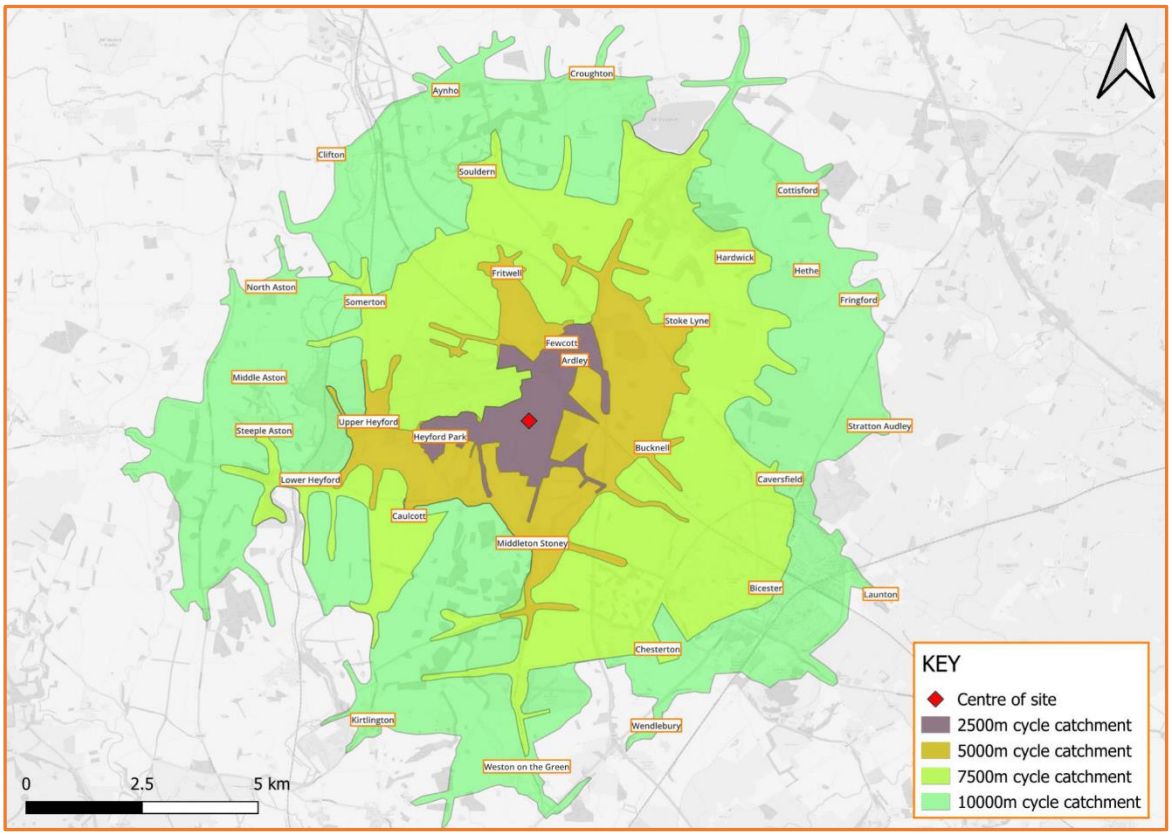


Figure 3.4: 10km cycle catchment isochrone from the centre of OxSRFI Main Site

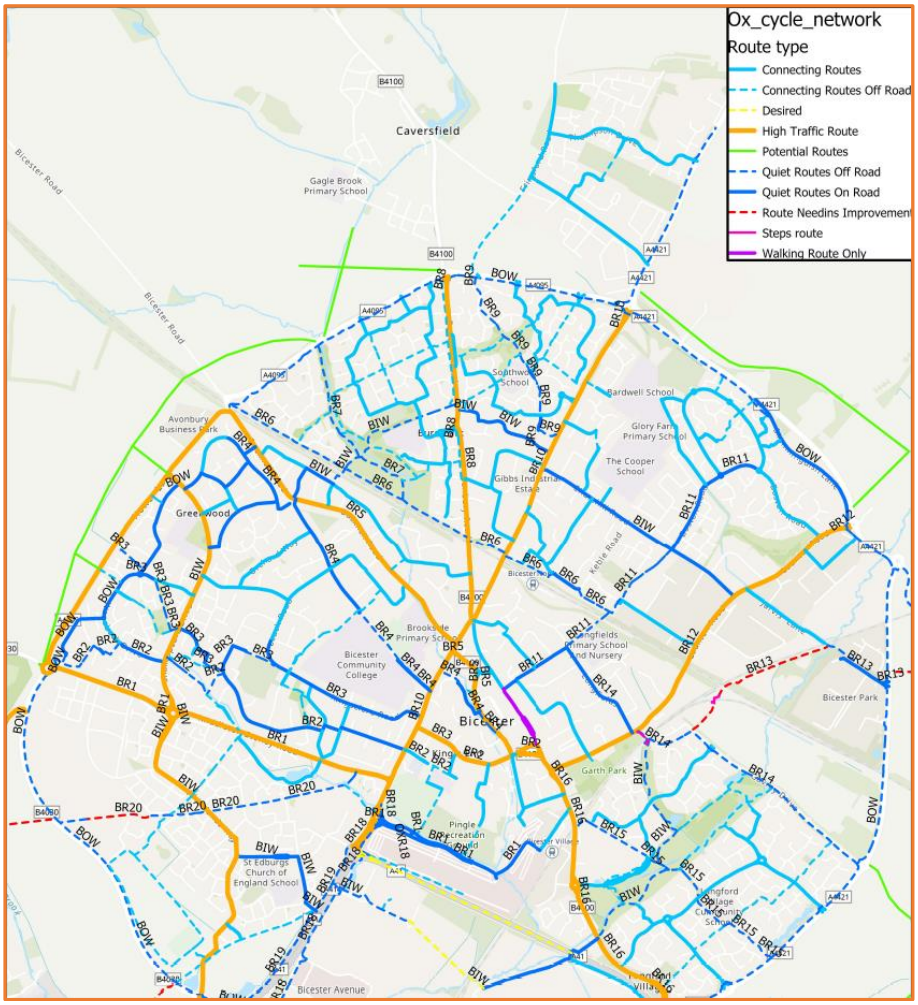


Figure 3.5: extract from the 2020 Bicester Local Cycling and Walking Infrastructure Plan

3.41 The facility in Weston-on-the-Green forms part of the National Cycle Network (NCN) Route 51 which runs from Bicester to Kidlington approximately 8km south of the site. NCN Route 51 and NCN Route 5, located to the west of the Main Site, are shown on **Figure 3.6**. Both routes provide a link to Oxford to the south.

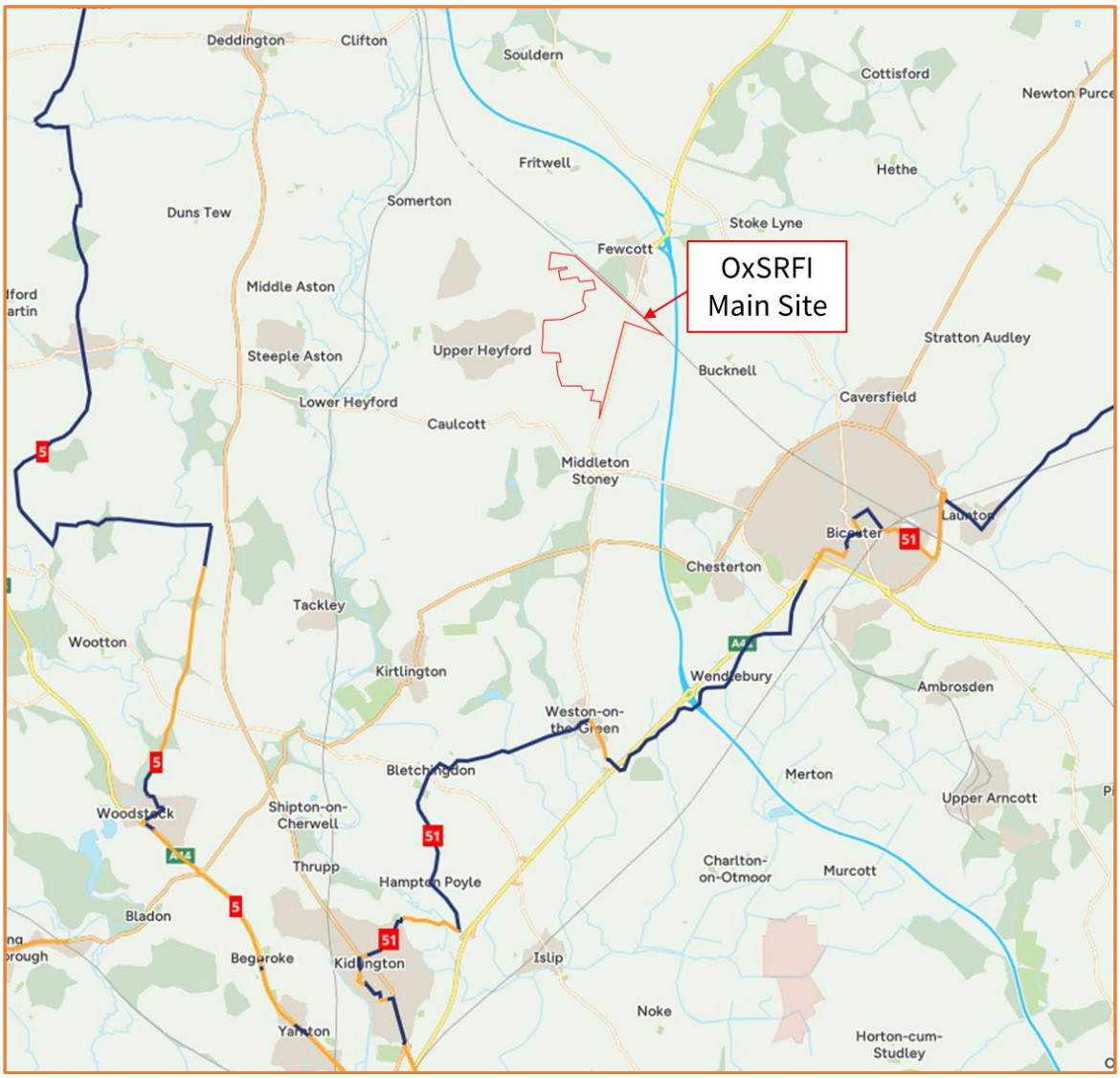


Figure 3.6: extract from Sustrans online national cycle route network plan

3.42 As described above, there are pedestrian facilities at M40 Junction 10, but no cyclist facilities. There are no walking or cyclist facilities at M40 Junction 9. Similarly, there are currently no cyclist facilities at the A43 Baynard's Green Roundabout or the B4100, and cyclists are required to use the road.

Public Rights of Way

3.43 The existing and committed PRoW within the vicinity of the OxSRFI Main Site and the DCO Order Limits, are presented at the drawing ADC1794-DR-011 at Appendix B of the STS (**Appendix 1**).

Baseline bus and rail services

3.44 The main existing bus route in the vicinity of the site is the Service 25, which is operated by Red Rose Travel and runs between Upper Heyford and Bicester Village (railway station), via Lower

Heyford, Heyford Park, and Middleton Stoney and Bicester Pioneer Square (Bicester's main bus interchange). The route of Service 25 is shown in **Figure 3.7**.

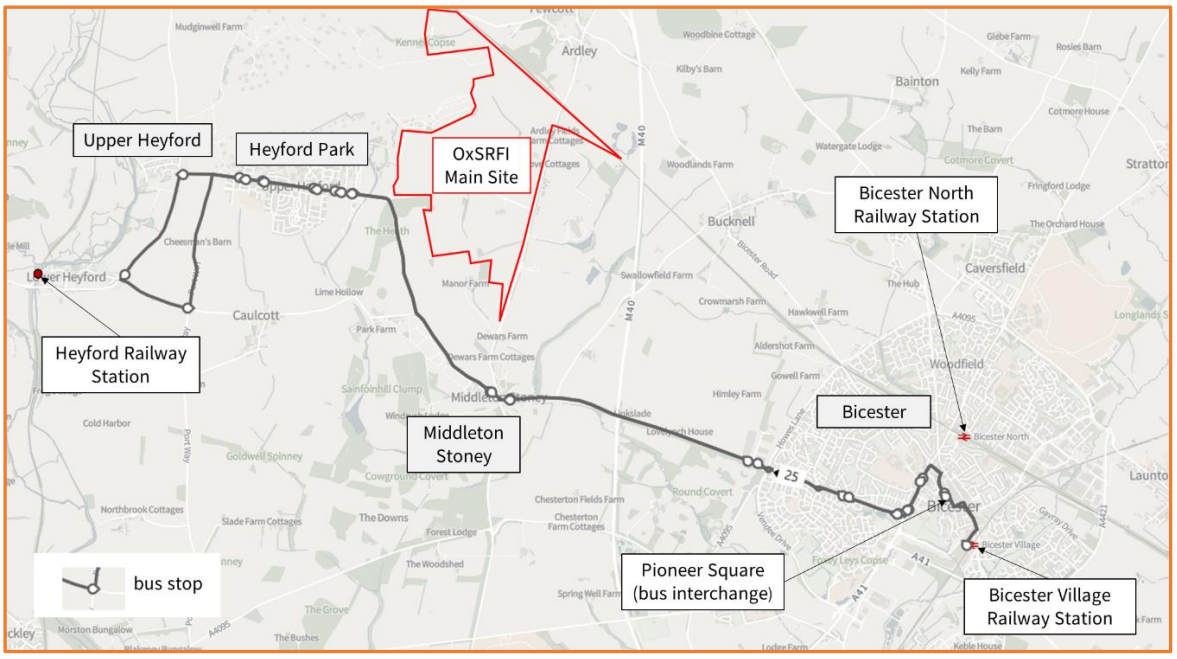


Figure 3.7 Bus Service 25

3.45 The service runs hourly from Upper Heyford to Bicester from Monday to Saturday, between 0700 and 1935 hours (with an earlier 0610 service from Heyford Park only). The return service from Bicester runs hourly from 0638 to 2006 hours Monday to Friday and starts at 0738 hours on Saturday. On Sundays, the service runs every 90 minutes, between 0843 and 1937 hours. The nearest bus stops to the OxSRFI Main Site are on Camp Road at Heyford Park, and in Middleton Stoney, but these are not currently accessible from the OxSRFI site on foot.

3.46 Ardley Village to the north of the OxSRFI Main Site is served by Service 81, known as the Bicester Bee. The 81 is a fixed route service, operated by ABILITY (Northants) that runs between Bicester and Ardley, six days a week. Two services are provided during the morning peak hour, with a further two in the afternoon. The service stops at Bicester, Caversfield, Souldern, Fewcott, Ardley, and Bucknell. The nearest bus stop to the OxSRFI Main Site is on Ardley Road, some 1.5km from the centre of the Main Site and is not currently accessible on foot.

3.47 The main bus interchange in Bicester is located at Manorsfield Road, adjacent to the Pioneer Square Shopping Centre. The stops serve local routes within Bicester as well as regional destinations like Oxford, Headingham, and Brackley. There are a number of facilities in the vicinity of the stops including toilets, cafes, and cash machines. There are also bus stops at the two railway stations that are located within Bicester.

3.48 The nearest railway stations to the OxSRFI Main Site are in Heyford and Bicester, as shown in **Figure 3.7**. Heyford Railway Station is managed by Great Western Railway and located in the village of Heyford approximately 5km from the centre of the Main Site. Trains arrive approximately hourly at peak times, two hourly in off-peak periods, with no trains on Sundays during the winter. Trains travel between Banbury and Didcot Parkway.

3.49 Located in Bicester, Bicester North railway station links Birmingham and London Marylebone. Bicester North is an approximately 800m walk from Pioneer Square bus interchange, and approximately 6km from the centre of the OxSRFI Main Site. There are generally two trains per hour to and from London Marylebone, with more at peak times, and one train to Birmingham. To

London, average journey times are around 55 minutes; for Birmingham Snow Hill and Stratford-upon-Avon, around 1 hour 10 minutes.

3.50 Bicester is also served by Bicester Village railway station, which reopened in 2015 to alleviate pressure and serve the Bicester Village shopping outlet. Bicester Village railway station is located on the Oxford to Bicester line with journey times taking an average of 48 minutes to London Marylebone station or 15 minutes to Oxford.

3.51 The BREEAM Accessibility Index (AI) is influenced by the proximity and diversity of the public transport network and the frequency of services at the accessible nodes. The greater the number of compliant nodes, services and their proximity to the building, the higher the AI. To determine the Public Transport Accessibility Index, the following information should be collated:

- Distance (m) from the main building entrance to each compliant public transport node.
- Public transport types serving the compliant node, e.g. bus or rail.
- Average number of services stopping per hour at each compliant node during the operating hours of the building for a typical day.
- Use the BREEAM Accessibility Index tool to calculate the AI.

3.52 For a public transport node to be compliant under the BREEAM AI assessment, it must be within 650m for a bus service or 1000m for a rail service. On this basis there are currently no compliant bus stops or rail services accessible from the Main Site. This equates to an BREEAM Accessibility Index of 0.

Personal Injury Accidents

3.53 An assessment of the accident data on the road network in the vicinity of the Main Site has been undertaken and is presented at Personal Injury Accident (PIA) Technical Note at **Appendix 2**.

3.54 **Table 3.1** summarises the recorded accidents over the five-year study period.

Table 3.1: Recorded accidents over five-year study period

Severity	Number	Casualties
Slight	406	675
Serious	74	94
Fatal	14	16
Total	494	785

3.55 The PIA assessment identifies some PIA cluster locations. Cluster sites include the A34 approach to the M40 Junction 9, at which there were 83 accidents over the five-year study period, the A41/Bicester Park and Ride roundabout, at which 13 accidents occurred, including two fatal accidents on one arm of the junction, and the A41/Oxford Road (Esso Roundabout) at which 15 accidents occurred.

3.56 Additional smaller PIA clusters have been identified at the A41/Pioneer Way junction, B430/Akeman Street junction, and the Green Lane/Hale junction near Chesterton

3.57 WCHAR Assessment Report (**Appendix 3**) provides further analysis of the PIA assessment to identify any PIAs involving WCH. Of 494 recorded PIAs, 13 PIAs involved walkers, 28 involved cyclists, and none involved horse-riders, as summarised in **Table 3.2**.

Table 3.2: Recorded accidents over five-year study period involving WCH

Severity	Pedestrian (W)	Cycle (C)	Equestrians (H)
Slight	7	18	0
Serious	4	9	0
Fatal	2	1	0
Total	13	28	0

3.58 There were no recorded PIA involving WCH at M40 Junction 10 or the A43 Baynard's Green junction. There was a pedestrian fatality on the M40 Junction 9 southbound off-slip when a HGV hit a group of three pedestrians, formerly the occupants of a broken-down car, that were walking up the slip road. Overall, there are no locational or causal trends of PIAs involving WCH that suggest an underlying highway safety issue.

3.59 A further review of the publicly available PIA data accessed via crashmap.co.uk, for the period from 1 January 2021 to 31 December 2023 (PIA Addendum Report, **Appendix 2**) found there were an additional 143 recorded PIAs within the study area. Of these, 9 PIAs involved walkers and 9 involved cyclists. The additional PIA assessment found that a further 11 PIAs have occurred on the A34 approach to Junction 9.

3.60 Between 2021 and 2023 there were no recorded fatalities. The PIA Addendum Report did not identify any new trends in accident location compared to the original assessment.

3.61 Following agreement of the study area for the TA, a further PIA assessment report was prepared, to include seven study area junctions not covered within the original study area assessments. That report is provided at **Appendix 2**. It considers the five-year period between January 2020 and December 2024. This assessment identified one further location with PIA clusters, this being at the Barleymow Roundabout on the north and south A43 exits.

3.62 On further investigation the increase in the number of accidents on the A43 exits at the Barleymow Roundabout appears to coincide with a change in the road markings at the roundabout, from concentric spiral markings to concentric markings, which is leading to driver confusion regarding which lanes can be used to exit the roundabout. National Highways are aware of this issue and are in the process of completing a safety study at the roundabout.

Baseline surveys

3.63 To inform the baseline position the traffic and WCH surveys listed in **Table 3.3** have been undertaken as part of the supporting transport work.

Table 3.3: baseline survey data

Location	Survey type	Date	Appendix
B4100 (east) at Baynard's Green Roundabout	WCH	19/07/2022 and 20/07/2022	Appendix E of WCHAR (TA Appendix 3)
A43 uncontrolled crossing point Padbury Roundabout	WCH		
A43 eastbound/A43 footway/footpath 367/31	WCH		
A43 westbound	WCH		
Ardley Road/Bridleway 109/26	WCH		
Chilgrove Drive/Unnamed Road/Camp Road/Aves Ditch Bridleway	WCH		
Upper Heyford Road/B430/Bridleway 109/27	WCH		
B4030/Middleton Road/Bridleway 297/1	WCH		
B430/B403 Middleton Stoney Crossroads	Turning Count	13/10/2022	TA Appendix 46
B430 Ardley Road	ATC	21/11/2022 to 27/11/2022	
B4030 Bicester Road	ATC		
B430 Oxford Road	ATC		
B4030 Heyford Road	ATC		
B4030/Empire Road	Turning Count	07/10/2025	Appendix F of TA Appendix 44
A43 Barleymow Roundabout	Turning Count	02/12/2025	Appendix O of TA Appendix 45
A43 Grove Roundabout	Turning Count	02/12/2025	Appendix Q of TA Appendix 45
A43 Brackley Bypass/A422/Oxford Road Roundabout	Turning Count	02/12/2025	Appendix R of TA Appendix 45
A4260 Banbury Road/B4027 staggered crossroads	Turning Count	27/01/2026	Appendix K of TA Appendix 45
A4260 Banbury Road/Bunkers Hill/Upper Campsfield Road	Turning Count	27/01/2026	Appendix L of TA Appendix 45

Amenities

3.64 The existing use, location, and size of the OxSRFI Main Site means that there are currently no existing amenities within 500m of the centre of site. As described below, the nearest amenities are in Heyford Park, adjacent to the site to the west.

Nearby committed development

3.65 There are several committed development schemes located near to the OxSRFI Main Site. These schemes will increase the number of people living within walking and cycling distance of the Proposed Development, and/or they will provide changes to the nearby transport infrastructure. The schemes are shown in **Figure 3.8** and summarised in **Table 3.4**.

Table 3.4: Nearby committed development

Name and Planning Reference	Description	Status
Heyford Park 10/01642/OUT 18/00825/HYBRID	Redevelopment to deliver a new residential settlement, including employment uses, primary school, and a range of other community facilities	Approved
David Wilson Homes (was Pye Homes) 22/03063/F	Residential development for 123 homes	Approved
Richborough Estates/Lone Star 21/04289/OUT	Residential development for up to 230 homes	Approved at appeal

North-West Bicester expansion key consents include: 14/02121/OUT 14/01675/OUT as varied by 19/00347/OUT	6,000 homes total, local centre hubs, 4 primary and 1 secondary school and other community facilities, and 10ha (min.) employment	Some planning permissions approved with implementation, under construction and occupied in part
Great Wolf leisure resort 19/02550/F Varied through 21/04158/F	New leisure resort (sui generis) incorporating waterpark, family entertainment centre, hotel, conferencing facilities and restaurants with associated access, parking and landscaping	Approved at appeal
M40 J9, associated with Tritax development (for Siemens) 22/01144/F	Up to 56,162 sqm of B2 floor space and ancillary uses	Approved

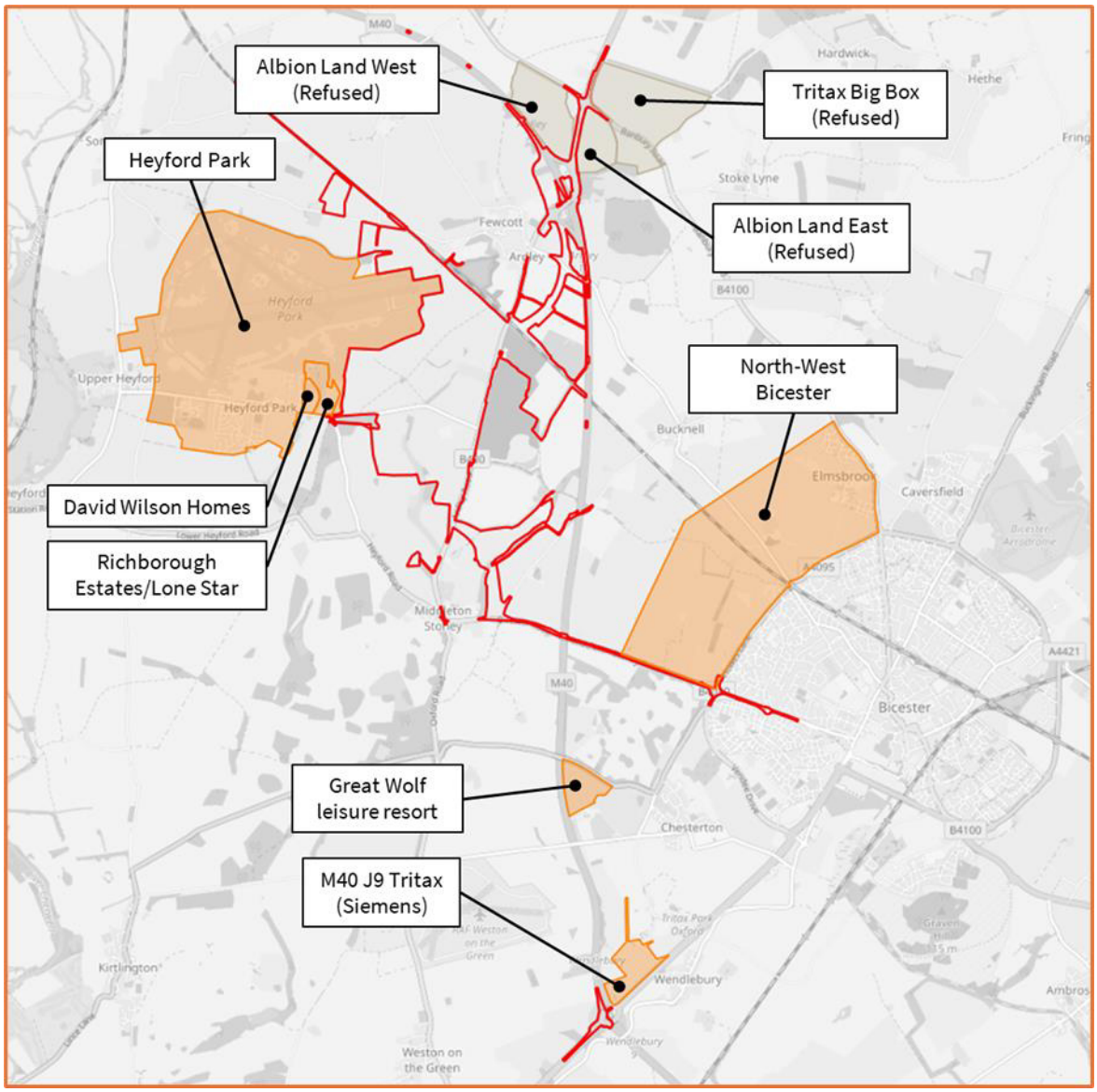


Figure 3.8: Nearby development

3.66 Also shown on **Figure 3.8** in grey are the planning applications summarised in the **Table 3.5**. The three Albion Land planning applications for 280,000 sqm of B8 warehousing and distribution use originally received a resolution to grant planning permission at the 3 July 2025 Cherwell District Council (CDC) planning committee meeting. Following that resolution, the TWG requested that the Applicant include those applications in the future OxSRFI baseline as a commitment.

However, the three Albion Land planning applications returned to planning committee on 15 January 2026 and were refused planning permission and hence are not a commitment.

Table 3.5: speculative development at A43 Baynard's Green

Name and Planning Reference	Description	Status
Albion Land in the vicinity of the A43, north of M40 Junction 10 21/03266/F (infrastructure only), 21/03267/OUT (east of the A43), 21/03268/OUT (west of the A43	280,000 sqm of logistics floorspace between the two sites	Resolution to grant planning permission received at 3 July 2025 planning committee, but subsequently refused planning permission at 15 January 2026 planning committee
Symmetry Park by Tritax Big Box 22/01340/OUT	300,000sqm of B8 warehousing and distribution use	Resolution to refuse planning permission received at 3 July 2025 planning committee, and subsequently refused planning permission at 15 January 2026 planning committee

3.67 The Symmetry Park planning application by Tritax Big Box for 300,000sqm of B8 warehousing and distribution received a resolution to refuse planning permission at the 3 July 2025 CDC planning committee meeting. Following that resolution the application returned to planning committee on 15 January 2026, where it was refused planning permission.

3.68 It is understood by the Applicant that both Albion Land and Tritax Big Box are appealing the planning committee decisions.

3.69 At the time of writing, Heyford Park has around 1,100 dwellings, plus other uses, with a further circa 1,500 homes being committed as part of a masterplan approved in 2022 to guide the delivery of the Cherwell Local Plan 2011 to 2031 allocation that was adopted in 2015. The other uses in place include the Heyford Park School (for pupils aged 3-16), the Heyford Hotel, Baton restaurant, 455 Bar and Bowling, Heyford Park Innovation Centre (offices and laboratory space) and retail uses including a Sainsbury's Local. There is also Heyford Park Gym and Leisure Centre, with sports hall, badminton court, tennis court, squash court, football pitch, and dance studio.

3.70 In addition, Dorchester Group, who developed Heyford Park, have plans for further development, with up to 9,000 homes, plus leisure and employment space at Heyford Park. A planning application for that scheme was submitted to CDC in 2025 (25/02190/Hybrid). This is of relevance as it would significantly increase the number of people living within walking and cycling distance of the OxSRFI, and who may choose to work at the OxSRFI.

3.71 Between the OxSRFI site and Heyford Park, there is also the David Wilson Homes (was Pye Homes) development of 123 dwelling on land north of Camp Road and Richborough Estates/Lone Star development for 230 dwellings that was approved at appeal, both of which will fall within acceptable walking distance of the centre of the OxSRFI site.

3.72 Similarly, 6,000 homes are to be built at North-West Bicester, which will further increase the number of people living within cycling distance of the OxSRFI, or on the bus routes to/from the OxSRFI, and who may choose to work at the OxSRFI.

3.73 The North-West Bicester site is allocated in the adopted 2011 to 2031 Local Plan and as part of the Cherwell Local Plan 2042 additional land at the North-West Bicester site has received a draft allocation, that would mean that a further 1,500 homes could be delivered above the original 6,000 homes envisaged. Delivery rates for the site have been reviewed as part of the housing trajectory and it is expected that 3,200 homes will be delivered by 2042, with 4,300 homes to be delivered beyond the end of the plan period.

3.74 The number of people living within walking and cycling distance of OxSRFI will therefore increase over time as Heyford Park and adjacent committed residential sites are built out, along with the North-West Bicester allocation.

Future baseline highway network

3.75 The future baseline conditions with regards to the committed and allocated development and infrastructure schemes has been agreed with the TWG and included in the BTM modelling. The committed and allocated development and infrastructure schemes for each of the assessment years as described in **Chapter 7** are contained in the Uncertainty Log for the BTM. The Uncertainty Log provides a record of the assumptions made in the BTM that will affect travel demand and supply, covering residential developments, employment development, retail developments, education development and infrastructure schemes.

3.76 This process has considered the developments specifically referenced by Cherwell District Council in their comments provided as part of the Scoping Opinion and as discussed and agreed with the TWG.

3.77 Reference to the Uncertainty Log should be made for the full details of the development and infrastructure schemes included in the assessment year as set out in **Chapter 7**. Assessment in this way ensures that traffic growth due to committed and planned development is considered as part of the assessment of the Proposed Development.

Future baseline walking and cycling

3.78 Some of the above-described development schemes will change the future baseline conditions for walkers, cyclists, and public transport users as they relate to the OxSRFI development. The following sections describe those changes.

3.79 OCC have recently consulted on the Middleton Stoney Road Active Travel Scheme to design and deliver an active travel scheme along the road between Oxford Road and the A4095/4030 roundabout in Bicester. Details of the scheme are provided at Appendix A of the **STS** (**Appendix 1**).

3.80 There is an existing footway on the northern side of Camp Road within Heyford Park and a shared footway/cycleway on the southern side of the road. As part of the Heyford Park S106 Agreement, there is a requirement for the Heyford Park development to provide a footway connection along the length of Camp Road to the Camp Road/Chilgrove Drive/Upper Heyford Road junction, with cycle provision also extended east to connect with the Camp Road/Chilgrove Drive/Upper Heyford Road junction through provision of an on-road cycle facility and traffic calming.

3.81 Also included in that S106 Agreement is a requirement for the Heyford Park development to signalise the junction and provide a realigned Chilgrove Drive to serve as one of the Heyford Park development accesses, including HGV access. The old alignment of Chilgrove Drive will be dedicated as a bridleway and as part of the junction signalisation a shared footway / cycleway

with Toucan crossing will be provided at the northern side of the road, extending north along the new realigned Chilgrove Drive (Heyford Park site access). A Pegasus crossing will be provided to connect the bridleways to the north and south of the junction, as part of the reinstatement of the Aves Ditch route. The crossing point will also connect with the committed footway on Camp Road and the on-road cycle facilities described in the paragraph above.

3.82 These footway and cycle facilities and the changes to the Camp Road/Chilgrove Drive/Upper Heyford Road junction are shown on the drawings at Appendix C of the **STS** (**Appendix 1**).

3.83 In addition to the footway/cycleway to be provided by the Heyford Park development, as part of the Richborough Estates/Lone Star housing scheme, a new off-road footway/cycleway will be provided on the northern side of Camp Road between the Camp Road/Chilgrove Drive/Upper Heyford Road junction and the site access to the housing scheme. The proposed scheme submitted with the planning application is shown at Appendix D of the **STS** (**Appendix 1**).

3.84 There are currently no dedicated pedestrian facilities along Upper Heyford Road. However, the Heyford Park S106 Agreement includes a commitment for the Heyford Park development to provide a new pedestrian and cycle path adjacent to Upper Heyford Road and linking Camp Road and the B430. The Heyford Park S106 Agreement also requires the signalisation of the B430/Upper Heyford Road junction and the incorporation of a crossing for use by non-motorised users, including equestrians, over the B430, linking with bridleway 109/27 (which is to also be improved as part of enhancing the connectivity between the Heyford Park site and Bicester – see paragraph below). An indicative plan showing the footway/cycleway along Upper Heyford Road and the improvement scheme at the B430/Upper Heyford Road junction are shown on the drawings at Appendix E of the **STS** (**Appendix 1**).

3.85 The Heyford Park development is also required via the S106 Agreement to provide a 'Cycle Route Contribution' towards a cycle route between Heyford Park and Bicester. These funds are primarily to be used for surface improvements along the bridleway route formed by Bridleways 109/27, 297/6, 148/6, 148/4, and 129/9 to provide a resin bound surfaced route suitable for cyclists, horse-riders, and walkers. OCC are working with Sustrans to improve the bridleway route – referred to as 'Cherwell Valley Greenway' - including addressing the current cross-arable field sections of the bridleway route to either harden the surface or divert to field edges, with proposals for artwork and other amenity improvements at points along the Greenway route.

3.86 Clearance and surfacing works have taken place on the sections of the bridleway between the B430 and Trow Pools (other than a short section where further quarrying associated with Dewars Quarry will be taking place and hence the surfacing works will follow that). At the time of writing, no works have been undertaken on the bridleway route to the east of Middleton Road.

3.87 Combined with the committed footway/cycleway facility to be provided alongside Upper Heyford Road, this will provide a cycle link between Heyford Park and Bicester.

3.88 As part of the Himley Village Development, forming part of the North-West Bicester development, a 3m wide shared footway / cycleway will be implemented running parallel or directly alongside the B4030 Middleton Stoney Road along the North-West Bicester site frontage.

3.89 The Albion Land and Tritax Big Box schemes were required to improve the A43 Baynard's Green Roundabout. The improvement scheme included staggered Toucan crossings on the B4100 east and west and A43 south arms of the junction and new shared use footway/cycleway links, including a link to the Baynard's Green local services. The schemes were also required to provide a footway/cycleway alongside the B4100 between Bicester and their sites, which would have

connected with the new facilities provided at the Baynard's Green junction. However, following the refusal of these schemes, these works are not committed.

Future baseline bus services

3.90 As part of the consented Heyford Park development significant improvements will be made to local bus services. The focus for the Heyford Park public transport strategy is to provide a convenient and direct bus route to Bicester and link with the rail services within the town, thereby facilitating onward train travel to Oxford.

3.91 Funding was secured via the S106 Agreement to provide a service with an initial 30-minute frequency, increasing to 20 minutes and then 15 minutes as the Heyford Park development is built out. This will be a Monday to Saturday daytime service (0600 hours to 2000 hours), with a lower frequency hourly service provided on Sundays between 0800 to 1800 hours.

3.92 The bus route is via Camp Road, through the Heyford Park site and back onto Camp Road, via the new Chilgrove Grove Dive / Heyford Park site access, and then onwards along the B4030 and through Middleton Stoney to Bicester. The proposed route through the Heyford Park development is shown in **Figure 3.9** along with the proposed new bus stop infrastructure**.**

Figure 3.9: Route of Heyford Park bus service through Heyford Park site (extracted from Heyford Park Transport Assessment Addendum, OxSRFI Main site area added)

3.93 For the purposes of the OxSRFI Public Transport Strategy, OCC have confirmed that it should not be assumed that Heyford Park bus scheme will be operating at its 15-minute target frequency in the OxSRFI opening year. Instead, OCC have advised it is reasonable to assume that the service will be operating every 30 minutes Monday to Saturday and hourly on a Sunday when OxSRFI opens in 2031.

4.0 PROPOSED DEVELOPMENT AND EMBEDDED MITIGATION

SRFI development

4.1 The Proposed Development comprises a Strategic Rail Freight Interchange (SRFI) to be known at OxSRFI. The components of the Proposed Development on the Main Site are defined by parameters and zones which are set out on the **Parameters Plan**[6]. It will consist of warehousing and distribution B8 use within Zone A1 to A5, and the Rail Terminal and associated infrastructure within Zone C.

4.2 The Rail Terminal, rail corridor and associated infrastructure (sidings, storage facilities) are located adjacent to the Chiltern Main Line in the northern part of the Main Site with rail connections to allow for access to and from the Chiltern Main Line in both directions. Reference should be made to the **Rail Plans**[7] and **Rail Report**[3] for further details of rail access. The associated rail infrastructure will include rail reception sidings, container storage area and associated container transfer equipment, and refuelling facility. The terminal area will also include HGV parking relating to the terminal use, and associated ancillary built accommodation such as gatehouses, and estate management offices. The rail connection from the Chiltern Main Line includes limits of deviation with the route to be confirmed through the detailed design.

4.3 OxSRFI would connect with the Chiltern Main Line railway. It will provide rail connections to allow for access to and from the Chiltern Main Line in both directions, which means that trains would be able to enter and leave the site towards London and the South East and the Channel Tunnel, or Midlands, North and Scotland.

4.4 The Rail Terminal is designed to accommodate trains of up to 775m length (maximum freight train length). The Rail Terminal would enable the transfer of freight from road to rail (and vice versa), as well as the storage of containers or other freight at the terminal itself. The **Parameters Plan** includes provisions for direct rail connected warehouse units by means of dedicated rail connection to development Zones A1, A2, and A3.

4.5 Zone B is stated on the **Parameters Plan** as being an area which could be developed for warehousing or used as part of the Rail Freight Terminal depending upon occupier and rail terminal requirements. This would be confirmed through the detailed design.

4.6 The **Parameters Plan** sets a maximum area for the warehousing and distribution use at the Proposed Development at 6.5 million sqft (603,850 sqm). The development could therefore comprise up to 603,850 sqm of B8 use. However, to provide some flexibility for occupiers seeking mezzanine space, the **Parameters Plan** includes an allowance for a further 201,283 sqm in the form of B8 mezzanine floor space use. For assessment purposes the maximum floor area, including the allowance for mezzanine floor space, is therefore used in this TA.

4.7 The number and precise layout of buildings is not fixed, but an **Illustrative Masterplan**[8] is included with the DCO application which shows one way in which this floorspace could be accommodated on the Main Site. However, the height and broad layout of development zones on the site are fixed. The final, detailed layout of the OxSRFI will be determined post consent, but the expectation is for a range of large floorplate building sizes to be provided. The layout of the Proposed Development allows for flexibility in the scale and the design of individual units so that

[6] DCO Document 2.5 (Parameters Plan)
[7] DCO Document 2.11 (Rail Plans)
[8] DCO Document 2.6 (Illustrative Masterplan)

it can meet a wide range of market requirements. This includes the ability to accommodate very large floorspace units to respond to the needs for National Distribution Centres.

4.8 Zone A will also include an area of secure, dedicated, HGV parking. This provision will ensure that HGVs arriving early at the Main Site are able to wait in a safe, suitable location. This will include driver welfare facilities and will help ensure that the Proposed Development does not contribute to any impacts on the amenity of nearby communities caused by parked HGVs, particularly overnight. This provision will only be available for HGVs visiting the warehousing or the Rail Terminal.

4.9 Zone D covers the Central Hub area which comprises Ashgrove Farm which includes the existing Grade II listed Threshing Barn, as well as the Ashgrove Cottages. The Farmhouse and associated buildings including the Threshing Barn, together with Ashgrove Cottages are proposed to be retained and re-used within the Proposed Development and will be redeveloped for ancillary uses relating to the OxSRFI.

4.10 The Main Site will incorporate a spine road which will run from the Main Site access through the centre of the site, providing access to all parts of the Main Site. The connection between the Main Estate Road and the Heyford Park Link Road will be restricted to use for buses, cyclists, pedestrians, and for emergency access arrangements only.

Operation

4.11 Container movements to the individual warehouse units on the site would either be direct to the individual warehouse unit (or plot) by rail, by means of an adjacent rail loading/unloading pad, or by delivery of the containers to the main loading/unloading terminal at the Rail Terminal, with the containers then being transferred between the rail interchange and warehouse units using the Estate Roads.

4.12 In keeping with most inland rail freight interchanges, the proposed Rail Terminal is likely to operate on a 24-hour basis from Monday to Friday, and until Saturday lunchtime. However, volume growth at the main ports could lead to an increase to 6 or 7-day operation. All the warehousing units are likely to operate on a 24-hour basis, seven days a week. The main shifts are likely to reflect typical patterns, which are 0600-1400 hours, 1400-2200 hours and 2200-0600 hours, although there could be some variation depending on the individual occupier requirements.

4.13 It is anticipated that it would take several years before the rail freight interchange would operate at full capacity. The Rail Terminal will have capacity to accommodate up to 12 trains per day. To ensure a robust approach, the maximum capacity of 12 trains per day has been assumed to occur within the assessment periods set for the future year transport modelling assessment scenarios considered in the transport work.

Embedded mitigation

4.14 The Proposed Development, through good sustainable design, will significantly improve public transport, pedestrian, and cyclist provisions, providing travel opportunities for non-car-based modes of transport. The Proposed Development will also provide improved road access to the Main Site.

4.15 These ‘embedded mitigation’ will provide high-quality pedestrian, cycle, and public transport improvements to link with nearby communities, provide the required access to the Main Site, and

connection to the SRN, and prevent, or reduce to acceptable levels, the otherwise potential adverse significant transport effects of the Proposed Development. The embedded mitigation is described in the following sections.

4.16 It should be noted that the Highway Plans, Access and Rights of Way Plans (AROW Plans), Speed Limit Plans, Highway Classification Plans, and Traffic Regulation Plans are not included in the TA as they are separate DCO Documents. Where relevant, reference to the appropriate DCO document number is provided.

Sustainable Transport Strategy

4.17 As part of the OxSRFI development, a significant package of connectivity improvements is proposed to provide new and enhanced means of sustainable travel to and from the key employee catchment areas and the Main Site.

4.18 The **Sustainable Transport Strategy** (**STS**) report (**Appendix 1**) presents the sustainable transport connectivity improvements that will be provided as part of the OxSRFI and determines the transport mode share and Travel Plan targets for the Proposed Development to ensure that the Main Site is provided with appropriate public transport links, high quality active travel connectivity and car share opportunities, to maximise the use of sustainable modes of travel.

4.19 The STS and resulting connectivity improvements have been developed in consultation with OCC and the TWG. The improvements comprise:

- New and enhanced pedestrian and cyclist facilities
- New and diverted PRoW
- New and enhanced bus services.

4.20 The Proposed Development will provide the following infrastructure measures that will directly support travel by sustainable transport modes:

- High quality, surfaced, and lit pedestrian and cycle connections within the Main Site.
- Links with new and improved external pedestrian and cycle routes to Heyford Park, Ardley, Middleton Stoney and Bicester, including Orders to lower the existing speed limits on identified cycling routes.
- New pedestrian and cycle facilities along the B430, and the proposed Middleton Stoney Relief Road (MSRR) and the Heyford Park Link Road (HPLR).
- Changes and enhancements to the existing PRoW network.
- Secure, covered cycle parking, and facilities at each unit to enable cycling (e.g. showers, lockers, changing facilities).
- Fund new and enhanced bus services to and from Heyford Park, Bicester, and Banbury.
- Dedicated bus stops within the development, with lighting, landscaping and shelters, to create a pleasant waiting environment.
- A mobility hub at the northern end of the Main Site, with a bus stop and secure covered cycle parking, to encourage trips to and from Ardley by sustainable modes.
- New bus stops adjacent to the Ardley Energy from Waste site and within Middleton Stoney.
- A bus gate at the Principal Access and Secondary Access.
- Designated priority car share bays at each of the warehouse units and Rail Terminal to encourage car sharing.
- Designated Electric Vehicle parking and charging bays.
- Designated motorcycle bays.
- Suitable taxi drop-off or waiting areas.

- Other active travel infrastructure provided as part of the Highway Works at and between M40 J10 and the A43 Baynard's Green junction.

4.21 Use of active travel modes and public transport will be encouraged through the Travel Plan process, which will also include the promotion of car sharing at OxSRFI. Accordingly, the **STS** groups the sustainable transport measures under the following headings, as summarised in the sections below:

- Active Travel and Public Rights of Way Strategy
- Public Transport Strategy
- Car Share Strategy.

Active Travel and Public Rights of Way Strategy

4.22 A key objective of the **STS** for OxSRFI is to provide walking and cycling connectivity between the Main Site and the principal settlements within the walking and cycling catchment areas. In addition, opportunities to enhance the Public Rights of Way (PRoW) network have been identified, and new and diverted PRoW are proposed.

4.23 Active travel and enhancing amenities for local walkers, cyclists and horse-riders has been at the forefront of the development of the embedded mitigation, which seeks not only to provide active transport access to the Main Site but also to enhance connectivity and amenity for the local area.

4.24 Several bridleways and footpaths in the area were severed when the M40 was constructed, resulting in lengthy diversions for users and sometimes putting these users onto inappropriate routes. The Scheme provides an opportunity to address some of the severance issues caused to the PRoW network.

4.25 The proposals have been influenced and developed in consultation with the TWG and have been subject to a Walking, Cycling and Horse-Riding Assessment Review (WCHAR). The **WCHAR Assessment Report** is provided at **Appendix 3** and identifies opportunities for the scheme to enhance the active travel and PRoW network. The **WCHAR Review Report** which considers these opportunities and how they can be achieved is provided at **Appendix 4**.

4.26 The Proposed Development will provide new and enhanced pedestrian and cycle links and facilities that will provide links to, and enhance connectivity between, Heyford Park to the west, Ardley to the north, Bicester to the east, and Middleton Stoney to the south. The proposed connectivity improvements have been developed to complement, or in some cases to provide alternatives, to the existing active travel network, including measures that are to come forward as part of committed development as detailed in the future baseline section in **Chapter 3**.

4.27 The works associated with the Walking, Cycling and PRoW are illustrated on the Footway, Cycleway and Rights of Way Strategy Plan **drawing number ADC-1794-DR-042** provided at the rear of this TA, and full details are provided in the in the **STS**.

4.28 In summary, the Proposed development will provide the following foot and cycle improvements as shown on the Highway Plans (**Documents 2.7A to 2.7E**):

- New pedestrian and cycle facilities with Toucan crossings at the A43 Baynard's Green junction providing an off-carriageway route for users between the B4100 arms and linking with the local services located north of the junction (Highway Plans **Document 2.7A**).
- A new foot and cycle link alongside the A43 between Cherwell Roundabout and the A43 Baynard's Green Roundabout to connect with new pedestrian and cycle facilities that

would be provided by the Proposed Development at the Baynard's Green junction (Highway Plans **Document 2.7A and 2.7B**)[9].

- New signal-controlled crossings at Ardley Roundabout and Cherwell Roundabout linking the existing footway on the southern side of the M40 overbridge with public bridleway 367/20 and providing connectivity with Stoke Wood to the east (Highway Plans **Document 2.7B**).
- Provision of a shared footway/cycleway on the new Ardley Road bridge over the Ardley Bypass, providing connectivity to the east of the OxSRFI site (Highway Plans **Document 2.7B**).
- The B430 north of the Principal Access would be closed to vehicular traffic (which will now use the Ardley Bypass) and a high-quality pedestrian and cycle link will be created between OxSRFI and Station Road, providing a connection to Ardley via a downgraded Station Road (Highway Plans **Document 2.7C**).
- A shared footway/cycleway alongside the proposed HPLR and the MSRR (Highway Plans **Document 2.7C and 2.7E**).
- A segregated footway and cycleway along the HPLR providing a link from the Secondary Access to Camp Road/Chilgrove Drive and the committed footway and cycle improvements linking with Heyford Park, thereby providing connectivity to the Heyford Park development and the areas to the west of the site (Highway Plans **Document 2.7D)**.
- New and enhanced footway/cycleway links to Bicester, comprising:
    - A Toucan crossing on the B430 for pedestrians and cyclists (Highway Plans **Document 2.7D**) linking with the Cherwell Valley Greenway, combined with a reduction of the speed limit on this section of the B430 from derestricted to 40mph (Speed Limit Plan **Document 2.10D**).
    - Reallocation of road space at the Middleton Road bridge over the M40 to provide an off-carriageway route for walkers, cyclists, and horse riders (as shown on the Highway Plans **Document 2.7E**). Traffic is to be controlled by traffic lights in a shuttle arrangement.
    - A new shared footway/cycleway connecting from the enhanced Middleton Road bridge to the shared footway/cycleway to be provided alongside the MSRR (Highway Plans **Document 2.7E**).
    - Reduced speed limit on Ardley Road, Middleton Road, and Bicester Road from derestricted to 40mph (Speed Limit Plans **Documents 2.10B, 2.10C, 2.10E, and 2.10F**).
    - Reduced speed limit on the B430 within Ardley from 30mph to 20mph, and the B430 Station Road south of Ardley and north of the Ardley Station Bridge from derestricted to 20mph (Speed Limit Plans **Documents 2.10B and 2.10C**).
    - Signage scheme for cyclists using Ardley Road, Middleton Road, and Bicester Road, along with advisory cycle lanes on Bicester Road (Footway, Cycleway and Rights of Way Strategy Plan **drawing number ADC-1794-DR-042**).
- New shared footway/cycleway along the western side of the B430 linking with the above-described facilities and providing connectivity to the Principal Access and Ardley to the north, and Middleton Stoney to the south (via the provisions alongside the MSRR), as shown on Highway Plans **Documents 2.7C, 2.7D, and 2.7E**.
- New signal control pedestrian crossing and enhanced footway provision at the B430/B4030 crossroads in Middleton Stoney, and a zebra crossing on the B430 Ardley Road near to the proposed new bus stops (Highway Plans **Document 2.7E**).

[9] The DCO also makes provision for the footway/cycleway to connect with the alternative form of the Baynard's Green Roundabout, should either (or both) of the Albion Land or Tritax Big Box schemes (see paragraphs 7.19) successfully appeal their planning refusals. This is shown on Highway Plans **Document 2.7W**).

- New Toucan crossings and shared footway/cycleway links on all arms of the A4095/B4030 Middleton Stoney Road roundabout on the western side of Bicester. These works are identified in **Chapter 11** as being required in addition to the embedded Highway Works, as part of a proposed connectivity and capacity improvement to the roundabout. These local works are currently included in the Application Site, but ongoing discussion are being held with OCC where the Applicant will instead provide a financial contribution to works proposed to be delivered by OCC (Highway Plans **Document 2.7E**).

4.29 The following changes and enhancements to the PRoW network, as shown on the Access and Rights of Way (AROW) plans (**Documents 2.3A to 2.3H**) are also proposed:

- Provision of new footway/cycleway at A43 Baynard's Green junction to provide a link to existing footpath 367/28 (Highway Plan **Document 2.7A**).
- New bridleway connection from the new footway/cycleway adjacent to the A43 (Highway Plans **Document 2.7B**) and bridleway 367/21 (AROW Plans **Documents 2.3A and 2.3C**).
- Stopping up of the short section of bridleway 367/21 between the A43 and Cherwell Valley MSA (AROW Plans **Document 2.3C**), replaced by a new bridleway (AROW Plans **Documents 2.3A and 2.3C**) and the footway/cycleway adjacent to the A43 (Highway Plans **Document 2.7B**).
- Stopping up of bridleway 109/32 to the north of the Ardley Roundabout at M40 Junction 10 and provision of a new footpath link (AROW Plans **Document 2.3C**), and the replacement of bridleway link via a new shared footway/cycleway as part of the Highway Works (Highways Plan **Document 2.7B**).
- Stopping up of public bridleways 109/28, 109/29 and 109/30 that are contained within the OxSRFI Main Site (AROW Plans **Document 2.3D**).
- Replacement of the above with a new bridleway route around the western and southern perimeter of the Main Site within the landscape areas, including a new bridge to cross the SRFI rail sidings and retain connection to the existing bridge over the Chiltern Main Line Railway, linking with Quarry Cottages, and a new Pegasus crossings on the B430 south of its junction with the MSRR, and on Camp Road south of its junction with Upper Heyford Road (AROW Plans **Documents 2.3 B, 2.3D** and **2.3F**).
- The above would reconnect the 'Aves' Ditch' bridleway route that was severed by RAF Heyford (AROW Plans **Documents 2.3B and 2.3D).**
- Permissive access through the OxSRFI Main Site using the footway/cycleway alongside the estate road (AROW Plans **Documents 2.3D and 2.3E**).
- A new bridleway would be provided between the 109/20 bridleway just southwest of Ardley and 'Aves Ditch' near Heyford Park. The route would provide improved connectivity between Ardley and Heyford Park, where previously there was no PRoW provision in this area (AROW Plans **Document 2.3D**).
- Stopping up of part of footpath 109/22 between bridleway 109/26 and the proposed Ardley Bypass, and provision of a new footpath link connecting to Ardley Road (AROW Plans **Document 2.3C**).
- Stopping up and diverting public bridleway 109/26 that runs alongside the M40 from between the Chiltern Main Line Railway and Ardley Road. This would include the closure of the existing level crossing (Bucknells Farm Level Crossing) on the Chiltern Main Line Railway. The diverted bridleway route would cross the new rail sidings via a new bridge and would cross the Chiltern Main Line Railway via an existing bridge. The diverted route would run alongside the Ardley Bypass, before connecting back to Ardley Road (AROW Plans **Document 2.3C and 2.3E**).
- A new bridleway link would be provided from this diverted route, passing within the span of the new Ardley Bypass bridge over the Chiltern Main Line railway, before connecting with

the section of the Station Road (B430) that is proposed to be closed to vehicular traffic, providing a further link with Ardley village (AROW Plans **Document 2.3E**).

- Stopping up of bridleway 109/32 to the north of the Ardley Roundabout at M40 Junction 10 and the replacement of this facility with a new shared footway/cycleway (AROW Plans **Document 2.3C**).
- Part of footpath 148/5 will be stopped up and upgraded to a footway/cycleway as part of the proposed strategy to enhance cycle routes to Bicester (AROW Plans **Document 2.3G** and **2.3H**).
- Footpath 297/8 would be rerouted and upgraded to become a bridleway and linked via a new underpass at the MSRR to a new bridleway route provided to the west of the MSRR that would form part of a wider new bridleway network (AROW Plans **Document 2.3G** and **2.3H**).
- This would connect with the new bridleway route provided within the southern perimeter of the Main Site area linking with the existing Aves Ditch bridleway 422/3 via the new Pegasus crossing of Camp Road (south) (AROW Plans **Document 2.3F**).
- Stopping up of a short redundant part of bridleway 398/7 at M40 J9 as part of the highway works proposed at J9 (AROW Plans **Document 2.3H**).
- Enhanced connection from the new footway/cycleway adjacent to the A43 and bridleway 367/21(AROW Plans **Document 2.3A**).

4.30 Overall, the proposed works will involve the stopping up of around 4.4km of bridleway. However, the proposals provide over 9km of new bridleway and will provide new connectivity and access, including reconnecting the Aves Ditch route that was severed by RAF Heyford and providing connectivity lost when the M40 was constructed.

4.31 The active travel routes and changes to the PRoW network will provide a much-improved network of high-quality pedestrian and cycle routes around the Ardley, Heyford Park, Middleton Stoney areas, plus the western side of Bicester, promoting active travel and enabling a shift to sustainable transport modes.

Public Transport Strategy

4.32 The **Public Transport Strategy** (**PTS**) for OxSRFI is set out in detail in the **Appendix 5**. The strategy is to deliver high quality public transport links to and from OxSRFI, focusing specifically on access by bus. The OxSRFI will provide a Bus Service Contribution that will be used by OCC to fund the delivery of bus services to and from OxSRFI and Heyford Park, Bicester, and Banbury. The Bus Service Contribution is secured via the S106 Agreement as part of the DCO application. The intention is that the public transport strategy is flexible and can respond to changing requirements of employees and employers as the development of OxSRFI progresses.

4.33 Passenger rail travel will be facilitated with direct bus links to Bicester and its railway stations, to provide for rail travel as part of a multi-modal journey to and from OxSRFI. A new passenger rail station does not form part of the OxSRFI development proposals, although the OxSRFI scheme would not prejudice the future provision of such at the former Ardley Station site, should proposals be brought forwards by others.

4.34 The **PTS** is flexible to allow for future changes and an evolving demand. For example, moving to double-deck buses when appropriate to increase service capacity. It is recognised that public transport is most attractive when it is direct and with a regular timetable, with reliable journey times, and that for public transport to be attractive, provision needs to be in place at first occupation. However, flexibility in the strategy is important due the potential unknowns associated with a development of this scale and integration with adjacent development.

4.35 The 'Bus Service Contribution' has been agreed with OCC as sufficient to fund the following bus routes:

- 'Heyford Park – OxSRFI – Bicester'
- 'Banbury – OxSRFI'.

4.36 The route of the proposed 'Heyford Park – OxSRFI – Bicester' service is shown in **Figure 4.1**. The service would commence from the start of occupation at the OxSRFI site. The OxSRFI scheme would fund:

- Diversion of two Heyford Park buses through the OxSRFI Main Site to provide a 30-minute frequent service.
- The extension of the Heyford Park service routeing through the OxSRFI Main site to cover early mornings from 0400 hours to 0800 hours, and evenings from 2000 hours to 2300 hours.
- Additional bus service on Sunday to improve the frequency from hourly to 30 minutes during the day and the extension of the service to cover the early morning 0400 to 0759 hours and evenings 1800 to 2300 hours, thereby providing 7 day a week operation.
- Provide accessible high quality bus stops within the Main Site and at the Principal Access, with pedestrian crossings, lighting, shelter and real time information, to provide a pleasant waiting environment.
- Provide a mobility hub with covered cycle parking at the northern end of the site to facilitate multi-modal bus journeys to and from Ardley village via bicycle.
- Provide bus gates (with raising barrier) at the Principal Access and Secondary Access.
- Provide new bus stops and crossing in Middleton Stoney on the B430 Ardley Road along with improvements to pedestrian facilities at the crossroads.
- Provide new bus stops on the B430 near to the Ardley EFW facility, which is not currently accessible by bus.

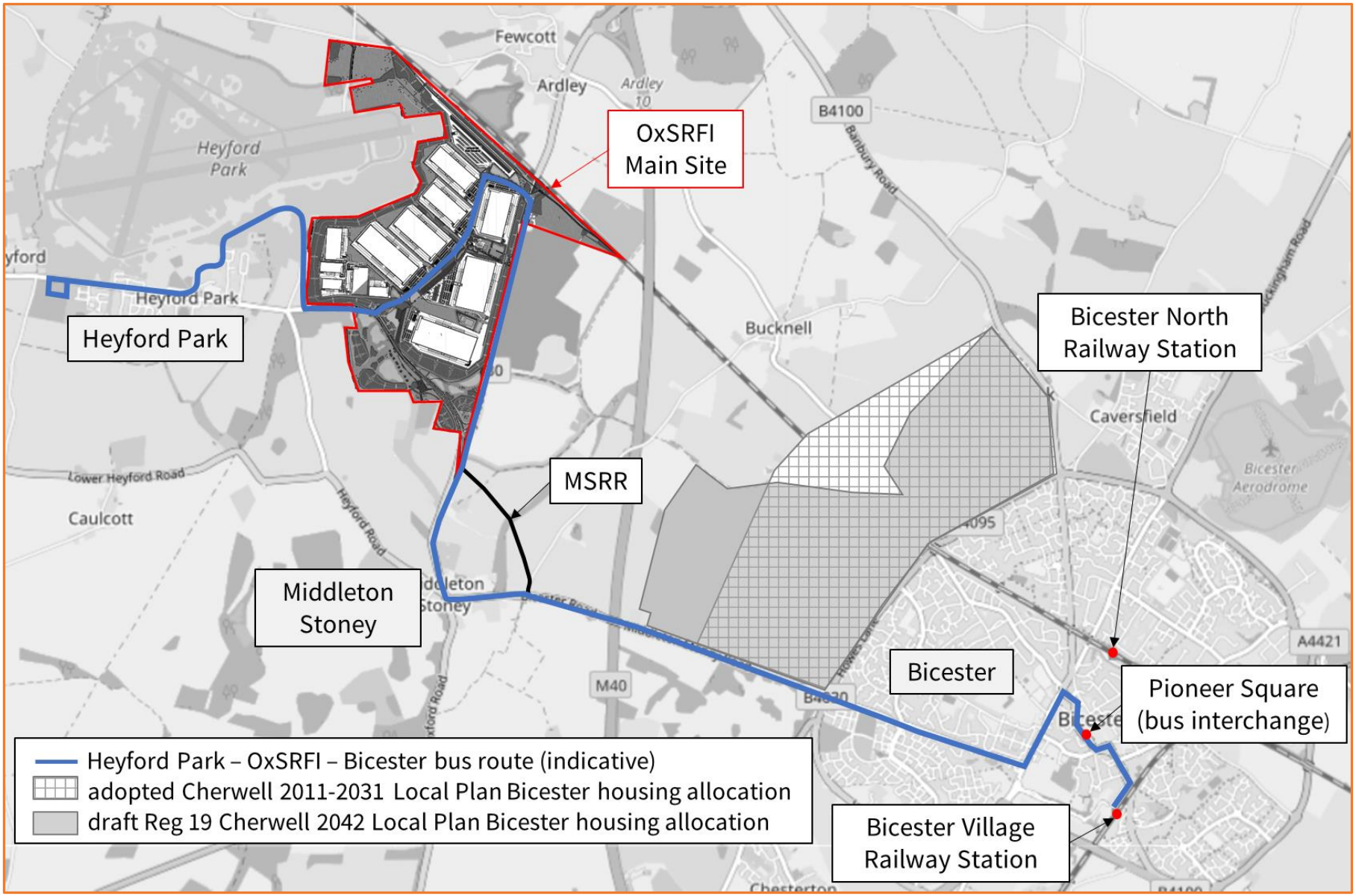


Figure 4.1: Proposed 'Heyford Park – OxSRFI – Bicester' bus service

4.37 The route of the proposed 'Banbury – OxSRFI' bus service is shown in **Figure 4.2**. The service would route via the A4620, passing through and stopping at Deddington village. There would potentially be opportunity for the service to stop at other villages on the route. The OxSRFI scheme would fund the provision of a morning and evening peak hour and shift-change bus service to Banbury to be introduced as demand for the service warranted it.

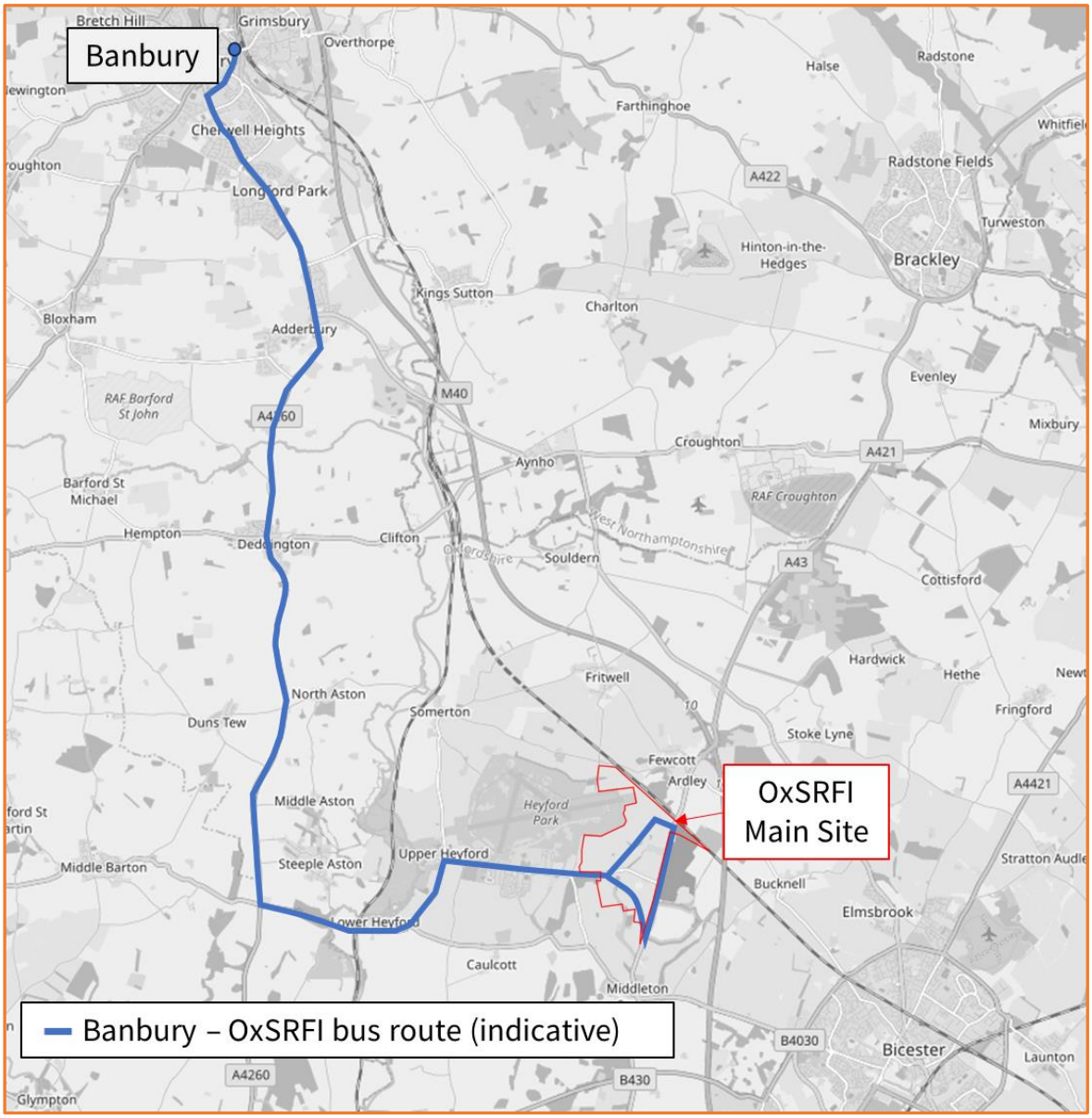


Figure 4.2: Proposed 'Banbury - OxSRFI' bus service

4.38 For the purposes of calculating the 'Bus Service Contribution' the cost revenue model has accounted for provision of the service from Year 2 of occupation at OxSRFI.

4.39 The service would not prejudice the delivery of an hourly service between Banbury and Bicester via Heyford Park and OxSRFI in the long-term if OCC secured additional funding.

4.40 The Bus Service Contribution required to fund the proposed bus services described above has been agreed with OCC and is set at £3,262,351 to cover a 10-year period. In addition, a financial contribution will also be secured in the S106 Agreement for OCC to provide real time information (RTI) at each new bus stop. OCC have advised that current contribution for RTI (Index Linked to October 2021) is £9,356 per screen which includes a commuted sum for maintenance. Based on the provision of 14 new bus stops equates to a financial contribution of £130,984.

4.41 The above enhancements to the bus services will significantly increase the opportunities for bus travel between OxSRFI and Heyford Park, Bicester and Banbury, and will increase the BREEAM Accessibility Index (AI) for the OxSRFI to provide a score of 1.77 (**Framework Travel Plan**, ES Appendix 3.2).

Car Share

4.42 Car sharing is when two or more people share lifts and travel together. It offers the convenience of a car, whilst reducing the costs and the number of single occupancy vehicles on the road, thereby helping to reduce pollution and congestion. As described in the **Framework Travel Plan** car sharing will be actively promoted at OxSRFI as part of the Travel Plan process.

4.43 As evidenced at Section 5 of the **STS**, car sharing has been very successful at other SRFI sites, where the critical mass associated with the high number of employees all working at the same location, and good promotion through the Travel Plan, has led to significant take up.

4.44 The Applicant will ensure the car share platform is operational from first occupation. There could also be the opportunity to expand the platform to include other major employers in the vicinity of OxSRFI. Such expansion could further enhance the benefits of car sharing to both OxSRFI and the local business community.

4.45 Car sharing will be encouraged through site-wide promotion and incentives via the Travel Planning process. The Applicant will ensure the car share platform is operational from first occupation. Performance of the car sharing scheme will be reviewed as part of the Travel Plan monitoring process.

Travel Plan

4.46 Full details regarding the aims, objectives, targets, expected outcomes and implementation and management of the Travel Plan are provided at the **Framework Travel Plan** (ES Appendix 3.2). Compliance with the **Framework Travel Plan** is secured via a requirement in the DCO.

4.47 The aims of the **Framework Travel Plan** for OxSRFI are to ensure that:

- OxSRFI is well served by sustainable travel infrastructure (including walking, cycling, public transport and car sharing) from the first occupation of the development;
- sustainable travel modes are actively promoted, and their use is facilitated;
- staff have a reasonable alternative to the private car for their journey to work; and
- the proportion of trips made by single occupancy vehicle, and the total overall car traffic generation is minimised.

4.48 Section 3 of the Framework Travel Plan sets supporting objectives and nine targets to achieve these aims with an overall target of achieving a 26% reduction in single occupancy car journeys, from 92% in the baseline to 68% over the five-year monitoring period.

4.49 The management of the Travel Plan is set out in Section 4 of the **Framework Travel Plan**. It includes the appointment of a Site-wide Travel Plan Co-ordinator (STPC) who will manage the Travel Plan, including the central administration, ensuring the Travel Plan is marketed, implemented, monitored and reviewed over time for the OxSRFI.

4.50 Individual Unit Travel Plan Co-ordinators (UTPC) will be appointed for each organisation within each warehouse unit and at the Rail Terminal. They will be responsible for preparing subsidiary

full Travel Plans for their business, in line with the principles set out in the **Framework Travel Plan**.

4.51 Section 5 of the **Framework Travel Plan** sets out the specific travel plan measures to be implemented to achieve the Travel Plan targets and meet the overall aim of encouraging employees to commute to the site by sustainable travel.

4.52 The Travel Plan monitoring period will be from first occupation until five years following full occupation of the development. This means it will extend from the opening year in 2031 through to 2039, based on completion and full occupation in 2034.

Sustainable Transport Working Group

4.53 A Sustainable Transport Working Group (STWG) will be set up for the site, and formed of the STPC, the Applicant, OCC, the local planning authority, and other stakeholders such as public transport operators, car share providers, etc. and potentially the UTPCs.

4.54 The STWG's role will be to oversee the delivery of the Public Transport Strategy and focus the Travel Plan - to review changes in priorities and measures suggested by the STPC, depending on requirements and how well the Travel Plan is meeting its targets.

4.55 The group would meet bi-annually and could development ad hoc working groups where specific needs arise at certain times.

4.56 The establishment of the STWG is secured by a DCO requirement. The protocol for the SWTG is given at Schedule 2 of the DCO.

Parking Provision

4.57 OCC's Parking Standards set out maximum car parking standards and minimum cycle parking standards. For B8 usage, the expected upper limit for car parking is one space per 300sqm of floor space. As the masterplan is illustrative at this stage, the quantum of parking is not yet defined.

4.58 Nevertheless, accessible parking will be provided at each B8 unit on the development site, as will electric vehicle charging points for at least 25% of the total car parking spaces.

4.59 Car sharing will be a key mode of transport promoted through the Travel Plan and as such, the appointed Site-Wide Travel Plan Co-ordinator (STPC) will work with each Unit Travel Plan Co-ordinator (UTPC) to designate and sign priority car share bays close to building entrances.

4.60 High quality, secure cycle parking will be provided, as will motorcycle parking.

4.61 OCC's Parking Standards do not provide rates for the provision HGV parking and HGV parking is not defined at this stage in any case, because the masterplan is illustrative. However, each warehousing unit and the Rail Terminal will provide an appropriate level of on-plot HGV parking. The Main Site will also include an area of secure, dedicated, HGV parking. This provision will ensure that HGVs arriving early at the Main Site are able to wait in a safe, suitable location. This will include driver welfare facilities and will help ensure that the Proposed Development does not contribute to any impacts on the amenity of nearby communities caused by parked HGVs, particularly overnight. This provision will only be available for HGVs visiting the warehousing or the Rail Terminal.

Highway Works

4.62 **Chapter 3** identifies a highway capacity constraint at M40 Junction 10 and at the A43 Baynard's Green roundabout. The Stage 1 assessment work presented in **Chapter 8** of this TA confirmed that existing congestion at M40 Junction 10 and A43 Baynard's Green junction would worsen with background traffic growth and, without mitigation, the junction performance would deteriorate further with the addition of the traffic from the Proposed Development.

4.63 Through consultation with the TWG, the need for a significant and comprehensive improvement scheme at M40 Junction 10 and the A43 Baynard's Green was identified as a requirement for the project. In addition, a new link road is proposed connecting the Main Site directly to M40 Junction 10. This new road will form a bypass to the village of Ardley, which is required to avoid otherwise unacceptable adverse effects on the village of Ardley with regards to severance, noise and air quality impacts. Furthermore, the existing B430 Ardley Station railway bridge would act as a capacity constraint that the new bypass and new bridge over the railway negates.

4.64 The proposed Highway Works also include the Heyford Park Link Road (HPLR) and Middleton Stoney Relief Road (MSRR). The need for the HPLR arises as a direct result of the master planning of the OxSRFI Main Site, as the existing Upper Heyford Road is consumed within the Main Site. The HPLR is required to retain access to Heyford Park and other areas to the west. As detailed in **Chapter 3**, the MSRR is required to mitigate an otherwise unacceptable impact at the already congested B430/B4030 crossroads within Middleton Stoney and, in removing that congestion, allow bus services serving the Main Site (and Heyford Park) to operate effectively.

4.65 The overall package of Highway Works was developed from this starting point. That process is described at **Chapter 8** of this TA. The design and assessment methodology used a combination of traditional assessment based on the observed traffic count data, strategic modelling using the BTM, and detailed transport modelling.

4.66 The resulting **overall highway mitigation strategy** is shown diagrammatically at **drawing OxSRFI-BWB-GEN-XX-SK-CH-SK41** provided at the rear of this TA, and comprises the following Highway Works:

Principal Access

- Construction of a new partially signal controlled roundabout on the B430 just south of the Chiltern Main Line Railway. This will provide access to the Main Site for all vehicular traffic.

Ardley Bypass

- Construction of the Ardley Bypass to the east of Ardley village connecting the Principal Access with the reconfigured Ardley Roundabout (part of the J10 Improvements).

M40 Junction 10 Highway Improvements and A43 Trunk Road Works

- The proposed J10 Improvements to include a new dedicated exit slip road to the A43 northbound with a new bridge over the M40 removing A43 bound traffic from the Ardley Roundabout and Cherwell Roundabout junctions, enlarging and signalising Ardley Roundabout, relocated and amended slip roads, widening of the A43, and amendments to the Cherwell, Padbury and Baynard's Green roundabouts.

Heyford Park Link Road (HPLR) and Secondary Access

- Construction of a new single carriageway road with off-carriageway active travel routes, which will provide a link from the B430 north of Middleton Stoney to Heyford Park, linking at its western end with Camp Road. The Secondary Access will be provided on the HPLR. This will be restricted to use by buses, cyclists, pedestrians, and emergency access only. All other vehicular traffic will use the Principal Access.

Middleton Stoney Relief Road (MSRR)

- Construction of a new single carriageway road around the northeast of Middleton Stoney village, connecting the B430 and B4030 and linking with the HPLR and providing off-carriageway active travel routes

M40 Junction 9 Highway Improvement Works

- The J9 Improvement works to increase capacity from the A34 to M40 northbound and improve road safety on A34 approach to the junction.

Other Local Highway Works

- Removal of the B430/Upper Heyford Road junction following the opening of the HPLR.
- Amendments (change in priority) of the Camp Road/Chilgrove Drive/Upper Heyford Road junction if the HPLR is constructed and open prior to the improvements to be delivered at this junction by the Heyford Park development.
- Signalisation of the A4095/B4030 Roundabout to increase capacity (Applicant to provide financial contribution via the S106 Agreement for OCC to deliver the works).
- A 'monitor and manage' fund to be used to by National Highways to implement a capacity improvement scheme at the A43 Barleymow roundabout should the requirement to implement the scheme be triggered.
- The following works to enable and improve active travel and recreational use by pedestrians, cyclists and horse riders:
    - Chilgrove Drive bridleway connection
    - Aves Ditch bridleway connection
    - Ardley Bypass PRoW works
    - B430 footway/cycleway and Toucan crossing
    - Middleton Road bridge shuttle working and active travel improvements connecting to the MSRR
    - Quarry Cottages turning head and PRoW connection
    - Middleton Stoney crossroads pedestrian improvements and zebra crossing
    - Aves Ditch north bridleway connection

4.67 Further details regarding each component of the proposed Highway Works are provided in the following sections. The scope of the design works to be submitted with the DCO application has been agreed with the TWG, as set out at Technical Note 7 'Scope of Highway Design Pre-DCO' (**Appendix 18**). The detailed geometric design of the Highway Works has been advanced to a sufficient stage to confirm that they are implementable, with only matters of detail to be agreed in accordance with the protective provisions set out in the DCO (see paragraphs 4.93 and 4.95).

4.68 The provisions for active travel and PRoW have been at the considered throughout the development and design of the Highway Works, as detailed in the earlier sections of this chapter,

which will provide appropriate crossings where active travel and PRoW facilities interact with new or existing roads.

Principal Access

4.69 Vehicle access to the Main Site (other than for buses and emergency service vehicles, which could also use the Secondary Access) is proposed via a new partially signal-controlled roundabout on the B430, located just to the south of the existing bridge over the Chiltern Main Line railway. The design of the junction is shown on Highway Plans **Document 2.7C**. The northern arm would comprise the Ardley Bypass, with the existing section of the B430 to the north stopped up for vehicular traffic. The southern arm would be to the existing B430. A segregated left-turn lane is proposed from the Main Site access arm to the Ardley Bypass. A separate right-turn lane would be provided which would be subject to a height restriction, thereby requiring all HGVs exiting the Main Site to travel north to M40 Junction 10 using the Ardley Bypass.

Ardley Bypass

4.70 The highway design for the Ardley Bypass is shown on the Highway Plans **Document 2.7B and 2.7C**. It is proposed as a 2+1 carriageway, which will have two lanes northbound and one lane southbound, thereby allowing all traffic exiting the Main Site using the segregated left turn to be provided with a dedicated lane. Ardley Road would not connect to the bypass and will be taken over the new road via a new bridge, which will include an off-carriageway shared footway/cycleway. At its southern end the bypass would bridge over the Chiltern Main Line railway to serve the Main Site and rejoin the existing B430 at the Principal Access roundabout.

4.71 The B430 to the north of the new site access roundabout would be stopped up for vehicular traffic, as proposed on AROW Plan **Document 2.3E**, with the existing B430 traffic using the new bypass to access M40 Junction 10. The proposed Ardley Bypass therefore would remove B430 through-traffic from the village and deliver the new access road to the Main Site from M40 J10.

M40 Junction 10 Improvement Works and A43 Trunk Road Works

4.72 The highway design for the M40 Junction 10 complex and Baynard's Green is shown on the Highway Plans **Documents 2.7A and 2.7B**. The key elements of the arrangement are:

- M40 to A43 northbound traffic is provided with a new northbound link with new bridge over the M40 that connects with Padbury junction.
- The northbound M40-A43 link significantly reduces traffic flows through the M40 Junction 10 complex thereby creating capacity at the Ardley and Cherwell junctions to accommodate the OxSRFI development traffic, whilst also improving journey times for M40 to A43 northbound traffic.
- The Ardley Roundabout would be enlarged and signalised to accommodate the Ardley Bypass and provide additional operational capacity.
- The M40 northbound merge is relocated to the north of the improved Ardley Roundabout, to allow the new northbound link to be provided.
- Amendments to Cherwell Roundabout to allow the A43 northbound movement to operate as free-flow, whilst providing increased right turn storage for the M40 southbound and Cherwell Valley MSA movement via a dedicated right turn lane. Under the proposed arrangement traffic exiting the Cherwell Valley MSA wishing to travel north of the A43 would do so via Ardley Roundabout.
- Replace the Padbury signalised 'teardrop' junction with a new signalised junction to accommodate the new M40 to A43 link.

- Widen the A43 southbound between the Padbury and Cherwell junctions to four lanes and widen the A43 between the Padbury and Baynard's Green junctions to three lanes in each direction.
- Improvements to the M40 southbound merge to provide a two-lane merge arrangement.
- Enlargement and signalisation of the A43 Baynard's Green Roundabout provide significant improvement in junction operation.

HRLR and Secondary Access

4.73 The highway design for the HPLR and Secondary Access are shown on Highway Plans **Document 2.7D**. The Secondary Access for the use of pedestrians, cyclists, buses and emergency vehicles only is proposed on the southern boundary of the Main Site connecting with the HPLR via a simple priority-controlled junction. Use of the Secondary Access for buses will be controlled by a raising barrier.

MSRR

4.74 The highway design for the MSRR is shown on Highway Plans **Document 2.7E**. The MSRR will form a new signal-controlled junction with the B430 and the HPLR at its western end and provides a new roundabout with the B4030 and Middlton Road at its eastern end.

M40 Junction 9 Highway Improvements

4.75 To reduce congestion on the A34 approach to M40 Junction 9, an improvement scheme is proposed which would provide a third left-turn lane between the A34 and the M40 northbound. The highway design for the proposed improvement is shown on the Highway Plans **Document 2.7D**. The proposals include a change to the speed limit on the A34 approach to the junction, with the aim of slowing down vehicles which enables drivers to better react to queuing traffic head and will provide a safety improvement on the A34 approach, where an existing collision problem was identified in **Chapter 3**. This is shown on the Speed Limit Plans **Document 2.10D**.

Other Local Highway Works

4.76 The local highway works to remove the B430/Upper Heyford Road junction following opening of the HPLR is shown on Highway Plans **Document 2.7D**.

4.77 Under the planning permission of the Heyford Park development the Camp Road/Chilgrove Drive/Upper Heyford Road priority-controlled junction is to become a signalised junction, with a realigned Chilgrove Drive to serve as one of the Heyford Park development accesses. The timing of those works is such that they are expected to be complete prior to the opening of OxSRFI, in which case the HPLR will tie into the new signalised junction arrangement. However, should OxSRFI come forward ahead of the Heyford Park works being complete, then the Highway Works to amend the priority of the existing junction shown on Highway Plans **Document 2.7D** would be undertaken by OxSRFI. This will encourage existing traffic to use the new HPLR and avoid travelling through Middleton Stoney.

4.78 The local highway works at the A4095/B4030 shown on Highway Plans **Document 2.7E** are identified in the **Chapter 11** as being required in addition to the embedded Highway Works, as part of a proposed connectivity and capacity improvement to the roundabout. These local works are currently included in the Application Site, but ongoing discussion are being held with OCC where the Applicant will instead provide a financial contribution to works proposed to be delivered by OCC.

HGV Routeing Strategy

4.79 It has been agreed with OCC and National Highways that the Proposed Development would be subject to an HGV Routeing Strategy. All operational HGVs going to and from the Main Site are to be routed via the proposed B430 Ardley Bypass and M40 Junction 10. At J10 HGVs can then travel north or south on the M40 and northeast on the A43, from where there is access to the B4100 to Bicester.

4.80 HGVs will not be permitted to travel to and from the Main Site using the B430 south of the Principal Access, the B4100 north of Baynard's Green, or the existing B430 in Ardley (which is to be downgraded as a result of the scheme following the opening of Ardley Bypass). The permitted HGV routes are shown in **Figure 4.3**.

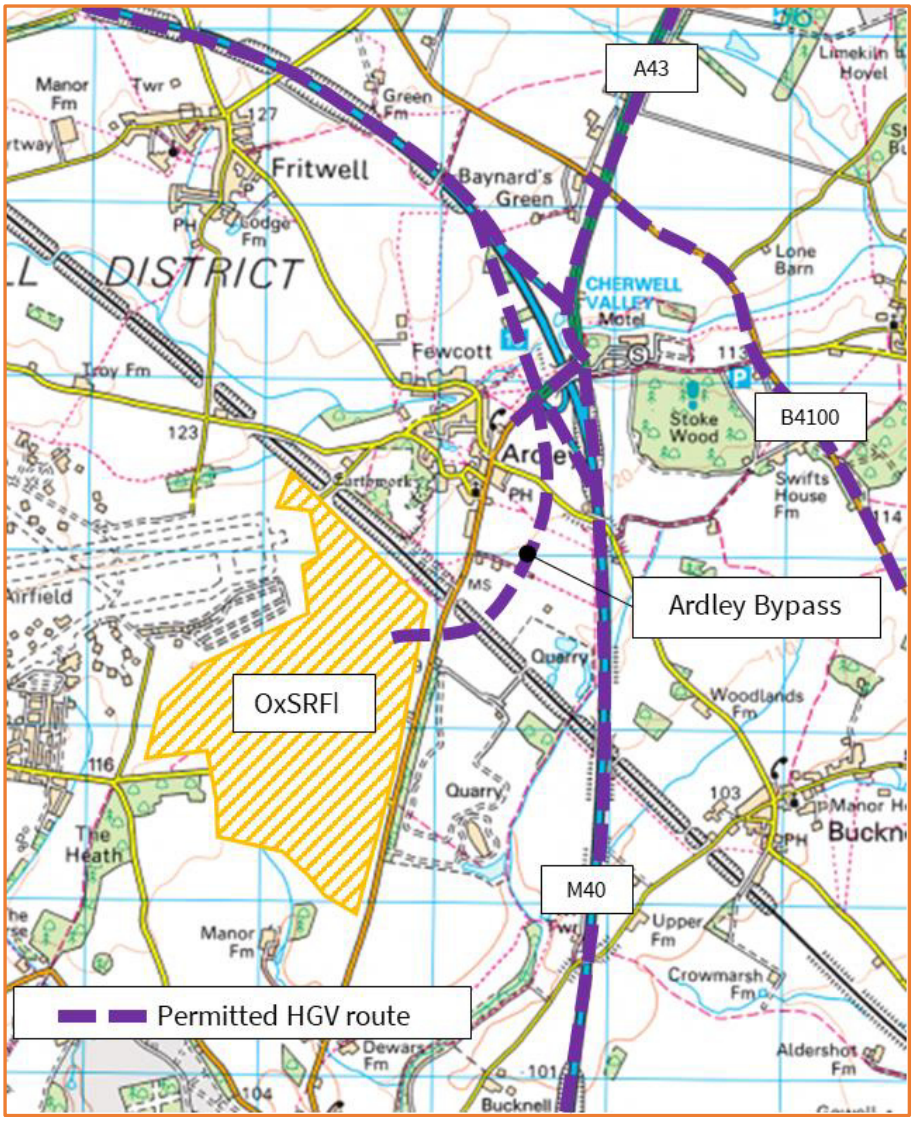


Figure 4.3: HGV routeing requirements

4.81 The restriction of HGVs from travelling to and from the south of the Main Site on the B430 is consistent with the routeing agreement that is in place for the adjacent Ardley EFW facility, which requires all HGV traffic to access Junction 10 of the M40 via the B430 to the north.

4.82 The HGV routeing will be enforced through a combination of a physical restriction at the Principal Access (as described above) to prevent HGVs exiting the site from being able to travel south on the B430, paired with a signage strategy and enforcement methodology, based on Automatic

Number Plate Recognition (ANPR) cameras. The **HGV Routeing Strategy**, the principles of which have been agreed with the TWG, is provided at **Appendix 6**. This includes plans showing the locations of the proposed ANPR cameras to enforce the routeing restrictions on the B430 south of the Principal Access, the B4100 north of Baynard's Green, and the B430 in Ardley. Therefore, HGV traffic from the Proposed Development would route via M40 Junction 10 and the Ardley Bypass. The HGV Routeing Strategy will be secured through a DCO requirement.

4.83 As described in the HGV Routeing Strategy, it is also proposed to implement a 7.5T environmental weight restriction zone around the villages to the north and west of the Main Site as a complementary measure. Such zones are commonplace on the local road network throughout many counties, and they are used to deter use by HGVs except for access into these villages. The proposed zone would cover the villages of Ardley and Fewcott, Fritwell, and Bucknell. The proposed zone is shown on the Traffic Regulation Plans (**Documents 2.9A to 2.9E**) and is secured through the imposition of the weight limit restriction by traffic regulation order in the DCO.

4.84 This measure is complementary to the wider highway network changes in that it will clearly set out to the wider travelling public which routes are and are not appropriate for use by HGVs. However, it is not necessary for the DCO to include enforcement measures for this weight limit because enforcement of HGVs to and from OxSRFI is undertaken using the ANPR system described above.

Speed Limit Plans

4.85 The proposed speed limits for the Highway Works are shown on the Speed Limit Plans **Document 2.10A to 2.10F**.

4.86 These include the proposals, following feedback from National Highways and OCC as part of the statutory consultation, to reduce the speed limit on existing sections of the SRN, as follows:

- Reduced speed limit to 40mph from 50mph on the A43 between Ardley Roundabout and the Padbury junction inclusive.
- Reduced speed limit to 50mph from derestricted on the A34 approach to M40 Junction 9.

4.87 In each case, this will maximise road users time to respond to traffic conditions and understand the road layout at these busy junctions.

4.88 Changes to speed limits are also proposed on existing roads that form part of the local road network. These changes have been agreed through consultation with OCC. The changes to speed limits on OCC's road network will complement recent changes that OCC have made to speed limits through local villages as part of OCC's Vision Zero strategy. The proposed changes are:

- Reduced speed limit on Ardley Road, Middleton Road, and Bicester Road from derestricted to 40mph (Speed Limit Plans **Document 2.10B, 2.10C, 2.10E, and 2.10F**).
- Reduced seed limit on the B430 within Ardley from 30mph to 20mph, and the B430 Station Road south of Ardley and north of the Ardley Station Bridge from derestricted to 20mph (Speed Limit Plans **Document 2.10B and 2.10C**).
- Reduced speed limit on the B430 south of the B430/MSRR junction and north of the existing 30mph speed change, from derestricted to 40mph (Speed Limit Plans **Document 2.10D and 2.10E**).
- Reduced speed limit to 50mph speed limit from derestricted on the B4030 between the existing 40mph limit west of Bicester and Middleton Stoney (Speed Limit Plans **Document 2.10E**).

4.89 The necessary Orders to implement the above speed limits will be secured by the DCO.

WCHAR

4.90 The Highway Works have been subject to a Walking, Cycling and Horse-Riding Assessment Review (WCHAR) in accordance with DMRB GG 142. The **WCHAR Assessment Report** is provided at **Appendix 3** and the **WCHAR Review Report** is provided at **Appendix 4**

Road Safety Audit

4.91 Whilst the highway design was developed during 2025 it was agreed with the TWG that an interim Stage 1 Road Safety Audit (Interim RSA1) would be undertaken so that any safety issues are addressed early on in the design process rather than awaiting the formal RSA1 at the end of the preliminary design stage. The Interim RSA1 is provided at **Appendix 36** and was undertaken in accordance with the procedure set out in DMRB GG 119 with an Audit Brief and the Audit Team being approved by OCC and National Highways.

4.92 The response report also provided at **Appendix 36** sets out how the design has addressed the issues raised. However, as this is an Interim RSA1, National Highways and OCC have not been asked to formally provide approval of the response report as that will be done when the formal RSA1 is undertaken. The formal RSA1 is expected to be carried out prior to the start of the DCO Examination and the Audit Team for the formal RSA1 will have sight of the Interim RSA1 and the designer's response to the issues raised.

Design Strategy Records

4.93 To comply with the scope of design works agreed with the TWG in Technical Note 7 (**Appendix 18**), the detailed geometric design of the Highway Works has been advanced to a sufficient stage to confirm that they are implementable, with only matters of detail to be agreed in accordance with the protective provisions set out in the DCO.

4.94 The following Design Strategy Record (DSR) reports are provided:

- M40 Junction 10 Improvements (including A43 Baynard's Green) DSR (**Appendix 31**)
- Ardley Bypass DSR (**Appendix 32**)
- Heyford Park Link Road DSR (**Appendix 33**)
- Middleton Stoney Relief Road DSR (**Appendix 34**)

4.95 In response to comments received from Aecom, on behalf of National Highways, with regards to the 1:2500 general arrangement plan for the J9 Improvement work that was submitted for the statutory consultation, **Appendix 35** provides the M40 Junction 9 Highway Design Review. The review demonstrates compliance with the DMRB.

Highway lighting, signage and M40 J10 motorway technology strategy

4.96 A highway lighting strategy has been prepared for the relevant parts of the proposed Highway Works. The lighting strategy is presented at Chapter 8 of the ES.

4.97 A strategy for the directional signage has been developed for the SRN and the local road network. These strategies are presented at **Appendix 40**.

4.98 The M40 J10 motorway technology strategy is presented **Appendix 41**.

5.0 PROPOSED DEVELOPMENT PHASING

Phase 1 floor space

5.1 It is not possible to state with certainty the floor area that would be associated with the first phase of the development, as the demand for units on the site would be led by the market. Therefore, to ensure a robust analysis and provide the Applicant with a degree of flexibility, a first phase of development of up to 2 million sqft (185,806 sqm) of B8 development with an additional 1/3 mezzanine floor space (61,967 sqm) has been considered in this TA and supporting work. The Rail Terminal is also a trip generator. Therefore, whilst there is no requirement for the Rail Terminal to be operational at first occupation, for the purposes of assessment of Phase 1 of the development, the Rail Terminal operating at up to four trains per day has been assessed. The trip generation associated with the opening year is set out in **Chapter 6**.

5.2 It is expected that the remainder of the warehousing floor would be constructed and operational over the following three years, dependant on market demand.

Phasing of embedded mitigation and floor space triggers

5.3 The embedded mitigation associated with the Proposed Development is described in **Chapter 4**. It is proposed that the embedded mitigation will be delivered in two phases:

- the Phase 1 mitigation will be required prior to occupation of the Proposed Development.
- the Phase 2 mitigation will be required to be implemented prior to occupation of greater than 2 million sq ft (185,806 sqm) of floor space (plus up to 61,967 sqm mezzanine floor space) at the Proposed Development.

5.4 The Highways Works and active travel and PROW works corresponding to Phase 1 and Phase 2 are shown on the drawings listed at **Table 5.1**, with the drawings provided at the rear of this TA.

Table 5.1: Drawing references for Phase 1 and Phase 2 mitigation works

mitigation phase	drawing reference	
	Highway Works	Footway, Cycleway, Rights of Way
Phase 1 Pre-occupation	**OxSRFI-BWB-GEN-XX-SK-CH-SK054** Phase 1 Pre-occupation	**ADC-1794-DR-043** Phase 1 Pre-occupation
Phase 2 Pre-occupation of greater than 2 million sqft (185,806 sqm) of floors space and 61,967 sqm of mezzanine floor space	**OxSRFI-BWB-GEN-XX-SK-CH-SK055** Phase 2 Pre-occupation greater 2m sqft	**ADC-1794-DR-053** Phase 2 Pre-occupation greater 2m sqft

5.5 The phasing strategy for the mitigation works has been developed to ensure that Ardley Bypass, sufficient improvements at M40 Junction 10 including the A43 Baynard's Green improvements, and active travel connectivity to Heyford Park and Bicester will be in place from first occupation of the OxSRFI site, as will the enhanced connectivity to Ardley. The Heyford Park – OxSRFI – Bicester bus service will also form part of the Phase 1 mitigation works.

5.6 To achieve the required connectivity, the HPLR will be constructed in two phases. In the first phase, the section between Camp Road and the Secondary Access will be completed along with

the internal estate road linking the Principal and Secondary Accesses. This interim layout is shown on Highway Plans **Document 2.7D Insert 4.3**. It will provide pedestrian and cyclist connections to Heyford Park and ensure that buses can route through the OxSRFI Main Site from first occupation.

5.7 The construction of the remaining section of the HPLR and construction of the MSRR will follow in Phase 2 of the works and will be required to be completed prior to the opening of more than 2 million sqft (plus pro rata mezzanine space) of floor space at OxSRFI.

5.8 It is expected that the HPLR will tie into the new Upper Heyford Road/Chilgrove Drive/Camp Road traffic signal controlled junction arrangement (see Appendix C of the **STS** (**Appendix 1**), which is expected to be completed prior to the opening of OxSRFI. However, should OxSRFI come forward ahead of the Heyford Park works at Chilgrove Drive being complete, then the Highway Works to amend the priority of the existing junction as shown on Highway Plan **Document 2.7D Insert 4.2** would be undertaken by the Proposed Development. This will encourage existing traffic to use the new HPLR and avoid travelling through Middleton Stoney.

5.9 The phasing of the mitigation works is secured in the DCO Requirements.

5.10 As shown on the Highway Works phasing plans listed at **Table 5.1**, the Highway Works at M40 Junction 10 will be split between Phase 1 and Phase 2, with some elements of the works subject to interim layouts. The interim layouts are show on the Highway Plans, as follows:

- Interim layout for Baynard's Green – Highway Plans **Document 2.7A Insert 1.2**
- Interim layout for Cherwell junction and M40 J10 southbound merge – Highway Plans **Documents 2.7B Insert 2.1.**

5.11 The phasing of the Highways Works was informed by the work presented at Technical Note 11 (**Appendix 23**). The suitability of the proposed phasing of the highway network has been further assessed and confirmed as appropriate to accommodate the Opening Year (Phase 1) development using the final assessment traffic flows, as presented in **Chapter 12** of this TA.

Programme

5.12 The DCO application is to be submitted in quarter one 2026, with approval anticipated in 2027. The OxSRFI is then expected to have a seven-year build plan, with construction starting in 2028, first occupation in 2031, and completion/occupation of all building by 2034.

5.13 Appendix 1 of the CEMP (ES Appendix 2.3) is the indicative master construction programme. Construction of the Proposed Development is anticipated to commence in 2028 (year 1) and end in 2034 (year 7). Construction of the associated Highway Works is anticipated to commence in 2029 (year 2) and end in the first half of 2032 (year 5).

5.14 The Phase 1 Highway Works and active travel and rights of way works are anticipated to commence at the start of 2029 (year 2) and be complete in the first quarter of 2031 (year 4), prior to first occupation of the Main Site, with the Ardley Bypass open in the first half of 2030 (year 3).

5.15 Although phased, the construction of the Highway Works and active travel and rights of way works will be continuous, with the Phase 2 works starting in the second half of 2030 (year 3), and anticipated completion in the first half of 2032 (year 5).

6.0 TRIP GENERATION, TRIP DISTRIBUTION, AND MODAL SPLIT

Introduction

6.1 This section of the TA describes the development trip types and summarises the forecast person trip generation and modal split for the Proposed Development. The methodology for calculating the vehicle trip distribution is also summarised.

6.2 The trip generation, baseline modal split, modal split targets, and trip distribution have been agreed with the TWG via a range of technical notes. The following sections therefore provide a summary only and reference to relevant appendices should be made for the full detail.

Modal shift from road freight to rail freight

6.3 The Proposed Development, comprising both the warehousing and distribution units and the rail freight interchange, would generate the following type of trips:

1. Employee trips to and from work at both the warehousing units and the rail interchange.
2. Visitor and delivery trips to both the warehousing units and the rail interchange.
3. HGV traffic to and from the warehousing units.
4. HGV traffic to and from the rail interchange.
5. HGV (or tug) traffic between the rail terminal and the warehousing units.
6. Rail trips.

6.4 Only trip types 1 to 4 would use the off-site highway network. Trip type 5 would be on the internal road network, between the rail interchange and warehousing area. Trip type 6 would be on the rail network only.

6.5 This TA work focuses on trip types 1 to 4, as the TA is concerned with the impact of the Proposed Development on the external highway network. However, it is recognised that the number of HGVs generated (trip types 3, 4 and 5) will be related to the number of rail trips (trip type 6) and the size of the containers/type of goods. Furthermore, the amount of external HGV trips (trip types 3 and 4) will be related to the number of internal trips (type 5) and the operation and interaction between the rail terminal and the on-site warehousing.

6.6 The above dependencies and interactions are examined in detail at Technical Note 3: Trip Generation (**Appendix 7**) and are included within the trip generation calculations.

6.7 The minimum requirement for a SRFI is the capacity to accommodate 4 trains per day. The minimum operating capacity would equate to an average through-put of 328 containers a day. This is a mode shift from road freight to rail freight equivalent to 368 HGV movements per day. However, once the rail facilities of the Proposed Development are fully operational, they could accommodate an average maximum through-put of around 984 containers a day. This is a mode shift from road freight to rail freight equivalent to 1,104 HGV movements per day.

6.8 An example of how this could translate to a modal shift from road freight to rail freight is provided at **Appendix 8**. The example demonstrates that, annually, the Proposed Development could remove over 53 million HGV miles per year from the highway network. This equates to over £61 million per year in monetised environmental benefits as calculated using the methodology set out in the DfT Guide to Mode Shift Revenue Support Scheme.

6.9 The reduction in overall HGV mileage on the road network demonstrates how the Proposed Development would comply with Government objectives, as set out in the NPS, to achieve a modal shift from road freight to rail.

6.10 It is important to understand that many of the remaining HGV trips forecast to be generated by the Proposed Development would already be present on the highway network. This is because many of the HGV trips would be associated with the delivery of goods to meet existing and future business demand in the locality. Such HGV movements would already exist locally to those businesses, and the development of the SRFI would not add additional HGV traffic in these areas. Rather, it will provide a distribution hub, meaning that journey distances will be reduced, further reducing overall HGV mileage on the road network.

6.11 It does however mean that the number of HGV movements on the road network near to the Main Site will increase. Therefore, it is important that the proposed infrastructure improvements at M40 Junction 10 and the Ardley Bypass are provided as embedded components of the scheme, to ensure that the additional HGV movements can be appropriately accommodated. To ensure that the full impact of the Proposed Development is modelled in the vicinity of the site, the strategic transport modelling has assumed that all HGV trips would be new trips to the highway network.

Trip generation

6.12 TN3 'Trip Generation' (**Appendix 7**) presents the person and vehicular traffic generation calculations for the Proposed Development. The two-way external person trip generation (combined total movements in and out of the site) are summarised in **Table 6.1**.

Table 6.1: External person trip generation (two-way)

Period	Person Trips
AM peak hour	1,418
PM peak hour	1,752
Daily	22,018

6.13 The external vehicle trip generations (combined movements in and out of the Main Site), prior to considering the STS and modal shift targets that are set out in the Framework Travel Plan, are summarised in **Table 6.2**.

Table 6.2: External vehicle trips prior to connectivity improvements and Travel Plan

Period	Light vehicles			Heavy vehicles			Total vehicles		
	Arrive	Depart	2-way	Arrive	Depart	2-way	Arrive	Depart	2-way
AM peak	903	97	1,000	172	159	331	1,075	256	1,331
PM peak	298	1,038	1,336	157	143	300	455	1,181	1,636
Daily	7,929	7,801	15,730	2,459	2,461	4,920	10,388	10,262	20,650

6.14 The above vehicle trip generations are based on a single occupancy vehicle (SOV) rate of 92%. This provides a robust position for assessment of the highway capacity. However, it is not representative of the modal share that would be achieved by the Proposed Development once sustainable transport initiatives developed in the STS and set out in the Framework Travel Plan, alongside the PTS, are considered.

6.15 The modal share targets summarised in **Table 6.3** have been agreed with the TWG as set out in the **STS** (**Appendix 1**) and the **Framework Travel Plan** (ES Appendix 3.2).

Table 6.3: Modal share targets extracted from agreed Framework Travel Plan

Mode	Baseline	Year 1 (Opening)	Year 3	Year 5 *	Year 7*	Year 9*
SOV	92%	82%	73%	68%	68%	68%
Car Share	5%	10%	15%	20%	20%	20%
Public Transport	0%	5%	8%	8%	8%	8%
Walking and Cycling	3%	3%	4%	4%	4%	4%

*Full build out expected in Year 4, with monitoring continuing biennially for 5 years until Year 9

6.16 The target modal split equates to a 26% shift from the baseline single occupancy vehicle trip modal share to sustainable transport modes (92% down to 68%). The targets included in the **Framework Travel Plan** are ambitious, but realistic and achievable, in the context of the site's location, the extensive sustainable transport connectivity improvements being provided, and the measures proposed as part of the Travel Plan process.

6.17 Based on the target SOV of 68%, the external vehicle trip generations are summarised at **Table 6.4**.

Table 6.4: External vehicle trips with connectivity improvements and Travel Plan

Period	Light vehicles			Heavy vehicles			Total vehicles		
	Arrive	Depart	2-way	Arrive	Depart	2-way	Arrive	Depart	2-way
AM peak	667	72	739	172	159	331	840	231	1070
PM peak	220	767	987	157	143	300	377	910	1288
Daily	5,861	5,766	11,627	2,459	2,461	4,920	8319	8227	16547

6.18 The purpose of HGV trips is to transport their cargo. Therefore, there are limited opportunities for the Travel Plan to reduce the number of HGVs generated by the OxSRFI above those naturally involved in efficient business operations, and so the modal shift targets are applied only to the light vehicle trips.

Trip generation in the opening year

6.19 A first phase of development of up to 2 million sqft (185,806 sqm) of B8 development with an additional 1/3 mezzanine floor space (61,967 sqm) has been considered in this TA and supporting work. The Rail Terminal is also a trip generator. Therefore, whilst there is no requirement for the Rail Terminal to be operational at first occupation, for the purposes of assessment of Phase 1 of the development, the Rail Terminal operating at up to four trains per day has been assessed. The calculation of the opening year trip generation is summarised at **Appendix 9**.

6.20 The two-way external person trip generation (combined total movements in and out of the site) in the opening year are summarised in **Table 6.5**.

Table 6.5: External person trip generation (two-way) in opening year

Period	Person Trips
AM peak hour	437
PM peak hour	540
Daily	6,853

6.21 The external vehicle trip generations in the opening year, prior to considering the connectivity improvements and modal shift targets that are set out in the **Framework Travel Plan**, are summarised in **Table 6.6**.

Table 6.6: External vehicle trips prior to connectivity improvements and Travel Plan in the opening year

Period	Light vehicles			Heavy vehicles			Total vehicles		
	Arrive	Depart	2-way	Arrive	Depart	2-way	Arrive	Depart	2-way
AM peak	278	30	308	53	50	102	331	80	410
PM peak	91	320	411	49	44	93	140	364	504
Daily	2,468	2,434	4,902	764	761	1524	3,232	3,195	6,426

6.22 Based on the target SOV of 82% in the opening year, the external vehicle trip generations are summarised at **Table 6.7**.

Table 6.7: External vehicle trips with connectivity improvements and Travel Plan in the opening year

Period	Light vehicles			Heavy vehicles			Total vehicles		
	Arrive	Depart	2-way	Arrive	Depart	2-way	Arrive	Depart	2-way
AM peak	248	27	275	53	50	102	301	76	377
PM peak	81	285	366	49	44	93	130	329	459
Daily	2,200	2,169	4,369	764	761	1,524	2,963	2,930	5,894

Trip Distribution and assignment

6.23 The light vehicle trips are assigned to the highway network in accordance with the light vehicle trip distribution calculated in the BTM, considering future changes to land uses. The resulting light vehicle trip distribution is reported in the Tetra Tech TN 4 'Development Light Vehicle Trip Distribution' (**Appendix 10**).

6.24 A bespoke HGV trip distribution was agreed with the TWG, and this was input in the BTM and used to assign the development HGV traffic to the highway network. The HGV distribution is reported in TN4 'HGV Distribution' (**Appendix 11**).

7.0 TRANSPORT MODELLING METHODOLOGY AND ASSESSMENT SCENARIOS

General approach

7.1 To ensure that the potential transport impacts of the Proposed Development are fully considered, and to confirm that the proposed embedded Highway Works are appropriate in scale and function, a three-stage transport modelling assessment approach was agreed with the TWG:

- Stage 1: initial assessment to establish the access and highway mitigation strategy. This stage of work included significant options assessment, leading to the preliminary design of the embedded Highway Works.
- Stage 2: strategic transport modelling using the BTM to allow the cumulative effects of the development traffic and associated embedded Highway Works to be understood in combination with committed or planned development and transport infrastructure projects, and to allow the study area to be identified for further detailed assessment.
- Stage 3: detailed modelling using micro-simulation and other industry standard assessment tools of the study area.

Stage 1 – establishing the site access and embedded Highway Works

7.2 The first stage of the transport modelling work comprised the site access options assessment and preliminary design of the embedded highway works at M40 Junction 10, the Ardley Bypass, the Principal Access junction, the MSRR and HPLR, the HGV Routeing Strategy, and M40 Junction 9. During this time the **STS** and **PTS** were also developed.

7.3 The Stage 1 modelling and preliminary design work was completed, and the proposed embedded Highway Works were agreed in principle with the TWG.

7.4 The objective of Stage 1 was to develop the highway layouts to a preliminary stage sufficient for coding into the Stage 2 transport modelling work and to determine the Order Limits requirements. The Stage 1 work is summarised in **Chapter 8** of this TA.

Stage 2 – Strategic Transport Modelling

7.5 The second stage of the transport modelling was the strategic transport modelling, which has used the Bicester Transport Model (BTM).

7.6 By modelling the future assessment years both with and without the Proposed Development in place, the effects of the Proposed Development and Highway Works on the highway network can be defined. The Stage 2 work is summarised in **Chapter 9** of this TA, and this included the identification of the study area for detailed assessment.

Stage 3 - detailed assessment

7.7 The final, third, stage of the transport modelling work comprises detailed assessment of the study area using industry standard assessment tools. Interim findings of the Stage 3 transport modelling were submitted to OCC and National Highways as part of the statutory consultation. That interim work confirmed that the proposed embedded Highway Works would satisfactorily accommodate the forecast traffic associated the Proposed Development in the Completion Year.

7.8 The scope of the Stage 3 modelling work includes micro-simulation assessment (using VISSIM) of the operation of the M40 Junction 10 complex, including the A43 Baynard's Green junction, the Principal Access and Ardley Bypass.

7.9 The Stage 3 work is presented at **Chapter 11 and Chapter 12** of this TA, for the completed development and opening year, respectively.

Assessment Scenarios

7.10 Technical Note 2 'Transport Modelling Methodology' (**Appendix 12**) sets out the originally agreed scenarios to be assessed in the TA and ES. However, the project was publicly paused by the Applicant between April 2023 and August 2024 so that a review of the scale and complexity of transport infrastructure works could be undertaken. Upon the restarting of the project, the passage of time required a review of the assessment years and scenarios. Further, during the project pause OCC developed an Uncertainty Log for the 2031 and 2042 future years for the draft Cherwell Local Plan 2042.

7.11 Following the restart of the project in late 2024, discussions were held with the TWG to agree revised assessment years, modelling scenarios, and the corresponding Uncertainty Log (see following section for further detail). The outcomes of those discussions are summarised in the 'OxSRFI Summary of Agreed Transport Modelling Scenarios' Technical Note (**Appendix 13**), which sets out the agreements reached between the Applicant and the TWG. The agreed assessment years to be tested in the BTM are as follows:

- **Scenario 1 - DfT Circular 01/2022 Compliant Scenario**: used for assessment of the impact on the SRN in accordance with the requirements of DfT Circular 01/2022 (in the opening year with 100% of the development and all embedded Highway Works).
- **Scenario 2: 2031 Opening Year**: opening year assessment, with first phase of the development and first phase of embedded Highway Works, used to demonstrate the suitability of proposed first phase of development on both SRN and the local road network.
- **Scenario 3: 2034 Completion Year**: completion year assessment, with all the Proposed Development and all embedded Highway Works, used for ES year of completion assessment, and assessment of impacts on the local road network in year of completion.
- **Scenario 4: 2042 Sensitivity Test**: end of Local Plan period, for information only.

7.12 In addition, 2023 and 2024 baseline scenarios were modelled, and traffic flows output for use for model verification in the Air Quality and Noise Assessment chapters of the ES.

7.13 It is agreed with the TWG that Scenarios 2, 3 and 4 will be assessed with and without the impact of the modal shift targets that are set out in the **Framework Travel Plan** (ES Appendix 3.2).

7.14 Notwithstanding the guidance in DfT 01/2022 Circular that allows for the effects of the Travel Plan to be taken in to account, National Highways requested that reductions in vehicle trips associated with the Framework Travel Plan are not applied to the vehicle traffic generation for assessment of impacts on the SRN (Scenario 1). This is because they expect that the impact of the Framework Travel Plan will be limited on the SRN. The Applicant considers that the proposed car share measures set out in the Framework Travel Plan will assist in reducing the number of development car trips on the SRN. This will however be considered via the Completion Year with Travel Plan scenario and therefore the Applicant is content to follow the National Highways approach to the Circular 01/2022 compliant assessment scenario.

7.15 For each scenario there is a Reference Case (without OxSRFI) and Do-Something Case (with OxSRFI) as summarised at **Table 7.1**.

Table 7.1: Transport modelling scenarios (without Albion Land scheme)

Scenario name	Year	Scenario ID			
		Baseline	Reference Case	Do -Something	Do-Something with Travel Plan
Baseline	2023	B2023	-	-	-
Baseline	2024	B2024	-	-	-
1: DfT Circular 01/2022	2031	-	RC1 SRN	DS1 SRN	-
2: Opening Year	2031	-	RC2	DS2	DS2wTP
3: Completion Year	2034	-	RC3	DS3	DS3wTP
4: Local Plan (Sensitivity Test)	2042	-	RC4	DS4	DS4wTP

7.16 The Albion Land scheme[10] received a resolution to grant planning permission at the 3 July 2025 CDC planning committee meeting. Up to that point, as had been agreed with the TWG, the transport modelling was proceeding without the inclusion of this scheme. This was because it is a speculative planning application with no planning status and did not form part of the agreed Uncertainty Log for the modelling scenarios. However, following the resolution to grant planning permission for the Albion Land development at the July 2025 planning committee meeting, the TWG requested that the Albion Land scheme be included in the Reference Case transport modelling scenarios, because the scheme includes a requirement to upgrade the A43 Baynard's Green to a signal controlled roundabout, and due to the proximity of the scheme's site access junctions on the B4100 to the Baynard's Green junction. Accordingly, the transport modelling was updated to include the Albion Land scheme in the Reference Case. That meant that highway improvement at Baynard's Green that is required to be implemented by the Albion Land scheme prior to occupation of that scheme is also included in the future Reference Case scenarios.

7.17 The updated assessment scenarios use the same naming convention as given in **Table 7.1**, but with the 'A' suffix, as summarised in **Table 7.2**. In addition, two extra scenarios were modelled in the 2034 Completion Year. A 2034 Do-Minimum Scenario (DM3A), with the Proposed Development, but without the Highway Works), and a further sensitivity test with the proposed Tritax Big Box planning application (see paragraph 7.22). These additional scenarios are included in **Table 7.2**.

7.18 It was agreed with the TWG in July 2025 that the assessment scenarios set out in Table 7.2 (that include the Albion Land scheme in the Reference Case) are those on which the assessment of the transport effects of the Proposed Development be examined. However, no decision notice was issued for the Albion Land scheme, and the three applications for that scheme were taken back to planning committee by CDC on 15 January 2026. The three planning applications were refused planning permission at that planning committee, against an officer recommendation for approval. The decision notice has been issued.

7.19 The Applicant has been advised by CDC that Albion Land intend to appeal the refusal decisions. Therefore, inclusion in the Albion Land scheme in the core BTM modelling scenarios provides a

[10] Albion Land scheme (planning applications references 21/03268/OUT, 21/03267/OUT, and 21/03266/F see **Table 3.5**)

robust position for assessment of the potential cumulative environmental effects, should that scheme be permitted at appeal, as it includes for traffic generated by that scheme.

Table 7.2: Transport modelling scenarios (with Albion Land scheme)

Scenario name	Year	Scenario ID					
		Baseline	Reference Case	Do-minimum	Do-Something	Do-Something with Travel Plan	Do-Something (Sensitivity with Tritax Big Box)
Baseline	2023	B2023	-	-	-	-	-
Baseline	2024	B2024	-	-	-	-	-
1: DfT Circular 01/2022	2031	-	RC1A SRN	-	DS1A SRN	-	-
2: Opening Year	2031	-	RC2A	-	DS2A	DS2AwTP	-
3: Completion Year	2034	-	RC3A	DM3A	DS3A	DS3AwTP	DS5A
4: Local Plan (Sensitivity Test)	2042	-	RC4A	-	DS4A	DS4AwTP	-

7.20 However, it is appropriate regarding the layout and operation of the A43 Baynard's Green junction to also consider the relevant scenario without the Albion Land scheme and their proposed improvement scheme at Baynard's Green. That being the RC1 SRN and DS1 SRN scenarios given in **Table 7.1**. This is considered at **Chapter 11** of the TA, and the DCO includes two alternative arrangements for the proposed Highway Works at the A43 Baynard's Green junction:

1) an OxSRFI only scheme (Highway Plans **Document 2.7A**)

2) an alternative scheme which enhances (builds upon) the Albion Land highway works at the junction, should that scheme be successful in overturning the refusal at appeal (Highway Plans **Document 2.7W**).

7.21 Following advice from CDC in July 2025, a single sensitivity test was also undertaken (DS5A) in which the Tritax Big Box scheme (planning application reference 22/01340/OUT, see **Table 3.5**) located on land adjacent to the A43 Baynard's Green roundabout was included in the 2034 Completion Year. The Tritax Big Box scheme received a resolution to refuse planning permission at the 3 July 2025 CDC Planning Committee meeting, but CDC advised the Applicant that Tritax Big Box may resubmit an amended scheme and/or appeal the planning committee decision. Accordingly, CDC recommended in July 2025 that a further sensitivity test with the Tritax Big Box scheme was examined as part of the OxSRFI assessment work. The additional sensitivity test was included to provide a cumulative assessment with the Tritax Big Box scheme in place (in addition to all other committed and planned development).

7.22 Tritax Big Box did amend their scheme to seek to address the refusal reasons given at the 3 July 2025 planning committee. The scheme was then also taken back to planning committee by CDC on 15 January 2026, where it was refused planning permission, against officer recommendation for approval. The decision notice has been issued.

7.23 Tritax Big Box have notified CDC that they are appealing the refusal decision. Therefore, **Chapter 11** of this TA includes, as a sensitivity test, an assessment of the potential cumulative impact on the highway network operation at M40 Junction 10 and the A43 Baynard's Green junction, should the Tritax scheme be permitted at appeal. It is provided for information only.

7.24 A summary of the core Reference Case and Do-Minimum and Do-Something modelling scenarios is provided at **Table 7.3** over the page, with a summary of the 'with Travel Plan' scenarios provided at **Table 7.4**, and the sensitivity test scenarios provided at **Table 7.5**.

Uncertainty Log

7.25 The committed and planned development and infrastructure schemes to be included in the strategic transport modelling are provided in the form of an Uncertainty Log. OCC developed an Uncertainty Log for the 2031 and 2042 future years as part of their work on the draft Cherwell Local Plan 2042 and it was agreed with the TWG that these formed the basis for Scenarios 2 and 4. It was agreed with the Transport Working Group that the 2034 Uncertainty Log should be based on interpolation between the 2031 and 2042 logs.

7.26 There is a live planning application (25-00284-F) submitted in relation to the draft employment allocation site BIC E1 of the Cherwell Loal Plan 2042. There is a requirement via draft policy BIC E1 for the associated development to provide a highway improvement at M40 J9. CDC advised that that site is likely to come forward early. Hence, it was agreed with the TWG that assessment scenarios that include draft allocation BIC E1 should include the M40 J9 improvement scheme submitted as part of the planning application for that site[11]. This is relevant to the Scenario 4 (the 2042 Sensitivity Test) and Scenario 3 (the 2034 Completion Year). The 2031 Opening Year and the DfT 01/2022 Circular assessment scenarios do not include the draft allocations and hence are not affected.

7.27 In addition, it has been agreed with OCC, for the purposes of assessment of the OxSRFI scheme, that the mitigation scheme at Middleton Stoney crossroads (Inf148 in the Uncertainty Logs) associated with the Heyford Park planning permission should not be included in any of the reference case or do-something modelling scenarios, as it is now considered unlikely to be implemented. Further, whilst the improvement to provide traffic signal control at the B430/Ardley Road staggered crossroads in Ardley village is a committed scheme included in the Reference Case scenarios, it would be unlikely to be implemented should OxSRFI proceed as the Ardley Bypass would negate the need for the signal control scheme. Accordingly, this infrastructure scheme (Inf149 in the Uncertainty Logs) is not included in any of the Do-Something scenarios that include the Ardley Bypass.

7.28 OCC also advised that due to uncertainty surrounding the bus gate that is part of the Heyford Park Middleton Stoney Mitigation package discussed in **Chapter 3** the future scenarios should not include the bus gate.

7.29 The final Uncertainty Log, covering all forecast years is presented in Appendix A of the BTM Forecasting Report (**Appendix 14**).

[11] The proposed highway works are shown at Appendix J of **Appendix 28.**

Table 7.3: Core modelling scenarios

	ID	year	scenario name	reference case parameters	development case and embedded highway mitigation parameters	to be used for
Base	B-2023	2023	baseline year	development and infrastructure in place by 2023	n/a	base year traffic flows for Air Quality model verification
	B-2024	2024	baseline year	development and infrastructure in place by 2024	n/a	base year traffic flows
Reference Case	RC1 SRN	2031	DfT Circular 01/2022 compliant scenario	committed and allocated development and infrastructure (as per definition given at Footnote 21 of the DfT Circular 01/2022)	n/a	reference case traffic flows for the DfT Circular 01/2022 compliant assessment scenario for assessment of the strategic road network
	RC1A SRN	2031	DfT Circular 01/2022 compliant scenario	committed and allocated development and infrastructure (as per definition given at Footnote 21 of the DfT Circular 01/2022) + Albion Land planning applications	n/a	reference case traffic flows for the DfT Circular 01/2022 compliant assessment scenario for assessment of the strategic road network
	RC2A	2031	Reference case opening year	committed and allocated development and infrastructure in place by 2031 (in accordance with the proposed Cherwell Local Plan 2042 consultation) + Albion Land planning applications	n/a	reference case traffic flows in opening year for assessment of environmental effects reference case opening year for assessment of local highway network and strategic road network
	RC3A	2034	Reference case completion year	committed and allocated development and infrastructure in place by 2034 (in accordance with the proposed Cherwell Local Plan 2042) and including M40 J9 improvement scheme associated with live planning application 25-00284-F) + Albion Land planning applications	n/a	reference case traffic flows for assessment of environmental effects in year of completion reference case completion year for assessment of local highway network

	ID	year	scenario name	reference case parameters	development case and embedded highway mitigation parameters	to be used for
Development case Do minimum	DM3A	2034	Do minimum completion year	as RC3A	100% of OxSRFI, no embedded highway mitigation (other than site access) – no Travel Plan	assessment of development impacts without interventions
Development case Do Something	DS1 SRN	2031	Do Something DfT Circular 01/2022 compliant scenario	as RC1	100% of OxSRFI, with all embedded highway mitigation, no Travel Plan	assessment of development in the DfT Circular 01/2022 compliant assessment scenario for assessment of the strategic road network
	DS1A SRN	2031	Do Something DfT Circular 01/2022 compliant scenario	as RC1A	100% of OxSRFI, with all embedded highway mitigation, no Travel Plan	assessment of development in the DfT Circular 01/2022 compliant assessment scenario for assessment of the strategic road network
	DS2A	2031	Do Something opening year	as RC2A	first phase of OxSRFI with embedded mitigation for first phase, no Travel Plan	assessment of first phase of development environmental effects in year of opening assessment of first phase of development in opening year for assessment of local highway network and strategic road network
	DS3A	2034	Do Something completion year	as RC3A	100% of OxSRFI, with all embedded highway mitigation, no Travel Plan	assessment of development environmental effects in year of completion assessment of development in opening year for assessment of local highway network

Table 7.4: with Travel Plan Core modelling scenarios

	ID	year	scenario name	reference case parameter	development case and embedded highway mitigation parameters	to be used for
Development Case – with Travel Plan	DS2AwTP	2031	Do Something opening year, with Travel Plan	as RC2A	first phase of OxSRFI with embedded mitigation for first phase, with Travel Plan	test for DS2A with Travel Plan
	DS3AwTP	2034	Do Something completion year, with Travel Plan	as RC3A	100% of OxSRFI, with all embedded highway mitigation, with Travel Plan	test for DS3A with Travel Plan

Table 7.5: Sensitivity test modelling scenarios

	ID	year	scenario name	reference case parameter	development case and embedded highway mitigation parameters	to be used for
Development Case – Sensitivity Test	RC4A	2042	Reference case future year sensitivity test	committed and allocated development and infrastructure within Local Plan period up to 2042 (as per the proposed Cherwell Local Plan 2042) and including M40 J9 improvement scheme associated with live planning application 25-00284-F)	n/a	reference case traffic flows for sensitivity test, provided for information
	DS4A	2042	Do Something future year sensitivity test	as RC4A	100% of OxSRFI, with all embedded highway mitigation, no Travel Plan	provided for information
	DS4AwTP	2042	Do Something future year sensitivity test, with Travel Plan	as RC4A	100% of OxSRFI, with all embedded highway mitigation, with Travel Plan	Sensitivity test for DS4A with Travel Plan provided for information

	ID	year	scenario name	reference case parameter	development case and embedded highway mitigation parameters	to be used for
	DS5A	2034	Do Something future year sensitivity test, with Tritax planning application in place	as RC3A + Tritax development proposals	As per DS3A for OxSRFI.	With development traffic flows for 'with Tritax sensitivity test' provided for information

8.0 ESTABLISHING THE EMBEDDED HIGHWAY WORKS

Introduction

8.1 Ensuring good access to the SRN is a requirement for the proposed OxSRFI development. Hence, the objectives of the access strategy were to accommodate the required access to the SRN whilst delivering appropriate new site access infrastructure to reduce potential adverse impacts to acceptable levels.

8.2 Since it was established in November 2020, the Applicant has worked closely with the TWG to agree key components of the transport measures required to support an application for OxSRFI via the DCO process. This has included significant work on the form and layout of the highway access strategy for the site.

8.3 At an early stage in the design process a new junction on the M40, approximately midway between M40 Junctions 9 and 10, along with a new east-west road corridor was considered. As the design of a potential new junction was developed it quickly became apparent that this could introduce unacceptable impacts on both the SRN and local road network. On the SRN weaving issues were identified due to the proximity of Junction 9 to the south and Junction 10 to the north, and the new junction was forecast to transfer local journeys onto the SRN.

8.4 Furthermore, as well as providing a new junction, substantial works to M40 junction 10 would still be needed to take OxSRFI traffic to and from the A43. The new link road from a new junction to the OxSRFI Main Site would have run through Dewars Quarry which would have an adverse impact on the ability to continue mineral extraction at the quarry.

8.5 For the above reasons it was determined that OxSRFI should connect to the SRN at M40 Junction 10 and the scheme should focus on improving that existing junction on the SRN rather than creating a new one. This is in accordance with paragraphs 18 to 20 of DfT Circular 01/2022 which sets out the preference will always be that access to new development should make use of existing junctions.

8.6 Having ruled out the potential for a new motorway junction, the access strategy for the Proposed Development evolved to be centred on significant improvements to Junction 10 of the M40 motorway and A43 Baynard's Green, in combination with the provision of a new bypass for the village of Ardley and a new relief road around the north-east quadrant of the village of Middleton Stoney (the MSRR). Upper Heyford Road that passes through the Main Site would be removed as part of the Proposed Development and so would be replaced with a new road link to the south of the Main Site (the HPLR). An improvement scheme is also proposed at M40 Junction 9 and there are other local highway works.

8.7 Collectively termed the 'Highway Works' these changes to the highway network are embedded into the design of the Proposed Development as described in **Chapter 4** of this TA. They are illustrated on the Highway Works Overview Plan drawing **OxSRFI-BWB-GEN-ZZ-SK-CH-SK041** provided at the rear of this TA, and are shown on the Highway Plans **Documents 2.7A to 2.7E, and 2.7W**.

8.8 The following overall objectives were developed for the Highway Works:

- Connect the OxSRFI Main Site to the SRN.
- Minimise journey times and improve road safety on the SRN adjacent to OxSRFI.
- Minimise impact on surrounding communities.

- Provide the appropriate scale of works.
- Active travel and the needs of pedestrians, cyclists and horse-riders (where appropriate) to be at the forefront of the design of the highway works.
- Where new roads are required, they are to be designed to minimise their impact on the environment and integrate into the landscape as much as reasonably practicable.

8.9 The following sections provide a summary of the design development work undertaken to arrive at the proposed Highway Works for the Proposed Development. Further detail regarding the approach to the highway design is also given the Highway Design Approach Document (Highways DAD, **Document 5.8C**).

Ardley Bypass

8.10 As discussed in **Chapter 3**, the village of Ardley is approximately 1km to the north of the Main Site. The B430 runs through the east of the village, to the east of the village centre. To access the Main Site from M40 Junction 10 it is necessary to pass through Ardley on the B430 and over the Chiltern Main Line railway bridge (the Ardley Station Bridge), where the carriageway narrows to approximately 5.5m in width with the parapets immediately behind the edge of carriageway, potentially making it difficult for two HGVs to pass one another.

8.11 Initial trip distribution work forecasted a demand for around 57% of the light vehicle trips and 100% of the HGV trips associated with the Proposed Development to access the Main Site via M40 Junction 10. Based on the agreed traffic generations for the Proposed Development this could equate to the traffic flows shown in **Table 8.1** seeking to access the M40 Junction 10 via the B430 and passing through the village of Ardley. This would include a substantial increase in the number of HGVs having to use the narrow Ardley Station Bridge over the Chiltern Main Line.

Table 8.1: Initial estimate of potential OxSRFI traffic seeking to access M40 Junction 10

Period	Total (two-way)	of which HGV
AM peak hour	911	331
PM peak hour	1,075	300
Daily	14,043	4,920

8.12 It was considered that these additional traffic volumes travelling on the B430 between the Main Site and M40 Junction 10, and the associated noise, vibration and air quality effects would represent an unacceptable impact on Ardley village. It would not therefore be appropriate for the Main Site traffic to route along the existing B430 and through Ardley.

8.13 The Applicant determined that an access strategy that seeks to access the SRN via M40 Junction 10 would require the provision of a bypass around Ardley, including a new bridge over the Chiltern Main Line railway that would address the constraint at the existing railway bridge.

8.14 In their response to the Stage 1 Consultation, OCC confirmed that HGV traffic from the Proposed Development using the existing B430 would present an unacceptable environmental impact on Ardley Village. OCC therefore consider that the Ardley Bypass is necessary to make the Proposed Development acceptable.

8.15 Due to the layout of the Ardley village, which predominantly extends to the west of the B430, it was determined that the bypass be on the eastern side of the village, on the land between the M40 and B430. Given the integrated nature of the proposed Ardley Bypass with M40 J10, the options development work at M40 J10 and the A43 Baynard's Green also included the development of the options for the Ardley Bypass.

Junction 10 Improvement Works and A43 Baynard's Green

8.16 As reported in **Chapter 3**, M40 Junction 10 and the A43 Baynard's Green roundabout currently operate over capacity, with the performance forecast to deteriorate significantly in future years.

8.17 The deficiencies associated with the existing junction layouts would act as a barrier to the Proposed Development and reduce the advantage of the site's proximity to the SRN. Therefore, the Applicant worked with the TWG to develop proposals to improve the operation of M40 Junction 10 and the A43 Baynard's Green roundabout, and to accommodate the additional traffic from the Proposed Development.

8.18 That work was the subject of significant option testing that was undertaken as part of the Stage 1 Transport Modelling work, in consultation with the TWG. That work, which took place between 2021 and 2024 is captured in a series of Technical Notes that were prepared, discussed and agreed with the TWG. Those technical notes are listed at **Table 8.2** and they are appended to this TA at **Appendix 15 to 24**, as noted in the table.

Table 8.2: Summary of M40 Junction and A43 Baynard's Green option development during the Stage 1 Transport Modelling

Technical Note and ES Appendix reference	Issued to TWG	Summary
TN5 – M40 Junction 10 Options Report (ref. ADC1794-RP-M -V3) **Appendix 15**	Jun 21	Identified and assessed a long list of potential interventions at M40 J10 that could be implemented by OxSRFI to mitigate the development impact. A short list of options was identified in agreement with the TWG for further consideration.
TN6 – M40 Junction 10 Options Report – Traffic Flow Derivation (ref. ADC1794-RP-N-V2) **Appendix 16**	Jun 21	Calculation of traffic flow demands used in the Stage 1 transport modelling
TN5 Addendum - Response to National Highways Comments (ref. ADC1794-RP-M1-V2) **Appendix 17**	Oct 21	A response to the initial National Highways feedback on TN5.
TN7 – Scope of Highway Design Prior to DCO application (ref. OxSRFI-BWB-GEN-XX-RP-CH-001-S4-P05) **Appendix 18**	Jul 21	Specifies the level to which the highway design will be developed prior to and for submission with the DCO application. Version P05 was agreed with the TWG in January 2025
TN8 - M40 Junction 10 Options 3A and 3B (ref. ADC1794-RP-Q-V4) **Appendix 19**	Oct 21	At the request of National Highways, TN8 considers in greater detail the opportunity to provide a large single grade-separated gyratory at M40 J10. TN8 concluded that Options 11, 13, 18 and 19 offer long-term benefit over a large and complex signal-controlled roundabout. In January 2022, National Highways and OCC confirmed that Options 18 and 19 were the preferred options to be taken forward for further assessment.
TN9 - M40 Junction 10 Option 25 (ref. ADC1974-RP-T-V3) **Appendix 20**	Apr 22	As part of the further assessment work required for Options 18 and 19, National Highways requested that analysis was undertaken to determine whether a M40 to A43 northbound free-flow link road could be reasonably achieved in terms of geometrical compliance with DMRB, formation of appropriate junctions, and environmental impact, as this would provide future resilience at M40

		Junction 10. Following consideration of a number of sub-options (Options 20 to 24), that work led to the development of strategic highway Option 25. This resulted in agreement with the TWG that Option 25 be taken forward for further assessment. Option 25 included free flow links between the A43 and M40 in both southbound and northbound directions. The proposed northbound free flow link resulted in the need for substantial changes to the A43 Baynard's Green Roundabout, and the provision of a new local link between Baynard's Green and the M40 Junction 10 Padbury Roundabout.
Stage 1 (non-statutory consultation)	May to Jul 22	Work continued to progress Option 25 as the preferred highway strategy, and this was included in the Stage 1 non-statutory consultation. Following the Stage 1 consultation the arrangement at the A43/Baynard's Green was slightly amended, in consultation with the TWG, to simplify the junction arrangement and this became Option 26, which was agreed in principle with TWG as the preferred option.
TN9 Addendum - M40 Junction 10 Option 25a (ref. ADC1794-RP-T1 V2) **Appendix 21**	Jan 23	Addressed comments regarding the form of the M40 J10 Option 25 layout at Baynard's Green, proposing that Option 25a (thereafter referred to as Option 26, as above) should be taken forward as the preferred option.
HGV Routeing Strategy	Jan 23	The HGV Routeing Strategy for the Proposed Development that requires all HGV traffic to arrive and depart the Main Site by M40 Junction 10 and the Ardley Bypass.
TN10 - M40 Junction 10 Highway Improvements (ref. ADC1794-RP-U-V2) **Appendix 22**	Mar 23	TN10 addresses TWG comments on Option 26 and presented the M40 Junction 10 highway improvements to be tested in the BTM. TN10 also proposed a phasing strategy for the implementation of the M40 Junction 10 highway works.
TN11 – Highway Works Phasing (ref. ADC1794-RP-AF-v4) **Appendix 23**	Mar 23	Proposed phasing of the embedded Highway Works, this report was updated in February 2025 to reflect Option 28 following the agreement in principle with the Transport Working Group (see TN13)
TN13– M40 Junction 10 Option 28 (ref. ADC1794-RP-AI-V4) **Appendix 24**	Nov 24	In April 2023, the Applicant took the decision to pause work on the OxSRFI project pending a review of the highway access strategy. TN13 reports on the outcome of that review. That work resulted in strategic highway Option 28 becoming the preferred option.

8.19 OCC and National Highways undertook a review of Technical Note 13 'M40 Junction 10 Option 28' (**Appendix 24**) and provided feedback to the Applicant, including via the TWG meeting held on 2 December 2024 and the TWG 'M40 Junction 10' workshop session held on 7 January 2025. Through that process, and in agreement with OCC and National Highways, amendments were made to the Strategic Option 28 as presented in Technical Note 13, including:

- The introduction of an additional lane northbound on the A43 between the Padbury and Baynard's Green junctions to remove the potential for bottlenecking during the evening peak hour.
- Amendments to the layout of the Padbury junction to address a position see through issue and introduce a splitter island on the A43 southbound approach.

- Provide a layout E3 (auxiliary lane) arrangement for the M40 southbound on slip from the Cherwell junction as this will provide operational benefit due to the forecast high number of HGVs.
- Amendment to the proposed Principal Access junction to revert to the previously agreed partially signal controlled roundabout layout.

8.20 This process concluded with the TWG providing in principle agreement to Option 28 in January 2025, subject to the RSA and detailed capacity modelling. The resulting Strategic Option 28 overview plan is shown in **Figure 8.1**. The key elements of the Option 28 arrangement are:

- The Ardley Bypass removes B430 through traffic from the village and links with the proposed Principal Access junction. The Bypass would be a Single 2 + 1 arrangement (two lanes northbound and one lane southbound).
- A section of the existing B430 to the north of the OxSRFI site access junction into the southern end of Ardley village would be stopped up for motorised traffic and repurposed as a footway/cycleway link.
- The Ardley Roundabout would be enlarged and signalised to accommodate the Ardley Bypass and provide additional operational capacity. The M40 northbound merge would be relocated to the north of the roundabout, to allow the new northbound link to be provided.
- The M40 to A43 northbound traffic is provided with a new northbound link with new bridge over the M40 that connects with Padbury junction. This significantly reduces traffic flows through the M40 Junction 10 complex thereby creating capacity at the Ardley and Cherwell junctions to accommodate the OxSRFI development traffic, whilst also improving journey times for M40 to A43 northbound traffic.
- The Ardley Bypass would be at or below the existing ground levels, passing under Ardley Road, eliminating the complex engineering works required to achieve the 3D layout and thereby minimising environmental impacts on Ardley village.
- The proposed improved Cherwell Roundabout allows the A43 northbound movement to operate as free-flow, whilst providing increased right turn storage for the M40 southbound movement. Under the proposed arrangement traffic exiting the Cherwell Services wishing to travel north of the A43 would do so via Ardley Roundabout.
- Online improvements by means of an additional lane southbound on the A43 between Baynard's Green and the Cherwell Roundabout, combined with improvements to the M40 southbound merge to provide a two-lane merge arrangement address constraints for A43 to M40 southbound traffic
- Enlargement and signalisation of Baynard's Green Roundabout would provide significant improvement in junction operation.

8.21 Option 28 was shown to deliver operational advantages for M40 to A43 northbound traffic through the provision of the new link, whilst providing the required high-quality access to the SRN for OxSRFI traffic and delivering enhancements to the A43, and the simplified layout at Cherwell was shown to improve journeys southbound. The enlargement to the Ardley Roundabout addresses the capacity constraint on the M40 northbound off-slip approach to the existing junction, and the Ardley Bypass removes all B430 through traffic from Ardley village.

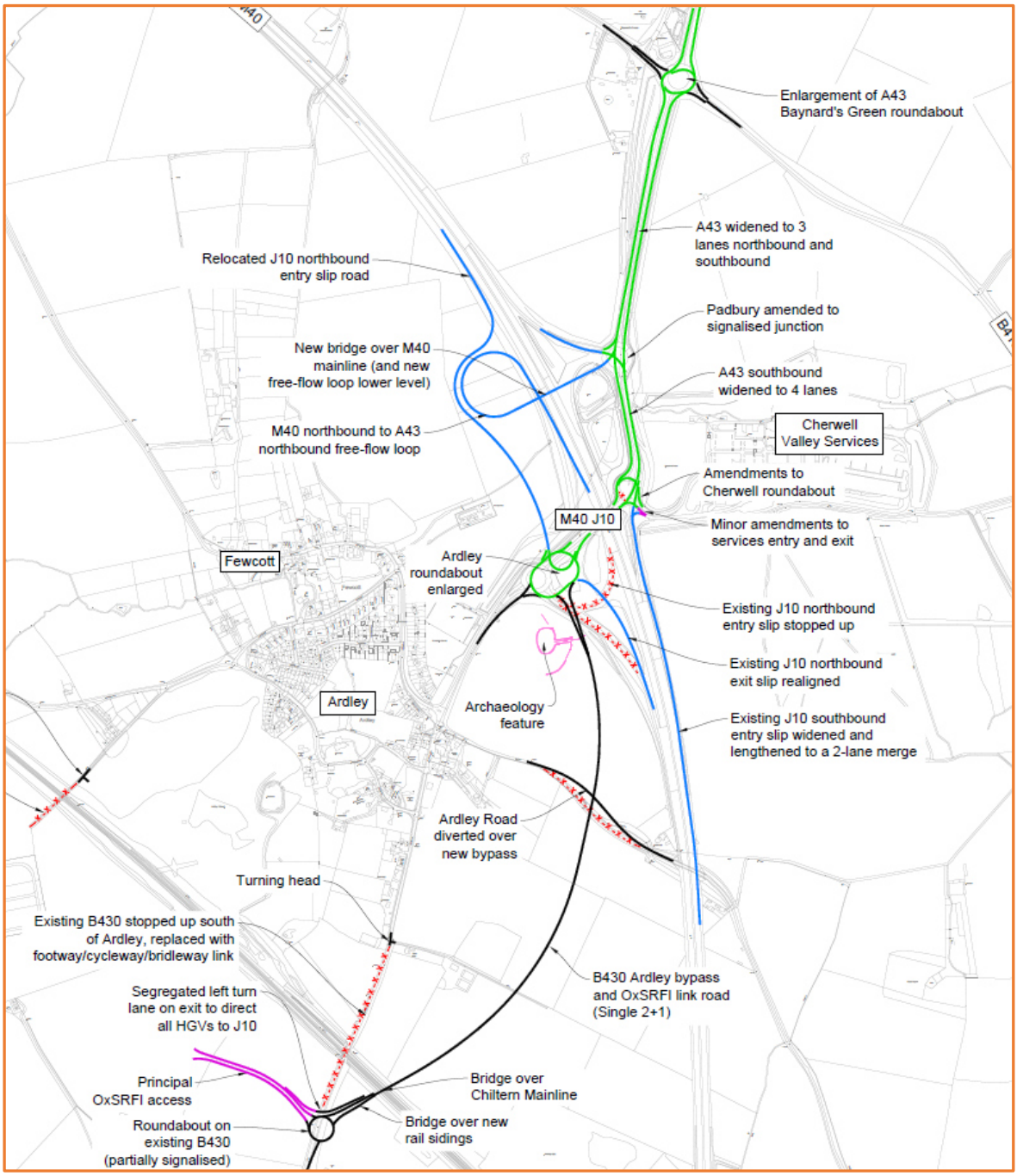


Figure 8.1: Strategic Option 28 – Principal Access, Ardley Bypass, M40 Junction 10 and A43 Trunk Road improvements

8.22 Option 28 was taken forward in the initial Stage 2 transport modelling (BTM strategic modelling) and initial Reference Case and Do-Something BTM outputs were provided by Tetra Tech during March through to June 2025. These were discussed with the TWG, during which period Tetra Tech, in consultation with OCC, made some adjustment to the BTM to address a modelling capacity constraint on the A41 that was identified in the future forecast model years within the BTM. The BTM modelling was updated and was used to model the agreed assessment scenarios presented in **Chapter 7** including the embedded Highway Works. That work is report in **Chapter 9** of this TA, and confirmation of the suitability of the proposed Highway Works to accommodate the future year traffic flows in combination with the traffic associated with the Proposed Development is presented at **Chapter 11** of this TA.

A43 Baynard's Green

8.23 The proposed Highway Works at Baynard's Green are shown on Highway Plans **Document 2.7A** an extract of which are shown at **Figure 8.2**.

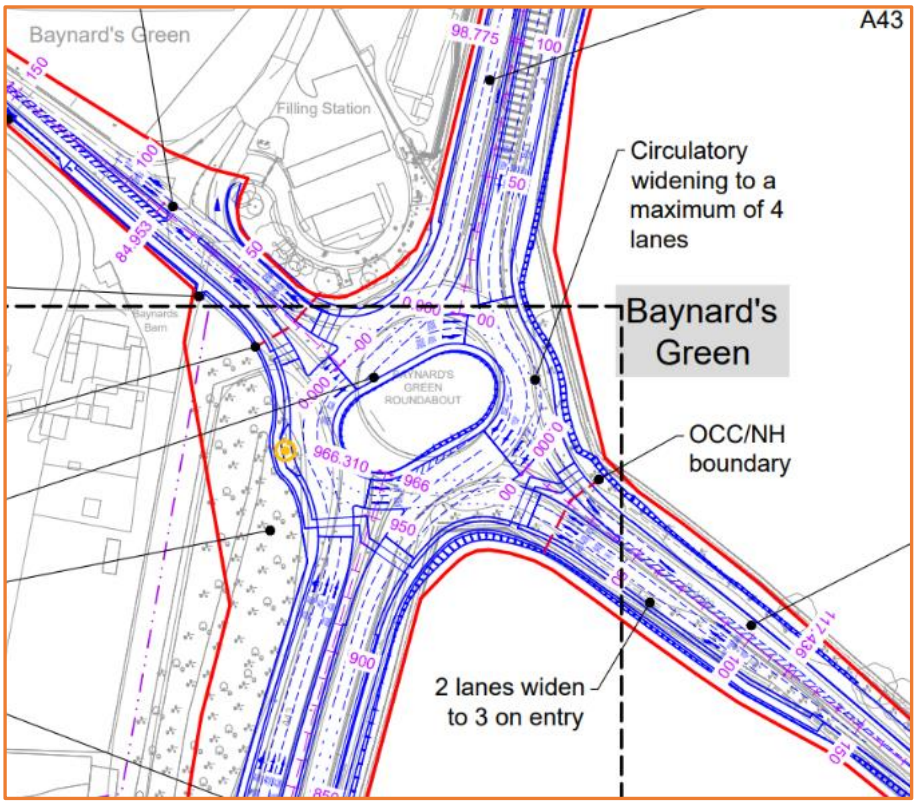


Figure 8.2: Proposed Highway Works at A43 Baynard's Green (extract of Highway Plans Document 2.7A)

8.24 As is explained at **Chapter 7**, following the resolution by Cherwell District Council to grant planning permission for the Albion Land development in July 2025, the TWG requested that the Albion Land scheme be included in the Stage 2 strategic transport modelling Reference Case. That meant that the highway improvement at Baynard's Green required to be implemented by the Albion Land scheme prior to occupation of that scheme was also included in the future Reference Case scenarios. An extract showing the proposed Albion Land Baynard's Green improvement is shown in **Figure 8.3**.

8.25 However, it was established that the Albion Land improvement scheme at Baynard's Green would not be sufficient to accommodate the additional traffic due to the OxSRFI development. Hence, alterations (enhancements) to the Albion Land scheme were designed to provide three northbound lanes to the A43 and increased right-turn storage capacity for right-turn movement from the A43 south to the B4100 east. That scheme, referred to as the 'Baynard's Green GA Option 28A Alternative Scheme', was provided at drawing OxSRFI-BWB-GEN-XX-SK-097 at Appendix A of the 'Summary of Agreed Transport Modelling Scenarios' (**Appendix 13**). It has since been taken forward in the Highway Plans and is shown on **Document 2.7W**, and an extract is shown at **Figure 8.4**.

8.26 As discussed in **Chapter 7**, the Albion Land scheme was refused planning permission in January 2026 and hence that scheme and their highway works at Baynard's Green are not a commitment. However, the DCO makes provision for the alternative scheme shown in **Figure 8.4** to be implemented by OxSRFI instead of the highway works shown in **Figure 8.2** should that be necessary. For example, should the Albion Land refusal decision be overturned at appeal.

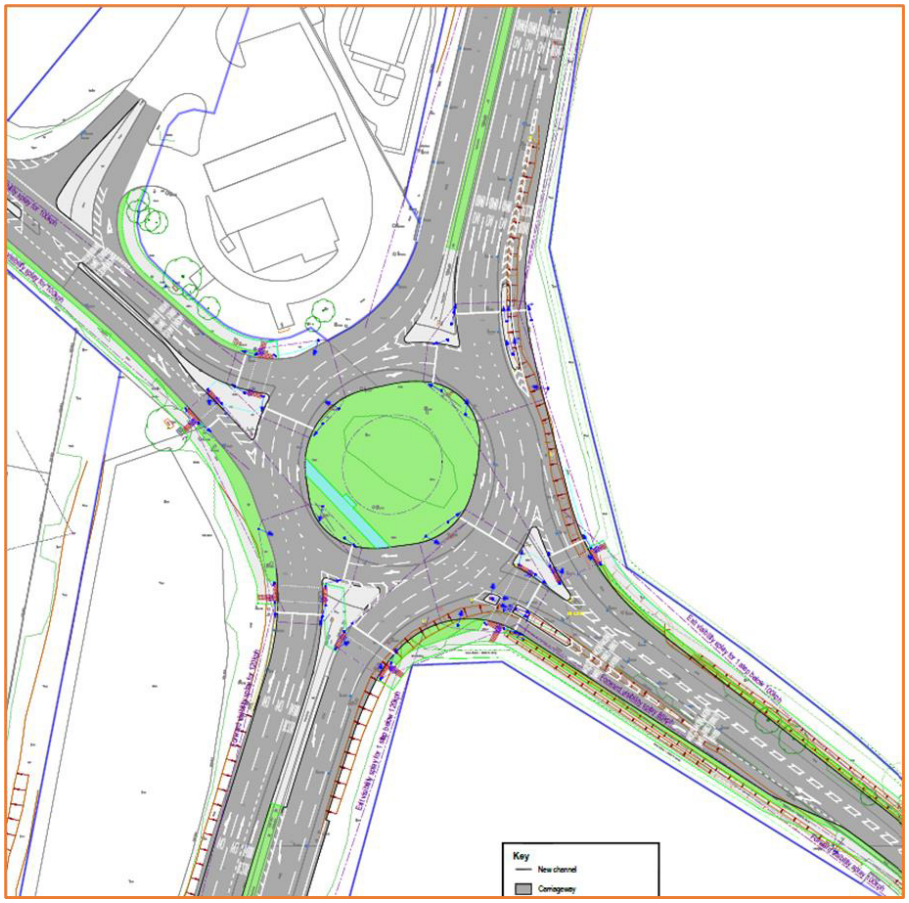


Figure 8.3 Albion Land Highway Works at A43 Baynard's Green (extract of SLR drawing 216285-A-14 Rev B)

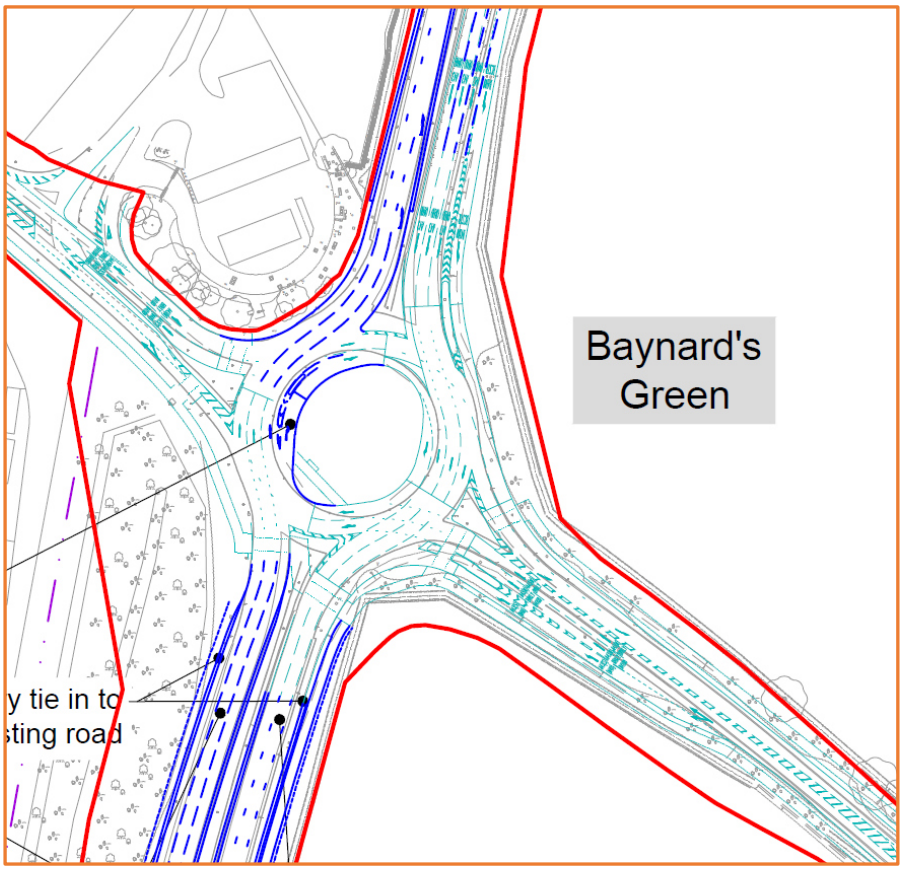


Figure 8.4: Proposed Alternative Highway Works at A43 Baynard's Green (Albion Land highway works shown in light blue, OxSRFI enhancements shown in dark blue). Extract of Highway Plans Document 2.7W.

Heyford Park Link Road and Middleton Stoney Relief Road

8.27 Upper Heyford Road passes through the Main Site, connecting the B430 to Camp Road and therefore providing access to Heyford Park and Upper Heyford. It is not desirable for the Proposed Development to retain this route for through-traffic and hence a new replacement road, termed the HPLR, was proposed at an early stage in the masterplanning of the Proposed Development. This masterplanning work determined that the HPLR should run in a corridor to the south of the proposed warehousing and integrated into the landscaping within this southern area of the Main Site.

8.28 The purposes of the HPLR is to retain the connection between Camp Road and the B430 south of the Main Site, whilst working in conjunction with the proposed Middleton Stoney Relief Road to provide a more attractive alternative route for drivers than travelling through Middleton Stoney village. The provision of the HPLR also allows the Proposed Development to provide high quality active travel links. The congestion relief at the B430/B4030 crossroads within Middleton Stoney provides bus service journey time reliability, which in turn will encourage bus usage.

8.29 As discussed in the Highways DAD (**Document 5.8C**) an alternative route for the HLPR running closer to Middleton Stoney was considered, connecting within the B4030 northwest of the village. However, this was rejected due to its proximity to Middleton Stoney and the additional distance for users travelling between M40 Junction 10 and Heyford Park.

8.30 The strategy to provide the proposed MSRR arose from an understanding of the existing and future baseline conditions within Middleton Stoney village. As discussed in **Chapter 3**, the TA for the Heyford Park development identified that the B430/B4030 junction in Middleton Stoney would suffer from severe congestion in their 2031 'Reference Case' (no Heyford Park development).

8.31 Initial trip distribution work undertaken to assess travel patterns for the Proposed Development showed that 34% of OxSRFI light vehicle trips could be to/from Bicester with the most likely route being via the B430 and B4030 Bicester Road, through the centre of Middleton Stoney. The distribution pattern also shows that up to 20% of development light vehicle trips could be to/from the A34, with a potential route being via the B430 through the centre of Middleton Stoney. It was determined that the Proposed development could therefore significantly increase traffic demand in Middelton Stoney, with the largest increase in demand being between the B430 north of the village and the B4030 Bicester Road, to the east (and vice versa)[12].

8.32 Based on the work undertaken to support the Heyford Park development (as reported in **Chapter 3**) it was recognised that further improvements at the crossroads junction would not be feasible without impacting properties within the village, nor would such traffic increases through the village be desirable for environmental reasons such as the impact on noise, air quality and amenity.

8.33 Therefore, given the identified congestion issues within Middleton Stoney and the significant demand likely to be introduced by the Proposed Development, the MSRR was proposed to reduce

[12] The Proposed Development light vehicle trip assignment has since been confirmed through the Stage 2 transport modelling using the BTM (**Appendix 27**). This shows (based on the DS3A scenario including the embedded Highway Works) approximately 20% of light vehicle trips would travel on the B4030 to and from Bicester, and approximately 11% of light vehicle trips would travel on the B430 to and from the south of Middleton Stoney. The BTM shows that residents in Bicester who would work at the Proposed Development would also use the B4100 and the improved M40 J10 and Ardley Bypass to travel to and from work at OxSRFI.

traffic levels within the village and improve journey time reliability for employees and bus services accessing the Proposed Development from Bicester. The proposals for the MSRR comprise a new link around the northeast quadrant of the village, connecting the B430 Ardley Road (north) and the B4030 (east).

8.34 The Applicant examined several options for the alignment of the MSRR and the HPLR as shown in **Figure 8.5**. That work is reported in the Middleton Stoney Relief Road and Heyford Park Link Road Options Report **(Appendix 25**). The route options were assessed by the Applicant's professional consultants across the areas of assessment that would be expected to arise in an Environmental Assessment (leading to an Environmental Statement) process. The findings of that process are provided in the Options Report. Based on that process, the southern (brown) and central (yellow) MSRR routes were rejected. A preference for the northern (green) MSRR route was identified. However, this option would have a direct impact on the Ardley Trackways SSSI and the Dewars Farm Quarry, which has permission to quarry the same land. In addition the junction assessment work demonstrated that the likley traffic demands associated with the four-arm junction (either roundabout or signal controlled) between the B430, MSRR and the HPLR required for the northern (green) route, would exhibit capacity issues.

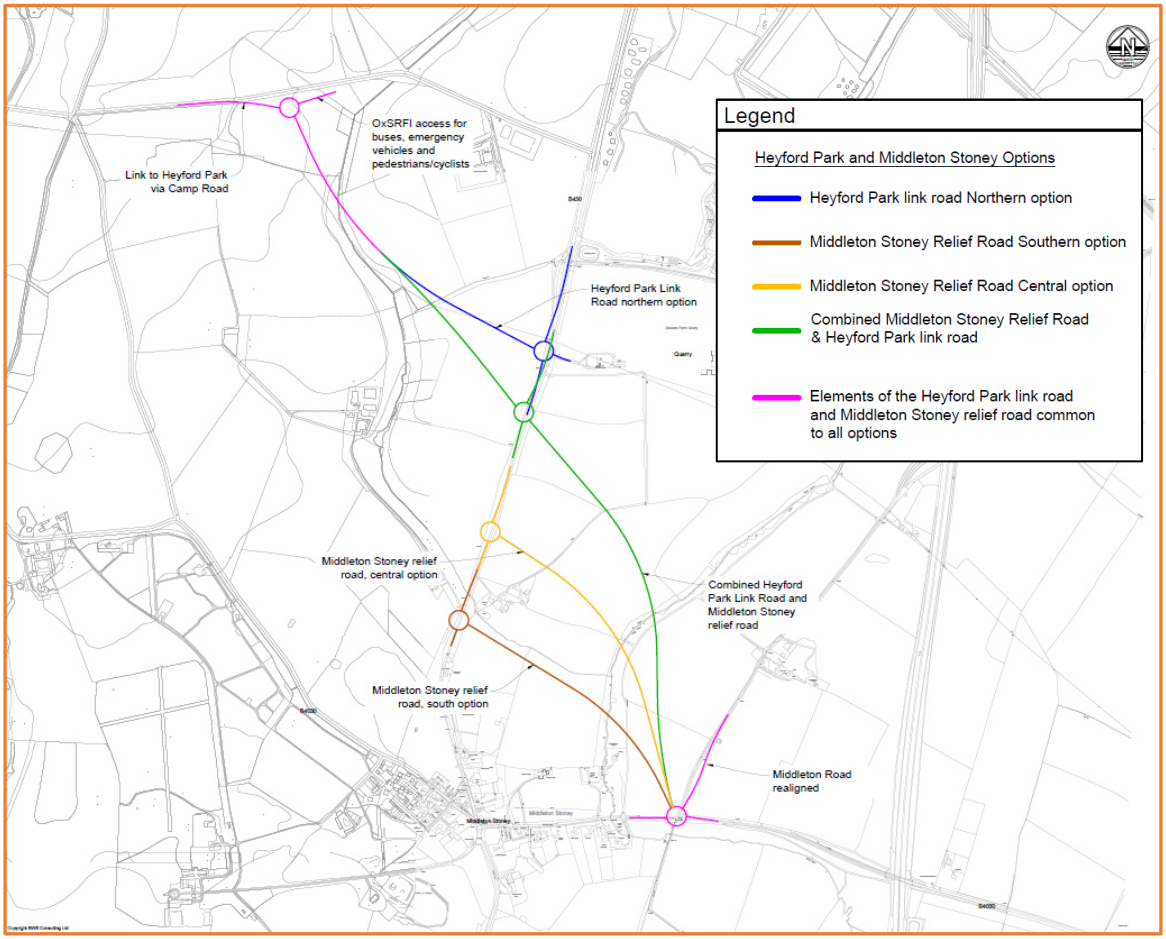


Figure 8.5: MSRR and HPLR initial route options

8.35 Accordingly, an additional MSRR option (the upper central route), as shown by the yellow line in **Figure 8.6** was identified. It was a southwards adjustment of the northern (green) route and retained the benefits of the northerly option by being further away from sensitive receptors, but it avoided the issues associated with the Ardley Trackways SSSI and Dewars Farm Quarry land and avoided the capacity constraints associated with a four-arm junction. The southern (green) route was identified as marginally preferred with regards to the HPLR.

8.36 These routes therefore formed the basis for the proposed alignment of the MSRR and HPLR, which is shown by the red dashed line in **Figure 8.6**.

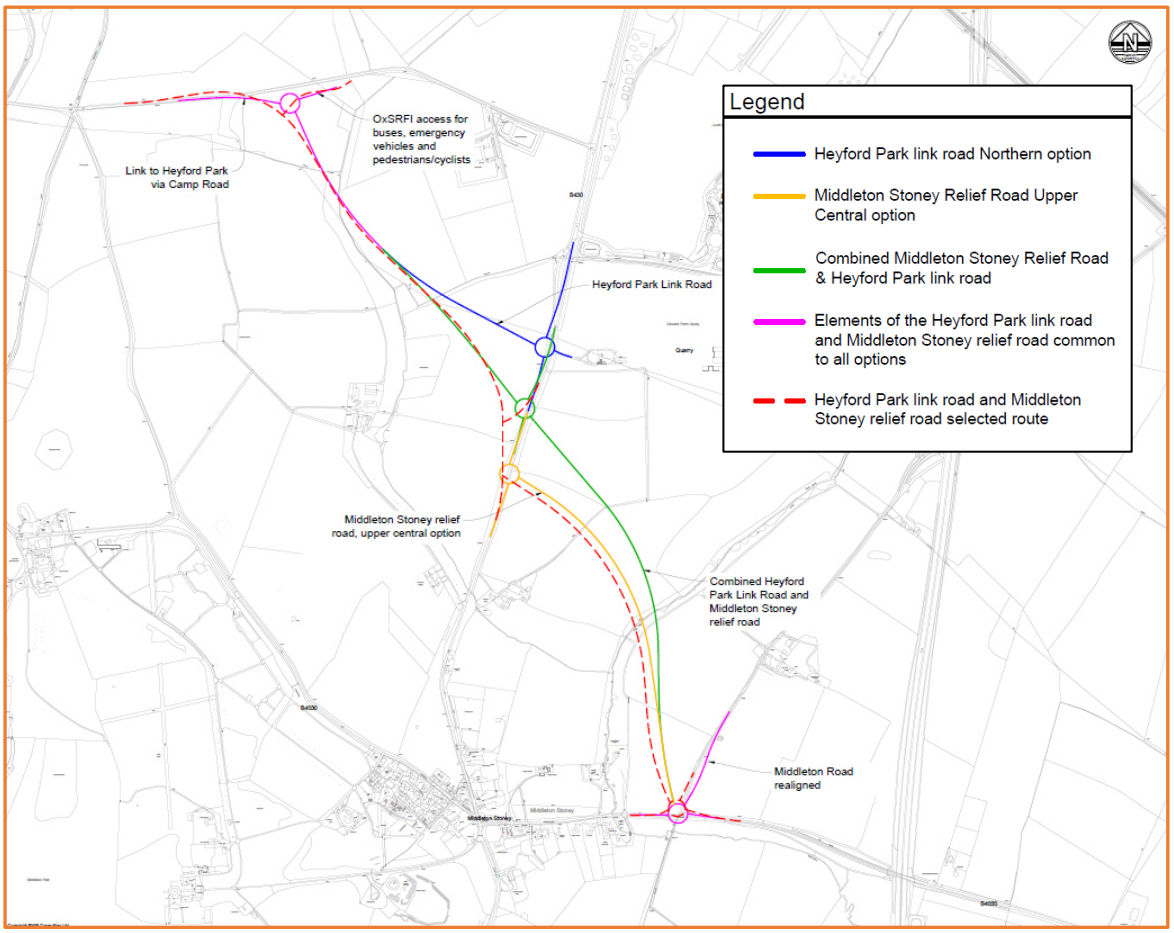


Figure 8.6: selected MSRR and HPLR alignment (dashed red line)

8.37 The proposed alignment of the MSRR and HPLR was taken forward into the Stage 1 non-statutory consultation that was held between May and July 2022. At that time, it was proposed that the MSRR would work in combination with a bus gate on the B4030 (west) of Middleton Stoney village, similar to the that which was proposed as part of the Heyford Park 'Middleton Stoney Mitigation Package' (see **Chapter 3**). The proposal at that time was that the bus gate would be delivered either as planned as part of the Heyford Park development, or if not provided as part of the Heyford Park mitigation, then it would be provided as part of the Highway Works for OxSRFI[13].

8.38 Following the Stage 1 non-statutory consultation, it was shown via modelling using the BTM that the MSRR would lead to a reduction in the volumes of traffic turning north from the B4030 Bicester Road and turning east from the B430 Ardley Road at the B430/B4030 Middleton Stoney crossroads. Working in combination with the HPLR, the MSRR was also shown to reduce the volumes of east-west (and vice versa) traffic flows on the B4030 through Middelton Stoney village. These effects were demonstrated in modelling scenarios that did not include the bus gate.

8.39 Based on this modelling, the bus gate that was proposed on the B4030 to the west of Middleton Stoney, as presented at the 2022 Stage 1 non-statutory consultation was removed from the

[13] It was understood at that time that the principal concern from local residents to the bus gate under the Heyford Park proposals was that it would not remove traffic from Middleton Stoney, rather it simply moved it from the B4030 west arm to the B430 north arm of the B430/B4030 crossroads. With the proposed MSRR in place, traffic would be removed from the village.

OxSRFI proposals. This was because the BTM modelling demonstrated that a bus gate on the B4030 to the west of village was not required to control driver route choice, and due to feedback from local residents and businesses as part of the Stage 1 consultation, who clearly indicated that the bus gate was not considered desirable.

8.40 The preferred alignment was taken forward and is shown on the Highway Works Overview Plan. The design of the HPLR and MSRR is shown on Highway Plans **Document 2.7D and 2.7E**, respectively. The form and layout of the connecting junctions were developed from those examined in the Middleton Stoney Relief Road and Heyford Park Link Road Options Report **(Appendix 25**) and the final layout and operation of these junctions is confirmed via the detailed modelling presented in **Chapter 11** of this TA.

Junction 9 Improvements

8.41 The initial 'Do-Something' runs of the BTM undertaken before the project was publicly paused by the Applicant identified that a capacity constraint at the A34 approach to M40 Junction 9 in the evening peak hour had the potential to cause undesirable reassignment of traffic from the SRN to the B430 northbound towards M40 Junction 10 in the evening peak hour. The effects of the Proposed Development and the proposed embedded highway works (M40 Junction 10, the Ardley Bypass, the HPLR and the MSRR) on the highway network in the vicinity of M40 Junction 9 were examined in detail in Technical Note 12 (**Appendix 26**), which was submitted to the TWG.

8.42 Technical Note 12 concluded that in the evening peak hour, congestion on the A34 eastbound approach to M40 Junction 9 could prevent traffic from reaching the M40 northbound. Consequently, some background traffic on the A34 wishing to travel north was shown to reassign away from the SRN and use the B430, through Weston-on-the-Green and Middleton Stoney towards M40 Junction 10. Whilst residual impacts due to this reassignment would not negate the positive effects of the MSRR and HPLR in reducing overall traffic volumes in Middleton Stoney, it is appropriate to keep this longer distance through-traffic on the SRN.

8.43 As discussed in Technical Note 12, the preferred scheme was to provide a third left-turn lane between the A34 and the M40 northbound at the existing signal-controlled approach to J9, with associated widening of the M40 northbound merge. The results of BTM modelling presented in Technical Note 12 showed that the proposed improvement would remove the delay on the A34 approach to M40 Junction 9 in the evening peak hour and therefore, the reassignment of traffic from the A34 to the B430 northbound would not occur.

8.44 Technical Note 12 concluded that the proposed highway mitigation at M40 Junction 9 would help facilitate the positive effects of the works at M40 Junction 10, the Ardley Bypass, the HPLR and the MSRR. The outcomes of Technical Note 12 and the proposed mitigation scheme were discussed and agreed with the TWG, and the proposed improvement scheme was included in the package of embedded highway works.

8.45 As part of the statutory consultation further modelling work was undertaken using the updated BTM assessment scenarios with the finalised package of embedded Highway Works. Following further consultation with National Highways following their response to the statutory consultation, an amendment to the scheme was proposed to reduce the speed limit on the A34 approach to the junction from derestricted to 50mph. This measure was proposed in response to the poor accident collision record on this approach. The speed reduction change was agreed with National Highways and OCC. That work, including additional sensitivity testing that was requested by National Highways, is presented at **Chapter 11** of this TA.

Active travel and PRoW

8.46 The embedded Highway Works encompass the active travel measures. These were developed in parallel with the above road improvements and alongside the PRoW of strategy. The evolution of the active travel measures and PRoW strategy is set out in the **STS** (**Appendix 1**) and the **WCHAR Assessment** (**Appendix 3**) and **WCHAR Review** (**Appendix 4**) reports.

9.0 STRATEGIC TRANSPORT MODELLING AND STUDY AREA

Introduction

9.1 The agreed three-stage transport modelling methodology is set out in **Chapter 7** of this TA. This chapter details the second part of the process - modelling of the effects of the Proposed Development and embedded Highway Works on the highway network using OCC's Bicester Transport Model (BTM). That work included the identification and agreement with the TWG of the study area to take forward for detailed assessment in the third-stage of the transport modelling, which is presented in **Chapters 11 and 12** of this TA.

Strategic Transport Modelling

9.2 The BTM is a SATURN based highway model that also includes a variable demand model (VDM)[14] and public transport module. Tetra Tech maintains and operates the BTM on OCC's behalf. The BTM was developed for OCC by Tetra Tech in 2016/2017 to comply with DfT WebTAG guidance for transport models, as described in the Local Model Validation Report[15].

9.3 The BTM was updated and expanded in 2018[16] to ensure that it was suitable to use to assess the transport impacts of the Heyford Park development, which is located immediately west of the OxSRFI Main Site. The model has a 2016 base year and can be used to provide future forecast years.

9.4 **Figures 9.1 and 9.2** show the BTM model zones and the extent of the modelled highway network, respectively. The modelled highway network includes M40 Junctions 10 and 9, the M40, A34 and A43 SRN routes and all significant local roads, including the A41, the A4095, A4421, the B430 through Ardley and Middleton Stoney, the B4030, the A4260 to the west of the Main Site and the B4100 east and west of Baynard's Green.

9.5 At the start of the project a further review of the BTM was undertaken by Tetra Tech to ensure that the model validation was appropriate to assess the changing transport conditions associated with the Proposed Development. That work, which is detailed at Appendix A of the Transport Modelling Methodology (**Appendix 12)**, concluded that the BTM is suitable to assess the impact of the Proposed Development and embedded Highway Work. This was agreed with the TWG.

9.6 The version of the model used in the OxSRFI assessment work is the OCC approved model for use in development control work such that it can be used in future year transport forecasting and for the purpose of operational, economic and environmental assessment. This approved version of the BTM was recently used by OCC to inform the evidence base for the Cherwell Local Plan 2042.

[14] The demand model allows for mode choice and distribution choice and therefore can respond to the changing land uses included in a forecast scenario. For example, the additional employment opportunities presented by OxSRFI could result in different demands on the highway network compared to the scenario without the Proposed Development. For example, some of those who live in Bicester and currently commute out of Cherwell District may work at OxSRFI in the Do-Something scenario and hence no longer out commute. This can change the demands on the highway network.

[15] Bicester Transport Model Local Model Validation Report

[16] Bicester Transport Model, Heyford Park Model Update Addendum to the Local Model Validation Report

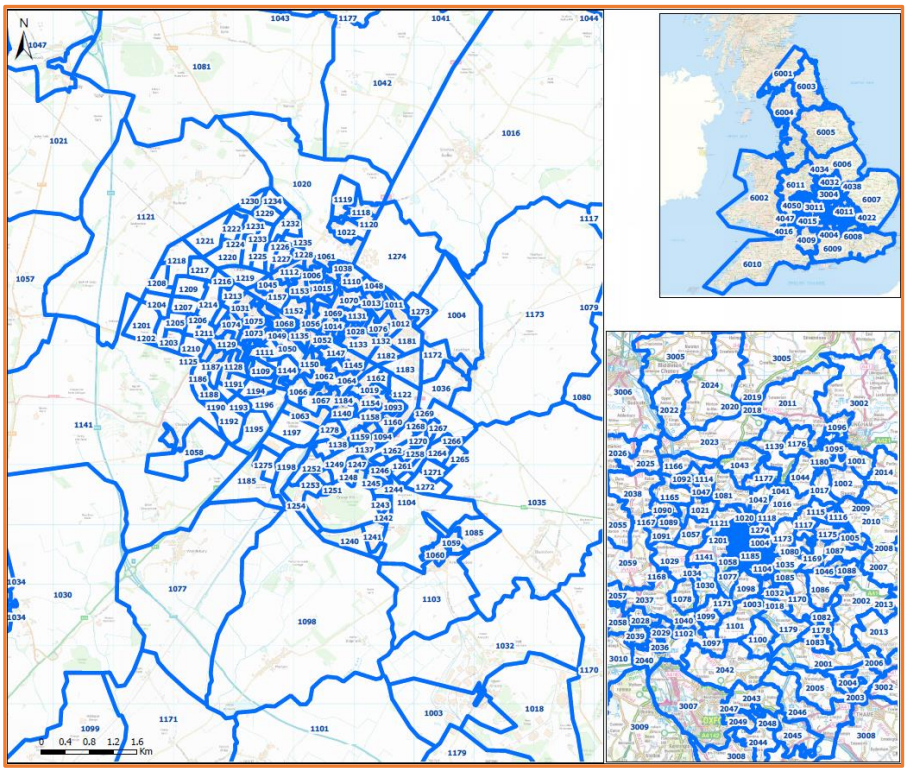


Figure 9.1: BTM model zones (extracted from LMVR)

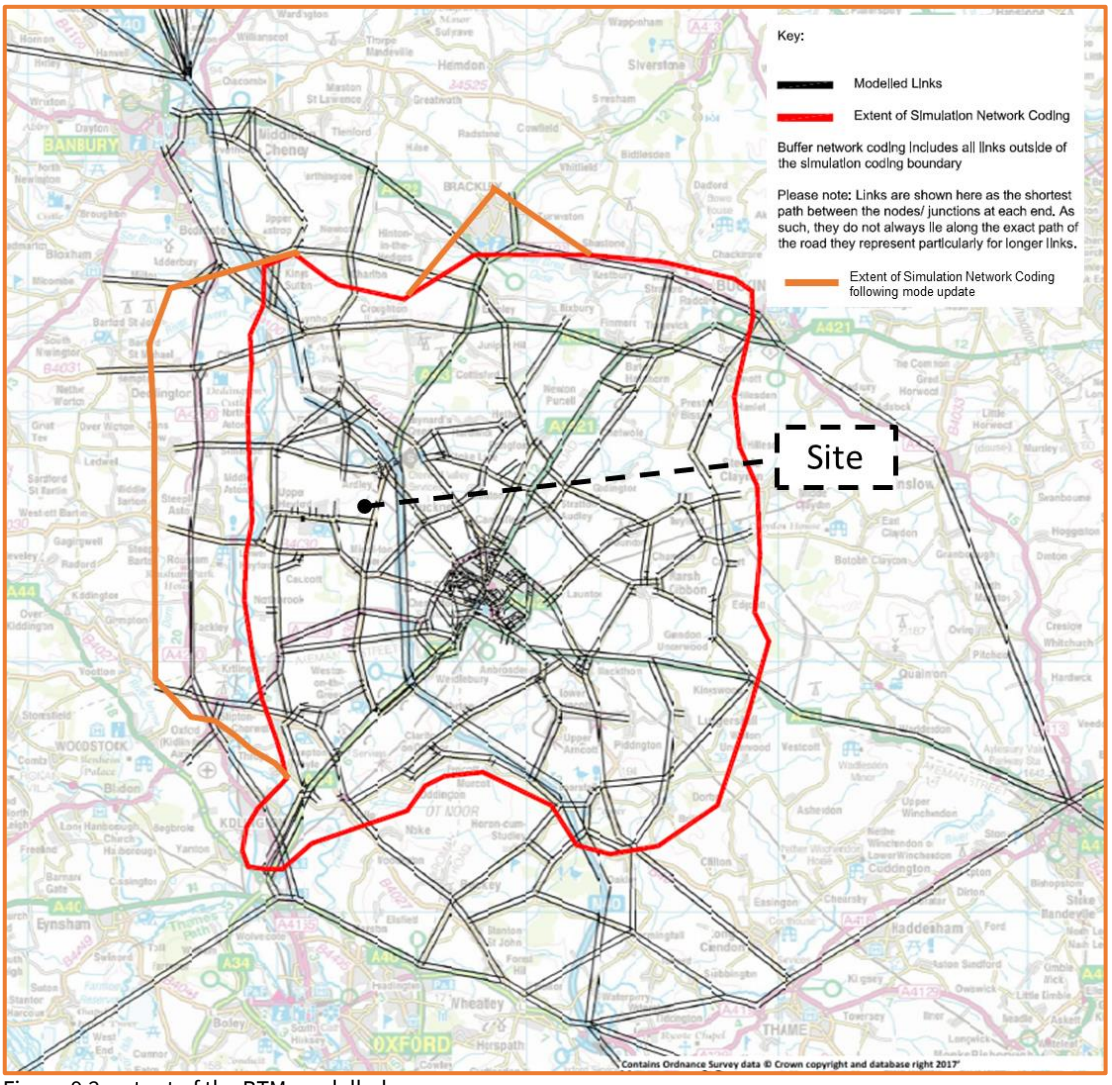


Figure 9.2: extent of the BTM modelled area

9.7 A further review of the BTM was undertaken by Tetra Tech to ensure that the model validation was appropriate to assess the changing transport conditions associated with the Proposed Development. That work, which is detailed at Appendix A of the Transport Modelling Methodology (**Appendix 12**), concluded that the BTM is suitable to assess the impact of the Proposed Development and embedded Highway Works. This was agreed with the TWG.

9.8 All BTM modelling work has been undertaken by Tetra Tech working on behalf of OCC, with the modelling outputs provided to ADC Infrastructure. The BTM has been run for the forecast years and assessment scenarios set out in **Tables 7.3 to 7.5** of **Chapter 7** of this TA. For each scenario, a full VDM run has been undertaken, with the exception of the with Framework Travel Plan scenarios, which are a post VDM adjustment.

9.9 For each scenario traffic is assigned for the morning peak hour and the evening peak hour and outputs provided, including those listed below, for use in the Stage 2 Transport Modelling analysis and the Stage 3 Transport modelling assessments:

- Junction turning movements,
- V/C plots[17]
- Actual flow plots
- Flow difference plots.

9.10 The BTM Forecasting Report prepared by Tetra Tech is provided at **Appendix 14** and the above outputs for each scenario are appended to the Forecast Report, as referenced throughout this chapter.

9.11 As discussed in **Chapter 7**, appropriate Uncertainty Logs for each of the assessment scenarios were agreed with the TWG and these are coded in the respective BTM Reference Case models. In that way, the future baseline (Reference Case) position includes for all committed and planned development and infrastructure schemes, ensuring that the cumulative impacts of the Proposed Development in conjunction with committed and planned development is fully assessed. The Uncertainty Logs are provided at Appendix A of the BTM Forecasting Report (**Appendix 14**).

9.12 AADT and AAWT flows have been output form the BTM, the calculation of which is detailed in Section 13 of the BTM Forecasting Report (**Appendix 14**). In addition to the future forecast year scenarios, ADDT and AAWT flows for the 2023 and 2024 base year scenarios were provided.

9.13 In addition, to inform the assessment work included in Chapter 4 of the ES (Air Quality and Odour), additional AADT traffic flow data was extracted from the BTM for three air quality management areas (AQMA) and one special area of conservation. The methodology for the extraction of the BTM traffic flow data is provided at Tetra Tech 'AQMA Methodology Technical Note' provided at **Appendix 47**.

9.14 With regards to the Oxford AQMA, it was necessary to provide a further breakdown of traffic flows within the AQMA. That analysis is presented at **Appendix 48**.

Demand flow vs actual flow

9.15 On each link across the BTM modelled network traffic flows can be provided either as demand flows, which is the full traffic demand wishing to route on the link in the modelled period (in this case a peak hour), or traffic data can be provided as actual flows, which is the actual flow that can

[17] V/C is a ratio of traffic volumes against the theoretical capacity on links and nodes throughout the highway network

use the link in the modelled peak hour. When considering the impact due to a development, it is usual for actual traffic flows to be considered. However, it is also useful to consider the differences between actual flows and demand flows, as this can indicate whether the full demand is being accommodated. On links where the demand flow is materially higher than the actual flow, there is likely to be a capacity constraint on the network which can result in suppressed demand.

9.16 Comparison of the actual and demand flows in the BTM modelled Reference Case scenarios has consistently indicated that there is supressed demand for southbound traffic on the A43 and M40 corridor in morning peak hour, and also northbound on the same route in the evening peak hour. The V/C ratio analysis presented throughout this chapter demonstrates that for southbound traffic in the Reference Case scenarios the capacity constraints are at the A43 Baynard's Green Roundabout (the A43 Barleymow Roundabout in the reference case scenarios in which the Baynard's Green improvement is in place) and the M40 Junction 10 southbound merge. For northbound traffic, the constraints are the M40 northbound diverge at Junction 10 and the A43 Baynard's Green Roundabout (the A43 Barleymow Roundabout in the Reference Case scenarios in which the Baynard's Green improvement is in place). These constraints lead to suppressed demand in the Reference Case scenarios.

Study area

9.17 The 'Stage 2 Transport Modelling Report' (**Appendix 27**) presented the analysis of the Stage 2 Transport Modelling for the RC3A and DS3A scenarios, establishing the impacts of the Proposed Development in the 2034 Completion Year. The Stage 2 Transport Modelling and proposed study area was discussed with the TWG and the report submitted as part of the Statutory Consultation held during September and October 2025.

9.18 The analysis of the 2034 RC3A and DS3A BTM scenarios presented in the 'Stage 2 Transport Modelling Report' identified the likely traffic flow changes on the highway network due to the OxSRFI Proposed Development in the 2034 DS3A scenario, indicating where changes to traffic volumes and congestion are likely to occur. This analysis was used to help identify a study area for the Stage 3 detailed transport modelling.

9.19 The study area includes the junctions that form the embedded Highway Works and access strategy for the Proposed Development. Beyond the embedded Highway Works, to identify which junctions should be included in the study area, further analysis of potentially effected highway routes and corridors was undertaken. The tables presented in Appendices H and I of the 'Stage 2 Transport Modelling Report' compared the changes to the traffic flows and V/C ratios on the approaches to junctions on these corridors. Junctions were included within the study area due to either a material increase in traffic flow, or V/C, or both.

9.20 The resulting study area for the Stage 3 transport modelling that is presented at **Chapter 11** of this TA is shown at **Figure 9.3**. The study area was agreed with the TWG following the statutory consultation.

9.21 In addition, as part of their response to the 'B4030 Middleton Stoney Road Corridor' technical note (**Appendix 44**), OCC requested that the two priority-controlled junctions to the Himley Village development that are in the process of being constructed on the B4030 are assessed. The operation of these junctions are therefore also considered in **Chapter 11**.

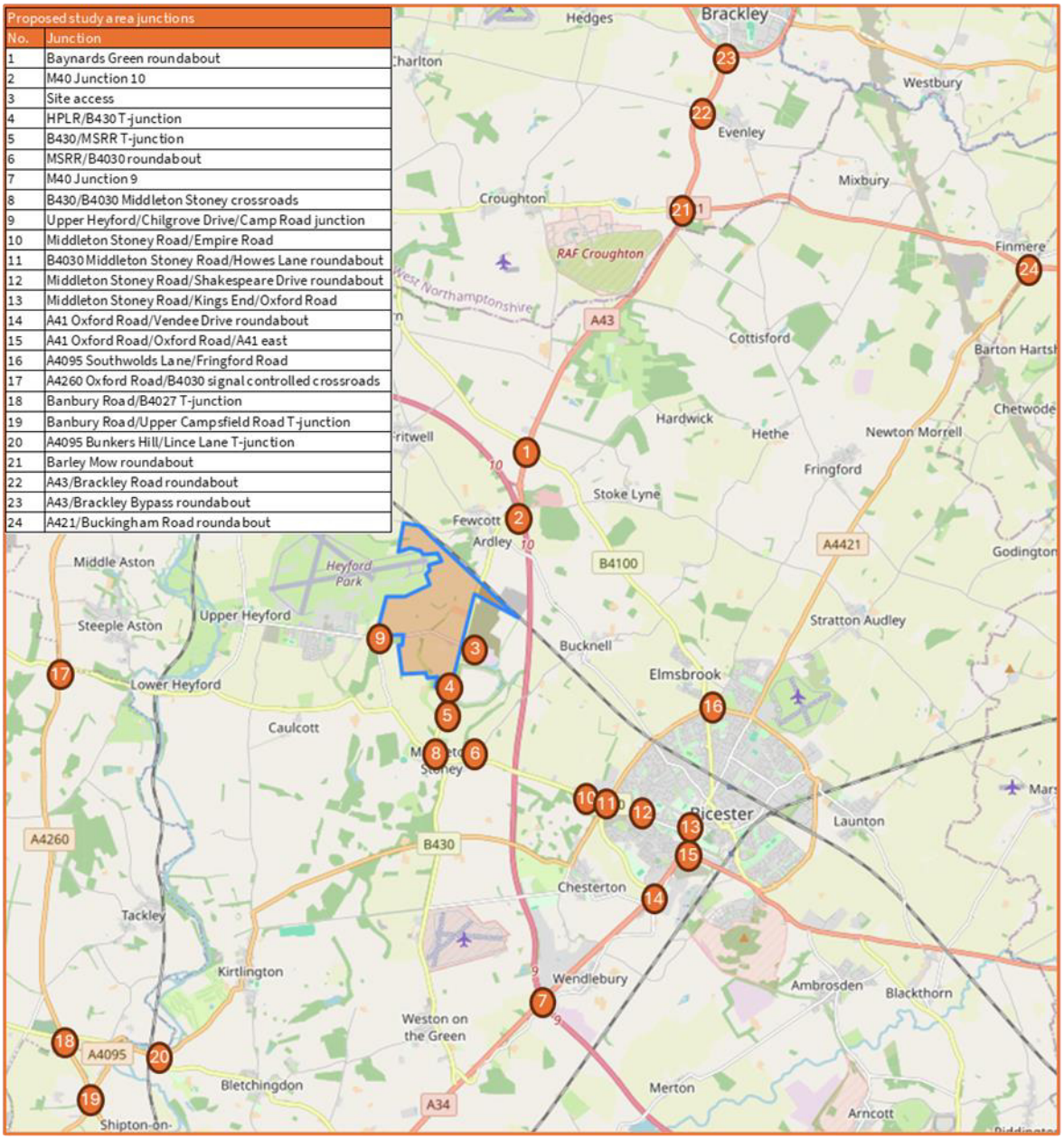


Figure 9.3: agreed study area for detailed transport modelling

9.22 The following sections of this chapter present the analysis of the BTM strategic transport modelling, as follows:

- Analysis of the DfT Circular 01/2022 compliant scenarios (RC1 SRN, DS1 SRN, and DS1A SRN), which are the assessment scenarios used for assessment of traffic impacts on the SRN is presented.
- A summary of the assessment and conclusions from the 'Stage 2 Transport Modelling Report' for the 2034 Completion Year scenarios (RC3A, DS3A, DS3AwTP) is provided, which are the scenarios used for assessment of traffic impacts on the local road network.
- Analysis of the 2034 Do-Minimum Completion Year scenario (DM3A) - with OxSRFI but without the embedded Highway Works - is provided, confirming the unacceptable impacts of the Proposed Development without the embedded Highway Works.
- Analysis of the 2042 Sensitivity Test scenarios (RC4A, DS4A, DS4AwTP) is provided. This is provided for information only.

9.23 The final section of this chapter then considers the 2031 Opening Year scenarios (RC2A, DS2A, and DS2AwTP) with the first phase of the Proposed Development and first Phase of embedded

Highway Works in place. The study area for detailed assessment in the 2031 Opening Year that is assessed at **Chapter 12** of the TA is then presented.

2031 DfT Circular 01/2022 compliant scenarios (RC1 SRN and DS1 SRN)

9.24 As set out in **Chapter 7** of this TA, it is agreed with the TWG that the impact on the SRN will be assessed using the DfT Circular 01/2022 forecast scenarios (in the opening year with 100% of the development and all embedded Highway Works). For the reasons discussed in **Chapter 7**, there are two Circular 01/2022 scenarios, one with the Albion Land scheme and its associated highways works at the A43 Baynard's Green junction, and one without that scheme and its highway works. This section considers the 2031 RC1 SRN (RC1) and DS1 SRN (DS1) scenarios, without the Albion Land scheme and highway works. These scenarios reflect the current planning position, in that the Albion Land scheme was refused planning permission in January 2026.

9.25 Notwithstanding the guidance in DfT 01/2022 Circular that allows for the effects of the Travel Plan to be taken in to account, National Highways requested that reductions in vehicle trips associated with the Framework Travel Plan are not applied to the vehicle traffic generation for assessment of impacts on the SRN (scenario DS1).

2031 DS1 development traffic assignment

9.26 The BTM development traffic plots for the 2031 DS1 OxSRFI morning and evening peak hour are provided at Appendix J of the Forecasting Report (**Appendix 14**). Plots are provided for total traffic flows in pcus (passenger car units), total traffic flows in vehicles, with a breakdown provided of light vehicle movements and HGV movements.

9.27 **Table 9.1** below quantifies the total number of development trips assigned to the SRN in the 2031 DS1 scenario for the morning and evening peak hours. The 'proportion' is the percentage of the total OxSRFI development traffic on a SRN link (based on the two-way development flow).

Table 9.1: OxSRFI DS1 development traffic assignment on the SRN

2031 DS1 development traffic assignment (in pcus)					
Link	Peak hour	Inbound	Outbound	Two-way	Proportion
A43 Brackley Bypass	Morning	134	23	157	10%
	Evening	43	152	195	10%
A43 between Brackley and Barley Mow	Morning	183	28	211	13%
	Evening	64	207	271	14%
A43 between Barley Mow and Baynards Green	Morning	278	44	322	19%
	Evening	104	318	422	22%
A43 between Padbury and Baynards Green	Morning	365	56	421	25%
	Evening	144	351	495	26%
M40 north of M40J10	Morning	213	108	321	19%
	Evening	125	212	337	17%
M40 between M40J10 and M40J9	Morning	210	175	385	23%
	Evening	172	182	354	18%
M40 southbound offslip at M40J9	Morning	0	85	85	5%
	Evening	0	77	77	4%
M40 northbound onslip at M40J9	Morning	91	0	91	6%
	Evening	82	0	82	4%
A34 east of B430	Morning	34	31	65	4%
	Evening	32	29	61	3%
M40 south of M40J9	Morning	119	90	209	13%
	Evening	90	105	195	10%

9.28 The table details the OxSRFI traffic routing for the 2031 DS1 scenario as follows:

- 19% of development traffic routes to/from the north on the M40 in the morning peak hour, reducing to 17% in the evening peak hour.

- 23% of development traffic routes to/from the south on the M40 between Junctions 10 and 9 in the morning peak hour, reducing to 18% in the evening peak hour. To the south of M40 Junction 9, 13% of development pcu trips use the M40 in the morning peak hour, reducing to 10% in the evening peak hour. West of M40 Junction 9, 4% of development trips use the A34 in the morning peak hour and 3% in the evening peak hour.

- 19% of the development traffic is on the A43 between the Baynard's Green and Barleymow Roundabouts in the morning peak hour, increasing to 22% in the evening peak hour.

- At the Barleymow Roundabout, development traffic splits with 13% remaining on the A43 in the morning peak (14% in the evening peak).

- 10% of the development traffic routes to/from the A43 Brackley Bypass in the morning and evening peak hours.

2031 DS1 vs RC1 flow difference – morning peak hour

9.29 The development traffic routing on the SRN in the DS1 scenario is detailed above. However, the future year traffic volumes on the network are comprised of both development traffic and also background traffic that may reassign because a) the changes to infrastructure and highway conditions mean that alternative routes become quicker and/or more attractive, or b) existing trips on the network reassign due to changes in the demand model i.e. trips to/from OxSRFI replacing trips to/from other employment zones in the model. It is also necessary to consider the effect of supressed demand in parts of the network due to existing capacity constraints.

9.30 The 'Stage 2 Transport Modelling Report' (**Appendix 27**) concluded that for the M40 and A43 corridors in the 2034 DS3A completion year scenario, there is a significant amount of background traffic reassignment due to the embedded Highway Works helping to release suppressed traffic demand and return background traffic to the higher category roads and away from the local road network, which is a positive effect.

9.31 Traffic flow changes on the A43 corridor between Brackley and the Baynard's Green Roundabout in the 2031 DfT 01/2022 Circular compliant scenarios are discussed in detail in the 'A43 Corridor' Technical Note (ref. ADC1794-RP-AQ, **Appendix 30**). Hence, whilst this chapter of the TA will summarise the traffic flow changes on the A43 corridor, the focus will be on the traffic effects across the remaining parts of the modelled SRN for the 2031 DS1 scenario.

9.32 Flow difference plots show the change in traffic flow on a road link between two forecast scenarios. Note that where there is new highway infrastructure in the Do-Something scenario, i.e. at M40 Junction 10, the Ardley Bypass, MSRR and HPLR there is no equivalent traffic flow in the Reference Case to compare two and hence these it is not possible to show the flow difference on these new links.

9.33 The BTM flow difference plots for the morning and evening peak hour 2031 DS1 – RC1 scenarios are provided at Appendix O of the BTM Forecasting Report (**Appendix 14**). **Figure 9.4** below shows an extract of the flow difference plot for the 2031 DS1-RC1 scenarios in the morning peak hour.

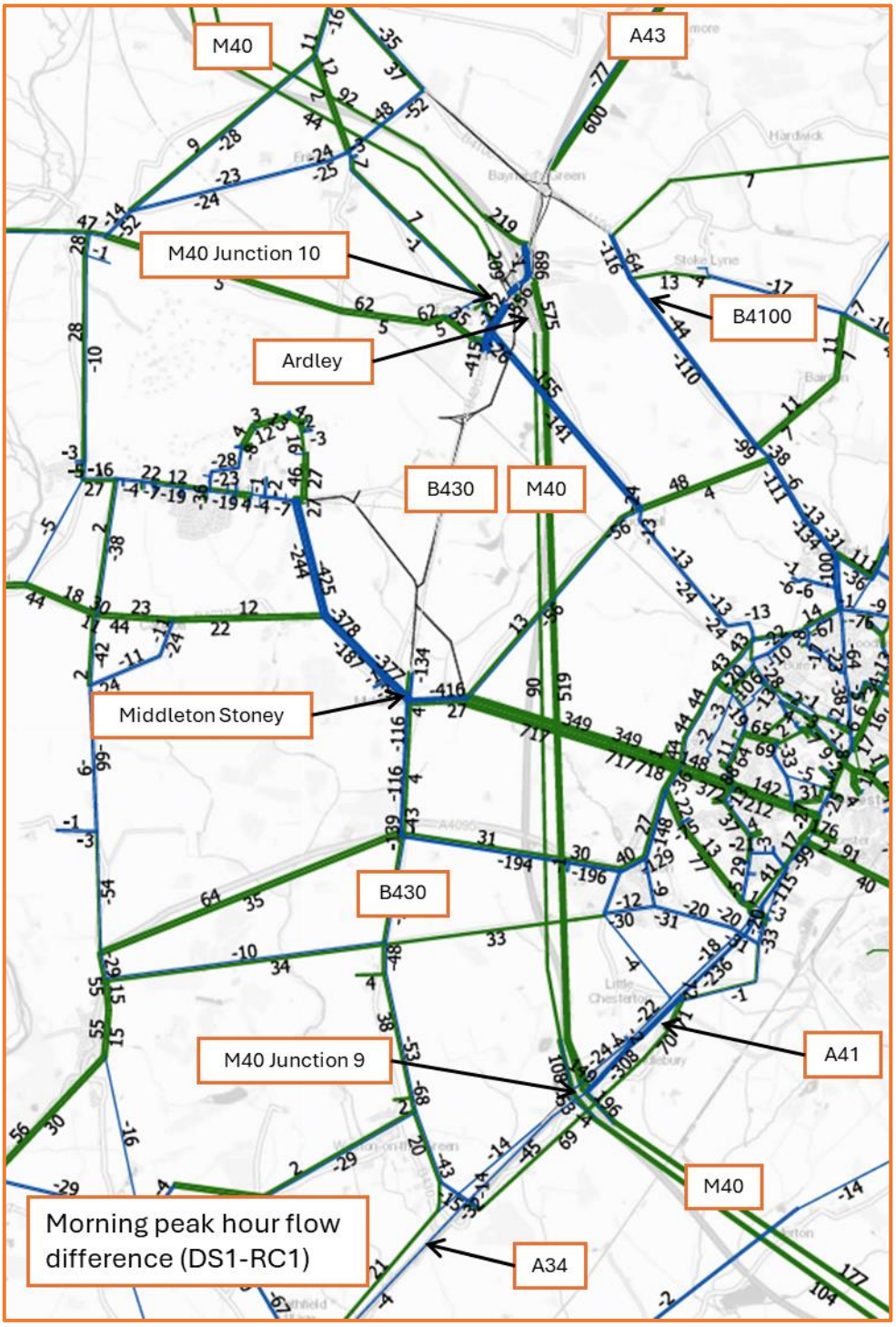


Figure 9.4: extract of the DS1-RC1 AM flow difference plot, Appendix O, Forecasting Report (total pcus)

9.34 With the Proposed Development and the embedded highway works in place, **Figure 9.4** shows that there would be traffic increases on the M40, particularly southbound between Junctions 10 and 9, but also north of M40 Junction 10 and south of M40 Junction 9. There is a significant increase southbound on the A43 towards Baynard's Green and through to M40 Junction 10. There are relatively small traffic flow reduction on the A34 between the B430 and M40 Junction 9.

9.35 To help quantify the traffic flow changes across the modelled SRN discussed above, **Table 9.2** below compares the DS1 and RC1 scenarios in the morning peak hour and summarises the actual flows in the RC1 and DS1 scenarios (Appendix K in the Forecasting Report), the flow difference, the volume of development vehicle trips (Appendix J in the Forecasting Report) and the resulting change in background traffic flows across the modelled SRN. The traffic flows are given in pcus.

Table 9.2: 2031 DS1 vs RC1 traffic flow analysis – morning peak hour (in pcus)

2031 DS1 vs RC1 flow analysis - morning peak hour					
Link	RC1	DS1	Flow difference	OxSRFI	Background traffic change
A43 Brackley Bypass westbound	1,874	2,032	158	134	24
A43 Brackley Bypass eastbound	1,274	1,273	-1	23	-24
A43 between Brackley and Barley Mow southbound	1,918	2,154	236	183	53
A43 between Brackley and Barley Mow northbound	1,339	1,294	-45	28	-73
A43 between Barley Mow and Baynards Green southbound	2,185	2,785	600	278	322
A43 between Barley Mow and Baynards Green northbound	1,793	1,716	-77	44	-121
A43 between Padbury and Baynards Green southbound	2,016	2,661	645	365	280
A43 between Padbury and Baynards Green northbound	1,849	1,666	-183	56	-239
M40 north of M40J10 southbound	4,770	4,862	92	213	-121
M40 north of M40J10 northbound	3,794	3,838	44	108	-64
M40 northbound offslip at M40J10	1,449	461	-988	210	-1,198
M40 southbound onslip M40J10	1,741	2,317	576	175	401
M40 between M40J10 and M40J9 southbound	5,655	6,174	519	175	344
M40 between M40J10 and M40J10 northbound	4,685	4,775	90	210	-120
M40 southbound offslip at M40J9	2,193	2,517	324	85	239
M40 northbound onslip at M40J9	2,373	2,355	-18	91	-109
A34 east of B430 westbound	3,408	3,363	-45	31	-76
A34 east of B431 eastbound	4,143	4,129	-14	34	-48
M40 south of M40J9 southbound	4,332	4,509	177	90	87
M40 south of M40J9 northbound	2,897	3,001	104	119	-15

9.36 The changes to the traffic flows on the SRN are summarised below:

- Traffic flows increase on the A43 Brackley Bypass approach to the A43/A422 Brackley Bypass gyratory by 158 pcus and this increase is largely due to development trips, with a small amount of additional traffic due to background reassignment.

- Northbound on the A43 from Baynard's Green to south of the A43/A422 Brackley Bypass gyratory, traffic flows decrease slightly with the OxSRFI development in place. Analysis shows that in the DS1 scenario there is very little difference between that actual and demand flows on the A43 northbound between Baynard's Green and Brackley, and therefore the reduction in the flow difference between the DS1 and RC1 scenarios is due to a reduction in background demand northbound on the A43 and is not a result of OxSRFI traffic displacing background traffic.

- Southbound on the A43 from south of the A43/A422 Brackley Bypass gyratory to the Barleymow Roundabout, traffic flows increase by 53 pcus more that the OxSRFI development traffic on this route, indicating that there is some additional background traffic on this route. This is mostly due to the embedded Highway Works, especially the upgrades to the Baynard's Green Roundabout and M40 Junction 10 allowing some of the suppressed traffic demand to return to the A43 corridor, as the existing constraint on the highway network in the Reference Case is removed.

- On the A43 southbound between the Barleymow Roundabout and Baynard's Green the traffic flow increases by 600 pcus, with 54% of this traffic increase attributed to background traffic reassigning to the A43. The 'A43 Corridor' Technical Note (**Appendix 30**) sets out the detailed analysis on this effect, which identified that the embedded Highway Works proposed at the A43 Baynard's Green Roundabout and M40 Junction 10 will remove existing highway network constraints, allowing the A43 to accommodate additional, previously suppressed, traffic demand. This additional traffic would have otherwise avoided the A43 corridor due to the existing congestion at Baynard's Green and M40 Junction 10. For example, in the Reference Case, traffic that would otherwise remain on

the A43 southbound at the Barleymow Roundabout instead turns left onto the A421 and then turns right onto Hethe Road and travels onwards via Fringford Road and Bicester Road through Caversfield. With the improvements at Baynard's Green and M40 J10 in place in the Do-something scenario the congestion on the A43 approach to Baynard's Green is removed and traffic remains on the A43 and there is flow reduction forecast on Hethe Road, Fringford Road, and Bicester Road. Hence the OxSRFI improvements at Baynard's Green and M40 Junction 10 have a direct positive impact of removing rat running on the local road network. With the constraints at Baynard's Green and M40 Junction 10 removed by the proposed Highway Works, the BTM forecasts that additional background traffic will use the A43 corridor as the preferred route because the overall journey times on the corridor would be reduced in comparison to the Reference Case.

- The increases in traffic flow on the M40 north of Junction 10 are less than the OxSRFI development traffic on this part of the network, with reductions in background traffic flow both northbound and southbound. As discussed above, this is not a material concern, analysis shows that in the DS1 scenario there is very little difference between the actual and demand flows on the M40 north of M40 Junction 10, and therefore the reduction in the flow difference between the DS1 and RC1 scenarios is due to a reduction in background demand on this part of the network.

- There is a significant decrease in background traffic of 1,198 pcus on the M40 northbound diverge at Junction 10 due to the new M40 to A43 diverge delivered as part of the embedded Highway Works and allowing traffic routing to the A43 northbound (and traffic to the B4100 east and west) to avoid the Ardley and Cherwell junctions.

- The traffic increases on the M40 southbound on-slip at Junction 10, the M40 southbound between M40 Junctions 10 and 9 and the M40 southbound off-slip at M40 Junction 9 are significantly higher than the OxSRFI development traffic on these routes. This is again due to the significant upgrade of Baynard's Green and M40 Junction 10, and in particular the proposed improvements to Cherwell junction and the southbound M40 merge which releases a known constraint on the network. The effect of this is to allow a significant volume of previously suppressed background traffic demand to pass through this part of the network. This is a positive effect of the embedded highway works.

- The increase in traffic flow on the M40 northbound merge at Junction 9 and the M40 northbound between Junctions 9 and 10 are less than the development traffic on this part of the network. As above, this reduction in background traffic is not a material concern. When considering the effects of the Proposed Development and the embedded Highway Works on the local highway network, **Figure 9.4** shows a reduction in traffic on the A41 and an increase on the B4030 Middleton Stoney Road. As discussed in the 'Stage 2 Transport Modelling Report' (**Appendix 27**) for the 2034 Completion Year, this is a result of background traffic from Bicester that is routing towards the M40 northbound reassigning from the A41/M40 Junction 9 route to the B4030/MSRR/Ardley Bypass/M40 Junction 10 route due to the improved journey times afforded by the embedded Highway Works.

- There is no material change in traffic flow on the A34, with small reductions in traffic flow on the A34 in both directions.

<u>2031 DS1 vs RC1 flow difference – evening peak hour</u>

9.37 **Figure 9.5** below shows an extract of the flow difference plot for the 2031 DS1-RC1 scenarios in the evening peak hour (Appendix O of the Forecasting Report). With the Proposed Development

and the embedded highway works in place, there would be traffic increases on the M40, particularly southbound between Junctions 10 and 9, but also north of M40 Junction 10 and south of M40 Junction 9. There is a significant increase northbound on the A43 towards the Barleymow Roundabout and the A43 Brackley Bypass from Baynard's Green. There are moderate traffic flow increases on the A34 west of M40 Junction 9 in the 2031 DS1 evening peak.

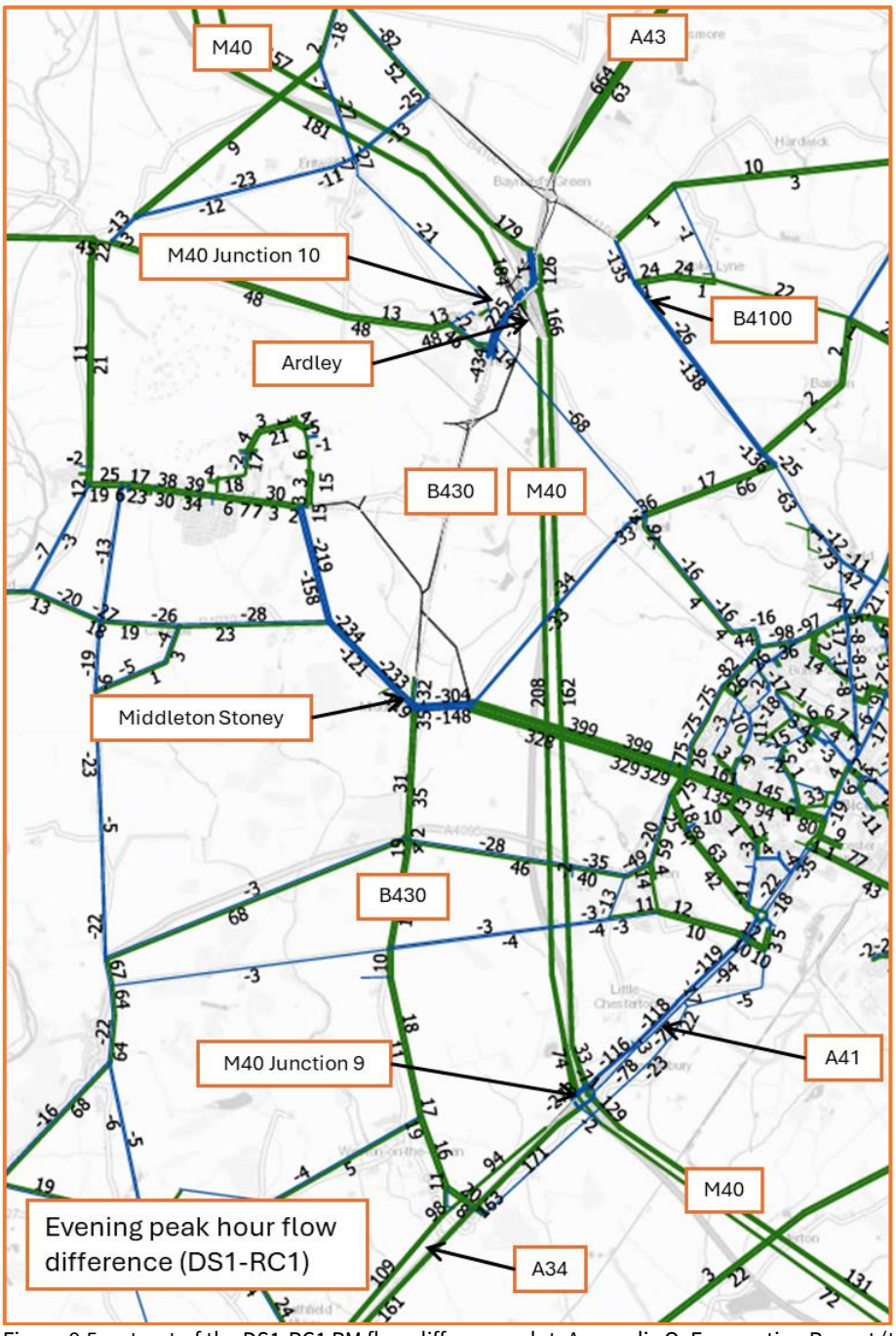


Figure 9.5: extract of the DS1-RC1 PM flow difference plot, Appendix O, Forecasting Report (total pcus)

9.38 To help quantify the traffic flow changes across the modelled SRN discussed above, **Table 9.3** below compares the DS1 and RC1 scenarios in the evening peak hour and summarises the actual flows in the RC1 and DS1 scenarios (Appendix K in the Forecasting Report), the flow difference, the volume of development vehicle trips (Appendix J in the Forecasting Report) and the resulting change in background traffic flows across the modelled SRN. The traffic flows are given in pcus.

Table 9.3: 2031 DS1 vs RC1 traffic flow analysis – evening peak hour (in pcus)

2031 DS1 vs RC1 flow analysis - evening peak hour					
Link	RC1	DS1	Flow difference	OxSRFI	Background traffic change
A43 Brackley Bypass westbound	1,357	1,391	34	43	-9
A43 Brackley Bypass eastbound	1,735	2,013	278	152	126
A43 between Brackley and Barley Mow southbound	1,457	1,532	75	64	11
A43 between Brackley and Barley Mow northbound	1,748	2,101	353	207	146
A43 between Barley Mow and Baynards Green southbound	1,924	1,987	63	104	-41
A43 between Barley Mow and Baynards Green northbound	2,147	2,812	665	318	347
A43 between Padbury and Baynards Green southbound	1,863	1,861	-2	144	-146
A43 between Padbury and Baynards Green northbound	2,031	2,735	704	351	353
M40 north of M40J10 southbound	4,185	4,342	157	125	32
M40 north of M40J10 northbound	4,938	5,119	181	212	-31
M40 northbound offslip at M40J10	1,958	465	-1,493	172	-1,665
M40 southbound onslip M40J10	1,688	1,854	166	182	-16
M40 between M40J10 and M40J9 southbound	5,295	5,457	162	182	-20
M40 between M40J10 and M40J10 northbound	6,249	6,457	208	172	36
M40 southbound offslip at M40J9	2,675	2,708	33	77	-44
M40 northbound onslip at M40J9	2,803	2,938	135	82	53
A34 east of B430 westbound	3,747	3,918	171	29	142
A34 east of B431 eastbound	4,013	4,106	93	32	61
M40 south of M40J9 southbound	3,111	3,243	132	105	27
M40 south of M40J9 northbound	4,454	4,526	72	90	-18

9.39 As reported in the 'Stage 2 Transport Modelling Report' (**Appendix 27**) and the 'A43 Corridor' Technical Note (**Appendix 30**), there is a strong tidal traffic flow effect on the A43 between Brackley and M40 Junction 10 and hence many of the effects described above for the morning peak hour are reversed for the evening peak, as summarised below:

- On the A43 northbound between the Padbury junction and the Barleymow Roundabout, the traffic flow increases significantly (704 pcus to Baynard's Green, 665 pcus to Barleymow), with more than 50% of this traffic attributed to an increase in background traffic.

- Northbound on the A43 from the Barleymow Roundabout to south of the A43/A422 Brackley Bypass gyratory, traffic flows increase by 353 pcus with the OxSRFI development in place, with 41% of this increase due to background traffic increases.

- The traffic flow on the A43 Brackley Bypass eastbound exit from the A43/A422 Brackley Bypass gyratory increases by 278 pcus. This increase is due to both development traffic (55%) and background traffic (45%).

- As previously discussed, the increases in background traffic flows on the A43 corridor highlighted above are due to the positive effects of the embedded Highway Works proposed at the A43 Baynard's Green Roundabout and M40 Junction 10. These works will remove existing highway network constraints, allowing the A43 to accommodate additional, previously suppressed, traffic demand. With the constraints at Baynard's Green and M40 Junction 10 removed by the proposed Highway Works, the BTM forecasts that additional background traffic will use the A43 corridor northbound in the evening peak hour as the preferred route because the overall journey times would be reduced in comparison to the reference case.

- Southbound on the A43 from south of the A43/A422 Brackley Bypass gyratory to the Barleymow Roundabout, traffic flows increase by slightly more that the OxSRFI development traffic on this route, with a relatively small amount of background traffic

increase. South of the Barleymow Roundabout, the southbound traffic flow increases by slightly less than the OxSRFI development traffic flow. Analysis shows that in the DS1 scenario there is little difference between the actual flows and demand flows on the A43 southbound between Brackley and Baynard's Green, and therefore the reduction in the flow difference between the DS1 and RC1 scenarios is due to a reduction in background demand and is not a result of OxSRFI traffic displacing background traffic.

- The increases in traffic flow on the M40 north of Junction 10 are mostly due to the OxSRFI development traffic on this part of the network, with relatively small changes in background traffic flow both northbound and southbound.

- There is a significant decrease in background traffic of 1,665 pcus on the M40 northbound diverge at Junction 10 due to the new M40 to A43 diverge delivered as part of the embedded Highway Works and allowing traffic routing to the A43 northbound (and traffic to the B4100 east and west) to avoid the Ardley and Cherwell junctions.

- The traffic increases on the M40 southbound on-slip at Junction 10, the M40 southbound between M40 Junctions 10 and 9 and the M40 southbound off-slip at M40 Junction 9 are also mostly due to OxSRFI development traffic on these routes, with slight reductions in background traffic flows. There is very little difference between the actual and demand BTM traffic flow data on these links and hence the minor reductions in background traffic flows are attributable to a reduction in demand.

- The increases in traffic flow on the M40 northbound on-slip at Junction 9 and the M40 northbound between Junctions 9 and 10 are higher than the OxSRFI development traffic on these routes, likely due to the proposed mitigation at M40 Junction 9 which targets the A34 to M40 northbound movement and the new M40 to A43 link to the Padbury junction improving journey times and allowing traffic to reassign to the higher category route.

- There is a forecast increase in traffic flow on the A34 eastbound and westbound between M40 Junction 9 and the B430, mostly due to background traffic in the evening peak hour. This is partly attributable to the proposed mitigation at M40 Junction 9 which specifically targets the eastbound approach to M40 Junction 9.

2031 DS1 vs RC1 volume over capacity

9.40 To further understand the likely impact of these traffic flow changes, it is necessary to consider the levels of congestion on the SRN in the RC1 scenario and understand how congestion levels change with the Proposed Development and the embedded Highway Works in place. This can be achieved by calculating the ratio of traffic volumes against the theoretical capacity on links and nodes throughout the network. Link/node volume to capacity (V/C) ratios exceeding 85% indicate that the link/node is under stress which may result in increases in delay and, therefore, journey time.

9.41 The BTM V/C plots for the morning and evening peak hour 2031 RC1 and DS1 scenarios are provided at Appendix N of the BTM Forecasting Report (**Appendix 14**). Links/nodes with a V/C ratio below 85% do not suffer with congestion during the peak hours and therefore are not shown on the plots.

9.42 **Figure 9.6**[18] below compares the V/C ratios on the SRN south of the A43 Barleymow Roundabout for the 2031 RC1 morning peak hour scenario (left-hand side) and the 2031 DS1 morning peak hour scenario (right-hand side). The 'A43 Corridor' Technical Note (**Appendix 30**) provides a detailed analysis of the effects of the Proposed Development and the embedded Highway Works on the A43 north of the Baynard's Green Roundabout, so this is not repeated in the sections below.

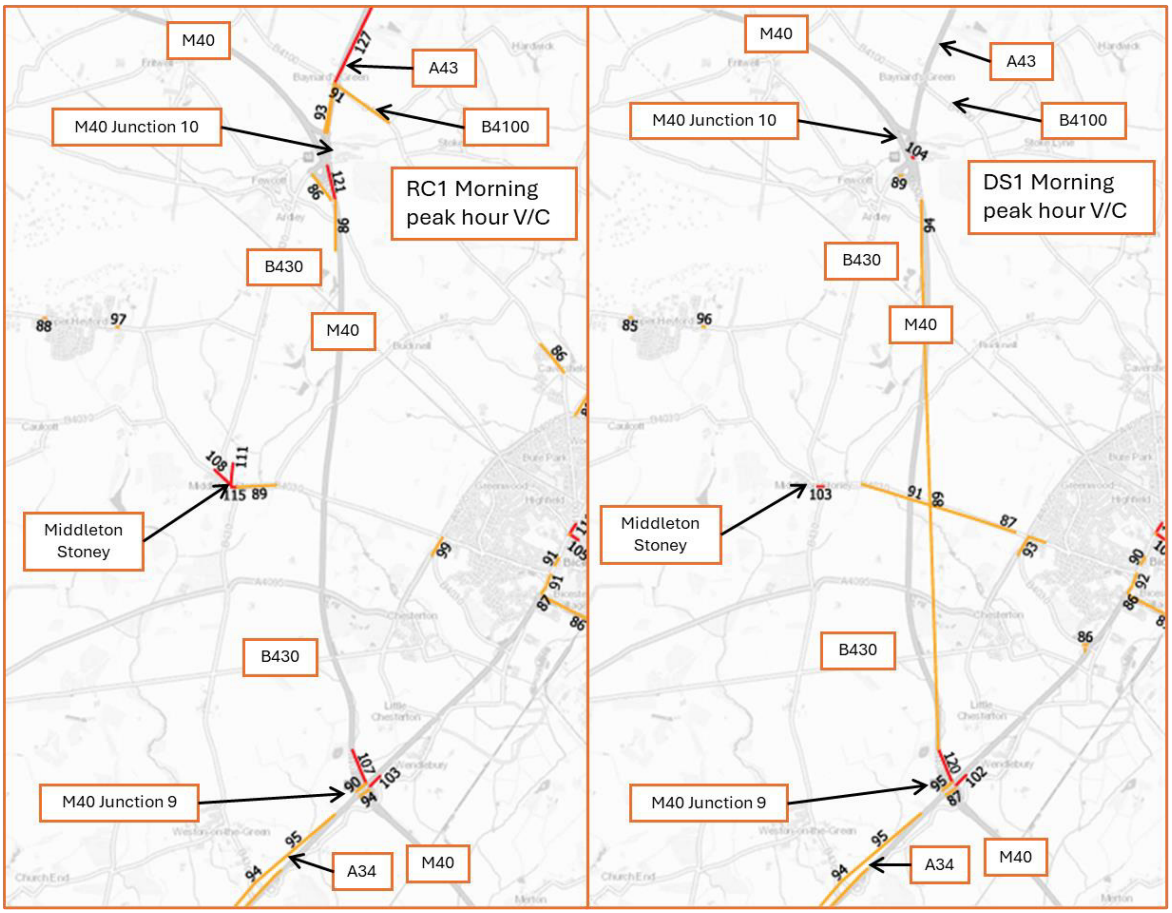


Figure 9.6: extracts of the RC1 and DS1 AM V/C plots, Appendix N, Forecasting Report

9.43 The following observations can be made:

- At the A43 Baynard's Green Roundabout, the V/C on the A43 southbound approach is at 127% in the RC1 scenario, indicating that there is a significant capacity constraint at this location on the network and partly explaining why there is significant suppressed demand on this route, as discussed earlier in this chapter and also in the 'A43 Corridor' Technical Note. The A43 northbound and B4100 westbound approaches are also shown to have a V/C ratio above 90% in the RC1 morning peak hour, indicating that the junction overall is under significant stress.

- In the DS1 morning peak hour with the Proposed Development and the embedded Highway Works in place, **Figure 9.6** shows that no approaches to the Baynard's Green Roundabout would have a V/C above 85%. Hence, the embedded Highway Works at this location are resolving the existing capacity constraints such that the junction can accommodate the traffic due to the Proposed Development and some of the suppressed background traffic demand, as discussed earlier in this chapter and in the 'A43 Corridor'

[18] Yellow indicates a V/C ratio between 85% and 100%, red indicates a V/C above 100%

Technical Note. These outcomes are supported by the detailed junction modelling presented in **Chapter 11** of this TA.

- In the RC1 scenario, **Figure 9.6** shows that the V/C on the M40 southbound merge at Junction 10 would be 121%, indicating that there is a significant capacity constraint at this location and further explaining why there is significant suppressed demand on the A43 to M40 southbound route in the morning peak hour. Further, **Figure 9.6** also shows that M40 northbound diverge approach to the Ardley Roundabout would also be congested with a V/C ratio of 86%.

- The significant upgrade of M40 Junction 10, and in particular the improvements to Cherwell roundabout and the southbound M40 merge, resolve this existing constraint on the network such that the Proposed Development traffic can be accommodated along with some of the suppressed background traffic demand. The embedded Highway Works allow more traffic onto the M40 southbound between Junctions 10 and 9, resulting in the V/C ratio on the M40 southbound increasing to 89% in the DS1 scenario. Further, the embedded Highways Works materially improve the performance of the M40 northbound diverge approach to Ardley Roundabout. Whilst **Figure 9.6** shows two minor links within the M40 Junction 10 complex as being congested, the detailed modelling presented in **Chapter 11** shows that all junctions that make up M40 Junction 10 operate within capacity in the DS1 morning and evening peak hours.

- The V/C ratio on the M40 southbound diverge approach to M40 Junction 9 diverge is shown to be above 100% in both the RC1 and DS1 scenarios, with the V/C worsening in the DS1 scenario. As identified earlier in this chapter, the Proposed Development traffic on this link is low, with a much larger proportion of the increase in traffic flow on the slip road attributable to the embedded Highway Works accommodating (and releasing) the suppressed background traffic demand at Baynard's Green and M40 Junction 10. Notwithstanding the above, the detailed junction modelling presented in **Chapter 11** of this TA shows that the impact of this effect is not severe and is largely resolved by a planned third-party mitigation scheme[19] that is included in the 2034 and 2042 modelling scenarios (as discussed in the Uncertainty Log section of **Chapter 7** of this TA).

- **Figure 9.6** also shows that whilst the V/C ratios on the A41 and A34 approaches to M40 Junction 9 are 103% and 98% respectively in the RC1 scenario, the V/C ratios reduce on these approaches in the DS1 scenario as background traffic reassigns away from the A41 (as detailed in the 'Stage 2 Transport Modelling Report' and summarised later in this chapter for the RC3A/DS3A scenarios) and the embedded Highway Works on the A34 approach reduces congestion.

- There is no change in the V/C ratio on the A34 west of M40 Junction 9.

9.44 **Figure 9.7** below compares the link and node V/C ratios for the 2031 RC1 evening peak hour scenario (left-hand side) and the 201 DS1 morning peak hour scenario (right-hand side).

[19] Planning application (ref. 25/00284/F) is for the erection of 9 additional employment units located to the north, east and west of the consented Siemens Healthineers development, north of the A41, east of M40 Junction 9. This site forms part of the employment allocation in the draft Cherwell Local Plan 2042.

Figure 9.7: extracts of the RC1 and DS1 PM V/C plots, Appendix N, Forecasting Report

9.45 The following observations can be made:

- The V/C ratio on the A43 northbound approach to the A43 Baynard's Green Roundabout is at 121% in the RC1 scenario, indicating that there is a significant capacity constraint at this location on the network, as discussed earlier in this chapter and also in the 'A43 Corridor' Technical Note (**Appendix 30**). Further, the B4100 westbound approach has a V/C ratio of 104% in the RC1 scenario evening peak hour, with the A43 southbound approach also forecast to suffer from some congested with a V/C ratio of 87%. Therefore, the BTM modelling forecasts that Baynard's Green would be under significant stress in the evening peak hour.

- In the DS1 evening peak hour with the Proposed Development and the embedded Highway Works in place, **Figure 9.7** shows that the only approach to the Baynard's Green Roundabout that would have a V/C ratio above 85% is the A43 southbound approach which would have a V/C of 91% (an increase from 87% in the Reference Case). All other approaches have V/C ratios below 85%. The detailed junction modelling presented in **Chapter 11** of this TA demonstrates that the proposed Baynard's Green Roundabout would operate acceptably in all 'do something' scenarios. Hence, the embedded Highway Works at this location are resolving the existing capacity constraints such that the junction can accommodate the traffic due to the proposed development and the suppressed/reassigning background traffic, as discussed earlier in this chapter and in the 'A43 Corridor' Technical Note (**Appendix 30**).

- In the RC1 scenario, **Figure 9.7** shows that the V/C ratio on the M40 southbound merge at M40 Junction 10 would be 103% in the evening peak hour, further indicating that there is a

capacity constraint at this location. **Figure 9.7** also shows that M40 northbound diverge and B430 approaches to the Ardley Roundabout would also be congested with V/C ratios of 102% and 105% respectively.

- The significant upgrade of M40 Junction 10 resolves these existing constraints on the network such that the Proposed Development traffic can be accommodated along with the suppressed background traffic demand. The embedded Highways Works materially improve the performance of the M40 northbound diverge approach to Ardley Roundabout, which is at 102% in the RS1 scenario, helping to release a significant amount of suppressed demand on the northbound route. Whilst **Figure 9.7** shows a minor link within the M40 Junction 10 complex as being congested in the DS1 scenario, the detailed modelling presented in **Chapter 11** of this TA shows that all junctions that make up M40 Junction 10 operate within capacity in the DS1 morning and evening peak hours.

- The V/C ratio on the M40 southbound diverge approach to M40 Junction 9 diverge is shown to be 105% in the RC1 scenario, with the V/C ratio improving to 101% in the DS1 scenario. **Figure 9.7** also shows that the V/C ratios on the A41 and A34 approaches to M40 Junction 9 are 100% and 95% respectively in the RC1 scenario. In the DS1 scenario the V/C ratio on the A41 approach increases slightly and the V/C ratio on the A34 approach reduces significantly due to the embedded Highway Works on the A34 approach. The detailed junction modelling presented in **Chapter 11** shows that the performance of M40 Junction 9 improves in the DS1 evening peak hour scenario. Further, the third-party mitigation scheme discussed above also brings further benefits in the 2034 RC3A and DS3A scenarios.

- There are slight increases in the V/C ratios on the A34 west of M40 Junction 9 in the DS1 evening peak hour scenario for both the eastbound and westbound directions. **Table 9.3** shows that the traffic increases on the A34 in the DS1 evening peak hour are mostly due to background traffic reassignment.

Summary of the 2031 RC1 and DS1 analysis

9.46 The Proposed Development would add a large number of vehicle trips to the SRN. The largest increases in traffic flow due to OxSRFI development vehicles are forecast at M40 Junction 10 and along the M40 to the south of Junction 10 and the A43 between the M40 Junction 10 and the Barleymow Roundabout.

9.47 Inspection of the traffic flow changes on these routes shows that the forecast traffic increases at these locations are not solely due to the addition of development traffic, with a significant proportion of the traffic flow increases attributed to both background traffic reassignment and/or the release of suppressed demand that is present in the Reference Case.

9.48 For the M40 and A43 corridors, analysis of the V/C ratios shows that the effect of the embedded Highway Works is to remove significant existing capacity constraints at the Baynard's Green Roundabout and M40 Junction 10, which accommodate the traffic due to the Proposed Development, suppressed background traffic demand and also additional background traffic which reassigns to the A43 corridor as the preferred route because the overall journey times on the corridor would be reduced in comparison to the Reference Case. Returning background traffic to the higher category roads and away from the local road network is a positive effect.

9.49 As discussed below, the junctions along the A43 corridor between Baynard's Green and Brackley, M40 Junction 10 and M40 Junction 9 have been identified as study area junctions and **Chapter 11** presents the results of detailed junction modelling for those junctions.

2031 DfT Circular 01/2022 scenario, with Albion Land (DS1A SRN)

9.50 As discussed in **Chapter 7**, the three Albion Lane planning applications were refused planning permission at the 15 January 2026 planning committee. Therefore, it is appropriate regarding the effects of the Proposed Development on the SRN, and in particular the layout and operation of the A43 Baynard's Green Roundabout and M40 Junction 10, to consider the RC1 and DS1 DfT Circular 01/2022 compliant scenarios without the Albion Land scheme (as discussed above).

9.51 However, Albion Land have submitted an appeal against the refusal decisions, and it is likely that the appeal will take place during the examination of the Proposed Development DCO application. Should the Albion Land development and the Proposed Development both be approved, it is likely that they would essentially come forward in parallel. Both schemes are committed to delivering improvements at the A43 Baynard's Green Roundabout. Therefore, it is appropriate for the DfT Circular 01/2022 scenario in which the performance of the A43 Baynard's Green Roundabout and M40 Junction 10 are a key focus, that the BTM outcomes for the DS1A SRN (DS1A) scenario (Do-Something with Albion Land) should be compared against the RC1 scenario, and also with those described in detail above for the DS1 scenario (without Albion Land) so that the differences between the two scenarios are understood.

2031 DS1A development traffic assignment

9.52 The BTM development traffic plots for 2031 DS1A OxSRFI morning and evening peak hour traffic flows for total traffic in pcus, total traffic in vehicles, and a breakdown of light and HGVs in vehicles, are provided at Appendix J of the BTM Forecasting Report (**Appendix 14**).

9.53 **Table 9.4** below quantifies the total number of development trips assigned to the SRN in the 2031 DS1A scenario for the morning and evening peak hours. Further, the table also compares the DS1A development traffic assignment to the DS1 traffic assignment (**Table 9.1**). **Table 9.4** shows that there is no material difference in the Proposed Development traffic assignment between the DS1 and DS1A scenarios.

Table 9.4: OxSRFI DS1A development traffic assignment on the SRN

2031 DS1A development traffic assignment (in pcus)					
Link	Peak hour	Inbound	Outbound	Two-way	DS1A - DS1 (two-way diff)
A43 Brackley Bypass	Morning	134	23	157	0
	Evening	42	152	194	-1
A43 between Brackley and Barley Mow	Morning	181	28	209	-2
	Evening	64	207	271	0
A43 between Barley Mow and Baynards Green	Morning	277	44	321	-1
	Evening	105	317	422	0
A43 between Padbury and Baynards Green	Morning	380	54	434	13
	Evening	142	350	492	-3
M40 north of M40J10	Morning	214	108	322	1
	Evening	126	213	339	2
M40 between M40J10 and M40J9	Morning	210	175	385	0
	Evening	173	182	355	1
M40 southbound offslip at M40J9	Morning	0	85	85	0
	Evening	0	77	77	0
M40 northbound onslip at M40J9	Morning	91	0	91	0
	Evening	83	0	83	1
A34 east of B430	Morning	34	31	65	0
	Evening	32	29	61	0
M40 south of M40J9	Morning	120	90	210	1
	Evening	90	105	195	0

2031 DS1A flow difference – morning peak hour

9.54 **Table 9.5** below quantifies the differences between the traffic flows on the modelled SRN in the DS1A and DS1 morning peak hour scenarios. The table shows that traffic flows are higher in the DS1A scenario due to the addition of the Albion Land development traffic flows.

Table 9.5: SRN traffic flows comparison between the DS1A and DS1 morning peak hour scenarios (in pcus)

2031 DS1A vs DS1 flow analysis - morning peak hour (shown in pcus)			
Link	DS1	DS1A	Flow difference
A43 Brackley Bypass westbound	2,032	2,105	73
A43 Brackley Bypass eastbound	1,273	1,312	39
A43 between Brackley and Barley Mow southbound	2,154	2,214	60
A43 between Brackley and Barley Mow northbound	1,294	1,335	41
A43 between Barley Mow and Baynards Green southbound	2,785	2,783	-2
A43 between Barley Mow and Baynards Green northbound	1,716	1,763	47
A43 between Padbury and Baynards Green southbound	2,661	2,704	43
A43 between Padbury and Baynards Green northbound	1,666	1,759	93
M40 north of M40J10 southbound	4,862	4,892	30
M40 north of M40J10 northbound	3,838	3,848	10
M40 northbound offslip at M40J10	461	461	0
M40 southbound onslip M40J10	2,317	2,347	30
M40 between M40J10 and M40J9 southbound	6,174	6,203	29
M40 between M40J10 and M40J10 northbound	4,775	4,835	60
M40 southbound offslip at M40J9	2,517	2,534	17
M40 northbound onslip at M40J9	2,355	2,367	12
A34 east of B430 westbound	3,363	3,371	8
A34 east of B431 eastbound	4,129	4,141	12
M40 south of M40J9 southbound	4,509	4,515	6
M40 south of M40J9 northbound	3,001	3,049	48

9.55 **Table 9.6** below compares the DS1A and RC1 scenarios in the morning peak hour and summarises the actual flows in the RC1 and DS1 scenarios (Appendix K in the Forecasting Report), the flow difference, the volume of development vehicle trips (Appendix J in the Forecasting Report) and the resulting change in background traffic flows across the modelled SRN. The traffic flows are given in pcus.

Table 9.6: 2031 DS1A vs RC1 traffic flow analysis – morning peak hour (in pcus)

2031 DS1A vs RC1 flow analysis - morning peak hour (shown in pcus)					
Link	RC1	DS1A	Flow difference	OxSRFI	Background traffic change
A43 Brackley Bypass westbound	1,874	2,105	231	134	97
A43 Brackley Bypass eastbound	1,274	1,312	38	23	15
A43 between Brackley and Barley Mow southbound	1,918	2,214	296	181	115
A43 between Brackley and Barley Mow northbound	1,339	1,335	-4	28	-32
A43 between Barley Mow and Baynards Green southbound	2,185	2,783	598	277	321
A43 between Barley Mow and Baynards Green northbound	1,793	1,763	-30	44	-74
A43 between Padbury and Baynards Green southbound	2,016	2,704	688	380	308
A43 between Padbury and Baynards Green northbound	1,849	1,759	-90	54	-144
M40 north of M40J10 southbound	4,770	4,892	122	214	-92
M40 north of M40J10 northbound	3,794	3,848	54	108	-54
M40 northbound offslip at M40J10	1,449	461	-988	210	-1,198
M40 southbound onslip M40J10	1,741	2,347	606	175	431
M40 between M40J10 and M40J9 southbound	5,655	6,203	548	175	373
M40 between M40J10 and M40J10 northbound	4,685	4,835	150	210	-60
M40 southbound offslip at M40J9	2,193	2,534	341	85	256
M40 northbound onslip at M40J9	2,373	2,367	-6	91	-97
A34 east of B430 westbound	3,408	3,371	-37	31	-68
A34 east of B431 eastbound	4,143	4,141	-2	34	-36
M40 south of M40J9 southbound	4,332	4,515	183	90	93
M40 south of M40J9 northbound	2,897	3,049	152	120	32

9.56 Comparing **Table 9.6** with **Table 9.2** shows that the traffic flow changes in the 2031 DS1A morning peak hour scenario follow the same pattern and are similar in scale as those discussed in detail above for the DS1 scenario. In summary:

- Traffic flows increase on the A43 Brackley Bypass approach to the A43/A422 Brackley Bypass gyratory due to the cumulative development trips associated with both development schemes, with a small amount of additional traffic due to background reassignment.

- Northbound on the A43 from Baynard's Green to south of the A43/A422 Brackley Bypass gyratory, traffic flows decrease slightly with OxSRFI development and Albion Land in place due to changes in the background traffic demand. Southbound on the A43 from south of the A43/A422 Brackley Bypass gyratory to the Barleymow Roundabout, traffic flows increase with some background traffic suppressed demand/reassigning traffic being accommodated on this route. On the A43 southbound between the Barleymow Roundabout and Baynard's Green the traffic flow increases by 598 pcus, which is much higher than the cumulative development traffic flow, with a significant proportion of this traffic increase attributed to background traffic reassigning to the A43 (as in the DS1 case). The improvements at the A43 Baynard's Green Roundabout and M40 Junction 10 allow the A43 to accommodate additional, previously suppressed, traffic demand.

- The increases in traffic flow on the M40 north of Junction 10 are less than the cumulative development traffic on this part of the network, due to a reduction in background demand on this part of the network. The traffic increases on the M40 southbound on-slip at Junction 10, the M40 southbound between M40 Junctions 10 and 9 and the M40 southbound off-slip at M40 Junction 9 are significantly higher than the cumulative development traffic on these routes. This is mostly due to the significant upgrade of M40 Junction 10, which releases a known constraint on the network.

- There is a significant decrease in background traffic of 1,198 pcus on the M40 northbound diverge at Junction 10 due to the new M40 to A43 diverge delivered as part of the OxSRFI embedded Highway Works and allowing traffic routing to the A43 northbound (and traffic to the B4100 east and west) to avoid the Ardley and Cherwell junctions.

- The increase in traffic flow on the M40 northbound merge at Junction 9 and the M40 northbound between Junctions 9 and 10 are less than the development traffic on this part of the network. As discussed as part of the DS1 morning peak hour analysis, this is a result of background traffic from Bicester that is routing towards the M40 northbound reassigning from the A41/M40 Junction 9 route to the B4030/MSRR/Ardley Bypass/M40 Junction 10 route due to the improved journey times afforded by the embedded Highway Works.

- There is no material change in traffic flow on the A34, with relatively small reductions in traffic flow on the A34 in both directions.

<u>2031 DS1A flow difference – evening peak hour</u>

9.57 **Table 9.7** below quantifies the differences between the traffic flows on the modelled SRN in the DS1A and DS1 evening peak hour scenarios. As in the morning peak hour, the table shows that traffic flows are higher in the DS1A scenario due to the addition of the Albion Land development traffic flows.

Table 9.7: SRN traffic flows comparison between the DS1A and DS1 evening peak hour scenarios (in pcus)

2031 DS1A vs DS1 flow analysis - evening peak hour (shown in pcus)			
Link	DS1	DS1A	Flow difference
A43 Brackley Bypass westbound	1,391	1,420	29
A43 Brackley Bypass eastbound	2,013	2,078	65
A43 between Brackley and Barley Mow southbound	1,532	1,563	31
A43 between Brackley and Barley Mow northbound	2,101	2,178	77
A43 between Barley Mow and Baynards Green southbound	1,987	2,009	22
A43 between Barley Mow and Baynards Green northbound	2,812	2,902	90
A43 between Padbury and Baynards Green southbound	1,861	2,009	148
A43 between Padbury and Baynards Green northbound	2,735	2,902	167
M40 north of M40J10 southbound	4,342	4,351	9
M40 north of M40J10 northbound	5,119	5,120	1
M40 northbound offslip at M40J10	465	465	0
M40 southbound onslip M40J10	1,854	1,894	40
M40 between M40J10 and M40J9 southbound	5,457	5,497	40
M40 between M40J10 and M40J10 northbound	6,457	6,495	38
M40 southbound offslip at M40J9	2,708	2,714	6
M40 northbound onslip at M40J9	2,938	2,939	1
A34 east of B430 westbound	3,918	3,918	0
A34 east of B431 eastbound	4,106	4,110	4
M40 south of M40J9 southbound	3,243	3,273	30
M40 south of M40J9 northbound	4,526	4,562	36

9.58 **Table 9.8** below compares the DS1A and RC1 scenarios in the evening peak hour and summarises the flow difference, the volume of development vehicle trips and the resulting change in background traffic flows across the modelled SRN. The traffic flows are given in pcus.

Table 9.8: 2031 DS1A vs RC1 traffic flow analysis – evening peak hour (in pcus)

2031 DS1A vs RC1 flow analysis - evening peak hour (shown in pcus)					
Link	RC1	DS1A	Flow difference	OxSRFI	Background traffic change
A43 Brackley Bypass westbound	1,357	1,420	63	42	21
A43 Brackley Bypass eastbound	1,735	2,078	343	152	191
A43 between Brackley and Barley Mow southbound	1,457	1,563	106	64	42
A43 between Brackley and Barley Mow northbound	1,748	2,178	430	207	223
A43 between Barley Mow and Baynards Green southbound	1,924	2,009	85	105	-20
A43 between Barley Mow and Baynards Green northbound	2,147	2,902	755	317	438
A43 between Padbury and Baynards Green southbound	1,863	2,009	146	142	4
A43 between Padbury and Baynards Green northbound	2,031	2,902	871	350	521
M40 north of M40J10 southbound	4,185	4,351	166	126	40
M40 north of M40J10 northbound	4,938	5,120	182	213	-31
M40 northbound offslip at M40J10	1,958	465	-1,493	173	-1,666
M40 southbound onslip M40J10	1,688	1,894	206	182	24
M40 between M40J10 and M40J9 southbound	5,295	5,497	202	182	20
M40 between M40J10 and M40J10 northbound	6,249	6,495	246	173	73
M40 southbound offslip at M40J9	2,675	2,714	39	77	-38
M40 northbound onslip at M40J9	2,803	2,939	136	83	53
A34 east of B430 westbound	3,747	3,918	171	29	142
A34 east of B431 eastbound	4,013	4,110	97	32	65
M40 south of M40J9 southbound	3,111	3,273	162	105	57
M40 south of M40J9 northbound	4,454	4,562	108	90	18

9.59 Comparing **Table 9.8** with **Table 9.3** shows that the traffic flow changes in the 2031 DS1A evening peak hour scenario follow the same pattern and are similar in scale as those discussed in detail above for the DS1 scenario. The traffic flow changes are briefly summarised as follows:

- On the A43 northbound between the Padbury junction and the Barleymow Roundabout, the traffic flow increases significantly above the cumulative development traffic flow

(OxSRFI and Albion Land), with more than 50% of this increase attributed to background traffic. Northbound on the A43 from the Barleymow Roundabout to the A43 Brackley Bypass, traffic flows also increase by more than the cumulative development trips.

- Southbound on the A43 from south of the A43/A422 Brackley Bypass gyratory to the Barleymow Roundabout, traffic flows increase by slightly more that the cumulative development traffic on this route, with a relatively small amount of background traffic increase. South of the Barleymow Roundabout, the southbound traffic flow increases by slightly less than the cumulative development traffic flow. As discussed above, this is due to a reduction in background demand.

- The increases in traffic flow on the M40 north of Junction 10 are mostly due to the development traffic on this part of the network, with relatively small changes in background traffic flow both northbound and southbound. The traffic increases on the M40 southbound on-slip at Junction 10, the M40 southbound between M40 Junctions 10 and 9 and the M40 southbound off-slip at M40 Junction 9 are also mostly due to cumulative development traffic on these routes.

- There is a significant decrease in background traffic of 1,666 pcus on the M40 northbound diverge at Junction 10 due to the new M40 to A43 diverge delivered as part of the OxSRFI embedded Highway Works and allowing traffic routing to the A43 northbound (and traffic to the B4100 east and west) to avoid the Ardley and Cherwell junctions.

- The increases in traffic flow on the M40 northbound merge at Junction 9 and the M40 northbound between Junctions 9 and 10 are higher than the cumulative development traffic on these routes.

- A traffic increase is forecast on the A34 eastbound and westbound between M40 Junction 9 and the B430, mostly due to background traffic reassignment in the evening peak hour.

2031 DS1A volume over capacity

9.60 The BTM V/C plots for the morning and evening peak hour 2031 DS1A scenario are provided at Appendix N of the BTM Forecasting Report (**Appendix 14**). **Table 9.9** below compares the V/C ratios on the SRN for the 2031 DS1 scenario and the 2031 DS1A scenario.

9.61 The table shows that across the modelled SRN, the changes in V/C ratios between the DS1 and DS1A scenarios are small in both the morning and evening peak hours. Further, there are no locations where a V/C ratio changes from below 85% to above 85%, or from below 100% to above 100%.

Table 9.9: comparison of V/C ratios on the SRN in the DS1A and DS1 scenarios

Link	morning peak			evening peak		
	DS1	DS1A	DS1A - DS1	DS1	DS1A	DS1A - DS1
A43 Brackley Bypass EB	29%	30%	1%	46%	48%	2%
A43 Brackley Bypass WB	63%	64%	1%	42%	43%	1%
A43 SB between Brackley and Groves Roundabout	100%	101%	1%	70%	71%	1%
A43 NB between Groves Roundabout and Brackley	33%	33%	0%	52%	54%	2%
A43 SB between Groves Roundabout and Barley Mow	111%	109%	-2%	79%	81%	2%
A43 NB between Barley Mow and Groves Roundabout	59%	61%	2%	95%	99%	4%
A43 SB between Barley Mow and Baynards Green	77%	72%	-5%	60%	66%	6%
A43 NB between Baynards Green and Barley Mow	54%	55%	1%	91%	94%	3%
A43 SB between Padbury and Baynards Green	79%	80%	1%	47%	47%	0%
A43 NB between Padbury and Baynards Green	67%	75%	8%	83%	82%	-1%
M40 SB north of M40J10	83%	83%	0%	74%	74%	0%
M40 NB north of M40J10	58%	59%	1%	78%	78%	0%
M40 SB offslip at Cherwell	63%	60%	-3%	76%	82%	6%
M40 SB onslip at M40J10	72%	73%	1%	58%	59%	1%
M40 NB offlsip at M40J10	12%	12%	0%	12%	12%	0%
M40 SB between M40J10 and M40J9	89%	90%	1%	80%	83%	3%
M40 NB between M40J10 and M40J9	70%	71%	1%	98%	99%	1%
M40 SB offlsip at M40J9	120%	119%	-1%	101%	102%	1%
M40 NB onslip at M40J9	54%	54%	0%	68%	68%	0%
A34 EB east of B430	95%	95%	0%	94%	94%	0%
A34 WB east of B430	77%	77%	0%	90%	90%	0%
M40 SB south of M40J9	68%	69%	1%	49%	50%	1%
M40 NB south of M40J9	46%	46%	0%	69%	70%	1%

Summary of the 2031 DS1A analysis

9.62 The above analysis demonstrates that when compared to the 2031 RC1 scenario, there are no significant differences between the DS1 and DS1A scenarios in terms of the effects on the SRN. Traffic flow changes follow the same pattern in the DS1 and DS1A scenarios when compared to RC1, with the main difference being the additional Albion Land development traffic. Therefore, using the with Albion Land iteration of the Opening Year, Completion Year and Local Plan Sensitivity Test scenarios is robust as it includes the extra traffic from that development.

9.63 The analysis supports the conclusion that the embedded Highway Works proposed at the A43 Baynard's Green Roundabout and M40 Junction 10 will remove existing highway network constraints, allowing the A43 to accommodate additional, previously suppressed, traffic demand, and the traffic associated with the Proposed Development and the Albion Land scheme. This additional traffic would have otherwise avoided the A43 corridor due to the existing congestion at Baynard's Green and M40 Junction 10. With the constraints at Baynard's Green and M40 Junction 10 removed by the proposed Highway Works, the BTM forecasts that additional background traffic will use the A43 corridor as the preferred route because the overall journey times on the corridor would be reduced in comparison to the Reference Case.

9.64 Across the remaining parts of the SRN, the V/C analysis demonstrates that there are few differences between the DS1 and DS1A scenarios.

2034 Completion Year (RC3A and DS3A)

9.65 As discussed in study area section of the chapter, the 'Stage 2 Transport Modelling Report' (**Appendix 27**) presents the analysis of the RC3A and DS3A scenarios, establishing the impacts of the Proposed Development in the 2034 Completion Year without the effects of the STS and Framework Travel Plan. The Stage 2 Transport Modelling was submitted to the TWG as part of the statutory consultation. The analysis concluded by establishing the study area to be taken forward into the detailed modelling, the Stage 3 Transport Modelling. The analysis and

conclusions of that report, which were agreed by OCC and National Highways, are summarised in the sections below.

9.66 As agreed with OCC, the effects of the Travel Plan have also been taken in to account in the detailed Stage 3 Transport Modelling, with the reductions in vehicle trips associated with the Framework Travel Plan considered in the DS3AwTP scenario, which has been calculated using a post-modelling adjustment process as described Section 8 in the BTM Forecasting Report (**Appendix 14**).

9.67 The development traffic plots, actual flows, V/C ratio plots, and flow difference plots for the DS3AwTP scenario are provided in Appendices D, E, H, and I of the BTM Forecasting Report. The DS3AwTP scenario was not complete at the time that the 'Stage 2 Transport Modelling Report' was prepared, and therefore the analysis detailed in that report, and summarised below, focused on the DS3A scenario. This is appropriate for establishing the study area, as the DS3A scenario forecasts the impacts on the highway network without the beneficial impact of the Framework Travel Plan in reducing car trips, and is therefore robust. The DS3AwTP outputs have been used in the 2034 Completion Year detailed (Stage 3) modelling which is presented in **Chapter 11**.

2034 DS3A development traffic assignment

9.68 The BTM development traffic plots for the 2034 DS3A OxSRFI morning and evening peak hour traffic flows for total vehicle movements, lights and HGVs, are provided at Appendix D of the BTM Forecasting Report (**Appendix 14**).

9.69 The analysis in the 'Stage 2 Transport Modelling Report' showed that the Proposed Development would add a large number of vehicle trips to the road network, as summarised in **Table 9.10 and 9.11** below for the respective peak hours. The 'proportion' is the percentage of the total OxSRFI development traffic on road link (based on the two-way development flow).

Table 9.10: summary of the 2034 DS3A development assignment – morning peak hour

2034 DS3A development traffic assignment - morning peak hour (in pcus)				
Link	Inbound	Outbound	Two-way	Proportion
M40 north of M40J10	233	110	343	21%
A43 between Baynards Green and Barley Mow	277	45	322	19%
B4100 west of Baynards Green	37	2	39	2%
B4100 east of Baynards Green	62	7	69	4%
A43 north of Barley Mow	183	28	211	13%
A421 east of Barley Mow	63	15	78	5%
M40 south of M40J10	215	175	390	24%
Ardley Bypass	877	356	1,233	74%
Heyford Park Link Road	73	19	92	6%
Middleton Stoney Relief Road	177	29	206	12%
B430 between MSRR and Middelton Stoney	118	9	127	8%
A41 east of Bicester	65	49	114	7%
A41 east of M40 Junction 9	57	55	112	7%
B4030 Middleton Stoney Road east of the MSRR	176	30	206	12%
M40 south of M40 Junction 9	125	90	215	13%
A34 west of B430	66	33	99	6%
B430 at Western on the Green	34	4	38	2%
Somerton Road between Ardley and the A4260	37	2	39	2%
A4095 East of the B430	62	3	65	4%

Table 9.11: summary of the 2034 DS3A development assignment – evening peak hour

2034 DS3A development traffic assignment - evening peak hour (in pcus)				
Link	Inbound	Outbound	Two-way	Proportion
M40 north of M40J10	130	235	365	19%
A43 between Baynards Green and Barley Mow	105	318	423	22%
B4100 west of Baynards Green	7	2	9	1%
B4100 east of Baynards Green	27	30	57	3%
A43 north of Barley Mow	64	209	273	14%
A421 east of Barley Mow	30	74	104	5%
M40 south of M40J10	174	188	362	19%
Ardley Bypass	457	934	1,391	72%
Heyford Park Link Road	25	61	86	4%
Middleton Stoney Relief Road	97	214	311	16%
B430 between MSRR and Middelton Stoney	31	114	145	8%
A41 east of Bicester	49	57	106	6%
A41 east of M40 Junction 9	50	49	99	5%
B4030 Middleton Stoney Road east of the MSRR	91	189	280	15%
M40 south of M40 Junction 9	91	111	202	10%
A34 west of B430	42	62	104	5%
B430 at Western on the Green	11	40	51	3%
Somerton Road between Ardley and the A4260	10	47	57	3%
A4095 East of the B430	12	73	85	4%

9.70 In both the morning and evening peak hours, the largest increases in traffic flow due to OxSRFI development vehicles are forecast along the Ardley Bypass, MSRR and B4030 Middleton Stoney Road route between the site and Bicester, the M40 to the north and south of Junction 10 and the A43 between the M40 Junction 10 and the Barleymow roundabout.

2034 DS3A vs RC3A flow difference

9.71 To more thoroughly understand the likely traffic impacts due to the Proposed Development, identify an appropriate study area and consider where the priorities are with respect to the requirement for any additional mitigation, the 'Stage 2 Transport Modelling Report' considered graphical Saturn plots showing the change in total traffic flow (in PCUs) between the RC3A and DS3A scenarios. The BTM flow difference plots for the morning and evening peak hour 2034 DS3A – RC3A scenarios are provided at Appendix I of the BTM Forecasting Report (**Appendix 14**).

9.72 **Figures 9.7 and 9.8** below show extracts of the flow difference plot for the 2034 DS3A-RC3A scenarios in the respective morning and evening peak hours. As discussed in detail in the 'Stage 2 Transport Modelling Report (**Appendix 27**), the plots show that there would be material traffic flow increases on the M40 to the north and south of Junction 10, the A43 north of Baynard's Green, the B4100 west of Baynard's Green, the B4030 Middleton Stoney Road east of the MSRR and Vendee Drive.

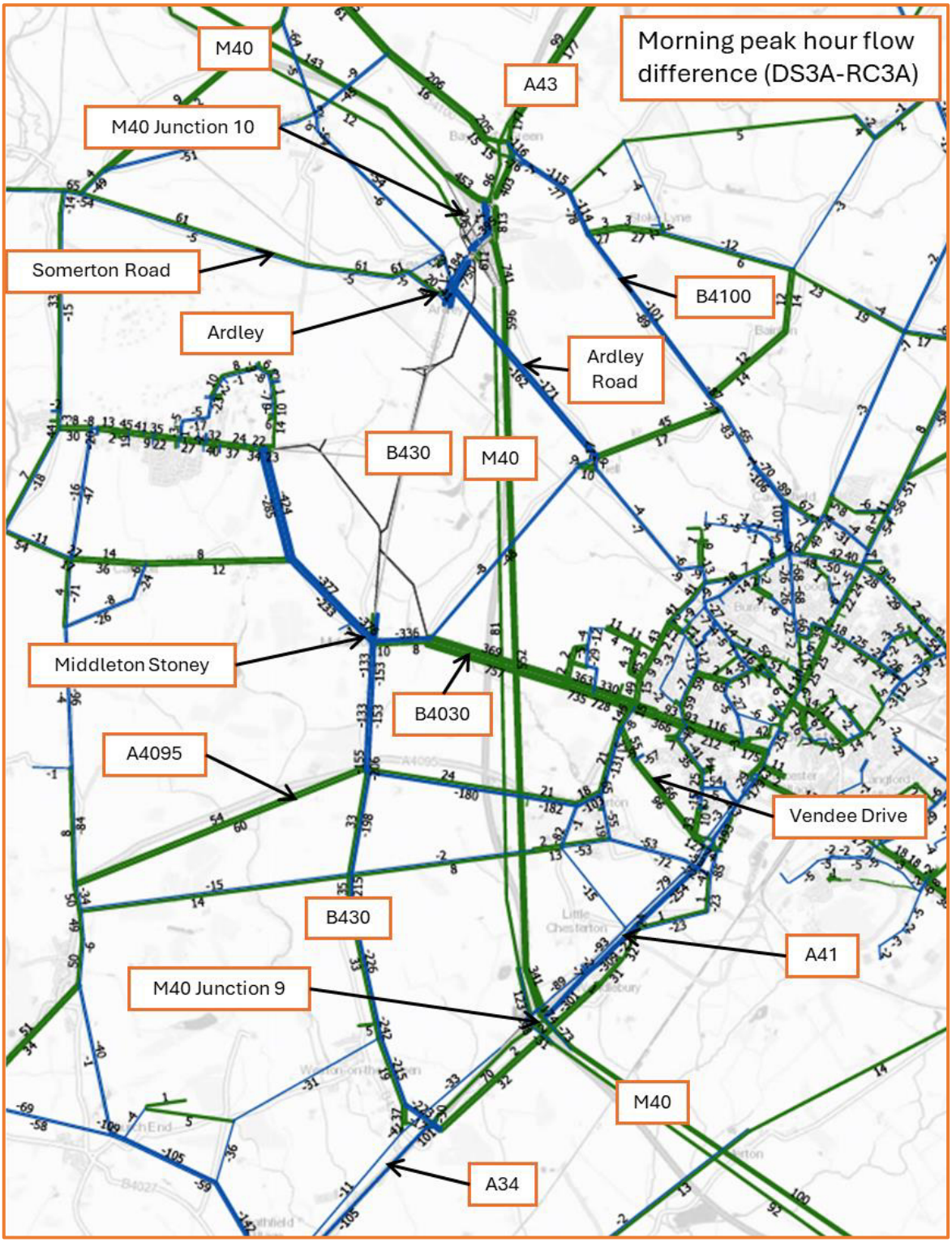


Figure 9.7: extract of the DS3A-RC3A AM flow difference plot, Appendix I, Forecasting Report (total PCUs)

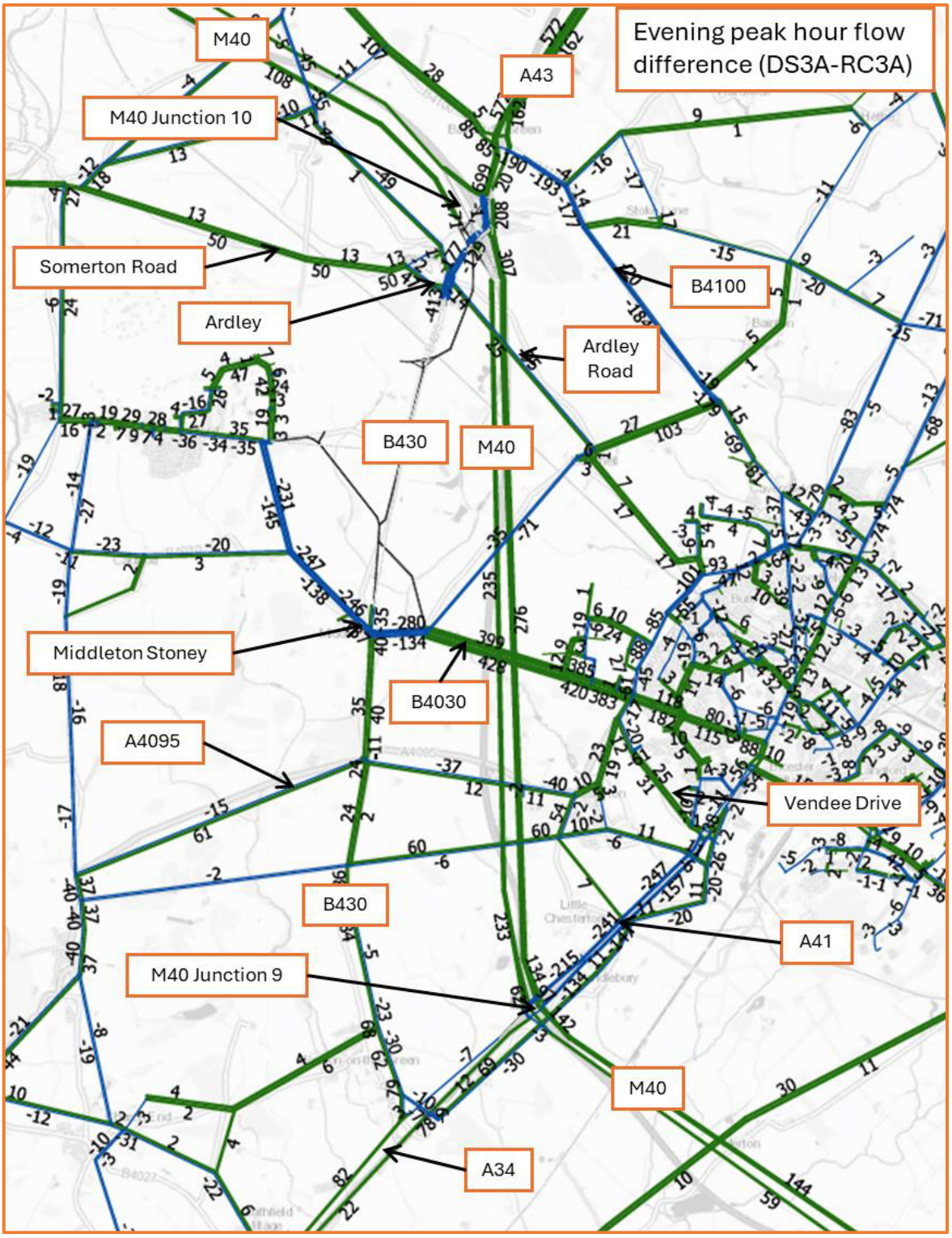


Figure 9.8: extract of the DS3A-RC3A PM flow difference plot, Appendix I, Forecasting Report (total PCUs)

9.73 Further, the plots in Appendix I of the Forecasting Report and shown and **Figure 9.7 and 9.8** above show that there would also be material traffic reductions on the B4100 east of Baynard's Green, the B430 (AM peak hour), Ardley Road, the B4030 east and west of Middleton Stoney, the A41 east of M40 Junction 9 and the A34 west of the B430 (AM peak hour).

9.74 The analysis presented in the 'Stage 2 Transport Modelling Report' demonstrated that the traffic flow changes on these routes are not solely due to the addition of development traffic. There is a significant amount of background traffic reassignment occurring across the network, along with changes to the background traffic demand and the release of previously suppressed

background traffic demand. On the M40 and A43 corridors, the effect of the embedded Highway Works is to remove significant existing capacity constraints at the Baynard's Green Roundabout and M40 Junction 10, which accommodate the traffic due to the Proposed Development, suppressed background traffic demand and also additional background traffic which reassigns to the A43 corridor as the preferred route because the overall journey times on the corridor would be reduced in comparison to the Reference Case. Returning background traffic to the higher category roads and away from the local road network is a positive effect.

9.75 Away from the SRN, the background traffic reassignment effect is most prominent on the B4030 Middleton Stoney Road east of the MSRR where traffic increases are materially greater than the development traffic using the route. The analysis showed that this is due to background traffic reassigning away from the A41, B4100, the B430, Ardley Road and the A4421 and instead uses the B4030 Middleton Stoney Road, MSRR, Ardley Bypass and HPLR route between Bicester, the site, Heyford Park, and M40 Junction 10. The effect of this reassignment is to significantly decrease traffic in the villages of Ardley, Middleton Stoney and Bucknell. There would be no material changes in Heyford Park or Upper Heyford.

9.76 Therefore, it was concluded that the significant upgrades to M40 Junction 10, Baynard's Green, and the improvement scheme at M40 Junction 9, help to release congestion and allow long distance traffic to use the SRN. The Ardley Bypass, MSRR and HPLR creates an improved, more direct route between Bicester, Heyford Park, the Proposed Development, and M40 Junction 10, which draws traffic away from lower category or congested routes through local population centres and villages. Hence, the embedded mitigation strategy has a positive effect on traffic flow change.

2034 DS3A vs RC3A volume over capacity

9.77 To further understand the likely impact of the OxSRFI Proposed Development, the Stage 2 Transport Modelling report considered the levels of congestion across the network in the RC3A and DS3A scenarios by comparing changes to the link/node volume over capacity (V/C) ratios across the network. The BTM V/C plots for the morning and evening peak hour 2034 RC3A and DS3A scenarios are provided at Appendix H of the BTM Forecasting Report (**Appendix 14**).

9.78 As set out earlier in this Chapter, the A43 Baynard's Green Roundabout, M40 Junction 10 and M40 Junction 9 are included in the study area as they are fundamental parts of the highway mitigation strategy that has resulted in the embedded Highway Works. However, the V/C ratio analysis presented in the Stage 2 Transport Modelling report concluded that the A43 Barleymow Roundabout, the A43 Groves Roundabout and the A43 Barckley Bypass gyratory should also form part of the study area. V/C analysis suggested that once the constraints at Baynard's Green and M40 Junction 10 are removed, these junctions along the A43 become stressed.

9.79 In the 2034 completion year there would also be increased V/C ratios on the B4030 Middleton Stoney Road east of the MSRR due to the large volumes of reassigning traffic. There are some more remote hotspots for increased V/C ratios on the A4260 corridor shown in the BTM modelling in the morning peak hour. There would also be reduced V/C ratios on the B4100, the B430 south of Middleton Stoney, the B4030 east and west of Middleton Stoney, Ardley Road between Bucknell and Ardley, and the A4421 between Bicester and the A421.

2034 DS3AwTP scenario

9.80 Comparing the DS3A and DS3AwTP scenarios, whilst there are reductions in the actual flows across the local highway network when the Framework Travel Plan is taken in to account, there

are no material differences in terms of the traffic flow difference or the V/C ratios that would alter the conclusions of the analysis summarised above and detailed in the 'Stage 2 Transport Modelling Report'.

9.81 With regards to active and sustainable travel modes, OCC's Local Transport and Connectivity Plan (LTCP5) aims to remove 1 out of every 4 current car trips in Oxfordshire by 2030 (a 25% reduction in car trips). This policy has not been modelled in the BTM and therefore, if OCC is successful in achieving this target, the reduction in background traffic would mean that the local highway network would operate with additional capacity in the 2034 Completion Year scenario and congestion would be markedly reduced from that shown in the above analysis.

2034 Do Minimum assessment (DM3A)

9.82 **Chapter 8** of this TA comprehensively describes the need for, and how, the embedded Highway Works have been established and agreed with the TWG as part of the Stage 1 Transport Modelling methodology However, to also demonstrate the likely effects of the Proposed Development without the embedded Highway Works, a 2034 Completion Year Do Minimum scenario (DM3A) has also been run in the BTM.

9.83 The BTM outputs for this scenario are included in the Forecasting Report (**Appendix 14**) as follows:

- Appendix P - Development traffic plots
- Appendix Q - Actual flow plots
- Appendix T - V/C Plots
- Appendix U - Flow difference plots (DM3A-RC3A).

9.84 Whilst the 2034 DM3A scenario is provided for information only, consideration of the flow difference plots for the morning and evening peak hours gives a useful indication of the likely effects of the Proposed Development without the embedded Highway Works.

9.85 With the Proposed Development in place without the embedded Highway Works, **Figure 9.9** shows that in the morning peak hour there would be no material traffic increases on the SRN, with only modest increases on the A43 southbound and M40 southbound, and with material traffic reductions on the M40 northbound and A43 northbound. This is because traffic cannot easily route through M40 Junction 10.

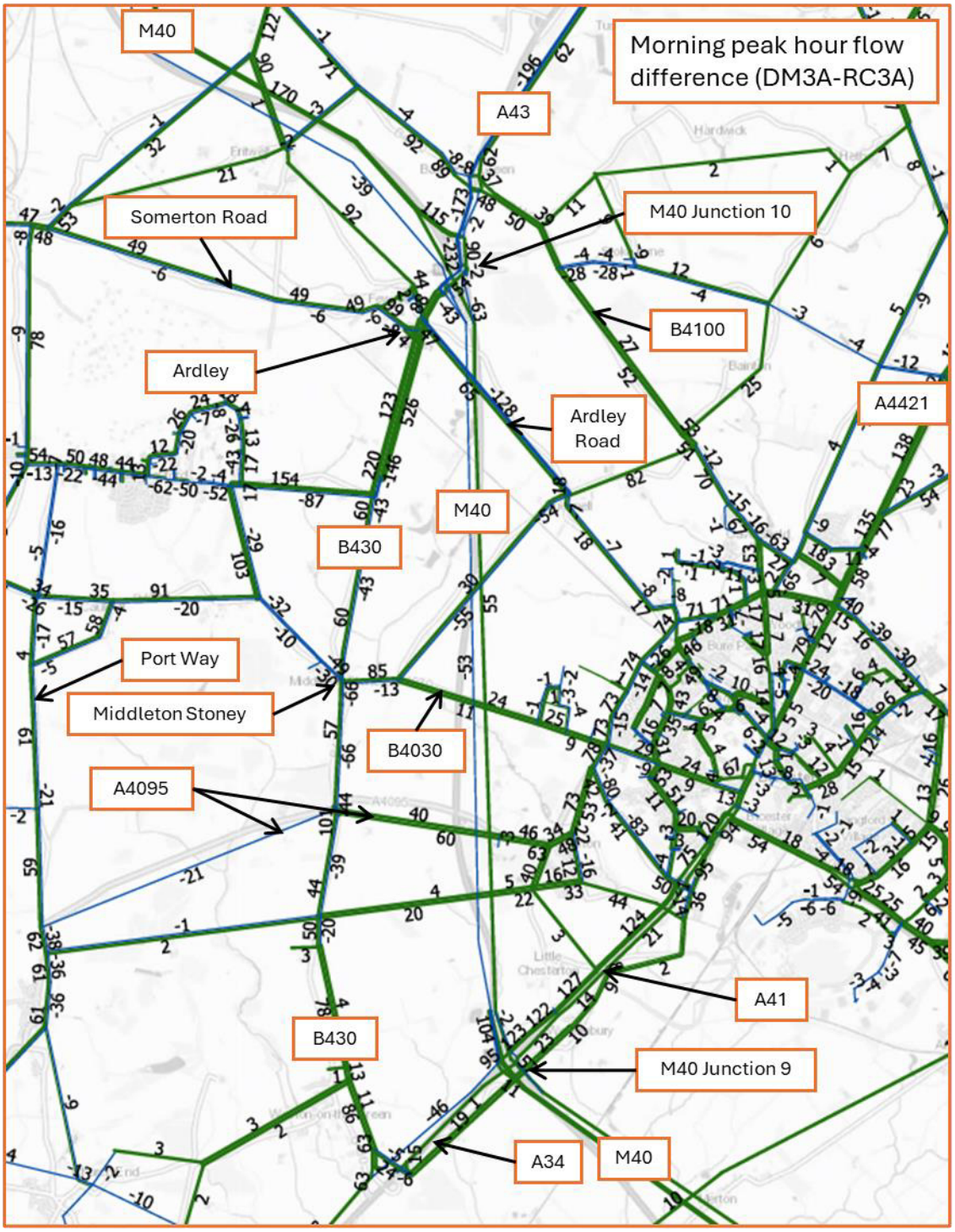


Figure 9.9: extract of the DM3A-RC3A AM flow difference plot, Appendix U, Forecasting Report (total pcus)

9.86 Instead, there are traffic increases across the local highway network that are not observed in any of the Do-Something scenarios (with the embedded Highway Works). There would be traffic increases across the Bicester area, including the A4095, Vendee Drive and the A41 corridor. Traffic from the A421 avoids the A43 by routing on the A4421 through Bicester. There are traffic increases along the B430, Port Way, the A4095, and Fritwell Road, with significant traffic increases through Ardley. Many of the surrounding villages would experience traffic flow increases.

9.87 **Figure 9.10** also shows that in the evening peak hour there would be no material traffic increases on the SRN, with only modest increases on the A43 northbound and on the M40 in both directions, with M40 Junction 10 acting a as a major constraint on the network.

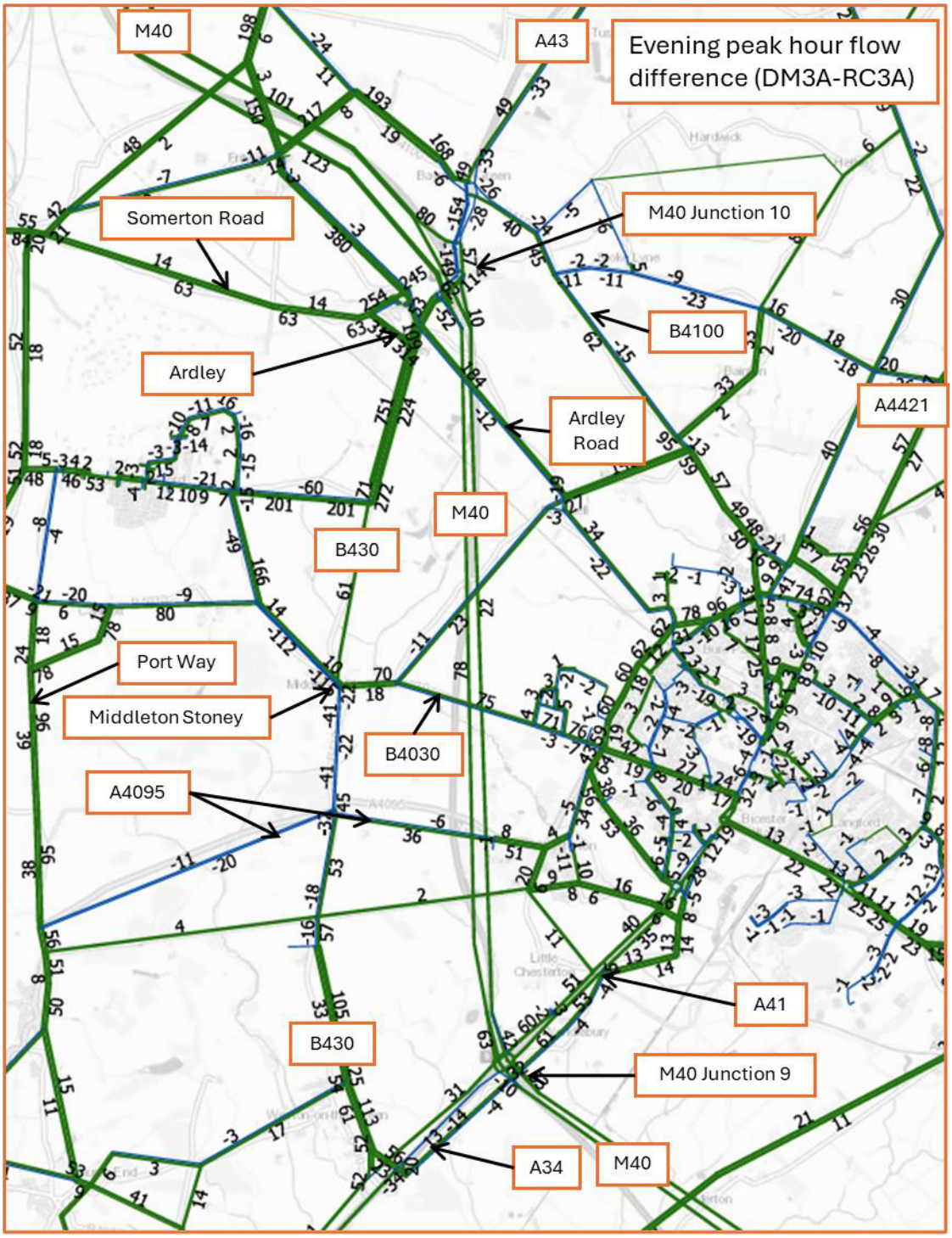


Figure 9.10: extract of the DM3A-RC3A PM flow difference plot, Appendix U, Forecasting Report (total pcus)

9.88 As seen in the morning peak hour, there are far greater traffic increases across the local highway network than observed in any of the Do-Something scenarios. There would be traffic increases across the Bicester area, including the A4095, Vendee Drive and the A41 corridor. There would be significant traffic increases on Fritwell Road, the B4100 and the B4031 through Croughton (Appendix U, Forecasting Report) as northbound traffic seeks to avoid Junction 10 and the southern section of the A43. There are traffic increases along the B430 southbound to the A34, Port Way, the A4095, and Ardley Road, with significant traffic increases through Ardley. Many of the surrounding villages would experience traffic flow increases.

9.89 Therefore, it is clear from the brief analysis above and the data provided in the Forecasting Report that the embedded Highway Works are essential in protecting the local communities around the

Proposed Development from the potential traffic impacts. The DM3A strategic modelling supports the conclusions of the Stage 1 Transport Modelling that the major M40 Junction 10 upgrade, the Ardley Bypass and the MSRR/HPLR are required to accommodate the Proposed Development traffic and also play an important role in keeping background traffic on the most appropriate routes.

2042 Sensitivity Test assessment (RC4A and DS4A)

9.90 As discussed in **Chapter 7**, it was agreed with the TWG that an assessment scenario (Scenario 4) should also be run for the 2042 Local Plan Future Year, which is the end of Cherwell District Council Local Plan period. Whilst the 2042 scenario includes for all the planned growth that has been proposed in the Cherwell Local Plan 2042, it does not include all the associated Local Plan infrastructure changes that would be required to facilitate the growth, as these have not yet been determined and the plan is not yet adopted. Such an unmitigated scenario results in an unrepresented future baseline position meaning it is difficult to isolate the impact of the Proposed Development. Hence, it was agreed with the TWG that the 2042 scenario would be undertaken as a sensitivity test, and provided for information only, to assist CDC and OCC with forward planning to the end of the Local Plan period.

9.91 Accordingly, 2042 Local Plan Reference Case, Do-Something and Do-Something with Travel Plan (RC4A, DS4A and DS4AwTP) scenarios have been run in the BTM. The BTM outputs for these 2042 Sensitivity Test scenarios are included in the Forecasting Report (**Appendix 14**) as follows:

- Appendix V - Development traffic plots (DS4A and DS4AwTP)
- Appendix W - Actual flow plots (RC4A, DS4A and DS4AwTP)
- Appendix Z - V/C Plots (RC4A, DS4A and DS4AwTP)
- Appendix AA - Flow difference plots (DS4A-RC4A, DS4AwTP-RC4A).

9.92 The 2042 Sensitivity Test scenarios have been undertaken for information only and therefore, a detailed analysis of the BTM outputs for this scenario have not been undertaken as part of this TA. However, comparing the above referenced outputs to the 2034 Completion Year scenario shows that the Proposed Development traffic assignment is very similar in both scenarios and the same general trends with respect to flow difference across the network are evident in both scenarios.

9.93 In both scenarios, there would be traffic increases on the modelled SRN corridors due to the effects of the embedded Highway Works, particularly on the M40 and the A43. On the local highway network, in both future year scenarios traffic reassigns away from the A41, B4100, the B430, Ardley Road and the A4421 and instead routes between Bicester, Heyford Park and M40 Junction 10 via the B4030 Middleton Stoney Road, MSRR and Ardley Bypass route. The effect of this reassignment is to significantly decrease traffic in the villages of Ardley, Middleton Stoney and Bucknell.

9.94 Consideration of the V/C ratio plots in Appendix Z of the Forecasting Report for 2042 Sensitivity Test shows that, as expected, there is an increase in congestion across the modelled network as the Local Plan growth is modelled without the necessary mitigation measures to accommodate that growth. In the 2042 RC4A scenario there are noticeable increases in the V/C ratio on the M40 mainline between Junction 9 and 10, the A34 corridor west of M40 Junction 9, at M40 Junctions 9 and 10, at the Middleton Stoney crossroads, the centre of Bicester - including the A41, and at junctions on the A4260 corridor.

9.95 The 2042 DS4A scenario shows that the embedded Highway Works are delivering material improvements in the V/C ratio at M40 Junction 10, the Middleton Stoney crossroads and on Ardley

Road between Ardley and Bucknell. There are no issues identified at the Principal Access or the junctions on the HPLR or MSRR.

9.96 Notwithstanding the above, and as stated above, OCC's Local Transport and Connectivity Plan (LTCP5) aims to replace or remove 1 out of every 4 current car trips in Oxfordshire by 2030 (a 25% reduction in car trips), and by 2040 to replace or remove an additional 1 out of 3 car trips in Oxfordshire (an approx. 50% reduction from the baseline). This policy has not been modelled in the BTM and therefore, if OCC is successful in achieving these targets, the reduction in background traffic would mean that the local highway network would operate with additional capacity in the 2042 Local Plan Future Year scenario and congestion would be markedly reduced from that shown in this sensitivity test.

2031 Opening Year assessment (RC2A, DS2A and DS2AwTP) and study area

9.97 As discussed in **Chapter 4**, it is not possible to state with certainty the floor area that would be associated with the first phase of the development, as the demand for units on the site would be led by the market. Therefore, to ensure a robust analysis and provide the Applicant with a degree of flexibility, a first phase of development of up to 2 million sqft (185,806 sqm) of B8 development with an additional 1/3 mezzanine floor space (61,967 sqm) has been considered in this TA. The trip generation associated with the opening year is set out in **Chapter 6**.

9.98 In the 2031 opening year, the following highways infrastructure and mitigation will be in place:

- the OxSRFI Principal Access roundabout onto the B430;
- the Adley Bypass;
- the major Ardley roundabout upgrade at M40 Junction 10;
- the interim upgrade at the Cherwell roundabout at M40 Junction 10; and
- the A43 Baynard's Green major upgrade.

9.99 As set out in **Chapter 7** of this TA, it is agreed with the TWG that the impact of the Proposed Development in the 2031 Opening Year will be assessed using the 2031 RC2A and DS2A scenarios.

9.100 As agreed with OCC, the effects of the Travel Plan have also been taken in to account, with the reductions in vehicle trips associated with the **Framework Travel Plan** considered in the DS2AwTP scenario, which has been calculated using a post-modelling adjustment process as described in **Chapter 8** of the BTM Forecasting Report (**Appendix 14**).

9.101 The development traffic plots, actual traffic flows, V/C ratio plots, and flow difference plots for the RC2A, DS2A, and DS2AwTP scenarios are provided in the BTM Forecasting Report (**Appendix 14)**, as follows:

- Appendix J - Development traffic plots (DS2A and DS2AwTP)
- Appendix K - Actual flow plots (RC2A, DS2A and DS2AwTP)
- Appendix N - V/C Plots (RC4A, DS4A and DS4AwTP)
- Appendix O - Flow difference plots (DS2A-RC2A, DS2AwTP-RC2A).

9.102 The following analysis focuses on the DS2A scenario as this represents the worst-case impacts on the highway network. This is appropriate for establishing the opening year study area, as the DS2A scenario forecasts the impacts on the highway network without the beneficial impact of the Framework Travel Plan in reducing car trips, and is therefore robust. The DS2AwTP outputs are used in the 2031 Opening Year detailed junction modelling which is presented in **Chapter 12**.

2031 DS2A development traffic assignment

9.103 The BTM development traffic plots for the 2031 DS2A OxSRFI traffic flows in the morning and evening peak hours are provided at Appendix J of the Forecasting Report (Appendix 14). Pots are provided for total traffic flows in pcus, total traffic flows in vehicles, with a breakdown of light vehicle movements and HGV movement.

9.104 **Table 9.12** below quantifies the total number of development pcu trips assigned to key routes across the modelled highway network in the 2031 DS2A Opening Year scenario for the morning peak hour. The '*Proportion*' is the percentage of the total Opening Year Proposed Development traffic on a link (based on the two-way flow in pcus).

Table 9.12: summary of the 2031 DS2A development assignment – morning peak hour

2031 DS2A development traffic assignment - morning peak hour (in pcus)				
Link	Inbound	Outbound	Two-way	Proportion
A43 north of Barleymow	53	9	62	12%
A43 between Baynards Green and Barleymow	90	14	104	20%
A421 east of Barleymow	26	5	31	6%
B4100 west of Baynards Green	10	1	11	2%
B4100 east of Baynards Green	32	8	40	8%
M40 north of M40J10	65	34	99	19%
M40 south of M40J10	67	49	116	23%
Ardley Road	13	5	18	4%
Ardley Bypass	292	113	405	79%
B430 between the Principal Site Access and Upper Heyford Road	91	16	107	21%
Upper Heyford Road	39	10	49	10%
Middleton Road	0	0	0	0%
B430 between Upper Heyford Road and Middelton Stoney	52	6	58	11%
B4030 west of Middleton Stoney	1	0	1	0%
B4030 east of Middleton Stoney	2	4	6	1%
Middleton Stoney Road east of Vendee Drive	4	3	7	1%
B430 at Western on the Green	11	1	12	2%
Somerton Road between Ardley and the A4260	12	1	13	3%
A4095 east of the B430	18	0	18	4%
A4095 west of the B430	20	1	21	4%
A41 east of Bicester	22	11	33	6%
Vendee Drive	10	1	11	2%
A41 east of M40 Junction 9	18	11	29	6%
M40 south of M40 Junction 9	39	28	67	13%
A34 west of B430	20	10	30	6%

9.105 In the morning peak hour, the largest increases in traffic flow due to the Proposed Development vehicles are forecast along the Ardley Bypass, the B430, Upper Heyford Road, the M40 to the north and south of Junction 10 and the A43 between the M40 Junction 10 and the Barleymow roundabout.

9.106 Comparing the above assignment to that shown in **Table 9.10** for the DS3A scenario, it is clear that the assignment for the 2031 Opening Year follows a very similar pattern to that of the 2034 Completion Year, with the main difference being the effect of the MSRR, which is not part of the first phase of the embedded Highway Works. In the 2034 Completion Year, the MSRR draws Proposed Development and background traffic away from the A41, A4095 (west of the B430) and B4100 east routes to the B4030 Middleton Stoney Road/MSRR route. In the absence of the MSRR in the 2031 Opening Year, a greater proportion of development traffic uses these routes.

9.107 **Table 9.13** below quantifies the total number of development pcu trips assigned to key routes across the modelled highway network in the 2031 DS2A Opening Year scenario for the evening peak hour. Comparing the assignment in **Table 9.13** to that shown in **Table 9.11** for the DS3A scenario, it is clear that the assignment for the 2031 Opening Year follows a very similar pattern.

Table 9.13: summary of the 2031 DS2A development assignment – evening peak hour

2031 DS2A development traffic assignment - evening peak hour (in pcus)				
Link	Inbound	Outbound	Two-way	Proportion
A43 north of Barleymow	20	65	85	14%
A43 between Baynards Green and Barleymow	33	100	133	22%
A421 east of Barleymow	9	23	32	5%
B4100 west of Baynards Green	3	13	16	3%
B4100 east of Baynards Green	12	11	23	4%
M40 north of M40J10	39	65	104	17%
M40 south of M40J10	55	52	107	18%
Ardley Road	1	23	24	4%
Ardley Bypass	146	284	430	72%
B430 between the Principal Site Access and Upper Heyford Road	43	123	166	28%
Upper Heyford Road	13	36	49	8%
Middleton Road	0	0	0	0%
B430 between Upper Heyford Road and Middelton Stoney	30	88	118	20%
B4030 west of Middleton Stoney	1	1	2	0%
B4030 east of Middleton Stoney	22	43	65	13%
Middleton Stoney Road east of Vendee Drive	13	40	53	9%
B430 at Western on the Green	4	16	20	3%
Somerton Road between Ardley and the A4260	3	14	17	3%
A4095 east of the B430	3	25	28	5%
A4095 west of the B430	0	3	3	1%
A41 east of Bicester	20	29	49	8%
Vendee Drive	7	2	9	2%
A41 east of M40 Junction 9	16	14	30	5%
M40 south of M40 Junction 9	29	29	58	10%
A34 west of B430	14	24	38	6%

2031 DS2A vs RC2A flow difference – morning peak hour

9.108 The BTM flow difference plots for the morning and evening peak hour 2031 DS2A – RC2A scenarios are provided at Appendix O of the Forecasting Report. **Figure 9.11** below shows an extract of the flow difference plot for the main area of the modelled network in the 2031 DS2A-RC2A scenarios in the morning peak hour.

9.109 With the first phase of the Proposed Development and the first phase of embedded Highway Works in place, **Figure 9.11** shows that there would be material traffic increases on the M40, particularly southbound between Junctions 10 and 9, and the A43 southbound approach to the A43 Baynard's Green Roundabout. There are modest traffic increases on the B4100 westbound from Baynard's Green, the B4030 Middleton Stoney Road between Middleton Road and central Bicester, Middleton Road and Ardley Road. There are also modest traffic increases on the B430 northbound between the A4095 and the Principal Access, the A4095 east and west of the B430 and Somerton Road between Ardley, Somerton and Upper Heyford.

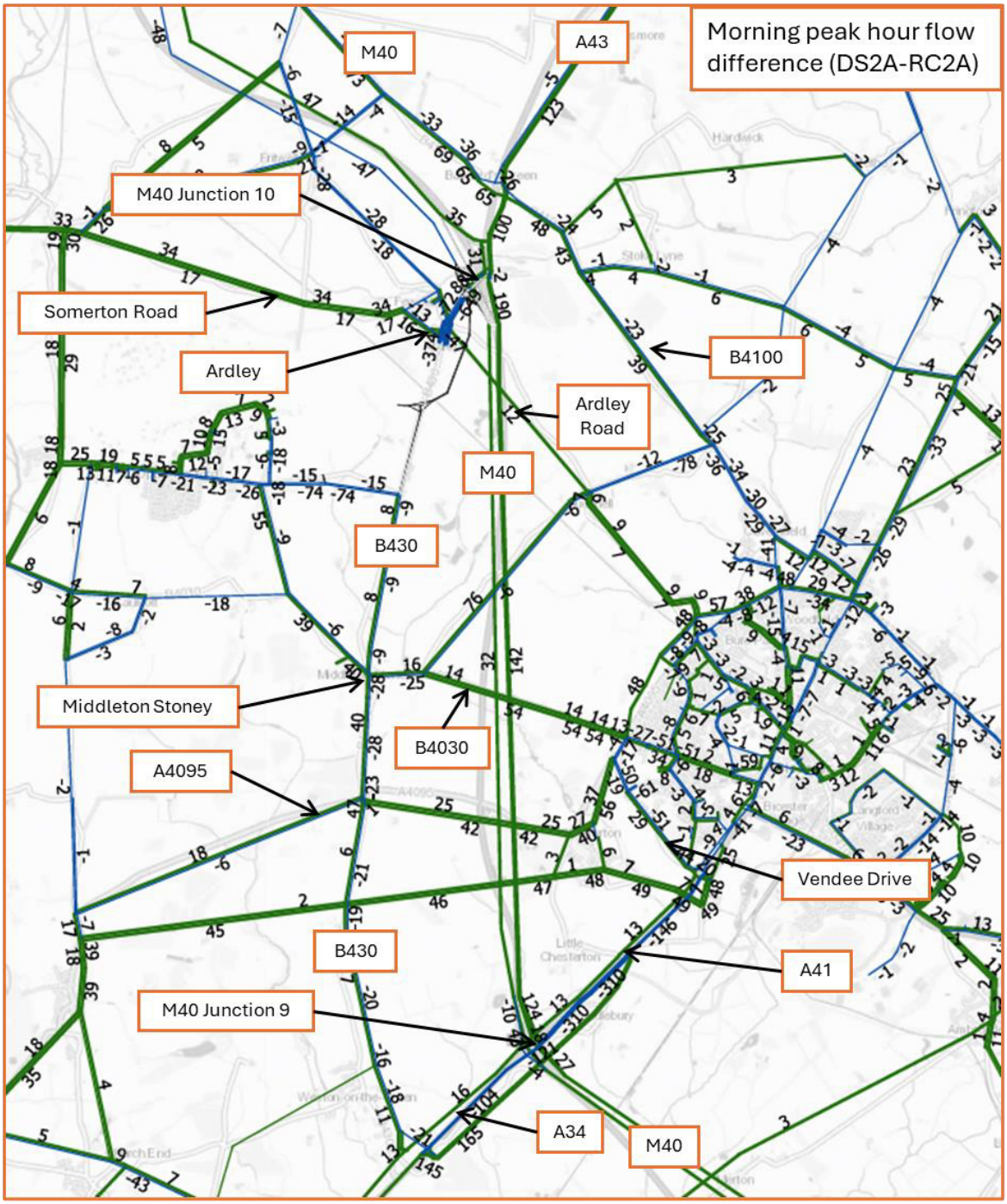


Figure 9.11: extract of the DS2A-RC2A AM flow difference plot, Appendix O, Forecasting Report (total pcus)

9.110 **Figure 9.11** also shows that there would be material traffic reductions on the B430 through Ardley, the B430 southbound from Upper Heyford Road to the A34, Fritwell Road between Ardley and Fritwell, Upper Heyford Road, Bainton Road, the B4100 between Bainton Road and the A4095 and the A41 westbound between M40 Junction 9 and central Bicester.

9.111 Despite the reduction in traffic flow on the A41 westbound approach to M40 Junction 9, **Figure 9.11** shows that some westbound A41 background traffic is shown to bypass M40 Junction 9, using Oxford Road, and rejoining the A34 west of M40 Junction 10. This effect is not caused by development traffic displacing background traffic, as **Table 9.12** shows Opening Year development traffic volumes to be low on the A41. Whilst the BTM does not indicate that this reassignment would cause any issues with regards to V/C ratios and it is therefore unlikely to cause a negative operational impact, it is important to understand why it is occurring in the

model and why, based on that understanding, it is unlikely to occur in practise. This is set out below:

- The A41 approach to M40 Junction 9 is a known point of congestion on the network.
- The interim improvement scheme at the M40 southbound merge at Junction 10 releases some suppressed demand, which then routes through M40 Junction 9 and impacts the A41 approach.
- However, this A41 to Oxford Road reassignment effect is not prominent in any of the other BTM scenarios where the full improvement scheme at M40 Junction 10 releases significantly more suppressed demand.
- Further, the detailed modelling presented in **Chapter 11** indicates that there would be a reduction in queue length on the A41 approach in the DS2A scenario compared to the RC2A scenario. If the A41 approach operates better in practice than forecast in the BTM, as shown in the detailed modelling, then it is unlikely that this reassignment would occur.
- Planning application ref. 25/00284/F is for the erection of 9 additional employment units located to the north, east and west of the consented Siemens Healthineers development, north of the A41, east of M40 Junction 9. This site forms part of the employment allocation in the draft Cherwell Local Plan 2042. The draft Cherwell Local Plan 2042 also sets out a requirement as part of the draft allocation for a mitigation scheme at M40 Junction 9. As part of planning application ref. 25/00284/F, an improvement scheme has been identified and agreed with OCC and National Highways in principle. This scheme would provide additional capacity at the M40 southbound and A41 approaches in the form of an additional lane on each approach. This is detailed further in **Chapter 11**.
- Whilst it is possible that the third-party improvement scheme could be delivered by 2031, for robustness it was agreed with the TWG to exclude it from the 2031 Opening Year scenarios.

9.112 **Table 9.14** below summarises the total change in traffic flow, the volume of Opening Year Proposed Development trips, and the change in background traffic flows on the SRN routes discussed above in the morning peak hour for the 2031 DS2A scenario, as compared to the RC2A scenario.

9.113 The key changes to the traffic flows on the modelled SRN in the 2031 Opening Year morning peak hour are:

- There is a material increase in traffic flow southbound on the A43 between Brackley and M40 Junction 10. The southbound traffic flow increases on the A43 between the Barleymow Roundabout and Brackley, and between the Barleymow Roundabout and Baynard's Green Roundabout, are higher than the Opening Year Proposed Development traffic flow indicating that a small amount of background traffic is reassigning to these links. Between the Barleymow Roundabout and the Baynard's Green Roundabout, the northbound flow reduces slightly in the DS2A scenario. To the south of Baynard's Green, traffic increases are also shown to be lower than the Opening Year OxSRFI traffic flows. However, the reductions in background traffic flow are not material (between 19 and 32 pcus) and are likely due to a reduction in background traffic demand on this part of the network (i.e. similar trends to that observed in the DS1 SRN scenario).

- On the M40 north of Junction 10, the southbound traffic flow increases by slightly less than the Opening Year Proposed Development traffic flow, whilst the northbound flow decreases slightly. These reductions in background traffic flow are not material in the Opening Year.

- There are material traffic increases on the M40 southbound merge at Junction 10, the M40 southbound between M40 Junctions 10 and 9 and the M40 southbound diverge at M40 Junction 9. These traffic increases are materially higher than the Opening Year Proposed Development traffic flow on these links, mostly due to the interim upgrade of M40 Junction 10, which includes an interim improvement to the southbound M40 merge which allows some of the suppressed traffic demand at this location onto this part of the network. The full embedded Highway Works provides a comprehensive upgrade to the M40 southbound merge which releases more of the suppressed demand, as detailed earlier in this chapter.

- The increases in traffic flow on the M40 northbound merge at Junction 9 and the M40 northbound between Junctions 9 and 10 are less than the development traffic on this part of the network, though the reductions in background traffic flow are not material and are due to M40 northbound traffic reassigning.

- There is no material change in traffic flow on the A34, with a slight increase in background traffic in both directions.

Table 9.14: SRN traffic flows comparison between the DS2A and RC2A morning peak hour scenarios

2031 DS2A vs RC2A SRN flow analysis - morning peak hour (in pcus)					
SRN link	RC2A	DS2A	Flow difference	OxSRFI	Background traffic change
A43 Brackley Bypass EB	1,291	1,302	11	7	4
A43 Brackley Bypass WB	1,945	1,980	35	36	-1
A43 SB between Brackley and Barleymow	2,047	2,129	82	53	29
A43 NB between Barleymow and Brackley	1,343	1,353	10	9	1
A43 SB between Barleymow and Baynards Green	2,564	2,687	123	90	33
A43 NB between Baynards Green and Barleymow	1,737	1,732	-5	14	-19
A43 SB between Padbury and Baynards Green	2,314	2,414	100	132	-32
A43 NB between Padbury and Baynards Green	1,787	1,786	-1	24	-25
M40 SB north of M40J10	4,802	4,848	46	65	-19
M40 NB north of M40J10	3,832	3,784	-48	34	-82
M40 SB onslip at M40J10	1,786	1,976	190	49	141
M40 NB offslip at M40J10	1,501	1,561	60	67	-7
M40 SB between M40J10 and M40J9	5,740	5,881	141	49	92
M40 NB between M40J10 and M40J9	4,741	4,773	32	67	-35
M40 SB offslip at M40J9	2,224	2,348	124	21	103
M40 NB onslip at M40J9	2,390	2,380	-10	29	-39
A34 EB west of B430	4,186	4,210	24	20	4
A34 WB west of B430	3,745	3,785	40	10	30
M40 SB south of M40J9	4,387	4,433	46	28	18
M40 NB south of M40J9	2,934	2,973	39	39	0

9.114 **Table 9.15** below summarises the total change in traffic flow, the volume of Opening Year Proposed Development trips, and the change in background traffic flows on the local highway network routes discussed above in the morning peak hour for the 2031 DS2A scenario as compared to the RC2A scenario.

Table 9.15: local highway network traffic flows comparison between the DS2A and RC2A morning peak hour scenarios

2031 DS2A vs RC2A local highway network flow analysis - morning peak hour (in pcus)					
Local Highway Network Link	RC2A	DS2A	Flow difference	OxSRFI	Background traffic change
A421 EB east of Barley Mow	670	640	-30	5	-35
A421 WB east of Barley Mow	696	785	89	26	63
B4100 EB west of Baynards Green	552	516	-36	10	-46
B4100 WB west of Baynards Green	493	558	65	1	64
B4100 EB east of Baynards Green	1,092	1,066	-26	8	-34
B4100 WB east of Baynards Green	733	781	48	32	16
Ardley Road NB between Ardley and Bucknell	329	341	12	13	-1
Ardley Road SB between Ardley and Bucknell	242	241	-1	5	-6
Somerton Road EB between Ardley and the A4260	1	36	35	12	23
Somerton Road WB between Ardley and the A4260	18	35	17	1	16
B430 NB south of Ardley Road	375	34	-341	11	-352
B430 SB south of Ardley Road	899	30	-869	1	-870
B430 NB south of the Principal Site Access	374	338	-36	91	-127
B430 SB south of the Principal Site Access	932	820	-112	16	-128
B430 NB south of Middleton Stoney	317	356	39	50	-11
B430 SB south of Middleton Stoney	616	588	-28	3	-31
B430 NB at Western on the Green	114	125	11	11	0
B430 SB at Western on the Green	422	404	-18	1	-19
B4030 WB west of Middleton Stoney	434	472	38	1	37
B4030 EB west of Middleton Stoney	795	789	-6	0	-6
B4030 WB east of Middleton Stoney	268	243	-25	2	-27
B4030 EB east of Middleton Stoney	652	668	16	4	12
Middleton Road NB	90	165	75	0	75
Middleton Road SB	190	184	-6	0	-6
B4030 WB east of the Middleton Road	278	332	54	2	52
B4030 EB east of the Middleton Road	761	775	14	4	10
Upper Heyford Road EB	319	305	-14	39	-53
Upper Heyford Road WB	464	391	-73	10	-83
The A4095 EB between the B430 and Port Way	210	228	18	20	-2
The A4095 WB between the B430 and Port Way	190	184	-6	1	-7
The A4095 EB between the B430 and Chesterton	254	279	25	0	25
The A4095 WB between the B430 and Chesterton	324	365	41	18	23
The A41 EB west of Vendee Drive	1,750	1,763	13	11	2
The A41 WB west of Vendee Drive	1,731	1,585	-146	18	-164

9.115 The key changes to the traffic flows on the modelled local highway network in the 2031 Opening Year morning peak hour are:

- There would be an increase in Opening Year traffic flow on the A421 westbound towards the A43 southbound which is materially higher the Opening Year Proposed Development traffic using that route, with a significant amount of background traffic reassignment. This is likely to be due to the to the interim embedded Highway Works improving journey times to the M40 southbound.

- West of Baynard's Green, the traffic flow reduces in the DS2A scenario on the B4100 eastbound approach to the roundabout. The Opening Year Proposed Development flow on this approach is just 10 pcus so the reduction is likely due to a change in the background traffic demand. Westbound from Baynard's Green the traffic flow increases by 65 pcus, almost all of which is background traffic reassignment.

- East of Baynard's Green, the traffic flow reduces in the DS2A scenario on the B4100 eastbound exit from the roundabout. The Opening Year Proposed Development flow on this approach is just 8 pcus so the reduction is likely due to a change in the background traffic demand. On the westbound approach to Baynard's Green the traffic flow increases

by more than the Opening Year Proposed Development traffic on this route, due to a small amount of background traffic reassignment.

- There are no material changes in the northbound and southbound traffic flow on Ardley Road between Ardley and Bucknell.

- Somerton Road is very lightly trafficked and the eastbound increase of 35 pcus and the westbound increase of 17 pcus (all light vehicle trips) would not be a severe impact. Some of this traffic increase is due to traffic reassigning from Fritwell Road as a result of the Ardley Bypass significantly reducing traffic from the B430/Somerton Road junction in Ardley.

- With the first phase of the Proposed Development and embedded Highway Works in place, there would be reductions in traffic flow on the B430 from south of the Principal Access to the A34 with Ardley Road. Northbound on the B430 between the A34 and Middleton Stoney, there would increases in traffic flow that are largely due to the Opening Year Proposed Development traffic, which coincides with increases in traffic flow on the A4095 east and west of the B430.

- On the B4030 west of Middleton Stoney there is modest increase westbound due to background traffic reassignment, with almost zero Proposed Development traffic on this link. On the B4030 west of Middleton Stoney there are small variations in the traffic flow, increasing in the eastbound direction and decreasing westbound. Again, there is very little Opening Year development traffic on this link (2 pcus westbound and 4 pcus eastbound).

- On Middleton Road there is an increase of 75 pcus northbound between the B4030 Middleton Stoney Road and Bucknell. There is no Opening Year Proposed Development traffic on this route and hence this increase is mostly associated with background traffic reassigning from the B4100/Bainton Road route to Ardley via Bucknell. Hence, there is also an increase on the B4030 Middleton Stoney Road east of the junction with Middleton Road.

- On the A41 there is a material reduction in westbound traffic west of the roundabout with Vendee Drive.

2031 DS2A vs RC2A flow difference – evening peak hour

9.116 With the first phase of the Proposed Development and the embedded Highway Works in place, **Figure 9.12** shows that there would be material traffic increases on the M40 southbound between Junctions 10 and 9, and the A43 northbound towards the Brackley and the A421. There are material traffic increases on the B4030 Middleton Stoney Road between Middleton Road and central Bicester, Middleton Road towards Bucknell and Ardley Road towards Ardley. There are also modest traffic increases on the A4095 east and west of the B430, Somerton Road, and the A34.

9.117 **Figure 9.12** also shows that there would be material traffic reductions on the B4100 east of Baynard's Geen, the B430 between Middleton Stoney and the A34, Fritwell Road between Ardley and Fritwell Road and the A41 in both directions between M40 Junction 9 and central Bicester.

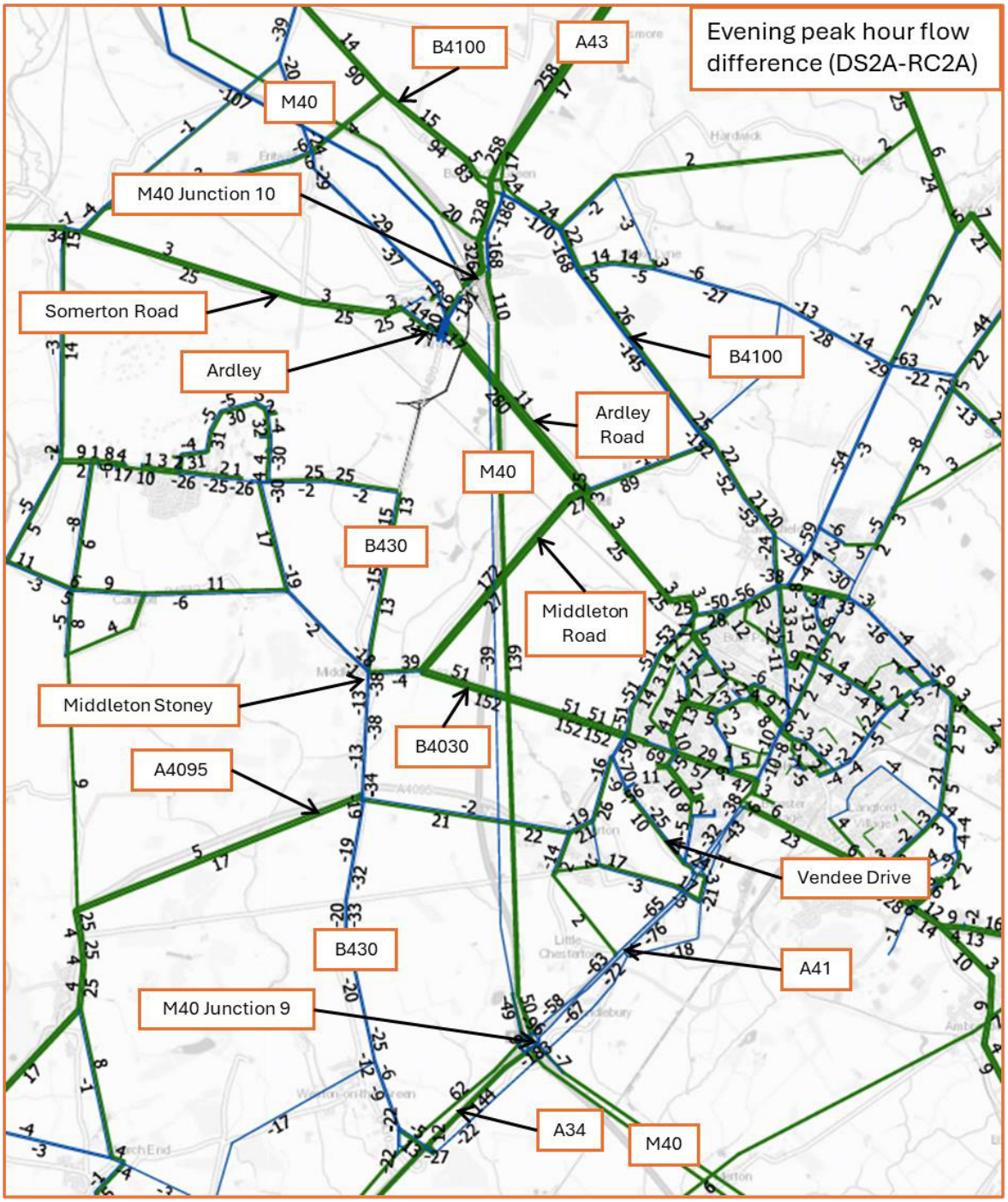


Figure 9.12: extract of the DS2A-RC2A PM flow difference plot, Appendix O, Forecasting Report (total pcus)

9.118 **Table 9.16** below summarises the total change in traffic flow, the volume of Opening Year Proposed Development trips and the change in background traffic flows on the SRN routes discussed above in the evening peak hour for the 2031 DS2A scenario as compared to the RC2A scenario.

Table 9.16: SRN traffic flows comparison between the DS2A and RC2A evening peak hour scenarios

2031 DS2A vs RC2A SRN flow analysis - evening peak hour (in pcus)					
SRN link	RC2A	DS2A	Flow difference	OxSRFI	Background traffic change
A43 Brackley Bypass EB	1,885	1,963	78	48	30
A43 Brackley Bypass WB	1,385	1,395	10	13	-3
A43 SB between Brackley and Barleymow	1,512	1,521	9	20	-11
A43 NB between Barleymow and Brackley	1,938	2,062	124	65	59
A43 SB between Barleymow and Baynards Green	1,919	1,936	17	33	-16
A43 NB between Baynards Green and Barleymow	2,415	2,673	258	100	158
A43 SB between Padbury and Baynards Green	1,947	1,761	-186	47	-233
A43 NB between Padbury and Baynards Green	2,247	2,575	328	125	203
M40 SB north of M40J10	4,255	4,284	29	39	-10
M40 NB north of M40J10	4,962	4,855	-107	65	-172
M40 SB onslip at M40J10	1,682	1,793	111	52	59
M40 NB offslip at M40J10	2,033	2,152	119	55	64
M40 SB between M40J10 and M40J9	5,281	5,420	139	52	87
M40 NB between M40J10 and M40J9	6,323	6,284	-39	55	-94
M40 SB offslip at M40J9	2,620	2,709	89	23	66
M40 NB onslip at M40J9	2,831	2,783	-48	27	-75
A34 EB west of B430	4,197	4,239	42	14	28
A34 WB west of B430	4,134	4,239	105	24	81
M40 SB south of M40J9	3,157	3,201	44	29	15
M40 NB south of M40J9	4,498	4,508	10	29	-19

9.119 The key changes to the traffic flows on the modelled SRN in the 2031 Opening Year evening peak hour are:

- There is a small increase in traffic flow southbound on the A43 between Brackley and the Baynard's Green Roundabout, though the increase is slightly lower than the Opening Year Proposed Development traffic on this route. Southbound between Baynard's Green and Padbury there is a material reduction in the traffic flow in the DS2A scenario which is due to a reduction in background traffic demand.

- The northbound traffic flow from the Padbury Roundabout to the Barleymow Roundabout increases significantly above the level of Opening Year Proposed Development traffic on this route. As described earlier in this Chapter, there is suppressed demand on the M40 to A43 northbound route in the evening peak hour. The V/C ration in the RC2A scenario on the M40 northbound diverge at Junction 10 indicates that this is also the case in the Opening Year scenario, with these increases caused by the release of suppressed demand due to the first phase of the embedded Highway Works.

- On the M40 north of Junction 10, the southbound traffic flow increases by slightly less than the Opening Year Proposed Development traffic flow, whilst the northbound flow decreases by 107 pcus. This is due to background traffic destined for the settlements south of Banbury that currently use M40 Junction 11, but as a result of the improvement works at M40 Junction 10 reassign to the B4100 westbound.

- There are traffic increases on the M40 southbound on-slip at Junction 10, the M40 southbound between M40 Junctions 10 and 9 and the M40 southbound off-slip at M40 Junction 9. These traffic increases are higher than the Opening Year Proposed Development traffic on these links, due in part to the interim upgrade of M40 Junction 10, as described above, but also some background traffic heading south accessing the M40 at Junction 10 instead of using the B430/M40 Junction 9.

- The increases in traffic flow on the M40 northbound merge at Junction 9 and the M40 northbound between Junctions 9 and 10 are less than the development traffic on this part of the network, with the reductions in background traffic flows likely due to M40 northbound traffic reassigning from the A41/M40 Junction 9 and to Middleton Road/M40 Junction 10, as described in detail below.

- There is no material change in eastbound traffic flow on the A34, with a slight increase in background traffic. There is a material increase in the westbound traffic flow on the A34, largely due to an increase in background traffic.

9.120 **Table 9.17** below summarises the total change in traffic flow, the volume of Opening Year Proposed Development trips, and the change in background traffic flows on the local highway network routes in the evening peak hour for the 2031 DS2A scenario as compared to the RC2A scenario.

Table 9.17: local highway network traffic flows comparison between the DS2A and RC2A evening peak hour scenarios

2031 DS2A vs RC2A local highway network flow analysis - evening peak hour (in pcus)					
Local Highway Network Link	RC2A	DS2A	Flow difference	OxSRFI	Background traffic change
A421 EB east of Barley Mow	660	762	102	23	79
A421 WB east of Barley Mow	643	660	17	9	8
B4100 EB west of Baynards Green	424	428	4	3	1
B4100 WB west of Baynards Green	385	468	83	12	71
B4100 EB east of Baynards Green	788	812	24	11	13
B4100 WB east of Baynards Green	945	774	-171	11	-182
Ardley Road NB between Ardley and Bucknell	104	384	280	1	279
Ardley Road SB between Ardley and Bucknell	126	137	11	23	-12
Somerton Road EB between Ardley and the A4260	4	7	3	3	0
Somerton Road WB between Ardley and the A4260	6	30	24	14	10
B430 NB south of Ardley Road	424	4	-420	3	-423
B430 SB south of Ardley Road	300	24	-276	14	-290
B430 NB south of the Principal Site Access	422	413	-9	43	-52
B430 SB south of the Principal Site Access	313	304	-9	123	-132
B430 NB south of Middleton Stoney	202	189	-13	7	-20
B430 SB south of Middleton Stoney	268	230	-38	44	-82
B430 NB at Western on the Green	190	181	-9	4	-13
B430 SB at Western on the Green	189	183	-6	15	-21
B4030 WB west of Middleton Stoney	633	631	-2	1	-3
B4030 EB west of Middleton Stoney	482	463	-19	1	-20
B4030 WB east of Middleton Stoney	686	682	-4	22	-26
B4030 EB east of Middleton Stoney	508	547	39	43	-4
Middleton Road NB	87	259	172	0	172
Middleton Road SB	93	121	28	0	28
B4030 WB east of the Middleton Road	698	850	152	22	130
B4030 EB east of the Middleton Road	526	577	51	43	8
Upper Heyford Road EB	333	358	25	13	12
Upper Heyford Road WB	176	174	-2	36	-38
The A4095 EB between the B430 and Port Way	246	250	4	3	1
The A4095 WB between the B430 and Port Way	239	255	16	25	-9
The A4095 EB between the B430 and Chesterton	290	288	-2	3	-5
The A4095 WB between the B430 and Chesterton	228	249	21	0	21
The A41 EB west of Vendee Drive	1,765	1,700	-65	14	-79
The A41 WB west of Vendee Drive	1,510	1,434	-76	16	-92

9.121 The key changes to the traffic flows on the modelled local highway network in the 2031 Opening Year evening peak hour are:

- There would be an increase in Opening Year traffic flow on the A421 eastbound which is materially higher the Opening Year Proposed Development traffic using that route, with a significant amount of background traffic reassignment. This is likely to be due to the to the interim embedded Highway Works improving journey times.

- West of Baynard's Green, the traffic flow increases in the DS2A scenario on the B4100 westbound exit from the roundabout. The Opening Year Proposed Development flow on this approach is just 12 pcus so the increase is likely due to background traffic reassigning. There is no material change in the traffic flow eastbound on the B4100, west of Baynard's Green.

- East of Baynard's Green, there is a small increase in traffic flow in the DS2A scenario on the B4100 eastbound exit from the roundabout. However, on the westbound approach to Baynard's Green the background traffic flow decreases significantly by 182 pcus. This is due to background traffic reassigning and accessing M40 Junction 10 via the B4030 Middleton Stoney Road and Middleton Road because of reduced journey times. This is discussed in more detail below.

- As indicated above, there is a large increase in background traffic northbound on Ardley Road between Ardley and Bucknell.

- Somerton Road is very lightly trafficked and the westbound increase of 24 pcus would not be a severe impact. Some of this traffic increase is due to traffic reassigning from Fritwell Road because of the Ardley Bypass significantly reducing traffic from the B430/Somerton Road junction in Ardley.

- With the first phase of the Proposed Development and embedded Highway Works in place, there would be modest reductions in traffic flow on the B430 from south of the Principal Access to the A34 with Ardley Road.

- On the B4030 west of Middleton Stoney there is modest reduction in traffic flow eastbound due to background traffic reassignment, with almost zero Proposed Development traffic on this link. On the B4030 east of Middleton Stoney there is an increase in traffic flow eastbound towards Bicester.

- On Middleton Road there an increase of 172 pcus northbound between the B4030 Middleton Stoney Road and Bucknell. There is no Opening Year Proposed Development traffic on this route and hence this increase is mostly associated with background traffic reassigning from other routes, including the B4100, as indicated above.

- On the A41 there is a reduction in westbound and eastbound traffic west of the roundabout with Vendee Drive.

<u>2031 Opening Year flow difference analysis summary</u>

9.122 The above analysis demonstrates that whilst the first phase of the Proposed Development and the embedded Highway Works would result in some instances of background traffic reassignment and changes to the background traffic demand, the effect of these changes is relatively modest across much of the modelled highway network. This is not unexpected as the volume of the first phase development traffic is relatively low when considered against the scale of the first phase Highway Works which include the Ardley Bypass, the full Ardley Roundabout

improvements and an interim scheme at the Cherwell Roundabout, alongside the improvement scheme at the A43 Baynard's Green.

9.123 Certainly, south of Middleton Stoney and the B4030, and across Bicester, the traffic flow changes are generally not material.

9.124 However, as highlighted above, in the 2031 DS2A Opening Year evening peak hour scenario, the most prominent reassignment effect is significant reduction in traffic on the B4100 westbound approach to Baynard's Green, with background traffic reassigning and instead accessing M40 Junction 10 via the B4030 Middleton Stoney Road and Middleton Road route via Bucknell and Ardley. Whilst this is predominantly a reassignment effect that impacts the evening peak hour, the same reassignment effect is also identified in the morning peak hour, but to a much lesser extent.

9.125 Using the BTM, TetraTech undertook select link and journey time analysis to understand why this reassignment was occurring. The analysis is presented in **Appendix 72** and is summarised below as follows:

- When considering the select link analysis, Tetra Tech identified that the reassigning vehicles were mostly trips from north, central and south Bicester travelling to M40 Junction 10 and accessing the M40 from there. To provide a comparison of journey times a select link analysis of journeys to the M40 northbound was undertaken.

- Vehicle trips originating in central and south Bicester have three main route options to the M40 northbound, these being the B4030 Middleton Stoney Road/Middleton Road/Ardley Road route (set 1, route 1), the B4030 Middleton Stoney Road/B430 route (set 1, route 2) and the A41/M40 Junction 9 route (set 1, route 3).

- Trips originating in north Bicester have two main route options being the B4100/Bainton Road/Ardley Road route (set 2, route 1) and the B4100 route to Baynard's Green and M40 Junction 10 route (set 2, route 2).

- The analysis shows that for set 1 (south and central Bicester), route 3 via the A41/M40 Junction 9 would be the fastest in the RC2A scenario, with very little between routes 1 and 2. For set 2 (north Bicester), route 2 using the B4100 via Baynard's Green and M40 Junction 10 would be significantly faster than route 1 via Bucknell in the RC2A scenario.

- In the DS2A scenario, the first phase of the embedded Highway Works introduces the Ardley Bypass which significantly reduces traffic flows on the B430 through Ardley, making it easier to turn right out of Ardley Road at the junction with the B430 and significantly reducing the delay at this junction.

- The analysis shows (and as summarised in **Table 9.18** below) that in the DS2A scenario, for set 1, route 1 via Middleton Road and Ardley Road becomes the faster route and for set 2, route 1 via Bainton Road and Ardley Road becomes the fastest route. Hence, background traffic reassigns use the Ardley Road route in the DS2A evening peak hour scenario.

Table 9.18: traffic reassignment journey time analysis (in seconds) (extract from Tetra Tech journey time analysis presented at **Appendix 72**)

Set 1

Route	Name		DS2A	Diff	RC2A	Diff
1	Zig-Zag	Time	925		1009	
		Distance	14557		13816	
		Delay	72		151	
2	Middleton Stoney Xrd	Time	987	-62	1026	-17
		Distance	14530	27	13128	688
		Delay	111	-39	206	-55
3	M40J9	Time	949	-24	929	80
		Distance	17177	-2620	16045	-2229
		Delay	223	-151	239	-88

Set 2

Route	Name		DS2A	Diff	RC2A	Diff
1	Zig-Zag	Time	538		635	
		Distance	8930		8189	
		Delay	36		131	
2	B430 Baynards Green Rbt	Time	598	-60	533	102
		Distance	9432	-502	8700	-511
		Delay	90	-54	108	23

9.126 Following the Stage 2 statutory consultation it was agreed with OCC to bring forwards the embedded Highway Works at the Middleton Road bridge from Phase 2 to Phase 1. At the same time, it was also agreed with OCC that the Proposed Development would amend the speed limits on Middleton Road and Ardley Road from derestricted to 40mph. These embedded mitigation measures are described in **Chapter 4**. Whilst they will be delivered as part of the Phase 1 embedded Highway Works for the Opening Year, they were not included in the BTM modelling.

9.127 To allow the reallocation of road space to WCH at the Middleton Road bridge, traffic signals will be installed to create a one-way shuttle arrangement over the bridge for vehicles. The shuttle working system to be implemented will have the opposing stop lines separated by 138m which is likely to require an intergreen of 24 seconds. If a vehicle was to arrive at the start of the red signal, the wait time for the next green could be as long as 55 seconds. Hence, the shuttle working scheme will introduce additional delay to Middleton Road and make journey prediction uncertain. Journey time on this route will be further impacted by the reductions in speed limits on Middleton Road and Ardley Road.

9.128 With these measures in place, the journey time saving would not be realised. Hence the forecast traffic increases on these roads will not occur in practice, as the route would not offer any journey time saving. Therefore, traffic would remain on the routes used in the RC2A scenario. If the reassigning traffic remained on the original routes, the relative difference in flow on each would be small and hence there would be no additional material impacts at junctions that require further assessment. The only junction where a material effect may occur would be the Middleton Stoney Crossroads, which is much closer to the proposed development and hence is more directly affected by reassigning traffic. Hence, a sensitivity test at this junction is included in **Chapter 12**.

9.129 This issue does not arise in the 2034 Completion Year because the MSRR would be constructed by that time. The MSRR, in combination with the Ardley Bypass, is the preferred route for drivers due to the much-improved journey and this leads to a reduction in traffic on Middleton Road and Ardley Road below the Reference Case position.

2031 Opening Year volume over capacity ratio

9.130 The BTM V/C plots for the morning and evening peak hour 2031 RC2A and DS2A scenarios are provided at Appendix N of the BTM Forecasting Report (**Appendix 14**). Links/nodes with a V/C ratio below 85% do not suffer with congestion during the peak hours and therefore are not shown on the plots.

9.131 **Figure 9.13** below compares the link and node V/C ratios for the 2031 RC2A morning peak hour scenario (left-hand side) and the 2031 DS2A morning peak hour scenario (right-hand side). The key observations are as follows:

- The V/C ratio on the A43 southbound approach to the Barleymow Roundabout would be above 100% in both the RC2A and DS2A scenarios. **Figure 9.13** shows that the V/C ratio on the A421 westbound approaches would increase from 87% to 99% with the first phase of the OxSRFI Proposed Development in place.

- The V/C ratio on the M40 Junction 10 northbound diverge and southbound merge are above 100% in the RC2A scenario. In the DS2A scenario with the first phase of the embedded Highway Works in place, the V/C ratio on the M40 northbound diverge would reduce to 90% on account of the improvement works at the Ardley Roundabout. However, it is noted that since the proposed M40 to A43 direct slip road would not be in place, the significant traffic flow associated with this movement would use the M40 northbound diverge in the DS2A scenario, and hence the improvement is relatively modest when compared to the DS1 and DS3A scenarios. In the DS2A scenario the V/C ratio on the M40 southbound merge increases by 2%.

- There are no material changes in V/C ratios across Bicester with the first phase of the OxSRFI Proposed Development in place, including the A41 corridor.

- In the RC2A scenario there is significant congestion shown at Middleton Stoney, with the B430 north and B4030 west approaches shown to have V/C ratios above 100%. In the DS2A scenario, there would be no material change in the V/C ratios across the junction.

- The V/C ratio on the M40 southbound diverge and A41 approaches to M40 Junction 9 are above 100% in both the RC2A and DS2A scenarios, with no material change between the scenarios. The V/C ratio on the A34 approach decreases from 99% to 90% with the first phase of the Proposed Development in place.

- There are no material changes to the V/C on the A34 west of M40 Junction 9 and west of the junction with the B430 with the first phase of the OxSRFI Proposed Development in place.

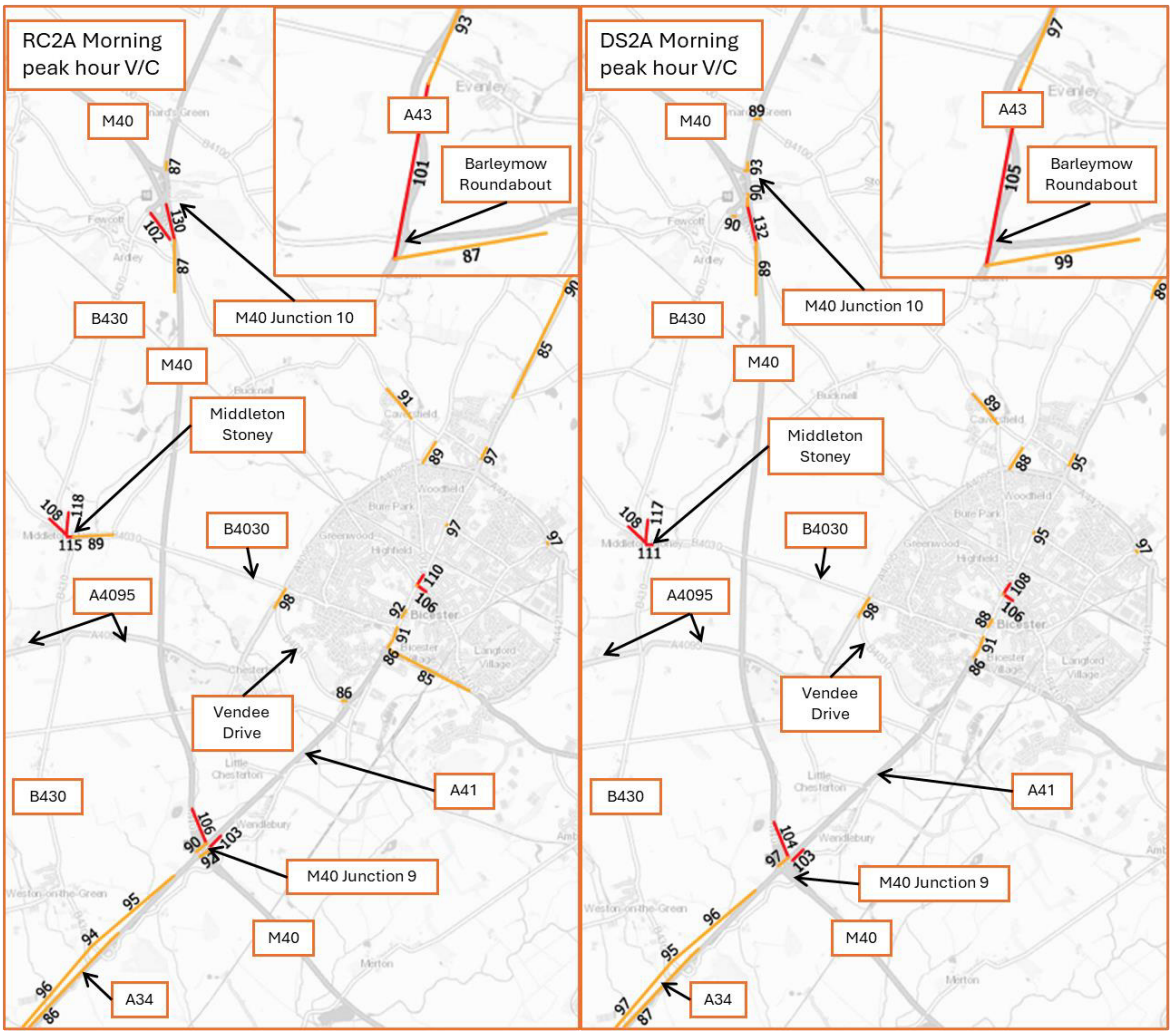


Figure 9.13: extracts of the RC2A and DS2A AM V/C plots, Appendix N, Forecasting Report

9.132 **Figure 9.14** below compares the link and node V/C ratios for the 2031 RC2A evening peak hour scenario (left-hand side) and the 2031 DS2A evening peak hour scenario (right-hand side). The key observations are as follows:

- The V/C ratio on the A43 southbound approach to the Barleymow Roundabout would increase from 88% in the RC2A scenario to 94% in the DS2A scenario. **Figure 9.14** also shows that the V/C ratio on the A43 northbound approach would increase from below 85% to 87% with the first phase of the OxSRFI Proposed Development in place.

- The V/C ratio on the M40 Junction 10 northbound diverge and southbound merge are above 100% in the RC2A scenario. In the DS2A scenario with the first phase of the embedded Highway Works in place, the V/C ratio on the M40 northbound diverge would reduce to below 85% on account of the improvement works at the Ardley Roundabout. In the DS2A scenario the V/C ratio on the M40 southbound merge decreases by 4%.

- The V/C ratio on the M40 northbound between Junction 9 and 10 would be 96% in both the RC2A and DS2A scenarios.

- There are no material changes in V/C ratios across Bicester with the first phase of the OxSRFI Proposed Development in place, including the A41 corridor.

- In the RC2A scenario there is significant congestion shown at Middleton Stoney, with the V/C ratio on the B430 south approach shown to be over 100%, and the B4030 east and west approaches shown to have V/C ratios of 97% and 99%, respectively. In the DS2A scenario, there would be no material change in the V/C ratios across the junction.

- The V/C ratio on the M40 southbound diverge and A41 approaches to M40 Junction 9 are above 100% in both the RC2A and DS2A scenarios, with the V/C ratio on the M40 southbound diverge increasing by 1% in the DS2A scenario, and the V/C ratio on the A41 approach increases by 3%. The V/C ratio on the A34 approach decreases from 95% to 88% with the first phase of the Proposed Development in place.

- There are no material changes to the V/C on the A34 west of M40 Junction 9 and west of the junction with the B430 with the first phase of the OxSRFI Proposed Development in place.

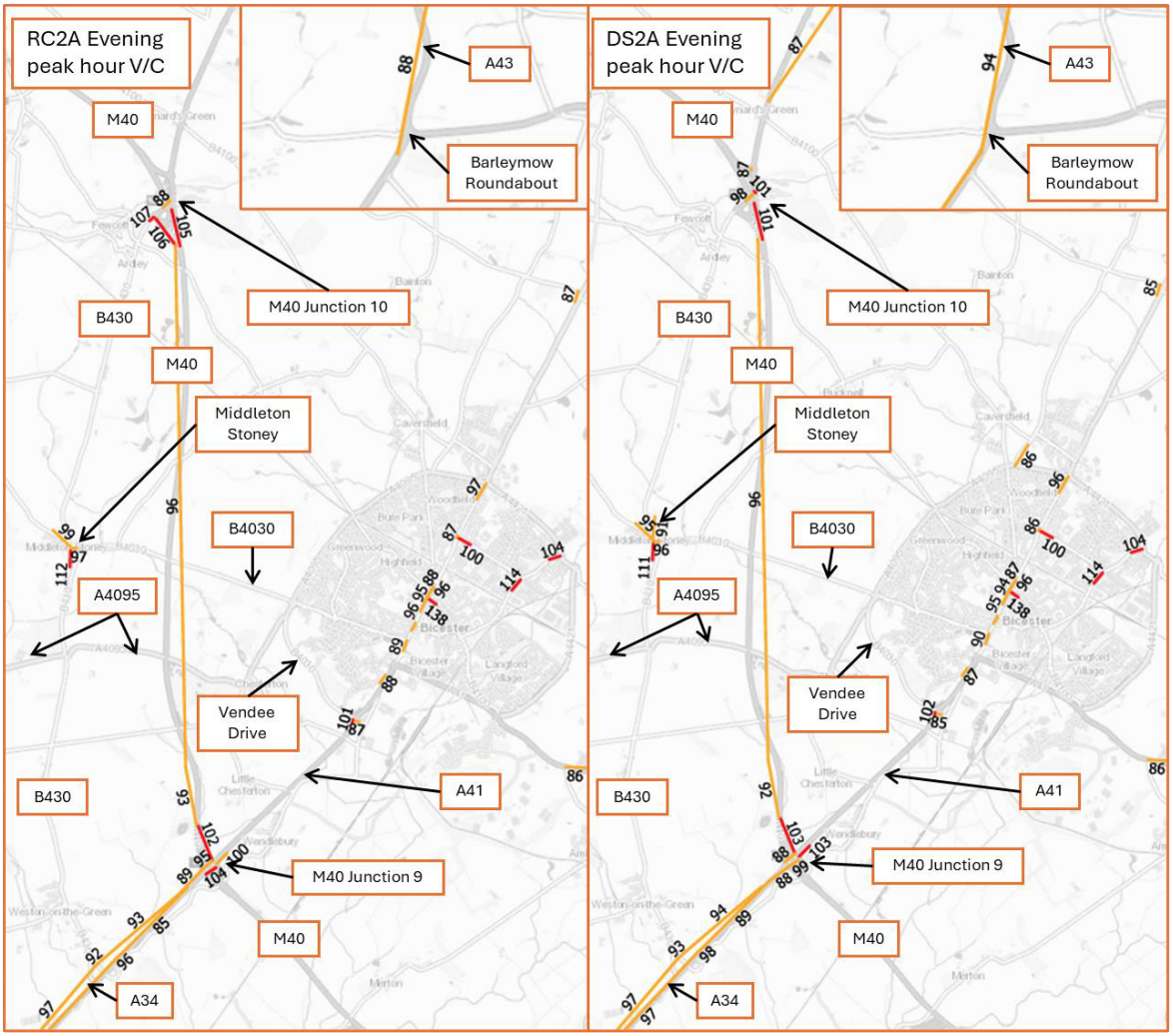


Figure 9.14: extracts of the RC2A and DS2A PM V/C plots, Appendix N, Forecasting Report

2031 DS2AwTP scenario

9.133 Comparing the DS2A and DS2AwTP scenarios shows that whilst there are reductions in the actual flows across the local highway network when the **Framework Travel Plan** is taken in to account, there are no material differences in terms of the traffic flow difference or the V/C ratios that would alter the conclusions of the analysis detailed above.

9.134 As discussed above, OCC's Local Transport and Connectivity Plan (LTCP5) aims to remove 1 out of every 4 current car trips in Oxfordshire by 2030 (a 25% reduction in car trips), but this policy has not been modelled in the BTM. Should OCC be successful in achieving this target, the reduction in background traffic would mean that the local highway network would operate with additional capacity in the 2031 Opening Year scenario.

2031 Opening Year summary

9.135 The first phase of the Proposed Development would add a relatively modest number of vehicle trips to the highway network. The Opening Year development traffic distribution is very similar to the 2034 Completion Year scenario, with the largest increases in traffic flow due to first phase OxSRFI development vehicles forecast along the M40 to the south of Junction 10 and the A43 between the M40 Junction 10 and the Barleymow Roundabout.

9.136 Inspection of the traffic flow changes on these routes shows that the increases are not solely due to the addition of development traffic, with a significant proportion of the traffic flow increases attributed to both background traffic reassignment and the release of suppressed demand. On the local highway network, there would be modest traffic increases on the B4030 Middleton Stoney Road, Somerton Road, the B430 north of Middleton Stoney and the A4095 east and west of the B430. There would be a significant traffic reduction through Ardley and modest reductions on the B4100 east of Baynard's Green, the A41, Fritwell Road and Upper Heyford Road.

9.137 For the M40 and A43 corridors, analysis of the V/C ratios shows that the effect of the embedded Highway Works is to remove significant existing capacity constraints at M40 Junction 10, which accommodate the traffic due to the Proposed Development, the suppressed background traffic demand and also additional background traffic which reassigns to the A43 corridor as the preferred route because the overall journey times on the corridor would be reduced in comparison to the reference case. Returning background traffic to the higher category roads and away from the local road network is a positive effect.

9.138 The most prominent effect on the local highway network occurs in the evening peak hour, with background traffic between Bicester and traffic accessing the M40 at Junction 10 reassigning from the B4100, the B430 and the A41 (switching from accessing the M40 at J9) to instead route via Middleton Road and Ardley Road to reach M40 Junction 10. This occurs in the BTM because this becomes the quickest route in the DS2A scenario because the Ardley Bypass leads to the remove of existing delay at the B430/Ardley Road junction.

9.139 However, this reassignment is would not occur in practice because the first phase embedded Highway Works introduces the proposed WCH improvement scheme on Middleton Road Bridge, which will be signalised to create a one-way shuttle system for traffic. This will add up to a 55 second delay to this route for drivers. Further, speed limits on Middleton Road and Ardley Road will be reduced to 40 mph from derestricted as part of the Proposed Development, which would further increase journey times of this route. These interventions form part of the Phase 1 Highway Works but are not included in the BTM, which therefore overestimates the appeal of this route. With these measures in place, the journey time saving would not be realised. Hence the forecast traffic increases on these roads will not occur in practice, as the route would not offer any journey time saving. In practice drivers would not switch route and would remain on their existing route.

9.140 The V/C analysis shows that the first phase of the embedded Highway Works would provide improvements at M40 Junction 10, especially at the northbound diverge and Ardley Roundabout. The interim improvement to the southbound merge would also be beneficial, resulting in some suppressed demand being released. The A43 approaches to Barleymow Roundabout and M40

Junction 9 would be congested, but the first phase development would not severely impact these junctions in comparison to the Reference Case. There would be no material V/C changes across the local highway network, though the Middleton Stoney crossroads remains congested in both the RC2A and DS2A scenarios as the MSRR is not delivered until Phase 2.

9.141 Analysis of the BTM modelling of the 2031 Opening Year scenario shows:

- There would be minimal adverse effects across Bicester and the local highway network.
- The traffic increases on the SRN are manageable, some of which are driven by released suppressed demand rather than development trips.
- The most prominent reassignment effect on the local highway network would not materialise in practice due to the embedded Highway Works to be introduced on Middleton Road and Ardley Road as part of the Phase 1 Highway Works (which are not modelled in the BTM).
- The BTM analysis indicates that, with the first phase of the embedded highway works delivered, the 2031 Opening Year impacts are limited and not severe.

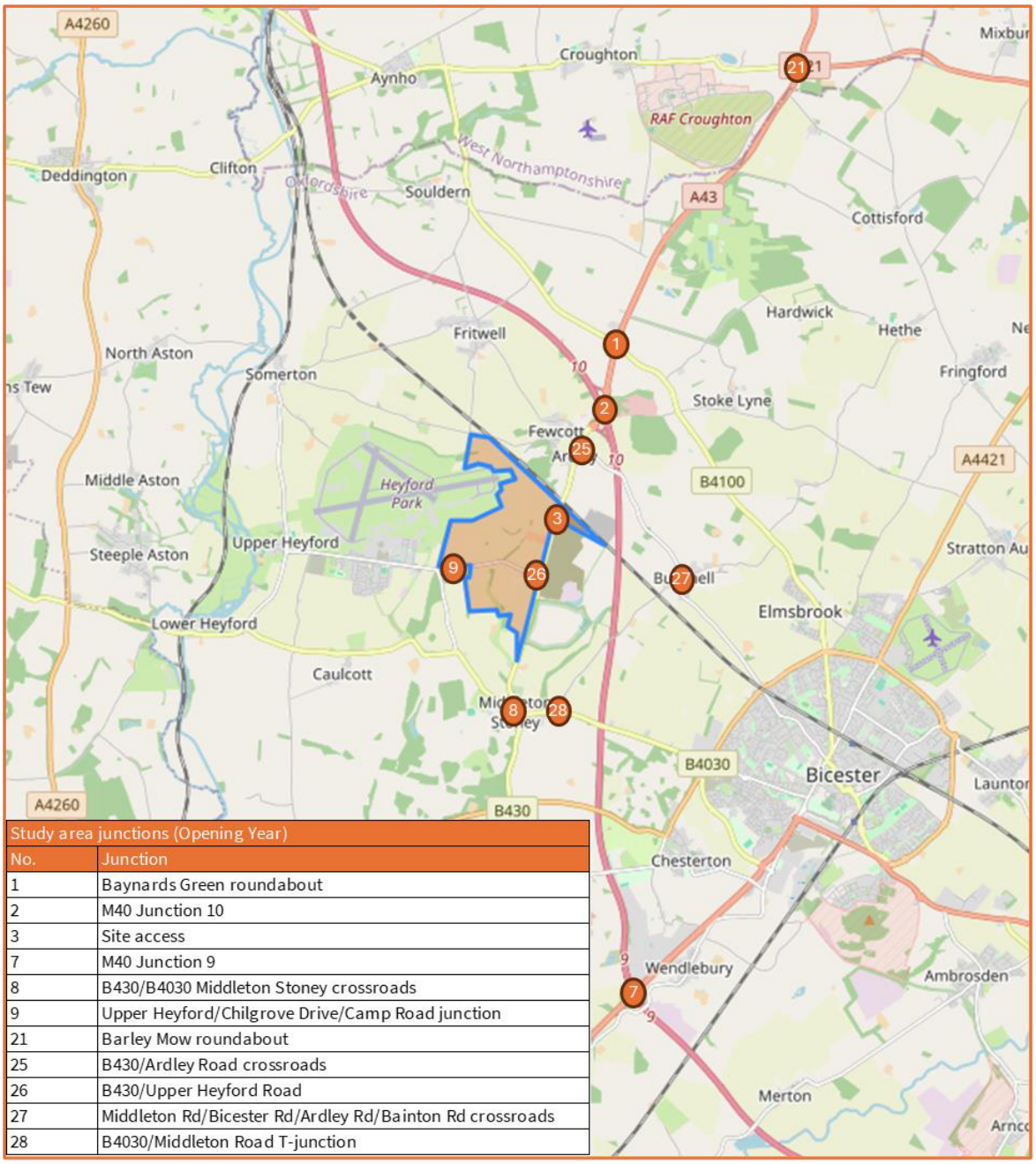
Opening Year study area

9.142 The analysis of the 2031 RC2A and DS2A BTM scenarios detailed above illustrates the likely effects on the highway network due to the first phase of the OxSRFI Proposed Development in the 2031 Opening Year, indicating where changes to traffic volumes and congestion are likely to occur. This analysis was used to help identify a study area for the Opening Year detailed transport modelling.

9.143 On the SRN, the above analysis identifies material changes in traffic flow and/or increases in the V/C ratio at the A43 Barley Mow Roundabout, the A43 Baynard's Green Roundabout, M40 Junction 10 and M40 Junction 9. On the local highway network, the key traffic flow and/or increases in V/C ratios occur on the B430 corridor between the Principal Access and Middleton Stoney, the route between Bicester and Ardley via Middleton Road and Bucknell, and the Upper Heyford Road route to Heyford Park.

9.144 As explained above, the Phase 1 Highway Works include interventions on Middleton Road and Ardley Road that are not included in the BTM, which therefore overestimates the appeal of this route. With the measures in place, the journey time saving would not be realised. Nonetheless, the B4030 Middleton Stoney Road/Middleton Road T-junction and the crossroads junction in the centre of Bucknell have been included in the Opening Year study area for detailed assessment.

9.145 The resulting study area for the Opening Year detailed modelling that is assessed in **Chapter 12** is shown at **Figure 9.15**. The study area was discussed and agreed with the TWG.



Study area junctions (Opening Year)	
No.	Junction
1	Baynards Green roundabout
2	M40 Junction 10
3	Site access
7	M40 Junction 9
8	B430/B4030 Middleton Stoney crossroads
9	Upper Heyford/Chilgrove Drive/Camp Road junction
21	Barley Mow roundabout
25	B430/Ardley Road crossroads
26	B430/Upper Heyford Road
27	Middleton Rd/Bicester Rd/Ardley Rd/Bainton Rd crossroads
28	B4030/Middleton Road T-junction

Figure 9.15: agreed study area for Opening Year detailed transport modelling

10.0 ASSESSMENT FLOWS

Study area turning movement data

10.1 The morning and evening peak hour traffic flows for the detailed modelling of the study area junctions in the identified scenarios have been extracted from the BTM. The traffic flows have been expressed as total vehicles, lights, HGVs, HGV percentages and also PCUs.

10.2 The relevant turning movement data for the 2031 Opening Year scenario, 2031 DfT 01/2022 Circular scenario, 2034 Completion Year scenario and the 2042 Local Plan (sensitivity test) scenario are provided in the Forecasting Report (**Appendix 14**) appendices as set out in **Table 10.1**, **Table 10.2**, **Table 10.3** and **Table 10.4**, respectively.

Table 10.1: 2031 Opening Year study area turning movements

Description	ID	Forecasting Report Appendix
Reference Case	RC2A	Appendix M
Do Something	DS2A	
Do Something with Travel Plan	DS2AwTP	

Table 10.2: 2031 DfT 01/2022 Circular study area turning movements

Description	ID	Forecasting Report Appendix
Reference Case	RC1	Appendix M
Reference Case with Albion Land	RC1A	
Do Something	DS1	
Do Something with Albion Land	DS1A	

Table 10.3: 2034 Completion Year study area turning movements

Description	ID	Forecasting Report Appendix
Reference Case	RC3A	Appendix G
Do Something	DS3A	
Do Something with Travel Plan	DS3AwTP	
Do Something with Tritax	DS5A	Appendix S

Table 10.4: 2042 Local Plan (sensitivity test) study area turning movements

Description	ID	Forecasting Report Appendix
Reference Case	RC4A	Appendix Y
Do Something	DS4A	
Do Something with Travel Plan	DS4AwTP	

10.3 At some study area junctions included in the wider study area assessment (**Appendix 45**) where irregularities have been identified with the turning movements, observed traffic count data has been used to make appropriate adjustments or form the basis of the calculation of sensitivity test turning movements. In these instances, the traffic count data and subsequent calculations are presented.

M40 Junction 10 cordon traffic flows for VISSIM modelling

10.4 The peak hour traffic flows for the micro-simulation (VISSIM) modelling of the A43 Baynard's Green, M40 Junction 10, Ardley Bypass and Principal Access network have been provided in matrix format. To extract the required O-D matrices, a cordon was created in the BTM, as described in Section 7 of the BTM Forecasting Report (**Appendix 14**).

10.5 The cordon turning movement matrices used in the VISSIM for the 2031 Opening Year, 2031 DfT 01/2022 Circular scenario, 2034 Completion Year scenario and the 2042 Sensitivity Test scenario are provided in the BTM Forecasting Report (**Appendix 14**) appendices listed in **Table 10.5**, **Table 10.6**, **Table 10.7** and **Table 10.8.**

Table 10.5: 2031 Opening Year M40 Junction 10 traffic flow matrices

Description	ID	Forecasting Report Appendix
Reference Case	RC2A	Appendix L
Do Something	DS2A	
Do Something with Travel Plan	DS2AwTP	

Table 10.6: 2031 DfT 01/2022 Circular M40 Junction 10 traffic flow matrices

Description	ID	Forecasting Report Appendix
Reference Case	RC1	Appendix L
Reference Case with Albion Land	RC1A	
Do Something	DS1	
Do Something with Albion Land	DS1A	

Table 10.7: 2034 Completion Year M40 Junction 10 traffic flow matrices

Description	ID	Forecasting Report Appendix
Reference Case	RC3A	Appendix F
Do Something	DS3A	
Do Something with Travel Plan	DS3AwTP	
Do Something with Tritax	DS5A	Appendix R

Table 10.8: 2042 Sensitivity Test M40 Junction 10 traffic flow matrices

Description	ID	Forecasting Report Appendix
Reference Case	RC4A	Appendix X
Do Something	DS4A	
Do Something with Travel Plan	DS4AwTP	

M40 Junction 10 traffic flows for LinSig modelling

10.6 Due to a difference in the VISSIM and LinSig zoning structure, the above detailed VISSIM cordon have been adjusted to give suitable flow matrices for use in the Baynard's Green and M40 Junction 10 LinSig network models detailed in **Chapter 11**. These adjustments are as follows:

- For the Reference Case and Do-Something case scenarios, VISSIM zones 5, 8 and 9 are grouped together.
- In the with Albion Land scenarios, VISSIM zones 7 and 10 are grouped together (Albion Lane western access is not modelled).
- For the 2031 DS1 scenario, VISSIM zones 10 and 11 are grouped together.
- For the remaining Do-Something scenarios, VISSIM zones 12 and 13 are grouped together.

10.7 The turning movement matrices used in the M40 Junction 10 LinSig network models for the 2031 Opening Year, 2031 DfT 01/2022 Circular scenario, 2034 Completion Year scenario and the 2042 Sensitivity Test scenario are provided in the appendices listed in **Table 10.9.**

Table 10.9: M40 Junction 10 LinSig network traffic flow matrices

Appendix	Scenario	Scenario ID
Appendix 49	Reference Case	RC1, RC1S
Appendix 51	Do-Something case	DS1, DS1S
Appendix 53	Reference Case (with Albion Land)	RC1A, RC2A, RC3A, RC4A
Appendix 55	Do-Something case (with Albion Land	DS1A, DS3A, DS4A, DS5A
Appendix 69	Do-Something case Opening Year	DS2A

11.0 DETAILED HIGHWAY ASSESSMENT

Introduction

11.1 This section confirms the suitability of the proposed highway mitigation works using the assessment traffic flows identified in **Chapter 10**. It is structured as follows:

- The results of the detailed junction modelling at Baynard's Green, M40 Junction 10 and the Principal Access junction are discussed;
- The conclusions of the VISSIM assessment of Baynard's Green, M40 Junction 10, Ardley Bypass, and the Principal Access junction are summarised;
- The results of the detailed assessment of the remaining embedded Highway Works junctions are presented; and
- A summary of the detailed assessment of the wider study area is presented.

11.2 **Table 11.1** below sets out the traffic flow scenarios that have been modelled at each of the study area junctions.

Junction 1 and 2 – A43 Baynard's Green and M40 Junction 10 LinSig assessments

Detailed modelling scenarios

11.3 Ensuring good access to the SRN is a prerequisite for the proposed OxSRFI development. Since it was established in November 2020, the Applicant has worked closely with the TWG to agree key components of the transport measures required to support an application for OxSRFI via the Development Consent Order process. This included significant work on the form and layout of the highway access strategy for the site, identifying that the provision of significant improvements to M40 Junction 10, including the A43 Baynard's Green junction, would be required to accommodate the traffic from the Proposed Development. The evolution of the Baynard's Green and M40 Junction 10 proposals is set out in **Chapter 8**.

11.4 As discussed in **Chapter 7**, following the CDC planning committee meeting of 3 July 2025 and the resolution to grant planning permission for the Albion Land[20] development, it was agreed with the TWG that the assessment of the transport effects of the Proposed Development should include the highway works at A43 Baynard's Green junction associated with that application. Accordingly, the transport modelling was updated to include the Albion Land scheme in the Reference Case. However, no decision notice was issued for the Albion Land scheme, and it was taken back to planning committee by CDC on 15 January 2026 and refused.

11.5 Therefore, given the uncertainty regarding the Albion Land development, it is appropriate regarding the layout and operation of the A43 Baynard's Green junction and M40 Junction 10 to also consider the relevant scenario without the Albion Land scheme and their proposed improvement scheme at Baynard's Green. That being the RC1 and DS1 scenarios given in **Table 7.1**. The detailed assessment work has considered two alternative arrangements for the proposed Highway Works at the A43 Baynard's Green junction:

1) an OxSRFI only scheme (Highway Plans **Document 2.7A**) assessed in the DS1 scenario

2) an alternative scheme which enhances (builds upon) the Albion Land highway works at the junction, should that scheme be successful in overturning the refusal at appeal (Highway Plans **Document 2.7W**) assessed in the DS1A, DS3A and DS4A scenarios.

[20] Albion Land scheme (planning applications references 21/03268/OUT, 21/03267/OUT, and 21/03266/F)

Table 11.1: summary of detailed modelling scenarios at study area junctions

No.	Junction	RC1	RC1A	RC3A	RC4A	DS1	DS1A	DS3A	DS3AwTP	DS4A	DS4AwTP	DS5A
1	Baynards Green roundabout	✓	✓	✓	✓	✓	✓	✓		✓		✓
2	M40 Junction 10	✓	✓	✓	✓	✓	✓	✓		✓		✓
3	Site access							✓	✓	✓	✓	✓
4	B430/HPLR T-junction							✓	✓	✓	✓	
5	B430/MSRR T-junction							✓	✓	✓	✓	
6	MSRR/B4030 roundabout							✓	✓	✓	✓	
7	M40 Junction 9		✓	✓			✓	✓				
8	B430/B4030 Middleton Stoney crossroads			✓	✓			✓	✓	✓	✓	
9	Upper Heyford/Chilgrove Drive/Camp Road junction			✓	✓			✓	✓	✓	✓	
10	Middleton Stoney Road/Empire Road			✓	✓			✓	✓	✓	✓	
11	B4030 Middleton Stoney Road/Howes Lane roundabout			✓	✓			✓	✓	✓	✓	
12	Middleton Stoney Road/Shakespeare Drive roundabout			✓	✓			✓	✓	✓	✓	
13	Middleton Stoney Road/Kings End/Oxford Road			✓				✓	✓			
14	A41 Oxford Road/Vendee Drive roundabout			✓	✓			✓	✓	✓	✓	
15	A41 Oxford Road/Oxford Road/A41 east			✓	✓			✓	✓	✓	✓	
16	A4095 Southwolds Lane/Fringford Road			✓	✓			✓	✓	✓	✓	
17	A4260 Oxford Road/B4030 signal controlled crossroads			✓	✓			✓	✓	✓	✓	
18	Banbury Road/B4027 T-junction			✓	✓			✓	✓	✓	✓	
19	Banbury Road/Upper Campsfield Road T-junction			✓	✓			✓	✓	✓	✓	
20	A4095 Bunkers Hill/Lince Lane T-junction			✓	✓			✓	✓	✓	✓	
21	Barley Mow roundabout	✓	✓			✓	✓					
22	A43 Groves roundabout	✓	✓			✓	✓					
23	A43/Brackley Bypass roundabout	✓	✓			✓	✓					
24	A421/Buckingham Road roundabout			✓	✓			✓	✓	✓	✓	

NB: following agreement of the study area for detailed assessment, OCC requested that the two Himley Village development access junctions, located on the B4030 east of the MSRR, be modelled to ensure that they would operate acceptably with the Proposed Development and embedded Highway Works in place. These junctions are assessed in the 'Wider Study Area Transport Modelling' technical note (**Appendix 45**).

Network LinSig model development

11.6 As part of the Stage 1 Transport Modelling, work was undertaken to prepare network models in LinSig such that the model could be used as a design tool to assist the evolution of the proposals and also enable an assessment of the proposals in terms of journey times through M40 Junction 10 and the A43 Baynard's Green junction, and examine the operation of the junction complex.

11.7 The LinSig models were prepared for the Reference Case and the Do-Something scenarios as they emerged, including the Baynard's Green roundabout and the full complex of junctions that make up M40 Junction 10 (Padbury roundabout, Cherwell roundabout and Ardley roundabout). The Reference Case and Do-Something models include the now constructed Growth Deal improvement scheme at the Padbury junction. Further, to fully consider the scenarios described at paragraph 11.5 above, two versions of the Reference Case and Do Something models have been developed to test the options for the OxSRFI only scheme at Baynard's Green and also the alternative Baynard's Green scheme and the eastern Albion Land site access junction[21].

11.8 Both the Reference Case and Do-Something models are built on agreed principles regarding saturation flows, phase/stage structures and intergreens. These models have been audited on multiple occasions by Aecom on behalf of National Highways and are suitable to be used in the Stage 3 transport modelling report.

Operational capacity – OxSRFI only scheme at the A43 Baynard's Green

11.9 The' Stage 3 Transport Modelling Interim Report' (**Appendix 28**) presented an assessment of the performance of M40 Junction 10 and Baynard's Green covering operational capacity, an analysis of journey times through the model and a merge/diverge assessment at M40 Junction 10. The analysis of journey times through Baynard's Green and M40 Junction 10 has been superseded by the VISSIM modelling which presented later in this section and the merge/diverge assessments are presented in the Design Strategy Record report provided at **Appendix 31**.

11.10 Hence, the analysis below focuses on the changes to operational capacity at Baynard's Green and M40 Junction 10 using the above described LinSig models, with the Reference Case and Do Something morning and evening peak hour traffic flows scenarios identified at **Table 11.1**. The 2031 RC1 LinSig model report and traffic flows are provided at **Appendices 49 and 50**, and the 2031 DS1 LinSig model report and traffic flows are provided at **Appendices 51 and 52**.

11.11 **Table 11.2** provides a comparison between the forecast capacity in the future baseline 2031 RC1 scenario at M40 Junction 10 and the A43 Baynard's Green junction, with the forecast operating capacity at the junctions in the 2031 DS1 scenario (with OxSRFI and embedded Highway Works).

Table 11.2: Baynard's Green and M40 Junction 10 detailed modelling results

Scenario		Network		Baynards Green		Padbury		Cherwell		Ardley	
		PRC	Total delay (PCUhr)	PRC	Total delay (PCUhr)	PRC	Total delay (PCUhr)	PRC	Total delay (PCUhr)	PRC	Total delay (PCUhr)
2031 RC1*	AM	-54.9%	327.57	-54.9%	281.4	12.2%	18.4	-4.2%	23.4	8.7%	4.4
	PM	-39.1%	185.62	-39.1%	126.4	11.6%	17.1	-10.9%	33.5	-0.9%	8.6
2031 DS1	AM	0.4%	109.36	0.4%	41.5	25.8%	31.7	10.1%	22.3	55.0%	13.2
	PM	4.5%	109.42	4.5%	39.9	13.4%	36.4	24.6%	18.3	46.5%	14.3

* Baynards Green and Ardley priority controlled roundabouts

[21] The eastern site access junction is included as it is a signal-controlled T-junction and it location means there is potential for interaction with the operation of the A43 Baynard's Green junction.

11.12 As shown, the A43 Baynard's Green, Cherwell and Ardley junctions would be over capacity in the 2031 future baseline (RC1) scenario in at least one of the peak hour periods. The Baynard's Green junction is forecast to suffer with severe congestion in both peak hours. **Table 11.3** below summaries the modelling results at Baynard's Green and shows that there would be significant queueing on the A43 north, B4100 east and B4100 west approaches in the RC1 morning peak hour, with significant queues on the B4100 east approach in the RC1 evening peak hour.

Table 11.3: A43 Baynard's Green RC1 and DS1 modelling results

Scenario	PRC (%)	A43 north		B4100 east		A43 south		B4100 west	
		RFC/DoS (%)	MMQ (pcus)	RFC/DoS (%)	MMQ (pcus)	RFC/DoS (%)	MMQ (pcus)	RFC/DoS (%)	MMQ (pcus)
2031 RC1 AM peak	-54.9%	110.3%	109.4	139.4%	128.1	87.5%	12.4	115.2%	61.9
2031 RC1 PM peak	-39.1%	89.5%	5.5	125.2%	109.8	96.0%	24.3	99.7%	14.3
2031 DS1 AM peak	0.4%	89.6%	17.9	79.0%	6.5	72.8%	10.2	79.6%	7.4
2031 DS1 PM peak	4.5%	86.1%	13.2	78.7%	6.8	81.2%	14.9	72.8%	4.8

11.13 The results summarised in **Tables 11.2 and 11.3** demonstrate that the embedded Highway Works in the 2031 DS1 scenario offer material capacity enhancements to accommodate background traffic growth up to 2031 and the OxSRFI development traffic. All four junctions in the modelled network are shown to operate with a positive practical reserve capacity (PRC), delivering an improvement in operating capacity at all three M40 Junction 10 junctions, particularly at the Ardley Roundabout, and a significant improvement in the performance of the A43 Baynard's Green junction.

RC1 and DS1 sensitivity test

11.14 As part of their work in reviewing the VISSIM modelling (presented later in this chapter) of the Baynard's Green and M40 Junction 10 network on behalf of National Highways, Aecom requested evidence to demonstrate that utilising traffic data directly from the BTM cordon is an appropriate methodology for testing the operation of the network. Modelling Group undertook a comparison between the 2016 traffic flow set that was used to validate the VISSIM model and the 2016 BTM traffic flows. The comparison showed that the there are no significant differences between the two flow sets in the BTM and VISSIM model for lights and HGVs, and hence the BTM flows should be acceptable (see Appendix C of the VISSIM 'Modelling Impact Assessment Report, provided at **Appendix 43**).

11.15 Whilst the results of the flow comparison was accepted, Aecom still had concerns over a small number of the O-D pairs in the BTM flow sets and therefore suggested that a Sensitivity Test be undertaken to demonstrate that these variances would not alter the conclusions that are drawn from the modelling. The Aecom suggested test involves adjusting the traffic flows from the BTM for the RC1 and DS1 scenarios (the 2031 DfT 01/2022 Circular scenario), by using the absolute differences from the Reference Case or Do-Something BTM flows against the Base BTM flows, which would then be applied to the 2016 base VISSIM flows. The sensitivity test traffic flow calculations are detailed in the VISSIM 'Modelling Impact Assessment Report - OxSRFI core scheme and Sensitivity Testing' report provided at **Appendix 42**.

11.16 To be consistent with the VISSIM modelling, the same sensitivity test has been undertaken in LinSig for the RC1 and DS1 scenarios. The 2031 RC1 LinSig model report and sensitivity traffic flows and are provided at **Appendices 49 and 50**, and the 2031 DS1 LinSig model report and sensitivity traffic flows and are provided at **Appendices 51 and 52**.

11.17 **Table 11.4** provides a comparison between the forecast capacity in the future baseline 2031 RC1 sensitivity scenario at M40 Junction 10 and the A43 Baynard's Green junction, with the forecast

operating capacity at the junctions in the 2031 DS1 sensitivity scenario (with OxSRFI and embedded Highway Works).

Table 11.4: Baynard's Green and M40 Junction 10 sensitivity test detailed modelling results

Scenario		Network		Baynards Green		Padbury		Cherwell		Ardley	
		PRC	Total delay (PCUhr)	PRC	Total delay (PCUhr)	PRC	Total delay (PCUhr)	PRC	Total delay (PCUhr)	PRC	Total delay (PCUhr)
2031 RC1 sensitivity*	AM	-99.1%	518.33	-99.1%	456.3	2.7%	18.5	-11.8%	39.4	8.4%	4.1
	PM	-72.0%	389.92	-72.0%	280.2	14.1%	16.3	-17.2%	84.0	-2.1%	9.5
2031 DS1 sensitivity	AM	-2.2%	117.75	-2.2%	41.8	17.8%	34.1	4.8%	25.2	39.0%	14.5
	PM	5.0%	113.26	5.0%	40.0	11.6%	38.3	27.1%	16.4	26.2%	18.0

* Baynards Green and Ardley priority controlled roundabouts

11.18 Comparing the results summarised in **Table 11.2 and 11.4** shows that in the RC1 sensitivity test the performance of the modelled network is worse in the sensitivity test scenario. Further inspection of the results shows that the largest difference between the RC1 and RC1 sensitivity scenarios occurs at the Baynard's Green Roundabout, but with the performance of Cherwell Roundabout also worse. The Baynard's Green junction is forecast to suffer with severe congestion in both peak hours. **Table 11.5** below summaries the sensitivity test results at Baynard's Green, and when compared to the results summarised in **Table 11.3** shows that it is the B4100 east and west approaches that see the greatest difference in the sensitivity test scenario in both peak hours. In the RC1 scenario, the B4100 approaches are forecast to be at or above 100% of their capacity, and since the flows on these approaches increase in the sensitivity test, the performance is seen to deteriorate significantly.

Table 11.5: A43 Baynard's Green RC1 and DS1 modelling results

Scenario	PRC (%)	A43 north		B4100 east		A43 south		B4100 west	
		RFC/DoS (%)	MMQ (pcus)	RFC/DoS (%)	MMQ (pcus)	RFC/DoS (%)	MMQ (pcus)	RFC/DoS (%)	MMQ (pcus)
2031 RC1 sensitivity AM peak	-99.1%	119.2%	155.0	179.1%	208.8	81.5%	11.4	114.5%	75.7
2031 RC1 sensitivity PM peak	-72.0%	89.6%	4.0	154.8%	200.4	101.0%	59.8	123.1%	65.8
2031 DS1 sensitivity AM peak	-2.2%	92.0%	20.0	86.1%	6.5	72.0%	9.5	78.9%	6.6
2031 DS1 sensitivity PM peak	5.0%	83.0%	13.1	82.9%	8.4	84.7%	16.5	68.9%	4.2

11.19 The results summarised in **Tables 11.4 and 11.5** demonstrate that the embedded Highway Works in the 2031 DS1 sensitivity test scenario offer material capacity enhancements to accommodate background traffic growth up to 2031 and the OxSRFI development traffic. All four junctions in the modelled network are shown to operate with a positive PRC, except for Baynard's Green in the morning peak hour which would be marginally above the 90% threshold at -2.2%, delivering an improvement in operating capacity at all three M40 Junction 10 junctions, particularly at the Ardley roundabout, and a significant improvement in the performance of the A43 Baynard's Green junction.

11.20 When compared to the DS1 results in **Table 11.2 and 11.3**, whilst there is slightly less headroom across the network in the sensitivity test, the differences are much less pronounced than in the reference case and the conclusion that the embedded Highway Works delivers significant benefits is unchanged.

Operational capacity – OxSRFI alternative scheme at the A43 Baynard's Green

11.21 The LinSig model report and Reference Case traffic flows and for the scenarios including the OxSRFI alternative Baynard's Green scheme and the Albion land east site access is provided at **Appendices 53 and 54**. This model includes for the scenarios RC1A, RC2A[22], RC3A and RC4A. The Reference Case model also includes the 2034 Do Minimum scenario which tests the impact of the

[22] RC2A is the Opening Year Reference Case and this is considered at **Chapter 12**.

OxSRFI development at Baynard's Green and M40 Junction 10 in the future baseline DM3A scenario.

11.22 The LinSig model report and Do Something traffic flows for the scenarios including the OxSRFI alternative Baynard's Green scheme and the Albion land east site access are provided at **Appendic 55 and 56**. This model includes for the scenarios DS1A, DS3A and DS4A. The Do Something model also includes the DS5A scenario, which is a sensitivity test examining the performance of Baynard's Green and M40 Junction 10 in the scenario in which the Tritax development is approved (see **Chapter 7**).

11.23 For the scenarios in which Albion Land is consented, **Table 11.6** below provides a comparison between the forecast capacity at the future baseline 2031, 2034 and 2042 Reference Case scenarios at M40 Junction 10 and the A43 Baynard's Green junction, with the forecast operating capacity at the junctions in the 2031, 2034 and 2042 Do Something scenarios (with the OxSRFI development and embedded Highway Works).

11.24 As shown, the A43 Baynard's Green, Cherwell and Ardley junctions would be over capacity in the 2031 RC1A scenario in at least one of the peak hour periods. The Albion Land improvement scheme at the A43 Baynard's Green is shown to provide a material improvement in performance when compared to the RC1 scenario (**Table 11.2**), though the junction would have a negative PRC in the RC1A and RC3A evening peak hour scenarios.

Table 11.6: Baynard's Green and M40 Junction 10 detailed modelling results (with Albion Land)

Scenario		Network		Baynards Green		Padbury		Cherwell		Ardley	
		PRC	Total delay (PCUhr)	PRC	Total delay (PCUhr)	PRC	Total delay (PCUhr)	PRC	Total delay (PCUhr)	PRC	Total delay (PCUhr)
2031 RC1A*	AM	-11.0%	116.20	3.4%	34.4	4.5%	17.8	-11.0%	51.8	5.7%	5.7
	PM	-4.1%	112.42	-2.6%	44.9	14.4%	20.4	-2.7%	28.2	-4.1%	11.4
2031 DS1A	AM	2.8%	114.08	2.8%	40.3	25.1%	32.4	9.5%	22.7	53.9%	13.2
	PM	4.6%	116.46	4.6%	41.3	14.5%	36.9	23.6%	18.6	42.9%	14.4
2034 RC3A*	AM	-17.4%	179.05	2.6%	33.8	1.4%	20.3	-17.4%	111.8	4.4%	6.3
	PM	-7.3%	132.32	-6.5%	51.6	11.1%	22.8	-4.0%	31.2	-7.3%	18.4
2034 DM3A	AM	-46.0%	441.00	2.2%	39.1	0.3%	21.1	-46.0%	364.3	5.3%	9.0
	PM	-13.4%	154.82	-7.3%	43.9	13.5%	19.7	-13.4%	60.6	-7.9%	21.3
2034 DS3A	AM	1.5%	132.42	2.2%	46.8	12.6%	38.5	1.5%	27.9	57.1%	13.5
	PM	3.4%	126.28	3.4%	45.9	8.8%	43.0	19.7%	17.2	30.7%	14.9
2042 RC4A*	AM	-29.7%	311.38	0.6%	42.0	-1.0%	24.5	-29.7%	227.4	1.1%	9.3
	PM	-15.3%	196.88	-8.6%	55.3	6.9%	25.9	-8.8%	39.7	-15.3%	62.9
2042 DS4A	AM	-0.6%	155.03	1.0%	52.6	2.4%	50.7	-0.6%	30.2	36.9%	15.7
	PM	0.3%	148.72	0.3%	52.0	4.4%	51.3	15.9%	18.8	7.6%	20.1
2034 DS5A	AM	-1.1%	136.18	1.6%	46.9	9.3%	41.1	-1.1%	27.2	55.8%	14.1
	PM	0.5%	140.50	0.5%	51.2	6.5%	44.3	16.1%	18.4	25.0%	18.9

* Ardley priority controlled roundabout

11.25 The Padbury junction is shown to operate acceptably in all Reference Case scenarios. However, the results in **Table 11.6** show that the Cherwell roundabout would have a negative PRC in all modelled Reference Case scenarios, with significant congestion shown in the RC1A, RC3A and RC4A morning peak hours. **Table 11.7** shows that this capacity constraint is on the A43 southbound approach, with significant queuing and delays in the Reference Case evening peak hour scenarios. The severe congestion forecast at the Cherwell roundabout in the Reference Case scenarios LinSig modelling relates to the capacity constraint on the A43 southbound approach only and does not reflect the forecast congestion due to the substandard M40 southbound merge that is identified in the BTM Reference Case modelling discussed in **Chapter 9**.

Table 11.7: Cherwell roundabout modelling results

Scenario	PRC (%)	A43 north		MSA		A43 south	
		DoS (%)	MMQ (pcus)	DoS (%)	MMQ (pcus)	RFC (%)	MMQ (pcus)
2031 RC1A AM peak	-11.0%	99.9%	51.3	58.0%	5.4	54.0%	0.6
2031 RC1A PM peak	-2.7%	92.4%	26.5	45.5%	4.2	54.0%	0.6
2031 DS1A AM peak	9.5%	82.2%	14.5	69.5%	6.0	N/A	0.0
2031 DS1A PM peak	23.6%	72.8%	10.3	52.9%	4.7	N/A	0.0
2031 RC3A AM peak	-17.4%	105.7%	84.0	56.7%	5.5	51.9%	0.5
2031 RC3A PM peak	-4.0%	936.0%	28.2	42.1%	4.3	55.4%	0.6
2031 DS3A AM peak	1.5%	88.7%	18.3	84.1%	7.9	N/A	0.0
2031 DS3A PM peak	19.7%	75.2%	10.9	54.7%	4.9	N/A	0.0

11.26 **Table 11.6** shows that the Ardley roundabout would also be over capacity in the Reference Case evening peak hour scenarios.

11.27 **Table 11.6** shows that in the 2034 Do Minimum DM3A scenario there would be significant congestion at the Cherwell roundabout in the morning peak hour, and impacts at Baynard's Green, Cherwell and Ardley in the evening peak hour. The poor operational performances across M40 Junction 10 are evident despite the BTM analysis presented in **Chapter 9** showing that with no improvements to M40 Junction 10, OxSRFI traffic would displace background traffic onto less desirable routes and hence the true demand at the junction is not reflected in the detailed modelling.

11.28 In the Do Something scenarios, **Table 11.6** demonstrates that all four junctions would operate with a positive PRC in the DS1A and DS3A scenarios. This demonstrates that the embedded Highway Works in the 2031 and 2034 Do Something scenarios offer material capacity enhancements to accommodate background traffic growth up to 2034 and the OxSRFI development traffic. In the 2042 Sensitivity Test DS4A scenario the results show that the Baynard's Green, Padbury and Ardley junctions would have a positive PRC in the morning and evening peak hours. Whilst the Cherwell roundabout would have a negative PRC in the 2042 DS4A morning peak hour of -0.6%, it would not suffer from material queuing or delay and would perform significantly better than in the equivalent 2042 RC4A scenario.

11.29 For the 2034 DS5A sensitivity test scenario with Tritax, **Table 11.6** demonstrates that the Baynard's Green, Padbury and Ardley junctions would have a positive PRC in the morning and evening peak hours. Whilst the Cherwell roundabout would have a negative PRC in the 2034 DS5A morning peak hour of -1.1%, it would not suffer from material queuing or delay and would operate with headroom in the evening peak hour.

11.30 Therefore, the results summarised in **Tables 11.6 and 11.7** demonstrate that the embedded Highway Works in the 2031 DS1A and 2034 DS3A scenarios offer material capacity enhancements to accommodate background traffic growth up to 2034 and the OxSRFI development traffic. All four junctions in the modelled network are shown to operate with a positive PRC, delivering an improvement in operating capacity at M40 Junction 10 junction, particularly at the Ardley and Cherwell roundabouts. The results also demonstrate that the embedded Highway Works operate acceptably in the 2042 Sensitivity Test and in the 2034 sensitivity test scenario that also includes the Tritax development.

Junction 3 - Principal Access gyratory

11.31 The proposed Principal Access junction is shown on the Highway Plans **Document 2.7C**, with an extract of the general arrangement provided at **Figure 11.1** below. The junction is a partially traffic signal controlled gyratory, with the OxSRFI site access and Ardley Bypass approaches to operate under traffic signal control in simple two-stage nodes. The B430 northbound approach would operate under priority control. The left-turn from the site would be provided via a free-flow link, as part of the agreed access strategy, with a height restriction on the right turn movement from the site access preventing HGVs from travelling south on the B430.

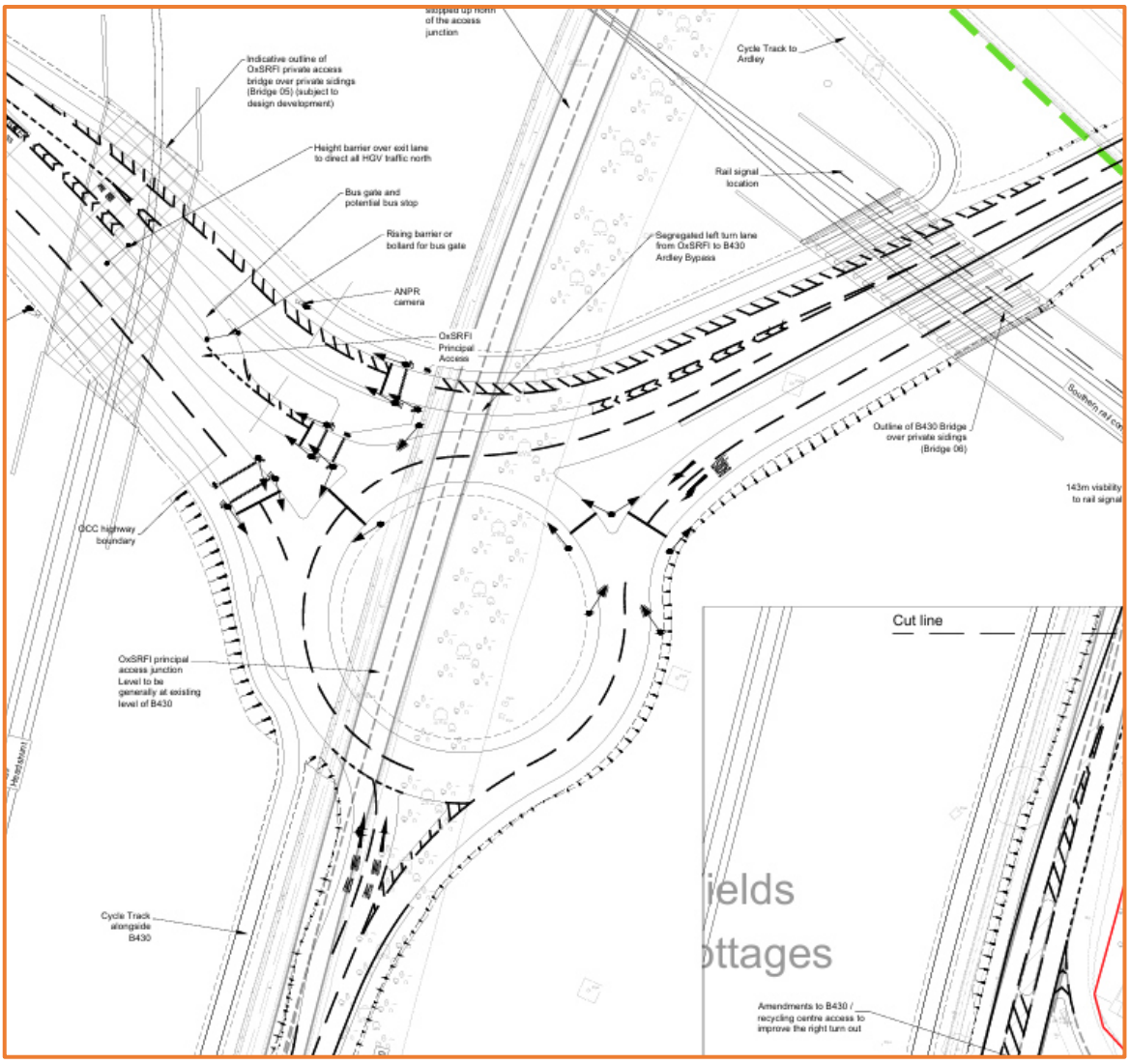


Figure 11.1: the Principal Access gyratory

11.32 The design also provides improved connectivity for pedestrians and cyclists as part of the **STS** (**Appendix 1**), with a staggered Toucan crossing on the site access arm connecting with the new footway/cycleway infrastructure that will be provided by OxSRFI alongside the B430.

11.33 The junction has been modelled in LinSig for the morning and evening peak hour traffic flow scenarios set out in **Table 11.1**. **Table 11.8** below provides a summary of the results and a copy of the LinSig assessment is provided at **Appendix 57**.

Table 11.8: Principal Access detailed modelling results

Scenario	Peak hour	Cycle time	Practical Reserve Capacity	Total delay (PCUhr)
2034 DS3A	AM	40	15.7%	7.24
	PM	40	58.7%	7.24
2034 DS3AwTP	AM	40	24.5%	5.65
	PM	40	89.7%	5.78
2042 DS4A	AM	40	0.5%	10.39
	PM	40	53.3%	7.79
2042 DS4AwTP	AM	40	6.8%	7.83
	PM	40	74.7%	6.06
2034 DS5A	AM	40	13.7%	7.50
	PM	40	58.3%	7.82

11.34 As shown, the PRC is positive in all modelled scenarios indicating that all links are operating less than 90% saturated and therefore the proposed junction would provide a satisfactorily access for the proposed development.

VISSIM microsimulation modelling

11.35 The operation of the A43 Baynard's Green, M40 Junction 10, Ardley Bypass, Principal Access, and B430 through Ardley have also been examined via a comprehensive VISSIM microsimulation modelling exercise undertaken by Modelling Group (specialist microsimulation modellers). That work is described in detail in the following two reports that are appended to the TA as follows:

- **Appendix 42** Modelling Impact Assessment Report - OxSRFI core scheme & Sensitivity Test
- **Appendix 43** Modelling Impact Assessment Report

11.36 As explained in **Chapter 7** and summarised in the above section, due to the uncertainty regarding the Albion Land development the detailed modelling assessment considers future scenarios with and without that development and its proposed highway improvement at the A43 Baynard's Green junction. The VISSIM microsimulation assessment has followed this same approach.

11.37 The 'Modelling Impact Assessment Report - OxSRFI core scheme & Sensitivity Test' report (**Appendix 42**) considers the future position without the Albion Land development. The scenarios considered are also set out at **Table 11.9**, and the comparison reported on are shown at **Table 11.10**. This VISSIM assessment also includes the RC1 and DS1 sensitivity test traffic flow groups (as calculated and presented within the report) following a request by Aecom on behalf of National Highways as described in the above 'RC1 and DS1 sensitivity test' section.

11.38 The 'Modelling Impact Assessment Report' (**Appendix 43**) considers the scenarios set out at **Table 11.9** which relate the potential future position should the Albion Land development be successful in overturning their refusal at appeal. **Table 11.10** sets out the comparisons reported in the 'Modelling Impact Assessment Report'. Note that to allow an understanding of the change in the operational performance of the network compared to the existing junction layout, a comparison of the DS1A to the RC1 (Reference Case without Albion Land) is also made.

Table 11.9: summary of scenarios modelled in VISSIM microsimulation

Scenario	Name	Model Impact Assessment Report - OxSRFI core scheme and Sensitivity Test	Model Impact Assessment Report
RC1	DfT Circular 01/2022	☑	☑
DS1	DfT Circular 01/2022	☑	☐
RC1 Sens Test	DfT Circular 01/2022	☑	☐
DS1 Sens Test	DfT Circular 01/2022	☑	☐
RC1A	DfT Circular 01/2022	☐	☑
DS1A	DfT Circular 01/2022	☐	☑
RC3A	2034 Completion Year	☐	☑
DS3A	2034 Completion Year	☐	☑
RC2A	2031 Opening Year	☐	☑
DS2A	2031 Opening Year	☐	☑

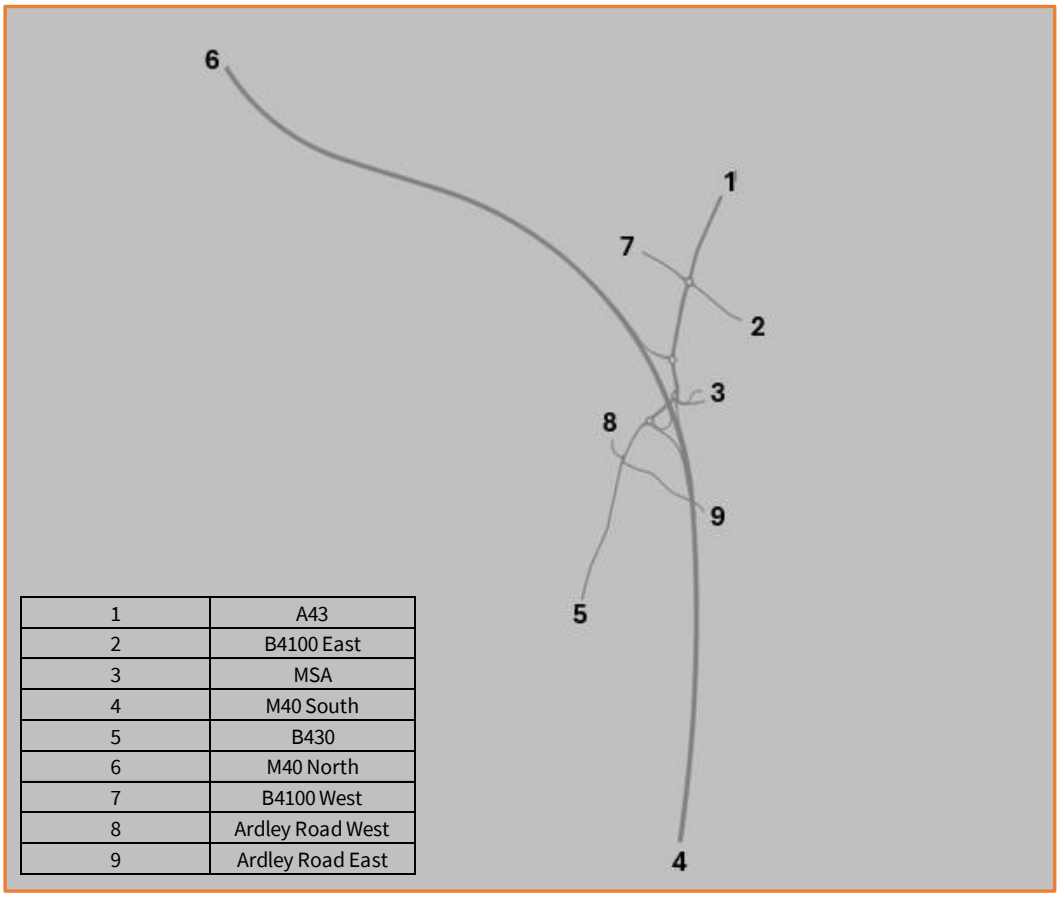
Table 11.10: summary comparisons undertaken in VISSIM microsimulation

Scenario comparison	Name	Model Impact Assessment Report - OxSRFI core scheme and Sensitivity Test	Model Impact Assessment Report
DS1 to RC1	DfT Circular 01/2022	☑	☐
DS1 Sens Test to RC1 Sens Test	DfT Circular 01/2022	☑	☐
DS1A to RC1	DfT Circular 01/2022	☐	☑
DS1A to RC1A	2031 DfT Circular	☐	☑
DS3A to RC3A	2034 Completion Year	☐	☑
DSA2 to RC2A	2031 Opening Year	☐	☑

11.39 The following sections summarise the finding of the VISSIM microsimulation modelling for the DfT Circular 01/2022 compliant and 2034 Completion Year scenarios. The summary of the 2031 Opening Year modelling is provided in **Chapter 12**.

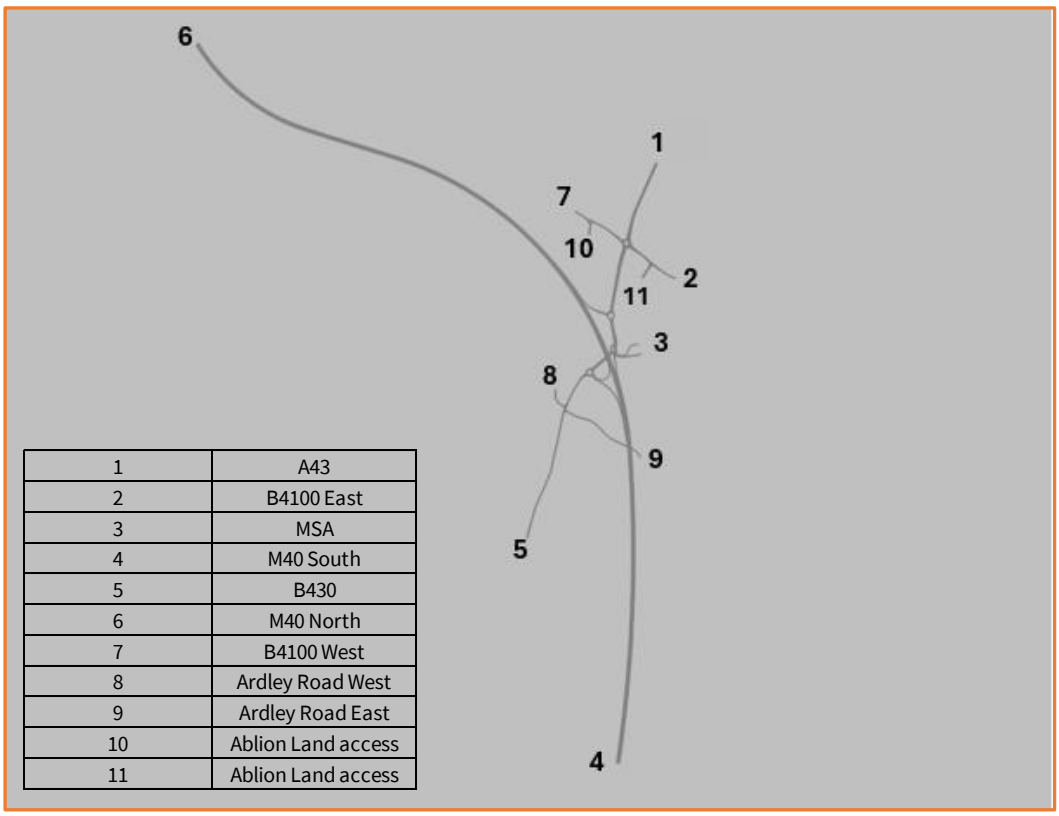
11.40 The extent of the Reference Case micro-simulation model for the future scenario without the Albion Land development (the RC1 scenario) is shown at **Figure 11.2**. The extent of the Reference Case model for the future scenarios with the Albion Land development (the RC1A/RC2A/RC3A scenarios) is shown at **Figure 11.3**. The model network for the RC1A, RC2A and RC3A scenarios are the same, with the only difference between them and the RC1 model being the inclusion of the two site access junctions for the Albion Land development that are located on the B4100 each side of the Baynard's Green junction, along with the proposed Albion Land improvements to the Baynard's Green junction.

11.41 The embedded Highway Works have been coded into the relevant VISSIM model to provide the Do-Something scenario. The model network for the Do-something scenario without Albion Land (the DS1 and DS1 sensitivity test scenarios) is shown at **Figure 11.4** and the extend of the Do-something model network with Albion Land (the DS1A and DS3A scenarios) is shown at **Figure 11.5**. The Do-Something models include the internal roundabout within the OxSRFI site and hence the OxSRFI zones are split north and south of that roundabout. The DS2 (Opening Year) model is presented at **Chapter 12**.



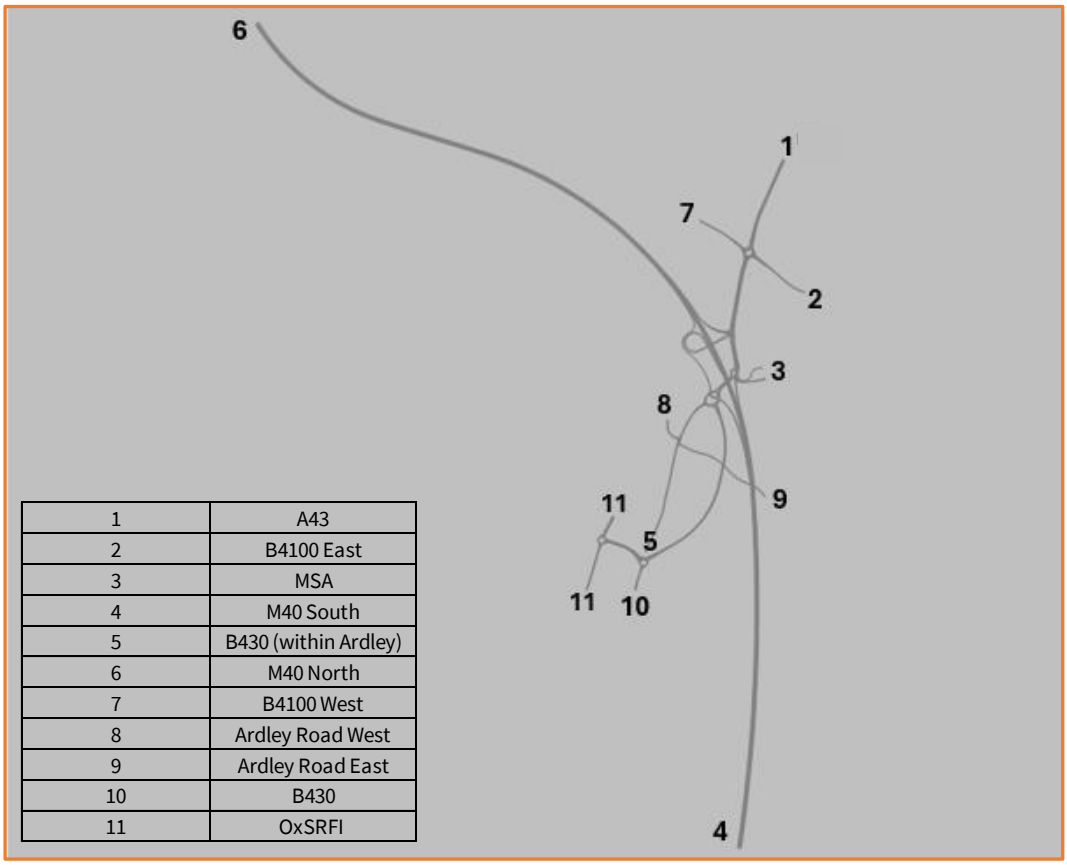
1	A43
2	B4100 East
3	MSA
4	M40 South
5	B430
6	M40 North
7	B4100 West
8	Ardley Road West
9	Ardley Road East

Figure 11.2: RC1 VISSIM microsimulation network



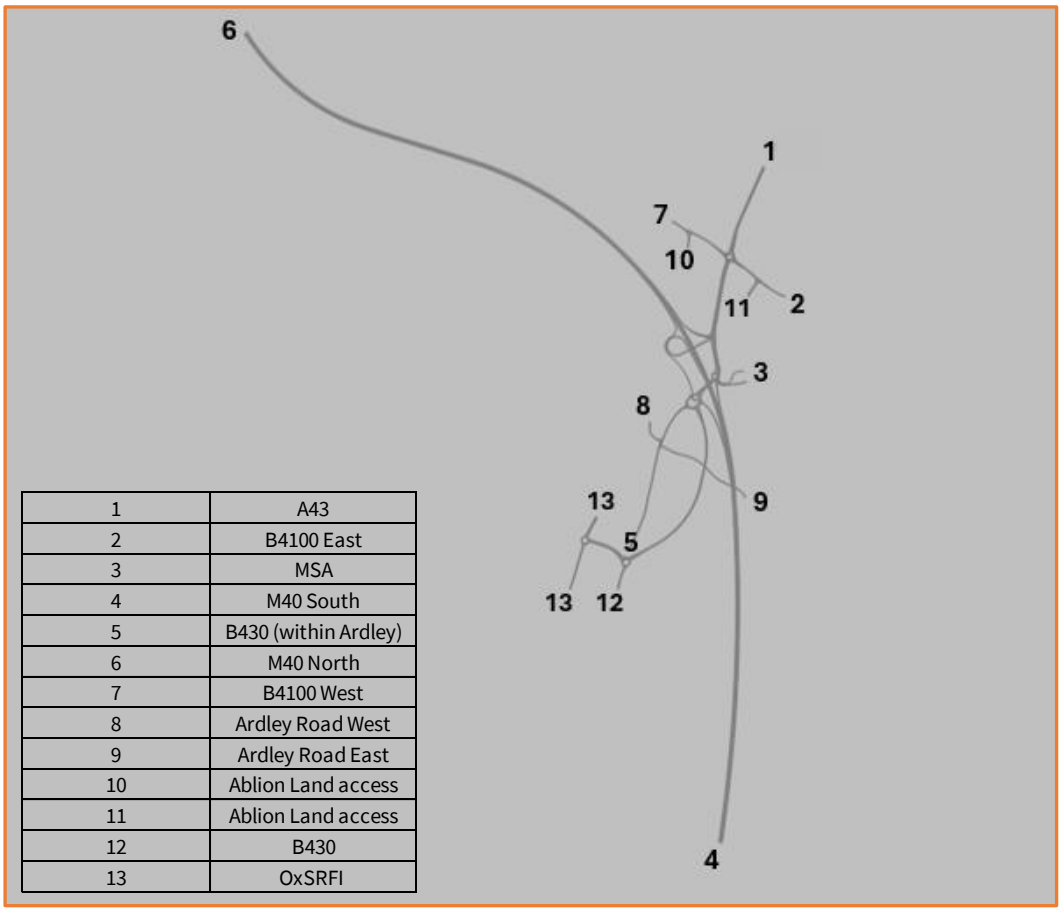
1	A43
2	B4100 East
3	MSA
4	M40 South
5	B430
6	M40 North
7	B4100 West
8	Ardley Road West
9	Ardley Road East
10	Ablion Land access
11	Ablion Land access

Figure 11.3: RC1A, RC2A and RC3A VISSIM microsimulation network



1	A43
2	B4100 East
3	MSA
4	M40 South
5	B430 (within Ardley)
6	M40 North
7	B4100 West
8	Ardley Road West
9	Ardley Road East
10	B430
11	OxSRFI

Figure 11.4: DS1 and DS1 Sensitivity Test VISSIM microsimulation network



1	A43
2	B4100 East
3	MSA
4	M40 South
5	B430 (within Ardley)
6	M40 North
7	B4100 West
8	Ardley Road West
9	Ardley Road East
10	Ablion Land access
11	Ablion Land access
12	B430
13	OxSRFI

Figure 11.5: DS1A and DS3A VISSIM microsimulation network

OxSRFI core scheme and sensitivity test (DS1 and DS1 sensitivity test)

11.42 The 'Modelling Impact Assessment Report - OxSRFI core scheme & Sensitivity Test' report (**Appendix 42**) considers the DS1 scenario, the future position without the Albion Land development. It also reports on the sensitivity test requested by Aecom which considers the DS1 Sensitivity Test traffic flow group as discussed in the previous section.

11.43 Both flow scenarios reach consistent overall conclusions, that the Proposed Development, together with its comprehensive mitigation package, will provide substantial operational improvements compared to the existing network configuration. The improvements at Baynard's Green roundabout deliver substantial operational improvements compared to the existing network configuration, with significantly reduced queuing, improved journey times from the A43 North, B4100 East and B4100 West approaches, and the accommodation of additional vehicles that would otherwise be unable to traverse the network under Reference Case conditions (latent/ supressed demand).

11.44 Assessment of the existing network configuration in the Reference Case scenarios reveals significant capacity constraints at Baynard's Green roundabout in both peak periods. In the AM peak, queues on the A43 North, B4100 East and B4100 West approaches all extend to the start of their respective entry points (distances of approximately 770m, 520m and 430m respectively), resulting in 1,100–1,600 vehicles unable to enter the network. In the PM peak, the B4100 East and West approaches are most affected, with queues on the B4100 East reaching the start of the entry point (approximately 520 metres) and queues on the B4100 West extending to approximately 430 metres, resulting in 400–870 vehicles unable to enter the network. This latent demand must be considered when interpreting results at junctions south of Baynard's Green, where the true operational impacts in the Reference Case are masked by vehicles unable to enter the network.

11.45 **Table 11.11** summarises the network performance results for the DS1 scenario compared to the RC1 scenario. **Table 11.12** summarises the same but based on the sensitivity test traffic flows.

11.46 As shown, network-wide average vehicle delays reduce from 92–95 seconds to 48–52 seconds in the AM peak, whilst enabling over 1,100–1,600 additional vehicles to successfully traverse the networks that are unable to do so under Reference Case conditions. In the PM peak, delay reductions from 60–73 seconds to 48–52 seconds, together with 400–870 additional vehicles able to enter the network, demonstrate the operational advantages of the embedded Highway Works.

Table 11.11: Network performance results DS1 to RC1

All vehicles				
Scenario	Peak	Average delay per vehicle (s)	Average speed (mph)	Latent Demand
DfT Circular 01/2022 Reference Case (RC1)	AM	95	44	1143
DfT Circular 01/2022 Do-Something (DS1)	AM	48	49	0

All vehicles				
Scenario	Peak	Average delay per vehicle (s)	Average speed (mph)	Latent Demand
DfT Circular 01/2022 Reference Case (RC1)	PM	60	50	398
DfT Circular 01/2022 Do-Something (DS1)	PM	48	50	1

Table 11.12: Network performance results DS1 to RC1 (Sensitivity Test traffic flow group)

All vehicles				
Scenario	Peak	Average delay per vehicle (s)	Average speed (mph)	Latent Demand
DfT Circular 01/2022 Reference Case (RC1) - Sensitivity Test	AM	92	44	1636
DfT Circular 01/2022 Do-Something (DS1) - Sensitivity Test	AM	52	48	0

All vehicles				
Scenario	Peak	Average delay per vehicle (s)	Average speed (mph)	Latent Demand
DfT Circular 01/2022 Reference Case (RC1) - Sensitivity Test	PM	73	48	869
DfT Circular 01/2022 Do-Something (DS1) - Sensitivity Test	PM	52	49	1

11.47 There are localised effects, with some movements experiencing improvements and others experiencing modest increases in journey times or queue lengths. For example, the removal of the right turn from Cherwell MSA to the A43 and the requirement for A43 north traffic exiting the MSA to travel around Ardley Roundabout adds additional journey time to this movement due to the additional distance travelled.

11.48 Journey time changes generally remain within ±120 seconds, and queue lengths remain within approach capacities throughout the network. However, this comparison must be considered in the context of significant numbers of vehicles (suppressed demand) being unable to enter the network in the Reference Case, which masks the true impacts at junctions south of Baynard's Green in the Reference Case when congestion at Baynard's Green prevents traffic reaching M40 Junction 10.

11.49 The consistency of the findings across two independent flow conversion methodologies — one applying BTM outputs directly and one applying the absolute difference methodology proposed by Aecom — provides confidence in the robustness of the assessment conclusions.

11.50 The VISSIM microsimulation modelling findings support the LinSig assessment presented earlier in this chapter and demonstrates that the Proposed Development, with its comprehensive highway mitigation package, can be accommodated within the highway network whilst providing improved operational performance.

OxSRFI alternative scheme (with Albion Land)

11.51 The 'Modelling Impact Assessment Report' (**Appendix 43**) considers the DS1A and DS3A scenarios, which consider the future position with the Albion Land development.

11.52 Comparing the network performance in the DS1A (with Albion Land) to the existing network configuration (RC1) demonstrates outcomes consistent with the OxSRFI core scenario presented above. The results presented within the 'Modelling Impact Assessment Report' show that the proposed development and Highway Works would continue to deliver substantial operational improvements.

11.53 The network performance metrics provided at **Table 11.13** confirm that the DS1A scenario delivers substantial operational improvements compared to the RC1 scenario, whilst accommodating the Reference Case latent demand (supressed traffic demand) and the additional OxSRFI and Albion Land development traffic.

Table 11.13: Network performance results DS1A to RC1

All vehicles				
Scenario	Peak	Average delay per vehicle (s)	Average speed (mph)	Latent Demand
DfT Circular 01/2022 Reference Case (RC1)	AM	95	44	1143
DfT Circular 01/2022 Do-Something (DS1A)	AM	50	49	0

All vehicles				
Scenario	Peak	Average delay per vehicle (s)	Average speed (mph)	Latent Demand
DfT Circular 01/2022 Reference Case (RC1)	PM	60	50	398
DfT Circular 01/2022 Do-Something (DS1A)	PM	51	49	1

11.54 In the AM peak average vehicle delay reduces from 95 seconds to 50 seconds, with average network speed increasing from 44 mph to 49 mph. In the PM peak the average vehicle delay reduces from 60 seconds to 51 seconds, with average network speed maintained at 49-50 mph.

11.55 The proposed embedded Highway Works enable over 1,100 additional vehicles to successfully enter and traverse the network in the AM peak and nearly 400 additional vehicles in the PM peak. This is latent (suppressed) traffic demand which represent vehicles that are unable to enter the network under Reference Case conditions.

11.56 Journey time comparisons across origin-destination pairs confirm significant reductions from the A43 North (AM peak), B4100 East (AM and PM peak) and B4100 West (AM and PM peak), with savings in the range of 3 minutes to 5 minutes 30 seconds. These reductions highlight the substantial benefits delivered by the junction improvements at the A43 Baynard's Green junction.

11.57 Other localised effects do not constitute severe or unacceptable impacts. Journey time changes, where not significantly reduced, remain within ±60 seconds, whilst accommodating all traffic demand (which is not the case in the Reference Case). All queue increases remain contained within approach capacities with no network blocking risks. The overall driver experience across the wider network is improved.

11.58 Furthermore, when assessed against the potential future baseline position (the RC1A and RC3A scenarios - with Albion Land and their proposed improvement works at Baynard's Green), the Do-Something scenario (DS1A and DS3A) network performance remains comparable to the improved future Reference Case baseline. This is achieved whilst accommodating the additional OxSRFI traffic and providing the required access for the development to the strategic road network. Importantly, the mitigation scheme also addresses operational constraints identified at Ardley roundabout, where M40 northbound off-slip queuing in the 2034 Reference Case extends back onto the motorway mainline in the DS3A scenario, creating safety concerns for the SRN operation. This queuing occurs in the RC3A Reference Case scenario because the highway improvement at Baynard's Green that would be provided by the Albion Land development in this scenario releases the latent demand that can now reach M40 Junction 10 and that additional traffic impacts the Ardley Roundabout, where the Albion Land scheme does not propose any interventions.

11.59 The proposed OxSRFI Highway Works deliver operational improvements to the M40 northbound corridor. The provision of a new northbound off-slip connecting directly to Padbury junction, combined with comprehensive upgrades to Ardley roundabout (signalisation, additional lanes, expanded circulatory capacity), reduces M40 off-slip queuing at Ardley in the AM peak hour from

approximately 660 metres in the 2034 Completion Year Reference Case to 100 metres in the 2034 Completion Year Do-Something scenario. This addresses mainline interaction operational and safety concerns that would be present in the RC3A morning peak hour scenario. Whilst the 2031 Reference Case (RC1A) queuing does not extend to the M40 mainline, the equivalent Do-Something scenario (DC1A) still delivers meaningful operational improvements.

11.60 Journey times from M40 northbound to Ardley roundabout reduce from 4 minutes 13 seconds in the 2034 Reference Case (DS3A) to 54 seconds with the mitigation in place — a reduction of 3 minutes 19 seconds, confirming the effectiveness of the mitigation scheme in addressing strategic network capacity constraints.

11.61 The network-wide performance metrics summarised at **Table 11.14** and **Table 11.5** confirm that the proposed Highway Works would deliver comparable performance to the significantly improved future Reference Case baseline when comparing the RC1A and DS1A scenarios and the 2034 DS3A and RC3A Completion Year scenarios.

Table 11.14: Network performance results DS1A to RC1A

All vehicles				
Scenario	Peak	Average delay per vehicle (s)	Average speed (mph)	Latent Demand
DfT Circular 01/2022 Reference Case (RC1A)	AM	47	51	0
DfT Circular 01/2022 Do-Something (DS1A)	AM	50	49	0

All vehicles				
Scenario	Peak	Average delay per vehicle (s)	Average speed (mph)	Latent Demand
DfT Circular 01/2022 Reference Case (RC1A)	PM	46	52	1
DfT Circular 01/2022 Do-Something (DS1A)	PM	51	49	1

Table 11.15: Network performance results DS3A to RC3A

All vehicles				
Scenario	Peak	Average delay per vehicle (s)	Average speed (mph)	Latent Demand
2034 Completion Year Reference Case (RC3A)	AM	65	48	0
2034 Completion Year Do-Something (DS3A)	AM	59	47	0

All vehicles				
Scenario	Peak	Average delay per vehicle (s)	Average speed (mph)	Latent Demand
2034 Completion Year Reference Case (RC3A)	PM	52	51	3
2034 Completion Year Do-Something (DS3A)	PM	61	47	2

11.62 In the DS1A AM peak the proposed OxSRFI development and associated Highway Works delivers comparable performance to the future baseline Reference Case with Albion Land, and its highway works at Baynard's Green, with only modest changes in average delays and network speed. The similar average delays should also be viewed in the context that the Do-Something network adds more signalised junction to the model extents. Whilst these inevitably cause vehicles to stop as they progress on their journey, the results indicate that the traffic is managed effectively as they travel through the modelled network. The Do-Something scenario also includes for the reduction

in speed limits within Ardley and on the A43 between Ardley roundabout and Padbury junction that will affect the comparison as they are not present in the Reference Case.

11.63 In the PM peak, the introduction of the proposed OxSRFI development has a modest increase in the average delay per vehicle, whilst also having a similar average network speed (52-49mph). The changes are expected in the Do-Something scenario for the same reasons as given above.

11.64 In the 2034 AM peak, average vehicle delay across the network reduces from 65 seconds per vehicle (Reference Case) to 59 seconds (Do-Something), despite the network accommodating additional OxSRFI development traffic. Average network speed remains stable at 47-48 mph in both scenarios, with zero latent demand confirming that all vehicles can enter and complete their journeys successfully. The improvements in delays should also be viewed in the context of the introduction of additional signalised junctions in the Do-Something scenarios adds controlled delay to some vehicle journeys.

11.65 In the PM peak, the introduction of the proposed OxSRFI development has a modest increase in the average delay per vehicle, whilst also having a similar average network speed (47-51mph). The changes are expected as the Do-Something network features more signalised junctions, which inevitably add delays to vehicles who have to stop as they progress on their journey. The Do-Something scenario also includes for reductions in speed limits within Ardley and on the A43 between Ardley roundabout and Padbury junction.

11.66 Journey time analysis identifies that the majority of network movements experience journey time changes within ±60 seconds between Reference Case and Do-Something scenarios, indicating comparable driver experience across the wider network.

11.67 Notable journey time changes, other than the significant improvement for M40 to northbound traffic, include increases on some northbound movements attributable to the signalised Ardley roundabout requiring negotiation of additional signal nodes and the Cherwell MSA to A43 North movement experiences a journey time increase of 89–108 seconds due to the revised junction layout requiring routing via Ardley roundabout, increasing the distance travelled.

11.68 In summary, the assessments presented with the VISSIM 'Model Impact Assessment Report' demonstrates that:

- Compared to the existing network configuration, the proposed Highway Works deliver substantial operational improvements, resolving existing capacity constraints whilst accommodating development traffic.
- Network-wide performance remains comparable between the improved future baseline (with Baynard's Green improvements) and Do-Something scenarios, confirming adequate capacity provision across all future year conditions tested.
- The mitigation package addresses M40 northbound off-slip queuing identified in the Reference Case, with substantial queue reductions and journey time improvements that resolve mainline interaction and safety concerns that are present in the Reference Case.
- Localised impacts are modest in scale, with the majority of journey time changes within ±60 seconds and queue lengths remaining within approach capacities.

11.69 The VISSIM microsimulation modelling findings support the LinSig assessment presented earlier in the chapter and demonstrates that the Proposed Development, with its comprehensive highway mitigation package, can be accommodated within the highway network whilst providing improved operational performance across the range of future year scenarios tested.

Junctions 4 and 5 - B430/HPLR and B430/MSRR junctions

11.70 The design evolution of the B430/HPLR and B430/MSRR junctions is set out at Appendix A of the 'Middleton Stoney Relief Road and Heyford Park Link Road Options Report' (**Appendix 25**). The agreed form of the B430/HPLR and B430/MSRR junctions is for traffic signal controlled T-junctions, as shown on the Highway Plans General Arrangement **Document 2.7D**. An extract of the general arrangement is provided at **Figure 11.6** below.

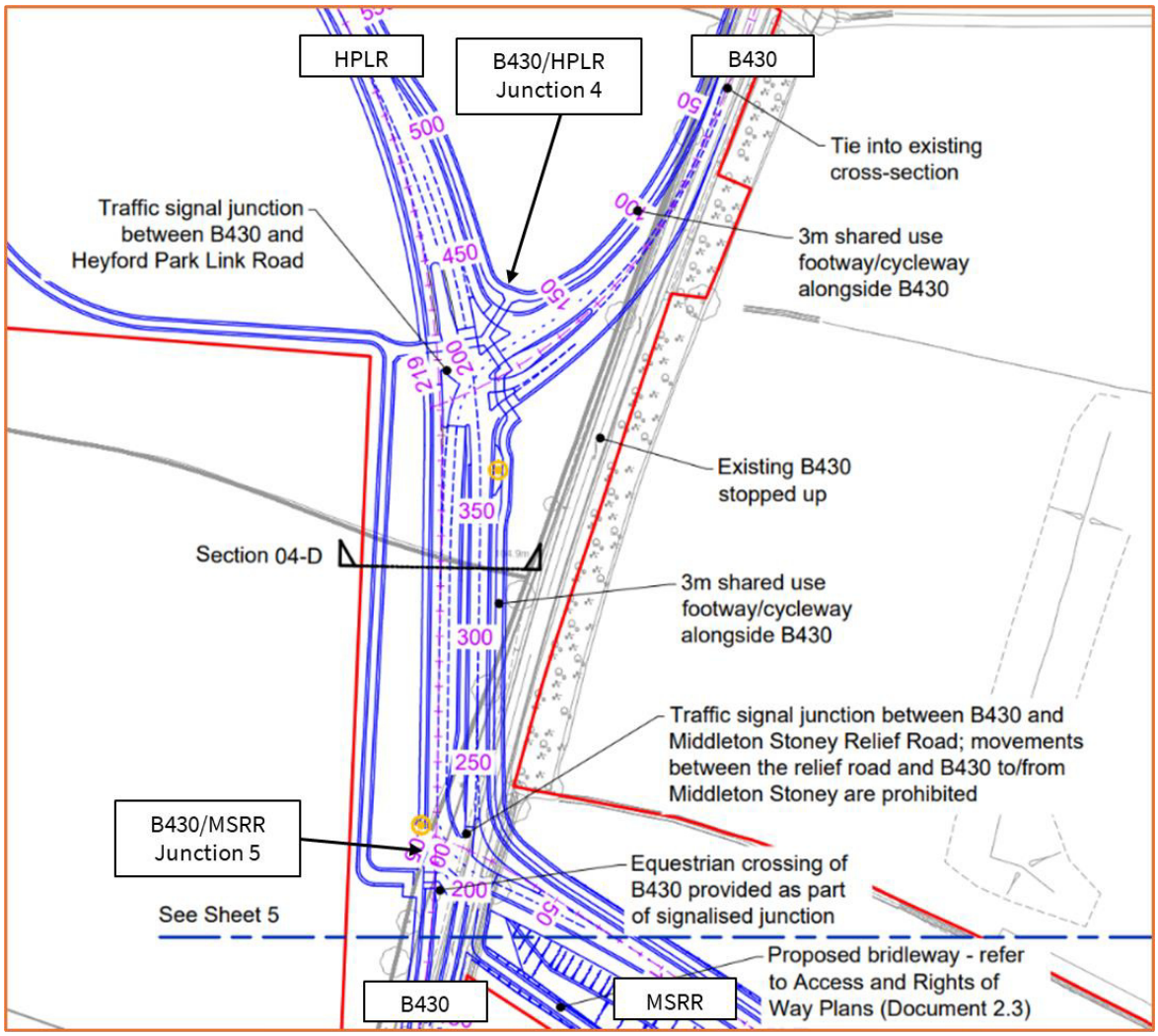


Figure 11.6: B430/HPLR and B430/MSRR traffic signal controlled T-junctions

11.71 The proposed operation of these junctions was discussed in detail in the 'Stage 3 Transport Modelling Interim Report' (**Appendix 28**) that was submitted as part of the statutory consultation, including the proposed phase and stage arrangements and the approach to the modelling of these junctions as a network in LinSig.

11.72 The Stage 3 Transport Modelling (Interim Report) was prepared in advance of the statutory consultation, at which time the only available flow sets from the BTM were the 2034 RC3A and 2034 DS3A scenarios. Hence, the LinSig model detailed in the Interim Report has been tested with the morning and evening peak hour traffic flow scenarios set out in **Table 11.1**. **Table 11.16** provides a summary of the results and the LinSig assessment is provided at **Appendix 58**.

Table 11.16: B430/HPLR/MSRR detailed network model results

B430/Heyford Park Link Road/Middleton Stoney Relief Road Network Results				
Scenario	Peak hour	Cycle time	Practical Reserve Capacity	Total delay (PCUhr)
2034 DS3A	AM	60	22.0%	20.11
	PM	60	37.4%	15.54
2034 DS3AwTP	AM	60	26.5%	18.70
	PM	60	47.3%	14.66
2042 DS4A	AM	60	15.1%	26.32
	PM	60	18.0%	20.14
2042 DS4AwTP	AM	60	15.3%	24.23
	PM	60	28.7%	18.92

11.73 As shown, the PRC is positive for each of the modelled scenarios, indicating that all links are operating less than 90% saturated and therefore, the proposed B430/HPLR and B430/MSRR junctions would operate satisfactorily in the 2034 Completion Year and also in the 2042 Sensitivity Test scenarios. In terms of internal mean maximum queueing between the two junctions, the detailed results provided at **Appendix 58** show that the queuing could be satisfactorily accommodated without negatively effecting overall performance.

Junction 6 - B4030/MSRR roundabout

11.74 As discussed in **Chapter 8**, to provide a junction which can accommodate both the new MSRR and the existing Middleton Road, a four-arm roundabout is proposed. The proposed roundabout has an inscribed circle diameter (ICD) of 60 metres and all approaches to the junction flare to two lanes, with two circulating lanes. There are two exit lanes on the B4030 east and MSRR arms. The existing field access located opposite the existing B4030/Middelton Road T-junction is provided for via a private access to the south of the roundabout. The design improves connectivity for pedestrians and cyclists as part of the wider strategy for sustainable transport provision, with Toucan crossings provided on the MSRR arm and uncontrolled crossings on the B4030 west and the Middleton Road arms.

11.75 The operation of the roundabout was modelled as part of the Stage 3 Transport Modelling Interim Report (**Appendix 28**), with the modelling updated as part of the 'B4030 Middleton Stoney Road Corridor' report (**Appendix 44**), which looked at the B4030 corridor in detail for the 2034 DS3A and DS3AwTP scenarios. That modelling demonstrated that in the 2034 DS3A and DS3AwTP modelled scenarios the roundabout was forecast to operate within capacity, with the worst-case ratio of flow to capacity (RFC) being 87% on the B4030 Middleton Stoney Road westbound approach on the DS3A evening peak hour, or 86% with the Framework Travel Plan in place.

11.76 Whilst the performance for the junction was shown to be acceptable in the B4030 Middleton Stoney Road Corridor report, to provide some additional headroom, the length of the two lane B4030 westbound approach was increased, with a corresponding increase to the two-lane exit on the MSRR. The proposed roundabout is shown the Highway Plans **Document 2.7E**. An extract of the general arrangement is provided at **Figure 11.7**.

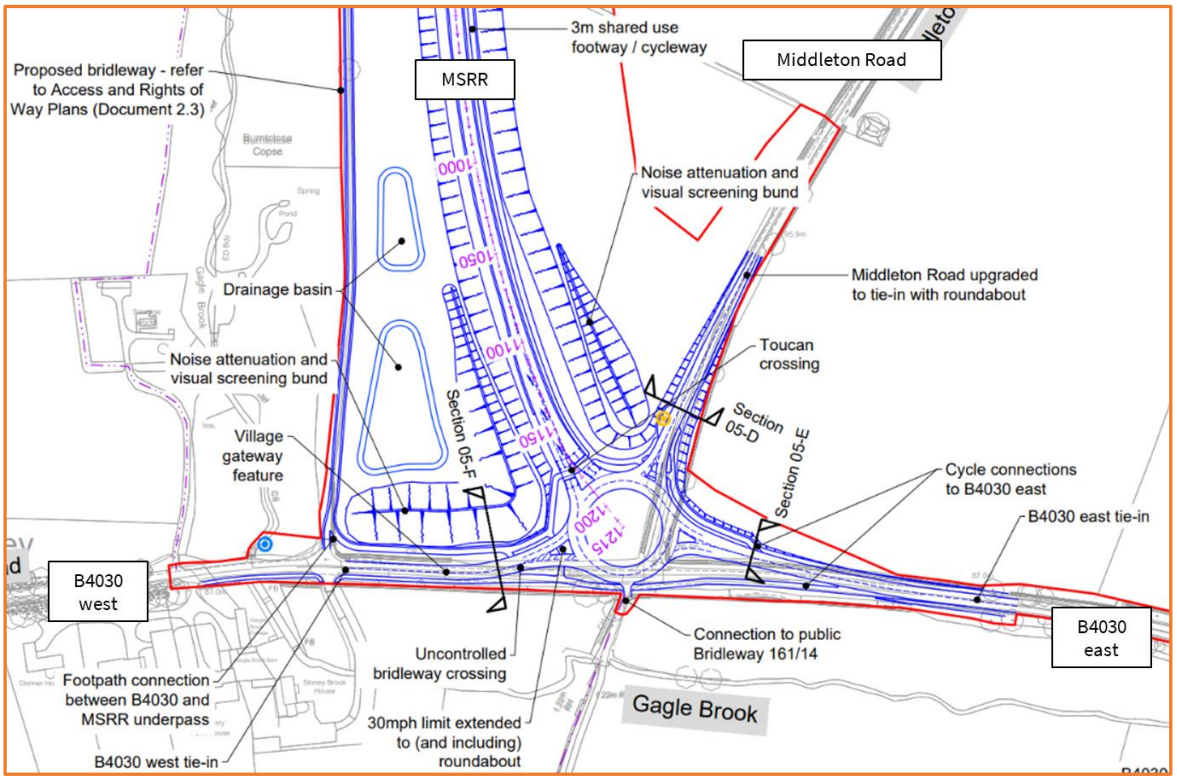


Figure 11.7: B4030/MSRR 4-arm roundabout

11.77 The junction was originally modelled using Junction 9 ARCADY software but has now been modelled in Junctions 11 ARCADY with the morning and evening peak hour traffic flow scenarios set out in **Table 11.1**. A summary of the ARCADY results is shown at **Table 11.17** below, with the full results provided at **Appendix 59** along with a drawing showing the ARCADY geometry.

Table 11.17: B4030/MSRR roundabout detailed modelling results

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	Proposed MSRR/B4030 roundabout - 2034 - DS3A									
1 - B4030 (W)	D1	0.4	4.90	0.30	A	D2	0.3	3.98	0.21	A
2 - MSRR		2.4	8.81	0.71	A		1.9	7.31	0.65	A
3 - Middleton Road		0.2	4.86	0.17	A		0.1	4.26	0.10	A
4 - B4030 (E)		2.3	7.53	0.70	A		3.5	10.12	0.78	B
	Proposed MSRR/B4030 roundabout - 2034 - DS3AwTP									
1 - B4030 (W)	D3	0.4	4.59	0.29	A	D4	0.3	4.09	0.22	A
2 - MSRR		2.4	8.86	0.71	A		1.5	6.55	0.61	A
3 - Middleton Road		0.2	4.82	0.16	A		0.1	4.11	0.09	A
4 - B4030 (E)		1.9	6.53	0.65	A		3.3	9.64	0.77	A
	Proposed MSRR/B4030 roundabout - 2042 - DS4A									
1 - B4030 (W)	D5	0.5	5.54	0.33	A	D6	0.4	5.49	0.30	A
2 - MSRR		3.0	10.45	0.75	B		3.2	10.87	0.77	B
3 - Middleton Road		0.3	5.38	0.23	A		0.2	5.06	0.18	A
4 - B4030 (E)		3.7	11.02	0.79	B		5.4	15.16	0.85	C
	Proposed MSRR/B4030 roundabout - 2042 - DS4AwTP									
1 - B4030 (W)	D7	0.5	5.26	0.32	A	D8	0.4	5.43	0.30	A
2 - MSRR		2.9	10.38	0.75	B		2.4	8.85	0.71	A
3 - Middleton Road		0.3	5.35	0.23	A		0.2	4.81	0.18	A
4 - B4030 (E)		3.0	9.31	0.75	A		4.9	13.80	0.84	B

11.78 The modelling demonstrates that in all 2034 completion year scenarios for the morning and evening peak hours, the roundabout is forecast to operate acceptably, with a ratio of flow to capacity (RFC) below 85% for all movements. Further, the roundabout is also shown to operate acceptably in all 2042 sensitivity test scenarios.

Junction 7 – M40 Junction 9

11.79 The performance of M40 Junction 9 has been subject to extensive assessment and analysis throughout the project. The work undertaken is summarised below:

- As discussed in **Chapter 8**, 'Technical Note 12' (**Appendix 26**) considered the effects of the Proposed Development and the proposed embedded highway works (M40 Junction 10, the Ardley Bypass, the HPLR and the MSRR) on the highway network in the vicinity of M40 Junction 9. Technical Note 12 concluded that in the evening peak hour, existing congestion on the A34 eastbound approach to M40 Junction 9 could prevent traffic from reaching the M40 northbound. The BTM modelling demonstrated that there is supressed demand at the A34 approach to Junction 9, due to that congestion. Technical 12 recognised that OxSRFI does not materially add to the A34 approach demand. But it demonstrated that if left unmitigated, the congestion on the A34 approach to Junction 9 would lead to more traffic using the B430 to 'rat run' to M40 Junction 10 because the local road improvements, particularly the effect of the MSRR in reducing congestion at the B430/B4030 crossroads, made that route more attractive in comparison to the congested approach to M40 Junction 9. A mitigation scheme at M40 Junction 9 was therefore developed to readdresses that balance. The preferred scheme was to provide a third left-turn lane between the A34 and the M40 northbound at the existing signal controlled approach to Junction 9, with associated widening of the M40 northbound merge. The results of BTM modelling presented in Technical Note 12 showed that the proposed improvement would remove the delay on the A34 approach to M40 Junction 9 in the evening peak hour. Hence, in agreement with the TWG the improvement scheme has formed part of the embedded Highway Works in the BTM Do-Something assessments.

- The 'Stage 2 Transport Modelling' report (**Appendix 27**) considered the effects of the Proposed Development and the embedded Highway Works on the modelled highway network, including M40 Junction 9.

- The 'Stage 3 Transport Modelling Interim Report' (**Appendix 28**) presented detailed junction modelling of M40 Junction 9 in the 2034 Reference Case RC3A and 2034 Do Something DS3A scenarios. The Stage 3 report set out the detailed modelling methodology and demonstrated that the proposed improvements would significantly reduce congestion on the A34 approach to M40 Junction 9, as intended.

- The 'M40 Junction 9' technical note AT (**Appendix 29**) presents the Applicant's response to comments made by National Highways (4 November 2025) on the M40 Junction 9 assessments as part of the DCO statutory (Stage 2) consultation which ran from 23 September 2025 to 4 November 2025. The paper provided further details of the detailed modelling approach and presented results of the 2031 DfT Circular 01/2022 compliant Reference Case (RC1A) and Do-Something case (DS1A) scenarios. The 'M40 Junction 9' technical note concluded that the detailed modelling showed there to be no material change in the performance of M40 Junction 9 in the DS1A scenario in the morning peak hour, though the mitigation proposals on the A34 reduce congestion and queuing. In the evening peak hour, the overall performance of M40 Junction 9 improves in the DS1A scenario, with materially reduced congestion and queue lengths on the A34 approach,

which would assist in reducing the frequency of rear-end shunt type accidents occurring at this location.

11.80 OCC provided a response to the 'M40 Junction 9' technical note on 12 January 2026, concluding that OCC *"…are satisfied that it provides a reasonable and proportionate justification for intervention at the A34 approach to M40 Junction 9 and demonstrates operational benefits in the evening peak period. OCC can therefore support the principle of the proposed Junction 9 mitigation, subject to the detailed design approval, further Road Safety Audit work, and ongoing coordination and approval with National Highways*".

11.81 Comments were also sought from National Highways, which were provided on 23 February 2026. These are discussed later in this section.

Proposed M40 Junction 9 improvement scheme

11.82 The improvement scheme at M40 Junction 9 is shown at the Highway Plans **Document 2.7D**. An extract is shown on **Figure 11.8**.

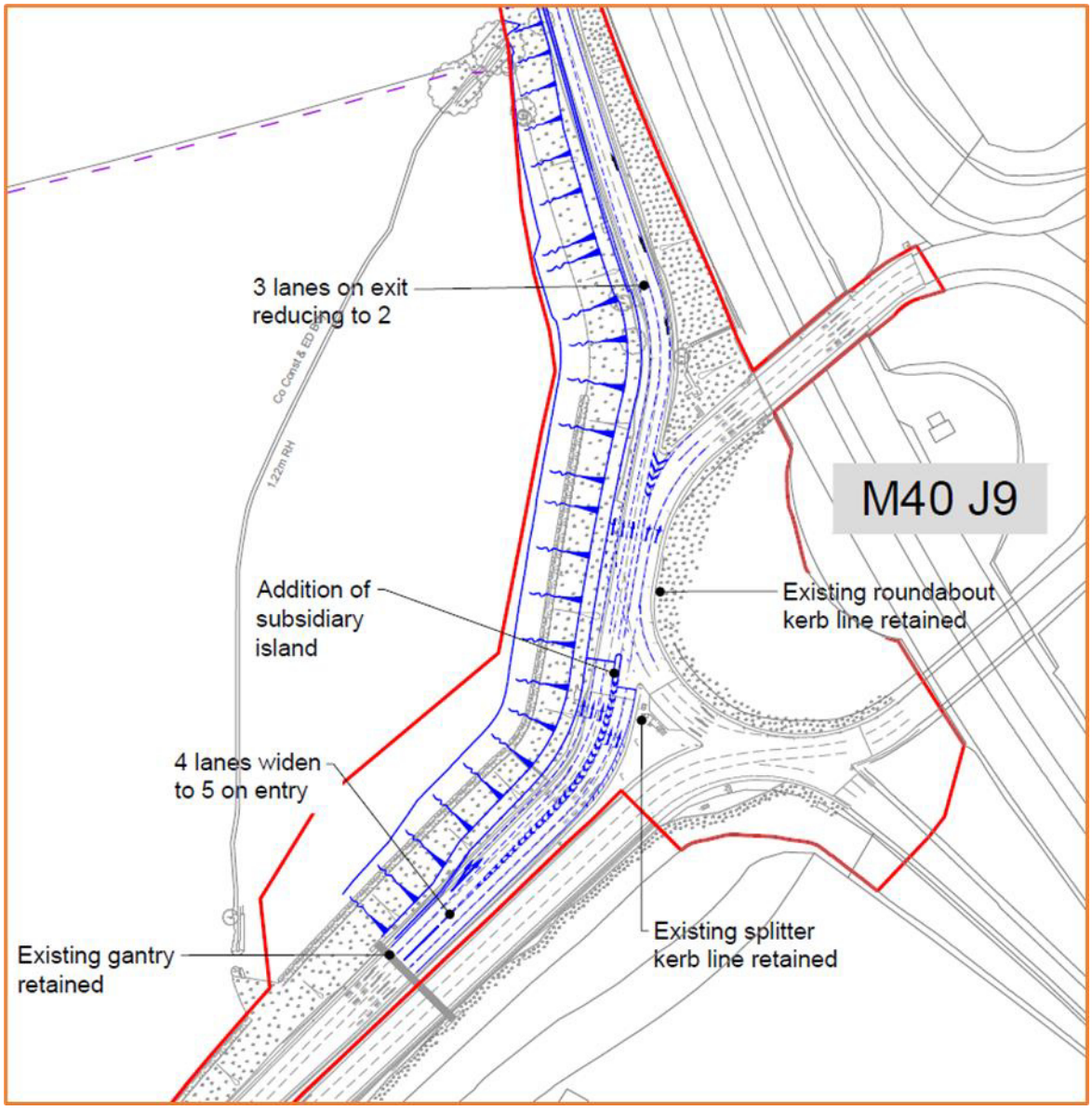


Figure 11.8: proposed M40 Junction 9 improvement scheme

11.83 The 'Stage 3 Transport Modelling Interim Report' and the 'M40 Junction 9' technical note (**Appendices 28 and 29**) provide details of a third-party mitigation scheme at M40 Junction 9 associated with planning application (ref. 25/00284/F) for the erection of 9 additional employment units located to the north, east and west of the consented Siemens Healthineers development. That scheme includes additional left-turn lanes at the M40 Junction 9 southbound and A41 approaches, as shown on the drawing provided at Appendix J of **Appendix 28**.

11.84 It was agreed with the TWG that there is sufficient certainty of the third-party improvement scheme at M40 Junction 9 becoming committed that it should be included within the 2034 RC3A, RC4A, DS3A and DS4A model runs. However, the scheme was not included in the RC1A and DS1A scenarios as there is reduced certainty that it would be fully constructed and operational by 2031.

11.85 Whilst the M40 northbound, M40 southbound and A34 approaches to M40 Junction 9 are National Highways roads, the A41 is part of the local highway network and therefore, detailed modelling is required for scenarios RC1A, RC3A, RC4A, DS1A, DS3A and DS4A, as set out in **Table 11.1**.

Revised M40 Junction 9 detailed modelling

11.86 On behalf of National Highways, Aecom provided Technical Note 08 (TN08) which provided feedback on the 'M40 Junction 9' Technical Note (**Appendix 29**). This provided comments on the junction modelling and also provided a list of comments and questions on the design proposals in response to the 1:2500 general arrangement plan presented at the statutory consultation. These comments were discussed with National Highways during a meeting on 6 March 2026 and ADC responded via email to National Highways on 10 March 2026 with regards to the modelling comments, confirming that the technical points on the LinSig modelling had been accepted and the necessary changes incorporated into the latest revisions of the models (as presented in this TA, below). The response to the comments and questions on the design proposals are considered in the 'M40 Junction 9 Highway Design Review' that is provided at **Appendix 35**.

11.87 Aecom TN08 also recommended that a comparison of base model turning flows between the BTM and the validated LinSig model be provided to assess whether any large discrepancies exist between the models. The spreadsheet provided at **Appendix 60** presents the requested analysis of the 2024 morning and evening peak hour observed data[23] and the 2024 base turning flows from the BTM.

11.88 The analysis presented in **Appendix 60** shows that whilst the link flows exhibit relatively good correlation between the two data sources, there are multiple turning movements in both peak hours which are significantly different. The right-turn movement from the A34 to the M40 south was of particular concern. Hence, ADC Infrastructure concluded that it would be appropriate to undertake sensitivity testing at M40 Junction 9, using the same methodology as suggested by Aecom for the M40 Junction 10 VISSIM assessments described earlier in this chapter.

11.89 The sensitivity test flow sets have been derived by calculating the absolute change between the BTM forecast scenario (e.g. 2031 RC1A, etc) and the 2024 BTM base turning flows. The absolute difference is then applied to the 2024 observed data to give the sensitivity test flow set (identified as adjRC1A in the LinSig model). The adjusted RC1A, RC2A, RC3A, DS1A, DS2A and DS3A traffic flows are provided at **Appendix 60**.

[23] 2024 observed survey data was sourced from the agreed and validated LinSig model prepared by SLR as part of planning application ref. 25/00284/F.

11.90 The updated LinSig models have been run with these adjusted flow sets, and the results are summarised below at **Table 11.18**, with the full LinSig outputs provided in the appendices set out below:

- **Appendix 61** - M40 Junction 9 adjRC1A
- **Appendix 62** - M40 Junction 9 adjDS1A
- **Appendix 63** - M40 Junction 9 adjR3CA
- **Appendix 64** - M40 Junction 9 adjDS3A.

Table 11.18: M40 Junction 9 detailed modelling results summary

Scenario	Peak hour	Junction		M40 Southbound		A41		M40 Northnound		A34	
		PRC	Total delay (PCUhr)	DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
2031 adjRC1A	AM	-3.1%	88.28	92.8%	19.2	90.3%	13.6	87.1%	7.9	91.4%	22.5
	PM	-22.8%	229.42	98.0%	26.4	95.7%	14.9	98.7%	14.1	110.5%	86.3
2031 adjDS1A	AM	-8.4%	83.13	97.6%	27.4	79.7%	8.9	83.9%	6.1	80.9%	15.5
	PM	-10.0%	95.08	99.0%	32.8	81.2%	10.0	92.6%	9.4	84.5%	13.7
2034 adjRC3A	AM	-2.6%	85.56	92.3%	15.7	81.5%	10.1	84.2%	6.8	89.8%	21.7
	PM	-19.2%	178.92	90.7%	17.8	88.4%	13.2	98.1%	13.2	107.3%	72.6
2034 adjDS3A	AM	-5.7%	89.10	95.2%	19.9	79.9%	9.7	89.7%	7.9	78.7%	14.2
	PM	-5.5%	76.99	88.6%	17.2	89.3%	13.6	94.9%	12.3	86.0%	13.4

11.91 Comparing the 2031 adjRC1A and adjDS1A scenarios shows that the PRC deteriorates in the adjDS1A morning peak hour, though the total delay at the junction reduces slightly. The results show that the degree of saturation (DoS) on the M40 southbound approach increases from 92.8% to 97.6% in the adjDS1A scenario, with an increase in queue length of c.8 PCUs. This is not a severe impact and, as discussed in **Chapter 9**, is a result of suppressed demand being released at M40 Junction 10. The development only adds 42 vehicles to the diverge in the morning peak hour, whilst there is an increase of 234 vehicles on the slip road. At the A34, A41 and M40 northbound approaches to the junction the DoS improves in the adjDS1A morning peak hour, with reductions in queue length. These results are consistent with the conclusions reached in the 'M40 Junction 9' technical note (**Appendix 29**).

11.92 In the evening peak hour, the overall performance of the junction is improved by 12.8% in the adjDS1A scenario when compared to the adjRC1A scenario in terms of PRC, with the total delay at the junction significantly reduced. Whilst the DoS on the M40 southbound approach increases by 1%, there are material improvements to the DoS (improved by 26%) and MMQ (reduced by 72.6PCUs) for the A34 to M40 northbound movement. Again, these results are consistent with the conclusions reached in ADC Infrastructure Technical Note AT-v2 'M40 Junction 9'.

11.93 In the adjRC3A and adjDS3A scenarios the patterns and magnitudes of changes are similar to the adjRC1A and adjDS1A scenarios, but the third-party improvement scheme at M40 Junction 9 provides an improvement for the M40 southbound off-slip and A41 approach to the junction.

M40 Junction 9 detailed modelling results summary

11.94 The performance of the M40 southbound diverge approach at Junction 9 deteriorates in the morning peak hour due to the effects of the embedded mitigation proposals at M40 Junction 10 releasing a known bottleneck, allowing more traffic onto the M40 southbound. However, overall, there is no material change in the performance of Junction 9 in the DS1A scenario in the morning peak hour, with the mitigation proposals on the A34 helping to reduce congestion and queuing. In the evening peak hour, the overall performance of Junction 9 improves in the DS1A scenario, with reduced congestion and queue lengths on the A34 approach.

11.95 The reduce congestion on the A34 approach provides a safety improvement (given the high number of rear end shunt accidents on the approach).

11.96 Hence, the proposed embedded highway works mitigate the impact of the Proposed Development by reducing the congestion on the A34 approach and allowing SRN traffic to stay on the A34/M40 corridor, whilst providing improved conditions with regards to road safety.

Junction 8 – B430/B4030 crossroads, Middleton Stoney

11.97 The B430/B4030 Middleton Stoney crossroads is a traffic signal controlled junction, as shown on **Figure 11.9** below. The B430 runs north-south through the village of Middleton Stoney, linking M40 Junction 10 to the north with the A34 to the south. The B4030 runs east-west through the village, linking to Bicester to the east and providing routes to Heyford Park and the A4260 Banbury Road to the west. There are uncontrolled pedestrian crossings on three of the four arms (B430 south and the B4030 arms), though these are generally in poor condition.

Figure 11.9: B430/B4030 Middleton Stoney crossroads

11.98 A base model of the junction has been constructed using LinSig version 3.3.1 and a traffic survey and queue length survey undertaken in October 2022 (**Appendix 46**). To check that the model is a good representation of the junction, a queue comparison has been undertaken for the peak hours and the results are summarised in **Table 11.19** below.

Table 11.19: Middleton Stoney crossroads 2022 queue comparison

Approach	Morning peak hour			Evening peak hour		
	Observed	Modelled	Difference	Observed	Modelled	Difference
B430 North	23.8	22.7	1.1	4.8	4.6	0.2
B4030 East	19.5	17.1	2.4	9.3	10.0	-0.8
B430 South	8.2	5.7	2.5	13.6	13.8	-0.2
B4030 West	17.6	17.8	-0.2	8.9	9.6	-0.7

11.99 **Table 11.12** shows that there is good correlation between the measured and modelled queue lengths in both peak periods. In the morning peak hour, the modelled queue on all four approaches is within 3 pcus of the observed queue length. In the evening peak hour the modelled queue length is within 1 pcu of the observed queue length on all four approaches. The model is therefore suitable for use in determining the future performance of the junction.

11.100 The LinSig results of the 2022 Base scenario are provided at **Appendix 65** and are summarised in **Table 11.20**.

Table 11.20: Summary of Middleton Stoney crossroads 2022 Base model

Scenario	PRC (%)	B430 north		B4030 east		B430 south		B4030 west	
		DoS (%)	MMQ (pcus)	DoS (%)	MMQ (pcus)	DoS (%)	MMQ (pcus)	DoS (%)	MMQ (pcus)
2022 Base AM peak	-9.0%	95.5%	22.7	97.7%	17.1	59.2%	5.7	98.1%	17.8
2022 Base PM peak	10.2%	39.2%	4.6	81.6%	10.0	81.2%	13.8	79.5%	9.6

11.101 **Table 11.20** shows that in 2022 the junction was operating with a negative practical reserve capacity (PRC) in the morning peak hour, indicating that the junction does not have sufficient capacity to handle the current traffic demand, with three links over 90% saturated. In the 2022 evening peak hour the junction was shown to operate acceptably.

11.102 The performance of the existing junction arrangement in the 2034 Reference Case RC3A was assessed in detail as part of the 'B4030 Middleton Stoney Road Corridor' technical note (**Appendix 44**). That detailed modelling has been supplemented with the 2042 Sensitivity Test Reference Case RC4A modelling, with the results provided in **Appendix 65** and summarised in **Table 11.21** below.

Table 11.21: B430/B4030 Middleton Stoney crossroads Reference Case modelling results

Scenario	PRC (%)	B430 north		B4030 east		B430 south		B4030 west	
		DoS (%)	MMQ (pcus)	DoS (%)	MMQ (pcus)	DoS (%)	MMQ (pcus)	DoS (%)	MMQ (pcus)
2034 RC3A AM peak	-26.4%	112.7%	47.7	111.3%	24.1	78.2%	10.2	113.7%	81.8
2034 RC3A PM peak	-16.5%	101.8%	14.6	104.9%	42.7	94.0%	9.0	101.4%	26.8
2042 RC4A AM peak	-30.6%	117.5%	56.8	112.6%	29.2	89.2%	13.1	117.5%	95.0
2042 RC4A PM peak	-23.5%	97.3%	12.7	108.6%	54.5	105.6%	14.1	111.1%	46.5

11.103 As shown in the table above, the PRC is negative in all of the 2034 RC3A and 2042 RC4A modelled scenarios, indicating that one or more links are operating above 90% saturated. In the RC3A and RC4A morning peak hour scenarios, three of the four approaches to the junction have a degree of saturation (DoS) above 100% with significant mean maximum queues (MMQs). In the evening peak hour, whilst the levels of congestion are not as severe, there are also three arms of the junction with a DoS above 100% in both the RC3A and RC4A scenarios.

11.104 Therefore, in the 2034 RC3A scenario without the proposed OxSRFI and embedded Highway Works in place, there would be significant congestion at the B430/B4030 Middleton Stoney crossroads, with congestion levels increasing in the 2042 RC4A scenario.

Middleton Stoney Relief Road

11.105 Therefore, as detailed in **Chapter 8** of this TA, given the identified congestion issues within Middleton Stoney, as demonstrated by the results of the 2034 RC3A LinSig modelling summarised above, and the additional demand likely to be induced by the proposed OxSRFI development, a Middleton Stoney Relief Road (MSRR) is proposed, to improve traffic conditions within the village and improve journey time reliability for employees and public transport accessing the OxSRFI.

11.106 The 'Stage 2 Transport Modelling' report (**Appendix 27**), demonstrates that due to the MSRR providing an alternative more direct and improved route between Bicester and Heyford Park, Ardley, and M40 Junction 10, there would be large reductions in traffic using the B430/B4030 crossroads within the village. Compared to the RC3A Reference Case, traffic is forecast to reduce by 39% across the junction in the morning peak hour and by 23% in the evening peak hour with the Proposed Development and the embedded Highway Works in place.

Proposed junction improvements

11.107 As detailed in the 'B4030 Middleton Stoney Road Corridor' technical note, the reduced traffic demands in Middleton Stoney due to the MSRR provide opportunity to improve the pedestrian crossing facilities and connecting footway at the B430/B4030 crossroads junction within the village, along with new bus stops and a zebra crossing to the north on the B430. These improvements are in accordance with the **STS** (**Appendix 1**) and are shown on Highway Plans **Document 2.7E**, an extract of which is shown at **Figure 11.10** over the page.

11.108 The 'B4030 Middleton Stoney Road Corridor' technical note sets out the detailed modelling of the proposed improvement scheme. That detailed modelling has been supplemented with the 2042 Sensitivity Test Do-Something DS4A and DS4AwTP scenarios, with the results provided in **Appendix 66** and summarised in **Table 11.22** below.

Table 11.22: B430/B4030 Middleton Stoney crossroads Do-Something modelling results

Scenario	PRC (%)	B430 north		B4030 east		B430 south		B4030 west	
		DoS (%)	MMQ (pcus)	DoS (%)	MMQ (pcus)	DoS (%)	MMQ (pcus)	DoS (%)	MMQ (pcus)
2034 DS3A AM peak	21.0%	69.9%	5.5	73.0%	7.7	73.6%	6.8	74.4%	12.6
2034 DS3A PM peak	5.4%	84.6%	7.4	85.4%	16.1	68.1%	6.3	83.0%	9.6
2034 DS3AwTP AM peak	23.1%	72.4%	5.7	71.4%	7.9	71.5%	6.4	73.1%	11.5
2034 DS3AwTP PM peak	7.4%	82.3%	7.4	83.8%	15.7	69.4%	6.8	81.5%	8.8
2042 DS4A AM peak	2.2%	87.5%	11.2	86.1%	9.4	55.1%	5.9	88.1%	532
2042 DS4A PM peak	18.0%	74.3%	6.4	76.3%	11.2	64.7%	6.1	75.8%	9.8
2042 DS4AwTP AM peak	-1.0%	88.5%	12.3	88.5%	9.8	49.9%	5.5	90.9%	17.9
2042 DS4AwTP PM peak	22.3%	72.3%	6.4	82.8%	9.8	62.7%	6.0	73.6%	9.7

11.109 As shown in the table above, the PRC is positive in both the morning and evening peak hours for the 2034 DS3A and DS3AwTP modelled scenarios, indicating that all links are operating within 90% of their capacity. When compared to the results shown above for the 2034 Reference Case scenario, it is evident that congestion and queue lengths would be materially reduced with the Proposed Development and the embedded Highway Works in place. Further, the improved junction performance can comfortably accommodate the proposed improvements to the pedestrian infrastructure at the junction.

11.110 In the 2042 Sensitivity Test, the PRC is positive in all scenarios with the exception of the 2042 DS4AwTP morning peak hour scenario which has a PRC of -1.0%. However, the performance of

the junction is still significantly improved in this scenario when compared to the 2042 RC4A morning peak hour scenario.

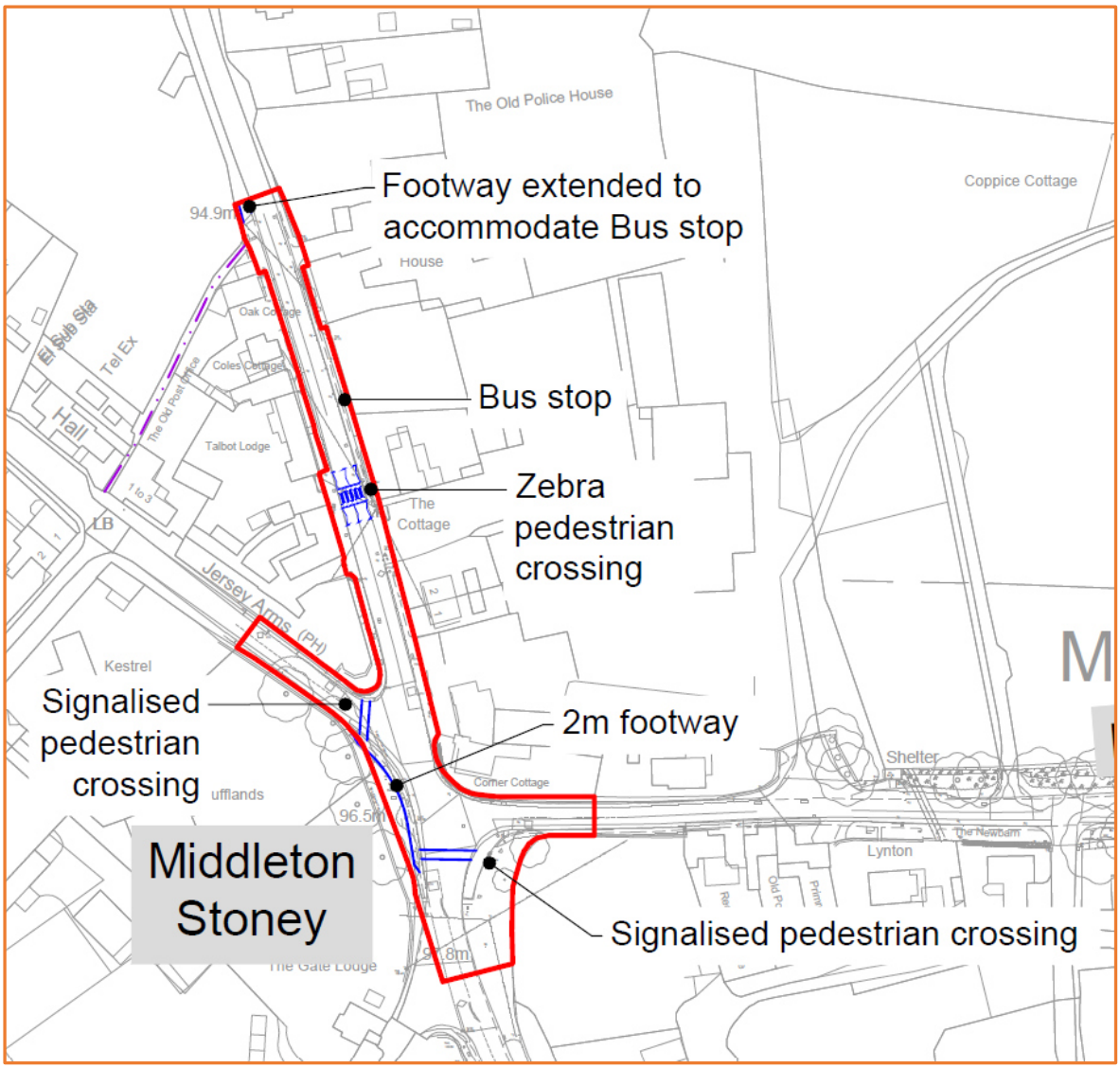


Figure 11.10: proposed new bus stops in Middleton Stoney and pedestrian improvements

Junction 9 - Upper Heyford/Chilgrove Drive/Camp Road junction

11.111 The existing Upper Heyford/Chilgrove Drive/Camp Road junction is a staggered priority controlled junction. Upper Heyford Road passes through the Main Site. It connects the B430 to Camp Road which continues west towards Heyford Park and Upper Heyford. Chilgrove Drive is currently a dead-end which runs to the west of the Main Site but will be converted to a bridleway route as part of the committed improvement works at this junction that are associated with the Heyford Park development.

11.112 As part of the Heyford Park development the Chilgrove Drive junction is to be upgraded to provide a new signal-controlled layout. The section 278 drawing showing the committed junction arrangement is provided at Appendix C of the **STS** (**Appendix 1**) and an extract is shown on **Figure 11.11** below.

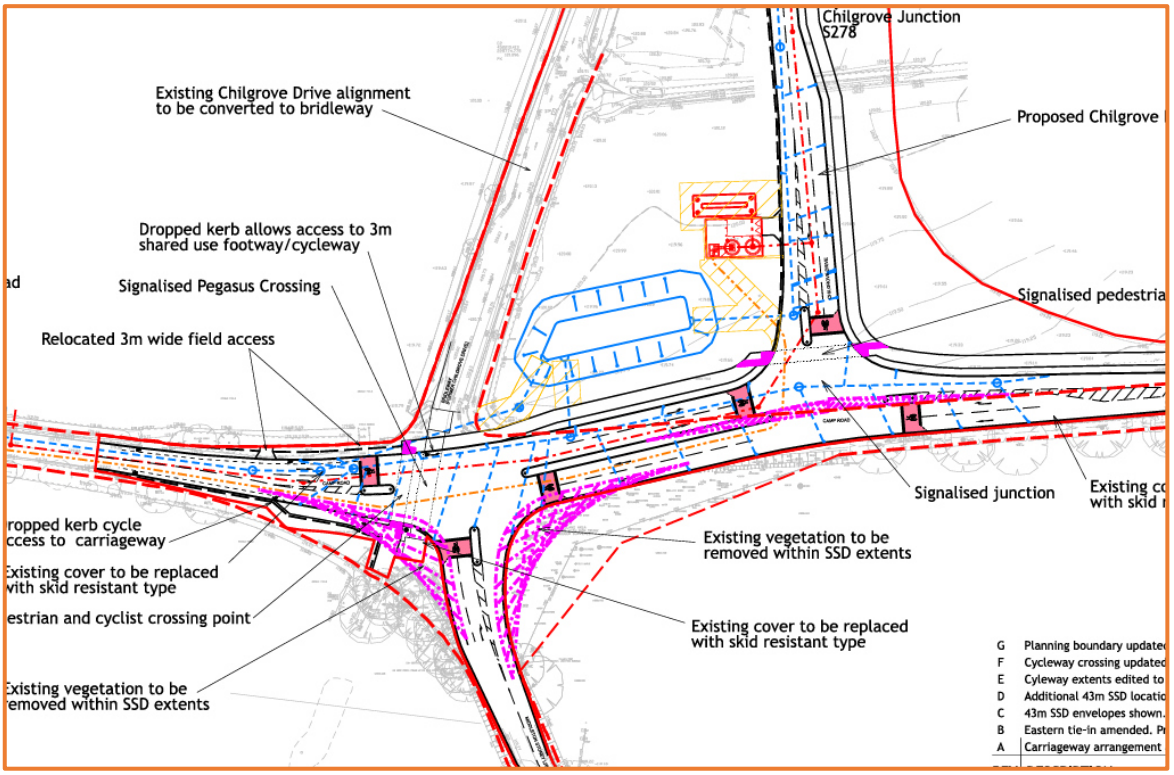


Figure 11.11: committed Upper Heyford Road/Chilgrove Drive/Camp Road junction

11.113 A LinSig model of the committed Upper Heyford/Chilgrove Drive/Camp Road junction has been developed using the agreed LinSig model from the Heyford Park assessment work and the morning and evening peak hour traffic flow scenarios set out in **Table 11.1**. A summary of the LinSig results is shown in **Table 11.23** below, with the full results provided at **Appendix 67**.

Table 11.23: Upper Heyford/Chilgrove Drive/Camp Road junction detailed modelling results

Scenario	Peak hour	Cycle time	Practical Reserve Capacity	Total delay (PCUhr)
2034 RC3A	AM	60	49.1%	12.05
	PM	60	117.8%	7.59
2034 DS3A	AM	60	15.4%	10.91
	PM	60	85.4%	5.84
2034 DS3AwTP	AM	60	27.2%	10.12
	PM	60	86.1%	5.86
2042 RC4A	AM	60	48.0%	11.77
	PM	60	114.1%	7.4
2042 DS4A	AM	60	8.2%	13.37
	PM	60	39.7%	6.74
2042 DS4AwTP	AM	60	6.4%	13.65
	PM	60	37.9%	6.59

11.114 The modelling demonstrates that the PRC is positive for each of the modelled scenarios, indicating that all links are operating less than 90% saturated and therefore, the committed Upper Heyford Road/Chilgrove Drive/Camp Road junction would operate satisfactorily in the 2034 completion year and also in the 2042 sensitivity test scenarios.

Upper Heyford Road/Camp Road junction - interim scheme

11.115 As discussed in **Chapter 4**, it is expected that the HPLR will tie into the new Upper Heyford Road/Chilgrove Drive/Camp Road traffic signal controlled junction arrangement, which would be completed prior to the opening of OxSRFI. However, should OxSRFI come forward ahead of the Heyford Park works being complete, then the Highway Works to amend the priority of the existing junction as shown on Highway Plan **Document 2.7D Insert 4.2** would be undertaken by the Proposed Development. This will encourage existing traffic to use the new HPLR and avoid travelling through Middleton Stoney. An extract of the proposed junction arrangement is provided at **Figure 11.12**.

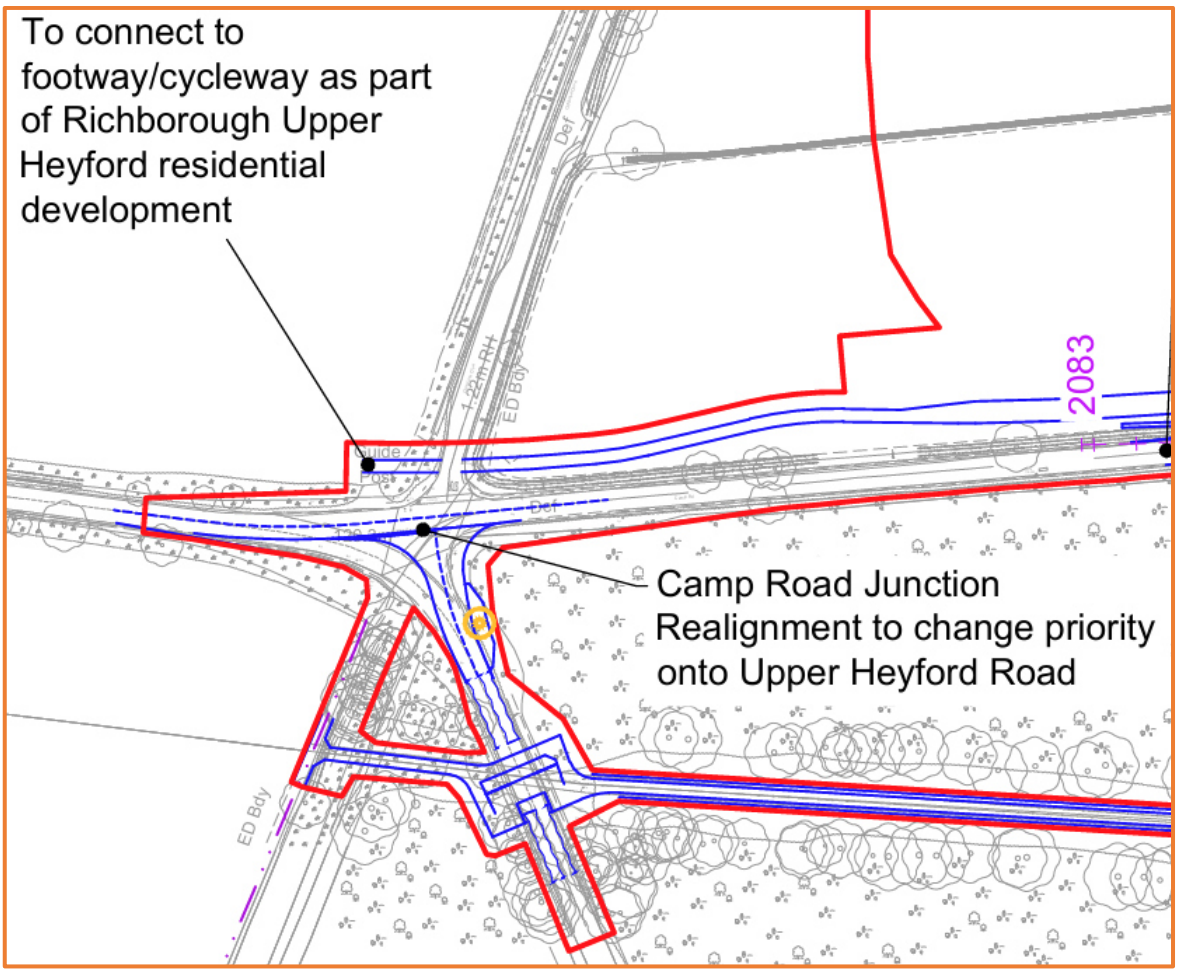


Figure 11.12: interim Upper Heyford Road/Camp Road junction

11.116 The interim junction has been modelled in Junctions 11 PICADY with the morning and evening peak hour 2034 DS3A Completion Year traffic flow scenarios. These traffic flows include traffic from the Heyford Park development that would be accessed via their new signal controlled arrangement. If the interim scheme were to come forward then the traffic flows associated with the Heyford Park development that will be accessed off Chilgrove Drive would not yet be in place (as if they were, the new traffic signal control junction would also be in place and hence the interim junction works would not be required). However, for robustness these flows are included within the detailed modelling of the interim junction.

11.117 A summary of the PICADY results is shown in **Table 11.24** below, with the full results provided at **Appendix 68** along with a drawing showing the PICADY geometry.

Table 11.24: Upper Heyford Road/Camp Road interim junction modelling results

	AM				PM			
	Set ID	Queue (Veh)	Delay (s)	RFC	Set ID	Queue (Veh)	Delay (s)	RFC
	2034 - DS3A							
Stream B-C	D1	0.1	7.20	0.05	D2	0.8	9.56	0.43
Stream B-A		0.4	15.09	0.29		0.1	9.37	0.09
Stream C-AB		0.7	5.23	0.29		0.1	4.80	0.05

Arm A is Upper Heyford Road, Arm B is Camp Road south, Arm C is Camp Road west

11.118 The modelling demonstrates that in the 2034 Completion Year scenario for the morning and evening peak hours, the junction is forecast to operate acceptably, with the ratio of flow to capacity (RFC) no higher than 43% in any of the modelled scenarios.

Summary of the embedded Highway Works detailed modelling

11.119 The Stage 3 Transport Modelling of the embedded Highway Works (study area Junctions 1 to 7, and Junctions 8 and 9 by association) has been undertaken to demonstrate that the proposed infrastructure at M40 Junction 10, the A43 Baynard's Green, the Principal Access junction, the HPLR, the MSRR, the Ardley Bypass and M40 Junction 9 can accommodate the future traffic growth and the traffic due to the OxSRFI Proposed Development. The detailed modelling combines LinSig, VISSIM, and ARCADY assessments across multiple future-year scenarios (2031, 2034, 2042), comparing the performance of the junctions in the agreed Do-Something scenarios (with OxSRFI and embedded mitigation) against the equivalent future baseline Reference Case scenarios (without OxSRFI).

11.120 For the OxSRFI only Baynard's Green scenario, the detailed assessment results demonstrate that the embedded Highway Works at Baynard's Green and M40 Junction 10 provide material capacity enhancements to accommodate background traffic growth and the OxSRFI development traffic. The embedded Highway Works would deliver an improvement in operating capacity at all three M40 Junction 10 junctions, particularly at the Ardley roundabout, and a significant improvement in the performance of the A43 Baynard's Green junction.

11.121 For the OxSRFI alternative Baynard's Green scenario, the embedded Highway Works scenarios offer material capacity enhancements to accommodate background traffic growth up to 2034 and the OxSRFI development traffic. The alternative Baynard's Green would operate within capacity and the embedded Highways Works at M40 Junction 10 provide a material improvement in operating capacity, particularly at the Ardley and Cherwell roundabouts.

11.122 The Principal Access gyratory, the B430/HPLR traffic signal controlled T-junction, the B430/MSRR traffic signal controlled T-junction, and the B4030/MSRR roundabout are shown to operate within capacity in all modelled scenarios.

11.123 The above findings have been confirmed by a comprehensive VISSIM microsimulation modelling exercise that demonstrates:

- Compared to the existing network configuration, the proposed Highway Works deliver substantial operational improvements, resolving existing capacity constraints whilst accommodating the Proposed Development traffic.
- Network-wide performance remains comparable between the improved future baseline (with Albion Land Baynard's Green improvements) and Do-Something scenarios, confirming adequate capacity provision across all future year conditions tested.

- The proposed Highway Works address M40 northbound off-slip queuing identified in the Reference Case, with substantial queue reductions and journey time improvements that resolve mainline interaction and safety concerns that are present in the Reference Case with Albion Land scenario.
- Localised impacts are modest in scale, with the majority of journey time changes within ±60 seconds (with Albion Land scenarios) and queue lengths remaining within approach capacities.

11.124 At M40 Junction 9, the proposed improvements on the A34 approach have been shown to materially reduce queue lengths and delays in both the morning and evening peak periods in all modelled scenarios. The reduced congestion on the A34 approach to M40 Junction 9 will assist in keeping traffic on the SRN rather than rat-running on the B430 and also address congestion on the A34 approach to the junction which is contributing to an accident hot-spot on the SRN.

11.125 The MSRR, HPLR and Ardley Bypass play a crucial role in improving network performance across the study area. This is most evident at the B430/B4030 Middleton Stoney crossroads were compared to the RC3A Reference Case, the combined impact of the MSRR and HPLR is to reduced traffic through Middleton Stoney by 39% in the AM peak hour and 23% in the PM peak, enabling a substantial reduction in congestion at the crossroads junction and supporting enhanced pedestrian, bus and active travel facilities within the village.

11.126 Overall, the detailed modelling confirms that the proposed mitigation strategy is effective. It enables the network to function acceptably under 2031, 2034, and 2042 conditions, addressing existing capacity constraints, supporting future growth, and accommodating the traffic associated with the OxSRFI development.

Wider study area junction modelling

11.127 The 'Wider Study Area Transport Modelling' technical note (**Appendix 45**) presents the findings of the Stage 3 detailed transport modelling undertaken for the wider study area (Junctions 10–24) along with the two B4030/Himley Village site access junctions that were requested by OCC, in support of the Proposed Development. The analysis builds upon the strategic transport modelling using that BTM that is presented in **Chapter 9** and assesses operational performance across multiple agreed assessment scenarios, including the 2031 DfT Circular 01/2022 Compliant scenario, 2034 Completion Year, and 2042 Sensitivity Test scenarios, with and without the Framework Travel Plan.

11.128 The following sections provide a summary of the wider study area detailed transport modelling assessment.

11.129 The Stage 3 Transport Modelling detailed in the 'Wider Study Area Transport Modelling' technical note involves detailed junction modelling using industry-standard assessment tools (LinSig, ARCADY, PICADY) and the peak-hour traffic flows extracted from the BTM for the agreed scenarios.

11.130 Several junctions across the wider study area, notably the B4030 Middleton Stoney Road/Howes Lane/Vendee Drive roundabout (Junction 11), the A4260/B4027 (Junction 18), the A4260/Upper Campsfield Road/Bunkers Hill junctions (Junction 19) and the A4095 Bunkers Hill/Lince Lane T-junction (Junction 20) are forecast to operate significantly over capacity in the 2034 and 2042 Reference Case scenarios, without the development in place. Widespread

queueing and degrees of saturation above 100% are forecast at these junctions, reflecting the existing constraints.

11.131 At two of the wider study area locations, the assessment presented in **Appendix 45** concludes that additional mitigation should be considered. At the A4095/B4030 Roundabout (Junction 11) and the A43 Barleymow roundabout (Junction 21).

A4095/B4040 roundabout (Junction 11)

11.132 The existing B4030 Middleton Stoney Road/Howes Lane/Vendee Drive roundabout (Junction 11) is forecast to experience significant congestion in future years. This junction plays a key role in enabling the positive traffic reassignments effects afforded by the MSRR, HPLR and Ardley Bypass. Therefore, to improve the performance of this junction a mitigation scheme was developed which would upgrade the roundabout to a fully traffic signal controlled gyratory with Toucan crossing facilities on each arm. The proposed improvement scheme would materially reduce congestion relative to the Reference Case in all scenarios.

11.133 OCC supports the delivery of the scheme via a S106 financial contribution, acknowledging there are multiple planned developments that are likely to have an impact at this junction and also the uncertainty over the timing of the North-West Bicester infrastructure delivery.

11.134 The proposed mitigation scheme is shown on **drawing number OxSRFI-BWB-GEN-XX-SK-CH-SK131**, provided at the drawings section of **Appendix 45**, with an extract provided at **Figure 11.13** below.

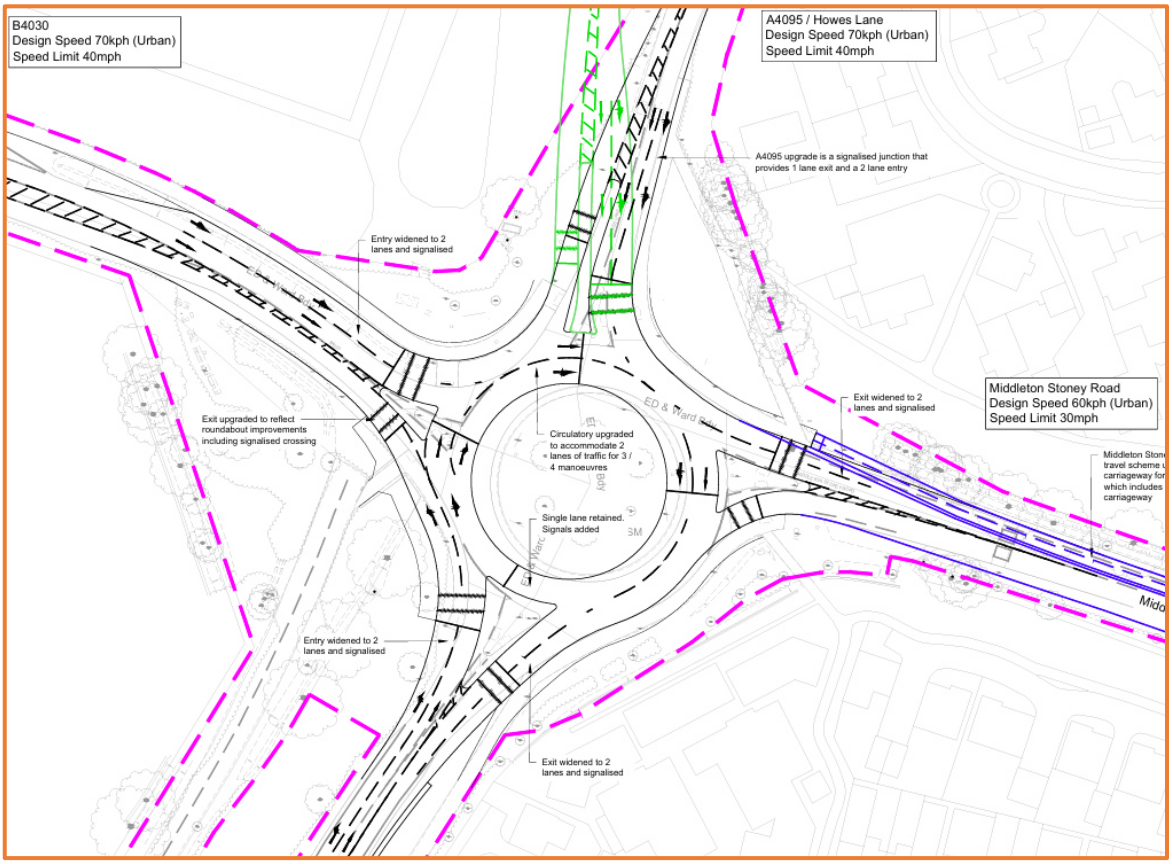


Figure 11.13: extract of drawing OxSRFI-BWB-GEN-XX-SK-CH-SK131

A43 Barleymow roundabout (Junction 21)

11.135 The analysis presented in the 'A43 Corridor' Technical Note (**Appendix 30**) and in **Chapter 9** of this TA identified that the embedded Highway Works proposed at the A43 Baynard's Green Roundabout and M40 J10 will remove existing highway network constraints, allowing the A43 to accommodate additional, previously suppressed, traffic demand. This additional traffic would have otherwise avoided the A43 corridor due to the existing congestion at these junctions. With the constraints at Baynard's Green and M40 J10 removed by the proposed Highway Works, the BTM forecasts that additional background traffic will use the A43 corridor as the preferred route because the overall journey times on the corridor would be reduced in comparison to the Reference Case.

11.136 However, the detailed modelling presented in Technical Note AV shows that, if fully realised, this additional traffic demand, in combination with the traffic associated with the Proposed Development, would result in operational capacity issues at the A43 Barleymow Roundabout that would reintroduce congestion on the corridor and could negate the forecast journey time improvements. Drivers would find an equilibrium with regards to route choice and would only be attracted to the A43 if journey times continued to be shorter than using their previous (existing) route. Therefore, there is uncertainty with regards to the impact at this junction and it has been agreed with National Highways that a 'monitor and manage' approach is appropriate.

11.137 To improve the performance of the Barleymow Roundabout, a mitigation scheme has been identified which would upgrade the roundabout to provide traffic signal control on the A43 northbound and southbound approaches, along with the provision of segregated left-turn lane from the A421 to the A43 south. The mitigation scheme would also change the lane markings on the roundabout, which in combination with the traffic signal control would be expected to contribute to an improvement in road safety at the junction. The proposed mitigation scheme is shown on **drawing number OxSRFI-BWB-GEN-XX-SK-CH-SK134**, provided at the drawings section of **Appendix 45**, with an extract provided at **Figure 11.14** below.

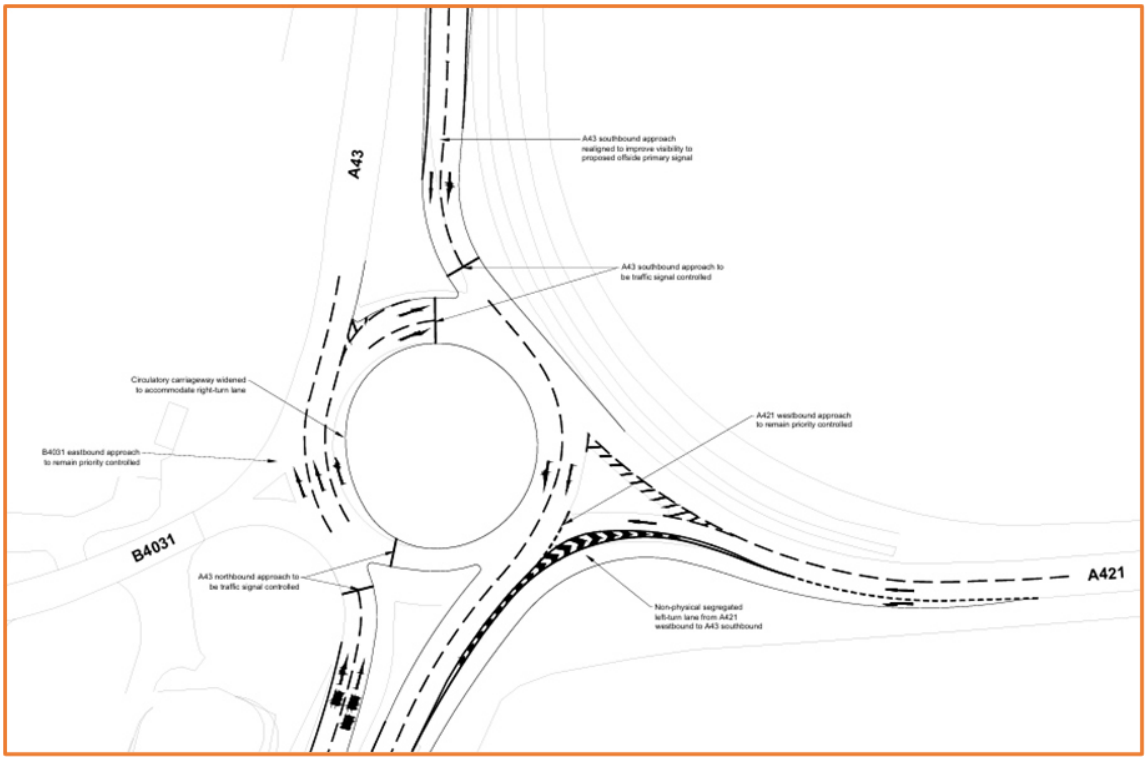


Figure 11.14: extract of proposed mitigation scheme at the A43 Barleymow Roundabout

11.138 The proposed mitigation scheme has been demonstrated to deliver capacity and operational improvements at the Barleymow Roundabout in both peak hours. It has been agreed with National Highways and OCC that due to the uncertainty around the traffic forecasts at the junction, the cost of the works would be secured by OCC on behalf of National Highways via a S.106 contribution to be made by the Applicant. The scheme would be implemented should pre-agreed traffic growth thresholds be reached. The exact mechanism for the monitor and manage arrangement will be agreed with National Highways.

Remaining wider study area junctions

11.139 At the remaining study area junction, (Junctions 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23 and 24) and the two B4030 Himley Village site access junctions, the conclusion of the detailed modelling assessments falls into one of the following three categories:

- Junctions operate within capacity in the 2034 and 2042 Do Something scenarios.
- Junctions experience no material degradation in performance in the Do Something scenarios.
- Junctions are over capacity in the Do Something but perform better than in the Reference Case due to the redistribution effects of the embedded Highway Works and/or the effects the Framework Travel Plan.

Summary

11.140 Therefore, with the Proposed Development in place, supported by the Sustainable Transport Strategy, the Framework Travel Plan, the embedded Highway Works and the additional mitigation at the B4030 Middleton Stoney Road/Howes Lane/Vendee Drive roundabout identified in this report, and the monitor and manage strategy at the A43/A421 Barleymow Roundabout, there would be no severe residual traffic impacts across the wider study area. In fact, network performance generally improves across the study area in the Do-Something scenarios due to the additional network capacity and the positive traffic reassignment effects of the embedded mitigation.

12.0 OPENING YEAR ASSESSMENT

Introduction

12.1 The study area for the 2031 Opening Year assessment is discussed in detail in **Chapter 9** of this report. **Table 12.1** below sets out the junctions included in the study area and the traffic flow scenarios applicable to each junction.

Table 12.1: 2031 study area junctions and traffic flow scenarios

Study area junctions (Opening Year)				
No.	Junction	RC2A	DS2A	DS2AwTP
1	Baynards Green roundabout	☑	☑	
2	M40 Junction 10	☑	☑	
3	Site access		☑	☑
7	M40 Junction 9	☑	☑	
8	B430/B4030 Middleton Stoney crossroads	☑	☑	☑
9	Upper Heyford/Chilgrove Drive/Camp Road junction	☑	☑	☑
21	Barley Mow roundabout	☑	☑	
25	B430/Ardley Road crossroads	☑	☑	☑
26	B430/Upper Heyford Road	☑	☑	☑
27	Middleton Rd/Bicester Rd/Ardley Rd/Bainton Rd crossroads	☑	☑	☑
28	B4030/Middleton Road T-junction	☑	☑	☑

12.2 The 2031 Opening Year traffic flows according with the scenarios identified in **Table 12.1** are detailed in **Chapter 10**.

Junction 1 and 2 – A43 Baynard's Green and M40 Junction 10

Interim Highway Works

12.3 As set out in **Chapter 5**, the phasing strategy for the embedded Highway Works has been developed to ensure that the Ardley Bypass, including the improvements to the Ardley roundabout at M40 Junction 10 will be in place from first occupation of the OxSRFI site. Further, sufficient interim improvements at the A43 Baynard's Green and M40 Junction 10 will also be in place prior to occupation, as shown on the Phase 1 Highway Works plan **OxSRFI-BWB-GEN-XX-SK-CH-SK054**.

12.4 The interim improvements at the A43 Baynard's Green and M40 Junction 10 are as follows:

- Interim layout for Baynard's Green which - in the DS2A Opening Year scenario being considered (with Albion Land) - would provide the alternative improvement works at the Baynard's Green junction (Works No. 16A in the DCO) that would tie into the existing A43 to the south of the junction. The widening of the A43 to three lanes northbound and southbound between Padbury and Baynard's Green forms part of the Phase 2 Highway Works.
- Interim layout for Cherwell junction and M40 J10 southbound merge as shown on Highway Plan **Document 2.7B Insert 2.**1.

Operational capacity – LinSig Assessment

12.5 The 2031 Opening Year Reference Case scenario has been run using the RC2A traffic flows and LinSig model (including Albion land) described in **Chapter 11** (**Appendices 54 and 53**). Further, the Baynard's Green and M40 Junction 10 Reference Case LinSig model has been amended to

incorporate the phase 1 Highway Works shown on the Highway Works phasing plan OxSRFI-BWB-GEN-XX-SK-CH-SK054 and as set out in the Highway Plans above. This Opening Year Do-Something LinSig model has been run with the traffic flow scenarios set out in **Table 12.1** for the morning and evening peak hours. **Table 12.2** below provides a summary of the results, and the DS2A traffic flows and the LinSig assessment are provided at **Appendices 69 and 70**.

Table 12.2: 2031 RC2A and DS2A Baynard's Green and M40 Junction 10 detailed modelling results

Scenario		Network		Baynards Green		Padbury		Cherwell		Ardley	
		PRC	Total delay (PCUhr)	PRC	Total delay (PCUhr)	PRC	Total delay (PCUhr)	PRC	Total delay (PCUhr)	PRC	Total delay (PCUhr)
2031 RC2A*	AM	-13.6%	140.19	1.8%	34.5	3.8%	18.2	-13.6%	24.8	4.9%	6.2
	PM	-3.9%	109.94	-2.0%	43.9	11.8%	19.4	-3.9%	28.3	-3.3%	10.8
2031 DS2A	AM	-5.4%	129.74	5.9%	33.8	1.2%	31.8	-5.4%	30.5	3.0%	26.2
	PM	-3.1%	109.02	-3.1%	40.6	1.0%	20.5	3.1%	11.8	9.9%	30.6

* Ardley priority controlled roundabout

12.6 **Table 12.2** shows that in the 2031 DS2A morning peak hour scenario the Baynard's Green, Padbury and Ardley junctions would all operate with a positive PRC. Whilst the Cherwell junction would have a PRC of -5.4% in this scenario, it would be operating significantly better the 2031 RC2A scenario due to the interim improvement scheme. In the 2031 DS2A evening peak hour scenario the Padbury, Cherwell and Ardley junctions would all operate with a positive PRC. The Baynard's Green, junction would have a PRC of -3.1% in this scenario, reducing by 1.1% when compared to the 2031 RC2A scenario. This is not a severe impact and there would be no material increases in delay or queueing.

12.7 Therefore, the LinSig modelling demonstrates that the phasing strategy for the embedded Highway Works, which would deliver the Ardley Bypass, the Ardley roundabout and interim improvements at the A43 Baynard's Green and Cherwell roundabout from first occupation of the OxSRFI site, would be sufficient to accommodate traffic growth to 2031 and the first phase of the OxSRFI development at Baynard's Green and M40 Junction 10. This is also confirmed by the VISSIM assessment presented later in this section.

Junction 3 – Principal Access gyratory

12.8 Using the LinSig model described in Section 11, the Principal Access junction has been modelled with the traffic flow scenarios set out in **Table 12.1** for the morning and evening peak hours. **Table 12.3** below provides a summary of the results and a copy of the LinSig assessment is provided at **Appendix 57**.

Table 12.3: 2031 Opening Year Principal Access detailed modelling results

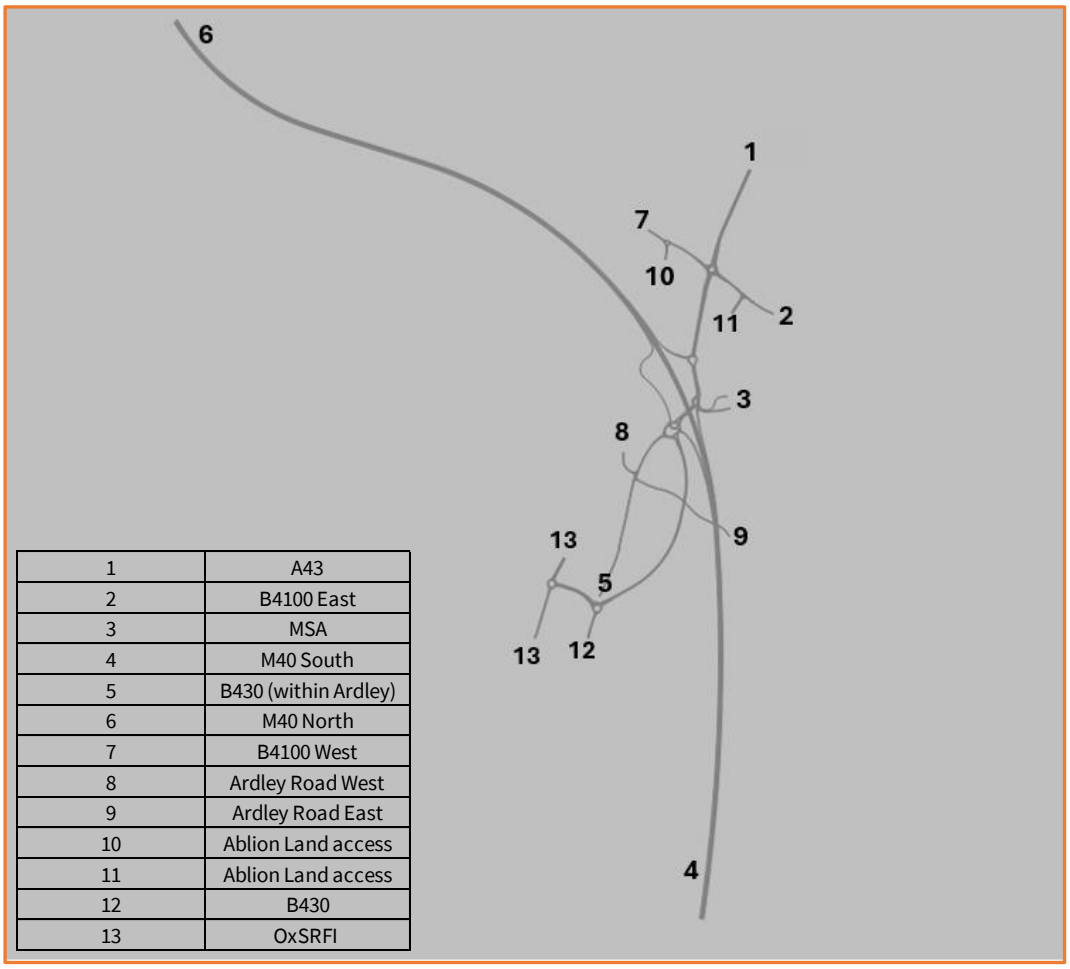
Site access				
Scenario	Peak hour	Cycle time	Practical Reserve Capacity	Total delay (PCUhr)
2031 DS2A	AM	40	35.5%	3.32
	PM	40	347.0%	2.19
2031 DS2AwTP	AM	40	35.8%	3.26
	PM	40	357.8%	1.96

12.9 As shown, the PRC is positive in all 2031 Opening Year scenarios indicating that all links are operating less than 90% saturated and therefore the proposed junction would provide a satisfactorily access for the Proposed Development.

VISSIM microsimulation modelling in the Opening Year

12.10 The operation of the A43 Baynard's Green, M40 Junction 10, Ardley Bypass, Principal Access, and B430 through Ardley have also been examined via a comprehensive VISSIM microsimulation modelling exercise undertaken by Modelling Group (specialist microsimulation modellers). The assessment of the 2031 Opening Year scenarios is described in detail in the 'Modelling Impact Assessment Report' (**Appendix 43**).

12.11 The RC2A 2031 Opening Year Reference Case VISSIM model network is shown at **Figure 11.3** (in **Chapter 11**). The Phase 1 Highway Works were coded into the VISSIM model and the DS2A 2031 Opening Year Do-Something VISSIM model network is shown at **Figure 12.1**, below. The Do-Something model includes the internal roundabout within the OxSRFI site and hence the OxSRFI zones are split north and south of that roundabout.



1	A43
2	B4100 East
3	MSA
4	M40 South
5	B430 (within Ardley)
6	M40 North
7	B4100 West
8	Ardley Road West
9	Ardley Road East
10	Ablion Land access
11	Ablion Land access
12	B430
13	OxSRFI

Figure 12.1: DS2A VISSIM microsimulation network

12.12 The primary finding for the 2031 Opening Year assessment with the Phase 1 Highway Works is that the OxSRFI development mitigation schemes deliver operational improvements to the M40 northbound corridor, addressing capacity constraints evident in the Reference Case.

12.13 In the 2031 AM peak, M40 northbound off-slip queuing at Ardley roundabout reduces from approximately 340 metres (Reference Case) to 135 metres (Do-Something), a 60% reduction. Whilst the 2031 Reference Case queuing does not extend to the M40 mainline in this scenario (as shown to be the case in the latter 2034 Reference Case presented in **Chapter 11**), the Do-Something scenario still delivers operational improvements. Journey times from M40 northbound to Ardley reduce by 1 minute 5 seconds, reflecting enhanced traffic flow.

12.14 The network-wide performance metrics for the 2031 Opening Year scenario as shown in **Table 12.4** demonstrate that the Do-Something conditions deliver operation comparable to the improved future Reference Case (with the Albion Land development and their proposed improvement works at Baynard's Green), whilst accommodating the additional Phase 1 traffic from the OxSRFI development.

Table 12.4: Network performance results DS2A to RC2A

All vehicles				
Scenario	Peak	Average delay per vehicle (s)	Average speed (mph)	Latent Demand
2031 Opening Year Reference Case (RC2A)	AM	49	51	0
2031 Opening Year Do-Something (DS2A)	AM	48	50	0

All vehicles				
Scenario	Peak	Average delay per vehicle (s)	Average speed (mph)	Latent Demand
2031 Opening Year Reference Case (RC2A)	PM	46	52	1
2031 Opening Year Do-Something (DS2A)	PM	52	50	0

12.15 In the AM peak the average vehicle delay reduces marginally from 49 seconds to 48 seconds, with average network speed reducing from 51mph to 50mph. In the PM peak average vehicle delay increases from 46 seconds to 52 seconds, with average network speed reducing from 52 mph to 50 mph. These changes reflect the introduction of additional signalised junctions in the Do-Something network, which inevitably add stopped time to some vehicle journeys. However, the similarity of network performance metrics indicates that traffic is managed effectively. Zero or negligible latent demand in all scenarios confirms network capacity sufficiency.

12.16 Positive localised effects include reduced M40 off-slip and A43 North queuing at Ardley (as discussed above), reduced queuing at Ardley village crossroads (traffic reassignment to Ardley bypass), and reduced A43 North queuing at Padbury and Cherwell junctions.

12.17 Other localised effects include increased journey times to and from Ardley village. The busier PM peak experiences the longer journey time changes, with the AM peak less affected. Across both peaks, the impacts are partly a result of speed limit changes in this section of the network – reflecting the proposed new 20mph speed limit within Ardley and the proposed 40mph speed limit on the section of the B430 between the village and Ardley Roundabout, along with the improvements at Ardley Roundabout. The enhancements to the Ardley Roundabout increase circulatory flows and lead to additional waiting times on the priority controlled B430 approach. However, the signalisation of the other nodes at Ardley roundabout help to provide defined gaps when vehicles from the B430 can progress, in contrast to the Reference Case where it is harder for drivers to judge suitable gaps.

12.18 Elsewhere, the changes in journey times are all ±50s, which indicates that Phase 1 of the Proposed Development with the associated Phase 1 Highway Works will lead to a network performance similar to the improved Reference Case confirming adequate additional capacity provision to accommodate Phase 1 of the development.

12.19 Therefore, the proposed phasing strategy for the embedded Highway Works, which would deliver the Ardley Bypass, the Ardley roundabout and interim improvements at the A43 Baynard's Green and Cherwell roundabout from first occupation of the OxSRFI site, would be sufficient to accommodate traffic growth to 2031 and the first phase of the OxSRFI development.

Junction 7 – M40 Junction 9

12.20 The development of the LinSig model for M40 Junction 9 is described in detail in **Chapter 11** of this TA. The LinSig model used for the assessment of the Proposed Development in the RC1A scenario has been used for the assessment of the Opening Year scenarios, which is appropriate because neither the third-party mitigation scheme nor the Proposed Development mitigation scheme would be in place in the Opening Year.

12.21 Further, the LinSig assessments described in Chapter 11 have been run with sensitivity test flow sets in response to comments made by Aecom on behalf of National Highways. Hence, it is appropriate to adopt the same approach for assessing the junction performance in the Opening Year scenario. The sensitivity test flows have been derived by calculating the absolute change between the BTM forecast scenario (e.g. 2031 RC2A, etc) and the 2024 BTM base turning flows. The absolute difference is then applied to the 2024 observed data to give the sensitivity test flow set (identified as adjRC2A in the LinSig model). The adjusted RC2A and DS2A traffic flows are provided at **Appendix 60**.

12.22 The LinSig model results are provided at **Appendix 61** and summarised below at **Table 12.5**.

Table 12.5 2031 Opening Year M40 Junction 9 detailed modelling results summary

Scenario	Peak hour	Junction		M40 Southbound		A41		M40 Northnound		A34	
		PRC	Total delay (PCUhr)	DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
2031 adjRC2A	AM	-2.6%	87.28	92.3%	18.7	90.4%	13.7	87.1%	7.9	91.4%	22.5
	PM	-21.9%	213.11	96.8%	26.0	81.1%	10.3	100.1%	14.2	109.7%	82.3
2031 adjDS2A	AM	-4.4%	84.43	93.9%	20.5	81.4%	9.1	83.3%	6.9	91.7%	22.7
	PM	-22.8%	234.40	99.1%	33.3	77.5%	9.4	99.4%	13.8	110.5%	91.0

12.23 Comparing the 2031 RC2A and DS2A scenarios shows that the PRC deteriorates by 1.8% in the DS2A morning peak hour, though there is a reduction in the total delay at the junction. The results show that the performance of the A41 approach to the junction improves in the DS2A morning peak hour, with a large reduction in the queue length, as background traffic reassigns away from the A41. This occurs due to the Middleton Road reassignment effect discussed in Chapter 9, with some south/central Bicester traffic reassigning to the Middleton Road/Ardley Road route to M40 Junction 10 rather than routing along the A41 and M40 Junction 9 due to a change in journey times. However, due to the proposed interventions on the Middelton Road/Ardley Road route as part of the embedded Highway Works, this reassignment is not expected to occur in practice. The reserve capacity on the A41 approach in the DS2A scenario would be able to accommodate the extra background traffic on this approach if this reassignment effect did not materialise.

12.24 There are no material changes in performance at the M40 southbound, M40 northbound or A34 approaches due to the first phase of the OxSRFI Proposed Development in the 2031 morning peak hour.

12.25 In the evening peak hour, the PRC reduces by 0.9% in the DS2A scenario when compared to the RC2A, which is not material. There are modest increases in queue length on the M40 southbound and A34 approaches, but these impacts are not severe, and the performance of the junction would not be materially changed in the 2031 Opening Year evening peak hour. Furter, should the above-described Middleton Road reassignment effect not materialise due to the interventions on Middleton Road (Chapter 9), then the A41 approach is shown to have sufficient spare capacity to accommodate the background traffic.

Junction 8 – B430/B4030 crossroads, Middleton Stoney

12.26 The detailed modelling of the B430/B4030 crossroads in Middleton Stoney is provided in **Chapter 11**. Using the Reference Case LinSig model described in that chapter, the B430/B4030 crossroads has been modelled with the 2031 Opening Year traffic flow scenarios set out in **Table 12.1** for the morning and evening peak hours. **Table 12.6** below provides a summary of the results and the LinSig assessment is provided at **Appendix 71**.

Table 12.6: 2031 Opening Year B430/B4030 Middleton Stoney crossroads modelling results

Scenario	PRC (%)	B430 north		B4030 east		B430 south		B4030 west	
		DoS (%)	MMQ (pcus)	DoS (%)	MMQ (pcus)	DoS (%)	MMQ (pcus)	DoS (%)	MMQ (pcus)
2031 RC2A AM peak	-23.2%	109.8%	40.9	110.9%	23.6	68.2%	8.2	110.0%	66.8
2031 RC2A PM peak	-12.1%	97.8%	11.7	100.9%	32.0	90.5%	8.5	97.3%	20.8
2031 DS2A AM peak	-19.7%	107.8%	36.5	107.2%	18.5	76.5%	9.8	106.6%	54.5
2031 DS2A PM peak	-10.7%	97.5%	12	99.6%	29.1	78.8%	6.2	97.6%	20.5
2031 DS2AwTP AM peak	-21.4%	107.5%	36	104.9%	17.5	76.1%	9.7	109.2%	63.6
2031 DS2AwTP PM peak	-10.8%	96.2%	11.3	99.7%	29.3	78.9%	6.2	96.8%	19.5
2031 DS2A sensitivity AM	-24.2%	111.3%	44.5	111.7%	24.6	78.4%	10.2	110.2%	67.3
2031 DS2A sensitivity PM	-19.8%	107.8%	24.1	107.2%	48.7	83.2%	7.1	105.7%	33.6

12.27 As shown in the table above, the PRC is negative in all of the RC2A, DS2A and DS2AwTP modelled scenarios, indicating that one or more links are operating above 90% saturated. However, the results show that the PRC at the junction improves in the DS2A and DS2AwTP scenarios when compared to the RC2A scenario in both the morning and evening peak hours.

12.28 **Chapter 9** describes how background traffic is shown to reassign from the B4100, A41 and B430 routes between Bicester and M40 Junction 10 to the Middleton Road/Ardley route in the Opening Year scenarios. However, it is also explained that due to the interventions proposed on Middleton Road (shuttle running and speed limit change) and Ardley Road (speed limit change) as part of the embedded Highway Works, the reassignment would not occur in practice, as the route would not offer any journey time saving. Therefore, background traffic would remain on the routes used in the RC2A scenario.

12.29 If the reassigning traffic remained on the original routes, the relative difference in flow on each would be small and hence there would be no additional material impacts at junctions that require further assessment. However, the only junction where a material effect may occur would be the Middleton Stoney Crossroads, which is much closer to the Proposed Development and hence is more directly affected by reassigning traffic. Hence, a sensitivity test at this junction has been undertaken in which the peak hour vehicle trips associated with OxSRFI have been added to the 2031 Opening Year Reference Case traffic flows at the junctions, to give the worst-case scenario during the Opening Year. These traffic flow calculations and sensitivity test LinSig results are provided at **Appendix 71**. The results are also summarised at **Table 12.6** above.

12.30 The PRC at the junction would deteriorate by just 1% in the 2031 Opening Year sensitivity test for the morning peak hour when compared to the 2031 RC2A scenario, with only very small increases in queueing across the junction. In the evening peak hour, whilst the impact is greater than in the morning peak hour, (the PRC deteriorates by 7.7%), the increases in queue lengths are not severe, especially in the context that any impacts in the Opening Year would be short-term, with the MSRR delivered in phase two of the highway works and bringing substantial relief to congestion in Middelton Stoney. Further, it is noted that the proposed Zebra crossing on the B430 north would be delivered in Phase 1 of the Highway Works, making crossing the B430 easier for pedestrians.

Junction 9 - Upper Heyford/Chilgrove Drive/Camp Road junction

12.31 As part of the Heyford Park development the Chilgrove Drive junction is to be upgraded to provide a new signal-controlled layout. An extract of the section 278 drawing showing the committed junction arrangement is provided at **Figure 11.7** in **Chapter 11**.

12.32 Using the LinSig model described in **Chapter 11** the committed Upper Heyford/Chilgrove Drive/Camp Road junction has been modelled with the traffic flow scenarios set out in **Table 12.1** for the morning and evening peak hours. **Table 12.7** below provides a summary of the results and a copy of the LinSig assessment is provided at **Appendix 67**.

Table 12.7: 2031 Opening Year Upper Heyford/Chilgrove Drive/Camp Road detailed modelling results

Scenario	Peak hour	Cycle time	Practical Reserve Capacity	Total delay (PCUhr)
2031 RC2A	AM	60	58.1%	11.10
	PM	60	123.1%	7.18
2031 DS2A	AM	60	49.7%	9.51
	PM	60	141.6%	6.98
2031 DS2AwTP	AM	60	51.3%	9.40
	PM	60	138.8%	6.87

12.33 The modelling demonstrates that the PRC is positive for each of the modelled scenarios, indicating that all links are operating less than 90% saturated and therefore, the committed Upper Heyford/Chilgrove Drive/Camp Road junction would operate satisfactorily in the 2031 Opening Year scenarios.

Junction 21 – A43 Barleymow Roundabout

12.34 As detailed in the Wider Study Area Transport Modelling (**Appendix 45**) which is summarised in **Chapter 11** of this TA, there is uncertainty with regards to the effects of the Proposed Development and the embedded Highway Works on the operation of the A43 Barleymow Roundabout and therefore, it has been agreed with National Highways that a 'monitor and manage' approach is appropriate.

12.35 A mitigation scheme has been identified which would upgrade the roundabout to provide traffic signal control on the A43 northbound and southbound approaches, along with the provision of segregated left-turn lane from the A421 to the A43 south. It has been agreed with National Highways and OCC that due to the uncertainty around the traffic forecasts at the junction, the cost of the works would be secured by OCC on behalf of National Highways via a S.106 contribution to be made by the Applicant. The scheme would be implemented should pre-agreed traffic growth thresholds be reached. The exact mechanism for the monitor and manage arrangement will be agreed with National Highways.

12.36 Therefore, the implementation of the monitor and manage arrangement, which will implement the identified mitigation if pre-agreed triggers are activated, negates the need for an Opening Year assessment at this junction.

Junction 25 – B430/Ardley Road crossroads

12.37 The B430/Ardley Road junction is a right-left staggered priority controlled crossroads. There is a narrow right-turn harbourage for the right-turn into Ardley Road west and left-turn diverges into

both Ardley Road east and west. The Ardley Road east and west approaches also have significant flaring. The layout of the junction is shown on **Figure 12.2** below.

Figure 12.2: B430/Ardley Road staggered crossroads

12.38 As discussed in Uncertainty Log in **Chapter 7**, whilst the improvement associated with the Heyford Park development to provide traffic signal control at the staggered crossroads is a committed scheme, it would be unlikely to be implemented should the Proposed Development proceed. This is because the Ardley Bypass would negate the need for the improvement at the junction.

12.39 The Ardley Bypass would be open in the 2031 Opening Year, and hence there would no longer be B430 traffic routing through Ardley and therefore the traffic conditions at the B430/Ardley Road would be materially improved. Further, whilst the junction has been modelled with the flow sets as per the BTM, for the reasons given in Chapter 9, the traffic reassigning to the Middleton Road/Ardley Road route in the Opening Year scenarios is not expected to materialise due to the interventions planned on Middleton Road and Ardley road as part of the embedded Highways Works.

12.40 The junction has been modelled in Junctions 11 PICADY with the morning and evening peak hour Opening Year traffic flow scenarios set out in **Table 12.1**. A summary of the PICADY results is shown in **Table 12.8** below, with the full results provided at **Appendix 73** along with a drawing showing the PICADY geometry.

Table 12.8: 2031 Opening Year B430/Ardley Road crossroads modelling results

	AM				PM			
	Set ID	Queue (Veh)	Delay (s)	RFC	Set ID	Queue (Veh)	Delay (s)	RFC
	Traffic flows - 2031 - RC2A							
Stream B-C	D1	1.5	29.27	0.61	D2	0.0	6.32	0.02
Stream B-AD		2.1	47.28	0.69		0.3	11.64	0.25
Stream A-BCD		0.1	6.94	0.05		0.1	7.12	0.08
Stream D-A		0.1	7.10	0.06		0.0	6.57	0.04
Stream D-BC		0.4	18.11	0.30		0.2	10.68	0.19
Stream C-ABD		0.5	6.76	0.22		0.3	4.98	0.14
	Traffic flows - 2031 - DS2A							
Stream B-C	D3	0.1	8.69	0.07	D4	0.0	11.04	0.01
Stream B-AD		1.6	17.23	0.62		2.6	23.24	0.73
Stream A-BCD		0.1	6.60	0.06		0.2	7.76	0.18
Stream D-A		0.1	7.41	0.11		0.0	6.46	0.04
Stream D-BC		0.2	9.35	0.16		0.1	9.58	0.13
Stream C-ABD		0.0	6.01	0.04		0.0	0.00	0.00
	Traffic flows - 2031 - DS2AwTP							
Stream B-C	D5	0.1	8.57	0.07	D6	0.0	11.04	0.01
Stream B-AD		1.6	16.92	0.62		2.6	23.25	0.73
Stream A-BCD		0.1	6.59	0.06		0.2	7.75	0.18
Stream D-A		0.1	7.84	0.12		0.0	6.45	0.04
Stream D-BC		0.2	9.30	0.16		0.1	9.50	0.12
Stream C-ABD		0.0	6.00	0.04		0.0	0.00	0.00

Arm A is B430 north, Arm B is Ardley Road east, Arm B430 south is x, Arm D is Ardley Road west

12.41 The modelling demonstrates that in all 2031 Opening Year scenarios for the morning and evening peak hours, the junction is forecast to operate acceptably, with the ratio of flow to capacity (RFC) no higher than 73% in any of the modelled scenarios.

Junction 26 – B430/Upper Heyford Road T-junction

12.42 The B430/Upper Heyford Road junction is a priority controlled T- junction with a right-turn ghost island facility. The A4095 has two lanes in each direction at the junction. The layout of the junction is shown on **Figure 12.3** below.

12.43 There is a committed highway improvement to provide traffic signal control at this junction as part of the Heyford Park development (see Appendix C of the **STS** (**Appendix 1**)). However, the junction will be removed as part of the Phase 2 Highway Works for the Proposed Development, with Upper Heyford Road being replaced by the HPLR. Therefore, it is unlikely that the traffic signal controlled improvement would be implemented if the Proposed Development were to proceed. Accordingly, the operation of this junction has been assessed in its current priority controlled layout.

Figure 12.3: B430/Upper Heyford Road junction

12.44 The junction has been modelled in Junctions 11 PICADY with the morning and evening peak hour Opening Year traffic flow scenarios set out in **Table 12.1**. A summary of the PICADY results is shown in **Table 12.9** below, with the full results provided at **Appendix 74** along with a drawing showing the PICADY geometry.

Table 12.9: B430/Upper Heyford Road junction modelling results

	AM				PM			
	Set ID	Queue (Veh)	Delay (s)	RFC	Set ID	Queue (Veh)	Delay (s)	RFC
	Existing Layout - 2031 - RC2A							
Stream B-C	D1	0.6	7.55	0.39	D2	0.6	7.81	0.39
Stream B-A		0.1	22.29	0.13		0.2	14.84	0.14
Stream C-AB		2.0	13.93	0.67		0.3	6.33	0.23
	Existing Layout - 2031 - DS2A							
Stream B-C	D3	0.5	7.20	0.35	D4	0.7	8.27	0.40
Stream B-A		0.2	16.00	0.19		0.2	9.11	0.19
Stream C-AB		1.3	10.63	0.56		0.3	6.31	0.24
	Existing Layout - 2031 - DS2AwTP							
Stream B-C	D5	0.5	7.08	0.34	D6	0.7	8.29	0.40
Stream B-A		0.2	15.68	0.19		0.3	9.08	0.20
Stream C-AB		1.2	10.47	0.55		0.3	6.24	0.23

Arm A is B430 south, Arm B is Upper Heyford Road, Arm B430 north

12.45 The modelling demonstrates that in all 2031 Opening Year scenarios for the morning and evening peak hours, the junction is forecast to operate acceptably, with the ratio of flow to capacity (RFC) no higher than 67% in any of the modelled scenarios.

Junction 27 – Middleton Road/Bicester Road/Ardley Road/Bainton Road crossroads

12.46 The Middleton Road/Bicester Road/Ardley Road/Bainton Road junction is a priority controlled crossroads located in the centre of Bucknell. The layout of the junction is shown on **Figure 12.4** below.

Figure 12.4: Middleton Road/Bicester Road/Ardley Road/Bainton Road junction

12.47 For the reasons discussed in **Chapter 9**, it is considered that the traffic flows changes at this junction that are forecast in the Opening Year would not occur in practice. This is because the BTM strategic modelling does not represent the delay to drivers using Middleton Road and Ardley Road that would be associated with the one-way traffic signals arrangement that will be implemented at the Middleton Road bridge as part of the Phase 1 Highway Works, nor the reductions in speed limits that will be implemented on Middleton Road and Ardley Road as part of the Proposed Development.

12.48 With these measures in place, journey time saving would not be realised and hence the forecast traffic increases on these roads will not occur, as the route would not offer any journey time saving. Nevertheless, the junction has been assessed using the traffic flows taken from the BTM to confirm that there would be no operational impact.

12.49 The junction has been modelled in Junctions 11 PICADY with the morning and evening peak hour Opening Year traffic flow scenarios set out in **Table 12.1**. A summary of the PICADY results is shown in **Table 12.10** below, with the full results provided at **Appendix 75** along with a drawing showing the PICADY geometry.

Table 12.10: Middleton Road/Bicester Road/Ardley Road/Bainton Road junction modelling results

	AM				PM			
	Set ID	Queue (Veh)	Delay (s)	RFC	Set ID	Queue (Veh)	Delay (s)	RFC
	Traffic flows - 2031 - RC2A							
Stream B-ACD	D1	0.8	15.25	0.45	D2	0.1	8.28	0.11
Stream A-BCD		0.6	8.94	0.34		0.2	6.71	0.12
Stream D-AB		0.2	7.27	0.17		0.2	7.08	0.15
Stream D-BC		0.0	9.54	0.05		0.0	8.02	0.05
Stream C-ABD		0.0	0.00	0.00		0.0	0.00	0.00
	Traffic flows - 2031 - DS2A							
Stream B-ACD	D3	0.3	11.82	0.26	D4	0.5	13.00	0.35
Stream A-BCD		0.6	9.33	0.36		0.2	7.29	0.17
Stream D-AB		0.4	8.67	0.31		0.8	10.26	0.44
Stream D-BC		0.1	9.87	0.06		0.1	9.15	0.06
Stream C-ABD		0.0	0.00	0.00		0.0	0.00	0.00
	Traffic flows - 2031 - DS2AwTP							
Stream B-ACD	D5	0.4	12.02	0.27	D6	0.5	12.95	0.35
Stream A-BCD		0.6	9.34	0.35		0.2	7.31	0.17
Stream D-AB		0.4	8.65	0.31		0.8	10.28	0.44
Stream D-BC		0.1	9.85	0.06		0.1	9.11	0.06
Stream C-ABD		0.0	0.00	0.00		0.0	0.00	0.00

Arm A is Ardley Road, Arm B is Bainton Road, Arm C is Bicester Road, Arm D is Middleton Road

12.50 The modelling demonstrates that in all 2031 Opening Year scenarios for the morning and evening peak hours, the junction is forecast to operate acceptably, with the ratio of flow to capacity (RFC) no higher than 45% in any of the modelled scenarios.

Junction 28 – B4030/Middleton Road T-junction

12.51 The B4030/Middleton Road junction is a simple priority controlled T-junction located to the east of Middleton Stoney. The layout of the junction is shown on **Figure 12.6** below.

Figure 12.6: B4030/Middleton Road T- junction

12.52 The junction has been modelled in Junctions 11 PICADY with the morning and evening peak hour Opening Year traffic flow scenarios set out in **Table 12.1**. A summary of the PICADY results is

shown in **Table 12.11** below, with the full results provided at **Appendix 76** along with a drawing showing the PICADY geometry.

Table 12.11: B4030/Middleton Road T- junction modelling results

	AM				PM			
	Set ID	Queue (Veh)	Delay (s)	RFC	Set ID	Queue (Veh)	Delay (s)	RFC
	Traffic flows - 2031 - RC2A							
Stream B-AC	D1	1.0	18.09	0.51	D2	0.4	14.74	0.30
Stream C-AB		0.2	6.10	0.12		0.5	4.43	0.18
	Traffic flows - 2031 - DS2A							
Stream B-AC	D3	1.0	17.46	0.50	D4	0.8	23.40	0.46
Stream C-AB		0.6	7.89	0.30		5.7	16.57	0.77
	Traffic flows - 2031 - DS2AwTP							
Stream B-AC	D5	1.1	19.30	0.53	D6	0.8	22.53	0.45
Stream C-AB		0.6	7.87	0.30		5.8	16.71	0.77

Arm A is B4030 west, Arm B is Middleton Road, Arm C is B4030 east

12.53 The modelling demonstrates that in all 2031 Opening Year scenarios for the morning and evening peak hours, the junction is forecast to operate acceptably, with the ratio of flow to capacity (RFC) no higher than 53% in any of the modelled scenarios.

Summary

12.54 The operational performance of the 2031 Opening Year study area junctions has been undertaken, considering both the Reference Case (RC2A) and the Do-Something (DS2A and DS2AwTP) scenarios that include the first phase of the OxSRFI development and associated Highway Works, as described in **Chapter 5**.

12.55 The embedded Highway Works phasing strategy ensures that the Ardley Bypass, Ardley roundabout, and interim upgrades at A43 Baynard's Green and Cherwell Junction are in place prior to first occupation of the OxSRFI site. These improvements form the basis for the Opening Year assessment and influence traffic performance outcomes across the network.

12.56 Across the Opening Year study area, the detailed modelling consistently demonstrates that there would be no material impacts in 2031 when the initial phase of the development is occupied. Key findings include:

- The A43 Baynard's Green and junctions across the M40 Junction 10 complex largely operate within capacity with the first phase of development in place. No severe increases in queuing or delay are forecast.
- The Principal Access Junction performs well, with positive PRC values in all scenarios.
- At M40 Junction 9 there are no material impacts with the first phase of development in place.
- The Middleton Stoney B430/B4030 crossroads remains over 90% saturated in all scenarios; however, there would be no severe impacts at the junction, with any increases in queueing and delay being short-term effects that would be overcome by the substantial improvements delivered by the MSRR in Phase 2.
- The remaining study area junctions all operate within capacity during the peak hours.

12.57 Overall, the modelling indicates that the first phase of the OxSRFI development, supported by the interim highway works, can be accommodated without material operational impacts in the 2031 Opening Year.

13.0 CONSTRUCTION TRAFFIC ASSESSMENT

Introduction

13.1 The overarching systems and controls that would be adopted during the construction of the Proposed Development and associated Highway Works to minimise any adverse environmental impacts are set out in the provisions of the DCO and are detailed within the Construction Environmental Management Plan (CEMP), which is appended to Chapter 2 of the ES.

13.2 The CEMP refers to separate CEMPs that will be required for phases and components of the development, referred to as P-CEMPs (a phase specific construction environmental management plan). The P-CEMPs shall be submitted to and approved by the local planning authority, in consultation with the highway authorities, prior to commencement of the relevant part of the authorised development. The exact number of phases will depend on the precise split of phases/components of work, which has yet to be confirmed.

13.3 Managing the phasing of the development components is recognised as the most significant practical way to mitigate delays and disruption on the existing highway network. Generally, this is best achieved by diverting traffic onto new alignments away from works under construction and controlling the level of interference on the networks at any time.

13.4 A combination of appropriate temporary diversions and closures to PRoW will be implemented before the commencement of any component of works and details shall be set out in each phase where appropriate. All permanent routes will be constructed and implemented as soon as practical.

Construction programme

13.5 The CEMP includes the indicative master programme and phasing plans for the construction of the Proposed Development and the associated Highway Works. Construction of the Proposed Development is anticipated to commence in 2028 (year 1) and end in 2034 (year 7). Construction of the associated Highway Works is anticipated to commence in 2029 (year 2) and end in the first half of 2032 (year 5).

13.6 The Phase 1 Highway Works are anticipated to commence at the start of 2029 (year 2) and be complete in the first quarter of 2031 (year 4), prior to first occupation of the Main Site, with the Ardley Bypass open in the first half of 2030 (year 3).

13.7 Although phased, the construction of the Highway Works will be continuous, with the Phase 2 Highway Works starting in the second half of 2030 (year 3), and anticipated completion in the first half of 2032 (year 5).

Traffic generation during the construction phase

13.8 The Construction Traffic Technical Note (**Appendix 37**) sets out the calculation of the traffic flows associated with the construction process. Estimates of the likely construction traffic have been made based on the master construction programme, phasing plans, construction activities, and construction volumes, and using trip rates from construction of another similar SRFI site. The average total two-way construction vehicle movements are summarised at **Table 13.1** for each construction year. Once the Ardley Bypass is open to traffic, all construction traffic travelling to and from M40 Junction 10 and the Main Site will use the bypass. The tables therefore provide construction traffic estimates for pre and post opening of the Ardley Bypass in year 3.

Table 13.1: Total daily construction traffic

construction year	average daily traffic flows	
	HGV	light vehicles
year 1 2028	19	161
year 2 2029	395	797
year 3 2030 pre Ardley Bypass	369	697
year 3 2030 post Ardley Bypass	419	783
year 4 2031	396	632
year 5 2032	173	252
year 6 2033	136	188
year 7 2034	136	188

Construction Traffic Management Plan

13.9 The Construction Traffic Management Plan (CTMP) is provided at **Appendix 38**. It presents the general principles for construction traffic management during the construction phase.

13.10 The CTMP sets out the permitted routes for HGV construction traffic prior to the opening of the Ardley Bypass, as shown in **Figure 13.1**, and following the opening of the Ardley Bypass, as shown in **Figure 13.2**. As, shown, and in accordance with the restrictions set out in the CTMP, HGV construction traffic will be required to route to M40 Junction 10 via the B430 and the Ardley Bypass once open, and either onto the M40 northbound or southbound, or the A43. HGV traffic will not be permitted to route via the B4100 north-west of the A43.

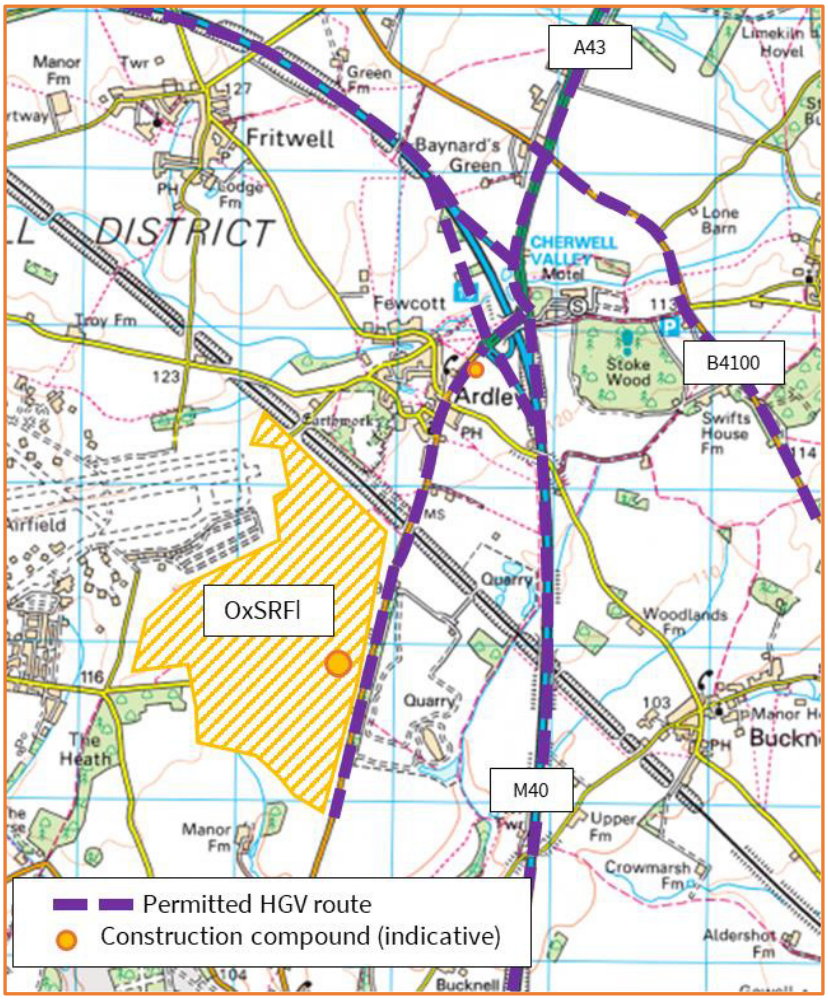


Figure 13.1: HGV construction traffic routeing requirement prior to opening of Ardley Bypass

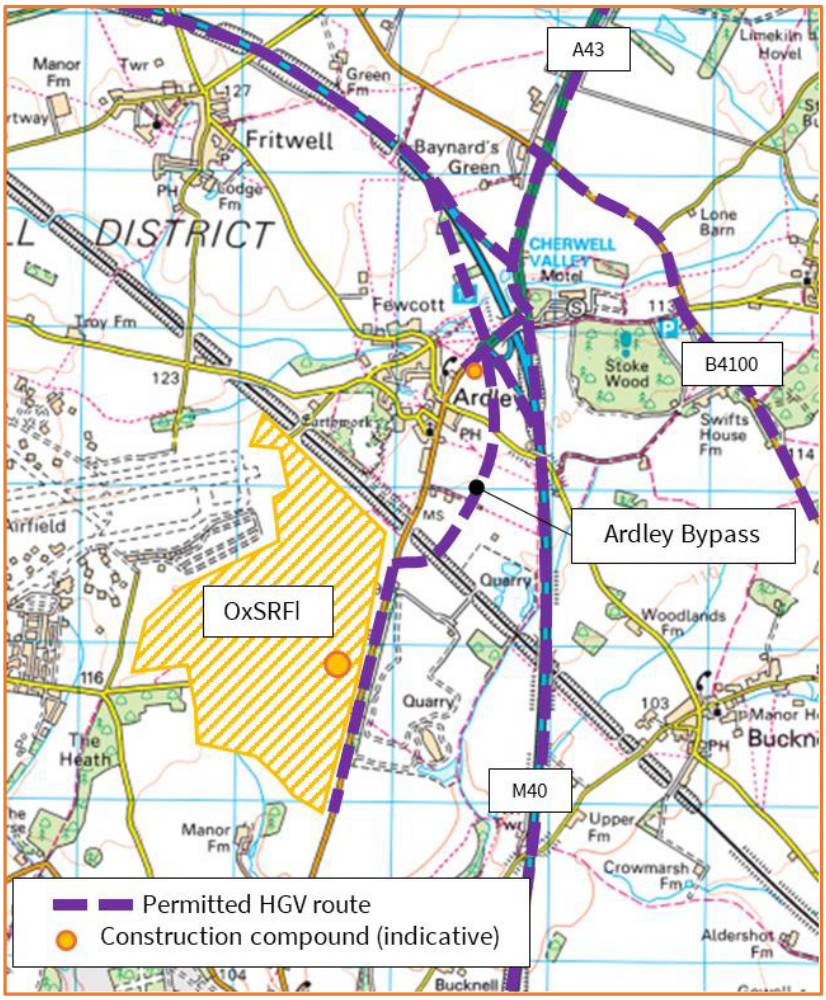


Figure 13.2: HGV construction traffic routeing requirement after opening of Ardley Bypass

13.11 The CTPM also sets out the traffic management measures to mitigate the potential increased risk of impact to the B430 Ardley Station Bridge parapets due to the additional HGV traffic using the B430 during the initial years of the OxSRFI construction (prior to the opening of the Ardley Bypass) as explained in **Appendix 39**. These measures are:

- A temporary 30mph speed limit will be put in place from commencement of any of the works on the Main Site or works on the B430 itself, between Ardley village and a point south of the junction with the household recycling centre. This temporary speed limit is secured in the DCO and will remain in place until the Ardley Bypass is opened to traffic which is when vehicles will cease to use the existing railway bridge.

- Alongside the temporary speed limit, signage is proposed to warn drivers that oncoming vehicles may be in the middle of the road, and the centreline road marking will be removed over the bridge.

13.12 The effect of the temporary speed limit would be to reduce the opposing speeds to enable opposing HGV drivers to more accurately assess the likelihood of meeting on the bridge and to adjust their speed accordingly so that they do not meet on the bridge.

Assessment of construction traffic impacts

13.13 As set out within the CEMP, construction work within the development site will be controlled by a DCO requirement and confined to the following:

- 0700 to 1900 hours Monday to Friday
- 0700 to 1600 hours Saturday.

13.14 No works will be undertaken on Sundays or public holidays, save in exceptional circumstances only and with prior notification to the Local Planning Authority. Any changes to the above working hours will also be agreed with the Local Planning Authority.

13.15 Site personnel will be permitted to access the site 30 minutes before these hours and exit the site 30 minutes after them.

13.16 Construction work outside the development site will require some night working to comply with the requirements of National Highways and/or OCC or for practical and safety reasons. The relevant planning authority would be notified of these works at least 28 days prior to commencement.

13.17 The proposed temporary access points to the construction compounds and access to the works areas are shown on the Construction Access Strategy Plan that is include within the CEMP. The temporary accesses will be agreed with OCC. Banksmen will be utilised where necessary to direct vehicle movements. Wheel washing facilities will be provided for exiting vehicles as appropriate.

13.18 Based on **Table 13.1**, the greatest number of construction traffic movements in terms of HGV movements would be generated during Year 3, post Ardley Bypass. During Year 3, it is estimated that there could be an average of 419 daily HGV two-way movements (combined arrivals and departures) associated with the construction activities.

13.19 Taken over the 10-hour working day, this equates to an average of 42 HGV two-way movements per hour. These flows are low in the context of the adjacent highway network flows. For example, M40 Junction 10 sees peak hour traffic flows in the order of 5,700 vehicles[24] (excluding the M40 mainline flow). Hence these flows are well within day-to-day variations and will not require mitigation.

13.20 Prior to the opening of Ardley Bypass, construction traffic associated with the Main Site would use the B430 through Ardley to access M40 Junction 10. This is assessed in Chapter 3 of the ES, where it is concluded that this would give rise to temporary slight adverse effects with regards to driver delay, NMU amenity, and fear and intimidation on and by road users. In EIA terms, these effects are not considered significant. As above, the construction, and opening to traffic, of the Ardley Bypass has been programmed early in the construction program. Once opened, all the construction traffic travelling to and from M40 Junction 10 will use the Ardley Bypass, and all HGV traffic accessing the Main Site will be required to use the Ardley Bypass and hence will no longer route through the village.

13.21 For light vehicle trips (predominantly construction workers), from **Table 13.1**, the busiest period for light vehicle movements would be year 2 when there would be an average of 797 two-way daily movements. **Table 13.2** provides a breakdown of the light vehicle construction traffic movements on the roads adjacent to the Proposed Development. It is assumed that the majority of the staff (80%) would arrive just prior to the start of work at 0700 hour and leave the site just after 1900 hours. The resultant additional trips on the highway network are summarised at **Table 13.2**.

[24] Average of AM and PM peak hour traffic flows taken from National Highways 2016 VISSIM model

Table 13.2: Distribution of light vehicle arrival and departure trips

light vehicle construction traffic flows from Year 2			
route	daily flow two-way25	daily flow one-way	80% arrive for start of day at 0700 hours and depart at 1900 hours
B430 north (to/from J10)	441	221	177
B430 south	366	183	146
A43 to A421	194	97	78
M40 J10 to J9	18	9	7
M40 South J9	18	9	7

13.22 The above analysis shows that the traffic impact of the additional journeys associated with the construction staff movements to the site in the morning and from the site in evening would be diluted, as they would be split across a number of routes. Importantly, the operation times of the construction site would mean that staff movements do not coincide with the highway peak hours and would be travelling on the highway network when there was off-peak capacity. It is therefore concluded that the construction staff movement would not have a material impact on the operation of the existing highway network during the peak hours.

13.23 Chapter 3 of the ES includes an assessment of the likely significant environmental effects of the Proposed Development during the Opening Year. That assessment uses daily traffic flows and because construction activities would be ongoing during the opening year, that assessment includes for the daily constriction traffic that would be present on the highway network at that time, in addition to the operational development traffic. That work concludes that there would be no significant adverse environmental effects during the Opening Year.

Summary

13.24 It is concluded that the construction traffic would not result in a material impact on the operation of the existing highway network. The measures and procedures outline in the CEMP and the CTMP will ensure that any adverse environmental impacts are minimised and that the movements of heavy construction traffic will be restricted to agreed routes.

[25] Extracted from the table at page 11 of **Appendix 37**

14.0 SUMMARY AND CONCLUSIONS

14.1 This Transport Assessment (TA) has been prepared by ADC Infrastructure Ltd who are appointed by Oxfordshire Railfreight Limited (the Applicant) to assess the transport and infrastructure requirements of a proposed Strategic Rail Freight Interchange (SRFI) in Oxfordshire; the subject of a Development Consent Order (DCO) application for a Nationally Significant Infrastructure Project (NSIP), to be known as OxSRFI.

14.2 The Main Site is to the southwest of M40 Junction 10, approximately 6km from Bicester, between the B430 to the east and the former Upper Heyford Airfield and Heyford Park village to the west. It is in a strategically significant location for logistics and distribution activity being located along the M40 between London and Birmingham, near to the A43 and A34, and with the Chiltern Main Line – part of the Strategic Rail Freight network – running adjacent to it. The location is well placed to expand the existing network of SRFIs, with good access to both the Midlands and South-Eastern markets and distribution networks.

14.3 The scale of development requires a transport strategy that seeks to manage travel demand from the outset, whilst providing appropriate access to serve the development and addressing the impact of the development traffic on the existing local highway and strategic road networks. The Proposed Development therefore includes various embedded highway improvements, including alterations to Junction 10 of the M40 motorway and to the A43, both of which meet thresholds for nationally significant highway works and the application therefore also includes two highway NSIPs as part of the DCO.

14.4 The assessment of the transport impact of the development is based on a comprehensive consultation and transport modelling process, for which a Transport Working Group (TWG) was established. The TWG comprises representatives from the local highway authority, Oxfordshire County Council, National Highways and their term consultant Aecom, Cherwell District Council, who are the local planning authority, and the Applicant and their consultant team.

14.5 The TWG have met regularly since November 2020 and has agreed this TA methodology, scope, and key inputs via a series of transport related documents. This TA has brought together in one place the findings from the TWG documents, which together with the Transport Chapter of the ES support the DCO application for the development of the Application Site in accordance with the Parameters Plan. The supporting documents include a separate Framework Travel Plan which sets out the agreed targets and measures to reduce single occupancy car trips associated with the Proposed Development.

14.6 In keeping with most inland rail freight terminals, the proposed rail freight terminal is likely to operate on a 24-hour basis from Monday to Friday, and until Saturday lunchtime. However, volume growth at the main ports could lead to an increase to six or seven-day operation. All the warehousing at OxSRFI is likely to operate on a 24-hour basis, seven days a week.

14.7 OxSRFI is forecast to generate 1,418 and 1,752 two-way person trips during the morning and evening peak hours. As part of the Sustainable Transport Strategy a significant package of connectivity improvements will provide new and enhanced means of sustainable travel to and from key employee catchment areas and the Main Site. This will ensure that the Main Site is provided with appropriate public transport links, high quality active travel connectivity, and car share opportunities, to maximise the use of sustainable modes of travel. The use of active travel modes and public transport will be actively targeted through the Travel Plan process, which will also include the promotion of car sharing at OxSRFI.

14.8 Active travel and enhancing amenities for local walkers, cyclists and horse-riders has been at the forefront of the development of the embedded mitigation, which seeks not only to provide active transport access to the Main Site but also to enhance connectivity and amenity for the local area.

14.9 Several bridleways and footpaths in the area were severed when the M40 was constructed, resulting in lengthy diversions for users and sometimes putting these users onto inappropriate routes. The Proposed Development provides an opportunity to address some of the severance issues caused to the public right of way (PRoW) network.

14.10 Overall, the proposed works will involve the stopping up of around 4.4km of bridleway. However, the proposals provide over 9km of new bridleway and will provide new connectivity and access, including reconnecting the Aves Ditch route that was severed by RAF Heyford as well as providing connectivity lost when the M40 was constructed.

14.11 The active travel routes and changes to the PRoW network will provide a much-improved network of high-quality pedestrian and cycle routes around the Ardley, Heyford Park, Middleton Stoney areas, plus the western side of Bicester, promoting active travel and enabling a shift to sustainable transport modes.

14.12 The proposed Public Transport Strategy will deliver high quality bus links to and from OxSRFI. The Applicant will provide a Bus Service Contribution that will be used by OCC to fund the delivery of bus services to and from OxSRFI and Heyford Park, Bicester, and Banbury. The Bus Service Contribution is secured via the S106 Agreement as part of the DCO application. The intention is that the public transport strategy is flexible, so it can respond to changing requirements of employees and employers as the development of OxSRFI (and other nearby development) progresses.

14.13 Passenger rail travel will be facilitated with direct bus links to Bicester and its railway stations, to provide for rail travel as part of a multi-modal journey to and from OxSRFI. A new passenger rail station does not form part of the OxSRFI development proposals, although the OxSRFI scheme would not prejudice the future provision of such at the former Ardley Station site, should proposals be brought forwards by others.

14.14 Once the rail freight facilities of the Proposed Development are fully operational, they could accommodate an average maximum through-put of around 984 containers a day. This is a mode shift from road freight to rail freight equivalent to 1,104 HGV movements per day.

14.15 Annually, the Proposed Development could remove over 53 million HGV miles per year from the highway network. This equates to over £61 million per year in monetised environmental benefits as calculated using the methodology set out in the Department for Transport's Guide to Mode Shift Revenue Support Scheme. The reduction in overall HGV mileage on the road network demonstrates how the Proposed Development would comply with Government objectives, as set out in the National Networks NPS, to achieve a modal shift from road freight to rail.

14.16 It is important to understand that many of the remaining HGV trips forecast to be generated by the Proposed Development would already be present on the highway network. This is because many of the HGV trips would be associated with the delivery of goods to meet existing and future business demand in the locality. Such HGV movements would already exist locally to those businesses, and the development of the SRFI would not add additional HGV traffic in these areas. Rather, it will provide a distribution hub, meaning that journey distances will be reduced, further reducing overall HGV mileage on the road network.

14.17 It does mean that the number of HGV movements on the road network near to the Main Site will increase. Therefore, it is important that the proposed infrastructure improvements at M40 Junction 10 and the A43, and the Ardley Bypass are provided as embedded components of the scheme, to ensure that the additional HGV movements can be appropriately accommodated. To ensure that the full impact of the Proposed Development is modelled in the vicinity of the site, the transport modelling has assumed that all HGV trips would be new trips to the highway network.

14.18 HGV movements associated with OxSRFI will be controlled via the HGV Routeing Strategy. All operational HGVs going to and from the Main Site will be routed via the proposed B430 Ardley Bypass and improved M40 Junction 10. At Junction 10, HGVs can then travel north or south on the M40 and northeast on the A43, from where there is access to the B4100 to Bicester. HGVs will not be permitted to travel to and from the Main Site using the B430 south of the Principal Access, the B4100 north of Baynard's Green, or the existing B430 in Ardley.

14.19 The HGV Routeing Strategy will be enforced through a combination of a physical restriction at the Principal Access to prevent HGVs exiting the site from being able to travel south on the B430, paired with a signage strategy and enforcement methodology, based on Automatic Number Plate Recognition (ANPR) cameras.

14.20 It is also proposed to implement a 7.5T environmental weight restriction zone (except for access) around the villages to the north and west of the Main Site as a complementary measure. The proposed zone would cover the villages of Ardley and Fewcott, Fritwell, and Bucknell.

14.21 Through consultation with the TWG, the need for a significant and comprehensive improvement scheme at M40 Junction 10 and the A43 Baynard's Green junction was identified as a requirement for the project. This is because there are existing highway capacity constraints at M40 Junction 10 and at the A43 Baynard's Green roundabout that are forecast to worsen with background traffic growth. Without mitigation, performance would deteriorate further with the addition of the traffic from the Proposed Development, which in turn could lead to traffic increases on inappropriate routes on local roads.

14.22 A new link road is proposed connecting the Main Site directly to the improved M40 Junction 10. This new road will form a bypass to the village of Ardley, which is required to avoid otherwise unacceptable adverse effects on the village. The Ardley Bypass will provide a new bridge over the Chiltern Main Line railway and therefore also address the existing constraint associated with the narrow Ardley Station Railway bridge on the existing B430.

14.23 The proposed Highway Works include the Heyford Park Link Road (HPLR) and Middleton Stoney Relief Road (MSRR). The need for the HPLR arises as a direct result of the master planning of the OxSRFI Main Site, as the existing Upper Heyford Road is consumed within the Main Site. The HPLR is required to retain access to Heyford Park and other areas to the west. The MSRR is required to mitigate an otherwise unacceptable impact at the already congested B430/B4030 crossroads within Middleton Stoney and, in removing that congestion, allow bus services serving OxSRFI (and Heyford Park) to operate effectively, along with freeing up capacity within the village to provide enhanced pedestrian facilities.

14.24 The overall package of Highway Works was developed from the above starting point and comprises the following comprehensive package of mitigation measures:

- Construction of a new partially signal controlled roundabout on the B430 just south of the Chiltern Main Line Railway. This will provide the Principal Access to the Main Site for all

vehicular traffic and is configured to require all departing HGVs to travel north to M40 Junction 10 using the new Ardley Bypass.

- Construction of the Ardley Bypass to the east of Ardley village connecting the Principal Access with the reconfigured Ardley Roundabout (part of the J10 highway improvements).
- The proposed J10 highway improvements include a new dedicated exit slip road to the A43 northbound with a new bridge over the M40 removing A43 bound traffic from the Ardley Roundabout and Cherwell Roundabout junctions, enlarging and signalising Ardley Roundabout, relocated and amended slip roads, widening of the A43, and amendments to the Cherwell, Padbury and Baynard's Green roundabouts.
- Construction of the Heyford Park Link Road (HPLR), a new single carriageway road with off-carriageway active travel routes, which will provide a link from the B430 north of Middleton Stoney to Heyford Park, linking at its western end with Camp Road.
- The Secondary Access will be provided on the HPLR. This will be restricted to use by buses, cyclists, pedestrians, and emergency access only. All other vehicular traffic will use the Principal Access.
- Construction of the Middleton Stoney Relief Road (MSRR), a new single carriageway road around the northeast of Middleton Stoney village, connecting the B430 and B4030 and linking with the HPLR and providing off-carriageway active travel routes.
- The J9 Highway Improvements to increase capacity from the A34 to M40 northbound at M40 Junction 9 and improve road safety on the A34 approach to the junction.
- Footway and cycleway connectivity improvements, including:
    - New pedestrian and cycle facilities with Toucan crossings at the A43 Baynard's Green junction providing an off-carriageway route for users between the B4100 arms and linking with the local services located north of the junction.
    - A new foot and cycle link alongside the A43 between Cherwell Roundabout and the A43 Baynard's Green Roundabout to connect with new pedestrian and cycle facilities that would be provided at the Baynard's Green junction.
    - New signal-controlled crossings at Ardley Roundabout and Cherwell Roundabout linking the existing footway on the southern side of the M40 overbridge with the public bridleway to the east and providing connectivity with Stoke Wood.
    - The B430 north of the Principal Access would be closed to vehicular traffic (which will now use the Ardley Bypass) and a high-quality pedestrian and cycle link will be created, providing a connection to Ardley via a downgraded Station Road.
    - Shared footway/cycleway alongside the proposed HPLR and the MSRR.
    - A segregated footway and cycleway along the HPLR providing a link from the Secondary Access to the Heyford Park development and the areas to the west of the OxSRFI site.
    - New and enhanced footway/cycleway links to Bicester, comprising:
        - A Toucan crossing on the B430 for pedestrians and cyclists linking with the Cherwell Valley Greenway, combined with a reduction of the speed limit on this section of the B430 from derestricted to 40mph.
        - Reallocation of road space at the Middleton Road bridge over the M40 to provide an off-carriageway route for walkers, cyclists, and horse riders. Traffic is to be controlled by traffic lights in a shuttle arrangement.
        - A new shared footway/cycleway connecting from the enhanced Middleton Road bridge to the shared footway/cycleway to be provided alongside the MSRR.

        - Reduced speed limit on Ardley Road, Middleton Road, and Bicester Road from derestricted to 40mph.
        - Reduced speed limit on the B430 within Ardley from 30mph to 20mph, and the B430 Station Road south of Ardley and north of the Ardley Station Bridge from derestricted to 20mph.
        - Signage scheme for cyclists using Ardley Road, Middleton Road, and Bicester Road.
    - New shared footway/cycleway along the western side of the B430 linking with the above-described facilities and providing connectivity to the Principal Access and Ardley to the north, and Middleton Stoney to the south (via the provisions alongside the MSRR).
    - New signal control pedestrian crossing and enhanced footway provision at the B430/B4030 crossroads in Middleton Stoney, and a zebra crossing on the B430 Ardley Road near to the proposed new bus stops within the village.

- Works to enable and improve active travel and recreational use by pedestrians, cyclists and horse riders, including:
    - Changes and enhancements to the PRoW network
    - Chilgrove Drive bridleway connection
    - Aves Ditch bridleway connections
    - Ardley Bypass PRoW works
    - Quarry Cottages turning head and PRoW connection.

- Other Local Highway Works:
    - Removal of the B430/Upper Heyford Road junction following the opening of the HPLR.
    - Amendments (change in priority) of the Camp Road/Chilgrove Drive/Upper Heyford Road junction if the HPLR is constructed and open prior to the improvements to be delivered at this junction by the Heyford Park development.
    - 7.5T environmental weight restriction zone (except for access) around the villages to the north and west of the Main Site.

- Financial contribution to OCC via the S106 for:
    - A scheme to provide advisory cycle lanes on Bicester Road between Bicester and Bucknell as part of the cycle strategy.
    - Signalisation of the A4095/B4030 Roundabout to increase capacity and enhance active travel facilities[26].
    - A 'monitor and manage' fund to be used to by National Highways to implement a capacity improvement scheme at the A43 Barleymow roundabout should the requirement to implement the scheme be triggered.

14.25 To identify potential impacts due to the development and confirm that the proposed Highway Works are appropriate in scale and layout, strategic transport modelling of the scheme has been undertaken using the Bicester Transport Model (BTM). Further detailed analysis of key junctions and parts of the network has then been undertaken using VISSIM micro-simulation and industry standard assessment tools, supported by a Walking, Cycling and Horse-Riding Assessment and Review process.

14.26 The results of the VISSIM micro-simulation modelling demonstrate the suitability of the proposed access strategy and M40 Junction 10 and A43 trunk road improvements to mitigate the impact of the development traffic, whilst also allowing the road network to function in a safer and more efficient manner than would otherwise be the case. When compared to the future baseline

[26] Subject to agreement with OCC, in the absence of which highway works will be delivered by the Applicant instead.

highway network configuration, the proposed highway works at M40 Junction 10 and the A43 Baynard's Green are shown to deliver substantial operational improvements, with significant reductions in average vehicle delay and allowing more traffic to use the junction complex than would otherwise be able to do so due to existing congestion.

14.27 The Highway Works incorporate measures to minimise collision risk and ensure safe interaction between all road users.

14.28 Assessment of the residual traffic impacts at the remaining study area junctions has been undertaken using industry standard assessment tools. With the highway mitigation strategy in place the residual impact of the proposed development is demonstrated to be reduced to acceptable levels.

14.29 Assessment of the opening year development traffic impact with Phase 1 of the Highway Works in place has been undertaken in the opening year. This demonstrates that the proposed phasing of the highway mitigation is appropriate.

14.30 The impact of the construction traffic on the operation of the highway network has been examined and shown not to result in a material impact. The measures and procedures outlined in the Construction Environmental Management Plan (CEMP) and Construction Traffic Management Plan (CTPM) will ensure that any adverse environmental impacts during construction are minimised.

14.31 It is concluded that the Proposed Development would comply with the National Policy Statement for National Networks, helping reduce overall HGV mileage on the road network and assisting to achieve the Government's objective of a modal shift from road freight to rail. With the improvements presented within this TA and accompanying Framework Travel Plan, the Proposed Development will significantly improve public transport, pedestrian, and cyclist provisions, providing travel opportunities for non-car-based modes of transport. The embedded mitigation measures provide the required access and connection to the strategic road network and will significantly improve the highway network performance at M40 Junction 10 and the A43 Baynard's Green junction, and more generally across the study area due to the additional network capacity and positive traffic reassignment effects.

DRAWINGS

CUT LINE A

Existing B430 in Ardley speed limit reduced to 20mph

Ardley Road speed limit reduced to 40mph

B430 speed limit reduced to 40mph

Middleton Road speed limit reduced to 40mph

Bicester Road speed limit reduced to 40mph and advisory cycle lanes provided

B4030 Middleton Stoney Road speed limit reduced to 50mph

CUT LINE B

1 : 10,000

M40 Junction 10

CUT LINE A

Existing B430 in Ardley speed limit reduced to 20mph

1 : 10,000

M40 Junction 9

A34 northbound speed limit reduced to 50mph on immediate approach to junction

1 : 5,000

A4095/B4030 roundabout

CUT LINE B

1 : 10,000

Legend

- Existing Public Bridleway
- Existing Public Footpath
- Existing Restricted Byway
- Indicative Committed (Future) Bridleway through Ardley EFW
- Indicative Committed (Future) Bridleway through Heyford Park
- Indicative S106 Committed (Future) Bridleway
- Committed Camp Road Footway and/or Footway/Cycleway
- Proposed Segregated or Shared Footway/Cycleway
- Proposed Right of Way - Bridleway
- Proposed Right of Way - Footpath
- Stopped up Bridleway or Footpath
- Indicative (Future) Bridleway not provided

Highway Works Legend (see Highway Works Overview drawing for further detail)

- New/Upgraded Highway Works provided by OxSRFI
- Existing Highway Stopped Up
- Other local road works (on roads not upgraded as part of OxSRFI): speed limit changes and cycle lanes as described

Rev	Description	Date
P20	Minor amendments	16/03/2026
P19	Updated parameters plan added	10/02/2026
P18	Amendments following Stage 2 Consultation	20/01/2026
P17	Presentational amendments	16/09/2025
P16	Presentational amendments	11/09/2025
P15	Presentational amendments	10/09/2025
P14	Minor amendments to GA	05/09/2025
P13	PROW 398/7 and 367/21 amended to be stopped up	27/08/2025
P12	Parameters Plan/Highway Works updated	31/07/2025
P11	Amendments to strategy	25/06/2025
P10	Amendments to strategy	28/04/2025
P9.1	Amended parameters plan added	03/03/2025
P9	Footway/cycleway at M40 J10 amended	27/02/2025
P8	Highway works updated	25/02/2025
P7	Updated strategy	15/03/2023
P6	Updated strategy	13/03/2023
P5	Updated committed routes	17/05/2022
P4	Updated PRoW	04/05/2022
P3	Updated PRoW	29/04/2022
P2	Revised following comments	05/04/2022

Client: Oxfordshire Rail Freight Limited

Project: OxSRFI Oxfordshire Strategic Rail Freight Interchange

Title: Footway/Cycleway/Rights of Way Strategy Overview

ADC Infrastructure

Drg Size:	Scale:	Date:
A1	As Shown	01/04/2022

Drg No: ADC1794-DR-042 | Rev: P20

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CUT LINE A

Existing B430 in Ardley speed limit reduced to 20mph

Ardley Road speed limit reduced to 40mph

B430 speed limit reduced to 40mph

Middleton Road speed limit reduced to 40mph

Middleton Road speed limit reduced to 40mph

Bicester Road speed limit reduced to 40mph and advisory cycle lanes provided

Heyford Airfield

ARDLEY CP

MIDDLETON STONEY CP

BUCKNELL

Middleton Stoney

1 : 10,000

M40 Junction 10

CUT LINE A

Existing B430 in Ardley speed limit reduced to 20mph

1 : 10,000

Legend

- Existing Public Bridleway
- Existing Public Footpath
- Existing Restricted Byway
- Indicative Committed (Future) Bridleway through Ardley EFW
- Indicative Committed (Future) Bridleway through Heyford Park
- Indicative S106 Committed (Future) Bridleway
- Committed Camp Road Footway and/or Footway/Cycleway
- Proposed Segregated or Shared Footway/Cycleway
- Proposed Right of Way - Bridleway
- Proposed Right of Way - Footpath
- Stopped up Bridleway or Footpath
- Indicative (Future) Bridleway not provided

Highway Works Legend (see Highway Works Overview drawing for further detail)

- New/Upgraded Highway Works provided by OxSRFI
- Existing Highway Stopped Up
- Highway Works as part of OCC Housing Growth Deal (completed)
- Existing Road retained in Phase 1

Rev	Description	Date
P7	Minor amendments	16/03/26
P6	Amendments following Stage 2 consultation	10/02/26
P5	Parameters Plan/Highway Works updated	16/09/25
P4	Amendments to Strategy	28/04/25
P3	Footway/cycleway at M40 J10 amended	27/02/25
P2	Highway works updated	25/02/25

Client: Oxfordshire Rail Freight Limited

Project: OxSRFI Oxfordshire Strategic Rail Freight Interchange

Title: Footway/Cycleway/Rights of Way Strategy Phase 1 Pre-Occupation

ADC Infrastructure

Drg Size:	Scale:	Date:
A1	As Shown	01/04/2022

Drg No: ADC1794-DR-043 Rev: P7

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CUT LINE A

CUT LINE B

Existing B430 in Ardley speed limit reduced to 20mph

Ardley Road speed limit reduced to 40mph

B430 speed limit reduced to 40mph

Middleton Road speed limit reduced to 40mph

Bicester Road speed limit reduced to 40mph and advisory cycle lanes provided

B4030 Middleton Stoney Road speed limit reduced to 50mph

A34 northbound speed limit reduced to 50mph on immediate approach to junction

ARDLEY CP

MIDDLETON STONEY CP

Heyford Airfield

1 : 10,000

M40 Junction 10

1 : 10,000

M40 Junction 9

1 : 5,000

B4030/A4095 roundabout

1 : 10,000

Legend

- Existing Public Bridleway
- Existing Public Footpath
- Existing Restricted Byway
- Indicative Committed (Future) Bridleway through Ardley EFW
- Indicative Committed (Future) Bridleway through Heyford Park
- Indicative S106 Committed (Future) Bridleway
- Committed Camp Road Footway and/or Footway/Cycleway
- Proposed Segregated or Shared Footway/Cycleway
- Proposed Right of Way - Bridleway
- Proposed Right of Way - Footpath
- Stopped up Bridleway or Footpath

Highway Works Legend (see Highway Works Overview drawing for further detail)

- New/Upgraded Highway Works provided by OxSRFI (Phase 2)
- Existing Highway Stopped Up (Phase 2)
- New/Upgraded Works provided by OxSRFI (Phase 1)
- Existing Highway Stopped Up (Phase 1)

Rev	Description	Date
P4	Minor amendments	16/03/26
P3	Amendments following Stage 2 consultation	10/02/26
P2	Presentational amendments	16/09/25

Client: Oxfordshire Rail Freight Limited

Project: OxSRFI Oxfordshire Strategic Rail Freight Interchange

Title: Footway/Cycleway/Rights of Way Strategy Phase 2 Pre-Occupation greater than 2m sqft

ADC Infrastructure

Drg Size:	Scale:	Date:
A1	As Shown	31/07/2025

Drg No: ADC1794-DR-053

Rev: P4

GRID NORTH

Aves Ditch (north) minor works

Turning head

Quarry cottages lane stopped up over railway, replaced by bridleway

Upper Heyford Former Airfield

Ardley

See inset for M40 J10

Existing B430 in Ardley speed limit reduced to 20mph

Ardley Road diverted over new bypass

Existing J10 northbound entry slip stopped up

Existing J10 northbound exit slip realigned

Existing J10 southbound entry slip widened and lengthened to a 2-lane merge

Turning head

Existing B430 between turning head and rail bridge to have a no motor vehicle except for access restriction

Ardley Bypass (B430) and OxSRFI link road (Single 2+1)

Segregated left turn lane on exit to direct all HGVs to J10

Ardley Road speed limit reduced to 40mph

Principal OxSRFI access

Bridge over Chiltern Mainline

Roundabout on existing B430 (partially signalised)

Bridge over new rail sidings

Existing B430 stopped up and replaced with cycle track over the rail bridge (and Ardley Bypass for traffic)

Chilgrove Drive Bridleway connection

Chilgrove Drive realignment as part of Heyford Park scheme

Heyford Park

Upper Heyford Road stopped up, replaced by the Heyford Park Link Road

B430

Secondary OxSRFI access (buses, pedestrians cyclists and emergency access)

Camp Road / Chilgrove Drive priority amendment by OxSRFI (only required if the Heyford Park works to the junction are not completed prior to OxSRFI works being needed)

Equestrian crossing

Junction closed and removed

Heyford Park Link Road

B430 Toucan crossing

B430 speed limit reduced to 40mph

7.5T environmental weight restriction implemented within the Bucknell area

Bucknell

Bicester Road speed limit reduced to 40mph and advisory cycle lanes provided

Middleton Road speed limit reduced to 40mph

Bucknell Road diversion

Existing B430 stopped up

Signal junctions with existing B430

No right turn from Middleton Stoney onto Relief Road

No left turn from Relief Road into Middleton Stoney

B4030

B430 speed limit reduced to 40mph

Middleton Road walking, cycling and horse-riding enhancement

Bridleway underpass

Gagle brook crossing

M40

Middleton Road speed limit reduced to 40mph

Bus stops and zebra crossing

Village gateway

Middleton Road roundabout

Middleton Stoney

Middleton Stoney crossroads pedestrian crossing improvements

B4030 Middleton Stoney Road speed limit reduced to 50mph

A4095 Bicester NW strategic link road

A4095

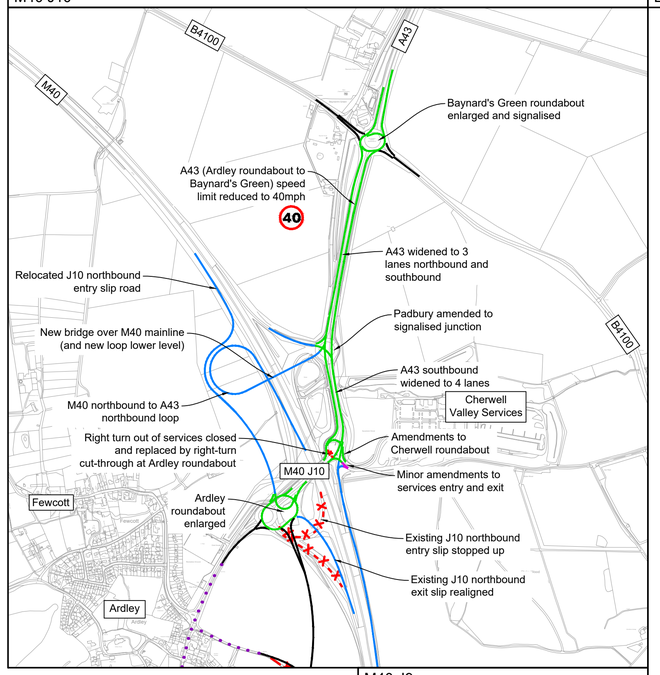
Bicester

A4095 / B4030 roundabout works

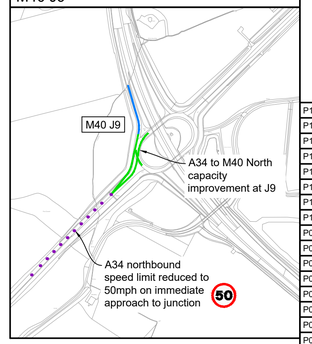
B430

A4095

M40 J10



M40 J9



Legend

- Upgraded / new motorway (National Highways)
- Upgraded / new all-purpose trunk road (National Highways)
- Upgraded / new local roads (OCC)
- Private access roads
- Existing highway stopped up
- Third party scheme as described
- Other local road works (on roads not upgraded as part of OxSRFI): speed limit changes and cycle lanes as described

Rev	Date	Details of issue / revision	Drw	Rev
P17	09.02.26	Minor presentational update	SRH	SRH
P16	20.01.26	Bicester road advisory cycle lane note added	SRH	SRH
P15	18.01.26	Speed limit lines added, Baynard's Grn amended	SRH	SRH
P14	12.01.26	Further speed limits and Bicester NW link added	SRH	SRH
P13	09.09.25	B4030/A4095 junction added	SRH	SRH
P12	02.09.25	Weight limits amended	SRH	SRH
P11	28.08.25	Minor presentational update	SRH	SRH
P10	31.07.25	Minor presentational update	SRH	SRH
P09	30.07.25	Scheme updates	SRH	SRH
P08	27.01.25	Principal access and J10 works amended	SRH	SRH
P07	05.12.24	Updated to M40 J10 Option 28	SRH	SRH
P06	10.03.23	Scheme updates	SRH	SRH
P05	15.12.22	J10 amendments	SRH	SRH
P04	04.10.22	Updates following Stage 1 consultation	SRH	SRH
P03	30.03.22	Minor text amendment	SRH	SRH
P02	29.03.22	Updated following comments	SRH	SRH
P01	22.03.22	Preliminary Issue	SRH	SRH

Issues & Revisions

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Client

OXFORDSHIRE RAILFREIGHT LTD.

Project Title

OxSRFI
OXFORDSHIRE
STRATEGIC RAIL FREIGHT INTERCHANGE

Drawing Title

HIGHWAY WORKS OVERVIEW (PHASES 1 & 2)

Drawn:	S. Hilditch		Reviewed:	S. Hilditch	
BWB Ref:	NTH2479	Date:	22.03.22	Scale@A1:	1:10,000

Drawing Status

FOR INFORMATION

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
OxSRFI-BWB-GEN-ZZ-SK-CH-SK041	S2	P17

0 250 500 750 1000
SCALE: METRES

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7.5T environmental weight restriction implemented within the Ardley & Fewcott area

Except for access

Fewcott

M40 J10

Minor amendments to Cherwell roundabout

Ardley roundabout enlarged

Roadmarking amendment to existing slip road

Existing J10 northbound entry slip stopped up

Existing J10 northbound exit slip realigned

Aves Ditch (north) minor works

Turning head

Ardley

See inset for M40 J10

Quarry cottages lane stopped up over railway, replaced by bridleway

20

Existing B430 in Ardley speed limit reduced to 20mph

Ardley Road diverted over new bypass

Turning head

Except for access

Existing B430 between turning head and rail bridge to have a no motor vehicle except for access restriction

Upper Heyford Former Airfield

Ardley Bypass (B430) and OxSRFI link road (Single 2+1)

Segregated left turn lane on exit to direct all HGVs to J10

Ardley Road speed limit reduced to 40mph

40

Principal OxSRFI access

Bridge over Chiltern Mainline

Roundabout on existing B430 (partially signalised)

Bridge over new rail sidings

Existing B430 stopped up and replaced with cycle track over the rail bridge (and Ardley Bypass for traffic)

Chilgrove Drive Bridleway connection

Chilgrove Drive realignment as part of Heyford Park scheme

Temporary tie in to existing road

Temporary alignment at future junction

Heyford Park

Heyford Park Link Road

B430

Secondary OxSRFI access (buses and cyclists only) used as temporary diversion prior to the remainder of the Heyford Park Link Road being built

Camp Road / Chilgrove Drive priority amendment by OxSRFI (only required if the Heyford Park works to the junction are not completed prior to OxSRFI works being needed)

Equestrian crossing

7.5T environmental weight restriction implemented within the Bucknell area

Except for access

Bucknell

B430 Toucan crossing

B430 speed limit reduced to 40mph

40

Bicester Road speed limit reduced to 40mph and advisory cycle lanes provided

40

Middleton Road speed limit reduced to 40mph

40

Middleton Road walking, cycling and horse-riding enhancement

M40

B4030

B4030

B4030

Middleton Stoney

Bus stops and zebra crossing

Middleton Stoney

Middleton Park

Middleton Stoney

Middleton Stoney

Middleton Stoney

Right turn out of services closed and replaced by right-turn cut-through at Ardley roundabout

Amendments to Cherwell roundabout

Minor amendments to services entry and exit

M40 J10

Fewcott

Ardley

See inset for M40 J10

Existing J10 southbound entry slip widened and lengthened to a 2-lane merge

Upper Heyford Former Airfield

Heyford Park

Upper Heyford Road stopped up, replaced by the Heyford Park Link Road

B430

Secondary OxSRFI access (buses, pedestrians cyclists and emergency access)

Junction closed and removed

Heyford Park Link Road

Existing B430 stopped up

Signal junctions with existing B430

No right turn from Middleton Stoney onto Relief Road

No left turn from Relief Road into Middleton Stoney

B4030

40 B430 speed limit reduced to 40mph

Bridleway underpass

Gagle brook crossing

B4030

Village gateway

Middleton Road roundabout

Middleton Stoney

Middleton Stoney crossroads pedestrian crossing improvements

B4030

B430

M40

Bucknell

Bucknell Road diversion

A4095 Bicester NW strategic link road

A4095

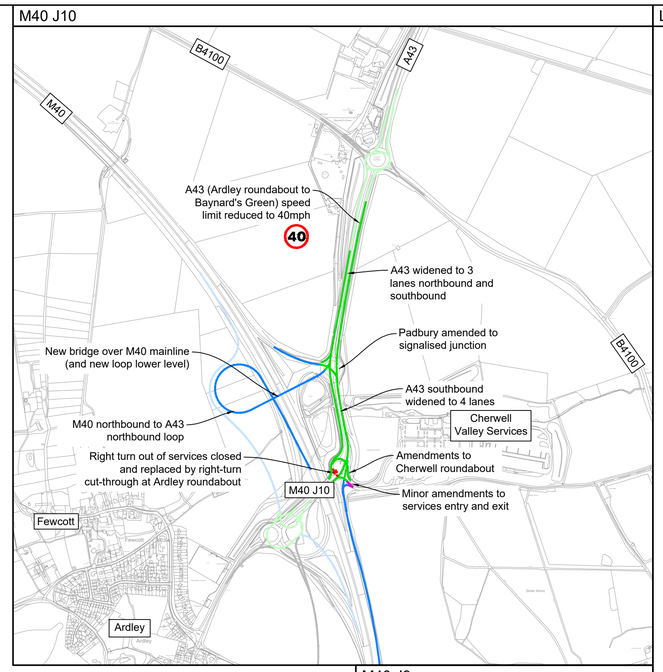
B4030 Middleton Stoney Road speed limit reduced to 50mph 50

B4030

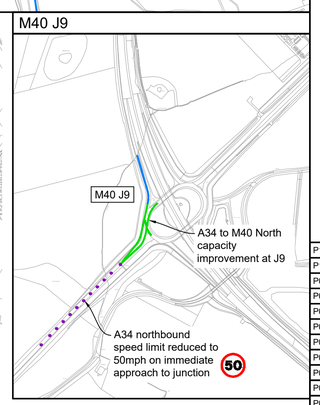
Bicester

A4095 / B4030 roundabout works

M40 J10



M40 J9



Legend

- Upgraded / new motorway (National Highways)
- Upgraded / new all-purpose trunk road (National Highways)
- Upgraded / new local roads (OCC)
- Private access roads
- Existing highway stopped up
- Third party scheme as described
- Other local road works (on roads not upgraded as part of OxSRFI): speed limit changes and cycle lanes as described

This drawing is to be read in conjunction with ADC drawing ADC1794-DR-053 which shows the Phase 2 active travel routes and works to public rights of way

0 250 500 750 1000

SCALE: METRES

GRID NORTH

Rev	Date	Details of issue / revision	Drw	Rev
P11	09.02.26	ADC drawing cross reference added	SRH	SRH
P10	20.01.26	Western bridleway connections moved to Ph 1	SRH	SRH
P09	19.01.26	Speed limits and other updates post consultation	SRH	SRH
P08	09.09.25	B4030/A4095 junction added	SRH	SRH
P07	31.07.25	Minor presentational update	SRH	SRH
P06	30.07.25	General updates	SRH	SRH
P05	28.04.25	HPLR phasing split amended	SRH	SRH
P04	14.02.25	Updated to M40 J10 option 28	SRH	SRH
P03	28.02.23	General updates	SRH	SRH
P02	24.02.23	General updates	SRH	SRH
P01	15.12.22	Preliminary Issue	SRH	SRH

Issues & Revisions

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OXFORDSHIRE RAILFREIGHT LTD.

Project Title

OxSRFI
OXFORDSHIRE
STRATEGIC RAIL FREIGHT INTERCHANGE

Drawing Title

HIGHWAY WORKS PHASE 2 (PRE-OCCUPATION OF >2million sq ft)

Drawn:	S. Hilditch		Reviewed:	S. Hilditch	
BWB Ref:	NTH2479	Date:	15.12.22	Scale@A1:	1:10,000

Drawing Status

FOR INFORMATION

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
OxSRFI-BWB-GEN-ZZ-SK-CH-SK055	S2	P11

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APPENDIX 1

SUSTAINABLE TRANSPORT STRATEGY

SUSTAINABLE TRANSPORT STRATEGY

OXFORDSHIRE SRFI

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DOCUMENT CONTROL

project number: ADC1794			report reference: ADC1794-RP-AK	
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1		[redacted]		internal draft
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3	18/09/2025			draft issued for Stage 2 Consultation
4	29/01/2026			updated to incorporate Stage 2 Consultation feedback

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Appendix E Upper Heyford Road footway/cycleway and B430/Upper Heyford Road junction improvements
Appendix F Footway/cycleway/Rights of Way Strategy Overview Plan (drawing ADC1794-DR-042)
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Appendix K Footway/Cycleway/Rights of Way Strategy phasing plans (drawings ADC1794-DR-043 and ADC1794-DR-053)

1.0 INTRODUCTION

1.1 ADC Infrastructure Limited are commissioned by Oxfordshire Railfreight Limited (the Applicant) to assess the transport and infrastructure requirements of a proposed Strategic Rail Freight Interchange (SRFI) in Oxfordshire; the subject of a Development Consent Order (DCO) application for a Nationally Significant Infrastructure Project (NSIP), to be known as OxSRFI. A plan showing the DCO Order Limits is presented at **Figure 1.**

1.2 The proposals also include various highway improvements, including alterations to Junction 10 of the M40 motorway and to the A43, both of which meet thresholds for nationally significant highway works and the application will therefore also include two highway NSIPs as part of the DCO.

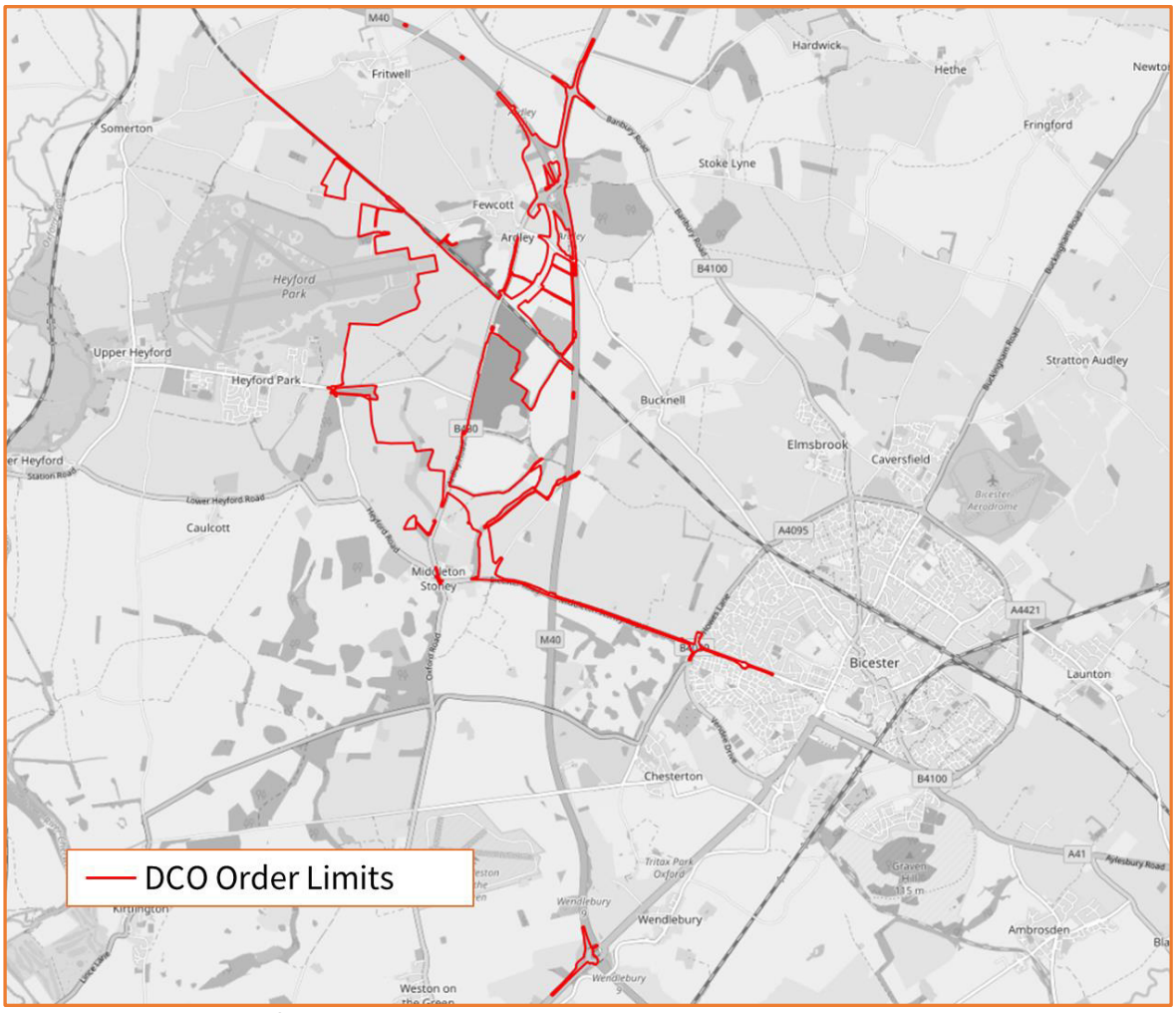


Figure 1: OxSRFI DCO Order Limits

1.3 Both national and local policy recognise the importance of providing and promoting sustainable transport options to new developments, and OxSRFI will provide high-quality pedestrian, cycle and public transport links and actively promote the use of these travel modes through the Travel Plan, to reduce the number of vehicle trips generated by the site.

1.4 This document is the Sustainable Transport Strategy (STS) for the OxSRFI development. It is provided as summary document that brings together the hard infrastructure and softer measures and commitments being made to ensure that OxSRFI is provided with high quality active travel connectivity, including new and enhanced public transport links and car share opportunities, to maximise the use of sustainable modes of travel to and from the site.

1.5 The STS is closely linked with the Walking Cycling and Horse-Riding Assessment and Review (WCHAR) and the Public Transport Strategy. The Framework Travel Plan builds upon the work summarised in this STS report, to set out targets and measures to encourage travel to and from OxSRFI by sustainable travel modes, and methods for monitoring travel patterns.

1.6 This STS report presents the sustainable transport connectivity improvements that will be provided as part of the OxSRFI development and reports the transport mode share and Travel Plan targets for the OxSRFI. The mode share targets have been informed by the proposed connectivity improvements that will be implemented as part of OxSRFI to improve and enhance the opportunities to travel to and from the development by sustainable travel modes, and through comparison to modal share targets and monitoring data from other SRFI sites, the adjacent Heyford Park development, and the TRICS database.

1.7 The modal share targets are summarised in the table below:

OxSRFI modal share targets	
Mode	Target
Walking and Cycling	4%
Public Transport	8%
Car Share	20%
Single Occupancy Vehicle	68%

1.8 The modal share targets have been agreed with the Transport Working Group[1] (TWG). The target modal split equates to a 26% shift from the from the baseline single occupancy vehicle trip modal share to sustainable transport modes. The targets are ambitious, but realistic and achievable, in the context of the site's location, the extensive sustainable transport connectivity improvements being provided, and the measures proposed as part of the Travel Plan.

1.9 This STS report is structured as follows:

- Section 2 sets out the existing conditions regarding active travel and public transport opportunities.
- Section 3 provides an assessment of the OxSRFI operation and anticipated employee catchment area.
- Section 4 details the connectivity improvements that will be provided by the OxSRFI development to improve and enhance the opportunities to travel to and from the principal catchment areas and the development by sustainable travel modes.
- Section 5 provides a review of the modal share for other SRFIs, the adjacent Heyford Park development, and data from the TRICS database.
- Section 6 presents the proposed transport modal share for OxSRFI that have been taken forward in the Framework Travel Plan.

1.10 Sections 3 to 6 of this STS are an update to a paper originally prepared in January 2023 (document reference ADC1794-RP-AC v1), which was written to summarise the mode share assessment presented at the TWG meeting on 24 November 2022 and subsequently agreed with the TWG prior to the scheme pause in April 2023.

[1] A Transport Working Group was established to provide a forum for discussion and allow a step-by-step approach to the assessment and agreement of transport matters relating to OxSRFI in advance of the submission of the DCO application. The Transport Working Group comprises representatives from: National Highways and their term consultant Aecom, Oxfordshire County Council, Cherwell District Council, the Applicant, and the Applicant's Consultant team. West Northamptonshire Council were invited to attend the TWG but declined to do so. Copies of the TWG meeting notes are sent to them.

2.0 EXISTING CONDITIONS

Site location

2.1 Distinction is made between the OxSRFI Application Site, which is the land encompassed within the Order Limits, which is the maximum extent of land affected by the Proposal Development, and the Main Site, which is the area to be occupied principally by the Rail Terminal and Warehousing (the SRFI) and incorporating the proposed Heyford Park Link Road (HPLR).

2.2 The OxSRFI Main Site is shown in **Figure 2**. It is located between the B430 to the east and the former Upper Heyford Airfield and Heyford Park village, to the west. It is immediately south of the Chiltern Railway line. It predominantly consists of agricultural land used for mixed arable and grazing purposes and includes the Ashgrove farmstead and an 'In Vessel Composting Facility'. Upper Heyford Road (sometimes referred to as the Unnamed Road) passes through the Main Site, connecting Camp Road to the B430.

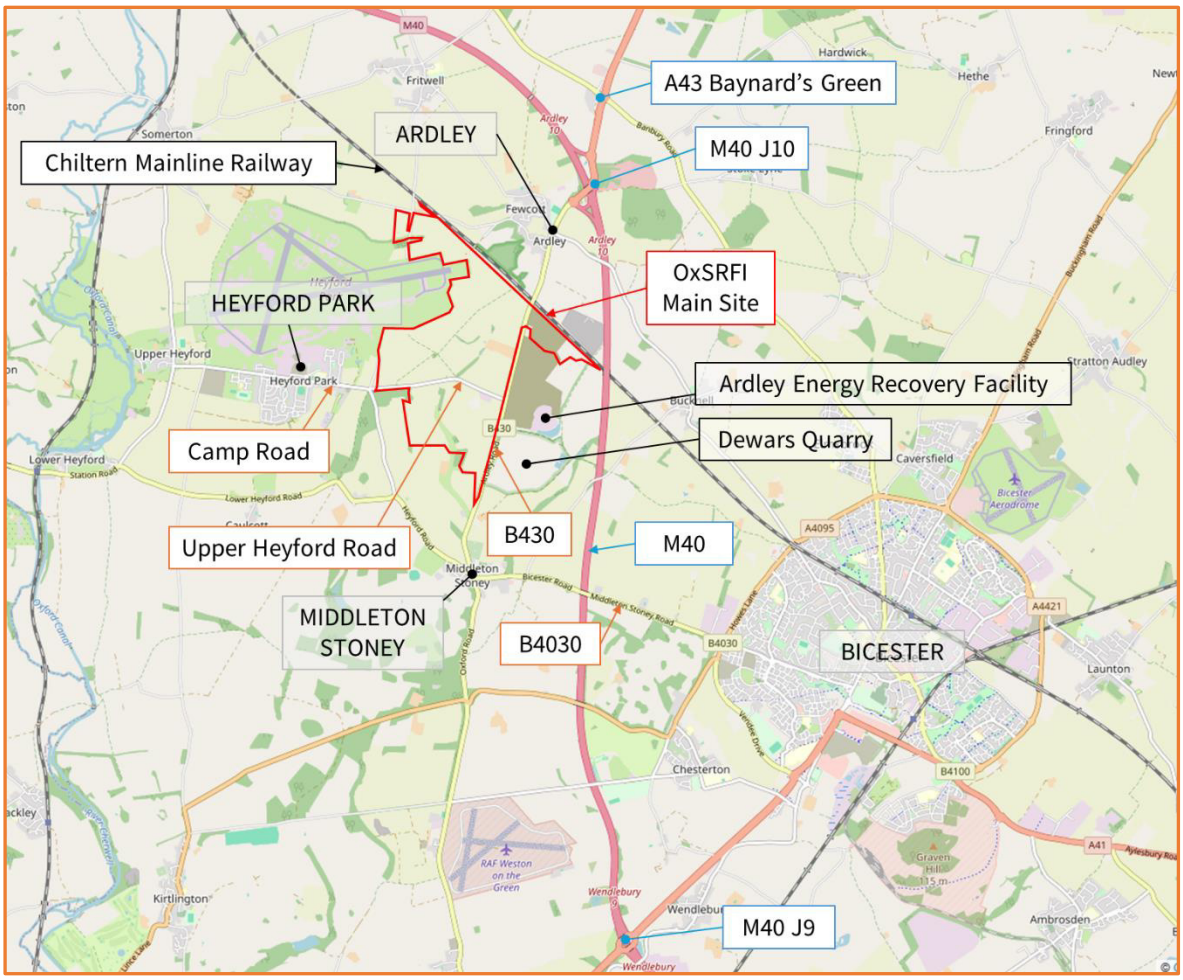


Figure 2: OxSRFI Main Site location

2.3 To the east of the Main Site and east of the B430 is the Viridor Ardley Energy Recovery Facility as well as the Ardley Fields Household Waste and Recycling facility and Ardley Landfill Site. Further south of the waste facilities is an active Dewars Farm minerals quarry.

2.4 The village of Ardley is located to the northeast of the Main Site and north of the Chiltern Railway and is separated from the Main Site by intervening agricultural land and established woodland.

2.5 The village of Middleton Stoney is located approximately 2km to the south of the Main Site, separated by intervening agricultural land and associated landscape and field boundary features. Within the intervening land lies the farmstead of Manor Farm.

2.6 The M40 motorway runs nearby, to the east of the Main Site, as well as to the east of both Ardley and Middleton Stoney, with the town of Bicester beyond the M40 in a south-easterly direction from the Main Site. Junction 10 of the M40 motorway is located approximately 1.6km north of the Main Site when accessed via the B430, and north of the village of Ardley. Junction 10 provides connection to the A43, which is also part of the strategic road network (SRN). Junction 9 of the M40, which provides access to the A34 (part of the SRN) is located to the southeast of the Main Site.

Walking

2.7 The Guidelines for Providing for Journeys on Foot[2] document describes acceptable walking distances for pedestrians without mobility impairment. For commuting the preferred maximum walking distance is approximately 2km. **Figure 3** shows the 2km preferred maximum walking distance isochrone from the centre of the OxSRFI Main Site, in 400m increments.

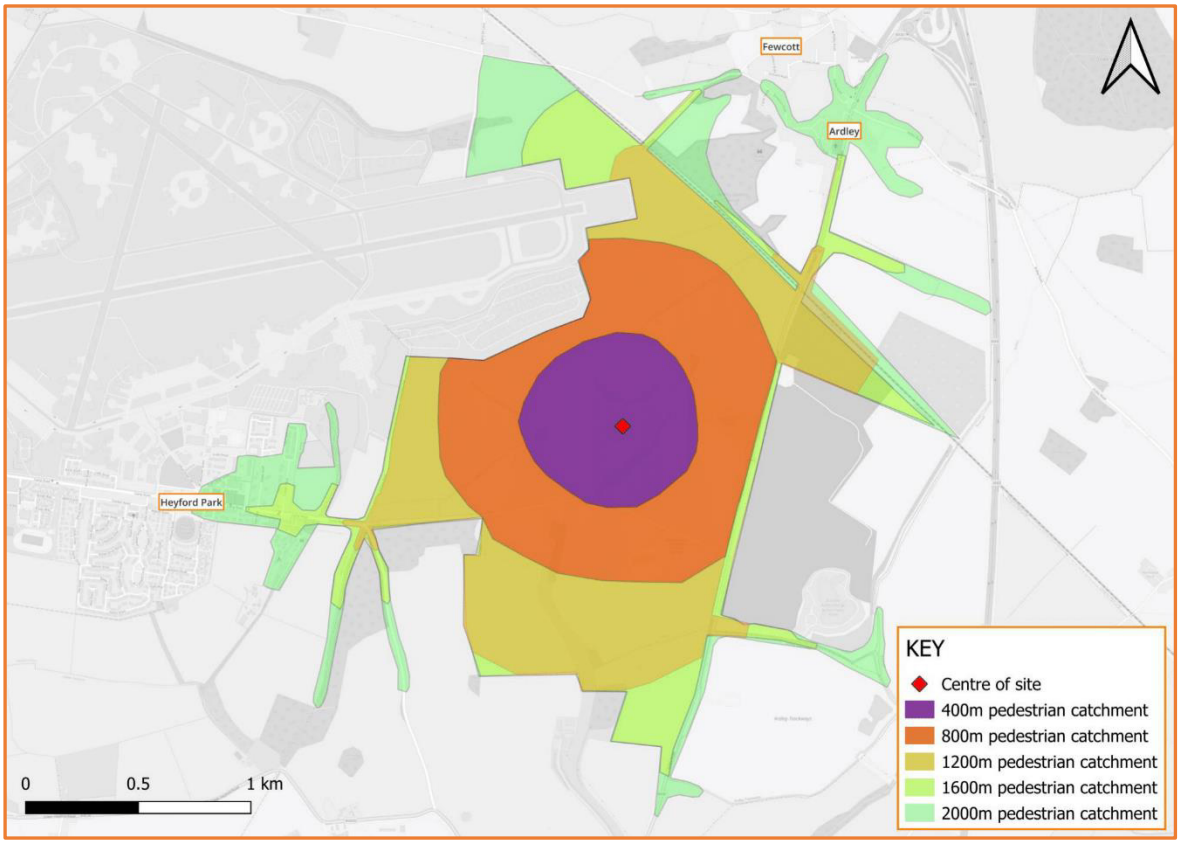


Figure 3: 2km pedestrian catchment isochrone from the centre of OxSRFI Main Site

2.8 As shown, and due to the locational requirements for SRFI to be located near to the strategic road and rail networks[3], there is limited population within a short walk of the site. However, Ardley village and the eastern part of Heyford Park are situated within the 2km pedestrian catchment and are within an acceptable walking distance. These two locations may generate walking trips to and from the site, but the pedestrian facilities connecting these locations are currently limited to public rights of way (PRoW).

[2] Guidelines for Providing for Journeys on Foot, the Institution of Highways and Transportation, 2000.
[3] As acknowledged in the National Policy Statement for National Networks 2024 (para 3.103).

2.9 Whilst there is a footway network within Heyford Park, there is currently no footway provided on Upper Heyford Road, a single carriageway road which links the B430 with Camp Road and Heyford Park. The speed limit on Upper Heyford Road is derestricted, changing to 30mph at its junction with Chilgrove Drive and the road to Middleton Stoney. Camp Road is subject to a 20mph speed limit through the Heyford Park development.

2.10 The B430 is a single carriageway road that links the A34 to the south and M40 Junction 10 to the north. It is generally rural in nature and so has limited walking facilities. It passes through the villages of Weston-on-the-Green, Middleton Stoney, and Ardley, where footways are generally provided throughout each settlement. The speed limit along the B430 is derestricted, with sections of 30mph restriction through Ardley and a 30mph speed limit on the approaches to Middleton Stoney with a 20mph speed limit within the village. There is a 40mph speed limit on the section of the B430 adjacent to RAF Weston-on-the-Green and through Weston-on-the-Green, although a traffic regulation order has been approved for the speed limit through the village to be reduced to 30mph.

2.11 At M40 Junction 10 there is an existing footway across the northern section of the junction, running between the Ardley Roundabout on the west of the motorway and the Padbury Roundabout to the northeast of the motorway. At the northern end of the footway there is an at-grade crossing with a pedestrian refuge at the central island across the A43, which is located on the southern arm of the Padbury Roundabout. The crossing facility links with a grass verge, from which access can be gained to Bridleway 367/21 that runs to the north and west of the Cherwell Valley Services. The connection between the A43 and Bridleway 367/21 is overgrown and steep. At the southern end of the footway, it terminates on the B430 arm of the Ardley Roundabout, there is no footway provided along the B430 into Ardley although a connection to the village is possible via the PRoW network.

2.12 There are currently no footways at the A43 Baynard's Green Roundabout, and no provision for pedestrian access to the services located on the northwestern corner of the junction.

Cycling

2.13 Local Transport Note (LTN) 1/20 'Cycle Infrastructure Design' states that "*…two out of every three personal trips are less than five miles* [8km] *in length - an achievable distance to cycle for most people*".

2.14 **Figure 4** shows the cycling catchment isochrones up to 10km from the centre of the OxSRFI Main Site. Heyford Park, Bicester, Ardley, Middleton Stoney and many of surrounding villages are within cycling distance of the OxSRFI Main Site.

2.15 Bicester has a high number of designated cycle routes, both on and off-street which form a well-connected network as shown in **Figure 5**. There are additional opportunities for potential routes to come forwards as part of the future development of the North-West Bicester development and the realigned Howes Lane link road (routes shown in green).

2.16 Outside of Bicester there is limited dedicated cycle infrastructure provided on the road network within the cycle catchment area, other than a shared footway/cycleway on the southern side of Camp Road within Heyford Park, and a section of shared footway/cycleway located in Weston-on-the-Green, on the eastern side of the B430.

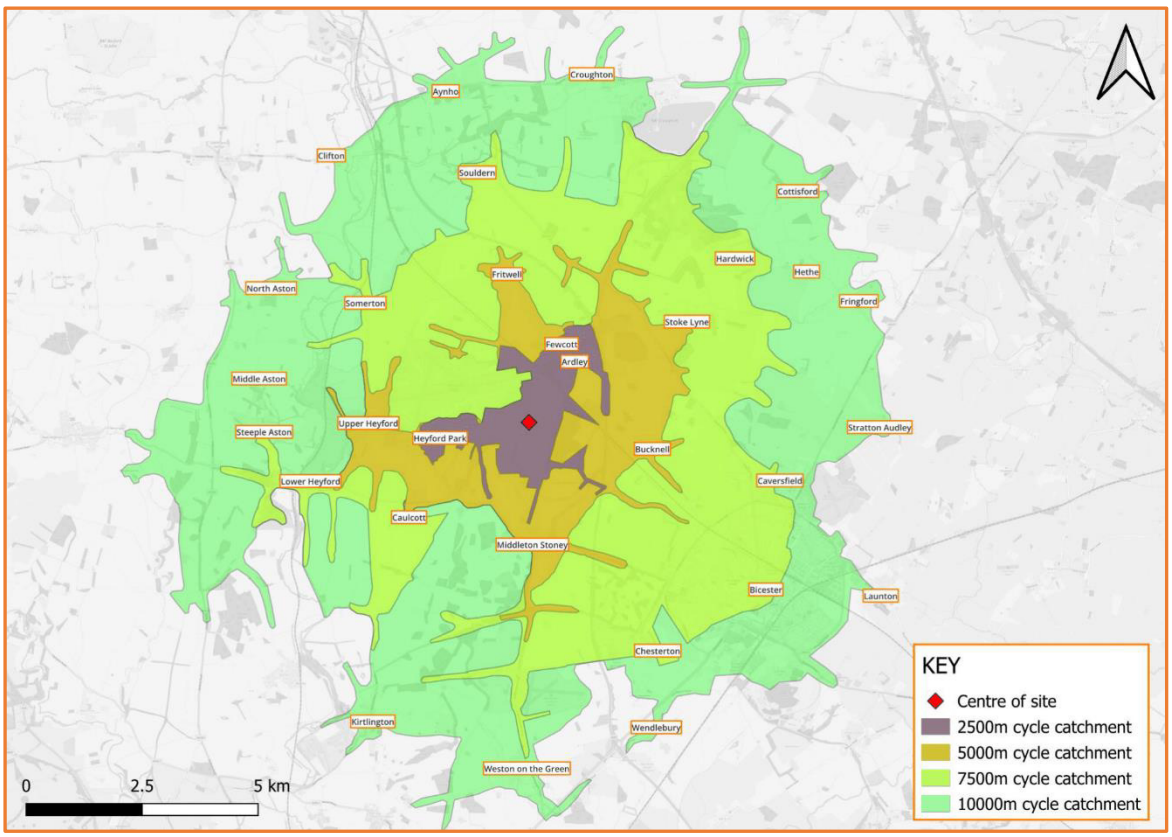


Figure 4: 10km cycle catchment isochrone from the centre of OxSRFI Main Site

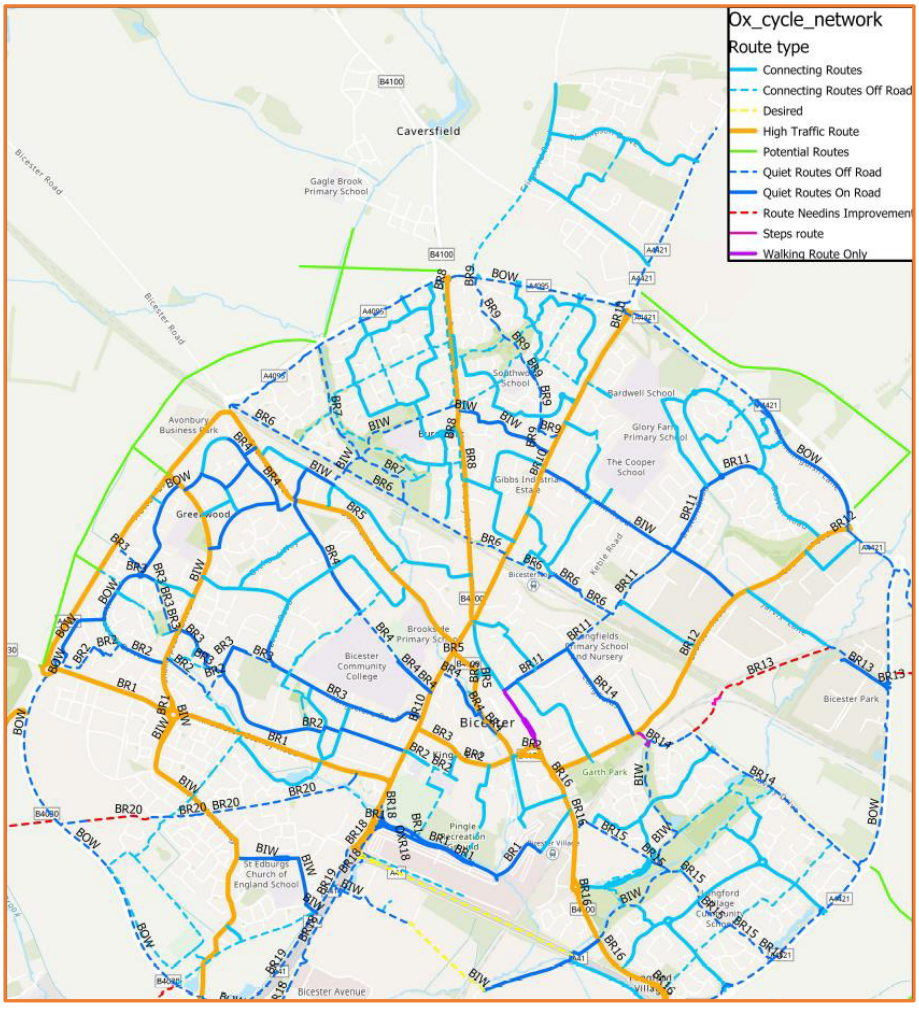


Figure 5: extract from the 2020 Bicester Local Cycling and Walking Infrastructure Plan

2.17 OCC have also recently consulted on the Middleton Stoney Road Active Travel Scheme to design and deliver an active travel scheme along the road between Oxford Road and the A4095/B4030 roundabout in Bicester. Details of the scheme are provided at **Appendix A**.

2.18 The facility in Weston-on-the-Green forms part of the National Cycle Network (NCN) Route 51 which runs from Bicester to Kidlington approximately 8km south of the site. NCN Route 51 and NCN Route 5, located to the west of the Main Site, are shown on **Figure 6**. Both routes provide a link to Oxford to the south.

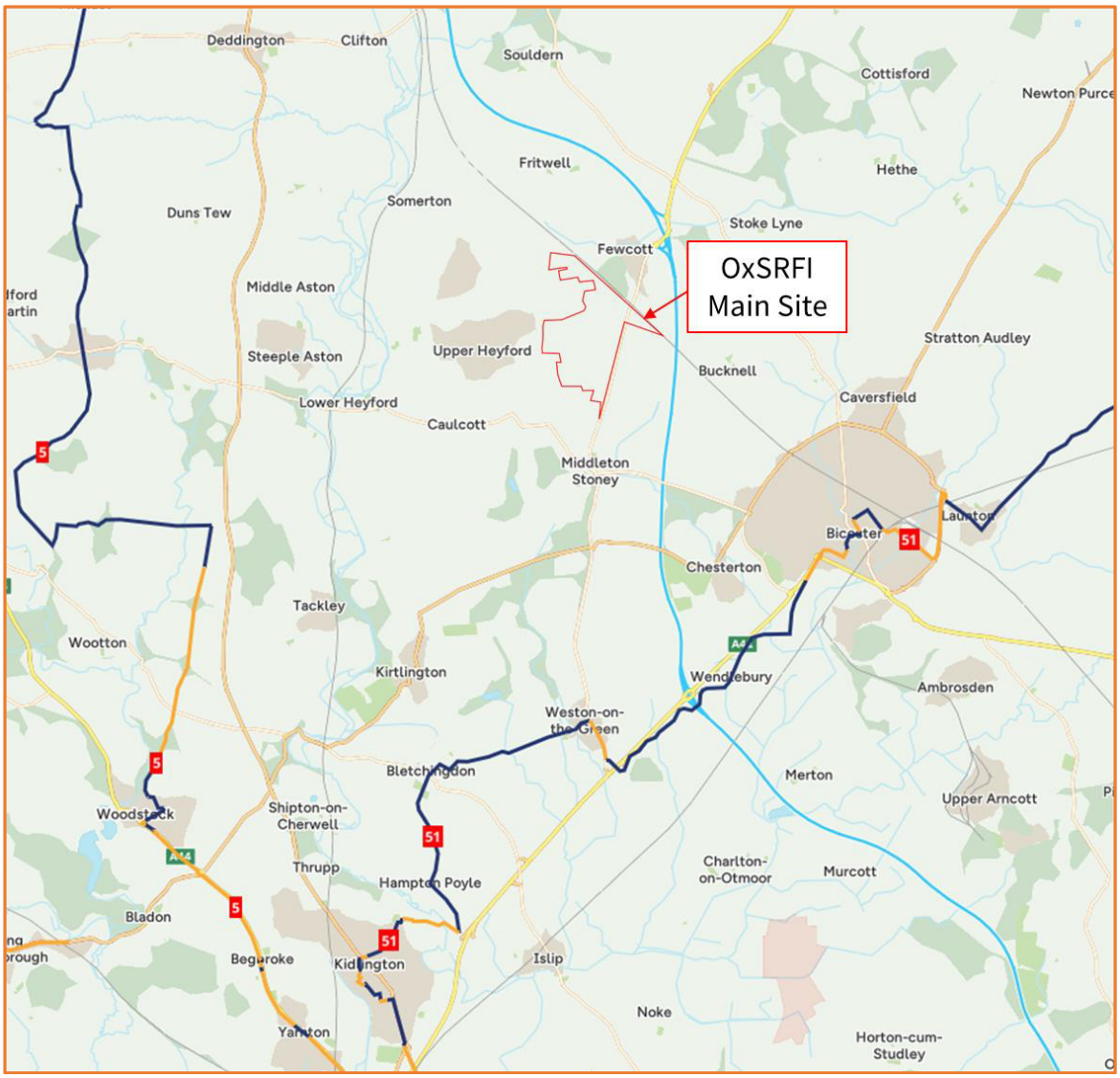


Figure 6: extract from Sustrans online national cycle route network plan

2.19 As described above, there are pedestrian facilities at the M40 Junction 10, but no cyclist facilities. There are no walking or cyclist facilities at M40 Junction 9. Similarly, there are currently no cyclist facilities at the A43 Baynard's Green Roundabout or the B4100, and cyclists are required to use the road.

Public Rights of Way

2.20 The existing and committed PRoW within the vicinity of the OxSRFI Main Site and the DCO Order Limits, are presented at the drawing ADC1794-DR-011 at **Appendix B**, with an extract presented at **Figure 7**.

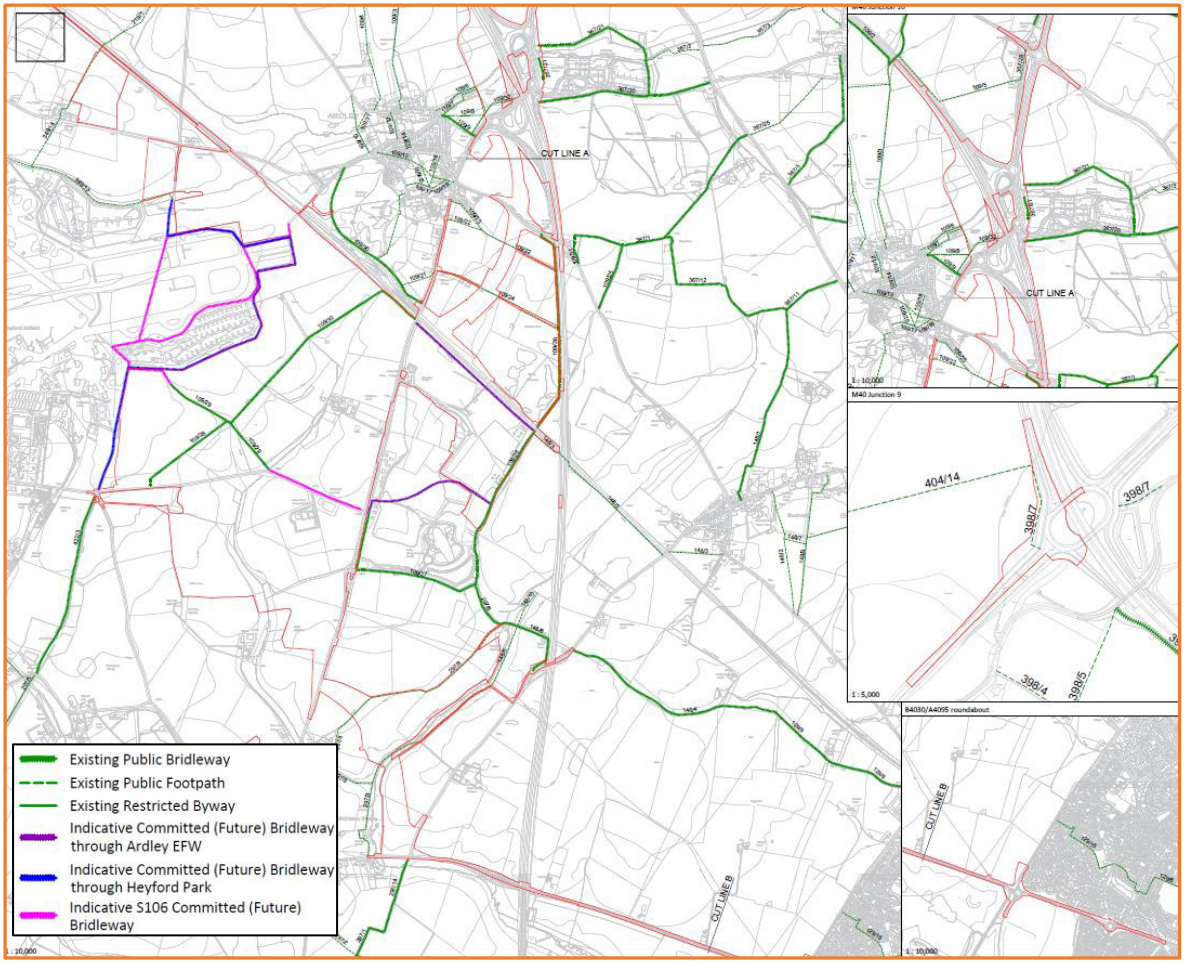


Figure 7: extract from ADC1794-DR-011 showing existing and committed PRoW

Existing bus and rail services

2.21 The Public Transport Strategy (PTS) document for OxSRFI describes the existing bus and rail services near to the site.

2.22 The main existing bus route in the vicinity of the site is the Service 25, which is operated by Red Rose Travel and runs between Upper Heyford and Bicester Village (railway station), via Lower Heyford, Heyford Park, and Middleton Stoney and Bicester Pioneer Square (Bicester's main bus interchange). The route of Service 25 is shown in **Figure 8**.

2.23 The service runs hourly from Upper Heyford to Bicester from Monday to Saturday, between 0700 and 1935 hours (with an earlier 0610 service from Heyford Park only). The return service from Bicester runs hourly from 0638 to 2006 hours Monday to Friday, and starts at 0738 hours on Saturday. On Sundays, the service runs every 90 minutes, between 0843 and 1937 hours. The nearest bus stops to the OxSRFI Main Site are on Camp Road at Heyford Park, and in Middleton Stoney, but these are not currently accessible from the OxSRFI site on foot.

2.24 Ardley Village to the north of the OxSRFI Main Site is served by Service 81, known as the Bicester Bee. The 81 is a fixed route service, operated by ABILITY (Northants) that runs between Bicester and Ardley, six days a week. Two services are provided during the morning peak hour, with a further two in the afternoon. The service stops at Bicester, Caversfield, Souldern, Fewcott, Ardley, and Bucknell. The nearest bus stop to the OxSRFI Main Site is on Ardley Road, some 1.5km from the centre of the Main Site and is not currently accessible on foot

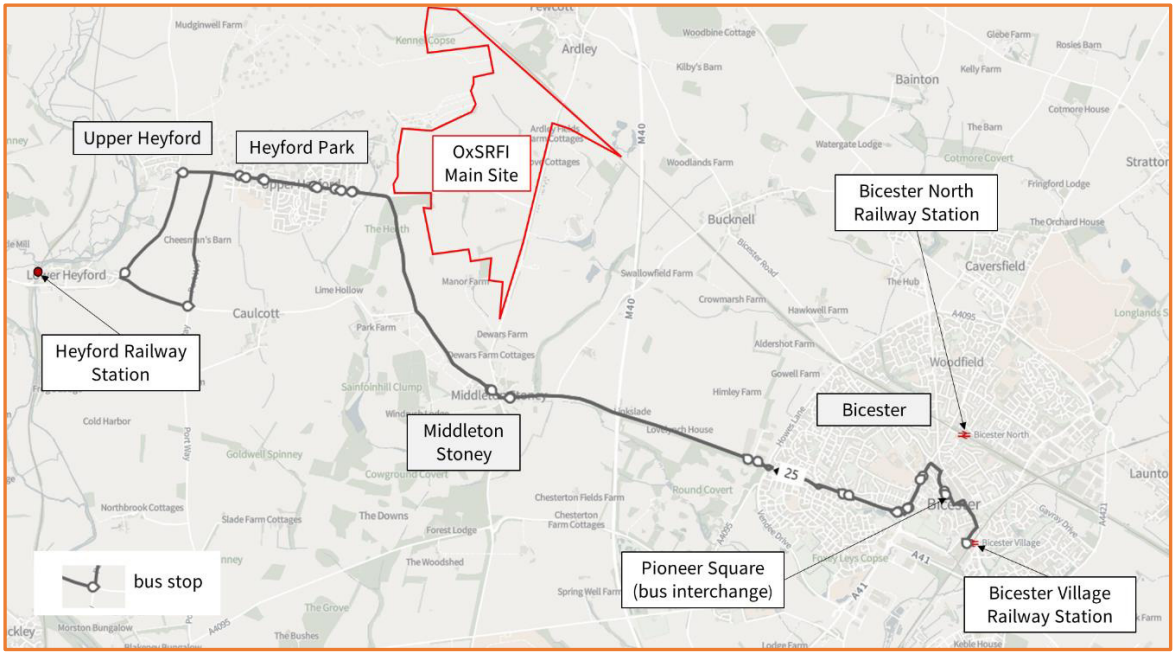


Figure 8: Bus Service 25

2.25 The main bus interchange in Bicester is located at Manorsfield Road, adjacent to the Pioneer Square Shopping Centre. The stops serve local routes within Bicester as well as regional destinations like Oxford, Headingham, and Brackley. There are a number of facilities in the vicinity of the stops including toilets, cafes, and cash machines. There are also bus stops at the two railway stations that are located within Bicester.

2.26 The nearest railway stations to the OxSRFI Main Site are in Heyford and Bicester, as shown in **Figure 8**. Heyford Railway Station is managed by Great Western Railway and located in the village of Heyford approximately 5km from the centre of the Main Site. Trains arrive approximately hourly at peak times, two hourly in off-peak periods, with no trains on Sundays during the winter. Trains travel between Banbury and Didcot Parkway.

2.27 Located in Bicester, Bicester North railway station links Birmingham and London Marylebone. Bicester North is an approximately 800m walk from Pioneer Square bus interchange, and approximately 6km from the centre of the OxSRFI Main Site. There are generally two trains per hour to and from London Marylebone, with more at peak times, and one train to Birmingham. To London, average journey times are around 55 minutes; for Birmingham Snow Hill and Stratford-upon-Avon, around 1 hour 10 minutes.

2.28 Bicester is also served by Bicester Village railway station, which opened in 2015 to alleviate pressure and serve the Bicester Village shopping outlet. Bicester Village railway station is located on the Oxford to Bicester line with journey times taking an average of 48 minutes to London Marylebone station or 15 minutes to Oxford.

2.29 Ardley formerly had a railway station serving the village which was closed in 1963. The station was located directly opposite the OxSRFI Main Site on the northern side of the Chiltern Main Line between the Main Site and Ardley Wood.

2.30 The BREEAM Accessibility Index (AI) is influenced by the proximity and diversity of the public transport network and the frequency of services at the accessible nodes. The greater the number of compliant nodes, services and their proximity to the building, the higher the AI. To determine the Public Transport Accessibility Index, the following information should be collated:

- Distance (m) from the main building entrance to each compliant public transport node.

- Public transport types serving the compliant node, e.g. bus or rail.
- Average number of services stopping per hour at each compliant node during the operating hours of the building for a typical day.
- Use the BREEAM Accessibility Index tool to calculate the AI.

2.31 For a public transport node to be compliant under the BREEAM AI assessment, it must be within 650m for a bus service or 1000m for a rail service. On this basis there are currently no compliant bus stops or rail services accessible from the Main Site. This equates to an BREEAM Accessibility Index of 0.

Amenities

2.32 The existing use, location, and size of the OxSRFI Main Site means that there are currently no existing amenities within 500m of the centre of site. As described below, the nearest amenities are in Heyford Park, adjacent to the site to the west.

Nearby committed development

2.33 There are several committed development schemes located near to the OxSRFI Main Site. These schemes will increase the number of people living within walking and cycling distance of the Proposed Development, and/or they will provide changes to the nearby transport infrastructure. The schemes are shown in **Figure 9** and summarised in the table below.

Name and Planning Reference	Description	Status
Heyford Park 10/01642/OUT 18/00825/HYBRID	Redevelopment to deliver a new residential settlement, including employment uses, primary school, and a range of other community facilities	Approved
David Wilson Homes (was Pye Homes) 22/03063/F	Residential development for 123 homes	Approved
Richborough Estates/Lone Star 21/04289/OUT	Residential development for up to 230 homes	Approved at appeal
North-West Bicester expansion key consents include: 14/02121/OUT 14/01675/OUT as varied by 19/00347/OUT	6,000 homes total, local centre hubs, 4 primary and 1 secondary school and other community facilities, and 10ha (min.) employment	Some planning permissions approved with implementation, under construction and occupied in part
Great Wolf leisure resort 19/02550/F Varied through 21/04158/F	New leisure resort (sui generis) incorporating waterpark, family entertainment centre, hotel, conferencing facilities and restaurants with associated access, parking and landscaping	Approved at appeal
M40 J9, associated with Tritax development (for Siemens) 22/01144/F	Up to 56,162 sqm of B2 floor space and ancillary uses	Approved

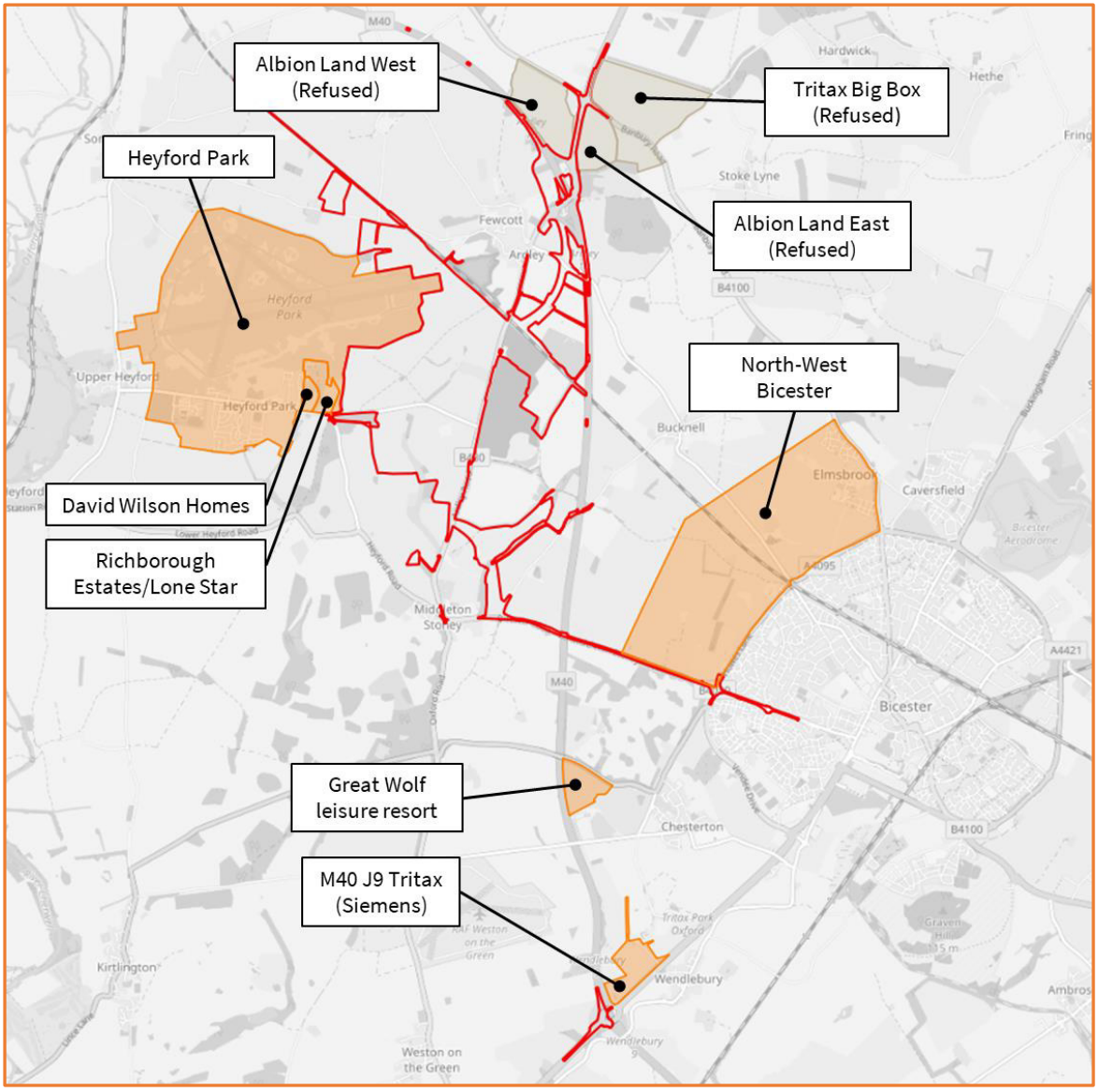


Figure 9: Nearby development

2.34 Also shown on **Figure 9** in grey are the planning applications summarised in the table below. The three Albion Land planning applications for 280,000 sqm of B8 warehousing and distribution use originally received a resolution to grant planning permission at the 3 July 2025 Cherwell District Council (CDC) planning committee meeting. Following that resolution, the TWG requested that the Applicant include those applications in the future OxSRFI baseline as a commitment. However, the three Albion Land planning applications returned to planning committee on 15 January 2026 and were refused planning permission and hence are not a commitment.

2.35 The Symmetry Park planning application by Tritax Big Box for 300,000sqm of B8 warehousing and distribution received a resolution to refuse planning permission at the 3 July 2025 CDC planning committee meeting. Following that resolution the application returned to planning committee on 15 January 2026, where it was refused planning permission.

2.36 It is understood by the Applicant that both Albion Land and Tritax Big Box intend to appeal the planning committee decisions.

Name and Planning Reference	Description	Status
Albion Land in the vicinity of the A43, north of M40 Junction 10 21/03266/F (infrastructure only), 21/03267/OUT (east of the A43), 21/03268/OUT (west of the A43	280,000 sqm of logistics floorspace between the two sites	Resolution to grant planning permission received at 3 July 2025 planning committee, but subsequently refused planning permission at 15 January 2026 planning committee
Symmetry Park by Tritax Big Box 22/01340/OUT	300,000sqm of B8 warehousing and distribution use	Resolution to refuse planning permission received at 3 July 2025 planning committee, and subsequently refused planning permission at 15 January 2026 planning committee

2.37 At the time of writing, Heyford Park has around 1,100 dwellings, plus other uses, with a further circa 1,500 homes being committed as part of a masterplan approved in 2022 to guide the delivery of the Cherwell Local Plan 2011 to 2031 allocation that was adopted in 2015. The other uses in place include the Heyford Park School (for pupils aged 3-16), the Heyford Hotel, Baton restaurant, 455 Bar and Bowling, Heyford Park Innovation Centre (offices and laboratory space) and retail uses including a Sainsbury's Local. There is also Heyford Park Gym and Leisure Centre, with sports hall, badminton court, tennis court, squash court, football pitch, and dance studio.

2.38 In addition, Dorchester Group, who developed Heyford Park, have plans for further development, with up to 9,000 homes, plus leisure and employment space at Heyford Park. A planning application for that scheme was submitted to CDC in 2025 (25/02190/Hybrid). This is of relevance as it would significantly increase the number of people living within walking and cycling distance of the OxSRFI, and who may choose to work at the OxSRFI.

2.39 Between the OxSRFI site and Heyford Park, there is also the David Wilson Homes (was Pye Homes) development of 123 dwelling on land north of Camp Road and Richborough Estates/Lone Star development for 230 dwellings that was approved at appeal, both of which will fall within acceptable walking distance of the centre of the OxSRFI site.

2.40 Similarly, 6,000 homes are to be built at North-West Bicester, which will further increase the number of people living within cycling distance of the OxSRFI, or on the bus routes to/from the OxSRFI, and who may choose to work at the OxSRFI.

2.41 The North-West Bicester site is allocated in the adopted 2011 to 2031 Local Plan and as part of the Cherwell Local Plan 2042 additional land at the North-West Bicester site has received a draft allocation, that would mean that a further 1,500 homes could be delivered above the original 6,000 homes envisaged. Delivery rates for the site have been reviewed as part of the housing trajectory and it is expected that 3,200 homes will be delivered by 2042 with, 4,300 homes to be delivered beyond the end of the plan period.

2.42 The number of people living within walking and cycling distance of OxSRFI will therefore increase over time as Heyford Park and adjacent committed residential sites are built out, along with the North-West Bicester allocation.

Future baseline conditions

2.43 Some of the above-described development schemes will change the future baseline conditions for walkers, cyclists, and public transport users as they relate to the OxSRFI development. The following sections describe those changes.

Walking and cycling

2.44 There is an existing footway on the northern side of Camp Road within Heyford Park and a shared footway/cycleway on the southern side of the road. As part of the Heyford Park S106 Agreement, there is a requirement for the Heyford Park development to provide a footway connection along the length of Camp Road to the Camp Road/Chilgrove Drive/Upper Heyford Road junction, with cycle provision also extended east to connect with the Camp Road/Chilgrove Drive/Upper Heyford Road junction through provision of an on-road cycle facility and traffic calming.

2.45 Also included in that S106 Agreement is a requirement for the Heyford Park development to signalise the junction and provide a realigned Chilgrove Drive to serve as one of the Heyford Park development accesses, including HGV access. The old alignment of Chilgrove Drive will be dedicated as a bridleway and as part of the junction signalisation a shared footway / cycleway with Toucan crossing will be provided at the northern side of the road, extending north along the new realigned Chilgrove Drive (Heyford Park site access). A Pegasus crossing will be provided to connect the bridleways to the north and south of the junction, as part of the reinstatement of the Aves Ditch route. The crossing point will also connect with the committed footway on Camp Road and the on-road cycle facilities described in the paragraph above.

2.46 These footway and cycle facilities and the changes to the Camp Road/Chilgrove Drive/Upper Heyford Road junction are shown on the drawings at **Appendix C**.

2.47 In addition to the footway/cycleway to be provided by the Heyford Park development, as part of the Richborough Estates/Lone Star housing scheme, a new off carriageway footway/cycleway will be provided on the northern side of Camp Road between the Camp Road/Chilgrove Drive/Upper Heyford Road junction and the site access to the housing scheme. The proposed scheme submitted with the planning application is shown at **Appendix D**.

2.48 There are currently no dedicated pedestrian facilities along Upper Heyford Road. However, the Heyford Park S106 Agreement includes a commitment for the Heyford Park development to provide a new pedestrian and cycle path adjacent to Upper Heyford Road and linking Camp Road and the B430. The Heyford Park S106 Agreement also requires the signalisation of the B430/Upper Heyford Road junction and the incorporation of a crossing for use by non-motorised users, including equestrians, over the B430, linking with bridleway 109/27 (which is to also be improved as part of enhancing the connectivity between the Heyford Park site and Bicester – see paragraph below). An indicative plan showing the footway/cycleway along Upper Heyford Road and the improvement scheme at the B430/Upper Heyford Road junction are shown on the drawings at **Appendix E**.

2.49 The Heyford Park development is also required via the S106 Agreement to provide a 'Cycle Route Contribution' towards a cycle route between Heyford Park and Bicester. These funds are primarily to be used for surface improvements along the bridleway route formed by Bridleways 109/27, 297/6, 148/6, 148/4, and 129/9 to provide a resin bound surfaced route suitable for cyclists, horse-riders, and walkers. OCC are working with Sustrans to improve the bridleway route – referred to as 'Cherwell Valley Greenway' - including addressing the current cross-arable

field sections of the bridleway route to either harden the surface or divert to field edges, with proposals for artwork and other amenity improvements at points along the Greenway route.

2.50 Clearance and surfacing works have taken place on the sections of the bridleway between the B430 and Trow Pools (other than a short section where further quarrying associated with Dewars Quarry will be taking place and hence the surfacing works will follow that). At the time of writing, no works have been undertaken on the bridleway route to the east of Middleton Road.

2.51 Combined with the committed footway/cycleway facility to be provided alongside Upper Heyford Road, this will provide a cycle link between Heyford Park and Bicester.

2.52 As part of the Himley Village Development, forming part of the North-West Bicester development, a 3m wide shared footway / cycleway will be implemented running parallel or directly alongside the B4030 Middleton Stoney Road along the North-West Bicester site frontage.

2.53 The Albion Land and Tritax Big Box schemes were required to improve the A43 Baynard's Green Roundabout. The improvement scheme included staggered Toucan crossings on the B4100 east and west and A43 south arms of the junction and new shared use footway/cycleway links, including a link to the Baynard's Green services. The schemes were also required to provide a footway/cycleway alongside the B4100 between Bicester and their sites, which would have connected with the new facilities provided at the Baynard's Green junction. However, following the refusal of these schemes, these works are not committed.

Bus services

2.54 As part of the consented Heyford Park development significant improvements will be made to local bus services. The focus for the Heyford Park public transport strategy is to provide a convenient and direct bus route to Bicester and link with the rail services within the town, thereby facilitating onward train travel to Oxford.

2.55 Funding was secured via the S106 Agreement to provide a service with an initial 30-minute frequency, increasing to 20 minutes and then 15 minutes as the Heyford Park development is built out. This will be a Monday to Saturday daytime service (0600 hours to 2000 hours), with a lower frequency hourly service provided on Sundays between 0800 to 1800 hours.

2.56 The bus route is via Camp Road, through the Heyford Park site and back onto Camp Road, via the new Chilgrove Grove Dive / Heyford Park site access, and then onwards along the B4030 and through Middleton Stoney to Bicester. The proposed route through the Heyford Park development is shown in **Figure 10** along with the proposed new bus stop infrastructure**.**

Figure 10: Route of Heyford Park bus service through Heyford Park site (extracted from Heyford Park Transport Assessment Addendum, OxSRFI Main site area added)

2.57 For the purposes of the OxSRFI Public Transport Strategy, OCC have confirmed that it should not be assumed that Heyford Park bus scheme will be operating at its 15-minute target frequency in the OxSRFI opening year. Instead, OCC have advised it is reasonable to assume that the service will be operating every 30 minutes Monday to Saturday and hourly on a Sunday when OxSRFI opens in 2031.

3.0 OXSRFI EMPLOYEE CATCHMENT

Operation

3.1 From the agreed trip generation associated with the OxSRFI development, and work undertaken as part of the Socio-Economic assessment, it is estimated that there will be in the region of 9,600 full time equivalent employees associated with the OxSRFI development.

3.2 The Socio-Economic assessment identifies that OxSRFI will include a wide range of full and part-time roles at differing skills levels and occupations and will include opportunities for local residents to access employment at entry level through to managerial and professional roles.

3.3 All of the warehousing units are likely to operate on a 24-hour basis, seven days a week. A three-shift system is common practice, with the main shifts being 0600-1400 hours, 1400-2200 hours and 2200-0600 hours, although there could be some variation depending on the individual occupier requirements.

3.4 In addition to this, the office and administration employment will operate more traditional office hours (typically starting between 0800-0900 hours and finishing between 1630-1730 hours).

3.5 In keeping with most inland rail freight terminals, the rail freight terminal itself is likely to operate on a 24-hour basis from Sunday evenings until Saturday mornings. However, volume growth at the main ports could lead to an increase to 24/7 operation in the future.

Catchment

3.6 The Socio-Economic ES chapter for the OxSRFI development includes an analysis of both 2011 and 2021 Census data to determine where OxSRFI employees are likely to be drawn from.

3.7 The Socio-Economic ES chapter notes that there are limitations to using the 2021 Census data, because it was undertaken during a period of national lock down when people were, in some instances, required to work from home or had been placed on Government furlough schemes, due to Covid-19 pandemic. The Socio-Economic ES assessment concludes that *"the data is nonetheless useful in demonstrating that there have been no significant changes in travel to work patterns from the 2011 Census."*

3.8 As shown in the table below, the Travel to Work (TTW) 2011 Census data from the Socio-Economic chapter shows 87.2% travelling within the local and the subregional area[4], with 60.1% travelling from within the Cherwell District. The 2021 Census data shows 90.6% travelling within the local and subregional area, with 67.2% travelling from within the Cherwell District.

[4] Local and Sub-regional areas as defined in the Socio-Economic assessment. Local is the Cherwell District Council administrative area. Sub-regional covering Oxfordshire together with the area that covers South Northamptonshire (now part of a unitary authority), Aylesbury Vale (now part of a unitary authority) and Stratford-upon-Avon.

Usual Residence	2011 Census TTW data (Socio-Economic data) all trips	2021 Census TTW data (Socio-Economic data) all trips	**Data from Bicester Transport Model** (2034) **vehicle trips**
Cherwell	60.1%	67.2%	49%
South Northamptonshire	7.4%	7.9%	14%
West Oxfordshire	5.7%	4.5%	5%
Oxford	3.8%	3.3%	1%
Aylesbury Vale	3.7%	2.9%	7%
Stratford-on-Avon	2.4%	2.2%	0.8%
Vale of White Horse	2.4%	1.8%	0.2%
South Oxfordshire	1.7%	0.8%	1%
Total	*87.2%*	*90.6%*	*78%*

3.9 Whilst the conclusion that there have been no significant changes in travel to work patterns from the 2011 Census is helpful context, it is considered that the 2021 Census data related to travel to work is too heavily impacted by the Covid-19 pandemic to give reliable information. The ONS website specifically states that the *"Census 2021 took place during the coronavirus (COVID-19) pandemic, a period of unparalleled and rapid change; the national lockdown, associated guidance and furlough measures will have affected the travel to work topic. Take care when using these data for planning and policy purposes."* Hence, reliance is not placed on the 2021 Census data, and focus remains on the 2011 Census data.

3.10 OCC's strategic transport model (the Bicester Transport Model (BTM)) takes into account changes in land use associated with the future committed and planned growth in housing and employment in the area. The table above also summarises the employee catchment for the OxSRFI development taken from the BTM for employees travelling by car. The BTM data is from the 2034 future scenario with OxSRFI, and the embedded highway works in place. The BTM data represents only employee trips by car. Hence trips more local to the site (i.e. within Cherwell) that would be made by foot, cycle, and public transport, are not represented in the BTM data whereas those trips are included in the Census data used in the Socio-Economic assessment that is presented in the table, as that assessment is based on trips by all travel mode types. Considering this, good overall correlation between the Census and BTM catchment areas is shown.

3.11 These findings are consistent with additional analysis undertaken as part of the Socio-Economic assessment, which uses 2011 Census travel to work data for the transport and storage sector and identifies that typically the site would be expected to have a predominant 20km catchment area for employees. Typically for the transport and storage sector, 54% of staff will live within 10km, and 71% of staff will live within 20km. These catchments are illustrated at **Figure 11**, which shows that the employee catchment for OxSRFI includes Bicester (6km), Brackley (10km), and Banbury (15km) and surrounding villages.

3.12 The Socio-Economic work sought to provide the same information from the 2021 Census data. However, the 2021 Travel to Work (TTW) data is only available by occupation, and not industry, and so comparable datasets are not available. As noted in above, the OxSRFI will include a range of occupations, from warehouse staff to admin roles, and hence the occupation data is not suitable to use.

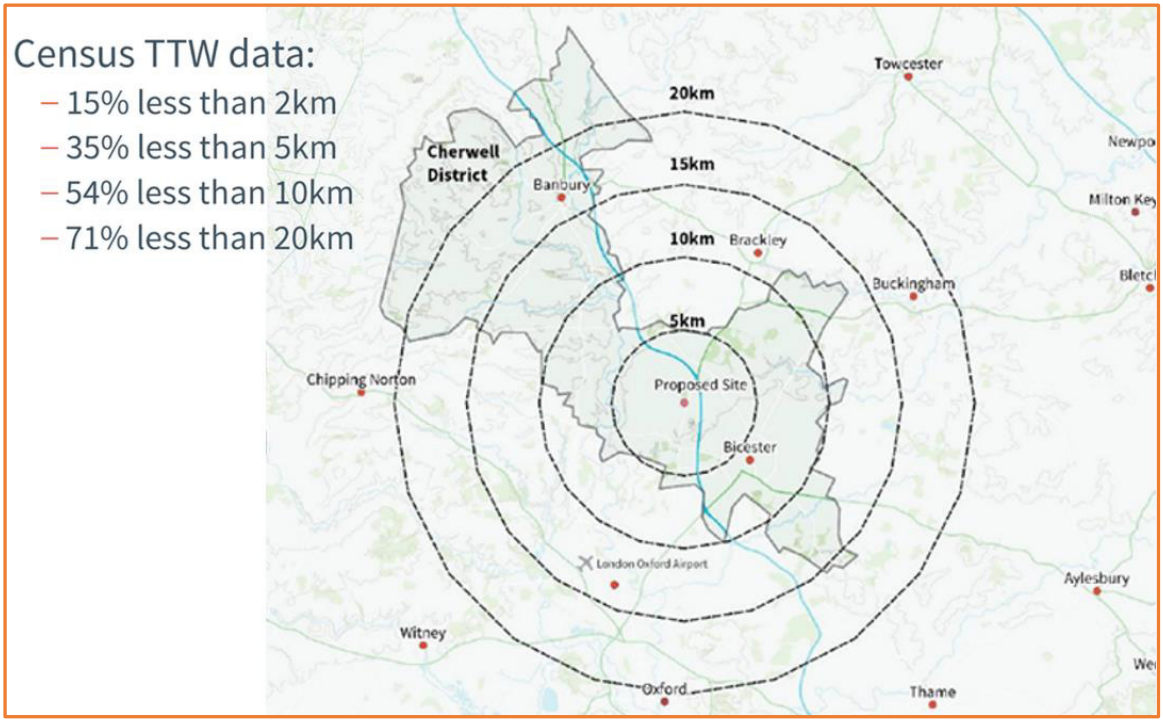


Figure 11: typical employee catchment area for transport and storage sector - extract of slide 2 of Hatch presentation (17 June 2021)

3.13 The OxSRFI site is located within the Cherwell 011 MSOAs, directly adjacent to Cherwell 010 (which includes the Heyford Park development). The employee catchment area was therefore also compared with the 2011 Census travel to work data[5] for the combined Cherwell 010 and Cherwell 011 MSOAs. The table below summarises employee locations, based on the in-moves to work to the combined Cherwell 10 and 11 MSOAs, by all modes.

Employee catchment areas by location Location	Percentage
Bicester	35.1%
Banbury	9.9%
Brackley	6.7%
Oxford	3.9%
Areas south of the site within Cherwell	3.3%
Areas west of the site within Cherwell (including Heyford Park)	9.9%
Total	***68.9%***
Total from within Cherwell District (i.e. excluding Brackley)	***62.5%***

3.14 This more specific information was used to develop the locations to be targeted for the proposed bus service connectivity improvements associated with OxSRFI as part of the Public Transport Strategy. It is noted that this more detailed assessment also demonstrates good overall correlation with the Socio-Economic assessment and BTM catchments, with 62.5% travelling from within Cherwell District[6].

5 The same "Location of usual residence and place of work by method of travel to work" dataset from the 2021 Census is not publicly available and is a secure dataset that cannot be accessed.

6 The 'Driving a car or Van' modal share from the 2011 Census data for in-moves to work to the combined Cherwell 10 and 11 MSOAs is 74%. 62.5% (for all modes within Cherwell) * 74% = 46.25% which compares well to the BTM Cherwell car-based catchment of 49% (table at paragraph 3.8)

3.15 Overall, the assessment of the employee catchments demonstrates the potential for around 60% to 67% of the employment catchment to be from within Cherwell District. There is likely to be a high demand for travel to and from Bicester (around 35% of employees or 610 two-way peak hour / 6,000 two-way daily person trips) and Banbury (around 10% of employees or 175 two-way peak hour / 1,700 two-way daily person trips). It would also be expected that the development would draw employees from the adjacent Heyford Park development area (10% or 175 two-way peak hour / 1,700 two-way daily person trips).

3.16 These proportions could change as Bicester continues to grow and further development takes place at Heyford Park. They could also change if the Dorchester Group is successful with its plans to further develop Heyford Park as part of their potential new town proposals. These developments in combination will lead to an increase in the proportion of people who could live directly adjacent to the site and walk, cycle, or use the bus to travel to and from work at OxSRFI.

4.0 OXSRFI SUSTAINABLE TRAVEL IMPROVEMENTS

Introduction

4.1 As part of the OxSRFI development, a significant package of connectivity improvements is proposed to provide new and enhanced means of sustainable travel to and from the key employee catchment areas and the development site.

4.2 These connectivity improvements have been developed in consultation with the OCC and the TWG. The improvements comprise:

- new and enhanced pedestrian and cyclist facilities
- new and diverted PRoW
- new and enhanced bus services.

4.3 Use of active travel modes and public transport will be encouraged through the Travel Plan process, which will also include the promotion of car sharing at OxSRFI. Accordingly, this section of the STS details the OxSRFI:

- Active Travel and PRoW Strategy
- Public Transport Strategy
- Car Share Strategy.

Active Travel and PRoW Strategy

4.4 The key objective of the Active Travel Strategy is to provide walking and cycling connectivity between the OxSRFI Main Site and the principal settlements within the catchment areas within walking and cycling distance of the site (see Section 2). In addition, opportunities to enhance the PRoW network have been identified and new and diverted PRoW are proposed.

4.5 As well as the regular TWG meetings, separate workshop sessions have also been held with the OCC and National Highways representatives on the walking, cycling and PRoW strategy to gain views on the opportunities and challenges presented by the Proposed Development and to constructively discuss the active travel strategy for the scheme.

4.6 There have been eight workshop meetings held between December 2020 and December 2025, with the outcomes reported back to at the TWG meetings. The latter four of these workshop meetings took place following the scheme public pause - with the last two meetings taking place to discuss the feedback from OCC received following the Stage 2 statutory consultation - and led to the finalisation and in principle agreement of the Walking, Cycling and PRoW Strategy.

Walking Cycling and Horse-Riding Assessment Report (WCHAR)

4.7 The Proposed Development includes alterations to the M40 Junction 10 and the nearby Baynard's Green Roundabout on the A43, and M40 Junction 9, which are part of the SRN. Therefore, in accordance with DMRB GG 142 the Walking, Cycling and Horse-Riding Assessment and Review (WCHAR) process applies.

4.8 The purpose of the WCHAR guidance is to facilitate the inclusion of walking, cycling and horse-riding (WCH) modes of travel in the highway scheme design process from the earliest stage, enabling the design team to identify opportunities for improved facilities and their integration with the local and national networks.

4.9 The Proposed Development also includes alterations to the local highway network, specifically improvements to the B430 through the construction of a new bypass around the village of Ardley and a new relief road between the B430 and B4030 around the northeast quadrant of the village of Middleton Stoney, referred to as the Middleton Stoney Relief Road (MSRR). A new road link, termed the Heyford Park Link Road (HPLR) will be provided between the B430 north of Middleton Stoney and tying into the existing Upper Heyford Road that passes through the Main Site area, part of which would be stopped up and replaced by the HPLR.

4.10 Although the B430 and B4030 are not part of the SRN and there is no requirement to apply the WCHAR process to these elements of the highway works, the WCHAR process has been extended to include the B430 corridor works, and the area surrounding the OxSRFI Main Site, thereby providing a consistent and best practice approach to the inclusion of WCH modes of travel for the entirety of the proposed Highway Works and the Proposed Development as a whole.

4.11 The WHCAR Assessment Report is provided as a separate document. It identifies a total of 41 opportunities, as summarised in the tables below, that are relevant to WCH travel modes associated with the Proposed Development and associated Highway Works. These opportunities to enhance WCH connectivity have been considered by the design team throughout the progression of the scheme design and they have been further reviewed as part of the WCHAR Review Report, which is also provided a separate document. Where, necessary, changes to the scheme have been incorporated within the scheme and drawings accompanying the DCO submission.

Strategic	
Ref	**Opportunity**
1	To close the at-grade railway crossing of the Chiltern Main Line railway to the east of the Main Site, known as Bucknells Farm level crossing, which currently serves bridleway route 109/26 and provide an appropriate alternative crossing (with bridge over the railway) or route.
2	To provide a western perimeter bridleway around the Main Site connecting with the Aves Ditch route north and south of the Heyford Park Airfield.
3	To maintain vehicle and WCH access to the land formerly occupied by Ardley Railway Station in order not to prejudice the delivery of a railway station in the future.
4	To provide a bridleway link between public bridleways 367/20, 109/31 and 367/1, and Ardley Road to improve wider connectivity and restore links lost as part of the M40 construction.
5	To upgrade to a bridleway existing footpath 148/3 between Middleton Road and bridleway 109/26.

M40 Junction 10 Improvements and Baynard's Green		
Ref	**User**	**Opportunity**
6	W/C	As part of the proposed highway improvements to the A43 Baynard's Green Roundabout, provide a route for walkers and cyclists travelling between the two B4100 arms of the junction, and public footpath 367/28.
7	W/C	To provide a link between Ardley village and Cherwell Valley Services for walkers and cyclists.
8	W/C	To provide a link between Ardley village and public bridleway 367/20 (and Stoke Wood) for walkers and cyclists.
9	W	Retain or provide an alternative connection to public footpath 109/32 to and from M40 J10.
10	W/C	To provide a footway/cycleway link between Cherwell Roundabout and Baynard's Green.
11	W/C	To link the footway/cycleway provision at M40 Junction 10 with bridleway 109/09.

Main Site and Principal Access, including Heyford Park Link Road (HPLR)		
Ref	**User**	**Opportunity**
12	W/C/H	To provide an alternative east-west route to replace the connectivity provided by bridleway 109/29 that is within the Main Site area.
13	W/C/H	To provide an alternative north-south route to replace the connectivity provided by bridleway 109/28 and 109/30 that is within the Main Site area.

14	C	To provide a cycleway route linking the Main Site with Bicester.
15	W/C	To provide a footway/cycleway route connecting the Main Site with Ardley and Middleton Stoney and the connecting bridleway routes.
16	W/C	To provide a suitable crossing point of the B430 to provide a footway/cycleway link between the Main Site and bridleway 109/27.
17	W/C	To provide an off-road footway/cycleway route with appropriate crossing facilities linking the Main Site with the committed on and off-road provisions to be provided on Camp Road as part of the Heyford Park development.
18	W/C/H	Taking the opportunity provided by the Ardley Bypass, downgrade the B430 to the north of the proposed Principal Access, to provide a WCH link to Ardley village, with a link for walkers and cyclists over the Chiltern Mainline railway to connect with the Principal Access and the Main Site walking and cycling provisions.
19	W/C/H	To provide WCH connectivity over the Chiltern Mainline railway at the north-western corner of the Main Site to provide connectivity between the Main Site and Ardley. In connection with the route around the Heyford Park Airfield this would also facilitate connectivity between the Heyford Park development and Ardley which is a committed PRoW link as part of the Heyford Park development.
20	W/C/H	Formalise a WCH link from Quarry Cottages and bridleway 109/20 within Ardley Woods to Aves Ditch north of the former airfield.
21	W/C	To provide a bus stop with cycle parking facilities within the north-eastern corner of the Main Site to enhance bus connectivity for Ardley village.
22	W	To provide a bus stop near the Ardley EFW facility to enhance bus connectivity for employees of this facility.
23	W/C	To provide shared use footway/cycleways alongside the Main Site estate road, connecting with the proposed employment areas and central hub, with appropriate separation from the carriageway to provide an attractive route.
24	W	To provide permissive footpaths to and through the landscaped areas of the Main Site for recreational use.
25	W/C	To provide appropriate pedestrian and cyclist crossing facilities at the Principal Access.
26	W/C	To provide a high-quality pedestrian and cycle connection between the Main Site estate road and Chilgrove Drive via the HPLR and the Secondary Access.
27	W/C	To provide a footway/cycleway facility alongside the length of the HPLR.
28	W/C/H	To provide appropriate links to the west of the Main Site to link with Chilgrove Drive south of the former airfield and Aves Ditch north of the former airfield, thus also connecting to future committed bridleways that are envisaged as part of the Heyford Park development.

Ardley Bypass		
Ref	**User**	**Opportunity**
29	W/C/H	Associated with Opportunity 1, to divert existing public bridleway 109/26 between the Chiltern Mainline and Ardley Road and provide a route along the proposed bypass and away from the M40, and maintain the connectivity provided by bridleway 109/24 by providing an alternative connection to the B430.
30	W/C	To maintain connectivity of public footpath routes 109/22 and 109/23 to Ardley Road.
31	W/C	To maintain connectivity along Ardley Road where the Ardley Bypass crosses Ardley Road.
32	C	To provide a direct link alongside Ardley Bypass from Ardley Road to the Principal Access for cyclists accessing the Main Site to and from Ardley Road.

Middleton Stoney Relief Road (MSRR)		
Ref	**User**	**Opportunity**
33	W/C	To provide a footway/cycleway alongside the length of the MSRR, integrated with those opportunities identified at Opportunities 15 and 27.
34	W/C	Associated with Opportunity 11, to upgrade the existing public footpath 297/8 route to become a bridleway.
35	W/C/H	To provide appropriate crossing of the MSRR for public rights of way 297/3 and 297/8.
36	W/C/H	To provide appropriate crossing facilities at the MSRR/HPLR/B430 junction.

37	W/C/H	To provide a new bridleway route alongside the MSRR and linking with bridleway 297/14 to the south of the B4030.
38	W/C/H	To provide appropriate crossing facilities at the proposed new roundabout between the MSRR and the B4030.
39	W/C	To provide connectivity between the new footway/cycleway facilities proposed as part of the MSRR and Middleton Stoney village.
40	W	Associated with the forecast traffic reduction in Middleton Stoney village due to the MSRR and HPLR, provide improved pedestrian crossing facilities at the B430/B4030 crossroads junction within the village.

M40 Junction 9		
Ref	**User**	**Opportunity**
41	W	Stop up the existing section of public footpath 398/7 which leads to the A34 carriageway, where there is not an onwards destination for pedestrians and no opportunity to safety cross the A34.

WCH connectivity improvements

4.12 The OxSRFI development will provide new and enhanced pedestrians and cycle links and facilities that will provide links to, and enhance connectivity between, Heyford Park to the west, Ardley to the north, Bicester to the east, and Middleton Stoney to the south. The proposed connectivity improvements have been developed to complement, or in some cases to provide alternatives, to the existing WCH network, including those WCH measures that are to come forward as part of committed development as detailed in the future baseline position within Section 2 of this report.

4.13 The active travel strategy has also been developed to, as far as possible, positively respond to the WCH opportunities identified in the WCHAR Assessment Report, as summarised in the tables above and the WCHAR Review Report.

4.14 The proposed strategy for pedestrians and cyclists, along with proposed changes to PRoW is shown on the Footway/Cycleway/Rights of Way Strategy Overview plan drawing provided at **Appendix F**, an extract of which is provided at **Figure 12.**

4.15 The key elements of the strategy are described in the following paragraphs.

Heyford Park connectivity improvements

4.16 Heyford Park is located within both walking and a short cycling distance from the OxSRFI Main Site. To enable travel by these modes, a shared use footway/cycleway will be provided along the northern side of the HPLR/Upper Heyford Road providing a link from the OxSRFI Secondary Site Access to the Chilgrove Drive / Camp Road junction.

4.17 This will provide walking and cycling connectivity, via the committed foot and cycle improvements identified in Section 2 (**Appendices C and D**), to Heyford Park and the areas to the west of the site. This will be provided as part of the Phase 1 Highway Works and so will be in place prior to occupation of the OxSRFI Main Site.

Ardley and Middleton Stoney connectivity improvements

4.18 A new shared use footway/cycleway will be provided alongside the length of the HPLR and the MSRR, including Toucan crossings at the new HPLR/MSRR/B430 junction and appropriate

crossing points at the new MSRR/B4030 roundabout. This will link with Secondary Site Access, and the connection to Heyford Park described above.

4.19 A new shared use footway/cycleway will be provided along the western side of the B430 linking with the above-described facilities associated with the HPLR and MSRR and providing connectivity to the Principal Site Access and Ardley to the north, and Middleton Stoney to the south (via the provisions alongside the MSRR).

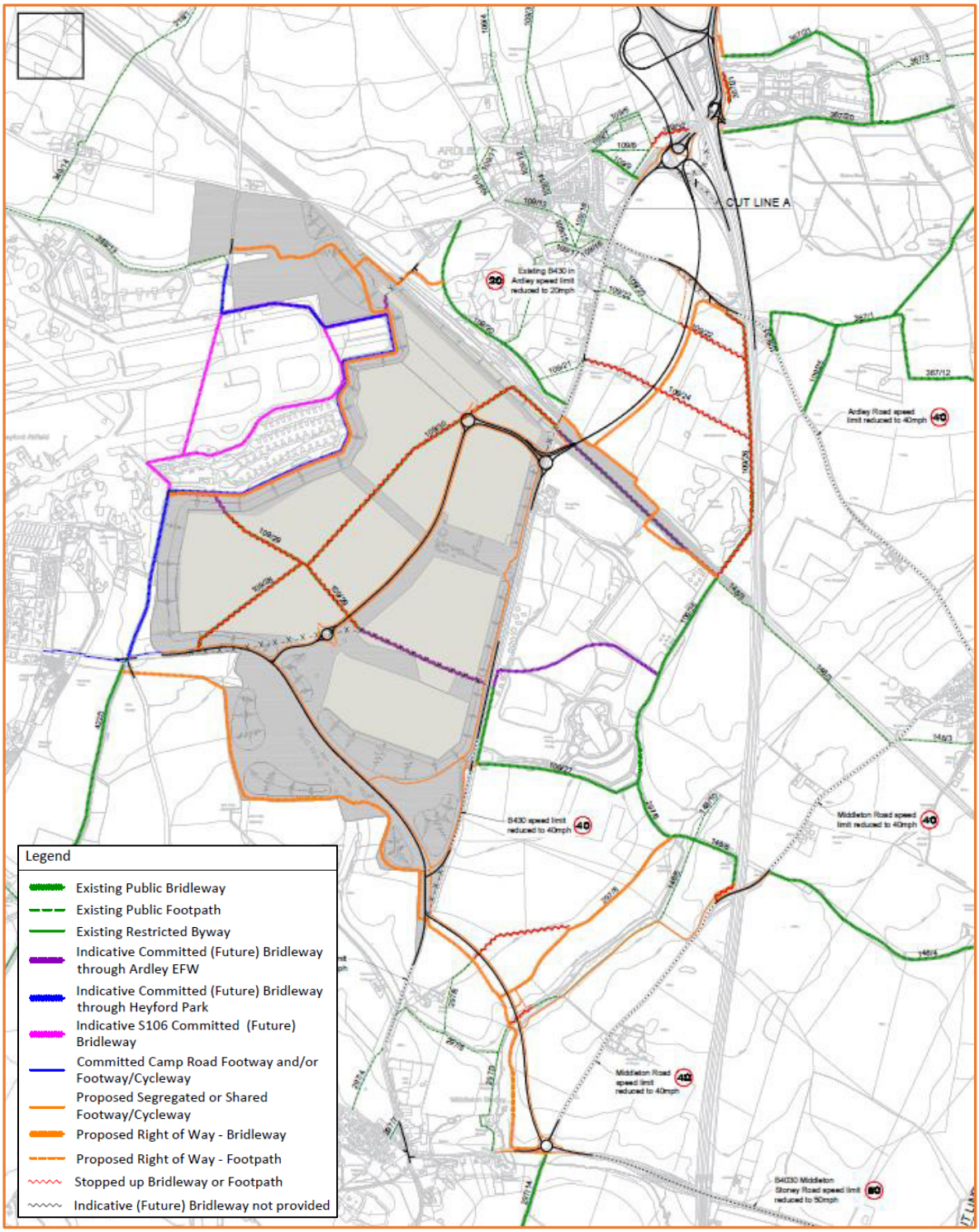


Figure 12: Footway,Cycleway and PRoW Strategy (extract of drawing ADC1794-DR-042, see **Appendix F** for full details)

4.20 A new Toucan crossing will also be provided on the B430 to the south of the Ardley Energy from Waste site access. This crossing will link with the Cherwell Valley Greenway route to the east and a new footway/cycleway to the west that will link with the footway/cycleway provided alongside the HPLR, and beyond to Camp Road. This will replace the footway/cycleway that Heyford Park are required to provide along Upper Heyford Road between Camp Road and the B430.

4.21 The B430 north of the Principal Site Access and south of the Network Rail access to the former Ardley Railway Station will be closed to vehicular traffic (which will now use the Ardley Bypass) and a high-quality pedestrian and cycle link between the Main Site and Station Street within Ardley will be created using the existing bridge over the railway line. Traffic flows within the Ardley will be significantly reduced because of the Ardley Bypass, thereby providing improved amenity and conditions for walking and cycling within the village. This would be further enhanced through the reduction in the speed limit to 20mph on this section of road once the B430 north of the Principal Access was closed to traffic.

4.22 A new bridge will be provided at Ardley Road over the Ardley Bypass, and this will include an off-carriageway footway/cycleway, providing connectivity to the east of the OxSRFI site.

4.23 As part of the proposed 'Heyford Park – OxSRFI – Bicester' bus service new bus stops and a zebra crossing will be provided on the B430 Ardley Road within Middleton Stoney to allow residents of Middleton Stoney to take advantage of the extended and improved bus service provision to be provided by OxSRFI.

4.24 Once the MSRR is in place and open to traffic, congestion at the B430/B4030 crossroads junction within Middleton Stoney village will be significantly reduced, as traffic passing east-west through the village switches to use the MSRR. This reduction in traffic also provides opportunities to introduce traffic signal-controlled pedestrian crossing facilities and connecting footway improvements at the crossroads junction within the village.

4.25 The proposed bus stop locations, and pedestrian improvements within Middlton Stoney are shown on the Highway Plans (**Document 2.7E**), an extract of which is shown at **Figure 13**.

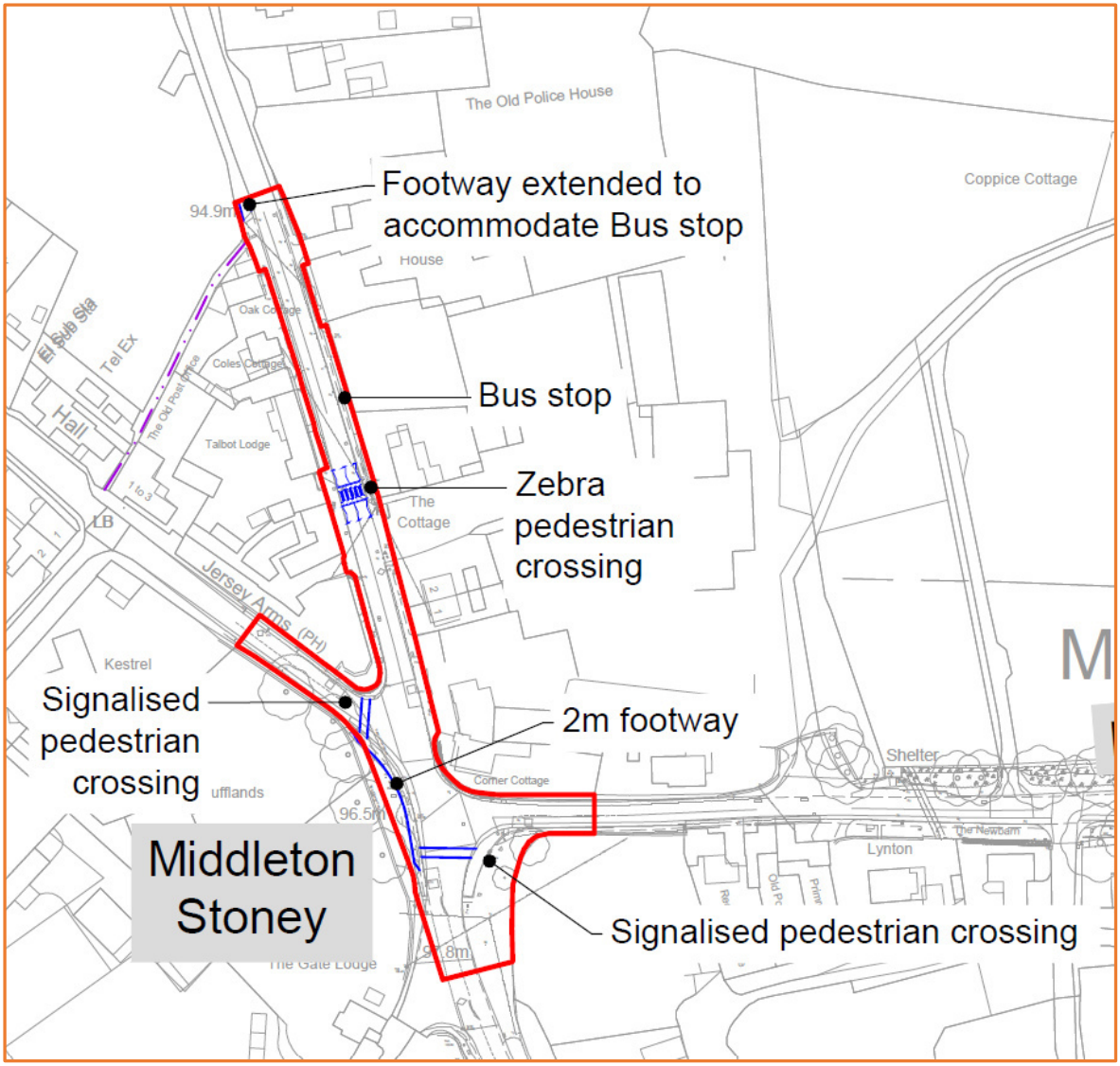


Figure 13: Proposed new bus stops in Middleton Stoney and pedestrian improvements

Within the OxSRFI Main Site

4.26 High quality, surfaced, and lit pedestrian and cycle connections will be provided within the OxSRFI Main Site connecting to each warehousing unit and the Rail Terminal. This will include shared use footway/cycleways either side of the main estate road, linking the Principal and Secondary Site Access and providing a more direct route between Ardley and Heyford Park. The route alongside the estate route, through the OxSRFI Main Site, will be a permissive route for non OxSRFI users.

4.27 The buildings at OxSRFI will be designed to achieve a minimum BREEAM Excellent standards, designed with cyclists in mind. Covered, secure and accessible cycle parking will be provided along with showers and changes facilities at all units. The Travel Plan will include a range of measures for occupiers to tailor for their employees. This will include the option to participated in a Cycle to Work scheme, Bike Users Groups, and national promotion events, such as Cycle to Work Day.

4.28 The OxSRFI Main Site will also include the provision of new permissive footpaths and a new perimeter bridleway route (see PRoW section below) that will be available for employees to use during breaks.

Bicester connectivity improvements

4.29 Whilst Bicester is located beyond the generally accepted maximum walking distance from the OxSRFI Main Site, it is with acceptable cycling distance and there is good potential for cycle-based journeys to and from Bicester and the development. It is therefore important that there is appropriate cycle connectivity between the OxSRFI site and Bicester. Selecting the appropriate strategy has formed a key discussion point with OCC.

4.30 Initially, the potential routes between Bicester and the OxSRFI Main Site were identified as shown in **Figure 14**, all with an approximate cycle time of between 20 and 30 minutes (when measured to the centre of the OxSRFI Main Site).

4.31 This identified four likely routes between Bicester and OxSRFI that cyclists could use, as summarised in the table below.

route	description	length	expected average speed	travel time
Route 1	on-road via Bucknell and Ardley and the new traffic free cycle connection with Ardley at the Principal Site Access	6.64 km	12.5 mph (20 kph)	20 mins
Route 2	off carriageway route via the Cherwell Valley Greenway bridleway, B430 Toucan crossing and HPLR / new B430 footway/cycleway	6.57 km	10 mph (16 kph)	25 mins
Route 3	mix of off carriageway and on-road via the Cherwell Valley Greenway bridleway, Middleton Road, MSRR and HPLR	7.88 km	10 mph (16 kph)	30 mins
Route 4	mix of off carriageway and on-road via the B4030 Middleton Stoney Road, MSRR and HPLR	6.28 km	12.5 mph (20 kph)	19 mins

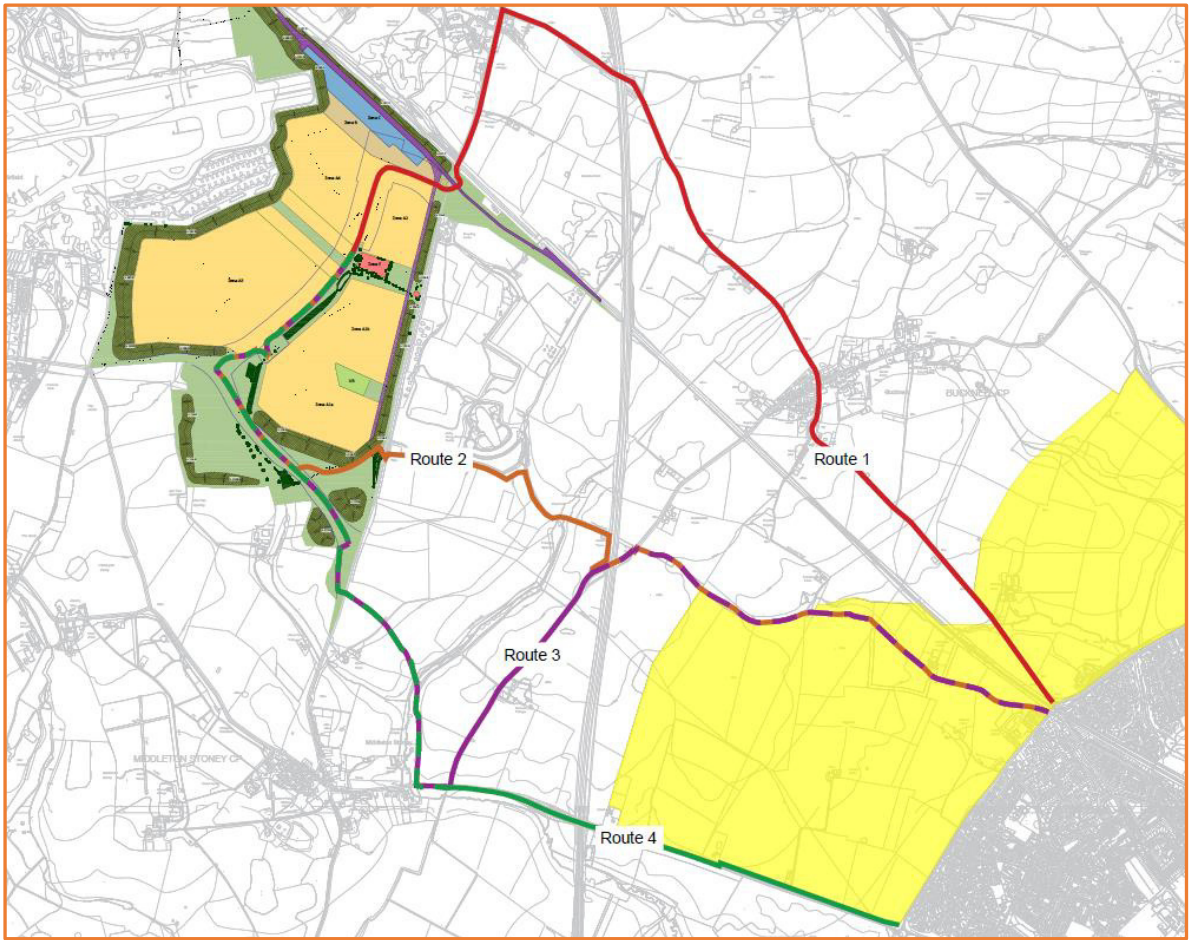


Figure 14: potential cycle routes between Bicester and OxSRFI

4.32 The principal off carriageway route is Route 2, the Cherwell Valley Greenway. As discussed in Section 2 (paragraph 2.49), there is S106 funding from the Heyford Park development to improve this route and provide a resin bound surface. Promotion of the route as commuter route is also set out in the 2042 Cherwell Local Plan Regulation 19 submission document, which lists *"…a commuter cycle route to Bicester linking to an improved bridleway to Bicester to the east of Heyford Park"* as one of the strategic transport improvements within the Heyford Area in connection with Policy HEY 1: Heyford Park Strategy.

4.33 The Cherwell Valley Greenway route will provide a direct link to OxSRFI, particularly once the North-West Bicester allocation is built out. As shown in **Figure 7** (and **Appendix B**), there is however a gap in the bridleway at Middleton Road bridge over the M40. Users are required at this point to leave the bridleway and travel on road over the bridge and cross Middleton Road.

4.34 To address this gap, and in consultation with OCC, it was agreed that OxSRFI should provide a targeted connectivity improvement at the Middleton Road bridge over the M40 to reallocate road space to WCH users and provide a connection to 'fill in' the missing gap in the Cherwell Valley Greenway route connecting Bicester with the OxSRFI Main Site and beyond to Heyford Park.

4.35 The proposed scheme is shown at the drawing at **Appendix G** and an extract is provided at **Figure 15**. To allow the reallocation of road space to WCH, traffic signals will be installed to create a one-way shuttle over the bridge for vehicles. Traffic flows on Middleton Road are low, but the traffic signals will also create additional gaps in traffic and provide further crossing opportunities for WCH.

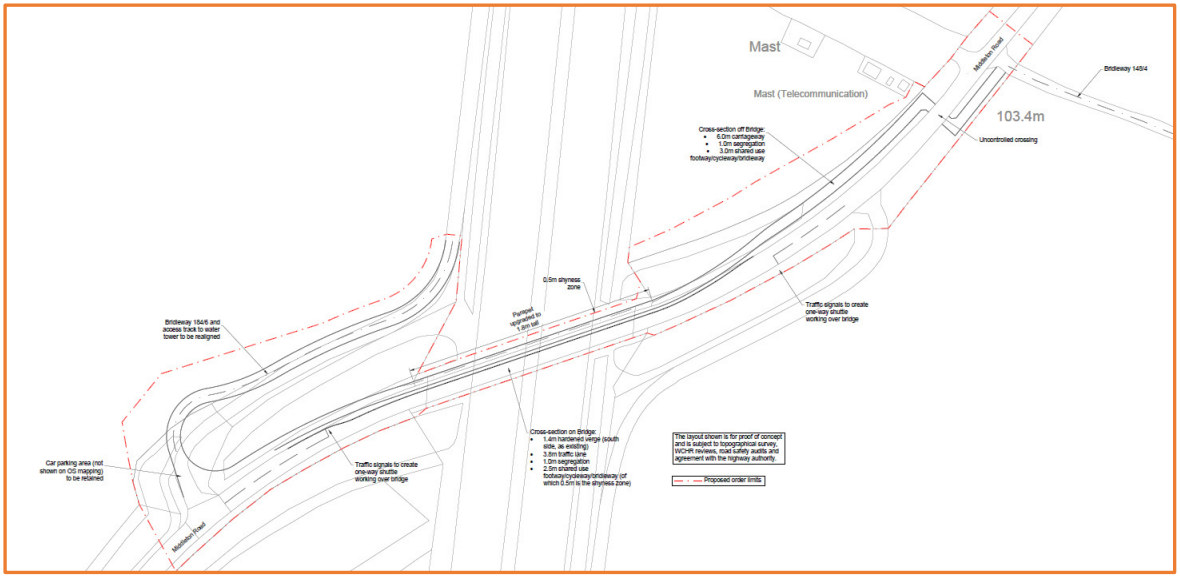


Figure 15: Proposed Middleton Road bridge connectivity improvement

4.36 As described earlier, a Toucan crossing will be provided on the B430 to the south of the Ardley Energy from Waste site access, which will allow walkers and cyclists to cross the B430 to and from the Cherwell Valley Greenway. From here, users will be able to connect with the new footway/cycleway provided alongside the western side of the B430 and the OxSRFI Principal Site access and beyond to Ardley, or use the footway/cycleway linking with the new facilities provided alongside the HPLR and the OxSRFI Secondary Site Access and beyond to Heyford Park.

4.37 In considering the likely routes that cyclist would use, other potential barriers were considered. These are summarised in the table below along with the potential mitigation.

route	potential barriers	potential mitigation
Route 1	on road route and hence will not be attractive to all cyclists	traffic flows on between Bucknall and Ardley and within Ardley itself are shown to reduce because of the proposed changes to the highway network, making the route more attractive and safer for cyclists
Route 2	potential concerns about personal safety at Trow Pool area and narrower sections between Middleton Road and the B430 mean route may not be attractive to all cyclists	route to be improved to provide a resin bound surface via committed S106 funding, which combined with more frequent use will change the feel and perception of the route and have a positive impact on the perception of safety
Route 3	Middleton Road section on road	potential for OxSRFI to implement off carriageway footway/cycleway along Middleton Road section of route
Route 4	partially on-road route, high speed (derestricted road) and busy road	potential for OxSRFI to implement off-road route and/or amend speed limit

4.38 With regards to Route 4 the Applicant explored in detail the engineering feasibility of providing an off-carriageway cycleway along the section of the B4030 between the proposed MSRR roundabout and the off-carriageway facilities that will be provided alongside the B4030 as part of the North-West Bicester allocation (see Section 2, paragraph 2.52). The conclusion of that process was that due to pinch points and adverse impacts on ecology it would not be possible to provide a facility to standard. Any such facility would be narrow with limited off set from the

road, which for this section of the B4030 is subject to a 60mph speed limit. Hence there could be safety concerns in providing a sub-optimum off carriageway route alongside the B4030.

4.39 The Applicant therefore considered the opportunity to provide an alternative off carriageway route instead of providing a sub-optimum off carriageway route along the B4030. This resulted in an amendment to Route 3 to provide a fully off carriageway route, through the provision a new shared use footway/cycleway connecting between the Middleton Road bridge connectivity improvement and the off-carriageway footway/cycleway facility provided alongside the MSRR. The proposed Route 3 is shown at the drawing at **Appendix H**. The proposed route will follow part of public footpath 148/5 which would be upgraded to provide a surfaced route.

4.40 Route 3 would also provide a fully off carriageway alternative to Route 2 that avoids the Trow Pools area. It will be more direct, with typical travel times of 23 minutes compared to 25 minutes for Route 2.

4.41 Confident road cyclists living within the southern parts of Bicester may still choose to use the B4030 and the new off carriageway routes provided alongside the MSRR and HPLR as it would provide a direct route to and from OxSRFI. The existing speed limit changes from 40mph to derestricted near to the Love Lynch property on the B4030 (approximately coincident with the western extent of the current North-Werst Bicester allocation). OCC indicated that this speed limit may be pushed further west should the additional land at North-West Bicester be allocated and as that development was built out. It was agreed with OCC that in advance of that, there would be opportunity associated with the OxSRFI scheme to amend and reduce the speed limit on the B4030 between the Love Lynch property and proposed MSRR/B4030 roundabout, thereby improving the conditions for cyclists using the route. The OxSRFI DCO therefore includes for amending the speed limit on this section of the B4030 from 60mph to 50mph. This is shown on the Speed Limit Plans.

4.42 The resulting draft Bicester cycle connectivity plan that was submitted as part of the Stage 2 statutory consultation is shown at **Figure 16** and summarised in the table below.

route	description	length	expected average speed	travel time
Route 1	on-road via Bucknell and Ardley and the new traffic free cycle connection with Ardley at the Principal Site Access	6.73 km	12.5 mph (20 kph)	20 mins
Route 2	off-carriageway route via the Cherwell Valley Greenway bridleway route, B430 Toucan crossing and HPLR / new B430 footway/cycleway	6.54 km	10 mph (16 kph)	25 mins
Route 3	off-carriageway route via the Cherwell Valley Greenway bridleway, new off carriageway cycleway/footway, and MSRR and HPLR facilities	6.90 km	11 mph (1 kph)	23 mins
Route 4	mix of off-carriageway and on-road via the B4030 Middleton Stoney Road, MSRR and HPLR with reduced speed limit on on-road section	6.03 km	12.5 mph (20 kph)	18 mins

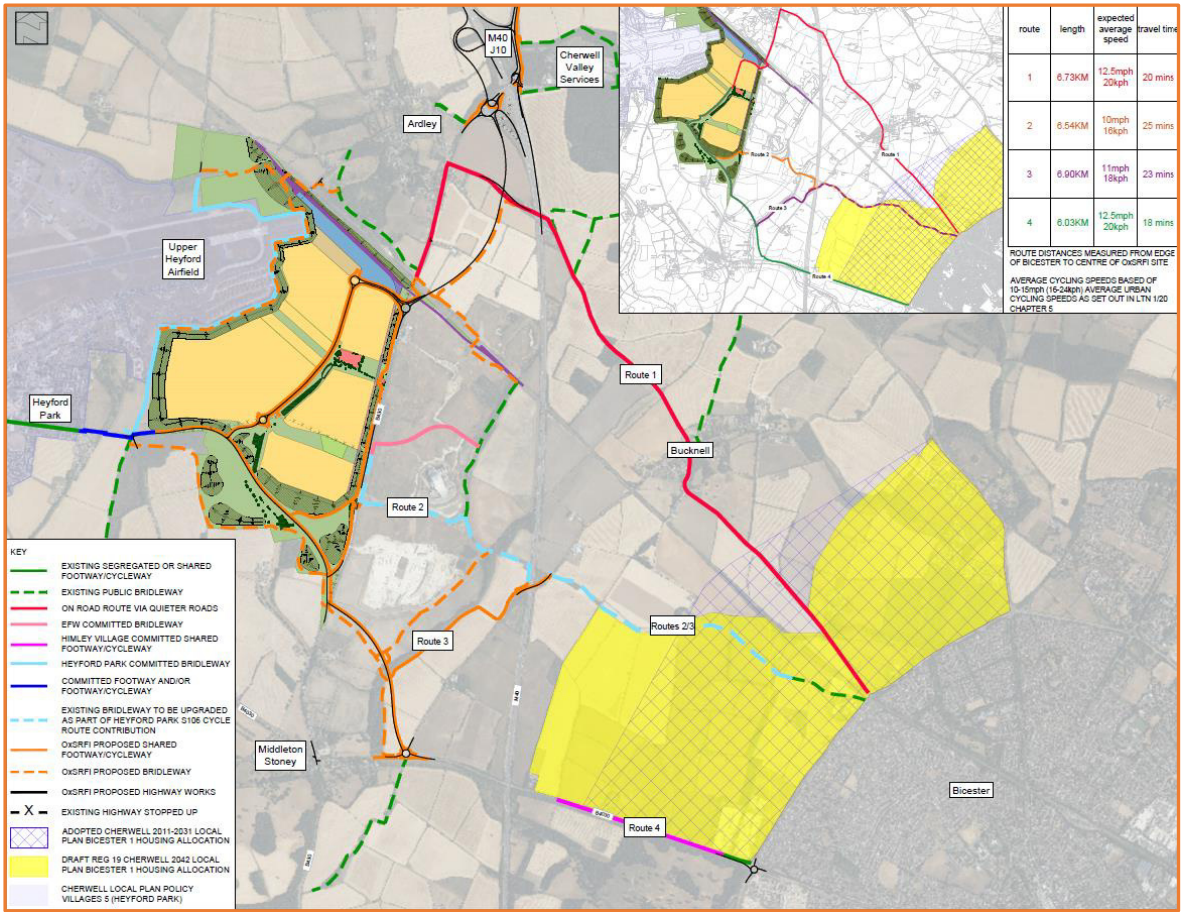


Figure 16: draft Bicester to OxSRFI cycle routes submitted for Stage 2 statutory consultation

4.43 Following the Stage 2 statutory consultation, OCC advised the Applicant that they wanted further dialogue regarding the Bicester cycle routes, to ensure that the proposals would provide a commuter-style route. The Applicant met with OCC to review and further develop the Bicester cycle route proposals.

4.44 During those meetings it was explored whether a LTN 1/20[7] compliant off-carriageway cycle route could be provided set back behind the hedgerow/trees along the B4030 using CPO powers associated with the DCO, noting that OCC would not support the removal of significant trees and hedges and that there would still be pinch points at the B4030 M40 bridge. This was examined. However, such a route, if provided along the northern side of the road would impact the two residential properties, and a route along the southern side of the road would impact the existing wooded area. Therefore, alongside consideration of additional enhancements to the other routes set out in the strategy, it was agreed with OCC that with the additional measures identified (as set out in the following sections), Routes 1 and 3a and 3b will provide a suitable commuter cycle route. On that basis the CPO/ecology impact required to provide a route adjacent to the B4030 is not justifiable.

4.45 During discussions, OCC raised concerns that the bridleway part of Route 3 (the Cherwell Valley Green Way to the east of the M40 between Middleton Road and Bicester) did not meet the LTN 1/20 requirement to provide a 'sealed surface' necessary for year-round utility (commuter) cycling. However, there is a S106 obligation on the consented Heyford Park scheme to provide circa £1million funding to upgrade this bridleway route to a 'Flexipave' surface, which in the Applicant's view would provide the required utility – i.e. a surface passable in all weather. OCC also noted that they use this surface on other commuter cycle routes. Whilst it is not 'sealed',

[7] Cycle Infrastructure Design, Local Transport Note 1/10, DfT, July 2020

because the surface is fully porous, allowing water to drain freely through it rather than ponding on the surface, it is free draining. It would therefore provide the required utility. This was confirmed with the product manufacturer.

4.46 Section 7 of LTN 1/20 deals with quiet mixed traffic streets and lanes. It sets out that on rural lanes where traffic flows are light, there is less need for separate cycle facilities. Section 7.1.3 and 7.1.4 of LTN 1/20 set out that, on single-track rural lanes with daily traffic flows below 2,500 vehicles, most cycling takes place without any special infrastructure for cycling, despite such roads being likely to be subject to higher speed limits. It suggests an upper threshold of 5,000 vehicles per day after which few people will be prepared to cycle on-street.

4.47 The proposed Highway Works are shown to draw traffic back to the principal road network and away from some of the rural roads that could be used by cyclists as an alternative to using the bridleway (Cherwell Valley Green Way) between Middleton Road and Bicester. The table below summarises the forecast daily flows on Bicester Road, Middleton Road, and Ardley Road in the 2034 future baseline (Reference Case without OxSRFI) and the do-something scenario, with OxSRFI. Also included in the table are the proposed changes to the speed limits on Ardley Road and Middleton Road that are included in the DCO following OCC feedback to the Stage 2 consultation.

			AADT traffic flow (vehicles)	
link	current speed limit	proposed speed limit	2034 Reference Case (RC3A)	2034 Do-Something with OxSRFI (DS3A)
Bicester Road	derestricted	traffic calmed*	1469	1610
Middleton Road	derestricted	40mph	2942	2433
Ardley Road	derestricted	40mph	5063	3251

*as proposed as part of the Hawkwell Village planning application (21/04275/OUT)

4.48 The traffic levels on the above roads would therefore be low and suitable for cyclists to cycle on street. To complement the speed reductions OxSRFI will provide funding, via the S106 Agreement, for OCC to implement cycle signage on these routes and to provide advisory cycle lanes on Bicester Road, to reduce its effective road width to single lane.

4.49 OCC noted that the Hawkwell Village scheme is proposed to start at its northern extent (i.e. the B4100 corridor) and be developed southwards and hence the traffic calming on Bicester Road would be part of the later works associated with that site. It was agreed that it would be appropriate for the OxSRFI to therefore also include for reducing the speed limit on Bicester Road to 40mph in the interim period, and this is included in the package of OxSRFI works.

4.50 In addition, it is proposed that solar stud lighting be provided for those parts of the Route 3 cycle route away from roads (i.e. the section from Middleton Road to the MSRR), which following a review by the Applicant's ecology and lighting consultants, would not raise any issues for light sensitive species, and effects on the night sky or other non-ecology receptors would not be significant.

4.51 The resulting updated Bicester cycle connectivity plan is shown at **Figure 17**, with the inset shown at **Figure 18**, and the full plan provided at **Appendix I**. The key routes are summarised in the table below. Note that these have been relabelled Routes A, B, and C with sub routes reflecting the multiple choices that would be available for cyclists.

route	description	length	expected average speed	travel time
A1 (previously Route 1)	on-road quiet lane via Bucknell and Ardley, with 40mph speed limit, cycle signage, and advisory cycle lanes (Bicester Road), and the new traffic free cycle connection within Ardley at the Principal Site Access, and new 20mph speed limit within Ardley	6.73 km	12.5 mph (20 kph)	20 mins
A2 (new route)	mix of on-road quiet lanes and off-carriageway route, via Bicester Road and Middleton Road with the 40mph speed limit and cycle signage and advisory cycle lanes (Bicester Road), and then, off carriageway via the Middleton Road bridge connectivity improvement and Cherwell Valley Greenway bridleway route, B430 Toucan crossing and HPLR / new B430 footway/cycleway	7.40 km	10 mph (18 kph)	25 mins
A3 (new route)	mix of on-road quiet lanes and off-carriageway route, via Bicester Road and Middleton Road with the 40mph speed limit and cycle signage, and then, off-carriageway via Middleton Road bridge connectivity improvement and the new cycleway/footway, and MSRR and HPLR facilities	7.48 km	11mph (18 kph)	22 mins
B1 (previously Route 2)	off-carriageway route via the Cherwell Valley Greenway bridleway route, including the Middleton Road bridge connectivity improvement, and B430 Toucan crossing and HPLR / new B430 footway/cycleway	6.54 km	10 mph (16 kph)	25 mins
B2 (previously Route 3)	off-carriageway route via the Cherwell Valley Greenway bridleway, via Middleton Road bridge connectivity improvement and the new cycleway/footway, and MSRR and HPLR facilities	6.90 km	11 mph (18 kph)	23 mins
C (previously Route 4)	mix of off-carriageway and on-road, via the B4030 Middleton Stoney Road, MSRR and HPLR with reduced speed limit on on-road section	6.03 km	12.5 mph (20 kph)	18 mins

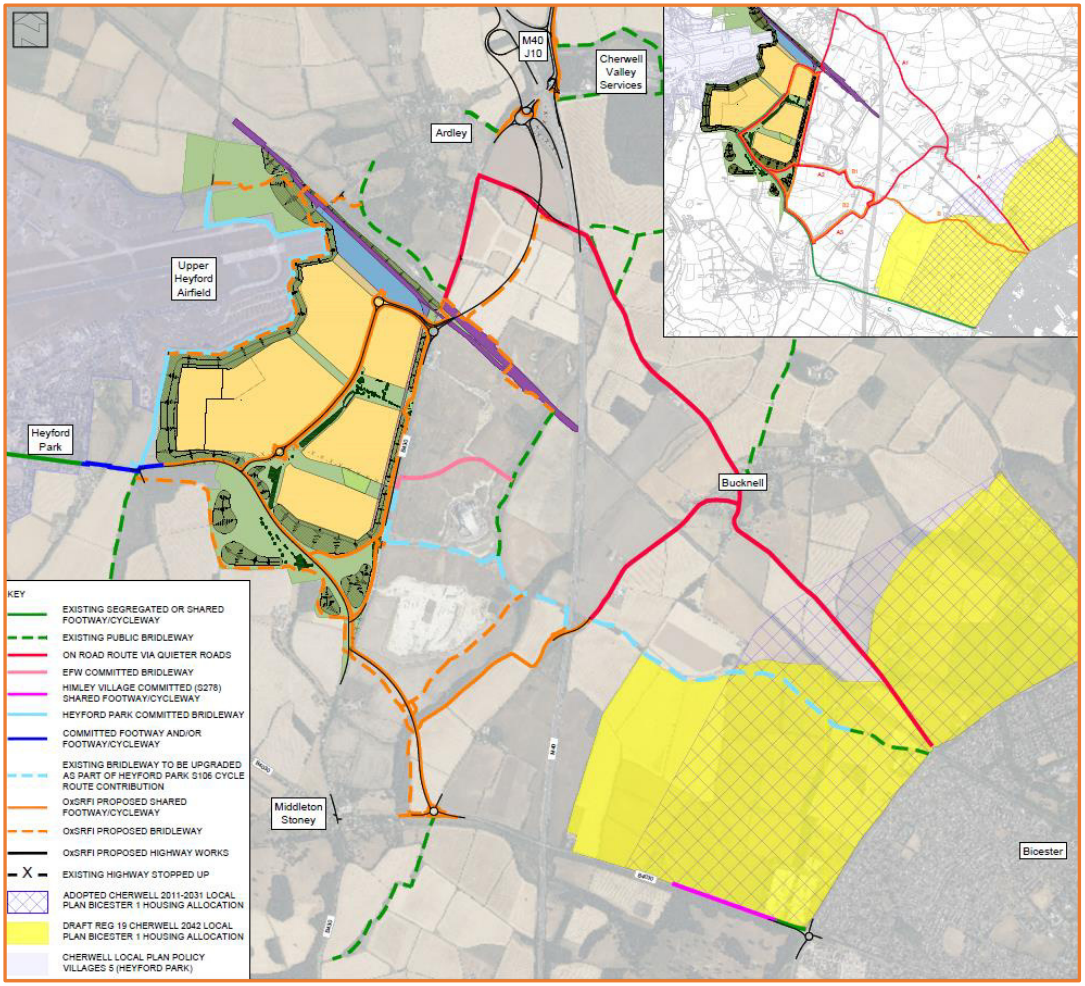


Figure 17: Bicester to OxSRFI cycle routes (drawing ADC1794-DR-044)

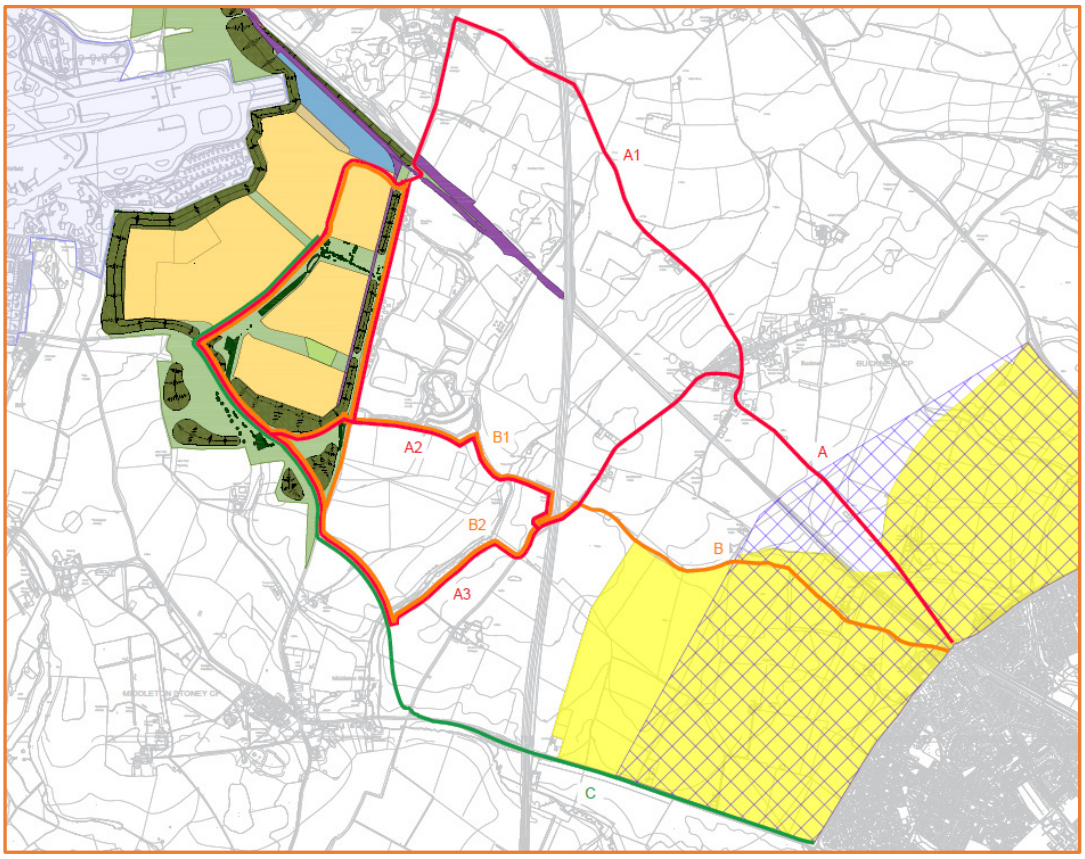


Figure 18: Bicester to OxSRFI cycle routes – detail of inset (drawing ADC1794-DR-044)

4.52 In summary, through the additional dialogue with OCC, the following enhancements of the Bicester cycle connectivity strategy are proposed:

- the Middleton Road bridge connectivity improvement will be provided as part of the Phase 1 work, so that it is in place from first occupation of the Main Site.
- the DCO will include the necessary orders to reduce speed limits on roads not within the order limits, as shown on the Footway/Cycleway/Rights of Way Strategy Overview plan (**Appendix F**), including on Ardley Road, Middleton Road, and Bicester Road (from derestricted to 40mph), and on Station Road within Ardley (from derestricted to 20mph), with the implementation of the speed limit change to be undertaken by OCC, funded via a financial contribution made by OxSRFI.
- OxSRFI will provide a financial contribution for OCC to implement cycle signage on the above roads, along with advisory cycle lanes on Bicester Road.
- solar stud lighting to be provided for those parts of cycle Route 3 away from roads (the section from Middleton Road to the MSRR).

M40 Junction 10 and A43/B4100 Baynard's Green connectivity improvement

4.53 New signal-controlled crossings will be provided on the M40 overbridge at Ardley Roundabout and Cherwell Roundabout linking the existing footway on the southern side of the M40 overbridge with public bridleway 367/20 and providing connectivity with Stoke Wood to the east.

4.54 A new foot and cycle link will be provided alongside the A43 between Cherwell Roundabout and the Baynard's Green Roundabout, linking with the committed employment scheme at that junction and the committed cycleway to be provided alongside the B4100 between Bicester and the A43, to be provided as part of that scheme.

Speed limit changes

4.55 As noted above, various changes to reduce the speed limit on some of the local roads (not within the Order Limits) near the OxSRFI site would be secured via the DCO and delivered by OCC using funds secured by a financial contribution in the S106 Agreement. The speed limit changes are shown on the Footway/Cycleway/Rights of Way Strategy Overview plan drawing (**Appendix F**).

Public rights of way

4.56 The PRoW strategy has been developed in consultation with OCC and seeks to positively respond to the WCH opportunities identified in the WCHAR Assessment and Review Reports (as summarised in the tables earlier in this section). The PRoW strategy has been developed to work in concert with the proposed walking and cycling improvements set out above.

4.57 In summary the following changes and enhancements are proposed (as shown on the Footway/Cycleway/Rights of Way Overview plan at **Appendix F**):

- Stopping up of public bridleways 109/28, 109/29 and 109/30 that are contained within the OxSRFI Main Site.

- Replacement of the above with a new bridleway route around the western perimeter of the Main Site within the landscape areas, including a new bridge to cross of the SRFI rail sidings and retain connection to the existing bridge over the Chiltern Main Line railway, linking with Quarry Cottages.

- A new bridleway would be provided between the 109/20 bridleway just southwest of Ardley. The route would provide improved connectivity between Ardley and Heyford Park, where previously there was no PRoW provision in this area.

- A new bridleway connecting from the above new perimeter route to the northwest corner of the OxSRFI Main Site to provide a connection to the and 'Aves Ditch' route north of Heyford Airfield.

- Connection of the new western perimeter bridleway to the Chilgrove Drive bridleway route thereby providing a north/south connection along the old Aves Ditch route.

- Stopping up and diverting public bridleway 109/26 that runs alongside the M40 from the Chiltern Main Line railway and Ardley Road. This would include the closure of the existing level crossing on the Chiltern Main Line railway. The diverted bridleway route would cross the new rail sidings via a new bridge and would cross the Chiltern Main Line railway via an existing bridge. The diverted route would run alongside the Ardley Bypass, before connecting back to Ardley Road.

- A new bridleway link would also be provided from this diverted route, passing within the span of the new Ardley Bypass bridge over the Chiltern Main Line railway, before connecting with the section of the B430 that is proposed to be stopped up for vehicular traffic, providing a further link with Ardley village.

- Stopping up of bridleway 109/32 to the north of the Ardley Roundabout at M40 Junction 10 and the replacement of this facility with a new shared footway/cycleway.

- Footpath 297/8 would be rerouted and upgraded to become a bridleway, and linked via a new underpass at the MSRR to a new bridleway route provided to the west of the MSRR that would form part of a wider new bridleway network that would include a new bridleway route provided within the southern perimeter of the Main Site area to replace the east/west link that would be stopped up within the Main Site.

- The southern perimeter bridleway route will link with the existing Aves Ditch bridleway 422/3 via a new Pegasus crossing of Camp Road (south). The proposed arrangement is shown at the drawing at **Appendix J** and an extract is provided at **Figure 19**. Note that this arrangement is compatible with the Camp Road/Chilgrove Drive/Upper Heyford Road staggered signal-controlled junction arrangement that is committed as part of the Heyford Park site access strategy. That arrangement is shown outlined green in the drawing at **Appendix J**. The drawing also shows the alternative interim junction arrangement that would be implemented by OxSRFI should OxSRFI come forward in advance of the Heyford Park works.

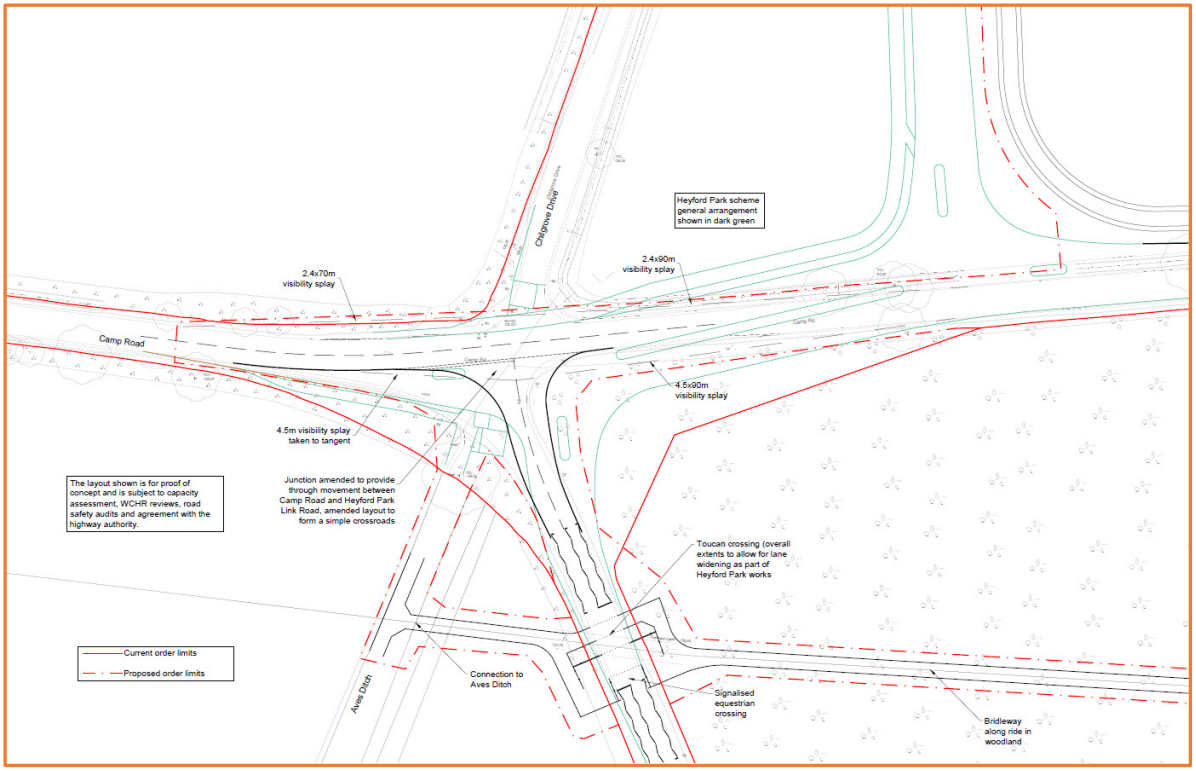


Figure 19: Proposed bridleway and Pegasus crossing of Camp Road (south)

- A new WCH facility would be provided between the 148/6 bridleway at Trowpool Lane and the 148/4 bridleway, east of the M40. This is part of the package of connectivity improvements proposed at Middleton Road bridge over the M40 which reallocates road space to WCH and would fill the missing gap in the Cherwell Valley Greenway route connecting the OxSRFI site with Bicester as described above in relation to connectivity to Bicester. The proposed scheme is shown at the drawing at **Appendix G** and an extract is provided at **Figure 15**. To allow the reallocated of road space to WCH, traffic signals will be installed to create a one-way shuttle over the bridge.

- Stopping up of a short redundant part of bridleway 398/7 at M40 J9 as part of the highway works proposed at J9.

- Part of footpath 148/5 will be upgraded to a footway/cycleway as part of the proposed Route 3 link with Bicester.

- Stopping up of the short section of bridleway 367/21 between the A43 and Cherwell Valley MSA (replaced by the footway/cycleway adjacent to the A43.

- New connection from the new footway/cycleway adjacent to the A43 and bridleway 367/21.

Active Travel phasing

4.58 In keeping with the strategy for the delivery of the Highway Works, the Active Travel works will also be phased. The Phasing strategy has been developed to ensure that improved connectivity to Heyford Park and Bicester will be in place from first occupation of the OxSRFI site, as will the enhanced connectivity to Ardley.

4.59 To achieve this the HPLR will be constructed in two phases. In the first phase, prior to occupation of the OXSRFI Main Site, the section between Camp Road and the Secondary Site Access will be completed along with the internal estate road linking the Principal and Secondary site accesses. This will also ensure that buses can route through the OxSRFI Main Site from first occupation.

4.60 The construction of the remaining section of the HPLR and construction of the MSRR will follow in phase 2 of the Highway Works and will be required to be completed prior to the opening of more than 2 million sqft (plus pro rata mezzanine space) of floor space at OxSRFI.

4.61 The corresponding Footway/Cycleway/Right of Way Phase 1 and Phase 2 plans are provided at **Appendix K**. Following feedback from OCC to the Stage 2 statutory consultation, the Applicant has amended the phasing strategy to bring forwards the following works into Phase 1:

- the Middleton Road bridge NMU connectivity improvement
- the western perimeter bridleway to the Chilgrove Drive bridleway route thereby providing a north/south connection along the old Aves Ditch route.

Public Transport Strategy

4.62 The strategy for public transport is described in full within the separate Public Transport Strategy (PTS) report and therefore the following section provides a summary only and reference should be made to the PTS document. The PTS was developed in consultation with OCC via a series of seven meetings that took place between February 2021 and April 2025, with outcomes reported back to the TWG.

4.63 The principles and target mode share of the PTS for the OxSRFI that are set out in Section 6 of this STS have been discussed and agreed with OCC and the TWG. It is agreed, based on the employee catchments, that public transport links with Bicester, Heyford Park, and Banbury will be important for the OxSRFI employees. Brackley was considered, but it was found that there would be insufficient demand to warrant support of a dedicated bus service.

4.64 The PTS therefore focuses on a regular half-hour bus service running through OxSRFI, between Heyford Park and Bicester, between 4am and 11pm seven days a week. This service would be in place upon first occupation at the site. The strategy also includes a peak hour and shift-change bus service to and from Banbury, anticipated to commence in Year 2 of the development build out. Passenger rail travel will be facilitated with direct bus links to Bicester and its railway stations, to provide for rail travel as part of a multi-modal journey to and from OxSRFI.

4.65 A new passenger rail station does not form part of the OxSRFI development proposals, although the OxSRFI scheme would not prejudice the future provision of such at the former Ardley Station site, should proposals be brought forwards by others.

4.66 OxSRFI will provide a 'Bus Service Contribution' that will be used to deliver high quality public transport links to OxSRFI, focusing specifically on access by bus. The funding, of £3,262,351, will be used to deliver bus routes to and from the OxSRFI development and Heyford Park, Bicester, and Banbury. This approach is preferred by OCC as it will secure a flexible public transport strategy and allow services to be amended in terms of destinations served, service frequency and hours of operation.

4.67 Additional funding will also be secured for the implementation by OCC of real time information systems at each of the development bus stops. As part of the Travel Plan, free 6-month bus

passes will also be provided to on-site employees to assist with encouraging those who have opportunity to travel by bus to take it up.

4.68 The 'Bus Service Contribution' to be provided via the S106 Obligation as part of the DCO will be paid to OCC and to be used to fund the following bus routes:

- 'Heyford Park – OxSRFI – Bicester'
- 'Banbury – OxSRFI'

4.69 The route of the proposed 'Heyford Park – OxSRFI – Bicester' service is shown in **Figure 20**.

4.70 The OxSRFI scheme would fund:

- diversion of two Heyford Park buses through the OxSRFI Main Site to provide a 30-minute frequent service.
- the extension of the Heyford Park service routeing through the OxSRFI Main Site to cover early mornings from 0400 hours to 0800 hours, and evenings from 2000 hours to 2300 hours.
- additional bus service on Sunday to improve the frequency from hourly to 30 minutes during the day and the extension of the service to cover the early morning 0400 to 0759 hours and evenings 1800 to 2300 hours, thereby providing 7 day a week operation.
- provide accessible high-quality bus stops within the Main Site, with pedestrian crossings, lighting, shelter and real time information, to provide a pleasant waiting environment.
- provide an accessible mobility hub with covered cycle parking at the northern end of the site to facilitate multi-modal bus journeys to and from Ardley village via bicycle.
- provide bus gates (with raising barrier) at the Principal Site Access and Secondary Site Access.
- provide new bus stops and crossing in Middleton Stoney on B430 Ardley Road.
- provide new bus stops on the B430 near to the Ardley Energy from Waste facility, which is not currently accessible by bus.

4.71 Bus stops with shelters and real time information displays will be provided at appropriate locations along the estate road through the OxSRFI development, ensuring all units are within a short walking distance of the bus stop.

4.72 A regular bus service is also proposed to and from Banbury. As the forecast number of employees travelling to and from Banbury is significantly fewer than from Bicester, it would not be economically feasible to provide a service throughout the day to and from Banbury. Hence, the timetable would be designed to cover shift-change and peak times. It is expected that this would mean five services per day (three shift changes, and the AM and PM peak hours). The service would route through Deddington. It has been noted by OCC that there may be future potential for OCC to extend the service operating times if funding could be secured from elsewhere, and that there may also be future potential for OCC to link such a service with Bicester.

4.73 The indicative route of proposed 'Banbury – OxSRFI' bus service is shown in **Figure 21**.

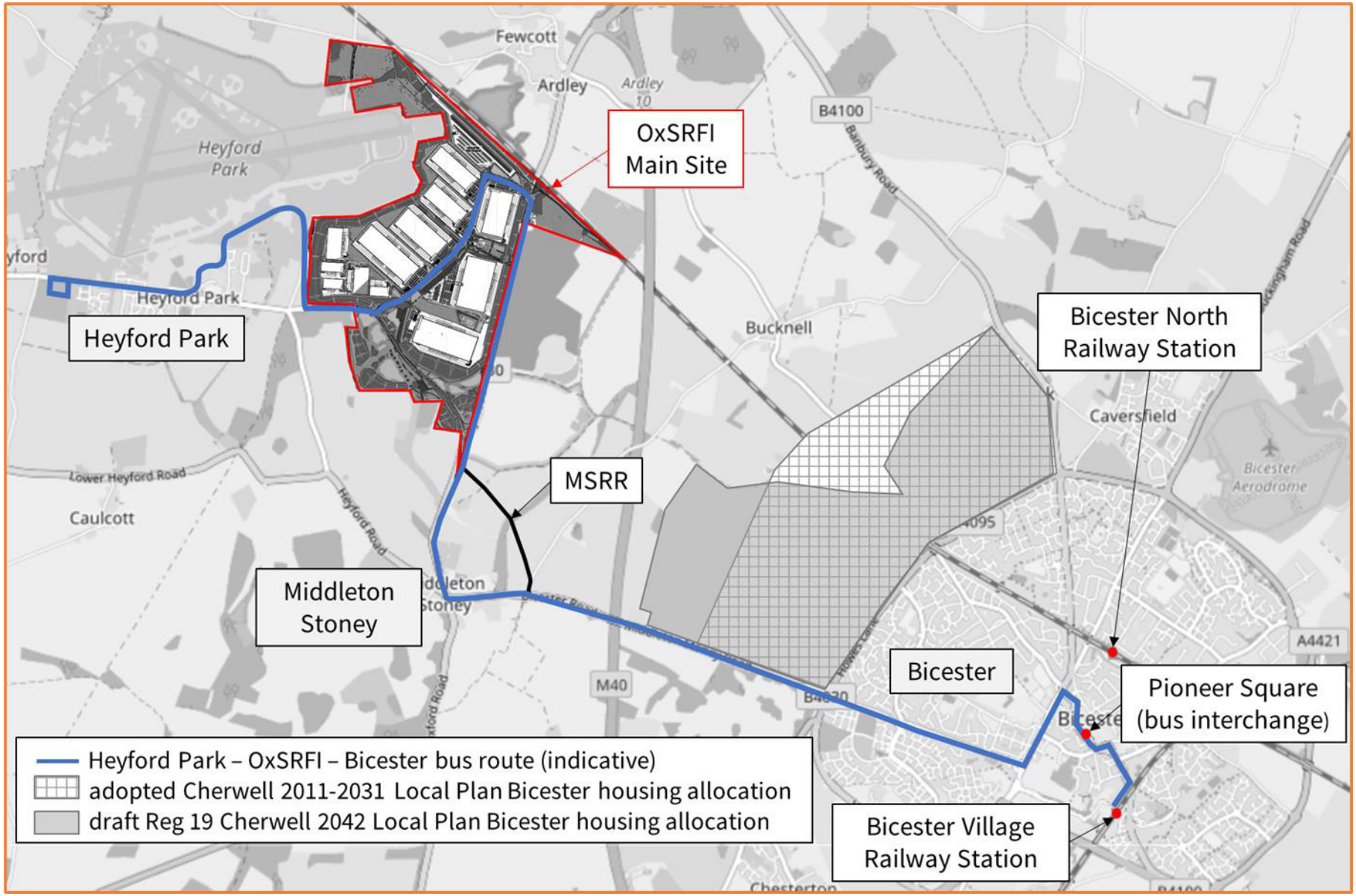


Figure 20: Proposed 'Heyford Park – OxSRFI – Bicester' bus service

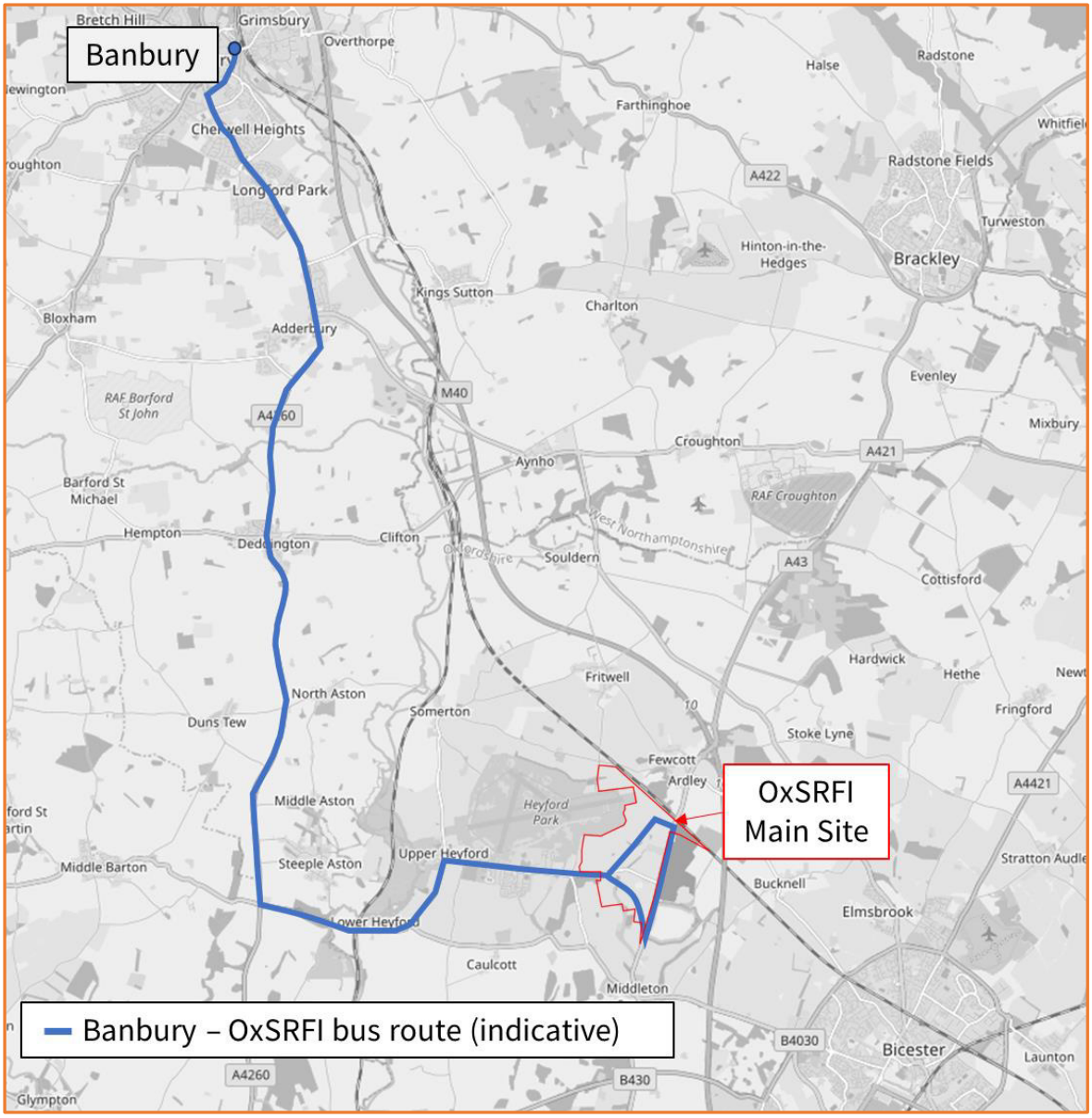


Figure 21: Proposed 'Banbury – OxSRFI' bus service

Public Transport Strategy phasing and management

4.74 The Heyford Park bus diversion and extension is implemented from the opening year, providing connectivity to Heyford and Bicester from first occupation of the OxSRFI site. It is appropriate to provide buses into the site at this stage to embed a culture of public transport from the opening of the site and allow patronage to build.

4.75 The Banbury service would follow later, dependant on build out rates, but likely in Year 2 of the OxSRFI development, when there would be a critical mass of bus passenger trips from Banbury.

4.76 To manage the implementation of the PTS, including the control of the expenditure on the Bus Service Contribution, a Sustainable Transport Working Group (STWG) for the OxSRFI development will be established. This approach has been adopted successfully at other SRFIs. The STWG would include representatives from various stakeholders, though voting rights would be restricted to key stakeholders (likely to be OCC, Cherwell District Council, and the Applicant). The STWG could also include the Site Travel Plan Co-ordinator, Unit Travel Plan Co-ordinators,

public transport operators. It is proposed that the STWG commitment will be secured through a DCO Requirement.

Car Share Strategy

4.77 In addition to the above connectivity improvements, OxSRFI will actively promote car sharing (also called lift-sharing, ride-sharing, and car-pooling) as part of the Travel Plan process. Car sharing is when two or more people share lifts and travel together. It offers the convenience of a car, whilst reducing the costs and the number of single occupancy vehicles on the road, thereby helping to reduce pollution and congestion.

4.78 As discussed in Section 5 of this report, car sharing has been very successful at other SRFI sites, where the critical mass associated with the high number of employees all working at the same location, and good promotion through the Travel Plan, has led to significant take up.

4.79 Typically, employees sign up to a car share scheme and their details are held on a secure database to be matched with others who can provide or require a lift. Car sharing can take place on a regular basis, or ad hoc if required.

4.80 Typically, once set up, occupiers and their employees will be free to choose whether to join a site wide app, or have a private occupier-only version of the app available for their members of staff.

4.81 Details of the app will be shared via the Travel Plan Coordinator and included within the Travel Packs provided prior to first occupation of the units. So that car sharing is a travel choice from the earliest opportunity.

4.82 The Applicant will ensure that the car share platform is operational from first occupation. Individual users will be able to download the app and register their details; this will include their start location and journey requirements. The app will provide the secure database and messaging system to allow members to find someone to car share with.

4.83 There could also be the opportunity to expand the platform to include other major employers in the vicinity of OxSRFI. Such expansion could further enhance the benefits of car sharing to both OxSRFI and the local business community.

4.84 Car sharing will be encouraged through site-wide promotion and incentives via the Travel Planning process. The performance of the car sharing scheme will be reviewed as part of the Travel Plan monitoring process. Should monitoring identify the car sharing is not operating at anticipated levels, the review will identify additional measures such as further promotion and marketing.

5.0 MODAL SHARE COMPARSION

Introduction

5.1 This section of the STS presents a review of the modal share of other comparable development sites to the proposed OxSRFI.

5.2 The sites examined comprise:

- East Midlands Gateway SRFI (EMG)
- Northampton Gateway SRFI (NG)
- West Midlands Interchange SRFI (WMI)
- Heyford Park. It is noted that although Heyford Park is not a SRFI, its location means it is a good comparison site.

5.3 The assessment is also supplemented by information from the TRICS database.

East Midlands Gateway SRFI

5.4 East Midlands Gateway (EMG) is an SRFI development of comparable size to OxSRFI, located to the north of East Midlands Airport and to the west of the M1 Junction 24. EMG is located 13 miles from the major urban conurbation of Nottingham, 14 miles from Derby, and Leicester is 20 miles. Its location directly north of East Midlands Airport meant that at the time the Transport Assessment was prepared in August 2014 there was a good baseline bus provision.

5.5 EMG introduced a number of measures to encourage bus uptake. These include the expansion of existing bus services and introduction of new bus services, the introduction of a bus interchange at the site access on the A453 to allow passing bus services to stop at the site, and the introduction of a shuttle bus service within the site. The management of the bus measures is overseen by a Sustainable Transport Working Group, which also has responsibility for the wider Travel Plan.

5.6 The most recent publicly available The EMG Site Wide Travel Plan was prepared in February 2015. The table below is reproduced from the EMG Travel Plan Table 4-1 and details the mode share targets for EMG.

Mode	Opening Year	3 Year Interim Target	7 Year Interim Target	10 Year Target
Single Occupancy Vehicle (SOV)	80%	74%	70%	68%
Car Share	12%	14%	16%	17%
Public Transport	5%	8%	10%	10%
Walking and Cycling	3%	4%	4%	5%

5.7 As can be seen the Travel Plan has a target to reduce SOV car trips from 80% to 68% (12 percentage points) which is a 15% modal shift within a 10-year time frame.

5.8 The first occupiers moved on-site at EMG in 2019. The bus interchange, electric on-site shuttle bus and car sharing initiatives were in place. Travel surveys were conducted within the first three months of occupation of the first two units (Amazon and Kuehne + Nagel), and information in the public domain demonstrated that there was significant take up of car share and public transport more than the opening year Travel Plan targets. Annual employee travel surveys have been undertaken from 2019 to 2023.

5.9 Further Travel Plan monitoring was undertaken at EMG in 2024 (Year 6 in Travel Plan monitoring terms), when the site had almost reached full occupation. That information is set out in the table below and demonstrates that there has been a further significant uptake in the use of the bus by employees accessing the development. It should be noted that Amazon provides its own bus service for staff and hence this increases the bus modal share for the site overall. The table shows that with the right initiative in place, it is possible to influence commuting patterns to achieve a high sustainable travel modal share at an SRFI.

EMG SRFI Travel Plan Monitoring						
Mode	Target (2028)	2019	2020	2021	2022	2023
Single Occupancy Vehicle	68%	58%	43%	43%	42%	51%
Car Share	17%	31%	36%	26%	38%	25%
Public Transport	10%	8%	15%	28%	14%	18%
Walking and Cycling	5%	1%	2%	0%	3%	2%
Other	n/a	3%	4%	3%	3%	4%

Northampton Gateway SRFI

5.10 Northampton Gateway (NG) is an SRFI development of comparable size to OxSRFI, located to the west of the M1 Junction 15 and A508 Northampton Road, approximately 6km from Northampton Town Centre with the residential areas of Grange Park and Collingtree and Northampton South Sustainable Urban Extension located within walking distance. At the time the Transport Assessment[8] was prepared in May 2018, there was moderate baseline bus provision in the immediate vicinity of the site with existing services passing the site on the A508.

5.11 The public transport strategy for NG comprises measures to encourage bus uptake including new bus stops on the A508 to connect the site with the 33/33A, X4, and X7 services that pass the site on the A508, and it will provide a new express bus service between the site and Northampton Town Centre. The management of the bus measures is overseen by a Sustainable Transport Working Group which also has responsibility for the wider Travel Plan. The DCO for NG was made (granted permission) in October 2019. Construction of the transport infrastructure is complete, as is construction of the Rail Terminal. Construction of units on site is underway, but the site is yet to be occupied.

5.12 The Framework Travel Plan is Appendix 1 of the NG Transport Assessment and was prepared in May 2018. The table below shows a summary of the Travel Plan targets extracted from Table 3 of that report.

Mode	Year 1	Year 3 Interim	Year 5
Single Occupancy Vehicle	92%	85%	74%
Car Share	5%	7%	12%
Public Transport	3%	6%	10%
Walking and Cycling	0%	2%	4%

5.13 As can be seen the Travel Plan has a target to reduce SOV car trips from 92% to 74% (18 percentage points) which is a 20% modal shift within a 5-year timeframe.

[8] Northampton Gateway SRFI, Transport Assessment (ref ADC1475 TA v4), May 2018, ADC Infrastructure Ltd

West Midlands Interchange SRFI

5.14 West Midlands Interchange (WMI) is an SRFI development of comparable size to OxSRFI located to the southwest of the M6 Junction 12. The site is bound to the east by the M6, to the north by the A5, and the west by the A449. WMI is the most recent SRFI development in the UK to be consented , which was granted in May 2020. At the time the Transport Assessment was prepared in July 2018 there was minimal baseline bus provision close to the site.

5.15 Journey times to Stafford (to the north) and Wolverhampton (to the south) via the 54/54A service are approx. 28 minutes and 29 minutes, respectively.

5.16 The bus strategy for the site consists of improving the 54/54A service to a half-hourly frequency. Provision is also made for shuttle bus(es) to be provided between WMI and significant employee clusters, which are expected to be Wolverhampton, Cannock Chase, and Walsall. Shuttle buses would coincide with shift patterns and office hours and would require capacity for 20-40 passengers. The routing and introduction of the shuttle buses will be led by the 'Transport Steering Group' for the development.

5.17 The most recent Site Wide Travel Plan was prepared in May 2019. The Travel Plan does not provide interim targets but instead provides a peak period mode share at baseline and at full build-out incorporating the sustainable transport package. The targets are summarised in the table below.

Travel Mode	Baseline Mode Share	Target Mode Share	% Change in Mode Share
Car Driver	83%	73%	-10%
Car Passenger	7.5%	12.5%	+5%
Bus	3%	8%	+5%
Bicycle	4%	4%	-
Train	1%	1%	-
Motorcycle	1%	1%	-
Walking	0.5%	0.5%	-

5.18 As can be seen the Travel Plan has a target to reduce SOV car trips from 83% to 73% (10 percentage points) which is a 12% modal shift.

5.19 The Travel Plan notes that following occupation of more than 46,000sqm of development the targets will be reassessed against a baseline employee travel survey and revised targets will be agreed by the Transport Steering Group.

Heyford Park

5.20 The Heyford Park development is a residential development located directly west of the OxSRFI Main Site and therefore has directly comparable baseline conditions despite not being an SRFI. Heyford Park is served by the 25 bus service, which operates hourly.

5.21 Heyford Park are required to introduce a high-quality bus link to Bicester, which will also facilitate onward travel to Oxford via rail. The public transport strategy for Heyford Park is to provide a frequent bus service to and Bicester, which will initially operate on a 30-minute frequency, with the objective of increasing to 20 minutes and then 15 minutes as the development is built out. Contributions have been secured via a S106 Agreement.

5.22 A revised Framework Travel Plan[9] issued in April 2021 sets out the initial Travel Planning work undertaken and revised targets. A residential travel survey was undertaken in March 2020, in advance of any Covid-19 restrictions, and sets out the baseline mode share. That was been used to inform target mode shares for Heyford Park based on the Travel Plan measures. The table below is recreated from Table 7-3: Residential Travel Plan Final Target Modal Splits (Percentages). New resident travel surveys were undertaken in March 2025, but the results are not yet publicly available.

Travel Mode	2020 Baseline	Year 2	Year 4	Year 6	Year 8	Year 10	Year 12
Dwellings Occupied	800	1150	1500	1850	2200	2550	2819
Car Driver	76.6%	73.6%	70.3%	67.0%	64.6%	61.4%	58.2%
Car Share Passenger	3.0%	3.9%	4.7%	5.6%	6.2%	7.1%	8.3%
Bus	4.7%	5.2%	6.0%	6.7%	7.2%	7.9%	8.5%
Train	5.0%	5.1%	5.2%	5.3%	5.3%	5.4%	5.5%
Walk	3.3%	3.4%	3.5%	3.6%	3.7%	3.8%	4.0%
Cycle	0.0%	0.6%	1.2%	2.0%	2.7%	3.4%	4.0%
Other	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Work From Home	6.4%	7.2%	8.1%	8.8%	9.3%	10.0%	10.5%

5.23 As can be seen the Travel Plan has a target to reduce single occupancy vehicle (SOV) car trips associated with residents from 76.6% to 58.2% (18.4 percentage points) which is a 24% modal shift across a 12-year period.

5.24 The 2021 Framework Travel Plan also sets out targets for workplace mode share using an employee travel survey carried out in parallel with the residential travel survey detailed above. The table below is recreated from Table 7-5: Workplace Target Modal Split (Percentages).

Travel Mode	2020 Baseline	Year 2	Year 4	Year 6	Year 8	Year 10	Year 12
Car Driver	79.8%	76.0%	74.0%	72.2%	70.5%	69.0%	67.8%
Car Share Passenger	16.8%	17.0%	17.4%	17.8%	18.0%	18.4%	18.8%
Public Transport	0.0%	2.2%	2.8%	3.1%	4.0%	4.4%	4.6%
Walk	2.6%	2.8%	3.0%	3.3%	3.4%	3.6%	4.0%
Cycle	0.0%	2.0%	2.8%	3.6%	4.1%	4.6%	4.8%
Other	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Work From Home	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

5.25 As can be seen the Travel Plan has a target to reduce SOV car trips associated with employees from 79.8% to 67.8% (12 percentage points) which is a 15% modal shift, across a 12-year period.

TRICS database

5.26 TRICS is a database of trip rates by land use based on surveys of developments through the UK. Although there are no directly comparable sites to OxSRFI within the TRICS database, the database does contain information of warehousing and distribution land uses. Therefore, the database has been interrogated to provide typical modal share information. The following search criteria were applied:

- Employment 'Warehousing (Commercial) category

[9] Framework Travel Plan, Heyford Park, Bicester (ref 20-07-20 03), April 2021, My Mode Choice

- Multi-modal trip rates
- UK mainland only
- Deselected suburban areas.
- Minimum size of 5,000sqm selected to remove small sites

5.27 This left five sites ranging in size from 6,650sqm to 49,081sqm, four edge of town and one free standing location. This is a small sample size but provides additional information regarding modal share trends at B8 land uses. The resulting modal split across is shown at **Figure 22**.

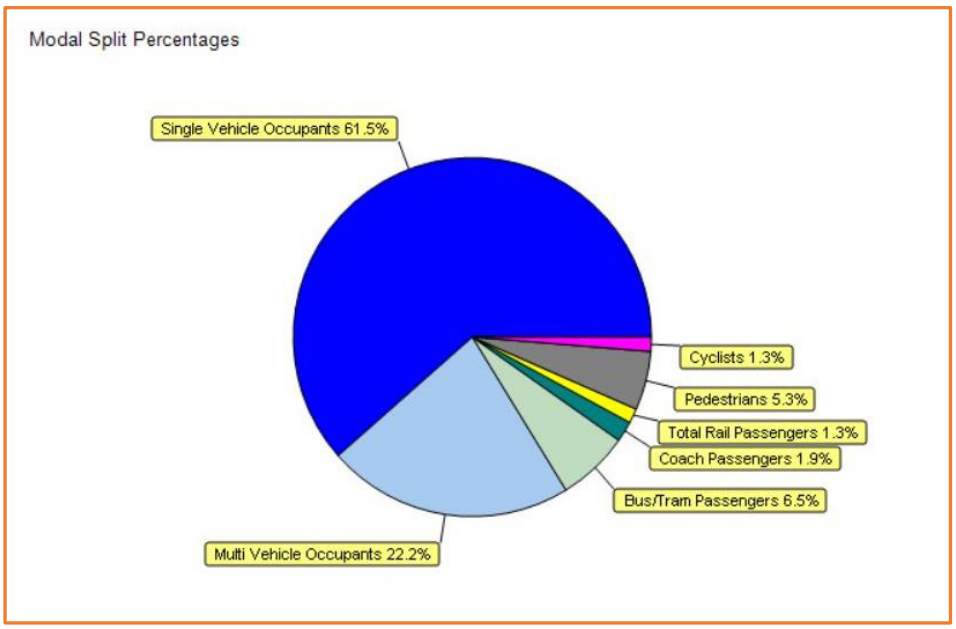


Figure 22: TRICS modal split for commercial warehousing

5.28 Summarising the TRICS data, gives the following modal split breakdown.

TRICS modal split for commercial warehousing	
Mode	%
Single Occupancy Vehicle	61.5%
Car Share	22.2%
Public Transport	9.7%
Walking and Cycling	6.6%

Public transport summary

5.29 The below table summarises the Travel Plan target modal share for public transport for each of the developments examined in this report.

Development	Public transport modal target	Shift from baseline (percentage points)	Achieved to date
EMG	10%	+5%	18%*
NG	10%	+7%	-
WMI	9%	+5%	-
Heyford Park (Resi)	8.5%	+3.8%	-
Heyford Park (Emp)	4.6%	+4.6%	-
TRICS data	-	-	9.7%

* The Amazon unit at EMG provides its own bus service for staff and hence this increases the bus modal share for the site overall.

5.30 As shown, both EMG and NG target a 10% modal share for bus users during their assessment periods, however, both sites benefit from a better baseline bus provision than at OxSRFI. WMI proposed an 8% modal share for bus use. Heyford Park propose an 8.5% target modal share for bus use for the residential aspect of the site and a target 4.6% modal share for bus use for the employment uses at the site.

5.31 It is key that any modal shift target strike a balance between being ambitious and achievable. OxSRFI will deliver a comprehensive public transport strategy to encourage bus use for journeys to and from Bicester, Heyford Park and Banbury, as described earlier in this report.

5.32 From Section 2 of this STS, the combined total for the Bicester, Heyford Park, and Banbury employee catchments is 54.9%. Accordingly, a target modal share of 8% for all OxSRFI person trips to travel by bus is an effective modal shift, from single occupancy vehicle trips to bus travel, of 14.5% for OxSRFI person trips travelling to and from the Bicester, Heyford Park, and Banbury catchment areas (8/0.549). This is an ambitious but realistic target. The provision of free 6-month bus passes as part of the Travel Plan will assist with encouraging those employees who have opportunity to travel by bus to take it up.

5.33 On this basis, and from the example sites considered in this report, an 8% modal share target is considered ambitious but achievable and is therefore an appropriate target for the OxSRFI development. This has been agreed with OCC and forms the basis of the cost and revenue model developed for the bus service enhancements.

5.34 In regard to the LTCP5 targets, it may be that with other future initiatives and policy interventions that may be developed by OCC, a mode share greater than 8% for bus use could be achieved and this will be monitored via the Travel Plan.

Car share summary

5.35 It is notable that car sharing is identified in each of the employment-based Travel Plans considered in this report as playing a key role in reducing SOV car trips, with a high baseline recorded at Heyford Park and good up take shown at EMG. The table below summarises the target modal shift to car share and away from the private car across each of the employment developments and TRICS data examined in this report.

Development	Car share target	Shift from baseline (percentage points)	Achieved to date
EMG	17%	+5%	25%
NG	12%	+7%	-
WMI	12.5%	+5%	-
Heyford Park (Emp)	18.8%	+2%	16.8% (baseline)
TRICS data	-	-	22.2%

5.36 From the above, the average car share target is 15%, and the average achieved car share is 21%. This suggests that there is strong potential for car sharing to play a key role in reducing SOV trips associated with OxSRFI.

5.37 On this basis, and from the example sites considered in this report, an 20% modal share target for car share is considered ambitious but achievable and is therefore an appropriate target for the OxSRFI development.

Active Travel (Walking and cycling) summary

5.38 The below table summarises the Travel Plan target modal share for walking and cycling for each of the developments examined in this report.

Development	Walking and Cycling target	Shift from baseline (percentage points)	Achieved to date
EMG	5%	+2%	2%
NG	4%	+4%	-
WMI	4.5%	0%	-
Heyford Park (Resi)	8%	+4.7%	-
Heyford Park (Emp)	8.8%	+6.2%	-
TRICS data	-	-	6.6%

5.39 From the above, the average walking and cycling target is 6.7%. It is noted the walking and cycling modal share at EMG SRFI is 2%, possibly due to the success of the modal shift associated with public transport and car share at that site, combined with its relative distance from urban areas.

5.40 Similarly, it is recognised that while there will be some opportunities for pedestrian travel associated with OxSRFI, these will be relatively limited due to the limited number of residential areas within an acceptable walking distance. However, it is considered that there would be good opportunities for cycle travel associated with the site to and from Bicester, and the Heyford Park development, which will also increase as nearby developments are built out.

5.41 On this basis, a 4% modal share target for walking and cycling is considered ambitious but achievable and is therefore an appropriate target for the OxSRFI development.

OCC Local Transport and Connectivity Plan

5.42 OCC have adopted the Local Transport and Connectivity Plan (LTCP5) in July 2022. The relevant LTCP headline targets provide additional context when considering the OxSRFI Travel Plan targets. The LTCP targets are:

- By 2030:
  - replace or remove 1 out of every 4 current car trips in Oxfordshire
  - increase the number of cycle trips in Oxfordshire from 600,000 to 1 million cycle trips per week
  - reduce road fatalities or life changing injuries by 50%.
- By 2040:
  - deliver a net-zero transport network
  - replace or remove an additional 1 out of every 3 current car trips in Oxfordshire.
- By 2050:
  - deliver a transport network that contributes to a climate positive future.
  - have zero, or as close as possible, road fatalities or life-changing injuries.

6.0 OXSRFI MODE SHARE TARGETS

6.1 The below table summarises the Travel Plan target modal shift away from SOV trips for each of the employment developments examined in Section 5 of this report.

Development	Baseline SOV	Travel Plan Target SOV reduction %	Target SOV	Timescale
EMG	80%	15%	68%	10 years
NG	92%	20%	74%	5 years
WMI	80%	12%	73%	at full build out
Heyford Park (Emp)	79.8%	15%	67.8%	12 years

6.2 As shown, the comparison sites target between a 15% and 20% reduction in SOV car trips. From the agreed trip generation work, OxSRFI has a baseline SOV of 92%, which is higher than recorded at the adjacent Heyford Park site.

6.3 From the above, the average car share target is 15%. Adopting this as a target for car share along with the bus modal share of 8% and a target modal share of walking and cycling of 4% (in keeping with the targets set for the other SRFI sites) would mean a target for OxSRFI to achieve a 19-percentage point reduction in SOV car trips. This suggests around a 20% target modal shift away from SOV trips (18/92 = 20%). This would give the following modal split targets for OxSRFI.

Mode	Baseline	Target
Single Occupancy Vehicle	92%	73%
Car Share	5%	15%
Public Transport	0%	8%
Walking and Cycling	3%	4%

6.4 Should OxSRFI set a more ambitious car share target of 20%, similar to the target for Heyford Park employment uses, and closer to the figures reported at EMG and the TRICS data, then this would mean a target for OxSRFI to achieve a 24-percentage point reduction in SOV car trips. This suggests a 26% percentage target modal shift away from SOV trips (24/92 = 26%), as shown in the table below.

OxSRFI modal share targets	
Mode	Target
Single Occupancy Vehicle	68%
Car Share	20%
Public Transport	8%
Walking and Cycling	4%

6.5 This aligns the OxSRFI SOV target of 68% with that of the agreed Heyford Park Employment Travel Plan. The proposed 26% percentage point modal shift also aligns closely with Oxfordshire's LTCP5 objectives to replace or remove 1 out of every 4 current car trips in Oxfordshire by 2030.

6.6 Therefore, the Framework Travel Plan for OxSRFI adopts the more ambitious Travel Plan targets presented above. In accordance with OCC's guidance on Travel Plans, monitoring would be undertaken biennially. Full build out of the OxSRFI scheme is forecast to occur in Year 4 (opening in 2031 with completion in 2034), and the Travel Plan would be monitored for a period of five

years following that. The corresponding Year 1 to Year 9 Travel Plan modal share targets are shown in the table below.

Mode	Baseline	Year 1 (Opening)	Year 3	Year 5 *	Year 7*	Year 9*
SOV	92%	82%	73%	68%	68%	68%
Car Share	5%	10%	15%	20%	20%	20%
Public Transport	0%	5%	8%	8%	8%	8%
Walking and Cycling	3%	3%	4%	4%	4%	4%

*Full build out expected in Year 4, with monitoring continuing biennially for 5 years until Year 9

6.7 The target modal split equates to a 26% shift from the from the baseline single occupancy vehicle trip modal share to sustainable transport modes. The targets are ambitious, but realistic and achievable, in the context of the site's location, the extensive sustainable transport connectivity improvements being provided, and the measures proposed as part of the Travel Plan.

7.0 SUMMARY

7.1 ADC Infrastructure Limited are commissioned by Oxfordshire Railfreight Limited (the Applicant) to assess the transport and infrastructure requirements of a proposed Strategic Rail Freight Interchange (SRFI) in Oxfordshire; the subject of a Development Consent Order (DCO) application for a Nationally Significant Infrastructure Project (NSIP), to be known as OxSRFI.

7.2 Both national and local policy recognise the importance of providing and promoting sustainable transport options to new developments, and OxSRFI will secure high-quality pedestrian, cycle and public transport links and actively promote the use of these travel modes from the outset, to reduce the number of vehicle trips generated by the site.

7.3 This Sustainable Transport Strategy (STS) for the OxSRFI development has been prepared to provide a summary document that brings together the hard infrastructure and softer measures and commitments being made to ensure that OxSRFI is provided with high quality active travel connectivity, public transport links and car share opportunities, to maximise sustainable modes of travel to and from the site.

7.4 The development will provide a significant package of improvements to provide new and enhanced means of sustainable travel to and from the key employee catchment areas and the development site, along with changes and enhancements to the public rights of way network.

7.5 This STS report has presented the sustainable transport connectivity improvements that will be provided as part of the OxSRFI development. It has assessed and set out ambitious but realistic and achievable transport mode share targets for the OxSRFI development based on the proposed package of sustainable transport improvements. In keeping with the location of the site and the nature of the development, mode shift away from single occupancy car trips will be principally achieved through car sharing, public transport and cycling, although the active travel connectivity improvements set out in this report will also cater for those walking to and from OxSRFI, particularly from the adjacent Heyford Park development.

7.6 The report is closely linked with the Walking Cycling and Horse-Riding Assessment and Review Reports and Public Transport Strategy document.

7.7 The Framework Travel Plan builds upon the work summarised in this STS report, to set out targets and measures to encourage travel to and from OxSRFI by sustainable travel modes, and methods for monitoring travel patterns.

APPENDIX A

Middleton Stoney Road Active Travel Scheme

Middleton Stoney Road
Active Travel scheme

Project overview

Oxfordshire County Council has been awarded funding from the Government's Active Travel Fund to design and deliver an active travel scheme along Middleton Stoney Road in Bicester.

A key priority for Oxfordshire County Council is to create a transport network that makes Active Travel the first choice for short journeys. This is especially important in the context of Bicester, which is expanding rapidly with an anticipated population increase from 30,000 to 55,000 by 2034. Major development work is ongoing in west Bicester and the scheme will provide a high-quality active travel corridor to connect it with the town centre and railway stations.

The designs will follow the latest national cycling standards with cyclists separated from motor vehicles for their safety and to encourage new and inexperienced cyclists of all ages.

'Active travel' includes walking, wheeling and cycling.

We are seeking your views

on our proposals for the Middleton Stoney Road Active Travel scheme before we finalise our construction plans.

Building connections, expanding opportunity

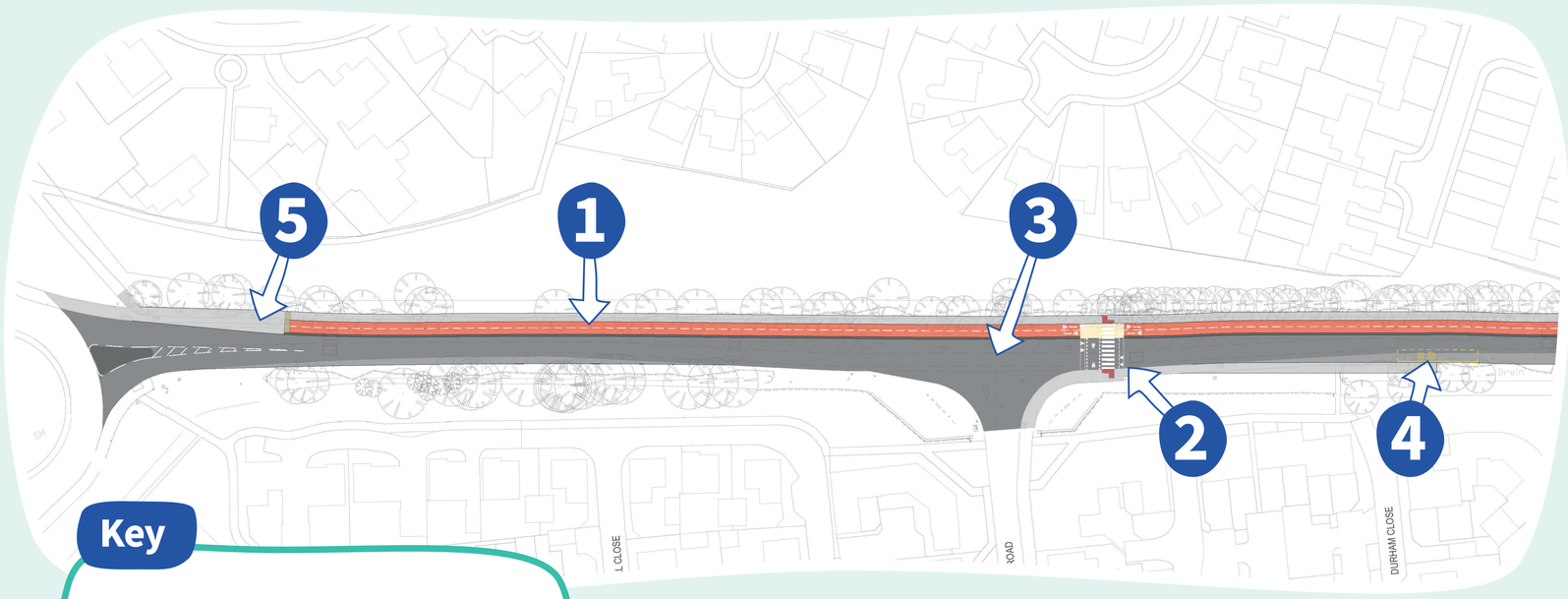
Funded by UK Government

OXFORDSHIRE COUNTY COUNCIL

25-058 Middleton Stoney A1 board.indd 1 19/02/2025 3:27 pm

Middleton Stoney Road
Active Travel scheme

West section



Key

- Proposed segregated cycleway
- Proposed shared footway / cycleway
- Footway
- Carriageway
- Verge
- Bus stop
- Tactile paving
- Corduroy tactile paving
- Tactile to be removed

1. **Proposed cycleway**
2. **Proposed parallel zebra crossings**
3. **Removal of right turn ghost (painted-on) traffic island**
4. **Existing bus stop to remain**
5. **Cycleway to tie-in to existing shared pedestrian/cycle space**

- Two-way cycleway on **north** side of Middleton Stoney Road, between Howes Lane and Shakespeare Drive – segregated from road traffic.
- Raised zebra crossing replacing traffic island by Ludlow Road with a parallel crossing for cyclists.
- Removal of right turn pocket into Ludlow Road for safety.
- New signal crossings for cyclists and pedestrians on west and north arms of Shakespeare Drive/Whitelands Way roundabout.
- Slight adjustments to positions of existing speed cushions to accommodate new raised zebra crossings.

Building connections, expanding opportunity

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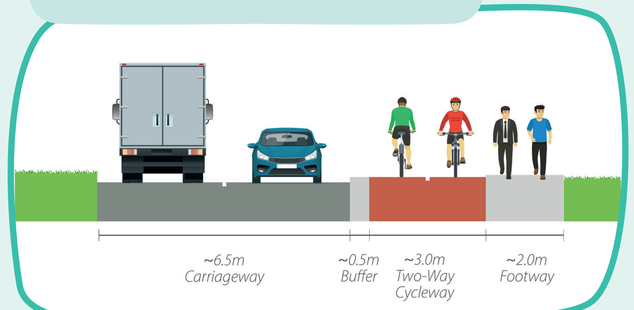
19/02/2025 3:27 pm

Middleton Stoney Road
Active Travel scheme

West section

Cross section west



Key

- Proposed segregated cycleway
- Proposed shared footway / cycleway
- Footway
- Carriageway
- Verge
- Bus stop
- Tactile paving
- Corduroy tactile paving
- Tactile to be removed

1 Proposed shared space

2 Signalised parallel crossing (Sparrow Crossing)

Building connections, expanding opportunity

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OXFORDSHIRE COUNTY COUNCIL

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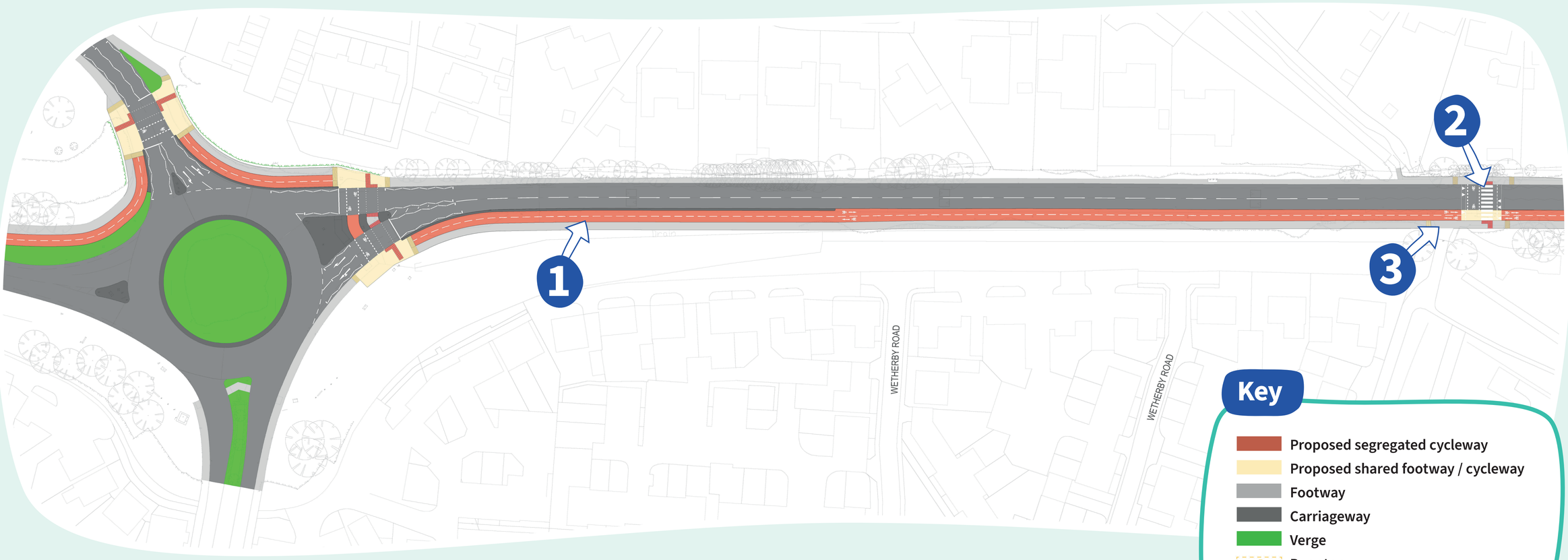
Middleton Stoney Road
Active Travel scheme

East section



1 Proposed cycleway and new footway

2 Proposed parallel zebra crossing

3 Cycle route to tie-in to off road cycle routes to the south

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Middleton Stoney Road
Active Travel scheme

East section

Key

- Proposed segregated cycleway
- Proposed shared footway / cycleway
- Footway
- Carriageway
- Verge
- Bus stop
- Tactile paving
- Corduroy tactile paving
- Tactile to be removed

1 **Proposed cycleway and new footway**

2 **Proposed bus stop bypass**

- Two-way cycleway on **south** side of Middleton Stoney Road, between Whitelands Way and King's End – segregated from road traffic.
- Continuous pavement on south side of Middleton Stoney Road between Whitelands Way and King's End, separated from new cycleway.
- Two existing signal crossings replaced with four raised zebra crossings (including parallel crossings for cyclists) at most regularly used crossing points.
- New signal crossings for cyclists and pedestrians on west and north arms of Shakespeare Drive/Whitelands Way roundabout.

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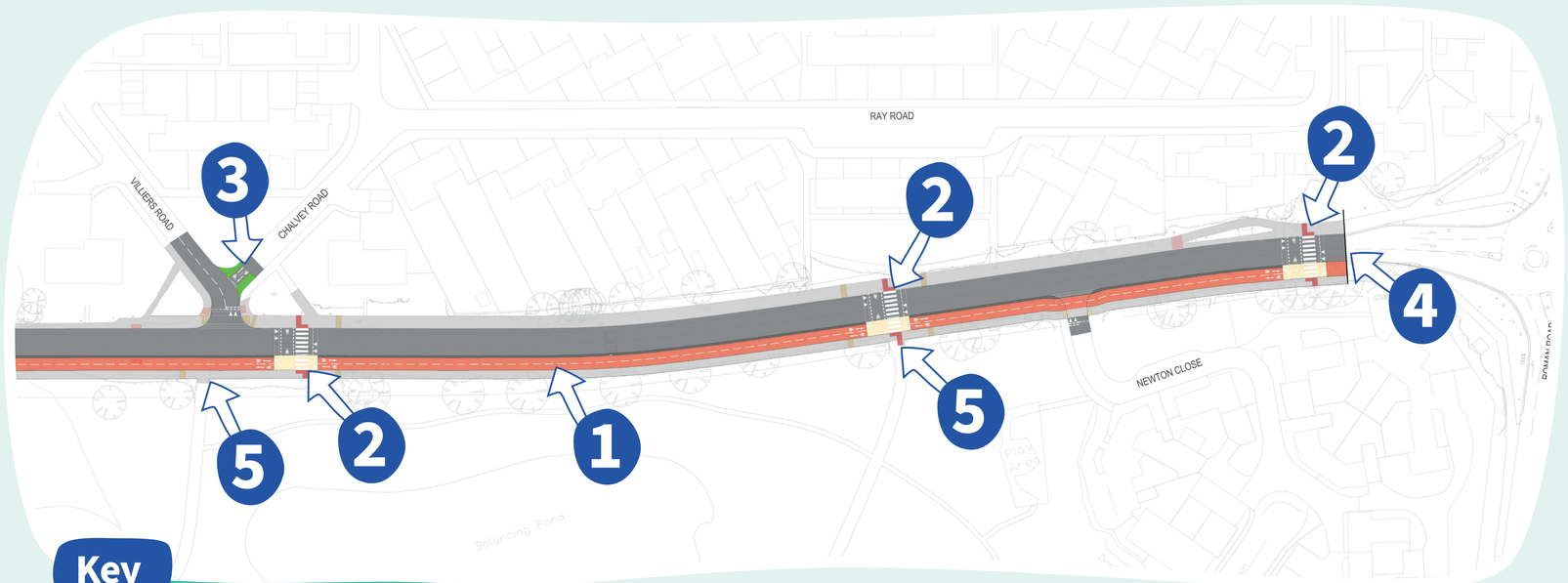
Middleton Stoney Road
Active Travel scheme

East section



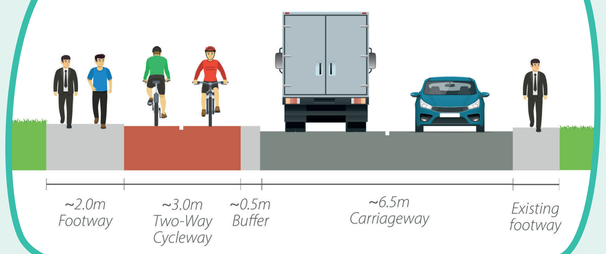
- Closure at end of Chalvey Road (junction with Villiers Road) for motor vehicles. This will make it easier for pedestrians to cross Villiers Road to improve safety. Vehicle access to Chalvey Road to remain via Chalvey Close, Kings Avenue and Ray Road.
- Slight adjustments to positions of existing speed cushions to accommodate new raised zebra crossings.

Key

- Proposed segregated cycleway
- Proposed shared footway / cycleway
- Footway
- Carriageway
- Verge
- Bus stop
- Tactile paving
- Corduroy tactile paving
- Tactile to be removed

1. Proposed cycleway
2. Proposed parallel zebra crossings
3. No access for motor vehicles at the end of Chalvey Road
4. Existing bus stop to remain
5. Cycleway to tie-in with off road routes to the south

Cross section east



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Funded by UK Government

OXFORDSHIRE COUNTY COUNCIL

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Middleton Stoney Road
Active Travel scheme

Key dates

End of public consultation period
25 March 2025

Consultation report
May 2025

Completion of design
Summer 2025

Construction start
Autumn 2025 *

Construction completion
Spring 2026

*Construction programme will depend on utility cabling works being completed in advance.

We will seek to minimise disruption during the construction period as much as possible. Further information on delivery phasing and traffic management will be shared prior to start of works.

Thank you for visiting this exhibition!

This is your opportunity to contribute to the designs and give comment on what will work best for local residents, businesses and visitors to Bicester.

Please visit

https://letstalk.oxfordshire.gov.uk/middleton-stoney-road-active-travel

where you can complete our survey

SCAN ME

The survey is open until 11.59pm on **Tuesday 25 March 2025**. You can also email the team or contact our customer services team to ask a member of our team to contact you:

MiddletonStoneyRoad@oxfordshire.gov.uk

Customer services: 01865 792 422

(Please note our customer service team is unable to answer detailed questions).

Building connections, expanding opportunity

Funded by UK Government

OXFORDSHIRE COUNTY COUNCIL

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APPENDIX B

Existing Public Rights of Way Network
Drawing ADC1794-DR-11

CUT LINE A

CUT LINE B

1 : 10,000

M40 Junction 10

1 : 10,000

M40 Junction 9

1 : 5,000

B4030/A4095 roundabout

1 : 10,000

Legend

- Existing Public Bridleway
- Existing Public Footpath
- Existing Restricted Byway
- Indicative Committed (Future) Bridleway through Ardley EFW
- Indicative Committed (Future) Bridleway through Heyford Park
- Indicative S106 Committed (Future) Bridleway
- OxSRFI-BWB-LSI-ZZ-M2-CH-001_Order Limits-S1-P35

Note: Existing Public Rights of Way have been recreated from the Oxfordshire Countryside Access Map found at: publicrightsofway.oxfordshire.gov.uk/standardmap.aspx

Rev	Description	Date
P15	Minor amendments	16/03/26
P14	Updated order limits	10/02/26
P13	Updated order limits	16/09/25
P12	Updated order limits	26/02/25
P11	Updated order limits	23/03/23
P10	Updated PRoW, extents, order limits, and M40 J9 added	08/03/23
P9	Updated to reflect changes to parishes	29/06/22
P8	Updated committed routes	17/05/22
P7	Updated PRoW	04/05/22
P6	Updated PRoW, order limits and key	29/04/22
P5	Updated order limits	11/03/22
P4	Amended order limits and key	20/05/21
P3	Updated order limits	17/05/21
P2	Updated following client team feedback	10/05/21

Client:

Oxfordshire Rail Freight Limited

Project:

OxSRFI OXFORDSHIRE STRATEGIC RAIL FREIGHT INTERCHANGE

Title:

Existing and Committed Public Rights of Way in the Vicinity of the Main Site and Embedded Highway Works

ADC INFRASTRUCTURE

Drg Size:	Scale:	Date:
A1	As shown	04/05/2021

Drg No: ADC1794-DR-011

Rev: P15

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APPENDIX C

Camp Road and Camp Road/Chilgrove Drive/ Upper Heyford Road improvement

N

1.5m Standard
footpath construction
to tie into Pye Homes Layout

Crossing point

Proposed standard footpath construction

Proposed 3.70m carriageway
to accommodate 1.5m no-dig
footpath construction

Proposed 1.5m no-dig footpath construction
to accommodate banking

Banking outside of boundary - Narrowing the carriageway to be reviewed

8m

77m where a 1.5m no-dig construction footpath would fit

2.10m

2.0m

5m

24m

10m

16m

12m

25m

1.6m

1.5m No-dig
footpath construction

1.6m Standard footpath construction

Proposed 3.70m carriageway
at road narrowing

Proposed 1.2m no-dig
footpath construction to accommodate banking

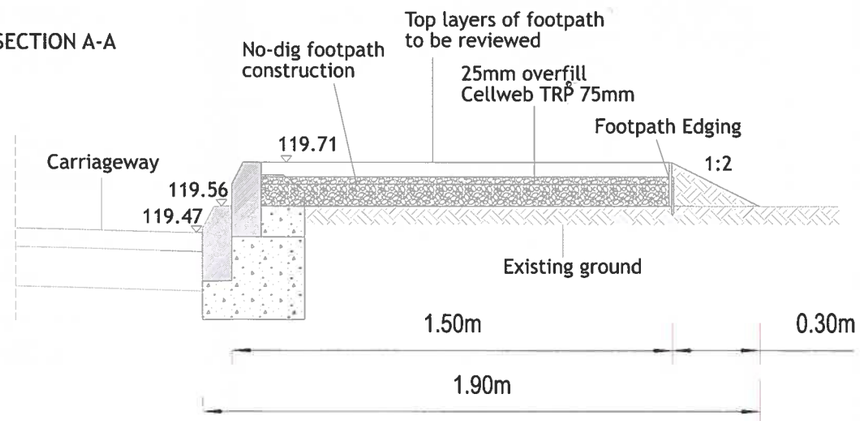
A

A

1.6m Standard
footpath construction

1.5m No-dig
footpath construction

SECTION A-A



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SAFETY, HEALTH AND ENVIRONMENTAL

In addition to the hazards, risks normally associated with the type of work detailed on this drawing, note the following significant risks and information.

Construction:

1. Proximity of works to a live carriageway

2. Possible presence of existing services

3. Protection of trees and hedges

For information relating to end use, maintenance, demolition, see the health and safety file.

It is assumed that all works will be carried out by a competent Contractor, where appropriate, to an approved method statement.

KEY

Highway Boundary Limits

Possible Future Footpath

Banking

Banking outside of boundary

Proposed Footpath

Soft Landscaping

Assumed Banking

Footpath Dimensions

REV	DESCRIPTION	DRN	CHD	DATE
B	Cycle lane separation removed. Additional narrowing added	AT	AT	09.09.20
A	On-carriageway cycle lane markings added	JGF	JGF	21.08.20

☐ PRELIMINARY ☐ INFORMATION ☐ TENDER
☐ CONSTRUCTION ☐ AS BUILT

SCALE	1:200 @ A0	DATE	JULY 2020
DRAWN	NK	CHK	JGF
DRAWING NO.	16871-SK380	REV	B

TITLE: CAMP ROAD
UPPER HEYFORD

DETAILS: POSSIBLE FOOTPATH SECTION 278 WORKS ON CAMP ROAD EAST

Woods Hardwick
Architecture Engineering Planning Surveying

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15-17 Goldington Road
Bedford MK40 3NH
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ONLINE: mail@woodshardwick.com | woodshardwick.com

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3. Until technical approval has been obtained from the relevant authorities, all drawings are issued as preliminary and not for construction. Should the Contractor commence site work prior to approval being given it is entirely at his own risk.

SAFETY, HEALTH AND ENVIRONMENTAL

In addition to the hazards, risks normally associated with the type of work detailed on this drawing, note the following significant risks and information.

Construction:

1. Proximity of works to a live carriageway

2. Possible presence of existing services

3. Protection of trees and hedges

For information relating to end use, maintenance, demolition, see the health and safety file.

It is assumed that all works will be carried out by a competent Contractor, where appropriate, to an approved method statement.

KEY

Highway Boundary Limits
Possible Future Footpath
Banking
Banking outside of boundary
Proposed Footpath
Soft Landscaping
Assumed Banking
Footpath Dimensions

REV	DESCRIPTION	DRN	CHD	DATE
B	Cycle lane seperation removed	AT	AT	09.09.20
A	Cycleway markings and zebra crossing added	JGF	JGF	21.08.20

☐ PRELIMINARY ☐ INFORMATION ☐ TENDER
☐ CONSTRUCTION ☐ AS BUILT

SCALE	1:200 @ A0	DATE	JULY 2020
DRAWN	NK	CHK	JGF
DRAWING NO	16871-SK381	REV	B

TITLE: CAMP ROAD
UPPER HEYFORD

DETAILS: POSSIBLE FOOTPATH SECTION 278 WORKS ON CAMP ROAD EAST

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Architecture | Engineering | Planning | Surveying

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ONLINE: mail@woodshardwick.com | woodshardwick.com

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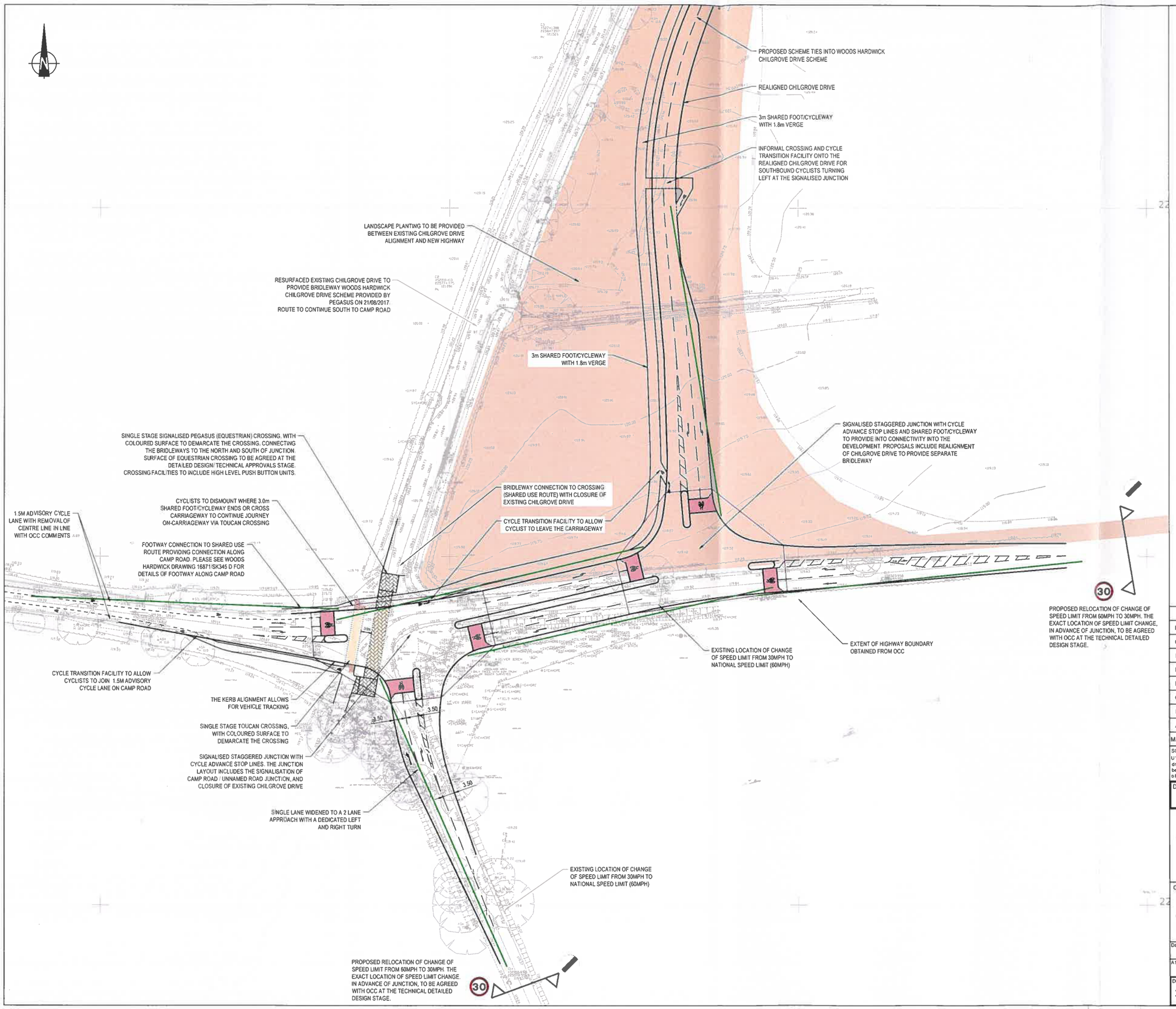

NOTES:

1. THE LAYOUT IS SUBJECT TO DETAILED DESIGN, ROAD SAFETY AUDIT, CAPACITY TESTING, GROUND INVESTIGATIONS RESULTS & EARTHWORKS MODELLING, UTILITIES & SERVICES AND CONFIRMATION OF LAND OWNERSHIP;
2. THE DETAILED DESIGN LAYOUT WILL BE DESIGNED IN ACCORDANCE WITH ALL RELEVANT DESIGN GUIDANCE AND STANDARDS;
3. THE LAYOUT HAS BEEN BASED ON THE APPROPRIATE DESIGN SPEED FOR OUR CURRENT PROPOSALS;
4. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL RELEVANT ASSOCIATED DOCUMENTS; AND
5. THE USE OF THE DRAWING DOES NOT ABSOLVE THE CLIENT FROM THEIR RESPONSIBILITIES IN REGARDS TO HEALTH & SAFETY AND CDM REGULATIONS;

KEY:

- HIGHWAY BOUNDARY INFORMATION RECEIVED FROM OXFORD COUNTY COUNCIL ON 13.03.17 AND INTERPRETED BY STANTEC
- LAND UNDER THE CLIENT'S CONTROL. LAND TITLE ON288089 (UPPER HEYFORD GP LTD)
- 90M STOPPING SIGHT DISTANCE TO A PRIMARY SIGNAL HEAD IN ACCORDANCE WITH DMRB FOR A 30MPH ROAD
- JUNCTION INTERVISIBILITY

Mark	Revision	Date	Drawn	Chkd	Appd
I	UPDATED TO STANTEC BORDER	26.02.20	PC	PR	-
H	ADDITIONAL UPDATES FOLLOWING OCC COMMENTS	10.10.18	PC		-
G	COMMENTS FROM OCC INCORPORATED INTO PLAN	02.10.18	PC		-
F	COMMENTS FROM THE BHS INCORPORATED INTO PLAN	07.06.18	JDS	PR	-
E	COLOURED SURFACE PROVIDED ON CROSSING	19.03.18	PC	PR	-
D	REVISED IN ACCORDANCE WITH OCC COMMENTS 05/03/18	19.03.18	PC	PR	MW
C	REVISED PEDESTRIAN CYCLE ROUTE ALONG CHILGROVE DRIVE	08.02.18	JHo	PC	PR
B	ADDED NOTE ON PLANTING	17.01.18	AA	PR	-
A	AMENDMENTS MADE IN ACCORDANCE WITH OCC COMMENTS	04.01.18	PC	PR	-

SCALING NOTE: Do not scale this drawing - any errors or omissions shall be reported to Stantec without delay.
UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

Drawing Issue Status

FOR DISCUSSION

HEYFORD PARK, TRANCHE 2
CHILGROVE DRIVE
POTENTIAL SIGNALISED JUNCTION

Client: DORCHESTER GROUP

Date of 1st Issue	Designed	Drawn
06.10.2017	JHo	JHo
A1 Scale	Checked	Approved
1:500	PC	PR
Drawing Number		Revision
39304/5501/SK26		I

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BRISTOL
Tel: 01173 327 840

File Location: J:\39304 heyford park tranche 2\cad\panel 5501\sketches\39304-5501-sk26 chilgrove drive signalised junction.dwg

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4. Until technical approval has been obtained from the relevant authorities, all drawings are issued as preliminary and not for construction. Should the Contractor commence site work prior to approval being given it is entirely at their own risk.

5. Adoptable works and materials to comply with the Highways England 'Specification for Highway Works'.

6. Drainage and Road designs subject to Water Company and Highway Authority approval.

SAFETY, HEALTH AND ENVIRONMENTAL

In addition to the hazards, risks normally associated with the type of work detailed on this drawing, note the following significant risks and information.

Construction:

1. Live services below and above ground.
2. Retention of pedestrian routes.
3. Works in vicinity of existing protected trees.
4. Location of survey controls within live highway.
5. Slope stability of deep excavations.
6. Works to live sewers.
7. Possible presence of buried live explosives.

For information relating to end use, maintenance, demolition, see the health and safety file.

It is assumed that all works will be carried out by a competent Contractor, where appropriate, to an approved method statement.

Chilgrove Drive S38

Chilgrove Junction S278

Existing Chilgrove Drive alignment to be converted to bridleway

Proposed Chilgrove Drive alignment

Proposed relocation of change of speed limit from 60mph to 20mph. Exact location to be agreed with Oxfordshire County Council as part of the Technical Audit and Traffic Regulation Order processes

Dropped kerb allows access to 3m shared use footway/cycleway

Signalised Pegasus Crossing

Existing Camp Road

Relocated 3m wide field access

Signalised pedestrian and cyclist crossing point

Signalised junction

Existing cover to be replaced with skid resistant type

Dropped kerb cycle access to carriageway

Existing cover to be replaced with skid resistant type

Signalised pedestrian and cyclist crossing point

Existing vegetation to be removed within SSD extents

Existing vegetation to be removed within SSD extents

Existing cover to be replaced with skid resistant type

Proposed relocation of change of speed limit from 60mph to 20mph. Exact location to be agreed with Oxfordshire County Council as part of the Technical Audit and Traffic Regulation Order processes

Carriageway lanes 3.5m
Islands 2.0m
Shared footpath & cycleway-3.0m
Verge 1.5m
Footpath- 2.0m

UNTIL TECHNICAL APPROVAL HAS BEEN OBTAINED FROM THE RELEVANT AUTHORITIES, ALL DRAWINGS ARE ISSUED AS PRELIMINARY AND NOT FOR CONSTRUCTION. SHOULD THE CONTRACTOR COMMENCE SITE WORK PRIOR TO APPROVAL BEING GIVEN IT IS ENTIRELY AT HIS OWN RISK.

- Proposed drainage easement
- Proposed Surface Water Sewer
- Proposed Foul Water Sewer
- Proposed Foul Rising main
- Existing Surface Water Sewer
- Existing Foul Water Sewer
- Tree Root Protection Zone
- Existing highway boundary
- 43m SSD
- Planning application boundary

Subject to planning approval

Drainage designed to 1 in 100 year event plus 40% allowance for climate change

Infiltration through basin to be 1.4x10-4 as per Jomas testing in September 2023

KEY PLAN

Chilgrove Junction Sheet 3

Chilgrove Junction Sheet 2

Chilgrove Junction Sheet 1

0 10 20 30 50 100 150

REV	DESCRIPTION	DRN	CHD	DATE
G	Planning boundary updated	AT	JF	13.06.24
F	Cycleway crossing updated	AT	JF	28.05.24
E	Cyleway extents edited to suit highway boundary extents	AT	JF	17.05.24
D	Additional 43m SSD locations shown	DSH	AT	28.03.24
C	43m SSD envelopes shown. Notes regarding existing covers added	DSH	AT	26.03.24
B	Eastern tie-in amended. Proposed 20mph speed limit shown	DSH	AT	08.03.24
A	Carriageway arrangement amended	DSH	AT	01.02.24

■ PRELIMINARY ☐ INFORMATION ☐ TENDER

☐ CONSTRUCTION ☐ AS BUILT

SCALE 1:1000 @ A1 DATE AUGUST 2023

DRAWN AT CHK JF

DRAWING NO. HEYF-5-1650 REV G

TITLE UPPER HEYFORD
CHILGROVE JUNCTION S278

DETAILS GENERAL ARRANGEMENT

Woods Hardwick

Architecture | Engineering | Planning | Surveying

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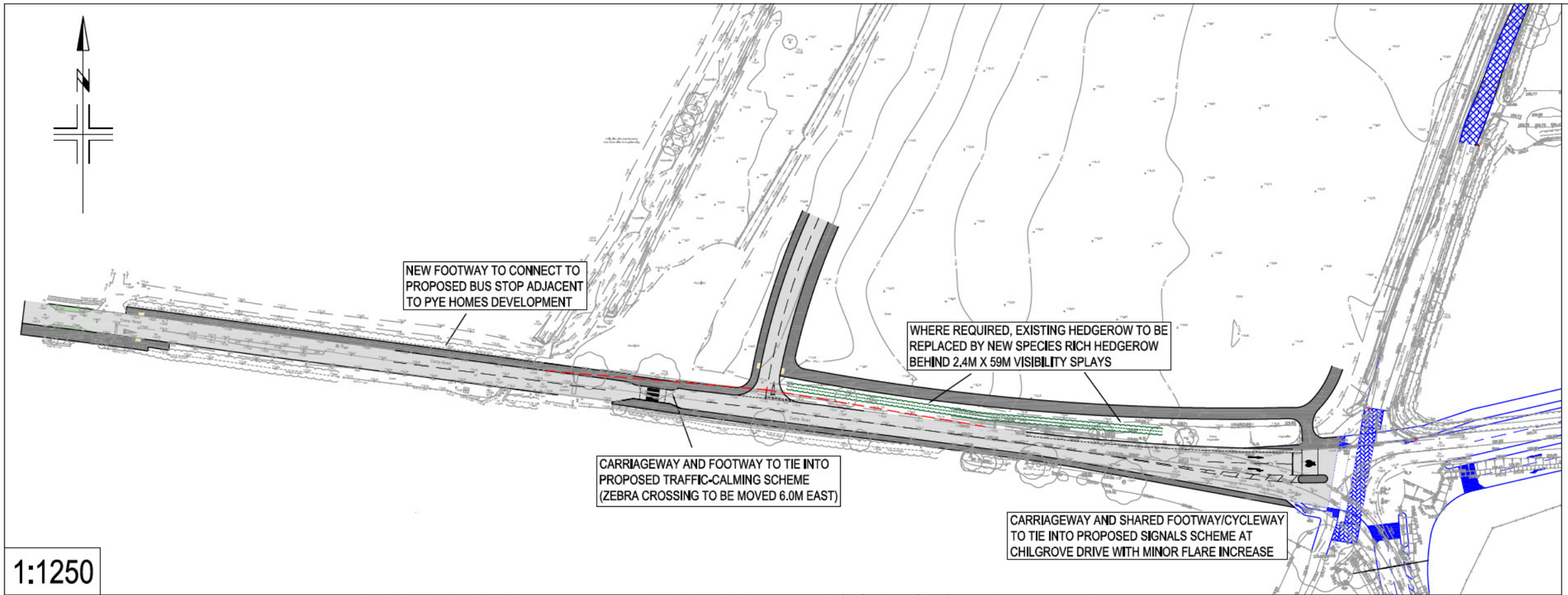
ONLINE: mail@woodshardwick.com | woodshardwick.com

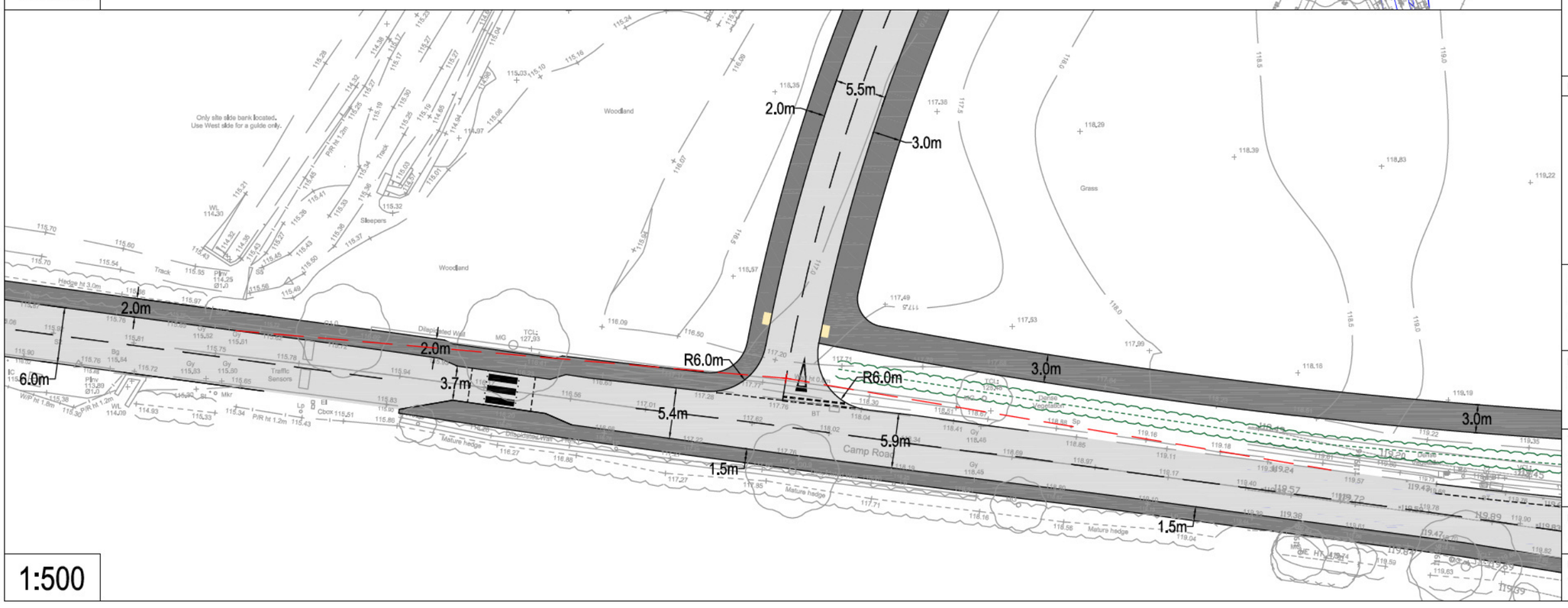
PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS DRAWING

APPENDIX D

Camp Road shared footway/cycleway improvement



1:1250



1:500

1. THIS DRAWING IS NOT TO BE SCALED FOR CONSTRUCTION PURPOSES.
2. THE CONTRACTOR SHALL CHECK ALL DIMENSIONS AND LEVELS ON SITE.

REV	DESCRIPTION	DATE	BY	AUTH
A	MINOR JUNCTION AMENDMENTS	15.12.21	JP	GM

hub TRANSPORT PLANNING LTD

Hub Transport Planning Ltd
Raddiyffe House
66/68 Hagley Road
Edgbaston
Birmingham
West Midlands
B16 8PF

T : 0121 454 5530

CLIENT
RICHBOROUGH ESTATES & LONE STAR LAND

PROJECT
HEYFORD PARK

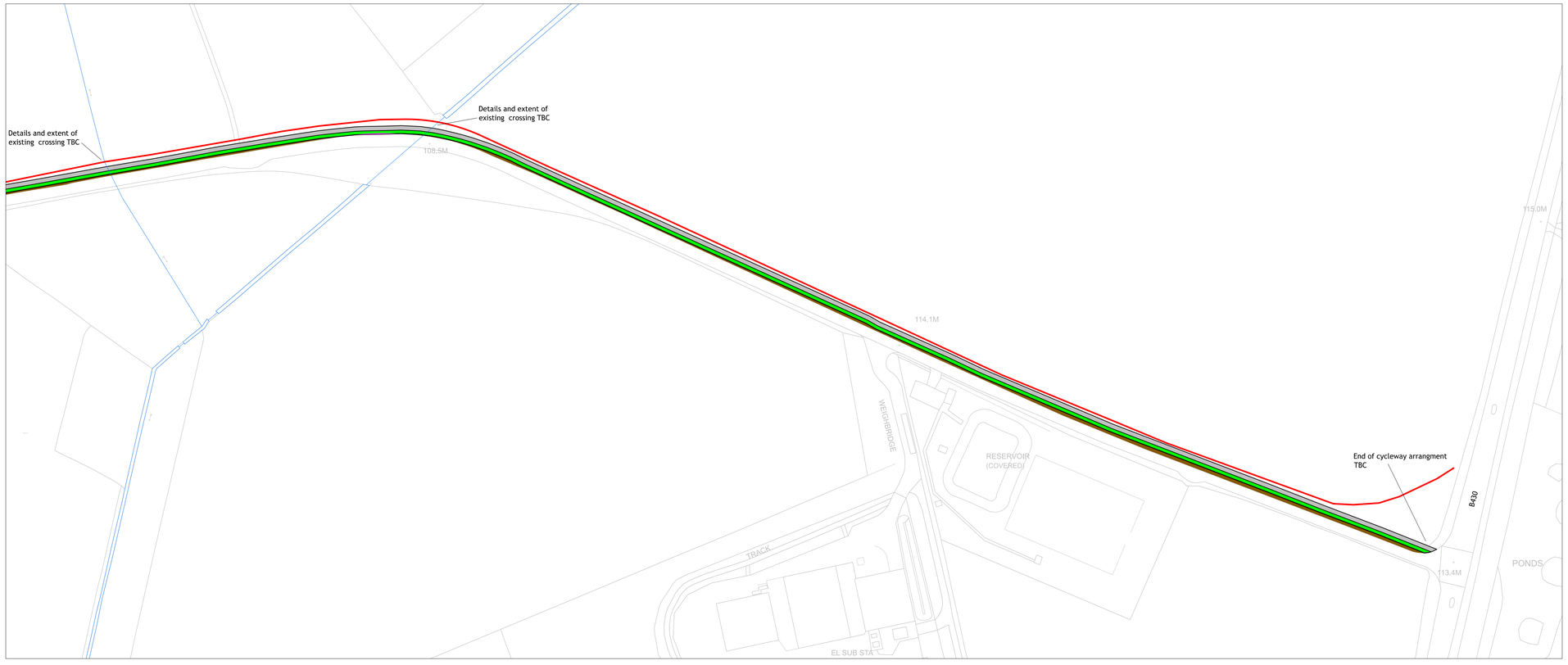
TITLE
SITE ACCESS JUNCTION WITH VISIBILITY SPLAYS AND CROSSING

DRAWN	AUTHORISED	SCALE	SHEET SIZE	DATE
JP	GM	AS SHOWN	A3	25.10.21

PROJECT NO.	DRAWING NO.	REV
T19562	001	A

APPENDIX E

Upper Heyford Road footway/cycleway and B430/Upper Heyford Road junction improvements



NOTES

1. Contractors must check all dimensions on site. Only figured dimensions are to be worked from. Discrepancies must be reported to the Architect or Engineer before proceeding.
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3. Until technical approval has been obtained from the relevant authorities, all drawings are issued as preliminary and not for construction. Should the Contractor commence site work prior to approval being given it is entirely at his own risk.

SAFETY, HEALTH AND ENVIRONMENTAL

In addition to the hazards, risks normally associated with the type of work detailed on this drawing, note the following significant risks and information.

KEY

- Future road widening to achieve 7.3m constant size (width of works varies). Initially to be constructed as verge
- Area of road to be replaced with verge to keep constant width Initially retained as existing road
- 2.0m proposed adoptable verge with swales
- 2.5m proposed adoptable cycleway (circa 1440m long)
- Dorchester ownership limits (provided by others)
- Existing watercourse

1. Proposals subject to topographical survey, planning and detailed design.

2.Proposals subject to technical approval by Oxfordshire County Council.

3. Run off on southern side of road to remain as per current arrangment.

4. Run off on northern side subject to swale design and infiltration testing.

5. Size and extent of stream crossings to be confirmed. Any culvert extensions required on the northern side are subject to detailed design.

6. Proposals based on land boundary provided by Dorchester and assumes ownership is up to OCC Highway boundary.

7. Extent of OCC Highway boundary TBC.

8. Requirement for speed control islands/ buildouts TBC.

REV	DESCRIPTION	DRN	CHD	DATE

■ PRELIMINARY ☐ INFORMATION ☐ TENDER
☐ CONSTRUCTION ☐ AS BUILT

SCALE	1:1000 @ A0	DATE	AUGUST 2021
DRAWN	AT	CHK	JF
DRAWING NO.	16871/SK401	REV	-

TITLE: BETWEEN CAMP ROAD AND B430 UPPER HEYFORD

DETAILS: PROPOSED CYCLEWAY AND FUTURE ROAD UPGRADE EXTENTS

Woods Hardwick
Architecture | Engineering | Planning | Surveying

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PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS DRAWING

NOTES:

1. THE LAYOUT IS SUBJECT TO DETAILED DESIGN, ROAD SAFETY AUDIT, CAPACITY TESTING, GROUND INVESTIGATIONS RESULTS & EARTHWORKS MODELLING, UTILITIES & SERVICES AND CONFIRMATION OF LAND OWNERSHIP;

2. THE DETAILED DESIGN LAYOUT WILL BE DESIGNED IN ACCORDANCE WITH ALL RELEVANT DESIGN GUIDANCE AND STANDARDS;

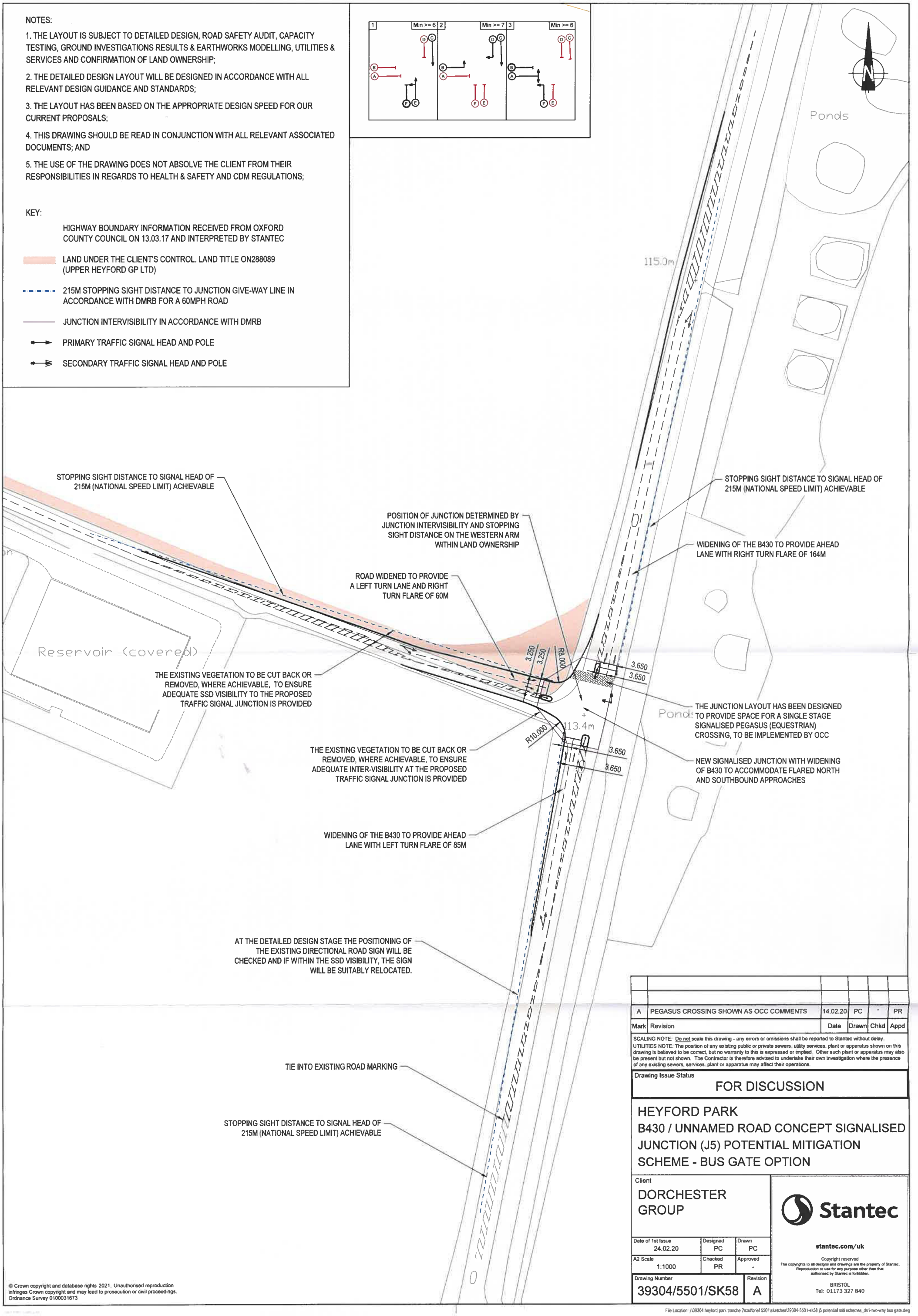
3. THE LAYOUT HAS BEEN BASED ON THE APPROPRIATE DESIGN SPEED FOR OUR CURRENT PROPOSALS;

4. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL RELEVANT ASSOCIATED DOCUMENTS; AND

5. THE USE OF THE DRAWING DOES NOT ABSOLVE THE CLIENT FROM THEIR RESPONSIBILITIES IN REGARDS TO HEALTH & SAFETY AND CDM REGULATIONS;

KEY:

- HIGHWAY BOUNDARY INFORMATION RECEIVED FROM OXFORD COUNTY COUNCIL ON 13.03.17 AND INTERPRETED BY STANTEC
- LAND UNDER THE CLIENT'S CONTROL. LAND TITLE ON288089 (UPPER HEYFORD GP LTD)
- 215M STOPPING SIGHT DISTANCE TO JUNCTION GIVE-WAY LINE IN ACCORDANCE WITH DMRB FOR A 60MPH ROAD
- JUNCTION INTERVISIBILITY IN ACCORDANCE WITH DMRB
- PRIMARY TRAFFIC SIGNAL HEAD AND POLE
- SECONDARY TRAFFIC SIGNAL HEAD AND POLE



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Mark	Revision	Date	Drawn	Chkd	Appd
A	PEGASUS CROSSING SHOWN AS OCC COMMENTS	14.02.20	PC	-	PR

SCALING NOTE: Do not scale this drawing - any errors or omissions shall be reported to Stantec without delay.

UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

Drawing Issue Status

FOR DISCUSSION

HEYFORD PARK
B430 / UNNAMED ROAD CONCEPT SIGNALISED JUNCTION (J5) POTENTIAL MITIGATION SCHEME - BUS GATE OPTION

Client: DORCHESTER GROUP

Date of 1st Issue	Designed	Drawn
24.02.20	PC	PC
A2 Scale	**Checked**	**Approved**
1:1000	PR	-

Drawing Number: 39304/5501/SK58 — Revision: A

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stantec.com/uk

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BRISTOL
Tel: 01173 327 840

File Location: j:\39304 heyford park tranche 2\cad\brief 5501\sketches\39304-5501-sk58 j5 potential miti schemes_ds1-two-way bus gate.dwg

APPENDIX F

Footway/Cycleway/Rights of Way Strategy overview plan Drawing ADC1794-DR-042

CUT LINE A

Existing B430 in Ardley speed limit reduced to 20mph

Ardley Road speed limit reduced to 40mph

B430 speed limit reduced to 40mph

Middleton Road speed limit reduced to 40mph

Bicester Road speed limit reduced to 40mph and advisory cycle lanes provided

B4030 Middleton Stoney Road speed limit reduced to 50mph

CUT LINE B

1 : 10,000

M40 Junction 10

CUT LINE A

Existing B430 in Ardley speed limit reduced to 20mph

1 : 10,000

M40 Junction 9

A34 northbound speed limit reduced to 50mph on immediate approach to junction

1 : 5,000

A4095/B4030 roundabout

CUT LINE B

1 : 10,000

Legend

- Existing Public Bridleway
- Existing Public Footpath
- Existing Restricted Byway
- Indicative Committed (Future) Bridleway through Ardley EFW
- Indicative Committed (Future) Bridleway through Heyford Park
- Indicative S106 Committed (Future) Bridleway
- Committed Camp Road Footway and/or Footway/Cycleway
- Proposed Segregated or Shared Footway/Cycleway
- Proposed Right of Way - Bridleway
- Proposed Right of Way - Footpath
- Stopped up Bridleway or Footpath
- Indicative (Future) Bridleway not provided

Highway Works Legend (see Highway Works Overview drawing for further detail)

- New/Upgraded Highway Works provided by OxSRFI
- Existing Highway Stopped Up
- Other local road works (on roads not upgraded as part of OxSRFI): speed limit changes and cycle lanes as described

Rev	Description	Date
P20	Minor amendments	16/03/2026
P19	Updated parameters plan added	10/02/2026
P18	Amendments following Stage 2 Consultation	20/01/2026
P17	Presentational amendments	16/09/2025
P16	Presentational amendments	11/09/2025
P15	Presentational amendments	10/09/2025
P14	Minor amendments to GA	05/09/2025
P13	PROW 398/7 and 367/21 amended to be stopped up	27/08/2025
P12	Parameters Plan/Highway Works updated	31/07/2025
P11	Amendments to strategy	25/06/2025
P10	Amendments to strategy	28/04/2025
P9.1	Amended parameters plan added	03/03/2025
P9	Footway/cycleway at M40 J10 amended	27/02/2025
P8	Highway works updated	25/02/2025
P7	Updated strategy	15/03/2023
P6	Updated strategy	13/03/2023
P5	Updated committed routes	17/05/2022
P4	Updated PRoW	04/05/2022
P3	Updated PRoW	29/04/2022
P2	Revised following comments	05/04/2022

Client: Oxfordshire Rail Freight Limited

Project: OxSRFI Oxfordshire Strategic Rail Freight Interchange

Title: Footway/Cycleway/Rights of Way Strategy Overview

ADC Infrastructure

Drg Size:	Scale:	Date:
A1	As Shown	01/04/2022

Drg No: ADC1794-DR-042 | Rev: P20

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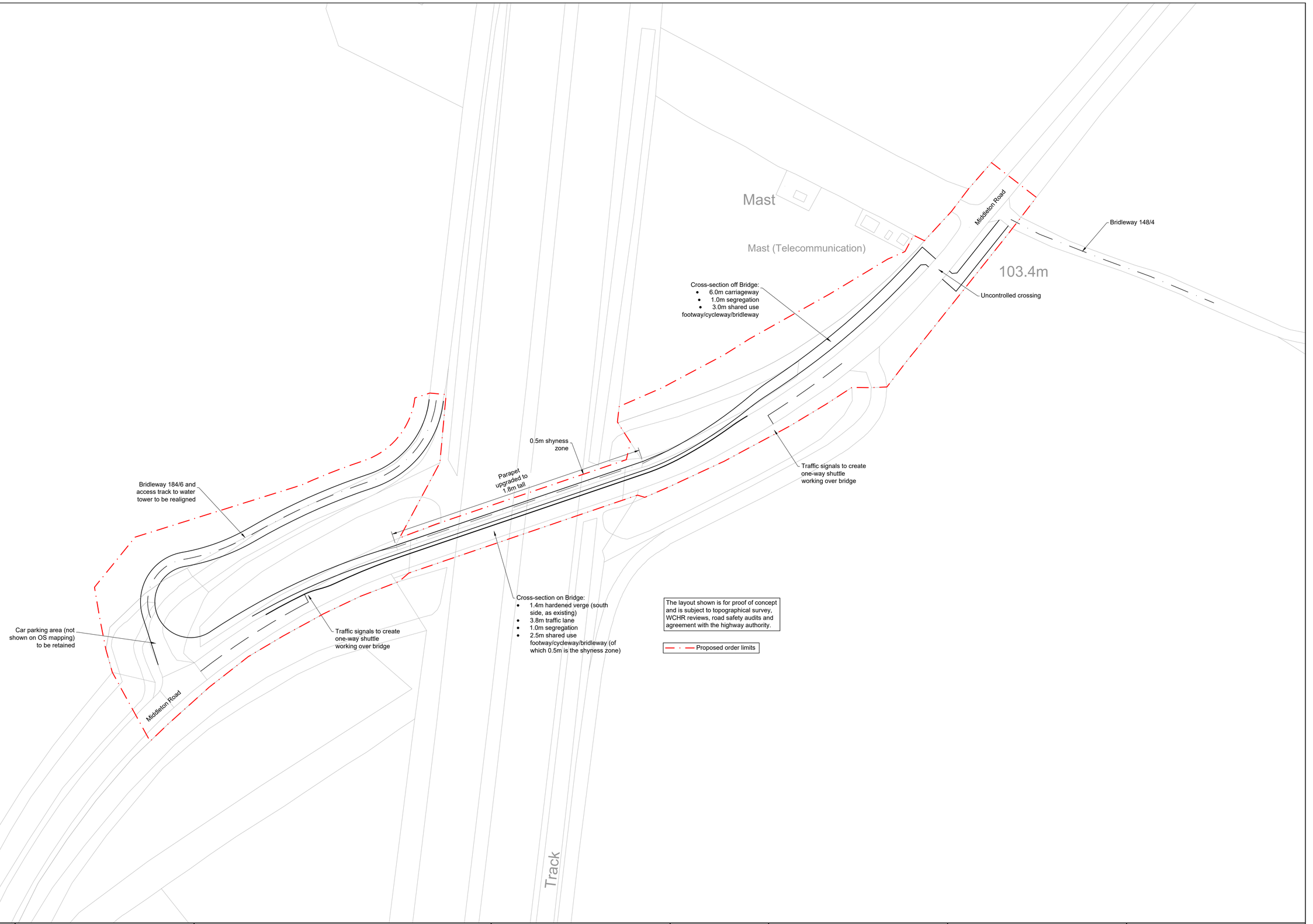
APPENDIX G

Middelton Road bridge connectivity improvement



The layout shown is for proof of concept and is subject to topographical survey, WCHR reviews, road safety audits and agreement with the highway authority.

Proposed order limits

Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in metres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

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Legend

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	28.02.23	Preliminary Issue	SRH	SRH

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Client
OXFORDSHIRE RAILFREIGHT LTD.

Project Title
OxSRFI OXFORDSHIRE STRATEGIC RAIL FREIGHT INTERCHANGE

Drawing Title
MIDDLETON ROAD BRIDLEWAY CONNECTIVITY IMPROVEMENT

Drawn:	S. Hilditch	Reviewed:	S. Hilditch
BWB Ref:	NTH2479	Date:	02.02.23
Scale@A1:	1:500		

Drawing Status
PRELIMINARY

Project - Originator - Zone - Level - Type - Role - Number
OxSRFI-BWB-GEN-XX-SK-CH-SK063

Status: **S1**

Rev: **P01**

Y:\NTH\NTH2479_Oxfordshire RFI\02. Project Delivery\01. WIP\Sketches\OxSRFI-BWB-GEN-XX-SK-CH-SK063_Middleton Road walking cycling and horse riding improvements.dwg

APPENDIX H

Proposed footway/cycleway connectivity improvement

To Heyford Park and OxSRFI secondary access

3m shared use cycle track

Toucan crossing of B430 south of ERF access

Footway / cycleway connection between toucan crossing and bridleway in corner of quarry land (crosses quarry perimeter track)

Bridleway 109/27

3m shared use footway/cycleway alongside Heyford Park Link Road

3m shared use footway/cycleway alongside B4030

Bridleway 297/6

Existing bridleway bridge retained, waymark signage amended

Footpath 148/10

View looking northeast of Existing Footpath 297/8 along quarry boundary

Bridleway 148/6

New bridleway continues around OxSRFI Main Site

Existing Footpath 297/8 upgraded to bridleway

Weir

View looking southwest of Existing Footpath 297/8 along quarry boundary

Diverted bridleway 148/6 alongside field boundary

Bridleway 148/4

To Bicester

Footpath 148/5

Shared use footway/cycleway provided over Middleton Road bridge

Alignment to be confirmed

Crossing detail to be confirmed

3m shared use cycle track

New gate provided at junction between existing and diverted route

Existing Footpath 297/8 stopped up

New bridleway alongside Middleton Stoney Relief Road

3m shared use footway/cycleway alongside Middleton Stoney Relief Road

New bridleway alongside field boundary

Manor Farm Cottages

Footpath 297/8

Part of footpath 148/5 upgraded to shared use cycle track

3m shared use cycle track

Footpath 148/5

Bridleway underpass below Middleton Stoney Relief Road

3m shared use cycle track

Footpath 148/5 stopped up at Middleton Stoney Relief Road and diverted to Bridleway underpass

3m shared use footway/cycleway alongside Middleton Stoney Relief Road

New bridleway alongside Middleton Stoney Relief Road

Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in metres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

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Legend

- Existing Bridleway
- New Bridleway
- Existing Footpath upgraded to Bridleway
- Existing Footpath
- Existing Footpath stopped up
- New Footpath
- Smiths Quarry Land
- Existing Footpath upgraded to Cycle Track
- New shared Footway/Cycleway
- New Cycle Track

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	03.05.22	Preliminary Issue	SRH	SRH
P02	04.05.22	Photos added	SRH	SRH
P03	29.09.22	B430 works added, title amended	SRH	SRH
P04	03.06.25	Footpath 148/5 upgraded to cycle track	RP	SRH

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Client
OXFORDSHIRE RAILFREIGHT LIMITED

Project Title
OxSRFI OXFORDSHIRE STRATEGIC RAIL FREIGHT INTERCHANGE

Drawing Title
WALKING, CYCLING AND HORSE-RIDING ROUTES BETWEEN B430 AND MIDDLETON ROAD

Drawn:	S. Hilditch	Reviewed:	S. Hilditch
BWB Ref:	NTH2479	Date:	03.05.22
Scale@A1:	1:2,500		

Drawing Status: **PRELIMINARY**

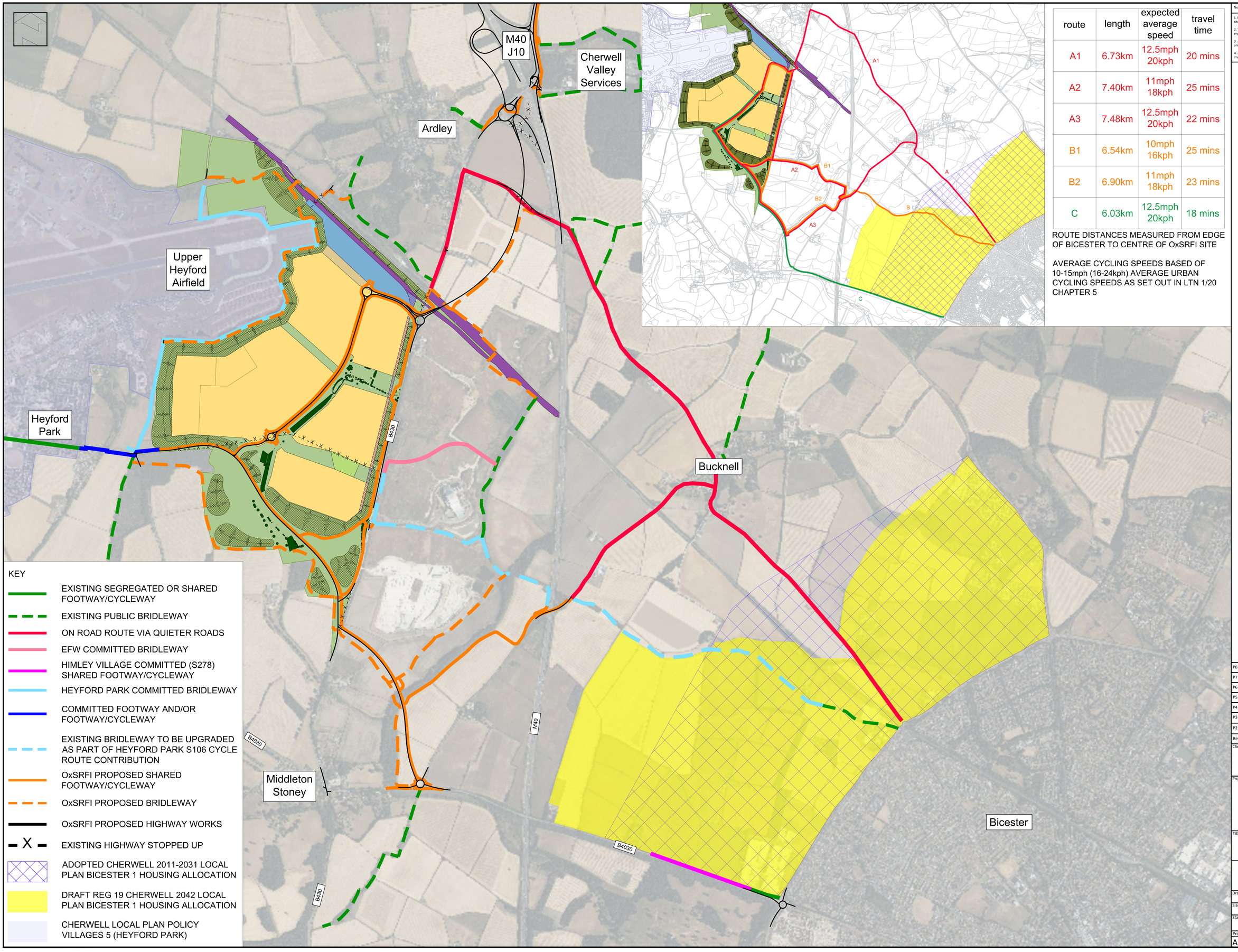
Project - Originator - Zone - Level - Type - Role - Number: **OxSRFI-BWB-GEN-XX-SK-CH-SK045**

Status: **S1** Rev: **P04**

Y:\NTH\NTH2479_Oxfordshire RFI\02. Project Delivery\01. WIP\Sketches\OxSRFI-BWB-GEN-XX-SK-CH-SK045_Walking cycling and horse riding facilities between B430 and Middleton Road.dwg

APPENDIX I

Bicester to OxSRFI cycle routes Drawing ADC1794-DR-044



route	length	expected average speed	travel time
A1	6.73km	12.5mph 20kph	20 mins
A2	7.40km	11mph 18kph	25 mins
A3	7.48km	12.5mph 20kph	22 mins
B1	6.54km	10mph 16kph	25 mins
B2	6.90km	11mph 18kph	23 mins
C	6.03km	12.5mph 20kph	18 mins

ROUTE DISTANCES MEASURED FROM EDGE OF BICESTER TO CENTRE OF OxSRFI SITE

AVERAGE CYCLING SPEEDS BASED OF 10-15mph (16-24kph) AVERAGE URBAN CYCLING SPEEDS AS SET OUT IN LTN 1/20 CHAPTER 5

KEY

- EXISTING SEGREGATED OR SHARED FOOTWAY/CYCLEWAY
- EXISTING PUBLIC BRIDLEWAY
- ON ROAD ROUTE VIA QUIETER ROADS
- EFW COMMITTED BRIDLEWAY
- HIMLEY VILLAGE COMMITTED (S278) SHARED FOOTWAY/CYCLEWAY
- HEYFORD PARK COMMITTED BRIDLEWAY
- COMMITTED FOOTWAY AND/OR FOOTWAY/CYCLEWAY
- EXISTING BRIDLEWAY TO BE UPGRADED AS PART OF HEYFORD PARK S106 CYCLE ROUTE CONTRIBUTION
- OxSRFI PROPOSED SHARED FOOTWAY/CYCLEWAY
- OxSRFI PROPOSED BRIDLEWAY
- OxSRFI PROPOSED HIGHWAY WORKS
- EXISTING HIGHWAY STOPPED UP
- ADOPTED CHERWELL 2011-2031 LOCAL PLAN BICESTER 1 HOUSING ALLOCATION
- DRAFT REG 19 CHERWELL 2042 LOCAL PLAN BICESTER 1 HOUSING ALLOCATION
- CHERWELL LOCAL PLAN POLICY VILLAGES 5 (HEYFORD PARK)

Notes

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2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in metres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

Rev	Date	Description	Dr	Rev
P8	10/02/26	Further amendments	CD	SD
P7	20/11/25	Further amendments	CD	SD
P6	10/09/25	Presentational amendments	CD	SD
P5	25/06/25	Revised strategy	CD	SD
P4	09/06/25	Revised strategy	CD	SD
P3	25/04/25	Bicester 1 Allocation Added	CD	SD
P2	04/04/25	Second issue	CD	SD

Client: Oxfordshire Rail Freight Limited

Project: OxSRFI OXFORDSHIRE STRATEGIC RAIL FREIGHT INTERCHANGE

Title: Bicester to OxSRFI Cycle Routes

ADC INFRASTRUCTURE

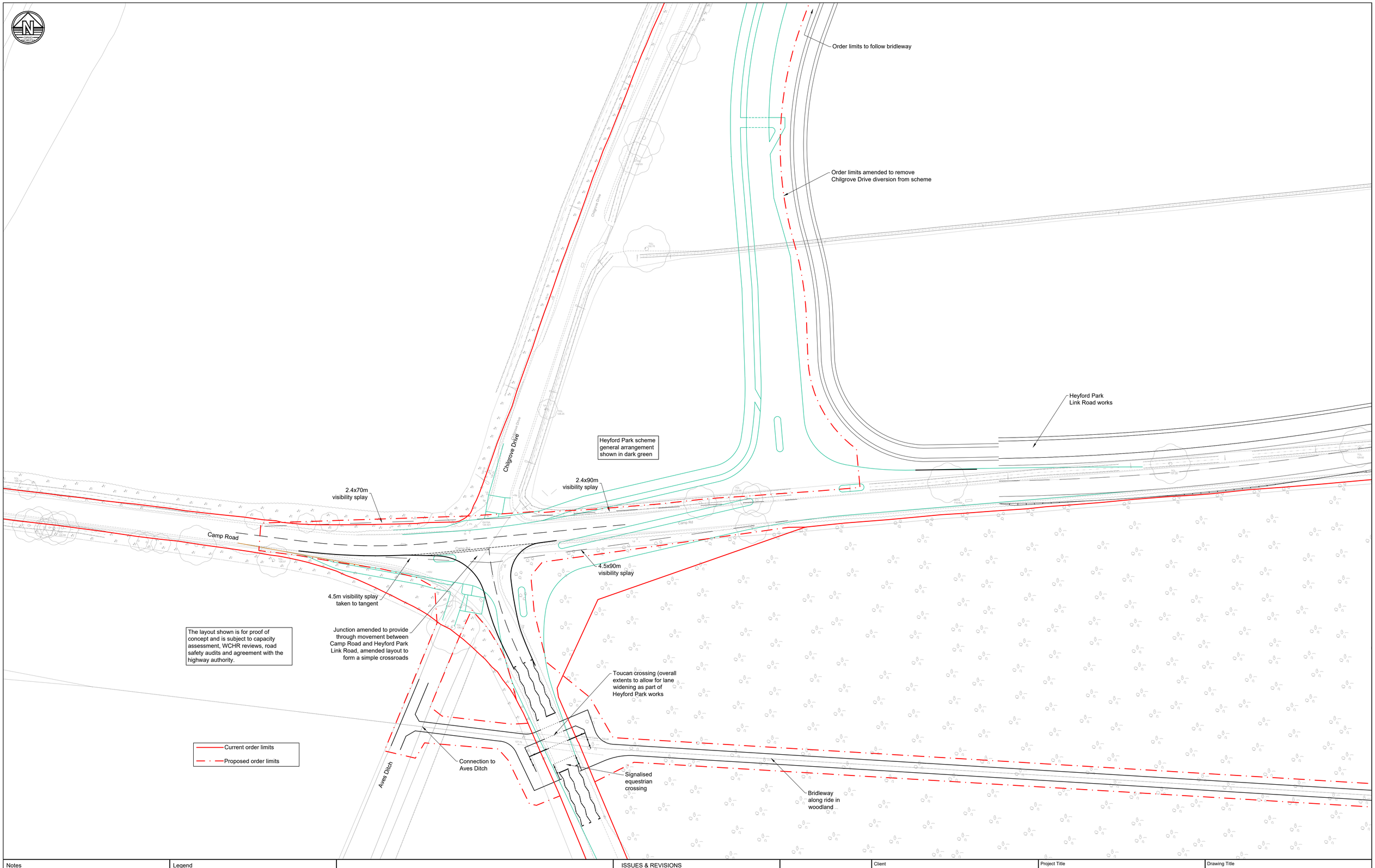
Drawn:	Reviewed:		
CD	SD		
Size:	Scale:	Date:	
A0	NTS	24/03/2025	

Status: PRELIMINARY ISSUE

Project Reference	Type	Number	Revision
ADC1794-DR-		044	P8

APPENDIX J

Camp Road south Pegasus crossing connectivity improvement



Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
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3. All dimensions in metres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

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Legend

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	02.02.23	Preliminary Issue	SRH	SRH
P02	13.02.23	Order limits amended	SRH	SRH

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Client
OXFORDSHIRE RAILFREIGHT LTD.

Project Title
OxSRFI OXFORDSHIRE STRATEGIC RAIL FREIGHT INTERCHANGE

Drawing Title
CAMP ROAD / CHILGOVE DRIVE GENERAL ARRANGEMENT

Drawn:	S. Hilditch	Reviewed:	S. Hilditch		
BWB Ref:	NTH2479	Date:	02.02.23	Scale@A1:	1:500

Drawing Status
PRELIMINARY

Project - Originator - Zone - Level - Type - Role - Number
OxSRFI-BWB-GEN-XX-SK-CH-SK061

Status **S1** Rev **P02**

Y:\NTH\NTH2479_Oxfordshire RFI\02. Project Delivery\01. WIP\Sketches\OxSRFI-BWB-GEN-XX-SK-CH-SK061_Chilgrove Drive Camp Road GA.dwg

APPENDIX K

Footway/Cycleway/Rights of Way Strategy phasing plans Drawing ADC1794-DR-053

CUT LINE A

Existing B430 in Ardley speed limit reduced to 20mph

Ardley Road speed limit reduced to 40mph

B430 speed limit reduced to 40mph

Middleton Road speed limit reduced to 40mph

Middleton Road speed limit reduced to 40mph

Bicester Road speed limit reduced to 40mph and advisory cycle lanes provided

ARDLEY CP

MIDDLETON STONEY CP

Heyford Airfield

BUCKNELL

Middleton Stoney

1 : 10,000

M40 Junction 10

CUT LINE A

Existing B430 in Ardley speed limit reduced to 20mph

1 : 10,000

Legend

- Existing Public Bridleway
- Existing Public Footpath
- Existing Restricted Byway
- Indicative Committed (Future) Bridleway through Ardley EFW
- Indicative Committed (Future) Bridleway through Heyford Park
- Indicative S106 Committed (Future) Bridleway
- Committed Camp Road Footway and/or Footway/Cycleway
- Proposed Segregated or Shared Footway/Cycleway
- Proposed Right of Way - Bridleway
- Proposed Right of Way - Footpath
- Stopped up Bridleway or Footpath
- Indicative (Future) Bridleway not provided

Highway Works Legend (see Highway Works Overview drawing for further detail)

- New/Upgraded Highway Works provided by OxSRFI
- Existing Highway Stopped Up
- Highway Works as part of OCC Housing Growth Deal (completed)
- Existing Road retained in Phase 1

Rev	Description	Date
P7	Minor amendments	16/03/26
P6	Amendments following Stage 2 consultation	10/02/26
P5	Parameters Plan/Highway Works updated	16/09/25
P4	Amendments to Strategy	28/04/25
P3	Footway/cycleway at M40 J10 amended	27/02/25
P2	Highway works updated	25/02/25

Client: Oxfordshire Rail Freight Limited

Project: OxSRFI Oxfordshire Strategic Rail Freight Interchange

Title: Footway/Cycleway/Rights of Way Strategy Phase 1 Pre-Occupation

ADC Infrastructure

Drg Size:	Scale:	Date:
A1	As Shown	01/04/2022

Drg No: ADC1794-DR-043

Rev: P7

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CUT LINE A

Existing B430 in Ardley speed limit reduced to 20mph

Ardley Road speed limit reduced to 40mph

B430 speed limit reduced to 40mph

Middleton Road speed limit reduced to 40mph

Bicester Road speed limit reduced to 40mph and advisory cycle lanes provided

B4030 Middleton Stoney Road speed limit reduced to 50mph

CUT LINE B

1 : 10,000

M40 Junction 10

CUT LINE A

Existing B430 in Ardley speed limit reduced to 20mph

1 : 10,000

M40 Junction 9

A34 northbound speed limit reduced to 50mph on immediate approach to junction

1 : 5,000

B4030/A4095 roundabout

CUT LINE B

1 : 10,000

Legend

- Existing Public Bridleway
- Existing Public Footpath
- Existing Restricted Byway
- Indicative Committed (Future) Bridleway through Ardley EFW
- Indicative Committed (Future) Bridleway through Heyford Park
- Indicative S106 Committed (Future) Bridleway
- Committed Camp Road Footway and/or Footway/Cycleway
- Proposed Segregated or Shared Footway/Cycleway
- Proposed Right of Way - Bridleway
- Proposed Right of Way - Footpath
- Stopped up Bridleway or Footpath

Highway Works Legend (see Highway Works Overview drawing for further detail)

- New/Upgraded Highway Works provided by OxSRFI (Phase 2)
- Existing Highway Stopped Up (Phase 2)
- New/Upgraded Works provided by OxSRFI (Phase 1)
- Existing Highway Stopped Up (Phase 1)

Rev	Description	Date
P4	Minor amendments	16/03/26
P3	Amendments following Stage 2 consultation	10/02/26
P2	Presentational amendments	16/09/25

Client: Oxfordshire Rail Freight Limited

Project: OxSRFI Oxfordshire Strategic Rail Freight Interchange

Title: Footway/Cycleway/Rights of Way Strategy Phase 2 Pre-Occupation greater than 2m sqft

ADC Infrastructure

Drg Size:	Scale:	Date:
A1	As Shown	31/07/2025

Drg No: ADC1794-DR-053

Rev: P4