



Transport Assessment Addendum

Symmetry Park, Ardley

Tritax Symmetry Ardley Limited

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1.0 Introduction

- 1.1 In May 2022 Tritax Symmetry Land (TSL) submitted a planning application to Cherwell District Council (CDC) with respect to the proposed development of up to 300,000 square metres of employment floor space on land located adjacent to Baynards Green roundabout. This application was supported by an Environmental Statement (ES) that incorporated a detailed Transport Assessment prepared by Vectos (now part of SLR).
- 1.2 In September 2021 Albion Land (AL) submitted a series of planning applications to CDC with respect to its own proposed employment scheme(s) on land adjacent to the Baynards Green roundabout. These applications were equally supported by an ES, which incorporated a TA prepared by DTA.
- 1.3 This Transport Assessment Addendum (TAA) has been prepared by SLR with input from DTA to specifically address the comments received from National Highways (NH) and Oxfordshire County Council with respect to the TSL application. However, it is pertinent that due consideration is given the cumulative effects of the TSL and AL schemes, and that this TAA also responds to comments raised by West Northants Council (WNC) in relation to the AL applications.

TSL Development

- 1.4 The TSL development proposals comprise a northern and southern development on land to the north and south of the B4100. The full development description for application 22/01340/OUT is as follows:

“Application for outline planning permission (all matters reserved except means of access (not internal roads) from B4100) for the erection of buildings comprising logistics (use class B8) and ancillary offices (use class e(g)(i)) floorspace; energy centre, hgv parking, construction of new site access from the B4100; creation of internal roads and access routes; hard and soft landscaping; the construction of parking and servicing areas; substations and other associated infrastructure.”

AL Development

- 1.5 The AL development proposals comprise a western and eastern development on land to the east and west of the A43 respectively. The eastern parcel of the strategic employment site (SES) borders the southern parcel of the proposed Symmetry Park Ardley Site, whilst the western parcel is located immediately west of the A43, to the north of Junction 10 of the M40.
- 1.6 A summary of the planning applications including the development description and quantum of development for the SES Land at Junction 10 M40 is provided below.

21/03267/OUT – Land at Junction 10, M40 (Eastern Parcel)

“Outline planning permission (all matters reserved except for access) for the erection of buildings comprising logistics (Use Class B8) and ancillary office (Use Class E(g)(i)) floorspace and associated infrastructure; construction of new site access from the B4100; creation of internal roads and access routes; and hard and soft landscaping.”



21/03268/OUT – Land at Junction 10, M40 (Western Parcel)

“Outline planning permission (all matters reserved except for access) for the erection of buildings comprising logistics (Use Class B8) and ancillary office (Use Class E(g)(i)) floorspace; construction of new site access from the B4100; creation of internal roads and access routes; hard and soft landscaping including noise attenuation measures; and other associated infrastructure.”

21/03266/F – Land at Junction 10, M40 (Enabling Works at the Western site)

“Site clearance, construction of new site access from the B4100, permanent and temporary internal roads, an internal roundabout and a foul drainage station, diversion of an existing overhead power cable and public rights of way, and soft landscaping.”

Consultee Responses

- 1.7 Following submission of TSL planning application 22/01340/OUT, consultation responses were received from OCC as Highway Authority and NH with regard to the strategic highway network. In addition, comments were raised by West Northants Council (WNC) in relation to the various AL applications.

Oxfordshire County Council Highways

- 1.8 The OCC highways response dated 6th July 2022 provided a range of comments which have been grouped into categories relating to:
- 1) Sustainable transport including access for active travel users and public transport.
 - 2) Safe and suitable access including crossing facilities and links to the AL site.
 - 3) On-site design including parking provision for cars, cycles and HGVs.
 - 4) Highway impact including an assessment using Bicester Transport Model (BTM) flows.
- 1.9 The relevant OCC correspondence is included at **Appendix A**.

National Highways

- 1.10 The National Highways response dated 22nd September 2022 raised no concerns in relation to sustainable transport, the proposed access strategy or on-site design. It did, however, request further modelling to be undertaken at the Baynards Green Roundabout utilising the NH VISSIM model. It should be noted that matters related to Baynards Green roundabout have been subject to detailed discussions with NH (and its consultants) in conjunction with OCC. Further to these discussions a mitigation strategy for this junction has been identified which has been accepted such that NH removed their holding objection on 4th April 2024.
- 1.11 The relevant NH correspondence is included at **Appendix B**.



West Northants Council

- 1.12 WNC did not directly comment on the TSL application, however, concerns were raised in relation to the AL development. The comments provided by WNC dated 14th March 2022 requested details to be provided of traffic flows utilising the B4100 to the north of the Baynards Green roundabout. The response cited concerns relating to the impact on local villages, in particular Aynho and Croughton.
- 1.13 The relevant WNC correspondence is included at **Appendix C**.

Report Structure

- 1.14 This TA Addendum has been prepared to address the comments and concerns raised by the consultees as summarised above. With this in mind, following this introduction the remainder of the TAA comprises:
- Section 2 considers the accessibility of the site by sustainable transport modes with reference to key national and regional planning policy.
 - Section 3 summarises the access strategy of the site with consideration for all users including active travel users and those accessing the site via public transport.
 - Section 4 provides an overview of the on-site design with particular reference to parking standards and the proposed lorry park.
 - Section 5 outlines the highway network modelling results relating to both the strategic and local transport network.
 - Section 6 summarises and concludes this TAA.



2.0 Sustainable Transport Strategy

2.1 This section relates to the sustainable transport strategy promoted as part of the development proposals. This is considered in the context of the proposed strategy and the consultee responses received in relation to said strategy. In addition, reference is made to the policy context which is pertinent in identifying the sustainable transport needs of the proposals and ensuring these are appropriate given the location and type of development. Finally, a summary is provided of the opportunities that have been identified given the aforementioned elements.

Overview

2.2 As part of the proposed TSL development, a sustainable transport strategy was proposed which incorporated the following elements:

- Provision of two new bus stops with associated laybys in the vicinity of the site access to be served by the 500 route.
- A pedestrian crossing on the A43 to provide a connection to local food outlets at the Baynards Green service area.
- Provision of electric car charging facilities which are recognised in the NPPF as being a sustainable transport mode.
- Provision of a staff Travel Plan to encourage travel via more sustainable modes of transport.
- Provision of a contribution to a shared foot/cycleway operating towards Bicester and proposed as part of the neighbouring AL development.

Consultation Responses

2.3 A summary of the consultation responses relating to the sustainable transport strategy is provided below.

Oxfordshire County Council Highways

2.4 The OCC highways response dated 6th July 2022 provided the following comments relating to sustainable transport:

- The shared foot/cycleway would need to be provided by the developer along with the adjacent AL site as the route is not part of any planned strategic improvements and therefore would be directly required as mitigation for the developments.
- The pedestrian crossing on the A43 would need to be incorporated into the Growth Deal scheme and would need to be agreed with NH.
- As the 500 bus route serving the B4100 cannot be relied upon in future, a contribution towards the cost of providing two new buses over an eight year period would be required.

Oxfordshire County Council Public Rights of Way

2.5 The OCC public rights of way response dated 14th June 2022 noted that no PROWs operate through the site. However, it was requested that a north-south link is provided across the site to connect bridleways 367/24/10 and 367/21/10 with a costing estimate of £400,000.



2.6 An additional response was provided by OCC dated 18th January 2024 with a revised contribution figure of £70,000. The following elements are outlined within the response:

- Provision of a formal gateway, stone surfacing, signs and other infrastructure at the southern bridleway where it joins the site.
- Connections to the on-site Trim Trail to provide a link between the northern and southern bridleways.

National Highways

2.7 The National Highways response dated 4th April 2024 raised no concerns related to the sustainable transport strategy and welcomed the provision of a staff Travel Plan to encourage more sustainable travel by future staff members.

Policy Context

2.8 With the above consultation responses in mind, consideration is made to the policy and guidance which provide the basis against which the proposals should be assessed. In particular reference has been made to the National Planning Policy Framework (NPPF), the Department for Transport (DfT) document Future of Freight and OCC's Freight Strategy.

2.9 In achieving sustainable development, the NPPF confirms the planning system has three overarching interdependent objectives. These are stated at paragraph 8 to be:

- ***an economic objective*** – *to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure*
- ***a social objective*** – *to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and*
- ***an environmental objective*** – *to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.*

2.10 **The NPPF Paragraph 85 states:** *“Planning policies and decisions should help create the conditions in which businesses can invest, expand and adapt. Significant weight should be placed on the need to support economic growth and productivity, taking into account both local business needs and wider opportunities for development. The approach taken should allow each area to build on its strengths, counter any weaknesses and address the challenges of the future. This is particularly important where Britain can be a global leader in driving innovation and in areas with high levels of productivity, which should be able to capitalise on their performance and potential.”*

2.11 With the NPPF paragraph 8 objectives in mind, paragraph 109 states from a transport perspective that: *“...Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of*



transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision making.”

- 2.12 When the NPPF refers to sustainable transport modes, it is worthy to take into account the definition that is provided in its Glossary which is namely: *“Any efficient, safe and accessible means of transport with overall low impact on the environment, including walking and cycling, ultra low and zero emission vehicles, car sharing and public transport.”*
- 2.13 Moreover, paragraph 89 of the NPPF states: *“Planning policies and decisions should recognise that sites to meet local business and community needs in rural areas may have to be found adjacent to or beyond existing settlements, and in locations that are not well served by public transport. In these circumstances it will be important to ensure that development is sensitive to its surroundings, does not have an unacceptable impact on local roads and exploits any opportunities to make a location more sustainable (for example by improving the scope for access on foot, by cycling or [DTA/SLR emphasis] **by public transport**). The use of previously developed land, and sites that are physically well-related to existing settlements, should be encouraged where suitable opportunities exist.”*
- 2.14 In the context of the comments received from OCC, and particularly in relation to the provision of a pedestrian and cycle route to Bicester, it is important to recognise that the NPPF makes a very clear distinction that opportunities to provide enhanced sustainable transport measures varies depending on where a site is located. In a similar regard, it is clear that an appropriate balance needs to be identified in so much as the core objectives of sustainable development, as identified by the NPPF can be achieved.
- 2.15 From a freight industry perspective, which these developments will make a positive contribution towards, it is of course pertinent to recognise that they will inevitably generate additional HGV movements. To this end, both National (i.e. NPPF) and Regional policy (i.e. OCC Freight and Logistics Strategy) direct such development to be located adjacent to the Strategic Road Network. Paragraph 87 of the NPPF states: *“Planning policies and decisions should recognise and address the specific locational requirements of different sectors. This includes making provision for clusters or networks of knowledge and data-driven, creative or high technology industries; and for **storage and distribution operations at a variety of scales and in suitably accessible locations.**”*
- 2.16 Paragraph 87 is supported by NPPG (paragraph: 031 Reference ID: 2a-031-20190722 (Revision date: 22 07 2019), which states that: *“The logistics industry plays a critical role in enabling an efficient, sustainable and effective supply of goods for consumers and businesses, as well as contributing to local employment opportunities, and has **distinct locational requirements** that need to be considered in formulating planning policies (separately from those relating to general industrial land).”* (DTA/SLR emphasis).
- 2.17 In the case of Regional policy, r, OCC has developed a Freight Map (see Appendix C), which shows the proposed developments are well located to this and therefore are well placed to abide by the following objective: *“We will seek to influence the location and design of new development, particularly employment sites and any related transport infrastructure, so that these can function well, with appropriate freight access to and from the strategic transport network without adverse impacts on local communities, other road users and the*



environment. This includes ensuring new developments incorporate the needs of emerging technologies.”

- 2.18 The England Economic Heartland report ‘Connecting People Transforming Journeys’ (2021) Policy 35 states that: *“We will work with Highways England, local highway authorities, local planning authorities and the freight sector to ensure that strategic corridors for road freight and logistics are fit for purpose: priority will be given to the following corridors: the M25/M1; **the A34 and M40 north of Oxford**; the A1 corridor (north of Huntingdon); the A14; and the A508 into Northampton.”*
- 2.19 The report states that they will work with Highways England, local highways authorities and the freight sector to ensure the key parts of the Strategic Road and Major Road Networks continue to support the movement of road haulage and thereby minimise the impact of road freight on local communities.
- 2.20 The key criteria for a successful logistics site are: motorway proximity; junction access; connectivity to road, rail, air and sea; as well as the size of the site and the potential quantum of accommodation. Economic and labour market considerations are also key drivers for the suitability of a site and location as a logistics hub, in addition to the transport links and connectivity that the site benefits from.
- 2.21 The development will provide high quality logistics floorspace in location ideally placed to address the growing need for logistics floorspace as it will be highly accessible to the strategic road network (which as set out above is a fundamental requirement of logistics operators).
- 2.22 It is clear from the respective national and regional strategies for freight, that there is a general direction to locate developments, such as those proposed by AL and TSL, adjacent to key strategic routes and away from sensitive urban communities. Invariably this will result in logistics sites being located in areas that are more rural in appearance and function.
- 2.23 To this end, the measures that could reasonably be expected to be required to make a site more sustainable are limited, particularly in the context of OCC’s acceptance that the consequences of supporting infrastructure should not have an adverse effect on the environment and other road users. Equally, paragraph 89 of the NPPF makes a clear distinction that not all modes of transport need to be upgraded to enhance the overall sustainability of a rurally located development.

Summary

- 2.24 It is clear from the respective national and regional strategies for freight, that there is a general direction to locate developments, such as those proposed by AL and TSL, adjacent to key strategic routes and away from sensitive urban communities. Invariably this will result in logistic sites being located in areas that are more rural in appearance and function. To this end, the measures that could reasonably be expected to be required to make a site more sustainable are limited, particularly in the context of OCC’s acceptance that the consequences of supporting infrastructure should not have an adverse effect of the environment and other road users.



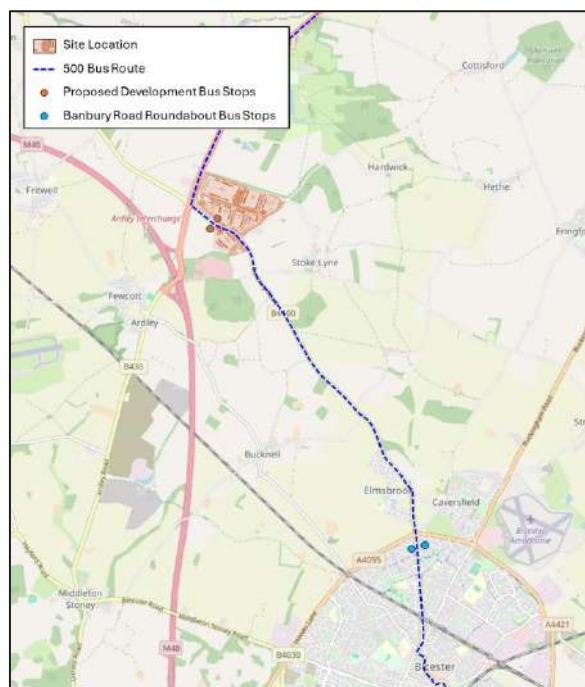
Opportunities

- 2.25 With the above in mind, the sustainable transport strategy has been refined with a range of options to be considered. Both AL and TSL look forward to having the opportunity to agree what measures should be taken forward once the effects of the transport infrastructure outlined above are considered in conjunction with other factors, such as the environmental considerations that are referred to in the OCC Freight Strategy
- 2.26 Without prejudice to these future conversations, it is considered that there are a range of options available that maximise the opportunities to travel to and from the site via sustainable means, given the site location. These are outlined below as follows.

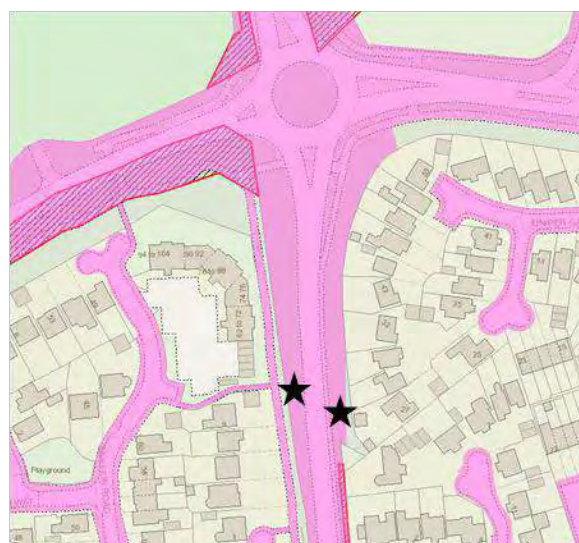
Buses

- 2.27 Alongside the provision of two new bus stops in the vicinity of the site access, the following options could be incorporated to increase accessibility by bus, in particular in relation to the 500 service:

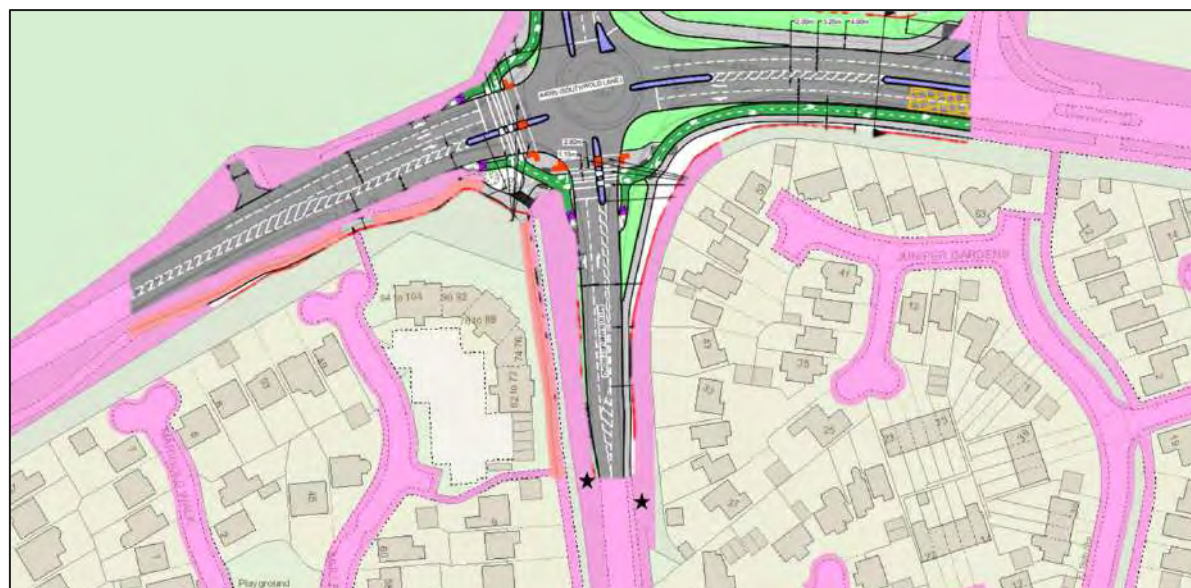
- A contribution of £2,133,333 for the provision of two buses with one operating daily between 0500-2200 and the other operating Monday to Friday 0600-1800 creating a higher frequency (every 30 minutes) at the expected peak times.
- A higher contribution of £3,930,000 to increase the above 30 minute service to a 15 minute service during peak hours through the funding of two further buses taking total buses to four.
- Investment to improve bus waiting areas within Bicester to enable residents to cycle to the bus corridor as part of a longer journey to work. These would be designed to be consistent with those included at the Elmsbrook development, located on the bus route. It is considered that the bus stops adjacent to the Banbury Road roundabout could be included given the currently limited infrastructure. In addition, opportunities to improve infrastructure in central Bicester at the start / terminating point of the service could be considered.



2.28 The Banbury Road roundabout bus stops currently comprise simple flags adjacent to the carriageway. It is noted that there are limited opportunities to provide a larger bus stop in the western side of the carriageway. However, based on adopted highway boundary it is expected that improved provision could be situated on the eastern side of the carriageway to include shelter and cycle parking. This is illustrated below.



2.29 It is noted that the Banbury Road junction has been identified for conversion to a signalised scheme with consent granted in November 2021. A review of the agreed layout demonstrates that the signalisation of the junction would not preclude land available for bus stop improvements:



2.30 It is shown in the above that bus stop improvements could be provided within the adopted highway boundary without being impacted by the proposed signalised arrangement or requiring a change in stop location. In addition, given the extent of adopted highway on the western side of the carriageway there could be opportunities to formalise provision for northbound services.

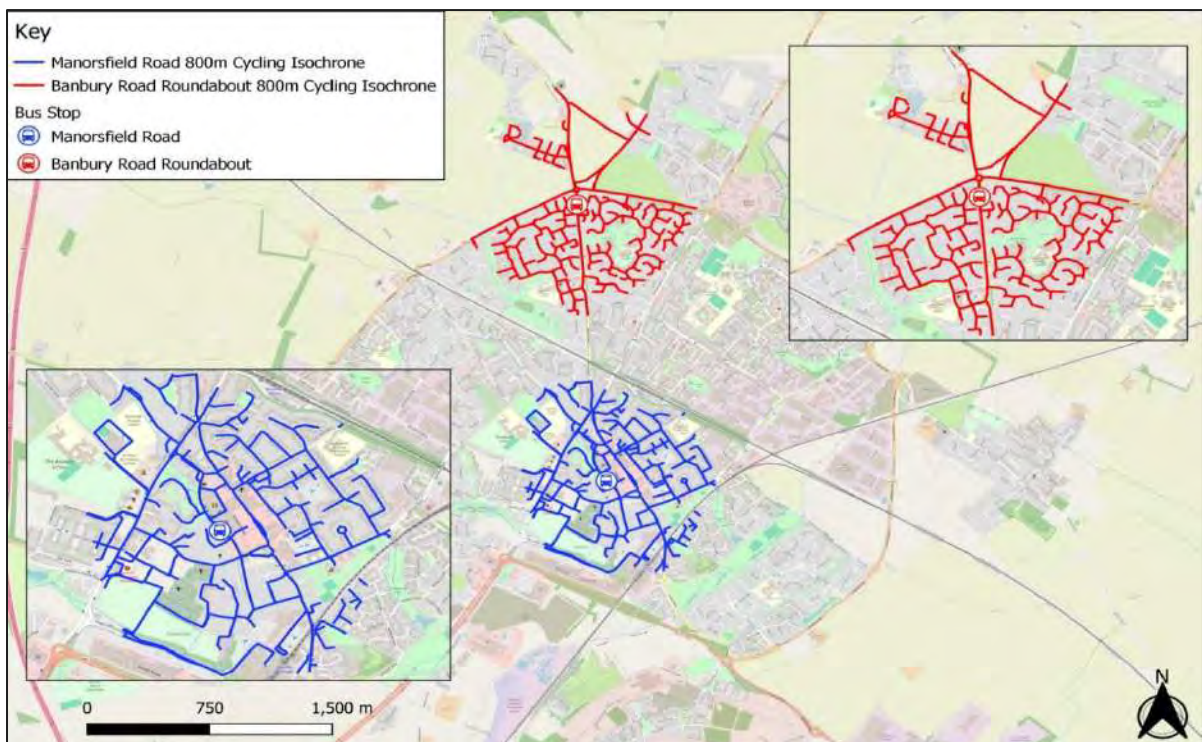


2.31 The central bus stops are located at Bicester bus station and comprise flags with covered seating provided on the northern side of the carriageway. A number of cycle parking stands are currently provided at the entrance to Pioneer Square in the vicinity of the bus station. It is considered that there are opportunities to provide cycle parking adjacent to the bus stops and increase parking adjacent to the Pioneer Square entrance to improve the current provision and allow people to cycle to this location as part of a longer cycle-bus trip.



2.32 It is considered that this combination of improvements would maximise access to the existing bus infrastructure for a large proportion of the residents of Bicester within an acceptable walk or cycle time.

2.33 With the above in mind, consideration has been made as to the number of residents who would be able to access these improved stops within 800 metres, a circa 3 minute cycle time. This is shown below:



- 2.34 It is shown in the above that these two locations would result in a large number of Bicester residents being able to access improved bus facilities within an 800 metre cycle distance. Indeed, data from the 2011 Census demonstrates that some 4,850 people of working age live within these areas. This is considered to provide those future employees that reside in these areas with the ability to cycle to the bus stops to access the enhanced bus services the financial contribution(s) identified by OCC would deliver.

Active Travel

- 2.35 Through consultation with OCC, the indicative cycle link submitted in support of the AL applications has been developed in more detail having regard to the outcome of a detailed topographical survey and taking into account other ecological and environmental constraints. Drawings produced by DTA are included at **Appendix D** and demonstrate that a link of 2 to 2.5 metres could physically be provided between the site and the northern edge of the Elmsbrook development, where a range of walking and cycling links are in the process of being built as part of this development and connect to wider existing infrastructure to the south serving Bicester. It should be noted that the works are predicated on elements of the B4100 being narrowed and the principal of this, and any further supporting measures (i.e. speed limit alterations) would need to be agreed with OCC and other key stakeholders.

Public Rights of Way

- 2.36 It is proposed to provide a Trim Trail within the site, which provides access for employees to a circular recreation path that can be used during breaks. Furthermore, the crossings that will be provided to the adjacent Esso garage and the facilities that it provides, which again can be accessed by employees on their breaks.
- 2.37 Given the location of the site, it is expected that the PROWs in the local area will be largely for recreational use and thus the inclusion of the development proposals is unlikely to have a material impact on these links. At the time of writing, OCC has issued a request for £70,000 be secured within a Section 106 Agreement to assist with:
- Formalisation of the legal and physical connection between the site and the Stoke Lyne Bridleway 347/21.
 - Stoke Lyne Bridleway 347/21/path surface and infrastructure upgrade works from the site to M40 Cherwell Valley Services/riverside path and bridleway 367/20.

- 2.38 Without prejudice to these discussions, TSL have some reservations about how these requests accord with the CIL123 Regulations as there is reference to a need to agree details with third parties. Copies of correspondence shared with OCC PRoW officers is provided at **Appendix E**.

Summary

- 2.39 It is demonstrated in the above that there is a package of potential measures that can address the comments raised by OCC with regard to sustainable transport. In particular:
- The site and associated sustainable transport strategy appropriately promotes sustainable transport in the context of the site location and future use, in accordance with the principles of the NPPF.



- Contributions will be made to the 505 bus route to enhance connections from the site to Bicester with services operating every 30 minutes at key periods. In addition, opportunities to improve existing bus stop infrastructure will be explored.
- An active travel link 2 to 2.5 metres wide could be provided between the site and the northern edge of the Elmsbrook development, offering a connection on to Bicester via existing infrastructure.
- The site will include a Trim Trail which provides access for employees to a circular recreation path that can be used during breaks. In addition, crossings will be provided at the Baynards Green roundabout for safe access to off-site facilities (in line with the request of OCC).

2.40 The Applicant welcomes the opportunity to discuss these measures with both OCC and CDC. Without prejudice to the outcome of these discussions, it is the view of TSL (and AL) that the preferred solution in this location is one focused on enhancing public transport connections.



3.0 Safe and Suitable Access

- 3.1 This section relates to the access strategy promoted as part of the development proposals. An overview of the proposed strategy is provided alongside consultee responses to the strategy. Following this, further details relating to the strategy are provided, including consideration for the context of the proposed TSL access in relation to the proposed AL schemes and the Baynards Green Roundabout.

Overview

- 3.2 It is proposed that access to the TSL site is taken via a four-arm roundabout junction with the B4100. Alongside the vehicle access, the following elements are incorporated into the wider access strategy:

- Pedestrian routes within the site connecting to off-site infrastructure as well as provide safe links internally.
- Dedicated pedestrian/cycle crossing points at the site access points to connect the two site areas and further provide safe access to the proposed bus stops.
- A fully accessible design internally and with external connections for all users featuring step free access and/or tactile paving and dropped kerbs at crossings.

Consultation Responses

- 3.3 A summary of the consultation responses relating to the sustainable transport strategy is provided below.

Oxfordshire County Council Highways

- 3.4 The OCC highways response dated 6th July 2022 provided the following comments relating to access:
- Further details relating to the location of the site access relative to the proposed Albion Land access were requested.
 - Concerns raised within the Road Safety Audit were identified as being able to be addressed at detailed design stage, however, OCC request further details to be provided including in relation to the location of the bus laybys relative to the access.
 - It was suggested that consideration should be made as to whether the speed limit is reduced from 50mph to 40mph in the vicinity of the site.
 - Specification tables were requested to illustrate that the proposed access design meets DMRB standards.
 - A requirement was included that the access accommodates the proposed foot/cycleway associated with the Albion Land site with cycle access additionally provided into both parts of the development to be designed in accordance with LTN 1/20.
 - Crossing facilities should be provided over the B4100 connecting with the proposed foot/cycleway and bus stops, these should potentially be shared between the site and adjacent Albion Land development.



National Highways

- 3.5 The National Highways response dated 22nd September 2022 raised no concerns in relation to the proposed access strategy. It did, however, request further modelling to be undertaken at the Baynards Green Roundabout utilising the NH VISSIM model. This has since been undertaken and NH have removed the holding objection.

Updated Site Access Arrangement

- 3.6 Following the comments received from OCC, an updated site access arrangement has been prepared which includes the following elements:
- Crossings with tactile paving, dropped kerbs and refuge islands will be provided at the site access connecting the north and southern sites as well as the proposed east-west shared foot/cycleway.
 - The proposed bus stops have been relocated to the west to be suitably located for the development the adjacent Albion Land site, additionally this results in the stops being further from the site access.
- 3.7 The proposed site access arrangement is included at **Appendix F**.

Road Safety Audit

- 3.8 Following the revised access design, a Stage One Road Safety Audit (RSA1) of the proposed site access points and associated off-site highway works has been undertaken by Gateway-RSE. This assessment, which is included at **Appendix G**, made only relatively minor observations about the design of the site access that can all be addressed at the detailed design stage.
- 3.9 It should be noted that Gateway-RSE undertook RSA1 of the eastern AL site access and upgrades to the Baynards Green roundabout at the same time. This was to ensure a holistic overview of the wider proposals along the B4100 and A43 could be provided. The AL RSA1 is provided in the TAA that supports the AL applications, with the RSA1 of Baynards Green roundabout provided at **Appendix G**.
- 3.10 As with the outcome of the RSA1 of the updated TSL site access, Gateway-RSE made only minor observations about the AL site access and Baynards Gren roundabout designs. These are all able to be addressed at the detailed design stage and thus it is considered the site access provides a safe and suitable access when considered in conjunction with the wider B4100 and A43 amendments being proposed as part of the TSL and AL applications.

Site Access in Context

- 3.11 It is noted that the OCC response included comments relating to the location of the access in relation to the Albion Land access and the Baynards Green Roundabout. These are considered in detail below.



Albion Access

- 3.12 The OCC response cited a concern regarding both sites being accessed via roundabout junctions. With this in mind the Albion Land is now proposed to be accessed via a signalised junction which provides the additional benefits of:
- Reducing traffic speeds by acting as a traffic calming feature, an element raised by OCC, who suggested that the speed limit could be reduced to 40mph in the vicinity of the site.
 - Providing controlled pedestrian links to the bus stop on the northern side of the carriageway.
 - Providing controlled pedestrian crossings at the Albion Land access.

Baynards Green Upgrades

- 3.13 To accommodate planned growth within the area an improvement scheme for the Baynards Green Roundabout was promoted by OCC funded by the Oxfordshire Growth Board and development S106 contributions. However, it is understood that funding is no longer available for the proposed upgrades.
- 3.14 It is accepted that the A43 Baynards Green roundabout currently experiences operational stress resulting in significant peak hour queuing. As such, a range of improvement works have been proposed at the junction to support the development, this was presented in a Technical Note shared with NH and OCC on 11th August 2023. The findings of this assessment, which were agreed with NH and OCC, are summarised below.
- 3.15 As shown at **Appendix H**, the improvements include full signal control of the roundabout and also to provide widening on the approaches and circulatory carriageway. The scheme is broadly similar to that promoted as part of the Growth Fund proposals, albeit provision is also made for formal crossing points to be provided.
- 3.16 The proposed improvement works were tested with VISSIM in the context of the wider M40 Junction 10 network to understand whether other works are required at other locations to address the development impact. However, compared to the reference case, i.e. no development or improvement at Baynards Green, the combined developments and junction improvement at Baynards Green will reduce net delay and queuing across the M40 Junction 10 network. The efficacy of the works to address the proposed developments is therefore not externally constrained and no other works are required.
- 3.17 The modelling demonstrated that the method of control and form of junction are appropriate. The assessments incorporated a detailed appraisal of the geometry against the mandatory requirements of the DMRB and demonstrated that no new departures from standard would be required to accommodate the scheme. It is noted that there are, however, features of the existing roundabout which are not compliant, e.g. entry path curvature, which are to be carried forward.
- 3.18 It is important to note that NH has agreed the scheme provided at **Appendix H** is acceptable in principle and that a provisional departure from standards application was accepted. Copies of relevant correspondence from NH is provided at **Appendix B**.



Summary

3.19 It is demonstrated in the above that the concerns raised by OCC and NH have been addressed with regard to safe and suitable access. In particular:

- An updated site access arrangement has been prepared crossings with tactile paving, dropped kerbs and refuge islands.
- The bus stops and corresponding bus laybys have been relocated such that the concerns relating to proximity to the access have been addressed.
- A Stage 1 RSA made only relatively minor observations about the design of the site access that can all be addressed at the detailed design stage.
- Alterations have been made to the Albion Land access which address the concerns relating to the proximity of roundabout junctions.
- A proposed mitigation scheme has been prepared for the Baynards Green roundabout which additionally features crossing facilities for pedestrians and cyclists.



4.0 On-Site Design

- 4.1 This section relates to the on-site design proposed as part of the development. It should be noted that the development is at outline stage and therefore the design is evolving, the on-site design will be fixed as part of a later reserved matters application.
- 4.2 Notwithstanding the above, an overview of the scheme and corresponding comments from OCC and NH is provided below along with a detailed update of elements such as parking, servicing and active travel.

Overview

- 4.3 It was demonstrated within the Transport Assessment that the scheme provides sufficient space for the expected parking and servicing demands of the development. In addition, the internal roads will be designed to allow HGVs and other vehicles to navigate the site safely.

Consultation Responses

- 4.4 A summary of the consultation responses relating to the on-site design of the development is provided below.

Oxfordshire County Council Highways

- 4.5 The OCC highways response dated 6th July 2022 provided the following comments relating to on-site design:
- The segregated pedestrian and cycle routes throughout the site were welcomed.
 - EV charging facilities should be informed by the Oxfordshire EV Infrastructure Strategy.
 - Further details are requested relating to the lorry park and potential trips it would generate.

National Highways

- 4.6 The National Highways response dated 22nd September 2022 raised no concerns in relation to the proposed internal layout and on-site design and have since removed the holding objection.

Internal Layout

Parking

- 4.7 The current OCC parking guidelines are provided below.



Table A: OCC Parking Requirements

	Vehicle Parking	Cycle Parking (min.)
B8 Parking Standards	1 space per 300sqm	1 space per 250sqm for staff 1 space per 500sqm for visitors
Proposed B8 (300,000sqm)	1000 spaces	1200 spaces for staff 600 spaces for visitors

- 4.8 It is noted that the vehicle parking standards provided relate to an expected upper limit of parking provision. Opportunities to reduce this level of parking will be assessed on a case by case, basis with consideration for elements such as trip rates, users groups and shift patterns, as well as site location and potential implications of off-site parking.
- 4.9 Cycle parking is a minimum standard that developments are expected to achieve, albeit should be noted that if the Bicester cycle link is not provided it is considered reasonable that the level of cycle parking provided could be monitored through the staff Travel Plan and amended in response to demands. This approach was agreed with CDC in relation to application 22/01144/F and is therefore considered to be acceptable to adopt here.
- 4.10 The final level of parking would be determined as part of future reserved matters applications with consideration for the end occupier needs as well as reference to OCC standards which presently would allow for 1,000 spaces.
- 4.11 Notwithstanding the above, the illustrative masterplan shows 2,227 car parking spaces at the site as this reflects the Applicant’s experience of what the market would require from an operational perspective. So as to assess the likely demand for parking relative to the proposed spaces, a parking accumulation assessment has been undertaken. This has been informed by the following elements:
- Vehicle movements have been determined through reference to the trip rates submitted within the TA.
 - An end of survey demand has been calculated based on similar sites within the TRICS database which suggests that at 7pm circa 35% of spaces (700) would be occupied.
- 4.12 The results of the above assessment demonstrate that peak demands for parking could be in the order of 1582 car parking spaces (see **Appendix I**). It is noteworthy that this is based on the combined floor area and does not account for the individual needs of future occupiers which may require further provision.
- 4.13 Further to the above, it is noted that paragraph 8.4 of the parking standards state that where daily usage is shown to be lower than expected based on site wide monitoring, these areas should be repurposed. As part of the Travel Plan, parking levels will be monitored and should areas need to be repurposed this will be considered when necessary.



- 4.14 The current OCC guidance indicates that there would be a minimum requirement for 1,200 long-stay staff cycle parking spaces and 600 short-stay visitor cycle parking spaces. Given the TSL scheme is expected to employ circa 4000 people, the provision of almost 2,000 cycle parking spaces would effectively equate to 50% of all people cycling to work.
- 4.15 With the above in mind, a review of TRICS data has been undertaken and mode share information for similar sites has been obtained. This demonstrates that across an average day circa 2% of staff could be expected to cycle, equating to demand for some 80 spaces.
- 4.16 It is expected that the development will likely operate with shifts and therefore further detail has been obtained from the periods around expected shift changeover times. The following assumptions have been used in ascertain the expected parking demand:
- Three shifts would operate at the site comprising approx. 1300 staff working each.
 - The expected shifts would be circa 06:00-14:00, 14:00-22:00 and 22:00-06:00.
 - TRICS data suggests circa 3% would arrive/depart via cycle at 05:30-06:00.
 - TRICS data suggests circa 7% would arrive/depart via cycle at 13:30-14:00.
 - As there is no data for 21:30-22:00, the daily average of 2% has been applied.
- 4.17 On the basis of the above, it could be expected that the maximum number of two-way cycle trips would be 91 at the 14:00 changeover time. It is therefore considered that provision of circa 2,000 cycle parking spaces would be excessive given the anticipated demand levels.
- 4.18 To this end, TSL proposes to safeguard land for the level of cycle parking identified by the OCC guidelines, but only provide a proportion of this from day one. The initial level of cycle parking provided will be identified at the reserved matters stage having regard to the requirements on individual users. Usage would be monitored via a Travel Plan and increased wherever necessary, up to the standards outlined above, based on recorded demands.

Vehicle Parking

- 4.19 Charging facilities for electric vehicles will be provided in accordance with OCC standards. At present this would include a minimum of 25% of spaces featuring active charging facilities with the remainder providing passive facilities for future conversion.
- 4.20 A suitable and considered level of accessible parking bays will be provided with reference to OCC standards. It is noted that the standards suggest 6% of spaces should be provided, however, it is further stated that where total parking exceeds 200 spaces this should be less to ensure that there is not an overprovision.
- 4.21 The final level of HGV parking will be determined as part of a future reserved matters application, noting that OCC do not have specific standards and that the proposed level will be informed by operator requirements.

Cycle Parking

- 4.22 TSL proposes to safeguard land for the level of cycle parking identified by the OCC guidelines, but only provide a proportion of this from day one. The initial level of cycle parking provided will be identified at the reserved matters stage having regard to the requirements on individual



users. Usage would be monitored via a Travel Plan and increased, up to the standards outlined above, wherever necessary based on recorded demands.

Lorry Park

- 4.23 The OCC response highlights a query relating to the location of the proposed lorry park. At this stage, the location of the lorry park is indicative and will be fixed as part of a future reserved matters application. Factors such as access to facilities and any internal routeing conflicts will be considered when finalising the location.
- 4.24 In assessing the anticipated trip generation associated with the lorry park, reference has been made to surveys of truck stops submitted to North Lincolnshire Council as part of an outline planning application for construction of a new lorry park (Planning Ref. PA/2021/2273). As part of the application, surveys were undertaken at four existing sites in June 2022:
- Scunthorpe Lorry Park comprising 120 spaces.
 - Barney's Truck Stop comprising 40 spaces.
 - Ulecby Truck Stop comprising 75 spaces.
 - Immingham Lorry Park comprising 70 spaces.
- 4.25 An average of the recorded number of trips at each site over two 24-hr periods has been calculated along with the average number of spaces across the sites (76) to determine trip rates per space. The illustrative layout allows for 54 spaces in the lorry park, therefore these rates have been applied to this number of spaces. The full calculations including surveys are attached at **Appendix J**, whilst a summary of the expected trip generation is provided in **Table B**.



Table B: Lorry Park Trip Generation

Time Period	Trip Rate (per space)			Trip Generation (54 spaces)		
	Arr.	Dep.	Total	Arr.	Dep.	Total
0000-0100	0.003	0.000	0.003	0	0	0
0100-0200	0.001	0.001	0.002	0	0	0
0200-0300	0.002	0.001	0.002	0	0	0
0300-0400	0.003	0.020	0.024	0	1	1
0400-0500	0.008	0.063	0.071	0	3	4
0500-0600	0.021	0.148	0.169	1	8	9
0600-0700	0.043	0.143	0.185	2	8	10
0700-0800	0.048	0.097	0.145	3	5	8
0800-0900	0.038	0.075	0.113	2	4	6
0900-1000	0.068	0.055	0.123	4	3	7
1000-1100	0.085	0.086	0.172	5	5	9
1100-1200	0.079	0.103	0.181	4	6	10
1200-1300	0.080	0.089	0.169	4	5	9
1300-1400	0.057	0.059	0.117	3	3	6
1400-1500	0.075	0.054	0.129	4	3	7
1500-1600	0.086	0.065	0.151	5	3	8
1600-1700	0.132	0.059	0.191	7	3	10
1700-1800	0.147	0.046	0.193	8	2	10
1800-1900	0.113	0.032	0.145	6	2	8
1900-2000	0.068	0.022	0.090	4	1	5
2000-2100	0.027	0.012	0.039	1	1	2
2100-2200	0.014	0.014	0.028	1	1	2
2200-2300	0.003	0.002	0.006	0	0	0
2300-2400	0.006	0.002	0.008	0	0	0

4.26 It is demonstrated in the above that the lorry park would be expected to generate a maximum of 10 additional two-way trips during the busiest peak hours of 0600-0700, 1600-1700 and 1700-1800. It is noteworthy that these trips would be linked to other on-site uses and therefore would not be additional to the level of trip generation that has already been assessed in the context of the development proposals. Given this and the relatively modest trips outlined in **Table B**, it is considered that the lorry park will not have a material impact on the operation of the surrounding highway network and therefore no further consideration for the trip generation of the park is considered necessary.



Servicing

- 4.27 As noted previously, the on-site design will be fixed as part of a later reserved matters application. However, any design will allow HGVs and other vehicles to navigate the site safely this is shown on swept path analysis included at **Appendix K** in the context of the indicative layout.

Active Travel

- 4.28 It is proposed to provide a Trim Trail within the site which provides access for employees to a circular recreation path that can be used during breaks. Furthermore, the crossings that will be provided to the adjacent Esso garage and the facilities that it provides, which again can be accessed by employees on their breaks.

Summary

- 4.29 It is demonstrated in the above that the concerns raised by OCC and NH have been addressed with regard to on-site design. It should be noted that the on-site design will be subject to a detailed reserved matters application and therefore is subject to change.
- 4.30 Whilst accepting that the final details may change, the following principles have been outlined with regard to on-site design:
- Parking for vehicles and cycles will be provided in accordance with the OCC standards in place at the time of a reserved matters application and having regard to the operational needs of future occupiers.
 - A review of surveyed truck stops and resulting trip rates has demonstrated that the lorry park could generate a maximum of 10 two-way trips during the busiest hours. Given that a proportion of these would likely be linked with other on-site uses, it is not expected that these trips would have a material impact on the local network.
 - The internal layout of the site will be designed to allow for safe movements by HGVs and servicing vehicles, minimising potential conflicts with other highway users as much as possible.
 - The development will include active travel provisions, in particular it will incorporate a recreational Trim Trail for employees.



5.0 Highway Impact

Initial Assessment

- 5.1 The Transport Assessment submitted in support of the TSL application utilised 2019 surveyed base flows obtained from the adjacent AL applications formed the basis of the analysis. To establish future year assessments, growth rate factors were extracted from the TEMPRO database applied to the 2019 base flows. In addition, a range of committed developments were assessed to include in 2025 and 2031 scenarios.
- 5.2 Trip rates, trip generation and distribution were replicated from the AL assessment. As such, trip rates associated with B8 uses were used with the distribution of trips informed by data from the 2011 Census.

Consultation Responses

- 5.3 A summary of the consultation responses relating to the potential highway impacts of the development is provided below.

Oxfordshire County Council Highways

- 5.4 The response received from OCC dated 6th July 2022, the following comments were provided in relation to highway impact:
- Further modelling works would be required using the BTM and NH VISSIM model of junction 10 of the M40.
 - The proposed trip rates, noting that it is consistent with the AL application, were considered to be reasonable.
 - The trip distribution assignment requires updating to be based on the BTM data for light vehicles with HGVs to be distributed as per the AL application.
 - Consideration for the cumulative impact of the development along with the adjacent AL site was requested along with the proposed Oxfordshire SRFI.

National Highways

- 5.5 The National Highways response dated 22nd September 2022 requested further details as follows:
- The trip distribution assignment requires updating to be based on the BTM data for light vehicles with HGVs to be distributed as per the AL application.
 - Consideration for the cumulative impact of the development along with the adjacent AL site was requested.
 - Capacity assessments of junction 10 of the M40 and the Baynards Green roundabout were requested to be undertaken using the NH VISSIM model.
 - Further modelling of the Baynards Green roundabout was requested, noting that the Growth Fund financing was no longer available and therefore a revised scheme may be appropriate.



- 5.6 The most recent National Highways response dated 4th April removed the holding objection demonstrating that the concerns raised have since been addressed.

West Northants Council (WNC)

- 5.7 Whilst WNC have not commented on the TSL proposals, it is noted that comments were provided in relation to the AL development. For completeness, these have been considered in the context of the site.
- 5.8 The comments provided by WNC dated 14th March 2022 requested details to be provided of traffic flows utilising the B4100 to the north of the Baynards Green roundabout. The response cited concerns relating to the impact on local villages, in particular with reference to the potential need for further traffic calming features in Aynho and Croughton.

Revised Assessment

- 5.9 Given the comments received from OCC and NH, a series of response notes were prepared to align the assessment approach with that expected by the consultees.

Traffic Flows

- 5.10 At the request of OCC and NH, revised baseline traffic flows have been used for assessing the development impact with BTM 2026 and 2031 traffic flows for the basis of analysis.

Trip Generation and Distribution

- 5.11 Trip rates have been agreed with OCC and NH, these are consistent with the AL application. For ease of reference, the following table summarises the vehicular activity attributed to the AL and TSL schemes.

Table C: Trip Summary

Time Period	AL			TSL		
	Arr.	Dep.	Total	Arr.	Dep.	Total
Weekday 0800-0900	311	129	440	333	138	471
Weekday 1700-1800	114	319	433	123	342	465

- 5.12 The distribution of light vehicles on the highway network has been informed by BTM data whilst HGV distributions have been informed by the AL application. This aligns with the approach requested by both OCC and NH.

Strategic Network Assessment

- 5.13 At the request of OCC and NH, modelling has been undertaken using the NH VISSIM model, which was developed to review the performance of Baynards Green roundabout and M40 J10. A Matrix Development Methodology Note was issued to NH in February 2023 which used outputs from the BTM to calculate the demand matrices for input into the NH VISSIM. The matrices were agreed with NH in May 2023.



- 5.14 Further to the matrices being agreed with NH, and subsequent to network revisions made to improve lane usage and gap acceptance of vehicles within the model, NH agreed the updated VIISIM model as being fit for purpose (with development traffic included). For completeness the Technical Note that was reviewed by NH is provided at **Appendix L**, together with email confirmation from NH about the validity of the updated model.
- 5.15 The results generated from the updated NH model demonstrated that, with the proposed mitigation measures at the Baynards Green roundabout as shown at **Appendix H**, there would be an overall reduction in delay across the modelled network in both the 2026 and 2031 scenarios. This is shown in the detailed modelling outputs provided at **Appendix M**, and illustrated in **Table D** which summarises the difference in average vehicle delay (in seconds) between the future baseline scenarios and future with development scenarios (noting that the former does not incorporate the improvement scheme).

Table D: Change in Average Driver Delay (seconds)

	2026			2031		
	Baseline	With Dev.	Change	Baseline	With Dev.	Change
AM Peak	77	51	-26	94	87	-7
PM Peak	55	41	-14	79	45	-34

- 5.16 As demonstrated above, the proposed improvement scheme would be expected to result in an overall reduction in delay following the inclusion of development traffic associated with the AL and TSL schemes. This means that the improvement scheme has an overall benefit to the current situation and thus the mitigation scheme more than offsets the impacts associated with the cumulative impacts of the AL and TSL developments.
- 5.17 It is further expected that there will be an overall reduction in queuing at the junction following the implementation of the proposed signalised arrangement and inclusion of development traffic. This is shown in, **Table E**, which summarises the expected change in average queue lengths.

Table E: Change in Average Queue Lengths

	2026			2031		
	Baseline	With Dev.	Change	Baseline	With Dev.	Change
AM Peak	869	174	-695	1466	1272	-194
PM Peak	817	176	-641	1431	192	-1239

- 5.18 As outlined previously, NH concluded that they were satisfied that the modelling reflects the likely traffic impacts on the strategic road network. As such, the study area is suitable for considering the impacts of the proposals and no further mitigation works are considered necessary. In reaching this conclusion reference to the fact the proposed developments would not lead to any queuing blocking back onto the mainline of the M40 was noted in the NH response. The full responses from NH are included in **Appendix L**.



Local Network Assessment

Tritax Symmetry (TSL) Access

- 5.19 Detailed junction modelling of the proposed site access has been undertaken to reflect the revised arrangement and the use of BTM data. Full modelling results are included at **Appendix N** which demonstrate that the proposed site access is suitable to serve the proposed TSL development with a maximum RFC of 0.64. In addition, modelling has been undertaken to determine the change in capacity at the junction following the inclusion of AL which demonstrates a maximum RFC of 0.66. A summary of the maximum changes in queues, delays and RFC as a result of including AL development flows is provided in **Table F**.

Table F: Site Access Modelling Results

	AM Peak			PM Peak		
	Queue	Delay	RFC	Queue	Delay	RFC
2026	+0.10	+0.36	-0.04	+0.20	+0.29	-0.05
2031	+0.10	+0.33	-0.02	+0.20	+0.28	-0.05

- 5.20 It is illustrated above that the proposed site access is suitable to serve the development with minor increases in queues and delays following the inclusion of AL traffic. In addition, there would be a minor decrease in RFC (up to 0.05) which is similarly considered immaterial.

Albion Land (AL) Access

- 5.21 Detailed modelling of the AL access is included in the reports prepared by DTA and demonstrates that the arrangement operates within capacity both in isolation and as part of a cumulative VISSIM assessment.

B4100

- 5.22 The response from WNC cited concerns relating to the impact on local villages, in particular Aynho and Croughton. As such, consideration has been made as to the expected change in traffic flows along the B4100 to the north of the Baynards Green roundabout as a result of the TSL development individually and cumulatively with the Albion Land development.
- 5.23 In order to assess the potential impacts of the worst case cumulative increases reference has been made to traffic surveys undertaken in Aynho on Tuesday 28th June 2022, Wednesday 29th June 2022 and Thursday 30th June 2022. Percentage impact assessments have been undertaken at two key junctions in Aynho, namely the B4100 / B4031 / Link Road crossroads and the B4100 / Station Road priority junction. This is shown in **Table G** and **H** relative to the surveyed demand. In practice growth, such as reported by TEMPRO, and committed development traffic will result in higher future year reference case demands. The percentage change in future years, 2026 and 2031 will be less than those reported in the tables.

Table G: Impact Assessment – B4100 / B4031



Veh / Hour	Survey (ave weekday)	Survey + TSL	% Change	Survey + AL	% Change	Survey + TSL + AL	% Change
AM Peak	1056	1074	+1.7%	1087	2.9%	1105	+4.6%
PM Peak	1064	1088	+2.3%	1097	3.1%	1121	+5.4%

Table H: Impact Assessment – B4100 / Station Road

Veh / Hour	Survey (ave weekday)	Survey + TSL	% Change	Survey + AL	% Change	Survey + TSL + AL	% Change
AM Peak	1063	1081	+1.7%	1082	+1.8%	1100	+3.5%
PM Peak	1057	1075	+1.7%	1084	+2.6%	1102	+4.3%

Table I: Impact Assessment – Link Assessment

Vehicles per hour (2-way)		3-day average	TSL Dev. Trips	AL Dev. Trips	TSL + AL Dev. Trips
Aynho	AM Peak	1020	18	19	37
	PM Peak	971	18	27	45
Vehicles per hour (2-way)		3-day average	TSL Dev. Trips	AL Dev. Trips	TSL + AL Dev. Trips
Croughton	AM Peak	467	0	8	8
	PM Peak	482	0	0	0

5.24 On the basis of this assessment, it has been established that percentage increases on the local network would be of up to 5.4%, experienced during the evening peak hour, comfortably within accepted daily fluctuations of +/-10% on the local highway network.

5.25 Furthermore, the absolute change in traffic flows is considered to be low with up to 45 additional two-way vehicle movements in any given hour. As this equates to less than 1 additional vehicle every minute, it is not considered to be a material impact.

Summary

5.26 On the basis of the above, it is anticipated that the change in trips through Aynho would not have a severe impact on the transport network. and Croughton would not have a severe impact on the transport network. This does not therefore warrant further traffic management measures or physical changes to the highway infrastructure.



B4100/A4095 Junction

- 5.27 Both the TSL and AL applications considered the impacts upon the Banbury Roundabout junction, which is currently a four arm roundabout. However, as was reported in the SLR and DTA TAs, this junction is intended to be signalised. Indeed, since the respective TSL and AL applications were submitted, OCC has granted itself planning permission under the provisions of application R3.0094/21 to construct the following junction:



- 5.28 In light of this, and given that it is understood this junction will be constructed in the coming months, the effects of the proposed developments upon this junction have been predicted. For the purposes of this assessment, the effects have been predicted using a VISSIM model that has been constructed using the methodology that was reported in the TA prepared on behalf of OCC pursuant to application R3.0094/21.
- 5.29 On the basis of this modelling, which has used the BTM model that was run to assess the impacts of the proposed developments at the TSL and AL site accesses, Baynards Green roundabout and M40 J10, it has been established that there would be a limited impact on the overall performance of the junction. For example, and using the same metrics that OCC used to inform its own application, there will be negligible changes in vehicle delays between the 2031 Reference case and when traffic associated with both the TSL scheme in isolation and with AL taken into account cumulatively.



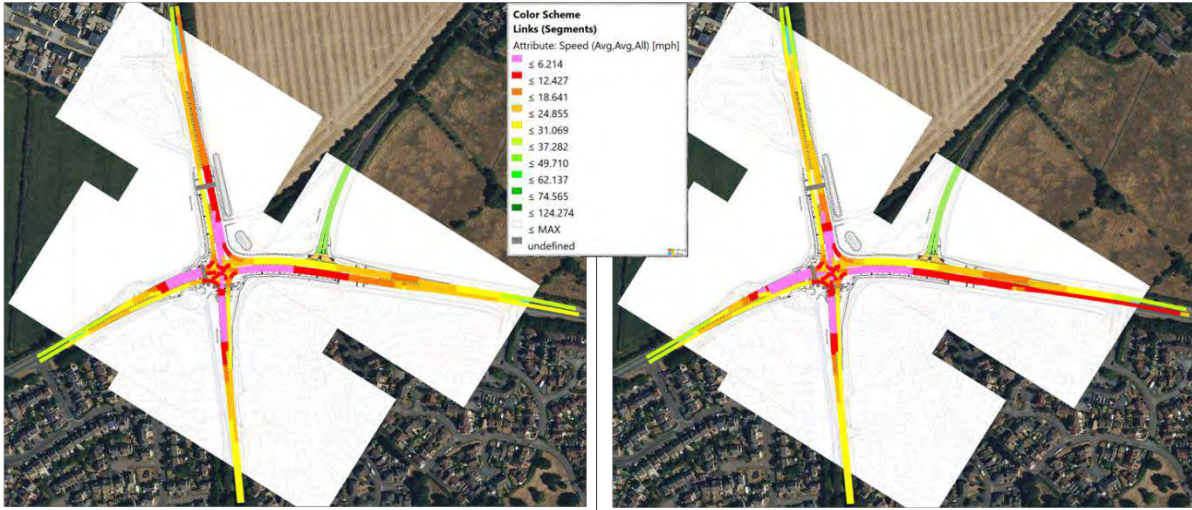


5.30 Similarly, vehicle speeds at the junction are expected to be similar to that which OCC approved pursuant to application R3.0094/21 as is shown below:



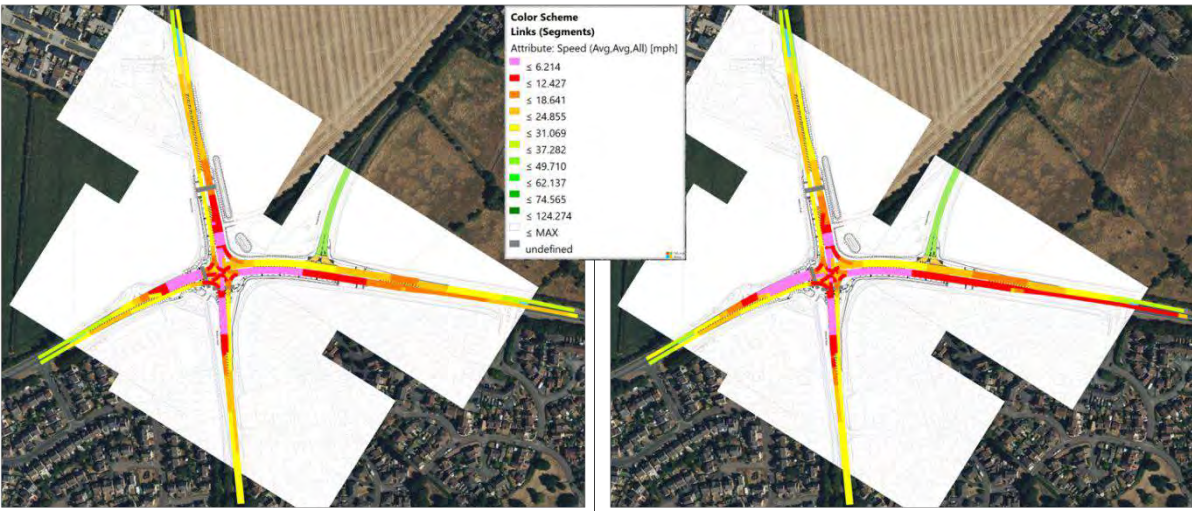
AM 2031 Ref

PM 2031 Ref



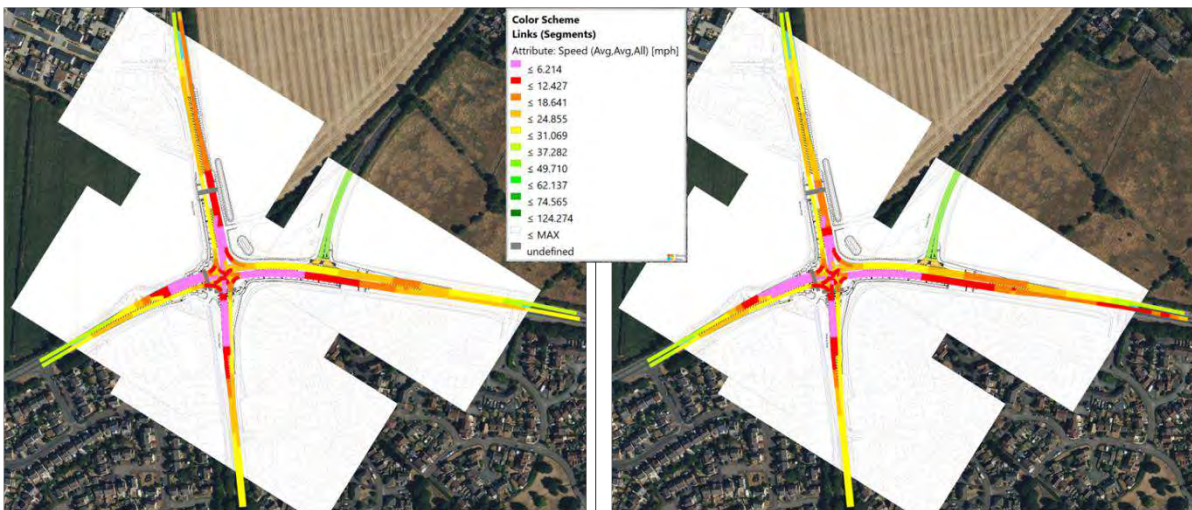
AM 2031 with TSL

PM 2031 with TSL



AM 2031 with TSL + AL

PM 2031 with TSL + AL



- 5.31 It is demonstrated above that there would be a negligible change in speeds at the junction following the inclusion of TSL and AL development trips. Considering this and the change in delays presented above, it is concluded that the proposals would not have a material impact on the operation of the junction.

Summary

- 5.32 It is demonstrated in the above that the concerns raised by OCC and NH have been addressed with regard to highway impact. In particular:

- The trip generation and distribution have been agreed with both OCC and NH, these additionally align with the submitted assessment associated with the Albion Land development.
- Strategic junction modelling has been undertaken at the request of OCC and NH which demonstrates that the proposals could be accommodated without detriment to the capacity of the highway network, this has been agreed with OCC and NH.
- Detailed junction modelling of the site access along with the two Albion Land accesses has demonstrated that the layouts are suitable to accommodate the anticipated vehicular traffic. No further comments relating to access have been raised by OCC or NH so it is considered that the matter of access is agreed.
- A review of traffic flows on the B4100 demonstrates that the proposed development would have a negligible impact in vehicle numbers along the route. Following the inclusion of the Albion Land development there would be an increase of circa 4 additional two-way vehicle movements per minute during the busiest period.
- Whilst the TSL application has not, to date, received any observations from WNC it has been shown that the cumulative effects of the TSL and AL scheme will not lead to any demonstrable harm upon the B4100 in Aynho.
- It has also been shown that the cumulative effects of the TSL and AL schemes will not have any material impact on the B4100/A4095 traffic signal scheme, which is scheduled to be installed by OCC in the coming months.



6.0 Conclusions

- 6.1 SLR has been appointed by Tritax Symmetry Ardley Limited (TSL) to provide highways and transportation advice in relation to and employment development on land to the north and south of the B4100 to the north west of Bicester.
- 6.2 This Transport Assessment Addendum (TAA) has been prepared by SLR with input from DTA to specifically address the comments received from National Highways (NH) and Oxfordshire County Council with respect to the TSL application. However, it is pertinent that due consideration is given the cumulative effects of the TSL and AL schemes, and that this TAA also responds to comments raised West Northants Council (WNC) in relation to the AL applications.
- 6.3 So as to address the comments received from the various consultees, this TAA has considered:
- The accessibility of the site by sustainable transport modes with reference to key national and regional planning policy.
 - The access strategy of the site with consideration for all users including active travel users and those accessing the site via public transport.
 - The on-site design with particular reference to parking standards and the proposed lorry park.
 - Highway network modelling results relating to both the strategic and local transport network.
- 6.4 With the above in mind, it has been demonstrated that:
- Appropriate opportunities to promote sustainable transport modes have been taken up, given the type of development and its location. In particular, the site will provide two new bus stops with contributions provided to an enhanced bus service, opportunities to provide a shared foot/cycleway link to Bicester have been explored, and, a trim trail will be provided at the TSL development for use by staff.
 - Safe and suitable access to the site can be achieved for all users. This has been confirmed through the Stage 1 RSA of the proposed access arrangement which incorporates active travel facilities alongside being designed for all vehicles that are expected to require access to the site.
 - The design of streets, parking areas, other transport elements and the content of associated standards will reflect the guidance in place at the time of a reserved matters application. This will include parking provision for cars, electric vehicles, cycles and HGVs.
 - The impacts of the development on the transport network in terms of capacity, congestion and highway safety have been addressed and mitigated, in particular through an improvement scheme at the Baynards Green roundabout.
- 6.5 On the basis of the above, it is considered that the comments raised by the various stakeholders have been fully addressed. It has been demonstrated that the proposals both individually and cumulatively with national and regional planning policy and therefore it is concluded that the proposals are entirely acceptable from a highways and transportation perspective.





Appendix A Consultation Response – OCC

Transport Assessment Addendum

Symmetry Park, Ardley

Tritax Symmetry Ardley Limited

SLR Project No.: 216285

30 April 2024

OXFORDSHIRE COUNTY COUNCIL'S RESPONSE TO CONSULTATION ON THE FOLLOWING DEVELOPMENT PROPOSAL

District: Cherwell

Application no: 22/01340/OUT

Proposal: Application for outline planning permission (all matters reserved except means of access (not internal roads) from b4100) for the erection of buildings comprising logistics (use class b8) and ancillary offices (use class e(g)(i)) floorspace; energy centre, hgv parking, construction of new site access from the b4100; creation of internal roads and access routes; hard and soft landscaping; the construction of parking and servicing areas; substations and other associated infrastructure.

Location: East Of Baynards Green Farm Street To Horwell Farm Baynards Green

Response Date: 6th July 2022

This report sets out the officer views of Oxfordshire County Council (OCC) on the above proposal. These are set out by individual service area/technical discipline and include details of any planning conditions or Informatives that should be attached in the event that permission is granted and any obligations to be secured by way of a S106 agreement. Where considered appropriate, an overarching strategic commentary is also included. If the local County Council member has provided comments on the application these are provided as a separate attachment.

Assessment Criteria

Proposal overview and mix /population generation

OCC's response is based on a development as set out in the table below. The development is taken from the application form.

Commercial – use class	m²
B8	300,00

Application no: 22/01340/OUT

Location: East Of Baynards Green Farm Street To Horwell Farm Baynards Green

Strategic Comments

The proposed site is located on unallocated, predominantly agricultural land.

This application is for 300,000sqm of logistics space, located in two parcels. The larger parcel is to the east of the A43 and north of B4100, and the smaller parcel is to the south of the B4100, immediately east of the Albion Land planning application reference 21/03267/OUT.

Key points:

- The transport assessment has not adequately tested the impact on the adjacent junctions, using available transport models, including the various elements of M40 J10 which are closely linked. The TA states that this further work will be carried out;
- Further information is required to confirm that the pedestrian/cycle link to Bicester is feasible;
- No plan has been provided showing the access roundabout in the context of the proposed roundabout to the adjacent Albion Land application;
- No cumulative assessment has been provided including the Oxfordshire Strategic Rail Freight Interchange (OxSRFI);
- The roundabout access design requires refinement, particularly to include cycle facilities and crossings;
- Further information is required on the operation of the lorry park, and additional diverted trips it would generate;
- Provide surface water catchment plans;
- Provide attenuation volumes and discharge rates on the proposed drainage strategy;
- Drainage strategy to clearly state infiltration systems for the proposed SuDS features;
- Provide calculations for all proposed SuDS features for all storm event up to and including the 1:100-year storm event plus 40% climate change;
- Overall site boundary not shown on the drainage plans.

The County is raising Transport and Lead Local Flood Authority objections. Also attached are detailed Archaeology comments.

Officer's Name: Jonathan Wellstead

Officer's Title: Principal Planner

Date: 06/07/2022

Application no: 22/01340/OUT

Location: East Of Baynards Green Farm Street To Horwell Farm Baynards Green

General Information and Advice

Recommendations for approval contrary to OCC objection:

If within this response an OCC officer has raised an objection but the Local Planning Authority are still minded to recommend approval, OCC would be grateful for notification (via planningconsultations@oxfordshire.gov.uk) as to why material consideration outweighs OCC's objections, and to be given an opportunity to make further representations.

Outline applications and contributions

The anticipated number and type of dwellings and/or the floor space may be set by the developer at the time of application which is used to assess necessary mitigation. If not stated in the application, a policy compliant mix will be used. The number and type of dwellings used when assessing S106 planning obligations is set out on the first page of this response.

In the case of outline applications, once the unit mix/floor space is confirmed by reserved matters approval/discharge of condition a matrix (if appropriate) will be applied to establish any increase in contributions payable. A further increase in contributions may result if there is a reserved matters approval changing the unit mix/floor space.

Where a S106/Planning Obligation is required:

- **Index Linked** – in order to maintain the real value of S106 contributions, contributions will be index linked. Base values and the index to be applied are set out in the Schedules to this response.
- **Administration and Monitoring Fee - TBC**
This is an estimate of the amount required to cover the monitoring and administration associated with the S106 agreement. The final amount will be based on the OCC's scale of fees and will be adjusted to take account of the number of obligations and the complexity of the S106 agreement.
- **OCC Legal Fees** The applicant will be required to pay OCC's legal fees in relation to legal agreements. Please note the fees apply whether a S106 agreement is completed or not.

Security of payment for deferred contributions - Applicants should be aware that an approved bond will be required to secure a payment where a S106 contribution is to be paid post implementation and

- the contribution amounts to 25% or more (including anticipated indexation) of the cost of the project it is towards and that project cost £7.5m or more
- the developer is direct delivering an item of infrastructure costing £7.5m or more
- where aggregate contributions towards bus services exceeds £1m (including anticipated indexation).

A bond will also be required where a developer is direct delivering an item of infrastructure.

The County Infrastructure Funding Team can provide the full policy and advice, on request.

Application no: 22/01340/OUT

Location: East Of Baynards Green Farm Street To Horwell Farm Baynards Green

Transport Schedule

Recommendation:

Objection for the following reasons:

- The transport assessment provided with the application is not adequate to demonstrate that the development would not have a severe impact on the operation of the highway network
- Further information is required to demonstrate that safe and suitable pedestrian and cycle access can be provided to the development, in accordance with NPPF.
- Further information is required to demonstrate that the access junction would function safely and effectively in conjunction with the adjacent development proposed access.

If despite OCC's objection permission is proposed to be granted then OCC requires prior to the issuing of planning permission a S278 agreement to mitigate the impact of the development plus planning conditions as detailed below.

S106 Contributions

Contribution	Amount £	Price base	Index	Towards (details)
Highway works	TBC		Baxter	Proportionate contribution towards improvements to M40 J10 (which includes Baynards Green rbt)
Public transport services	£2 million		RPI-x	Bus services serving the site
Public transport infrastructure (<i>if not dealt with under S278/S38 agreement</i>)	£8,904	Sept 2020	Baxter	Real time information unit at bus stop
Traffic Reg Order (<i>if not dealt with under S278/S38</i>)			RPI-x	Possible changes to speed limit and parking controls.

<i>agreement)</i>				
Travel Plan Monitoring	TBC	Sept 2021	RPI-x	£2,563 for each unit plus £2,563 for framework travel plan - to cover the cost of OCC monitoring the plans
Public Rights of Way	£400,000	July 2022	Baxter	Improvements to PRow in vicinity of site
Administration fee	TBC depending on the total amount of contributions			To cover the cost of OCC monitoring the agreement

Other obligations:

- Off-site highway works – see below
- Travel plan

Key points

- The transport assessment has not adequately tested the impact on the adjacent junctions, using available transport models, including the various elements of M40 J10 which are closely linked. The TA states that this further work will be carried out.
- Further information is required to confirm that the pedestrian/cycle link to Bicester is feasible
- No plan has been provided showing the access roundabout in the context of the proposed roundabout to the adjacent Albion Land application.
- No cumulative assessment has been provided including the Oxfordshire Strategic Railfreight Interchange (OxSRFI)
- The roundabout access design requires refinement, particularly to include cycle facilities and crossings.
- Further information is required on the operation of the lorry park, and additional diverted trips it would generate.

Comments:

This application is for 300,000sqm GIA of logistics space, located in two parcels. The larger parcel is to the east of the A43 and north of B4100, and the smaller parcel is to the south of the B4100, immediately east of the Albion Land application site ref 21/03267/OUT. The application form states that it would employ 2430 full time equivalent posts and operate 24 hours per day.

Access arrangements

Both parcels are proposed to be accessed via a four arm roundabout on the B4100, with two arms leading into the development, north and south of the B4100. This is in close proximity to the roundabout proposed by the Albion land site, immediately to the west on the B4100. No drawing has been provided showing the roundabouts together, to demonstrate that the designs do not conflict. I am concerned about the proximity of the roundabouts - they are unlikely to operate independently and should be modelled together in a linked model, potentially linked into National Highways' VISSIM model for Junction 10.

I notice that there is an internal access road leading from the southern parcel towards the Albion Land site. Ideally there would be cooperation between the two sites so that the number of roundabouts on the B4100 could be reduced - together with Albion Land proposals west and east of Baynards Green, with this development there would be four roundabouts along the B4100 in close proximity. It is worth noting that the Oxfordshire Strategic Railfreight Interchange proposed highway layout would conflict with Albion Land arrangements and may also conflict with this development's access roundabout.

A Road Safety Audit Stage 1, with Designer's Response, has been submitted with the application. Some problems have been identified with the design, all of which the designer's response say could be addressed at detailed design stage. However, some of these changes could substantially affect the footprint of the roundabout and as access being applied for in detail, should be addressed at planning stage. This includes the splitter islands needing to be larger, the need for vehicles to be able to circulate the roundabout side by side (due to the fact there are two entry and exit lanes on each arm), the need to demonstrate visibility envelopes, and the need for safe pedestrian crossing facilities. The issue that the bus laybys are in the forward visibility envelope to the roundabout in each direction, has not been picked up in the audit, but this is an issue that needs to be addressed.

Consideration should be given to reducing the speed limit on this section of the B4100 to 40mph, however the works would need to be designed to the current speed limit of 50mph.

Specification tables should be provided for the roundabout design to show that it meets DMRB requirements.

The roundabout design will need to accommodate the proposed footway/cycleway which is proposed by the Albion Land application to continue west. Safe crossing facilities over the southern arm of the roundabout need to be provided. Additionally cycle access into both parcels needs to be demonstrated, which must be in accordance with LTN 1/20, and segregated from the carriageway.

Crossing facilities over the B4100 should be provided, connecting with the proposed cycleway on the south side of the B4100 and bus stops. Due to the number of lanes and the volume and nature of traffic, a signalised crossing should be provided. I would like to see a combined design for accessing both this development and the Albion Land development, which could potentially share bus stops and crossing facilities.

Raised Chevron blocks on roundabout should be avoided due to the speed of the road - instead knock-down signage is advisable.

Sustainable transport connectivity/transport sustainability

No information is provided on predicted modal share for the development. The draft framework travel plan has predicted 72% car driver, but that is based on Cherwell MSOA 013 workplace data - that MSOA is exclusively urban, including a large employment area adjacent to established housing in the northeast of Bicester, within the perimeter road. This is a completely inappropriate comparison for the site, as employment in the area would be accessible to large parts of Bicester within easy walking distance. The modal share for the site, without mitigation, is likely to be much higher. I note that the Oxfordshire SRFI application predicts 92% single occupancy car modal share and this site is even more distant from residential areas.

The application states that a contribution would be made towards the footway/cycleway link to Bicester proposed by the Albion Land site. OCC was expecting that this would be carried out by the developer under S278, as it is not part of any planned strategic cycle network for the area, and is required solely as mitigation for the developments.

We are awaiting further information from the Albion Land application team concerning design and feasibility of the route. At the present time it is not known whether a safe and suitable route can be provided, and this remains an outstanding reason for objection on both developments. Available land is limited and level changes mean it might take up more space than anticipated. It is recommended that the two applicants work together on this and come to an arrangement regarding its funding and delivery.

This route is of critical importance, both in terms of providing safe access to the site, and in terms of encouraging sustainable and active travel to the site, which would otherwise be heavily car dependent. The application states that 5km is an acceptable distance for people to cycle; however LTN 1/20 states that up to five miles (8km) is an achievable distance for most people, which puts most of Bicester in range.

Crossing facilities over the A43 would be required for safety due to the crossing demand - this applies to the main development as well as the lorry park. The application states that crossing facilities could be incorporated into the Growth Deal scheme of planned improvements at Baynards Green roundabout. This would need to

be agreed with National Highways and the developer would be expected to fund the additional cost.

In terms of public transport, we remain of the opinion, as set out in our response to the Albion Land proposals, that the 505 service passing on the B4100 cannot be relied upon in future, and a new service is required, operating half hourly to be sufficiently attractive, which could potentially serve the Albion Land development if it goes ahead, and potentially run between Bicester and Brackley.

A contribution is required towards the cost of providing two buses over an eight year period to serve the development, to provide a Bicester – Barnard’s Green – Brackley route operating half-hourly most of the day and hourly in the evenings and on weekends. Costs have been calculated based on OCC’s standard declining subsidy profile – subsidy costs decline each year as patronage/revenue levels rise, ultimately to the point the that service requires no subsidy after eight years.

Costs:

Monday to Friday core service (half hourly 6am – 6pm, 2 buses): £300,000 per year
Monday to Friday evenings / early am (hourly, 5am – 6am, 6pm – 10pm, 1 bus):
£50,000 per year
Saturdays and Sundays (hourly, 5am – 10pm, 1 bus): £75,000 per year

Year 1 cost £425,000
Year 2 cost £375,000
Year 3 cost £325,000
Year 4 cost £275,000
Year 5 cost £225,000
Year 6 cost £175,000
Year 7 cost £125,000
Year 8 cost £75,000
Total £2,000,00 0

The rate of subsidy decline is £50,000 per year. Costs have been based on bus operating costs of £50 per hour during core times and £40 per hour at other times. OCC would endeavour to integrate the route with others to provide longer distance direct journey opportunities (e.g. Oxford – Bicester – Barnard’s Green).

This cost could potentially be shared with Albion Land should that development go ahead.

Bus stop facilities: Bus stop locations proposed are within the forward visibility envelope to the roundabout. This needs to be addressed in the design, if necessary with a bus loop within the site. Both bus stops should have a bus shelter (at least three bays long with seating) provided and maintained by the site. In addition, a separate bus

stop pole, flag and timetable cases should be provided to OCC specification. The shelters must be suitable for OCC to install real time information displays, with ducting provided. A contribution will be sought for the provision of these displays.

Public rights of way

Although this development doesn't have any PRow crossing the site, two PRow are immediately adjacent and more are in the vicinity. Standard measures below will apply.

The public rights of way network outside of the site will be placed under much greater pressure as a direct result of this development. This pressure is related to the traffic increase and the change in the attractiveness and amenity of the countryside and PRow in this area during construction as well as during operations. In short the PRow become less pleasant to use, the roads are harder to cross or use and the area suffers greater impacts on NMUs

A s106 contribution of around **£400,000** will be requested to allow the Countryside Access Team to plan and deliver improvements with third party landowners in a reasonable time period and under the Rights of Way Management Plan aims. The contribution would be spent on improvements to the public rights of way in the vicinity of the development – in the 'impact' area up to 3/5km from the site, predominantly to the east, south and north. Improvements to existing PRow may be made to enable easier access, improved signing etc but for this application the focus will be on creating or trying to create an alternative or bypass routes for PRow to take NMUs away from traffic and operations site impacts across both parts of the site and on the roads. At this stage this could entail seeking the upgrade of footpath to bridleway, creation of entirely new sections of bridleway, works to roads to make them safer for NMUs, along with associated structures, signing, surfaces and signals.

Connections should be made to the bridleway to the north of the site, to enable staff to use it to access the site and walk for recreation on their break. At the south of the site, connection should be made to Bridleway 21/10, in order to allow staff to access the facilities at the motorway service area.

The development is likely to have a an negative impact on the local road network which is used to link up many of the Public Rights of Ways, in particular for Bridleway users. Therefore I would like to see some additional access provided North to South through or along the edge of the site to link up bridleways 367/24/10 and 367/21/10, see suggestion below (blue line).



Site layout

The application states that pedestrian and cycle routes within the development will be segregated from traffic, which is welcomed.

It is anticipated that the internal road network would remain private, i.e. OCC would not adopt it.

I query the location of the lorry park, which presumably would be publicly accessible and therefore might be better located near the access. Possibly it has been sited in this location to provide access to the facilities at the service station on the opposite side of the A43.

Car and cycle parking

It is stated that car and cycle parking will be in accordance with OCC standards, which are currently being updated. It is stated that EV charging would be provided - this must be in accordance with the Oxfordshire EV Infrastructure Strategy, which has been agreed jointly with CDC.

With regard to lorry parking, the TA states that lorry parking will be provided across the site within the service yards, at a level to meet operational requirements. It does not

mention the proposed lorry park. Further information is required on the operation of the lorry park. Allowance should be made in the TA for any additional trips it generates.

Traffic impact

The Transport Assessment acknowledges that further work will be done to model the impact of the development using existing models. These are the Bicester Transport (SATURN) model (BTM), and the National Highways VISSIM model of M40 J10, which incorporates the Baynards Green roundabout. This is required to model a development of this size, which so directly impacts on a complex network of junctions.

The proposed trip rate (subject to the above comment regarding the lorry park) matches that proposed in the Albion Land applications and is considered a reasonable prediction.

The trip distribution and assignment are not accepted - in line with our approach to the Albion Land applications, the BTM should be used to model these. Separate HGV distribution/assignment has been agreed for the Albion Land application and does not match what is presented in this application. The HGV distribution agreed for Albion Land is set out below, and there is no reason why this site would be different.

B4100(W)	0%
A43 (N)	41%
B4100 (E)	6%
M40 (N)	11%
B430	2%
M40 (S)	41%

The junction assessments presented in the TA cannot be relied upon and will need amending using modelled flows.

The assessment will need to include the whole of M40 J10, which has been excluded from the list of junctions to be assessed in the TA. Following modelling, further afield junctions may also need to be assessed, dependent on proportionate impact, both of the individual development and cumulatively with the Albion Land development. This could include junctions to the northwest along the B4100. It is likely to include the junctions of Stratton Audley Rd/B4100 and Stratton Audley Rd/A4421.

In paragraph 6.41-2 there is discussion of a merge assessment carried out in relation to the Albion Land development. No justification is provided of the statement that 'the increases in traffic associated with the proposed development are such that they will not materially change the situation.'

In addition to the scenario with the adjacent application, we consider that in order to properly consider the combined impact on the road network in the area, consideration

of a scenario including the proposed Oxfordshire SRFI is also necessary. A public consultation has been carried out by the promoters of that development, with considerable information now in the public domain. It does not follow that because the OxSRFI is being brought forward via a Development Consent Order, it will be required to provide sufficient capacity through its highway works for this development.

HGV routing

A CTMP should be required by condition. All construction traffic must be routed directly to the A43 and M40. Stratton Audley Road must be a prohibited route for local traffic.

An operational routing agreement will also be required, requiring all HGVs to route via the A43 or M40. Routes through villages must be prohibited routes even for local access.

Travel Plan

A Framework Travel Plan is required for the site. Given the challenge in serving the site with sustainable travel, this should be agreed prior to planning permission, secured through the S106, and meet the criteria contained within **appendix 7** of the OCC guidance document 'Transport for New Developments – Transport Assessments and Travel Plans March 2014'. A £2,563 (RPI index linked) travel plan monitoring fee will also be required to enable the travel plan to be monitored for a period of five years.

A Framework Travel Plan has been submitted alongside this application; however, it does not contain the level of detail required to meet OCC criteria.

From the information provided it appears that this is a large B8 development with 8 units operating independently of each other. Any B8 development over 2,999sqm requires a travel plan and so because each of the units is over this threshold, each will require a travel plan and an associated monitoring fee (£2,563 per unit). The travel plan documents should be produced prior to occupation of the individual units and should reference the overarching Framework Travel Plan for the site. Further information regarding the required criteria can be found within **appendix 5** of the OCC guidance document.

S106 obligations and their compliance with Regulation 122(2) Community Infrastructure Levy Regulations 2010 (as amended):

£TBC Highway Works Contribution indexed from TBC using Baxter Index

Towards: Capacity improvements at M40 J10 including Baynards Green Roundabout

Justification:

A high proportion of the development traffic will pass through Baynards Green and the rest of Junction 10. A scheme of improvements is planned for the junction, which is

required to accommodate planned growth. Subject to further modelling, additional works may be required to accommodate the traffic from this development.

Calculation: TBC - Contribution towards the planned scheme will be proportionate based on contributions to be secured from development at Heyford, with additional amount as required to provide for additional capacity.

TBC Public Transport Service Contribution indexed from November 2021 using RPI-x Towards: Bus services serving the site.

Justification: A range of sustainable travel options to the site is required to make the site sustainable in planning terms. The existing bus service between Bicester and Brackley is unlikely to continue past the end of its current contract, which would leave the site with no public transport.

Calculation: See amount and commentary above. Amount may be split with Albion Land development if that goes ahead.

£TBC Public Transport Infrastructure Contribution indexed from TBC using

Baxter Index Towards: Provision of Real Time Information unit in the bus shelter which are to be provided by the developer.

Justification: To encourage public transport use, people will need the reassurance that the bus is on its way, especially given local traffic congestion.

Calculation: The amount will be based on the cost to OCC to provide the unit, together with a commuted sum for maintenance.

£TBC Travel Plan Monitoring Fee indexed from December 2020 using RPI-x

Justification: To ensure that the travel plan is delivered and revised as required in order to be effective, OCC will need to monitor it over its life.

Calculation: The amount is based on the staff cost for OCC to monitor the travel plan, based on an estimate of the time it will take over the life of the plan

£400,000 indexed from July 2022 using Baxter towards: Improvements to PRow in the vicinity of the site.

Justification: The public rights of way network outside of the site will be placed under much greater pressure as a direct result of this development. This pressure is related to the traffic increase and the change in the attractiveness and amenity of the countryside and PRow in this area during construction as well as during operations. In short the PRow become less pleasant to use, the roads are harder to cross or use and the area suffers greater impacts on NMUs

Calculation: To follow

S278 Highway Works:

An obligation to enter into a S278 Agreement with OCC will be required to secure mitigation/improvement works, including:

- Site access roundabout, bus stops and crossings (to be agreed)
- Ped/cycle route to Bicester, depending on who delivers it

Notes:

This is to be secured by means of S106 restriction not to implement development (or occasionally other trigger point) until S278 agreement has been entered into.

The trigger by which time S278 works are to be completed shall also be included in the S106 agreement.

Identification of areas required to be dedicated as public highway and agreement of all relevant landowners will be necessary in order to enter into the S278 agreements.

S278 agreements include certain payments, including commuted sums, that apply to all S278 agreements however the S278 agreement may also include an additional payment(s) relating to specific works.

Planning Conditions:

In the event that permission is to be given, the following planning conditions should be attached:

No development shall commence unless and until full details of the means of access between the land and the highway, including, position, layout, construction, drainage and vision splays have been submitted to and approved in writing by the Local Planning Authority. The means of access shall be constructed in strict accordance with the approved details and shall be retained and maintained as such thereafter. Agreed vision splays shall be kept clear of obstructions higher than 0.6m at all times. *Reason - In the interests of highway safety and to comply with Policy ESD15 of the Cherwell Local Plan 2011-2031 Part 1 and Government guidance contained within the National Planning Policy Framework.*

No development shall commence unless and until full specification details (including construction, layout, surfacing and drainage) of the turning areas and parking spaces within the curtilage of the site, arranged so that motor vehicles may enter, turn round and leave in a forward direction and vehicles may park off the highway, have been submitted to and approved in writing by the Local Planning Authority. The turning area and car parking spaces shall be constructed in accordance with the approved details prior to the first occupation of the development shall be retained as such for the parking and manoeuvring of vehicles at all times thereafter. *Reason - In the interests of highway safety and to comply with Policy ESD15 of the Cherwell Local Plan 2011-2031 Part 1 and Government guidance contained within the National Planning Policy Framework.*

Prior to the first use or occupation of the development hereby permitted, covered cycle

parking facilities shall be provided on the site in accordance with details which shall be firstly submitted to and approved in writing by the Local Planning Authority. Thereafter, the covered cycle parking facilities shall be permanently retained and maintained for the parking of cycles in connection with the development. *Reason - In the interests of sustainability, to ensure a satisfactory form of development and to comply with Government guidance contained within the National Planning Policy Framework.*

Prior to the first occupation of the development, a scheme for the provision of vehicular electric charging points to serve the development shall be submitted to and approved in writing by the Local Planning Authority. The vehicular electric charging points shall be provided in accordance with the approved details prior to the first occupation of the unit they serve, and retained as such thereafter. *Reason - To comply with Policies SLE 4, ESD 1, ESD 3 and ESD 5 of the adopted Cherwell Local Plan 2011-2031 Part 1 and to maximise opportunities for sustainable transport modes in accordance with paragraph 110(e) of the National Planning Policy Framework*

Prior to commencement of the development hereby approved, a Construction Traffic Management Plan (CTMP) shall be submitted to and approved in writing by the Local Planning Authority. Thereafter, the development shall not be carried out other than in accordance with the approved CTMP. *Reason: In the interests of highway safety and the residential amenities of neighbouring occupiers and to comply with Government guidance contained within the National Planning Policy Framework.*

Prior to the first occupation of the development hereby approved, a Travel Plan, prepared in accordance with the Department of Transport's Best Practice Guidance Note "Using the Planning Process to Secure Travel Plans", shall be submitted to and approved in writing by the Local Planning Authority. Thereafter, the development shall be implemented and operated in accordance with the approved details. *Reason - In the interests of sustainability and to ensure a satisfactory form of development, in accordance with Government guidance contained within the National Planning Policy Framework.*

The development shall not be occupied until a signage strategy for the site has been submitted and approved in writing by the Local Planning Authority. The development shall thereafter be completed and signage installed in accordance with the approved details prior to the first use of any building on the site. *Reason - To ensure that traffic is directed along the most appropriate routes and to comply with Government guidance contained within the National Planning Policy Framework.*

A condition will also be required to close up any existing field accesses, in the interest of highway safety.

Subject to further traffic modelling: The development shall not be occupied until the planned scheme of enlargement and signalisation of Baynards Green roundabout, or other similar capacity improvement scheme as agreed with National Highways, has

been implemented at Baynards Green junction

Officer's Name: Joy White

Officer's Title: Principal Transport Planner

Date: 5 July 2022



Appendix B Consultation Response – NH

Transport Assessment Addendum

Symmetry Park, Ardley

Tritax Symmetry Ardley Limited

SLR Project No.: 216285

30 April 2024



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

From: Andrew Jinks (Regional Director)
Operations Directorate
Midlands Region
National Highways
PlanningM@nationalhighways.co.uk

To: **Cherwell District Council – FAO Chris Wentworth**

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

Council's Reference: 22/01340/OUT

Location: OS Parcel 6124, East of Baynards Green Farm, Street to Horwell Farm, Baynards Green

Proposal: Application for outline planning permission (all matters reserved except means of access (not internal roads) from B4100) for the erection of buildings comprising logistics (use class B8) and ancillary offices (use class E(g)(i)) floorspace; energy centre, HGV parking, construction of new site access from the B4100; creation of internal roads and access routes; hard and soft landscaping; the construction of parking and servicing areas; substations and other associated infrastructure

National Highways Ref: 95187

Referring to the consultation on a planning application dated 7 June 2022 referenced above, in the vicinity of the A43 that forms part of the Strategic Road Network, notice is hereby given that National Highways' formal recommendation is that we:

- ~~a) offer no objection (see reasons at Annex A);~~
- b) recommend that conditions should be attached to any planning permission that may be granted (see Annex A – National Highways recommended Planning Conditions & reasons);
- ~~c) recommend that planning permission not be granted for a specified period (see reasons at Annex A);~~
- ~~d) recommend that the application be refused (see reasons at Annex A)~~

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

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

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

Signature: 	Date: 04 April 2024
Name: Martin Seldon	Position: Assistant Spatial Planner
National Highways National Highways, The Cube, 199 Wharfside Street, Birmingham, B1 1RN Martin.Seldon@nationalhighways.co.uk	

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

Annex A National Highways' assessment of the proposed development

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

Recommended Conditions

National Highways has no objection in principle to this planning application, but recommends to West Northamptonshire Council that the following conditions are attached to any grant of planning consent in the interest of maintaining the safety and integrity of the A43:

1. Prior to first occupation of the development hereby permitted, the scheme of works to improve the highway as shown in general accordance with SLR Consulting drawing ref: 216285-A-14A, titled Baynards Green General Arrangement, is completed and open to traffic.

Reason: To mitigate any severe or unacceptable impact from the development on the A43 Baynards Green junction in accordance with paragraph 115 National Planning Policy Framework (December 2023) and paragraph 40 DfT Circular 01/2022.

2. Prior to the commencement of the development hereby permitted a Construction Environmental Management Plan shall be submitted to and approved in writing by the Local Planning Authority, in consultation with the Highway Authority for the A43. Thereafter all construction activity in respect of the development shall be undertaken in full accordance with such approved details unless otherwise approved in writing by the Local Planning Authority in consultation with the Highways Authority.

Reason: To mitigate any adverse impact from the development on the A43 in accordance with DfT Circular 01/2022.

3. Prior to the commencement of any excavation works and landscaping works, geotechnical submissions shall be submitted to and agreed in writing by the Local Planning Authority (in consultation with the Highway Authority for the A43).

Reason: To mitigate any adverse impact from the development on the A43 in accordance with DfT Circular 01/2022.

Summary

National Highways has concluded its assessment of the development proposals and is satisfied that the development proposals can be accommodated on the SRN. Our assessment has been undertaken with consideration of the National Planning Policy Framework (NPPF) and Department of Transport Circular 01/2022 *strategic road network and the delivery of sustainable development*.

We have worked together with the applicant and Oxfordshire County Council, to ensure the traffic modelling assessment presented accurately shows the expected impact on the SRN. This confirms that the applicant has considered the opening year assessment (as required in Para 50 of the DfT Circular) and that this takes account of committed development in the area. Based on this, further collaboration took place to ensure that the proposed improvement works to the Baynards Green roundabout would deliver sufficient mitigation of traffic impacts from the development, as well as satisfying National Highways technical requirements.

Standing advice to the local planning authority

The Climate Change Committee's [2022 Report to Parliament](#) notes that for the UK to achieve net zero carbon status by 2050, action is needed to support a modal shift away from car travel. The NPPF supports this position, with paragraphs 74 and 109 prescribing that significant development should offer a genuine choice of transport modes, while paragraphs 108 and 114 advise that appropriate opportunities to promote walking, cycling and public transport should be taken up.

Moreover, the build clever and build efficiently criteria as set out in clause 6.1.4 of [PAS2080](#) promote the use of low carbon materials and products, innovative design solutions and construction methods to minimise resource consumption.

These considerations should be weighed alongside any relevant Local Plan policies to ensure that planning decisions are in line with the necessary transition to net zero carbon.



Appendix C Consultation Response – WNC

Transport Assessment Addendum

Symmetry Park, Ardley

Tritax Symmetry Ardley Limited

SLR Project No.: 216285

30 April 2024

**Town and Country Planning Act 1990 (As Amended)
Local Highway Authority (LHA) Response**

Application Reference	21/03266/F		
Proposal	Site clearance, construction of new site access from the B4100, permanent and temporary internal roads, an internal roundabout and a foul drainage station, diversion of an existing overhead power cable and public right of way, and soft landscaping. Amendment details Full application for access associated with applications 21/03267/OUT & 21/03268/OUT Further information comprising site sections through Junction 10 sites and information on Bio Diversity Net gain for Piddington site, an off-site biodiversity area put forward by the applicants.		
Location	OS Parcel 2636 NW Of Baynards House, Ardley		
Case Officer	Joy White/David Lowin		
Date Consulted	31/03/2022	Date Sent	14/03/2022

Further to the response made in November 2021 by West Northants Council (WNC) acting as the local highway authority in respect of the above planning application, the LHA have the following observations and requests to make;

We understand that a Revised Transport Assessment is currently being prepared by the applicant for this site that includes tests via the Bicester Model that should identify other traffic flows than previously assumed and considered.

This is welcomed by the LHA as it has come to our attention that a number of residents in West Northants villages; predominantly those living at Aynho, fear that significant volumes of light traffic associated with this proposed site, will be attracted to using the local highway network through and around these villages. Whilst the LHA are fully aware and supportive of the fact that all taxed and insured vehicles should be able to travel freely on the network, we would request that a data counting exercise be undertaken in order to prove or disprove this suggestion.

The LHA therefore request that the consultant undertake counts of traffic coming from the north / west / east to the site, which will then allow us to consider actual traffic flows affecting Aynho and Croughton villages, which can then be used as base model data for the Bicester Transport Model future year tests and any detailed junction capacity assessments within Aynho that are the concern WNC.

We request that monitoring using manual classified counts be undertaken over three days in three neutral weeks, as detailed on the plan section overleaf, and a report provided to evidence traffic patterns.

Planning Permission does not give or imply permission for adoption of new highway or to implement any works within the highway and / or a Public Right of Way



This will enable WNC to see through traffic from north to south and also left turners / right exits that go into Croughton. This could also identify B4031 west of the site traffic patterns

Should the residents fears prove to be founded then possibly it may be reasonable to request traffic that further horizontal traffic calming features be installed to support the residents in these villages.

Public Rights of Way

The application site is not affected by a Public Right of Way



Hayley Usher
Development Management Engineer

For Assistant Director for Highways and Waste
One Angel Square
Angel Street
Northampton NN1 1ED
Hayley.usher@westnorthants.gov.uk
www.westnorthants.gov.uk

Planning Permission does not give or imply permission for adoption of new highway or to implement any works within the highway and / or a Public Right of Way

The views, observations, comments and recommendations contained in this response represent those of West Northamptonshire Council as Local Highway Authority and in no other function or authority.



Appendix D Potential Cycle Connection

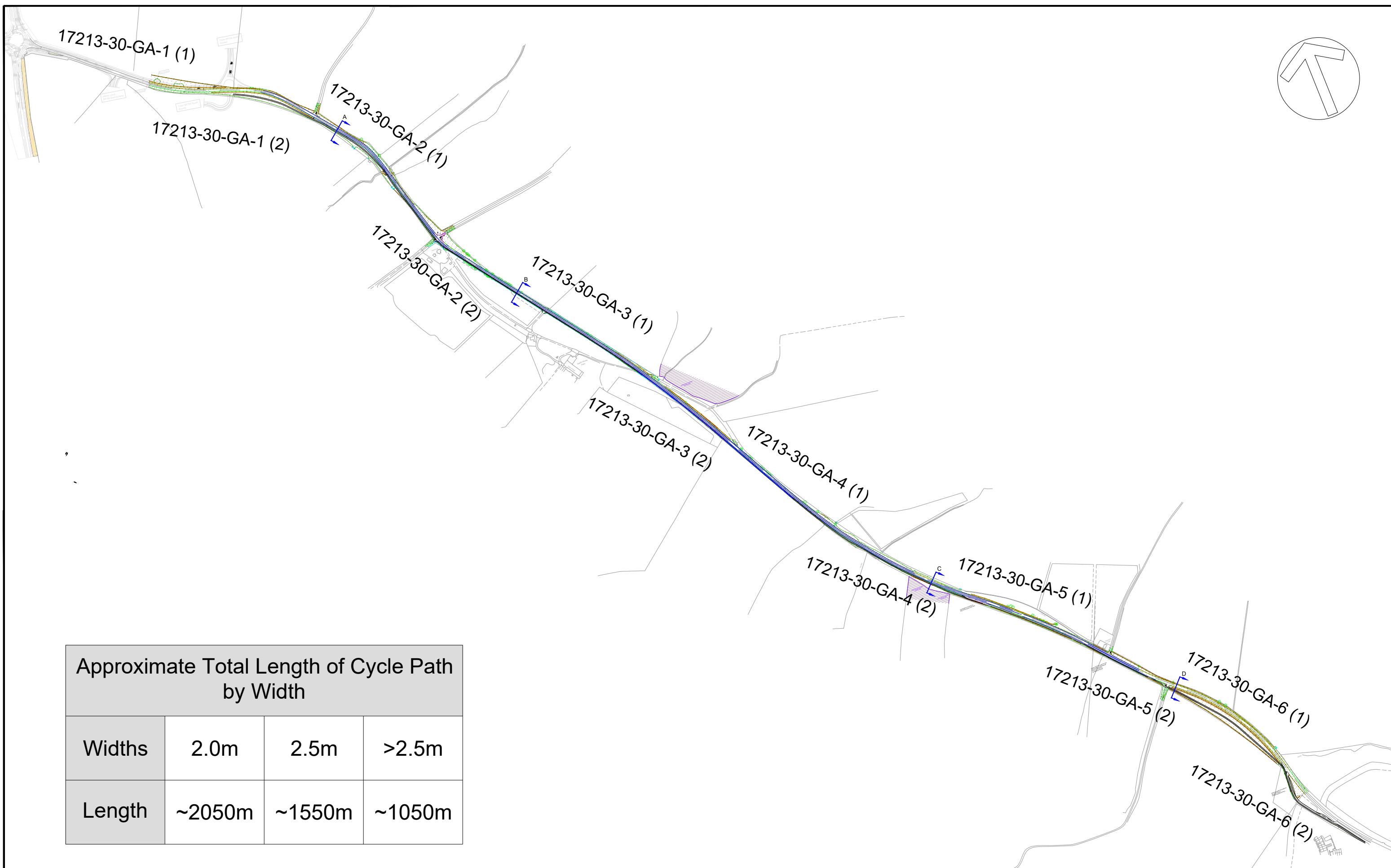
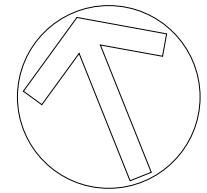
Transport Assessment Addendum

Symmetry Park, Ardley

Tritax Symmetry Ardley Limited

SLR Project No.: 216285

30 April 2024



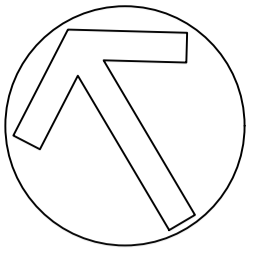
Approximate Total Length of Cycle Path by Width			
Widths	2.0m	2.5m	>2.5m
Length	~2050m	~1550m	~1050m

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Fax: +44(0)1564 793983
www.dtatransportation.co.uk

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SCALE	DRAWN BY	DATE	DRAWING No
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REVISION	H		



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B 4100

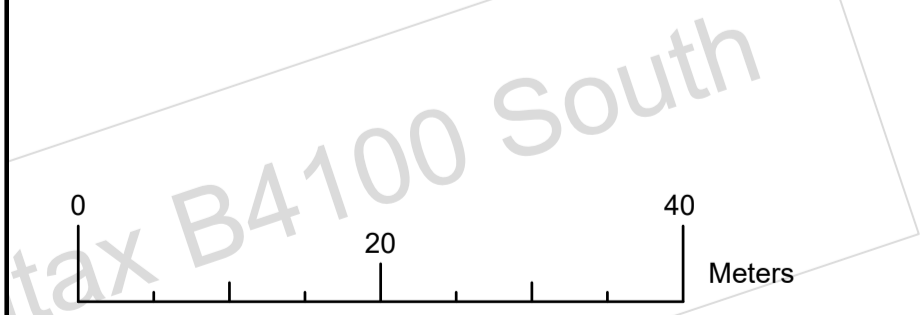
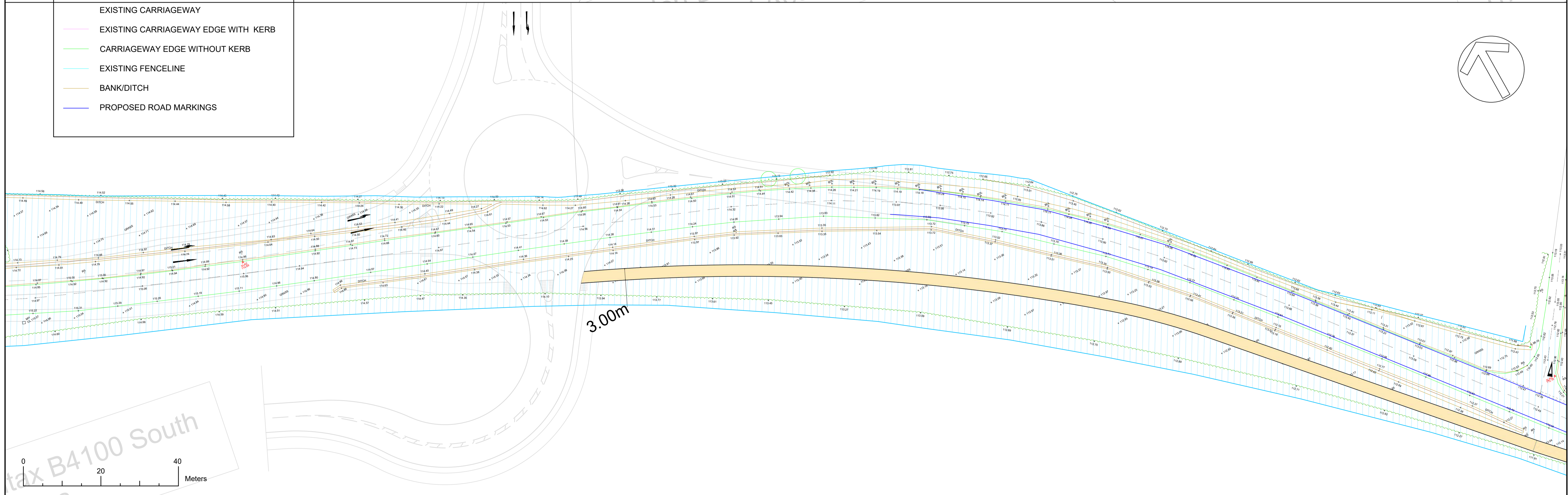
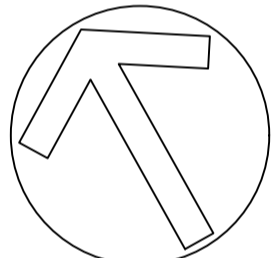
Bus shelter

Bus shelter

Land Access

Tritax B

KEY	
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	POTENTIAL VEGETATION IMPACT
	ANCIENT WOODLAND
	PROPOSED CYCLEWAY
	EXISTING CARRIAGEWAY
	EXISTING CARRIAGEWAY EDGE WITH KERB
	CARRIAGEWAY EDGE WITHOUT KERB
	EXISTING FENCELINE
	BANK/DITCH
	PROPOSED ROAD MARKINGS



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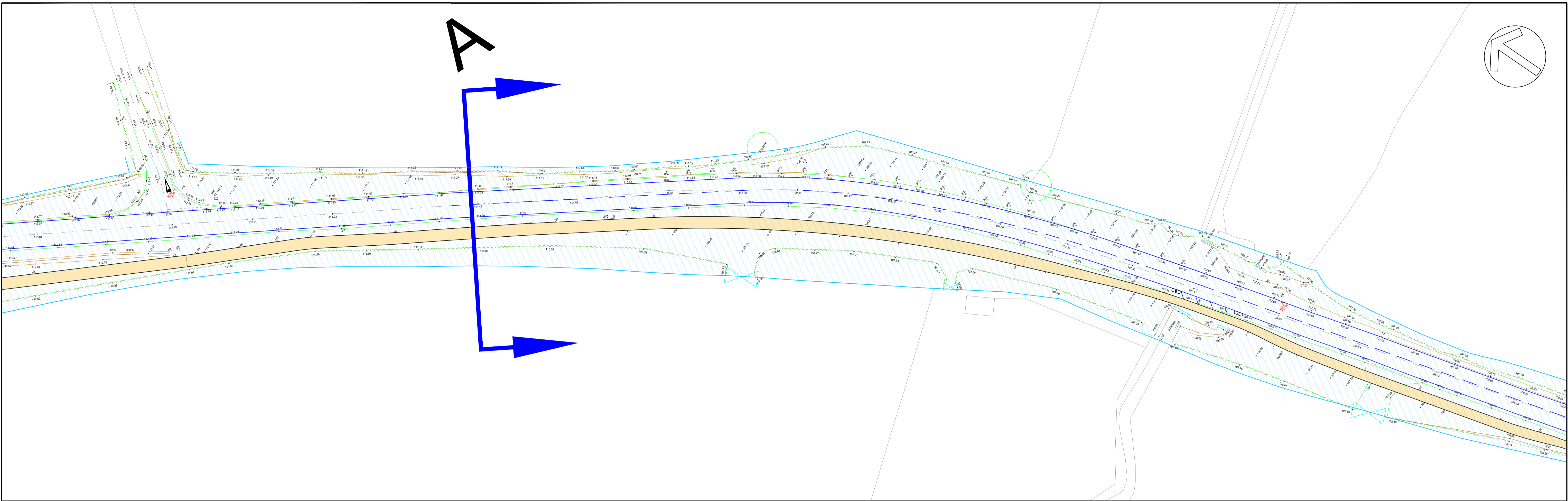
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	CARRIAGEWAY EDGE WITHOUT KERB
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	BANK/DITCH
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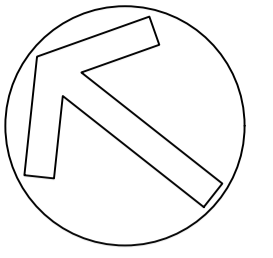
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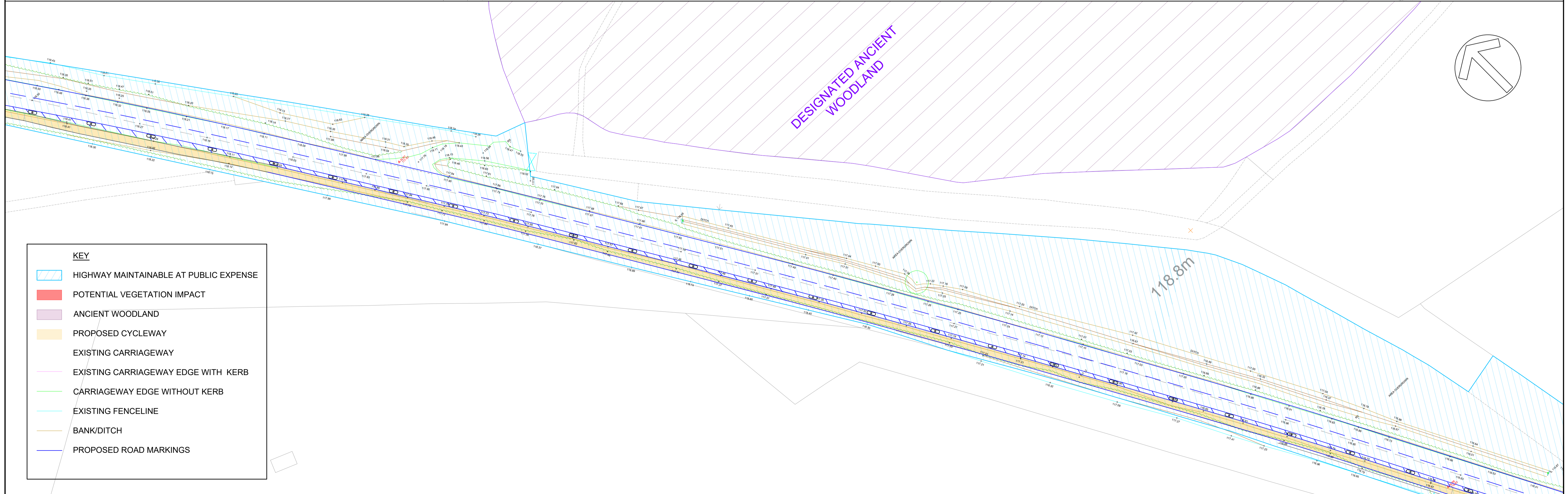
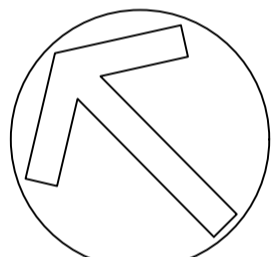
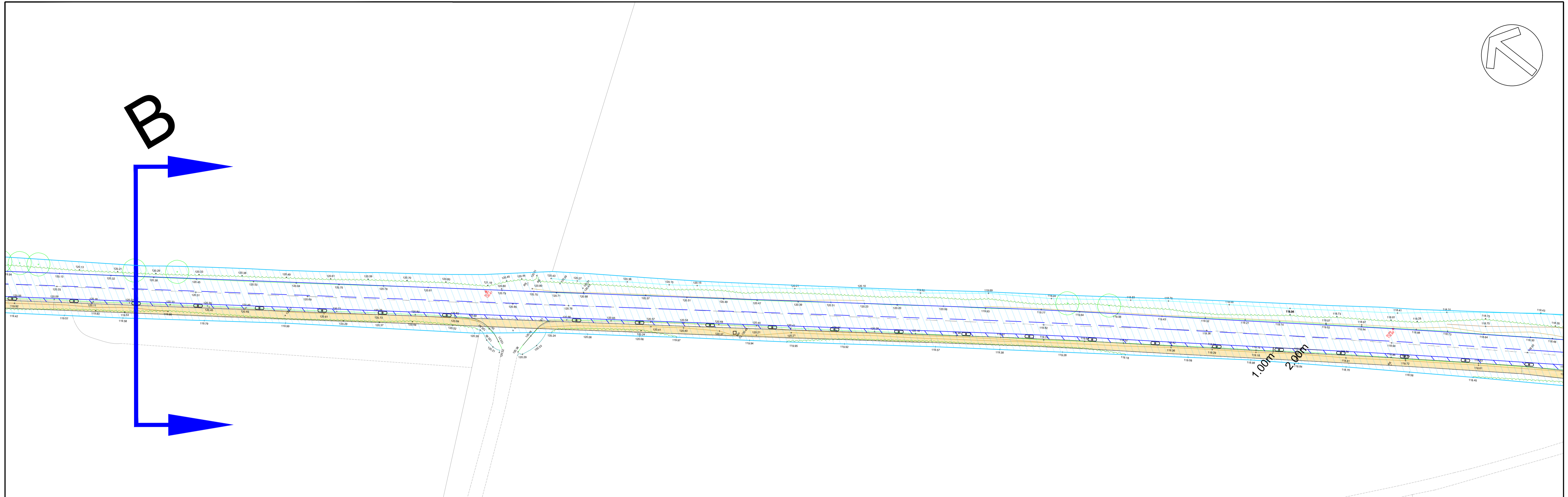
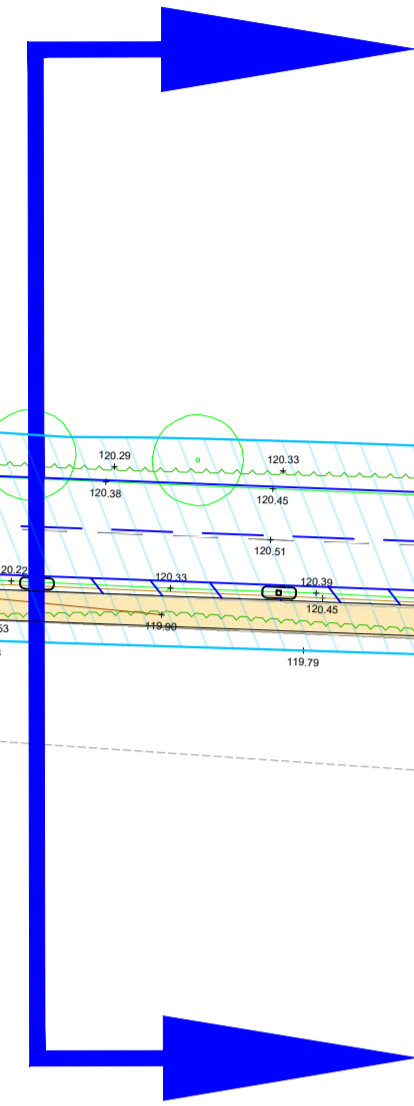


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	EXISTING FENCELINE
	BANK/DITCH
	PROPOSED ROAD MARKINGS

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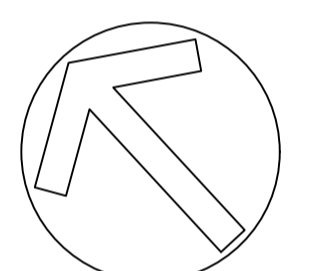
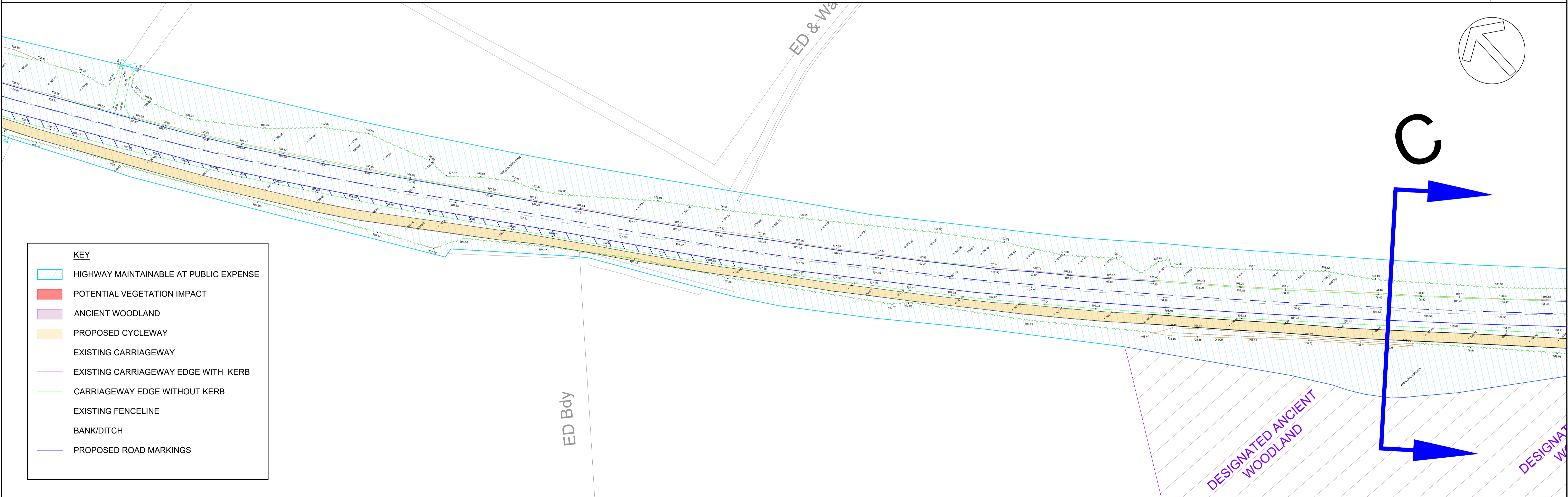
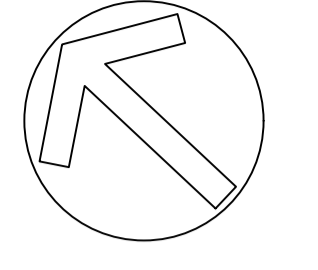
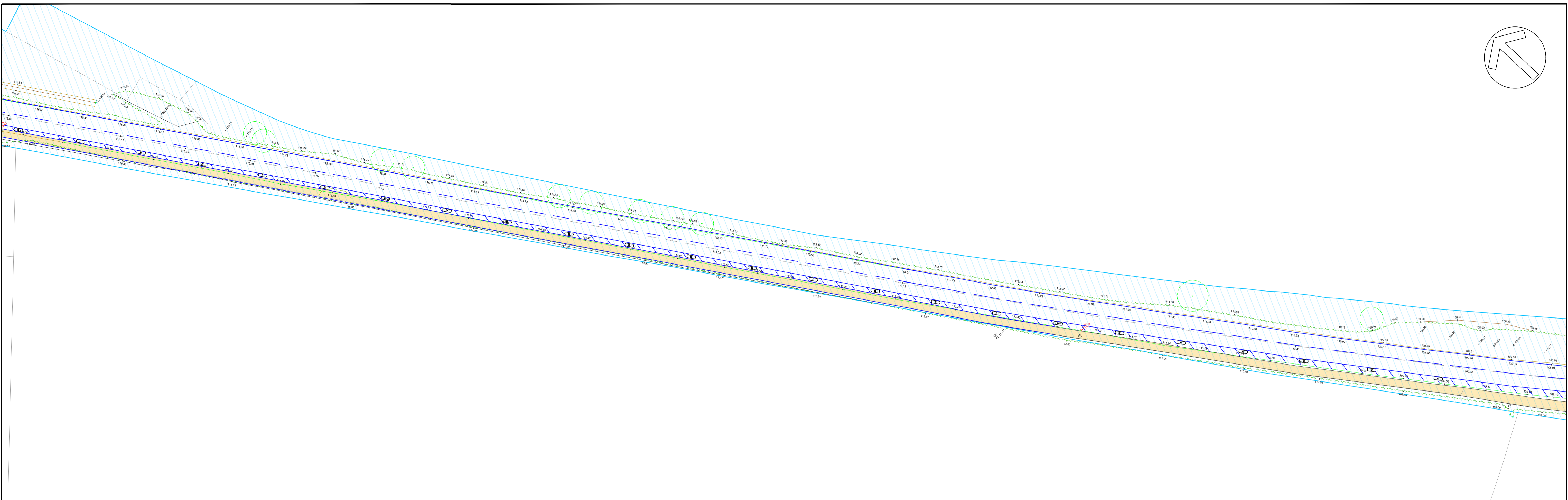
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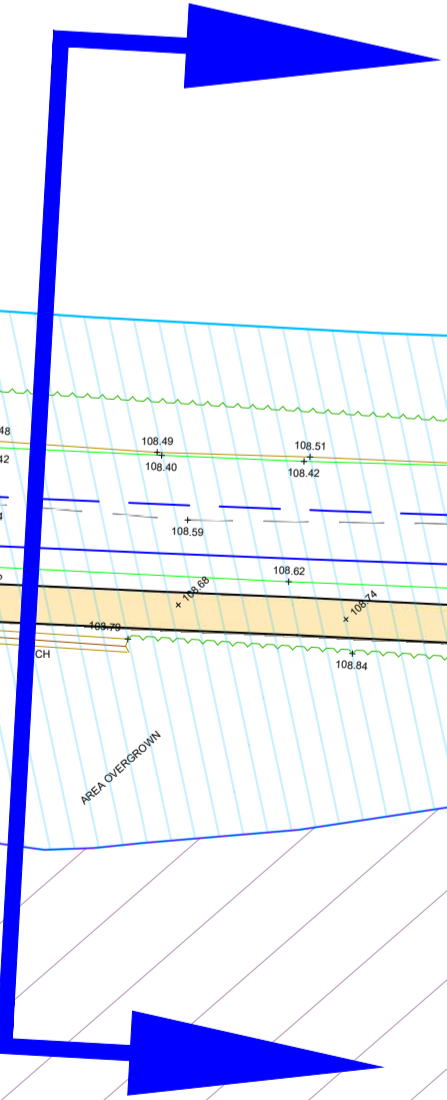


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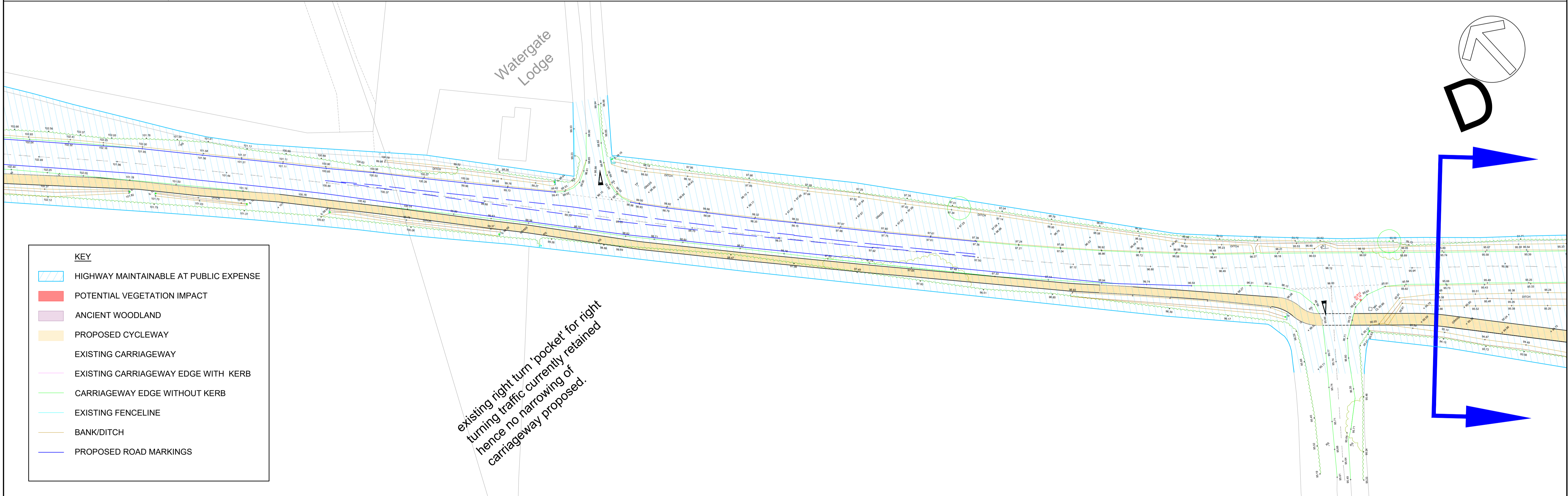
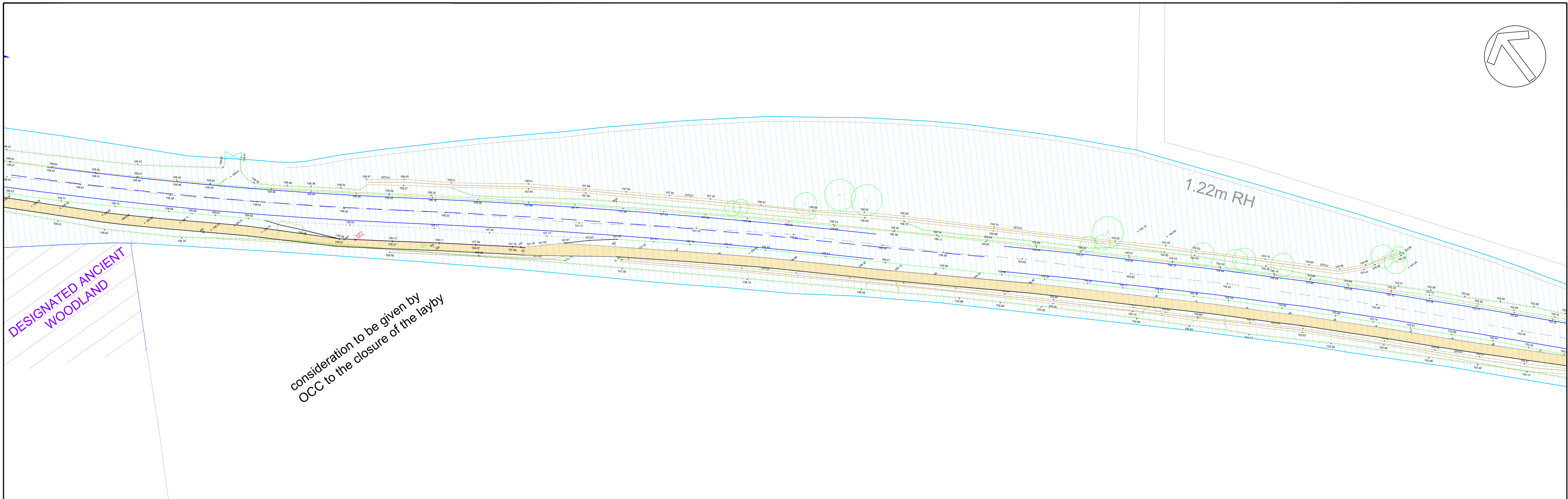
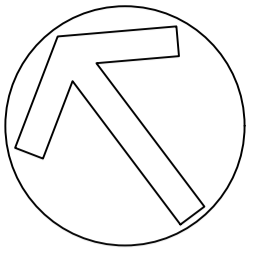
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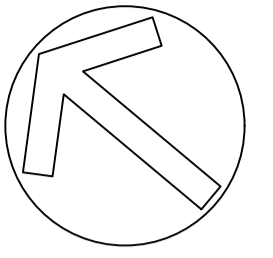
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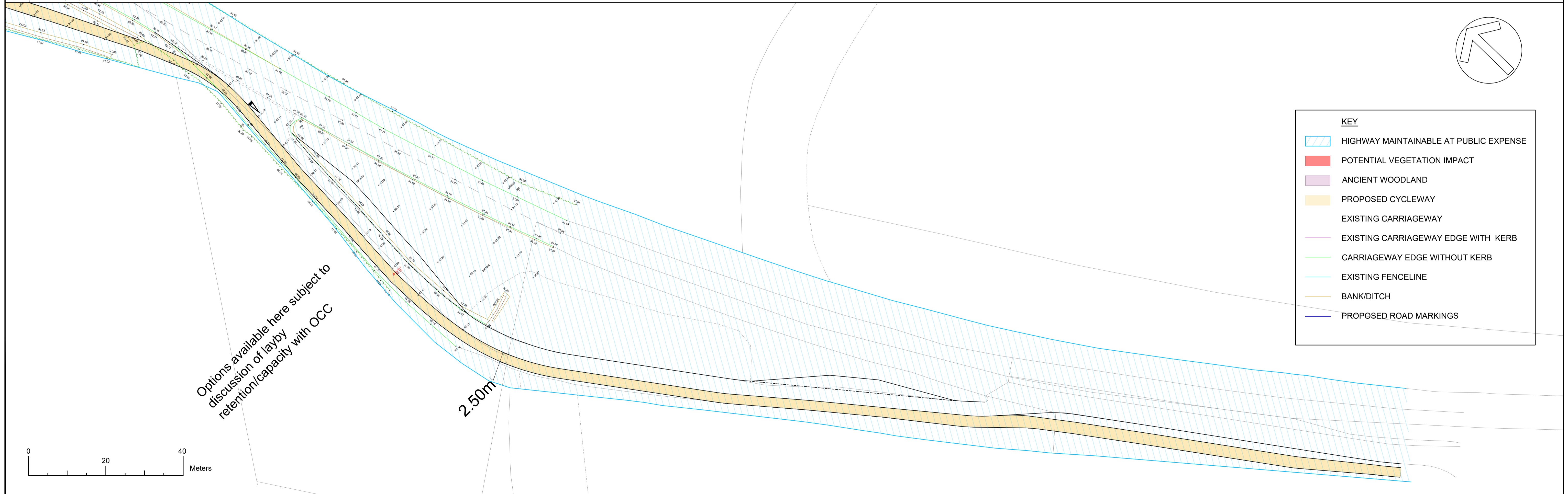
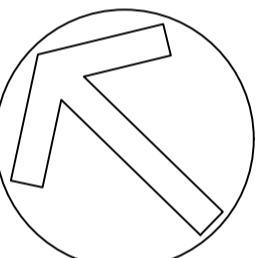
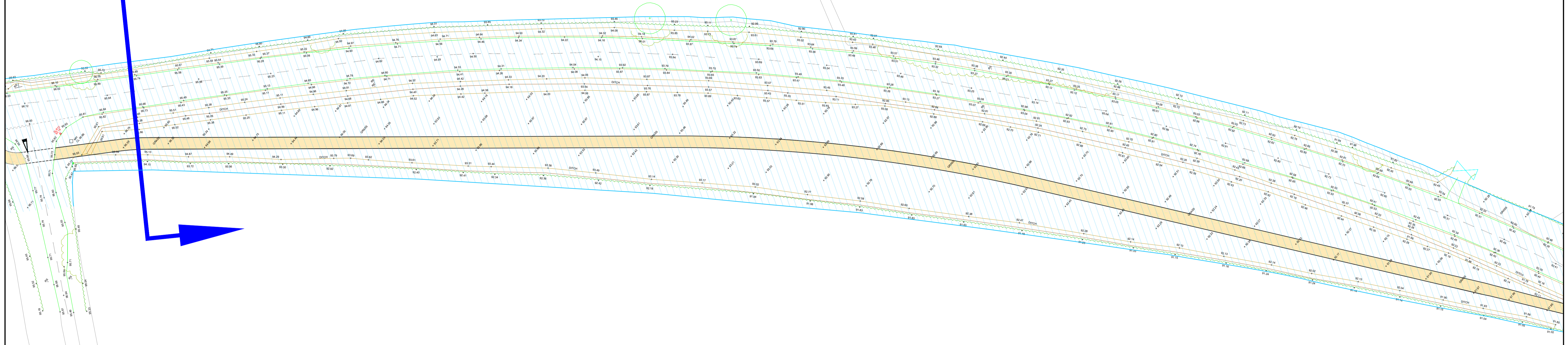
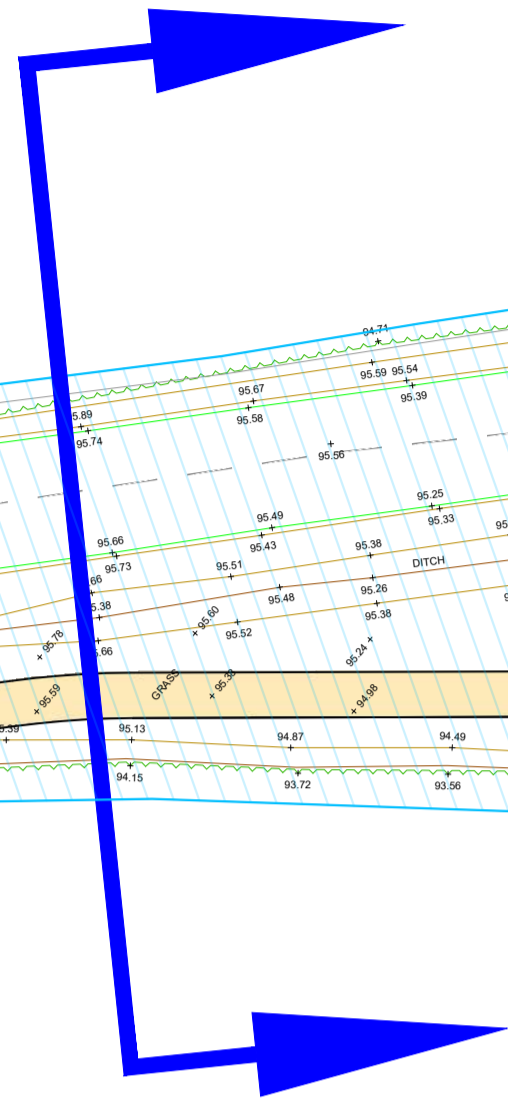


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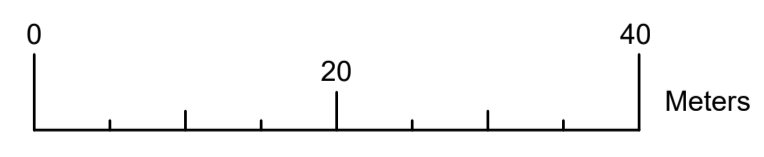
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	EXISTING CARRIAGEWAY EDGE WITH KERB
	CARRIAGEWAY EDGE WITHOUT KERB
	EXISTING FENCELINE
	BANK/DITCH
	PROPOSED ROAD MARKINGS

Options available here subject to discussion of layby retention/capacity with OCC

2.50m



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Appendix E Correspondence with OCC PRow Officers

Transport Assessment Addendum

Symmetry Park, Ardley

Tritax Symmetry Ardley Limited

SLR Project No.: 216285

30 April 2024

From: Harris, Paul - Oxfordshire County Council <[REDACTED]>
Sent: Thursday, January 18, 2024 9:40 AM
To: Jonathan Dawes <[REDACTED]>; James Bancroft <[REDACTED]>; White, Joy - Oxfordshire County Council <[REDACTED]>
Subject: Application 22/01340/OUT Land East of Baynards Green Farm- Revised PRow response and request for s106 contribution/ R122

Jonathan/James/Joy

Please find revised PRow response and R122 statement for the above application. The offsite ask has been reduced to around £70,000 but there is an onsite request now. .

Public Rights of Way Response

Oxfordshire County Council (OCC) manages the legal record and access functions on the public rights of way and access land network. In addition to the statutory functions of recording, protecting and maintaining public rights of way, part of the authority's role includes securing mitigation measures from residential and commercial developments that will have an impact on the public rights of way and access land network in order to make those developments acceptable. This work meets the aims and outcomes of the adopted Oxfordshire Rights of Way Management Plan 2015-2025 (www.oxfordshire.gov.uk/rowip).

Key points:

1. The application site does not include any recorded PRow so its impact is more limited, but, there are a couple of PRow in immediate vicinity that will be affected by the development and users of the facility – and this could have a positive and negative impact
2. The proposed onsite Trim Trail could be adjusted to provide a workforce benefit as well as a connection to the PRow network that may benefit staff as well as public by connecting to the bridleway immediately south of the site, and part of it could provide a bridleway connection.
3. Onsite measures could be reduced if the Trim Trail utilises Stoke Lyne Bridleway 347/24 north of the site, opening up two gaps at each end into the site with gated access. This is only an option if the site boundary includes that of the bridleway.
4. The bridleway running north of the M40 services (Stoke Lyne Bridleway 367/21) is the closest PRow and one that provides almost a direct connection between the site and the services. It is considered fair to assume that workforce will use this nearby connection for two-way access. It is also considered fair to request a gateway in this development's site boundary to formalise that access - which could be secured for workforce only (possible locations indicated by aqua arrows). Within the boundary a surfaced path within the sites could be provided that gives a clear route for workforce and the public and the path this takes could flex depending on security concerns. This could take the form of a stone

surfaced bridleway (dedicated under s25HA1980) leading north over the B4100 to bridleway 347/24 and that also incorporates part of the Trim Trail on the eastern edge of both sites. **A proposed spec for this is attached** but this spec may not be necessary for the route north of the B4100 if the ground is reasonably firm or made-up. However, providing a stone surface keeps people on the right route, prevents path spreading and so does help prevent damage to habitats and wildlife. The approx. distances for section south of B4100 is 420m and north of the B4100 is 840m. See pink lines below showing a couple of options. By providing this onsite it helps provide a link in the network as well as a formal two-way connection for workforce to services.

5. In terms of offsite contribution the above mitigation measure will offset most of the impacts of the dev and deliver benefits for workforce and public. I am therefore seeking a lower s106 contribution to formalise the offsite connection from their site to the bridleway (if needed) where the pink and green lines below meet, and to fund surface improvements for up to around 350m of bridleway that connects and skirts the M40 services - Stoke Lyne Bridleway 367/21 or other route in the fields that can formalise a safe connection. See green lines below. A request is made for **£70k** for negotiating an access link plus surfacing/infrastructure (gates etc) plus signage. See CIL 122 statement/calc below.
6. Note that this PRow response is separate to any highways/active travel discussions and provision.



CIL Reg 122 Statement

This note applies to the £70,000 index-linked s106 contribution (Baxter Q2, 2022) requested in relation to the application for 22/01340/OUT Land East of Baynards Green Farm (Tritax Symmetry, Ardley)

3. Meeting the statutory tests in Community Infrastructure Levy Regulation 122:

(a) necessary to make the proposed development acceptable in planning terms;

- i. The bridleway to the south of the site (Stoke Lyne Bridleway 347/21) is almost directly connected to the site and is a clear desire line and connection for workforce of the development to access M40 Services Cherwell Valley. This PRoW will be placed under greater pressure as a direct result of this development. The connection also potentially benefits the public too – by enabling a connection to the surrounding PRoW network. It is proposed that a formalised gateway, stone surfacing and gates/signs and other infrastructure is provided here.
- ii. The development’s scale and function will negatively affect the attractiveness and amenity of the countryside and PRoW, especially the bridleway to the north of the site (347/24), during construction as well as during operations. The PRoW become less pleasant to use

as views across fields and a rural landscape are lost and there is more noise spread. OCC is proposing a small amount of onsite (Bridleway/Trim Trail connection on east side of both development sites, shown with pink lines) and offsite mitigation measures (improvements to bridleway and connecting paths shown with green lines) that will help offset negative impacts (by providing better landscaped and accessible routes that absorb visual and sound spread; and connections to enable movement away) and also achieve net positive outcomes for PRow users and workforce.

(b) directly related to the development;

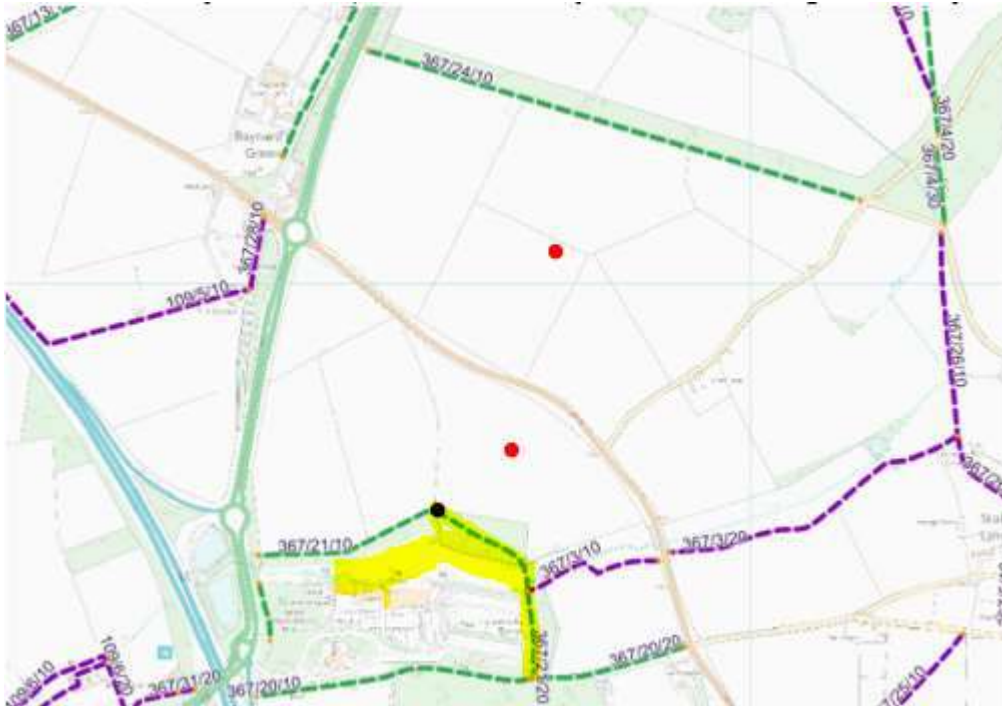
The site has had a desk assessment and follow-up review to both assess the current situation and look at how PRow public use could be protected and enhanced. With the development site at the centre, the logical and realistic public rights of way network likely to be affected is considered along with the range of measures needed to provide mitigation against the impacts of the development. In this case it is the size and location of the commercial development, almost directly connecting to a bridleway and the 'destination' of the M40 Cherwell Valley Services, plus the bridleway to the north.

c) fairly and reasonably related in scale and kind to the development

The proposed measures are based on the desk assessment of likely costs for the measures. The proposed off-site measures are in the form of a reasonable financial contribution to allow the Countryside Access Strategy to plan and deliver improvements with applicant and third party landowners in a fairly short time period and under the Rights of Way Management Plan aims. The contribution would be index-linked and subject to a longstop. The contribution would be spent on specific improvements to the PRow and path network as highlighted yellow on the map below. Primarily this is to formalise a connection to the site (to prevent desire lines and habitat damage) and improve the surfaces of routes to the riverside paths and the service area, along with necessary new or replacement structures like gates, crossings, seating, signing etc. to enable year-round easier access, plus landscape, amenity and biodiversity elements like tree and other planting.

The key works anticipated and the approximate split of the £70k is*

1. Formalisation of the legal and physical connection between the site and the Stoke Lyne Bridleway 347/21 (black dot below), if required, <10-15%
2. Stoke Lyne Bridleway 347/21/path surface and infrastructure upgrade works from the site to M40 Cherwell Valley Services/riverside path and bridleway 367/20 – as highlighted in yellow below. – up to 90%. This would use the supplied specification as the basis for works – up to 3m wide stone surfaced path at estim. £35/m² build costs. Final spec would depend on ground conditions and survey.



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Estimated contribution breakdown*

Site and habitat surveys & assessments, <5%

Landowner negotiations and agreement payments, <5%

Outline design allowance, <5%

Admin processes e.g. consultation, project management, <5%

Legal processes e.g. temporary works closures, creation agreements and contracts, <5%

Materials, plant & equipment, contractor works, <80%, comprising:

Stone surfacing up to 1400m² @ £35/m²,

Signs (fingerpost) 6no. @ £150

Seating 1no. @ £300

Water crossing points repair/replace £5000

Bridleway gateway 1no. @ £500

Contingency/Risk and Ongoing quality standard retention, up to 15%

*All allocations are estimates to inform and underpin s106 request. Any contribution would be aggregated across routes and activities and a longstop of 5-10 years will be requested.

Kind regards, Paul

Paul Harris MSc MIPRoW

Team Leader Countryside Access Strategy & Development

Oxfordshire County Council

Environment & Heritage Group



Appendix F TSL Access Arrangement

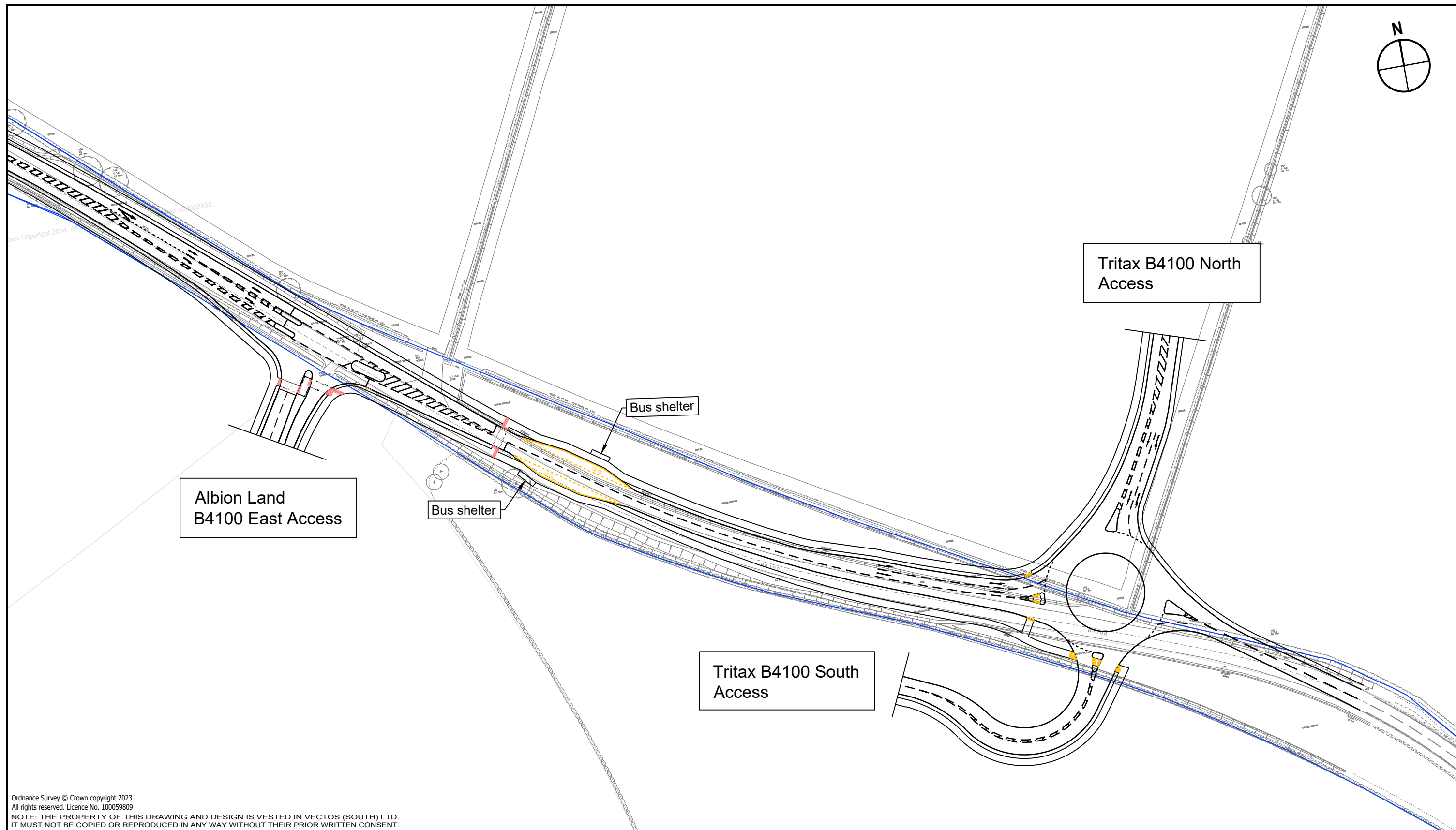
Transport Assessment Addendum

Symmetry Park, Ardley

Tritax Symmetry Ardley Limited

SLR Project No.: 216285

30 April 2024



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REV.	DETAILS	DRAWN	CHECKED	DATE
A	DTA comments	JM	RB	25.01.2024
B	northern layby and added the shelter	SCJ	RB	13/03/24

Notes:
 1. This is not a construction drawing and is intended for illustrative purposes only.
 2. White lining is indicative only.

Key

— Extent of Public Highway

INFORMATION ONLY

Symmetry Park

Proposed Re-alignment of B4100

Tritax Symmetry



DRAWN:
JM

CHECKED:
RB

DATE:
20.12.2023

SCALES:
1:1500 at A3

DRAWING NUMBER:
216285/PD10

REVISION:
B



Appendix G Stage 1 RSA – TSL Access and Baynards Green Roundabout

Transport Assessment Addendum

Symmetry Park, Ardley

Tritax Symmetry Ardley Limited

SLR Project No.: 216285

30 April 2024



RSA Designers Response

A43 / B4100 Baynards Green Roundabout

Tritax Symmetry & Albion Land

Prepared by:

SLR Consulting Limited

The Cursitor, 38 Chancery Lane, London, WC2A 1EN


SLR Project No.: 216285

Audit Reference: SG/JS/2309-11 RSA1 v1.0

11 March 2024

Revision: 02

1 Project Summary

RSA REPORT TITLE	LAND ADJACENT TO M40 JUNCTION 10
Date	February 2024
Document Reference and Revision:	SG/JS/2309-11 RSA1 v1.0
Prepared by:	Steve Giles – Gateway RSE
On behalf of:	National Highways
AUTHORISATION SHEET	
Project:	A43 / B4100 Baynards Green Roundabout
Report Title	Stage 1 Road Safety Audit Designer Response
DESIGNERS RESPONSE PREPARED BY	
Name:	Richard Bishop
Signed:	
Organisation:	SLR Consulting
Date:	11.03.24



2 General Details

GENERAL DETAILS:				
Highway scheme name and road number:	A43 / B4100, Baynards Green Roundabout.			
Type of scheme:	Junction Improvement - signalisation of an existing priority junction			
RSA Stage:	<input checked="" type="checkbox"/> Stage 1	<input type="checkbox"/> Stage 2	<input type="checkbox"/> Stage 3	<input type="checkbox"/> Stage 4
	Interim			
Overseeing Organisation details:	National Highways			
Design organisation details:	Martin Seldon (martin.seldon@nationalhighways.co.uk)			
Police contact details:	N/A			
Maintaining agent contact details:	N/A			
RSA team membership:	Steve Giles (Team Lead), Julian Smith (Team Member)			
Terms of reference:				



3 Road Safety Audit Decision Log

RSA PROBLEM	RSA RECOMMENDATION	DESIGN ORGANISATION RESPONSE	OVERSEEING ORGANISATION RESPONSE	AGREED RSA ACTION
2.1	Provide a suitable highway maintenance bay and identify safe arrangements for maintenance of signal equipment on the left turn segregation islands.	Accepted. An appropriate maintenance access will be included at detailed design.	Noted.	To be considered during detailed design.
2.2	No comments on local alignment.	No response required.	N/A	N/A
2.3	Review the junction model to ensure that the risk of vehicles queuing to the upstream] node is reasonably minimised. If necessary, adjust signal timings or increase queuing capacity.	Accepted. The method of control is deliberately designed to minimise queues on the circulatory carriageway. A LinSig analysis excerpt is included at Appendix B .	Noted.	Review to be continued during detailed design to ensure queuing is minimised.
2.4	Provide an additional secondary signal head to assist drivers in the middle two lanes of the internal stop line on the east side of the circulatory carriageway.	Accepted. To be incorporated at detailed design.	Noted.	To be considered during detailed design.



<p>2.5</p>	<p>Provide cowls on secondary signal heads at nodes incorporating pedestrian crossing facilities.</p>	<p>Accepted. To be incorporated at detailed design.</p>	<p>Noted.</p>	<p>To be considered during detailed design.</p>
<p>2.6</p>	<p>Cut back foliage with sufficient clearance behind the visibility splays to minimise future maintenance and limit the risk of obstruction to the drivers' view.</p>	<p>Accepted. Refer to the GA included at Appendix A.</p>	<p>Noted. The Designer has submitted a GA drawing which includes a note that, vegetation will be cut back, with boundary treatment considered during detailed design.</p>	<p>To be considered during detailed design.</p>
<p>2.7</p>	<p>Review the need for extended lighting, additional signs/markings, high friction surfacing and a reduced speed limit on the roundabout approaches.</p>	<p>Accepted. To be investigated at detailed design.</p>	<p>Noted.</p>	<p>To be considered during detailed design.</p>
<p>2.8</p>	<p>Provide a barrier on refuge/splitter islands accommodating staggered pedestrian crossings to prevent sight impaired pedestrians from straying into the circulating carriageway.</p>	<p>Accepted. Guardrails are shown on the GA. A revised GA will be supplied that clarifies intended guardrail and fencing provision.</p>	<p>Noted. Revised GA drawing, emphasising the guardrails, has been submitted.</p>	<p>To be considered during detailed design.</p>




<p>2.9</p>	<p>Install strong deterrent barriers to prevent pedestrians from the Tritax site from reaching the A43 north carriageway; or provide a formal crossing on the north side of the junction and a route to it from within the development.</p>	<p>Accepted, with clarification. A crossing over the A43 north cannot be provided due to land ownership and highway extent. Strong deterrent barriers, as suggested, to be incorporated at detailed design.</p>	<p>Noted.</p>	<p>To be considered during detailed design.</p>
<p>2.10</p>	<p>Review the layout of refuge/traffic islands to ensure that (a) left turn segregation is appropriate and (b) if so, sufficient space will be available to accommodate signals, signs, and lighting columns with appropriate horizontal clearances from the carriageway and any pedestrian/cycle routes. If the islands are omitted, review the need for and location of any alternative signal heads.</p>	<p>Accepted. The proposed traffic islands are intended to benefit entry deflection. Dimensions are sufficient to accommodate signal equipment and give appropriate clearances. Dimensions to be further reviewed at detailed design once more information is known about road sign provision and positioning.</p>	<p>Noted. The Designer has clarified that the splitter islands are needed to provide the appropriate entry path curvature, associated with the provisional approval of the related Departure from Standard.</p>	<p>To be considered during detailed design. To ensure that the islands are able to accommodate the equipment.</p>



2.11	Change right turn arrows on approach arms to ahead arrows and clarify lane destinations with advance direction signs and lane destination carriageway markings	Accepted. The signing strategy will be reviewed at detailed design to ensure drivers are appropriately informed as to the correct lane choice.	Noted. The Designer has clarified that right turn markings will not be used. Increasing driver comprehension, through signing for lane destinations and appropriate ADS, will be considered.	To be considered during detailed design.
-------------	--	--	--	--



4 Design Organisation and Overseeing Organisation Statements

ON BEHALF OF THE DESIGN ORGANISATION I CERTIFY THAT: THE RSA ACTIONS IDENTIFIED IN RESPONSE TO THE ROAD SAFETY AUDIT PROBLEMS IN THE ROAD SAFETY AUDIT HAVE BEEN DISCUSSED AND AGREED WITH THE OVERSEEING ORGANISATION.	
Name	Richard Bishop
Signed	
Position	Associate Director
Organisation	SLR Consulting Ltd
Date	11.03.2024

ON BEHALF OF THE OVERSEEING ORGANISATION I CERTIFY THAT: THE RSA ACTIONS IDENTIFIED IN RESPONSE TO THE ROAD SAFETY AUDIT PROBLEMS IN THE ROAD SAFETY AUDIT HAVE BEEN DISCUSSED AND AGREED WITH THE DESIGN ORGANISATION; AND THE AGREED RSA ACTIONS WILL BE PROGRESSED.	
Name	Martin Seldon
Signed	
Position	Assistant Spatial Planner
Organisation	National Highways
Date	12.03.2024



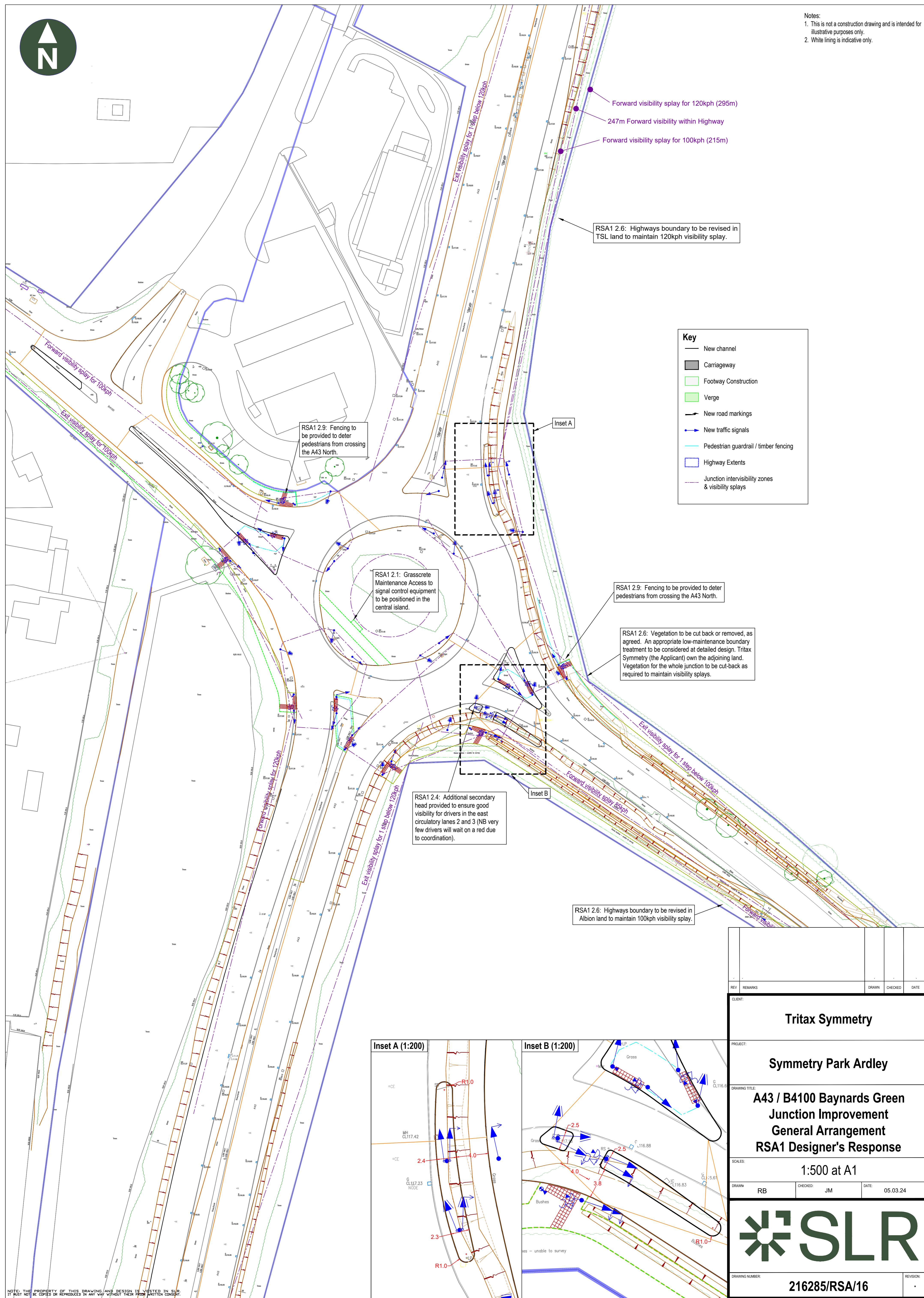
Appendix A

General Arrangement and RSA1 Response Plan





Notes:
 1. This is not a construction drawing and is intended for illustrative purposes only.
 2. White lining is indicative only.



Key

- New channel
- Carriageway
- Footway Construction
- Verge
- New road markings
- New traffic signals
- Pedestrian guardrail / timber fencing
- Highway Extents
- Junction intervisibility zones & visibility splays

RSA1 2.9: Fencing to be provided to deter pedestrians from crossing the A43 North.

RSA1 2.1: Grasscrete Maintenance Access to signal control equipment to be positioned in the central island.

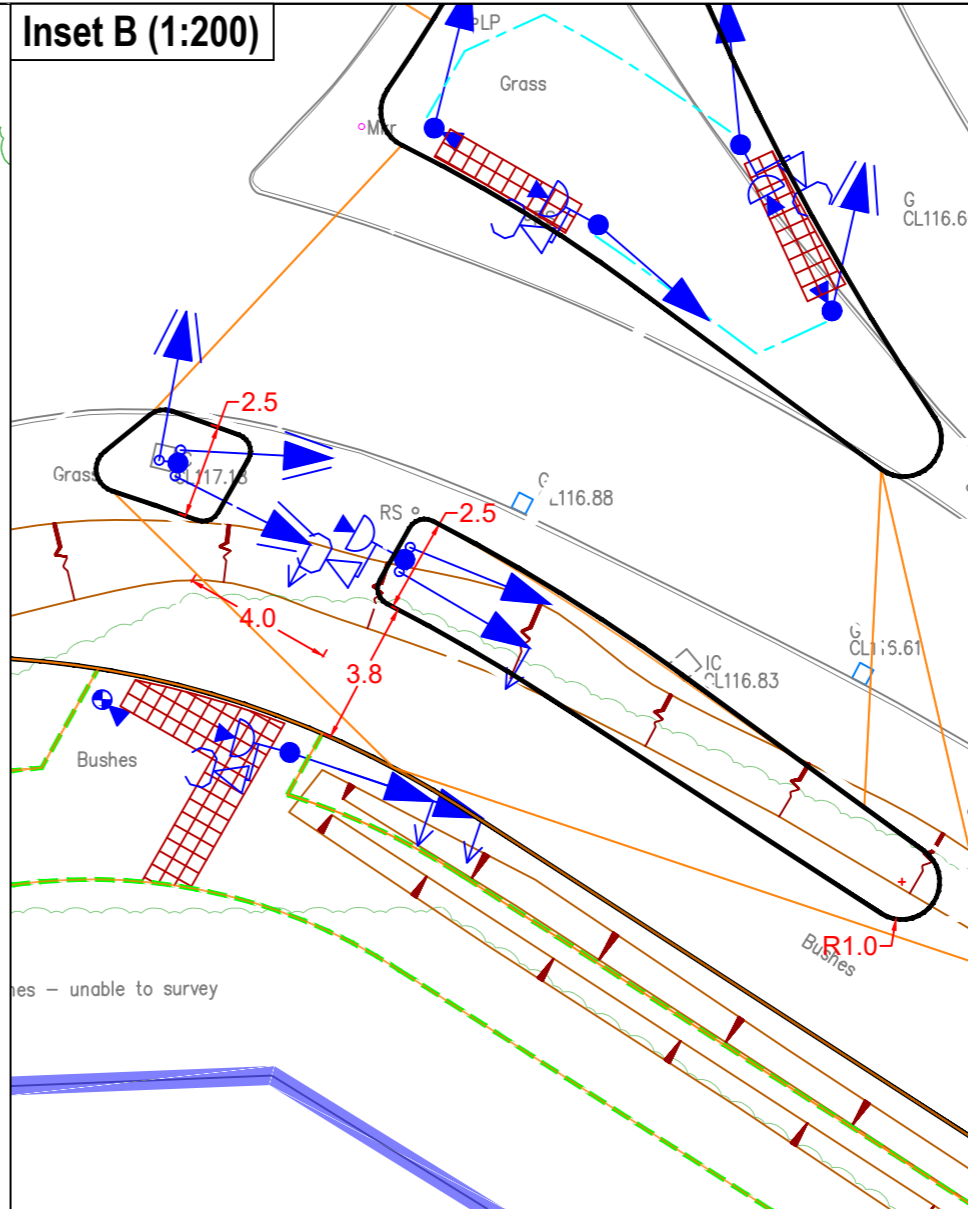
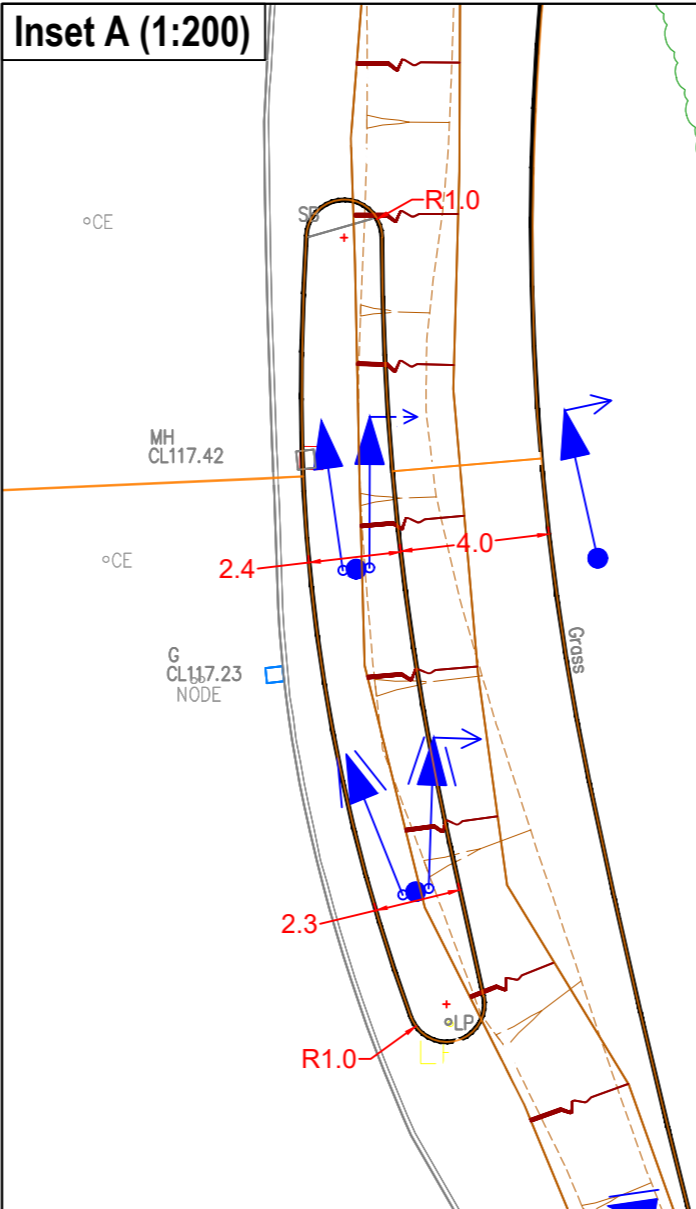
RSA1 2.6: Highways boundary to be revised in TSL land to maintain 120kph visibility splay.

RSA1 2.9: Fencing to be provided to deter pedestrians from crossing the A43 North.

RSA1 2.6: Vegetation to be cut back or removed, as agreed. An appropriate low-maintenance boundary treatment to be considered at detailed design. Tritax Symmetry (the Applicant) own the adjoining land. Vegetation for the whole junction to be cut-back as required to maintain visibility splays.

RSA1 2.4: Additional secondary head provided to ensure good visibility for drivers in the east circulatory lanes 2 and 3 (NB very few drivers will wait on a red due to coordination).

RSA1 2.6: Highways boundary to be revised in Albion land to maintain 100kph visibility splay.



REV	REMARKS	DRAWN	CHECKED	DATE
CLIENT: Tritax Symmetry				
PROJECT: Symmetry Park Ardley				
DRAWING TITLE: A43 / B4100 Baynards Green Junction Improvement General Arrangement RSA1 Designer's Response				
SCALES: 1:500 at A1				
DRAWN	RB	CHECKED	JM	DATE: 05.03.24
DRAWING NUMBER: 216285/RSA/16				REVISION:

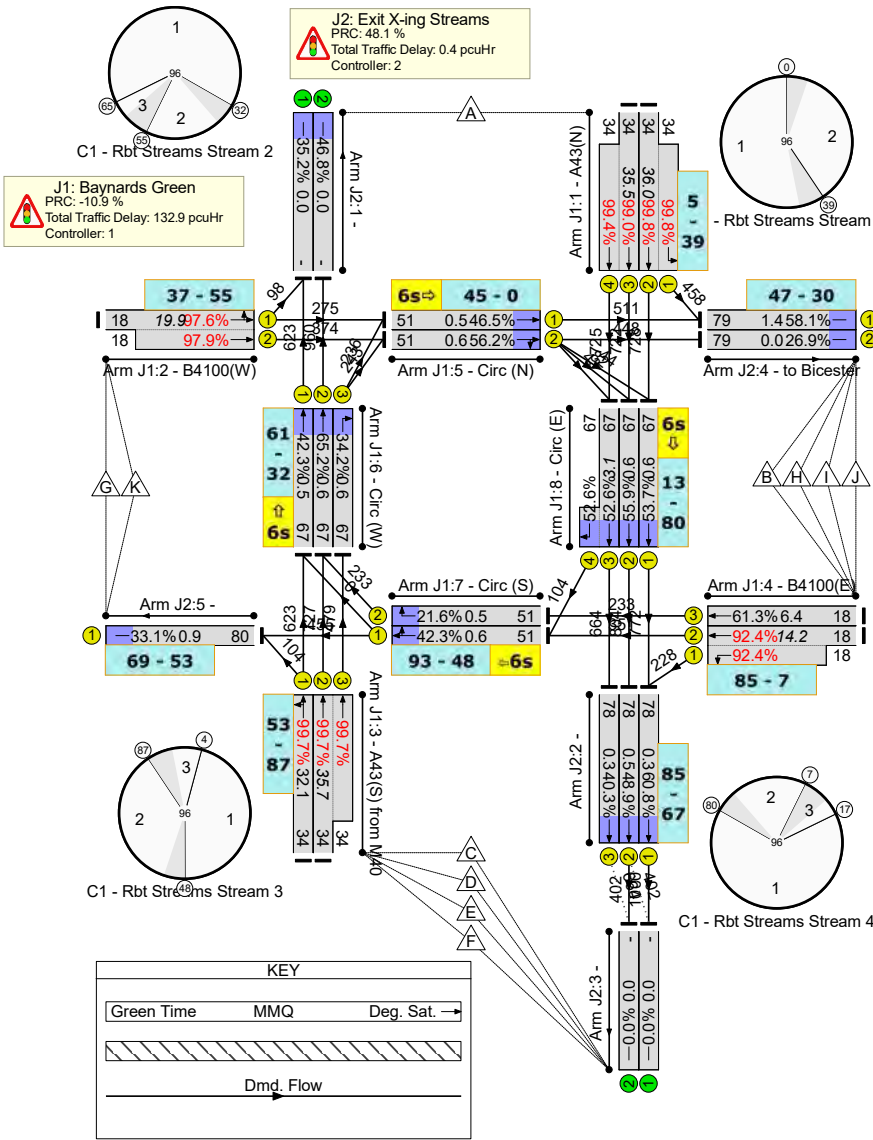


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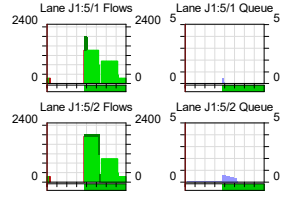
Appendix B

LinSig Analysis Excerpt

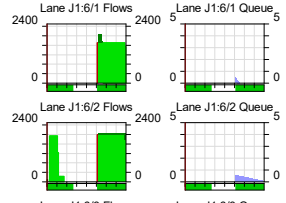




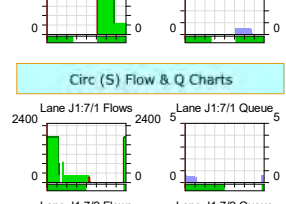
Circ (N) Flow & Q Charts



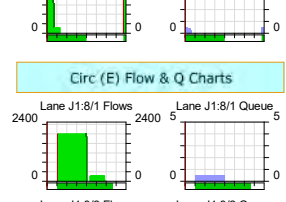
Circ (W) Flow & Q Charts



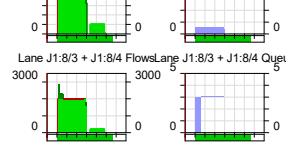
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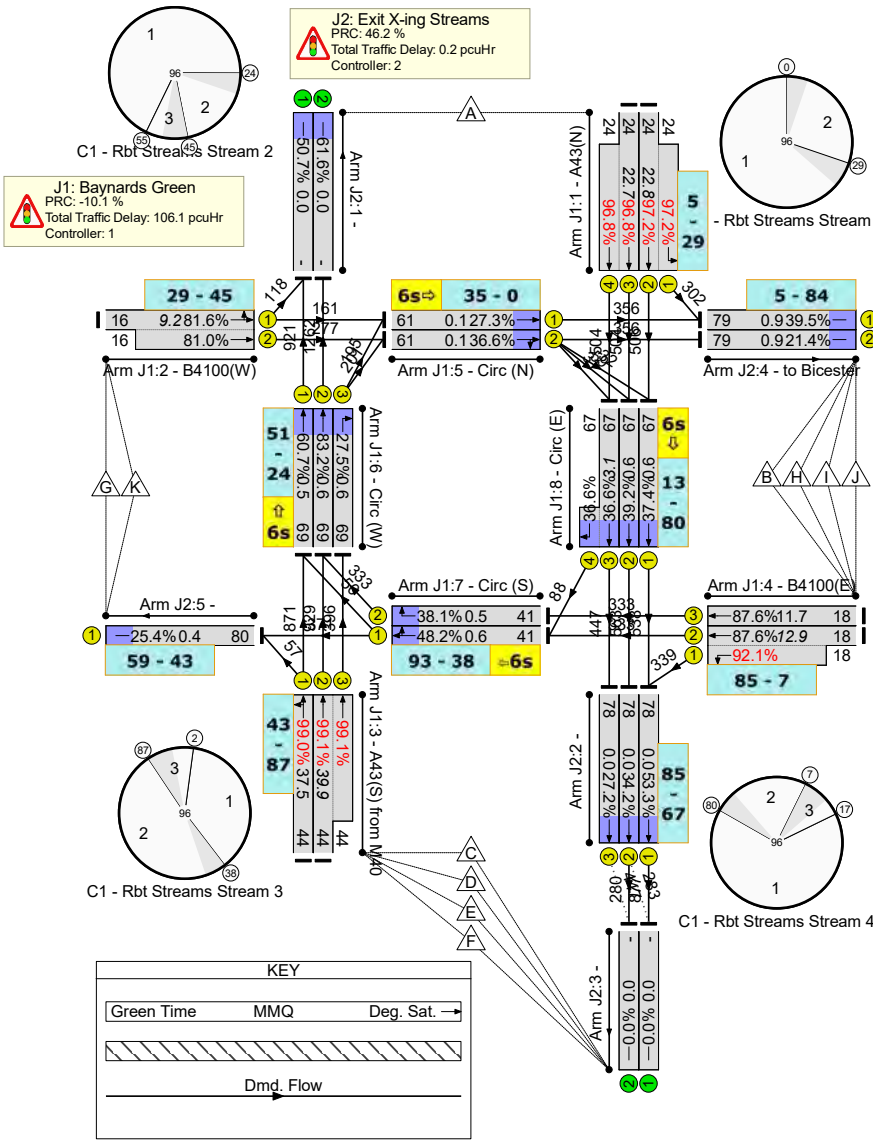
Circ (E) Flow & Q Charts



Circ (E) Flow & Q Charts



Drawing Title	Project Title A43 / B4100 Baynards Green	Project Location	Date 12 Mar 2024	Scale NTS
Project Name Tritax Bicester	Company Vectos SLR	Author R Bishop	FileName 216285 Baynards Green Rbt v1_8	



Notes

General cruise speeds are assumed at 30-32kph for circulatory and B4100 entries while 35kph is assumed for the A43 entries.

Internal stop line effective greens have been adjusted for platoon compression, i.e. +1s. These could be extended to +2s.

Additional safety closing intergreens have been assumed as +1s for A43 entries, i.e. approach 85%ile speeds 35 - 45mph.

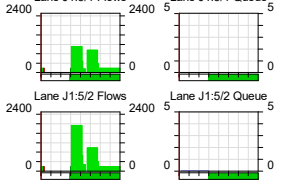
A43 right turn closing delays are assessed at 9s.

Greens

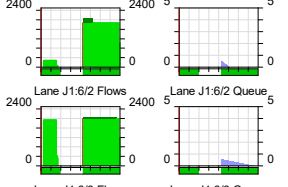
A43 S/B	24s
B4100 E/B	16s
A43 N/B	44s
B4100 W/B	18s

Xs = cruise time (not accounting for platoon compression at start-up)

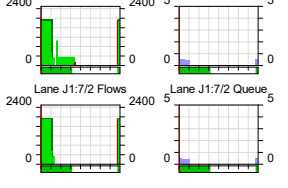
Circ (N) Flow and Q Charts



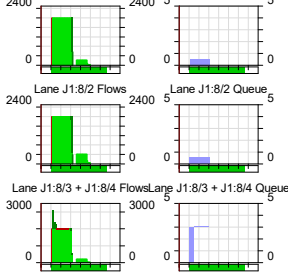
Circ (W) Flow & Q Charts



Circ (S) Flow & Q Charts



Circ (E) Flow & Q Charts



KEY

Green Time	MMQ	Deg. Sat. →
Dmd. Flow		

Drawing Title	Project Title A43 / B4100 Baynards Green	Project Location	Date 12 Mar 2024	Scale NTS
Project Name Tritax Bicester	Company Vectos SLR	Author R Bishop	FileName 216285 Baynards Green Rbt v1_8	



SYMMETRY PARK, BAYNARDS GREEN

Proposed Site Access Roundabout

Stage 1 Road Safety Audit

Overseeing Organisation: Oxfordshire County Council

March 2024



Road Safety Engineering

Project: Symmetry Park, Baynards Green
Proposed Site Access Roundabout

Document: Stage 1 Road Safety Audit

Design Organisation: SLR Consulting

Overseeing Organisation: Oxfordshire County Council

Client: Tritax Symmetry

Gateway RSE ref: SG/JS/2110057 RSA1 v4.0

Issue date: 19/03/2024

Status: Issued as Version 4.0

Authorised by: SG

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Registered Office: Cheyenne House, West Street, Farnham GU9 7EQ



CONTENTS

1	Introduction	1
2	Problems Identified by this Road Safety Audit	4
3	Audit Team Statement	6

Appendices

Appendix A:	Items Considered by this RSA
Appendix B:	Location Plan(s)

1 INTRODUCTION

- 1.1 This report describes a Stage 1 Road Safety Audit (RSA) of a proposed roundabout on the B4100, east of Baynards Green Roundabout (A43), within the District of Cherwell and the County of Oxfordshire.
- 1.2 The audit brief describes the scheme as a new four-arm roundabout with a 50m ICD (inscribed circle diameter), approximately 500 metres east of the Baynards Green Roundabout. Two entry lanes will be provided on the north, west and east approaches, with a single lane entry on the south arm. Shared use (pedestrian/cycle) paths are proposed between the roundabout and bus stops to the west on the B4100. The roundabout is to serve employment development parcels north and south of the B4100 (Tritax North and Tritax South).
- 1.3 In March 2024 the Audit Team received an amended drawing showing modifications to the bus stops to the west and a signal-controlled crossing.
- 1.4 This section of the B4100 is rural single carriageway subject to a 50mph speed limit. It has no footways or street lighting (except at the Baynards Green Roundabout) but benefits from wide grass verges.
- 1.5 The A43 is an unlit (except at the roundabout) rural 2-lane dual carriageway, carrying strategic traffic to and from Northampton and the M1. It is subject to the national speed limit of 70mph to the north and a 50mph speed limit to the south (link to the M40).
- 1.6 This Road Safety Audit was carried out by Steve Giles and Julian Smith and consisted of a desktop study and a site visit, which was carried out between 13:00 and 13:30 on Wednesday 7th February 2024 (as part of a previous audit), when the weather was overcast and the road surface dry. Traffic flows were steady and no congestion was observed, whilst no pedestrian or cyclist movements occurred.
- 1.7 The terms of reference for this RSA are as described in the Design Manual for Roads and Bridges (DMRB) document GG119. The Audit Team is independent of the project design team and has not been involved in the design process in any other capacity. The audit considers only the potential road safety implications of the scheme and has not verified compliance of the design with any other criteria.

- 1.8 The Audit Team has not been made aware of any Departures from Standard. Whilst reference may be made to design standards, this report is not intended to provide a design check.
- 1.9 Recommendations are aimed at addressing the identified potential road safety problems. However, there may be other acceptable ways to overcome a problem, considering wider constraints and opportunities; the Auditors would be pleased to discuss such alternative solutions as appropriate. The recommendations contained herein do not absolve the Designers of their responsibilities.

Collision Data

- 1.10 The Personal Injury Collision (PIC) information provided to the Audit Team describes 13 collisions at or on the entry/exit lanes of the A43/B4100 roundabout. One PIC occurred close to the proposed 3-arm signal junction considered by this audit, involving two cars **in a front/rear ('shunt') impact, causing slight injury to the front driver**. Conditions were described as fine/dry/daylight.
- 1.11 Personal Injury Collision (PIC) information was also obtained from the online Crashmap database (www.crashmap.co.uk) for the latest available 5-year period. A single collision occurred in the vicinity of the proposed site access roundabout in December 2019, in **daylight and dry weather conditions. It involved a front/rear ('shunt') impact between two cars**, in which the driver of the front vehicle sustained slight injuries. It is not known whether the collision occurred at the end of a traffic queue for the A43 roundabout.

Previous Road Safety Audit(s)

- 1.12 An audit team led by Steve Giles has previously carried out three Stage 1 road safety audits of site access schemes on the B4100, to the east of the A43. The first, audited in April 2022, was a 50m ICD 4-arm roundabout serving the Tritax sites north and south of the B4100, a previous iteration of the junction which is the subject of this RSA. The second, audited in October 2023, was a signal-controlled junction providing access only to the Albion Land East site, south of the B4100 and between the A43 and the Tritax roundabout. The third previous audit, in February 2024, was of a similar scheme to that considered here.

- 1.13 This audit considers the current Tritax roundabout improvement scheme, both in isolation and with the proposed Albion Land East signal junction and A43 roundabout improvements.

2 PROBLEMS IDENTIFIED BY THIS ROAD SAFETY AUDIT

General Matters

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

Local Alignment

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

Junctions

2.3 Problem

Potential for vehicles to collide with items of street furniture.

Location: Traffic islands at roundabout entries

The traffic islands may not be of adequate size to accommodate signage appropriate to traffic speeds. Inadequate clearance may lead to vehicles striking signs, resulting in loss of control type collisions.

Recommendation

Ensure that roundabout entry arm traffic islands are of adequate size to accommodate signage appropriate to traffic speeds.

2.4 Problem

Vehicle collisions due to obscured visibility.

Location: Minor arm entries to proposed roundabout

Drivers approaching the roundabout on the two development arms may not have adequate visibility toward vehicles entering the junction from the B4100, due to vegetation, signage (highway or private) etc. This may lead to side-impact vehicle collisions on the circulatory carriageway.

Recommendation

Provide suitable visibility envelopes from the two minor arms of the new roundabout to the B4100 approach lanes.

Walking, Cycling and Horse Riding

2.5 Problem

Proximity of footway to drainage ditch may lead to pedestrian injuries.

Location: South side of B4100

The footway/cycleway will run along an unlit section of the B4100, where the verge accommodates a drainage ditch and foliage. Pedestrians and cyclists could stray from the footway/cycleway and fall into the ditch.

Recommendation

Adequate separation and/or an edge restraint should be provided between the footway/cycleway and the drainage ditch running along the B4100. Review the need for footway lighting.

2.6 Problem

Stranded pedestrians may collide with vehicles.

Location: North side of B4100, east of new roundabout

The proposed footway ends east of the roundabout, but no arrangements are made for pedestrians to continue. They might therefore enter the carriageway, where they will be at risk of collisions with moving vehicles.

Recommendation

Provide suitable onward pedestrian facilities east of the roundabout or terminate the footway at the junction with suitable crossing arrangements.

Road Signs, Carriageway Markings and Lighting

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


3 AUDIT TEAM STATEMENT

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

Audit Team Leader

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

Signed:



Date: 19/03/2024

Audit Team Member(s)

Julian Smith
BEng, MCIHT, MSoRSA
Senior Road Safety Engineer

Signed:



Date: 19/03/2024

APPENDIX A

Items Considered by this RSA

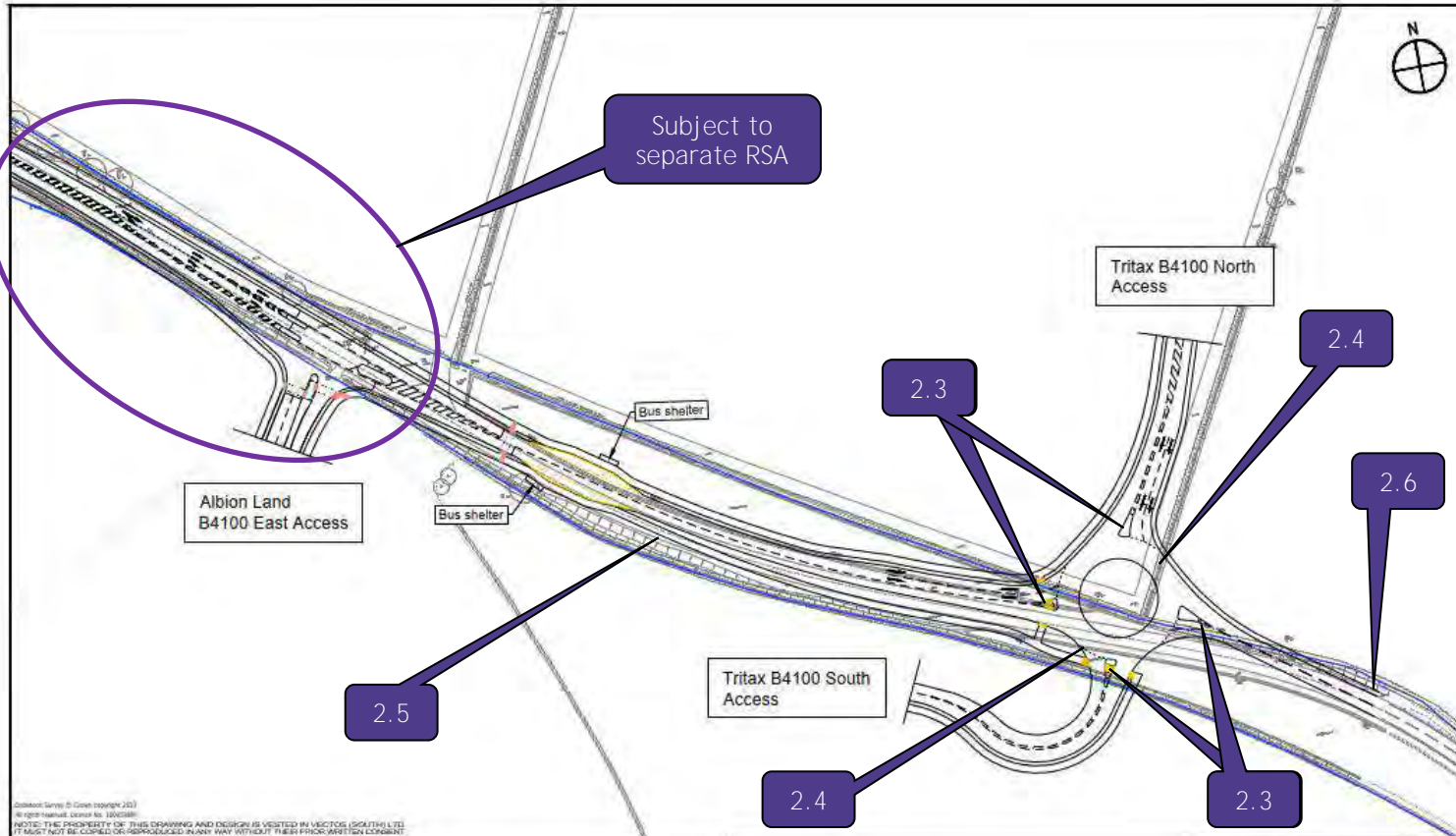
Items Considered by this Road Safety Audit

Document ref.	Rev.	Originator	Title
216285/PD10	B	SLR	Proposed Realignment of B4100.

Additional/background information provided to the Audit Team

- Tritax Symmetry Transport Assessment ref. R01-BH-Transport Assessment 200413 (Final) (SLR)
- Tritax Symmetry Site Masterplan ref. 14-019-XX-XX-DR-A-001011-03 (SGP)

APPENDIX B Location Plan(s)



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REV	DETAILS	DRAWN	CHECKED	DATE
A	DTA comments	JM	RB	25.01.2024
B	northern layby and added the shelter	SCJ	RB	15/03/24

Notes:
 1. This is not a construction drawing and is intended for illustrative purposes only.
 2. White linlog is indicative only.

Key
 — Extent of Public Highway

INFORMATION ONLY

Symmetry Park		Tritax Symmetry	
Proposed Re-alignment of B4100			
DRAWN:	ENGINEER:	DATE:	SCALE:
JM	RB	20.12.2023	1:1500 at A3

	
DRAWING NUMBER:	REVISION:
216285/PD10	B



Appendix H Proposed Baynards Green Roundabout Improvements

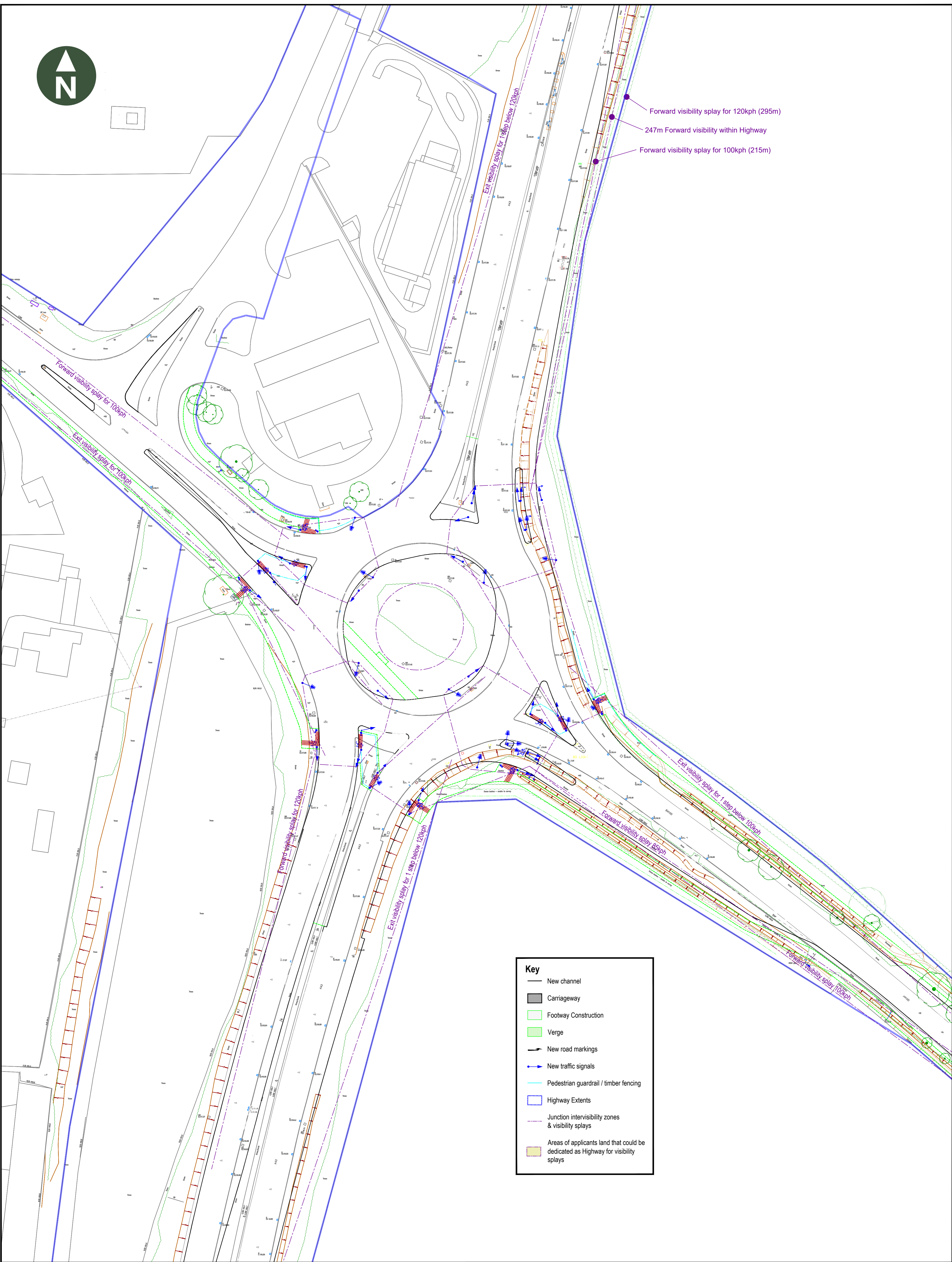
Transport Assessment Addendum

Symmetry Park, Ardley

Tritax Symmetry Ardley Limited

SLR Project No.: 216285

30 April 2024



Key

- New channel
- Carriageway
- Footway Construction
- Verge
- New road markings
- New traffic signals
- Pedestrian guardrail / timber fencing
- Highway Extents
- Junction intervisibility zones & visibility splays
- Areas of applicants land that could be dedicated as Highway for visibility splays

REV.	DETAILS	DRAWN	CHECKED	DATE
A	Additional splay information	RB	JB	30.10.23
B	Post RSA1 Response Amends	RB	KD	18.03.24

Notes:

1. This is not a construction drawing and is intended for illustrative purposes only. White lining is indicative only.
2. Do not scale.
3. Topographical survey provided by National Highways


Note:
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Symmetry Park

A43 / B4100 Baynards Green Roundabout Junction Improvement General Arrangement

DRAWN: RB CHECKED: JB DATE: 15.05.23 SCALES: 1:500 @A1

Tritax Symmetry



DRAWING NUMBER: 216285/A/14 REVISION: B

James Bancroft

From: Martin Seldon <[REDACTED]>
Sent: 10 November 2023 17:04
To: Anthony Hogan; Simon Parfitt; Richard Bishop
Cc: Lopez, Juan - Oxfordshire County Council; Emma Lancaster; Tom Leeming; James Bancroft; Will Broadhurst; Louise Steele; Manku, Amrik - Oxfordshire County Council; James Werby; Richard McCulloch; Gogna, Sunil; Kelly Milburn; Jonathan Dawes; Russell Gray; Kelvin Pearce; Richard McCulloch; Andy Bateson; Chanamoto, Alen - Communities; Russell Gray; Hari, Aarsha; Mark Roxburgh; White, Joy - Oxfordshire County Council; Chris Wentworth; Tom Cookson
Subject: RE: M40 J10 Baynards Green planning applications

Hi Anthony

Thank you for providing your responses to our comments made on 29 September 2023, together with the audit response note titled "VM210412.TN005 M40 J10 Audit Response". My apologies for the delay in responding to you.

We have reviewed the note provided and have set out for completeness our response to the comments below using the headings of the note.

Network Layout

We note that the network has remained unchanged at Albion Land B4100 West roundabout access and therefore, differs from Appendix B of the "N02_216285_RB Baynards Green M40 Jcn 10 TN (AS ISSUED)" note. However, we accept the response provided and acknowledge that the impact on the SRN junctions would remain unchanged. Therefore, we have no further comments on this except to reaffirm that the model assessments have not been used to assess the performance or capacity of the site access junctions and that the Junctions modelling results should be used in the assessment of these.

Link Types

We acknowledge that the DS2 Dev 4 models have now been amended and links 14 and 19 now use the "left-side rule" link behaviour type. Therefore, we have no further comments on this.

Lane Change Distance

Thank you for reviewing the lane change distances for connectors 10050 and 10051. The revision of the lane change distance distances for these connectors to the Base model values of 400 metres is accepted and we therefore have no further comments on this.

Priority Rules

We apologise for the incorrect referencing of Baynards Green roundabout and your assumption of the comment relating to Ardley Roundabout was correct. We appreciate that the journey time Base model validation comparison that has been undertaken includes the revised priority rule gap times and are comforted that the model has retained an acceptable validation level to TAG unit M3.1 requirements. With the instances of close collisions being low and the validation levels being acceptable, we therefore have no further comments on the priority rule amendments.

Desired Speed Decision

It is agreed that for the assessment of the SRN junctions, the effect of the speed change on the model performance is likely to be minor and therefore has been accepted for these modelling assessments. However, this speed alteration should be clarified to confirm the speed reduction intention.

Public Transport Stops

The exclusion of bus routes within the model is accepted given the assessment is for the SRN junctions and we have no further comments on this.

Results

We have reviewed the results provided and have concerns about the queues present in the M40 NB Off-Slip at Ardley roundabout in the “AM S2 2026 Dev 4 DS” and “AM S2 2031 Dev 4 DS”. The queues have increased significantly from a) 102 metres in the “AM S2 2026 New” scenario to 306 metres in the “AM S2 2026 dev 4 DS” scenario, and b) 176 metres in the “AM S2 2031 New” scenario to 361 metres in the “AM S2 2031 dev 4 DS” scenario.

The mitigation scheme proposed at the Baynards Green roundabout along with the development trips has resulted in an increase in queues on the off-slip section as noted above. However, the queues are still expected to be contained within the off-slip section without causing any spillover to the mainline.

Kind regards

Martin Seldon, Assistant Spatial Planner

For information about our engagement with the planning system please visit :

<https://nationalhighways.co.uk/our-roads/planning-and-the-strategic-road-network-in-england/>

James Bancroft

From: Richard McCulloch <[REDACTED]>
Sent: 17 November 2023 10:10
To: Simon Parfitt; James Bancroft; Richard Bishop
Cc: Jonathan Dawes; Kelvin Pearce
Subject: FW: Departure 104773 - Notifications for your review

From: departures@highwaysengland.co.uk <departures@highwaysengland.co.uk>
Sent: Friday, November 17, 2023 10:08 AM
To: Richard McCulloch <[REDACTED]>
Subject: Departure 104773 - Notifications for your review

The departure application 104773 has been reviewed by the Technical Specialist(s) and has **Given** Provisional Agreement.

The Technical Specialist(s) agrees that the departure is critical to the scheme delivery and that, from the information provided, it appears that the principle of the departure is acceptable and is likely to be approvable if supported by sufficient justification as part of a full departure application.

Provisional Agreement does not preclude later return for rework or even rejection where the departure does not include sufficient justification. Please check the comments provided within the diary, if relevant, to be considered for the next steps of this departure in DAS.

You are now the current assignee for the departure application 104773. Please check the departure diary for details of any actions required.

The following comments have been provided in relation to this notification:

From the information provided, it appears that the principle of the departure is acceptable and is likely to be approvable if supported by sufficient justification as part of a full departure application. I agree that this departure is critical to scheme delivery and therefore support provisional agreement. This does not preclude later return for rework or even rejection where the departure does not include sufficient justification. The reviewer notes that CD 116 clause 3.27 is applicable in the design of the roundabout - 'Right pointing arrows on lane dedication signs or as markings on the road shall not be used on normal and compact roundabout approaches'.

[Click here to view this departure application and action as relevant in DAS.](#)

For help in dealing with a departure please contact the DAS helpdesk on 0300 470 4970 or 0300 470 4752 or [click here](#) for online help.

James Bancroft

From: Martin Seldon <[REDACTED]>
Sent: 26 May 2023 11:53
To: James Werby; 'Pearson, Sacha'
Cc: James Bancroft; Khan, Asseed
Subject: RE: VM210412 || M40 J10

Hi James,

Thank you for responding to our queries made earlier along with the additional BTM outputs we requested.

Having reviewed the plots provided, we have noted a discrepancy in the traffic flow movements along the A43 North arm of Baynard's Green roundabout in the AM peak hour, for all the development scenarios. This is when comparing the demand flow difference plots against the flows reported in the cordon matrices (v7). The table below indicates the difference noted for the 2026 'Dev 4' scenario.

Scenario- 2026 Dev 4	From Cordon matrices		From demand difference plots		Difference	
	AM	PM	AM	PM	AM	PM
A43N	230	45	34	45	-196	0
A43S	214	56	214	48	0	-8
B4100E	8	99	8	98	0	-1
B4100W	147	174	147	174	0	0

Likewise, differences have been noted for the other development scenarios also. As such, we recommend that you provide clarity on these differences noted.

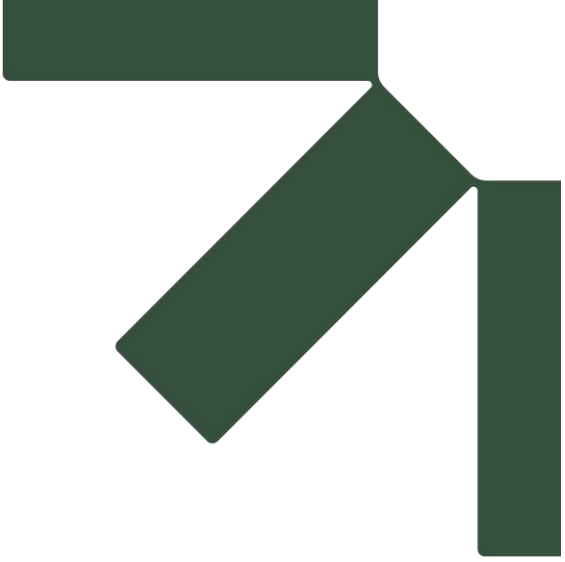
Based on our review of the wider SLA plots, the proposed development is not expected to have a significant impact at any of the wider SRN junctions along the M40 or A43. Therefore, no further capacity assessments are to be undertaken at the wider junctions other than the ones already agreed upon.

Kind regards

Martin Seldon, Assistant Spatial Planner

[REDACTED]

For information about our engagement with the planning system please visit
<https://highwaysengland.co.uk/our-work/planning-and-the-strategic-road-network-in-england/>



Appendix I Parking Accumulation Calculations

Transport Assessment Addendum

Symmetry Park, Ardley

Tritax Symmetry Ardley Limited

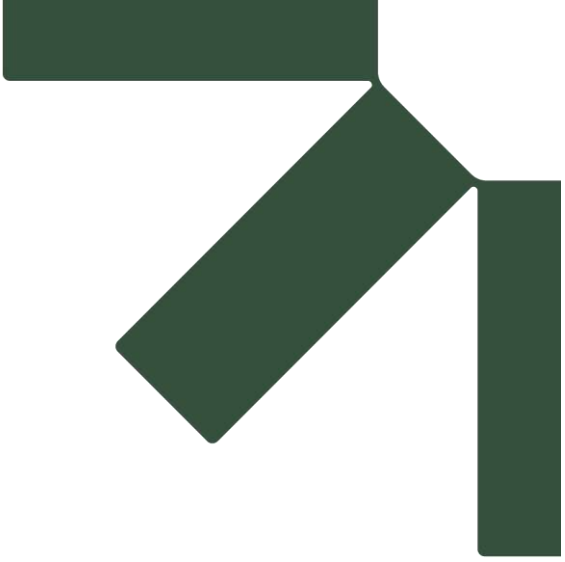
SLR Project No.: 216285

30 April 2024

	Trip Rate (per 100sqm)			Trip Generation (300,000sqm)			Parking Accumulation
	In	Out	Total	In	Out	Total	
0000-0100	0.006	0.029	0.035	18	87	105	664
0100-0200	0.007	0.006	0.013	21	18	39	667
0200-0300	0.008	0.004	0.012	24	12	36	679
0300-0400	0.010	0.007	0.017	30	21	51	688
0400-0500	0.019	0.009	0.028	57	27	84	718
0500-0600	0.106	0.020	0.126	318	60	378	976
0600-0700	0.081	0.037	0.118	243	111	354	1108
0700-0800	0.096	0.049	0.145	288	147	435	1249
0800-0900	0.092	0.027	0.119	276	81	357	1444
0900-1000	0.070	0.020	0.090	210	60	270	1594
1000-1100	0.029	0.022	0.051	87	66	153	1615
1100-1200	0.028	0.030	0.058	84	90	174	1609
1200-1300	0.035	0.044	0.079	105	132	237	1582
1300-1400	0.078	0.054	0.132	234	162	396	1654
1400-1500	0.072	0.091	0.163	216	273	489	1597
1500-1600	0.044	0.109	0.153	132	327	459	1402
1600-1700	0.021	0.114	0.135	63	342	405	1123
1700-1800	0.024	0.099	0.123	72	297	369	898
1800-1900	0.021	0.050	0.071	63	150	213	772
1900-2000	0.010	0.018	0.028	30	54	84	748
2000-2100	0.007	0.013	0.020	21	39	60	730
2100-2200	0.029	0.021	0.050	87	63	150	754
2200-2300	0.035	0.044	0.079	105	132	237	727
2300-2400	0.015	0.059	0.074	45	177	222	595

GFA	300000
-----	--------

ID	Floor Area	Occupancy	Total Parking	Percentage
DR-02-F-01	80100	369	626	59%
TV-02-F-02	80066	117	832	14%
HF-02-F-03	76000	161	592	27%
MK-02-F-01	52125	245	638	38%
Average End of Survey Demand				35%
Proposed Parking				2227
Demand at 1800-1900				772



Appendix J Lorry Park Trip Generation Calculations

Transport Assessment Addendum

Symmetry Park, Ardley

Tritax Symmetry Ardley Limited

SLR Project No.: 216285

30 April 2024

	Recorded Trips			Calculated Trip Rate / space			Trip Generation (54 spaces)		
	In	Out	Total	In	Out	Total	In	Out	Total
0000-0100	0	0	0	0.003	0.000	0.003	0	0	0
0100-0200	0	0	0	0.001	0.001	0.002	0	0	0
0200-0300	0	0	0	0.002	0.001	0.002	0	0	0
0300-0400	0	2	2	0.003	0.020	0.024	0	1	1
0400-0500	1	5	5	0.008	0.063	0.071	0	3	4
0500-0600	2	11	13	0.021	0.148	0.169	1	8	9
0600-0700	3	11	14	0.043	0.143	0.185	2	8	10
0700-0800	4	7	11	0.048	0.097	0.145	3	5	8
0800-0900	3	6	9	0.038	0.075	0.113	2	4	6
0900-1000	5	4	9	0.068	0.055	0.123	4	3	7
1000-1100	7	7	13	0.085	0.086	0.172	5	5	9
1100-1200	6	8	14	0.079	0.103	0.181	4	6	10
1200-1300	6	7	13	0.080	0.089	0.169	4	5	9
1300-1400	4	5	9	0.057	0.059	0.117	3	3	6
1400-1500	6	4	10	0.075	0.054	0.129	4	3	7
1500-1600	7	5	12	0.086	0.065	0.151	5	3	8
1600-1700	10	5	15	0.132	0.059	0.191	7	3	10
1700-1800	11	4	15	0.147	0.046	0.193	8	2	10
1800-1900	9	2	11	0.113	0.032	0.145	6	2	8
1900-2000	5	2	7	0.068	0.022	0.090	4	1	5
2000-2100	2	1	3	0.027	0.012	0.039	1	1	2
2100-2200	1	1	2	0.014	0.014	0.028	1	1	2
2200-2300	0	0	0	0.003	0.002	0.006	0	0	0
2300-2400	0	0	1	0.006	0.002	0.008	0	0	0

Average Spaces of Surveyed Stops	76
Proposed Spaces (lorry park only)	54



Appendix K Swept Path Analysis

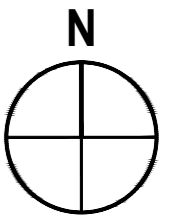
Transport Assessment Addendum

Symmetry Park, Ardley

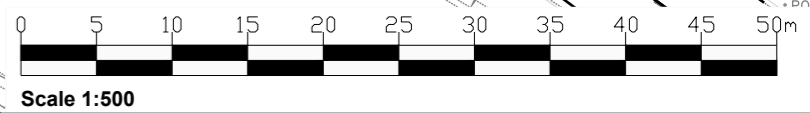
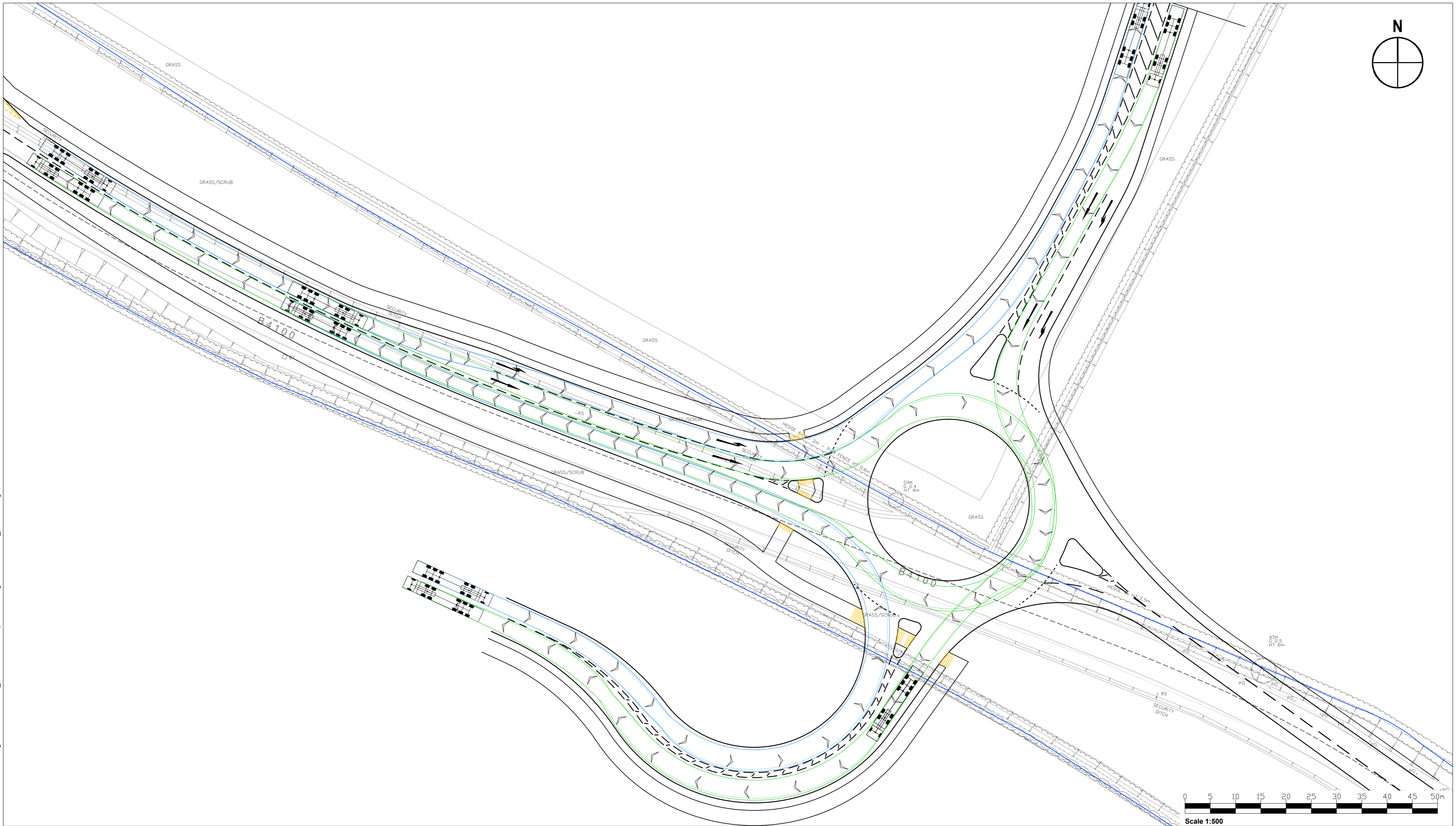
Tritax Symmetry Ardley Limited

SLR Project No.: 216285

30 April 2024



19/03/2024
Y:\Projects\210000\216285 - Symmetry Park, Arley\Technical\A - Deliverable\Drawings\Autocad\216285_PD10 Rev B - Proposed Re-alignment of B4100_recover.dwg



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Drawing Status & Suitability Code

Designed	Drawn	Checked	Authorised
	LJ	KD	
Date	Date	Date	Date
	19.03.24	19.03.24	

Drawing Number
216285_PD01_AT01

Client
Tritrax Symmetry

Project
Symmetry Park

Drawing Title
**Swept Path Analysis
Site Access Roundabout
16.5m Articulated Vehicle**

Scale
1:500

SLR Project No. **@ A2**

Rev	Amendments	Date	By	Chk	Auth

Notes:

- This is not a construction drawing and is intended for illustrative purposes only.
- White lining is indicative only.

Legend:

Max Legal Length (UK) Articulated Vehicle (16.5m)	16.500m
Overall Length	2.550m
Overall Width	3.681m
Overall Body Height	0.411m
Min Body Ground Clearance	2.500m
Max Track Width	6.00s
Lock to lock time	6.530m
Kerb to Kerb Turning Radius	



Appendix L Technical Note – Strategic Modelling

Transport Assessment Addendum

Symmetry Park, Ardley

Tritax Symmetry Ardley Limited

SLR Project No.: 216285

30 April 2024

M40 J10 Tritax and Albion Land Development Testing

VM210412.TN004

July 2023

Introduction

1. Vectos Microsim, part of SLR Consulting (VM) has been commissioned to provide microsimulation modelling expertise in support of two proposed logistics developments near to M40 J10 in Cherwell District, Oxfordshire.
2. Symmetry Park Ardley is a proposed 3.2m sq ft development located to the east of Baynards Green Roundabout on the A43 corridor, with land on the northern and southern side of the B4100 to be accessed via a new 4-arm roundabout on B4100 east. The development is led by Tritax Symmetry (Tritax) with highway support provided by SLR Consulting's transport planning division, previously known as Vectos.
3. Axis J10 is a proposed 3m sq ft development located on two plots east and west of Baynards Green Roundabout on the A43 corridor. The western site is proposed to be accessed via a new 3-arm roundabout on the B4100 west, while the eastern site is proposed to be accessed via a 3-arm signalised junction. The development is led by Albion Land with highway support provided by David Tucker Associates (DTA).
4. This Note sets out the methodology for the microsimulation testing of these two proposed sites, and an overview of the results of the tests.

Background

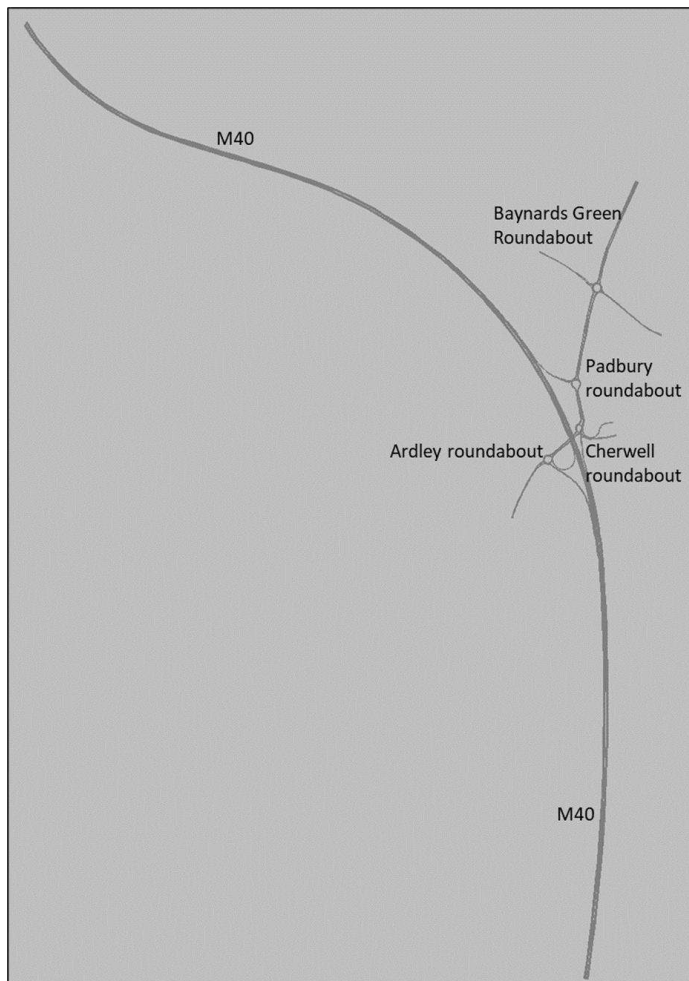
5. VM compiled a Matrix Development Methodology Note, issued to NH on 23rd February 2023, along with a spreadsheet which used the outputs from the Bicester Transport Model (as provided by TetraTech) and calculated the demand matrices for input into VISSIM for the updated Reference Case and With Development modelling. The Note is provided in Appendix A.
6. Whilst the Methodology Note was accepted, NH initially identified some discrepancies in the spreadsheet that accompanied submission of the Note. Through discussions between VM, NH and AECOM, the vehicle demands to be used for testing the development scenarios were agreed on 18th May 2023. The agreed demands are those as contained within spreadsheet *VM210412.Sp014 Post Audit Demands_v7*.

7. Demands have been provided for a total of 4 development scenarios, for future years 2026 and 2031:
 - i. Dev Sc1: Tritax Symmetry Development Only
 - ii. Dev Sc2: Tritax Symmetry Development and Albion Land Development East
 - iii. Dev Sc3: Tritax Symmetry Development and Albion Land Development West
 - iv. Dev Sc4: Tritax Symmetry Development and Albion Land Developments East and West
8. Development Scenario 4 has been tested in VISSIM; this Note sets out the build and results of this test on the basis that it represents the position whereby both development sites come forward.

Reference Case VISSIM Modelling

9. The development testing built upon the 2026 and 2031 Reference Case models, which were issued for agreement with NH on 23rd March 2023. The VISSIM network is provided below:

Figure 1: Reference Case Model VISSIM Network



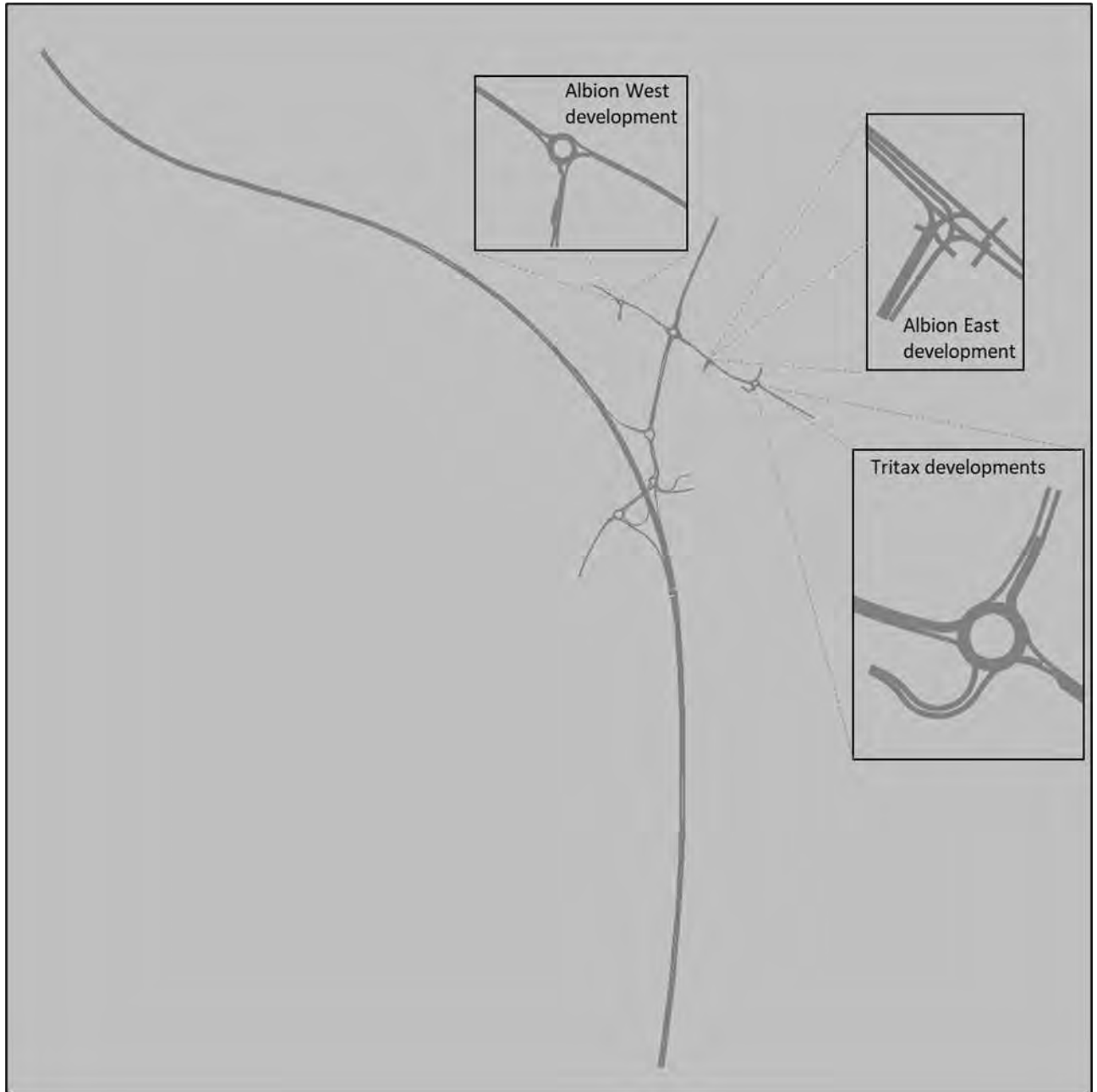
10. The Reference Case models remain unchanged from the March submission and are re-reported in the results spreadsheet which accompanies this submission¹ for comparison against the Development 4 scenario.

Do-Something VISSIM Modelling

11. Both the 2026 and 2031 Do-Something scenarios test full build out of the Tritax and Albion Land development sites. This includes three site accesses which have been coded into the VISSIM network:
 - i. Albion Land West Access: 3-arm priority-controlled roundabout on B4100 to the west of Baynards Green Roundabout
 - ii. Albion Land East Access: Signalised 3-arm junction on B4100 to the east of Baynards Green Roundabout
 - iii. Tritax Access: 4-arm priority-controlled roundabout to the east of the Albion Lane East Access
12. In addition to the three site accesses, a scheme at Baynards Green has been introduced to help mitigate the impacts of the development. The scheme aims to improve the traffic flow on Baynards Green through the following highway upgrades:
 - i. Increasing the capacity on the roundabout with additional lanes on the circulatory
 - ii. Adding extra flare lanes on the northbound, southbound, and westbound approaches
 - iii. Full signalisation of the roundabout
13. The Baynards Green scheme and three site access arrangements are shown in the drawing in Appendix B. The 2026/2031 DS VISSIM network encompasses the Baynards Green scheme and all three accesses, and is illustrated in **Figure 2** overleaf:

¹ VM210412.Sp014 Result Spreadsheet Dev Sc4.xls

Figure 2: 2026/2031 Development Scenario 4 VISSIM Network



Network Revisions

14. Following initial tests of the development scenario, model observations demonstrated that with the inclusion of additional demand the model was exhibiting unusual behaviour that undermined the reliability of the testing.
15. A small number of network changes were therefore applied to the Do-Something models to rectify these issues. These are included in both the 2026 and 2031 Do-Something Scenarios and are listed below, followed by an image to illustrate the locations of the network elements referred to.

Lookback Distance Changes Adjustments:

- i. Link 10059, changed from 200m to 250m
- ii. Link 10060, changed from 200m to 250m
- iii. Link 10050, changed from 250m to 500m
- iv. Link 10051, changed from 250m to 500m

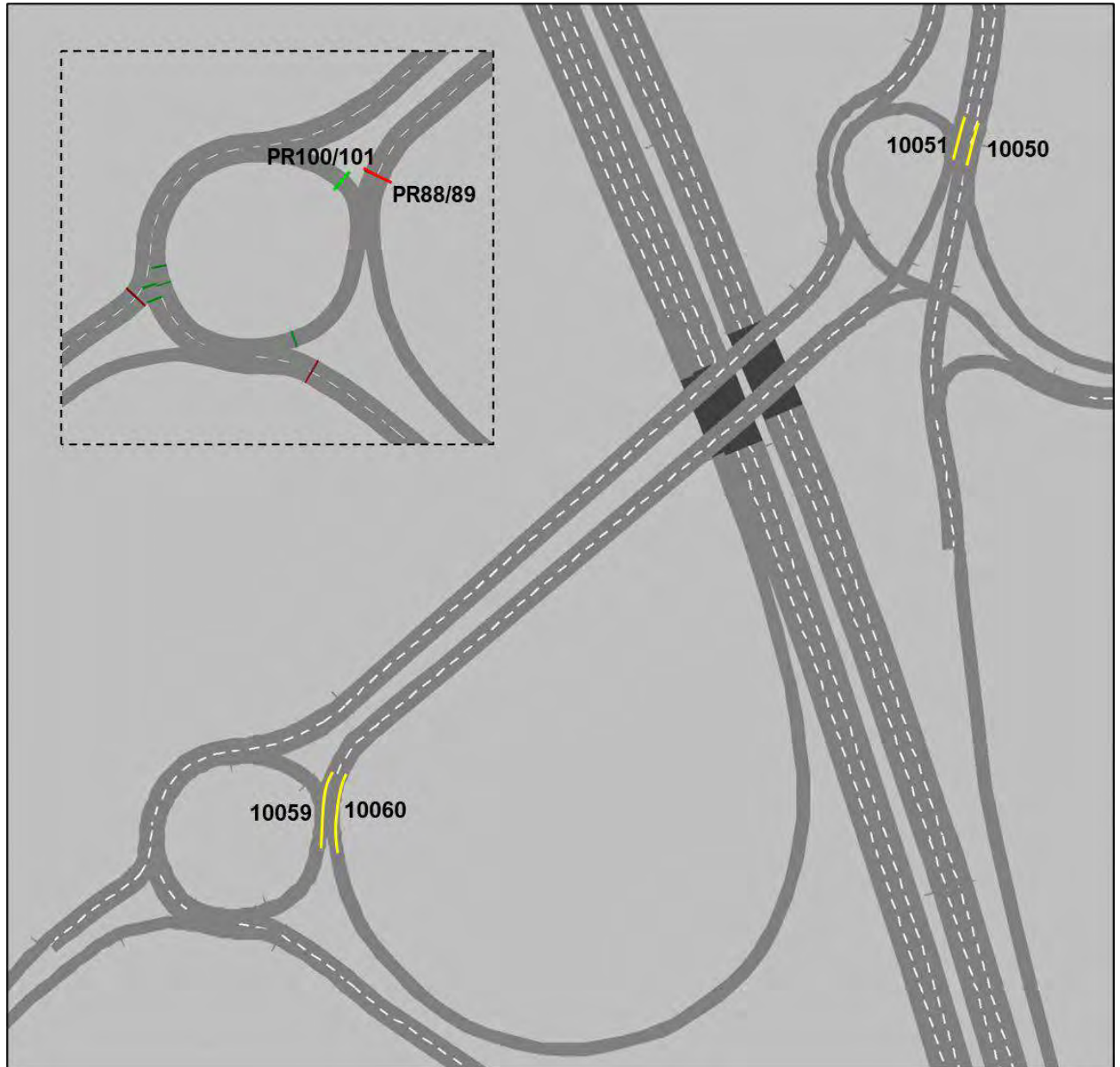
Emergency Stop Distance Changes Adjustments:

- i. Link 10050, changed from 100m to 15m
- ii. Link 10051, changed from 160m to 15m

Priority Rule Changes Adjustments:

- i. Priority Rule 88 (Lights), Min.Gap time changed from 4s to 2.4s
- ii. Priority Rule 89 (Heavies), Min.Gap time changed from 4.5s to 2.8s
- iii. Priority Rule 100 (Heavies), Min.Gap time changed from 4.5s to 2.8s
- iv. Priority Rule 101 (Lights), Min.Gap time changed from 4s to 2.4s

Figure 3: Link and Priority Rule Locations for Network Changes



16. Regarding connectors 10050 and 10051, the lookback distance was increased to encourage earlier lane change to prevent unrealistic lane changing on the section between Padbury and Cherwell. The emergency stop distances were reduced to prevent vehicles in Lane 2 of Link 2 stopping to change lane into Lane 1 (due to original emergency stop distance on connector 10051); originally this behaviour caused bottlenecks on Link 2 and prevented vehicles from accessing Lanes 2 and 3 of Link 36.

17. **Figures 4 and 5** below show vehicles approaching Cherwell in the incorrect lane, and bottlenecks occurring due to the original emergency stop distances:

Figure 4: Original A43 Lane Change Behaviour between Padbury and Cherwell

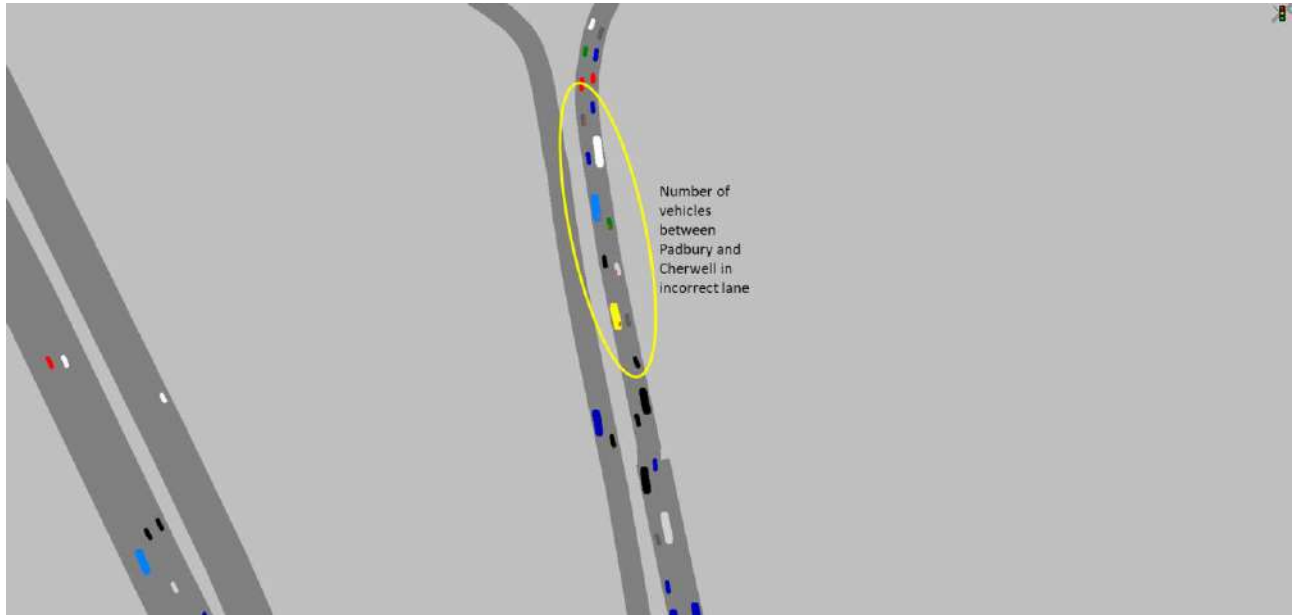
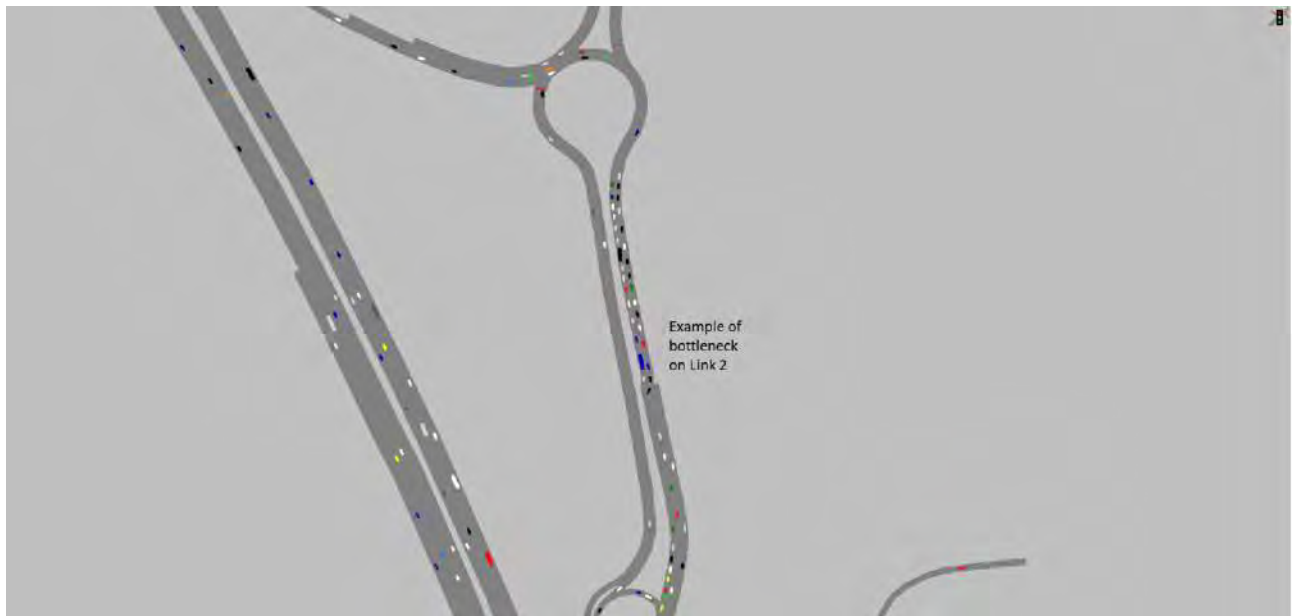


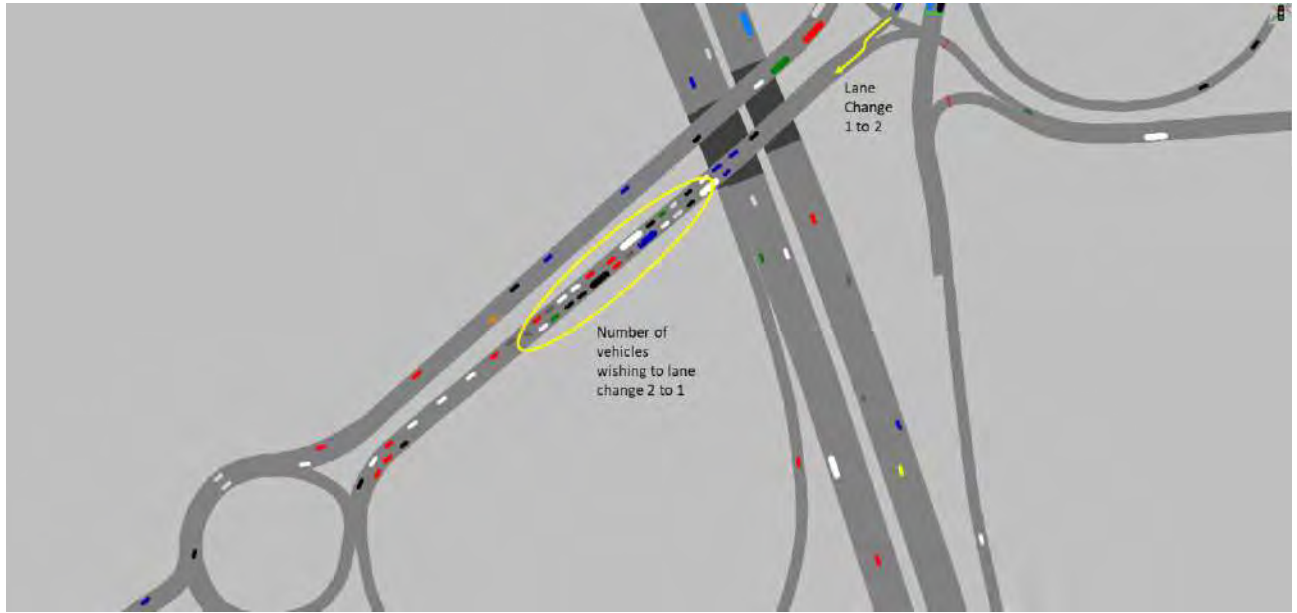
Figure 5: Bottleneck on Approach to Cherwell from Padbury Roundabout



18. The look back distance on connectors 10059 and 10060 was revised to prevent unrealistic lane change behaviour on the A43 bridge over the M40. The distance between these connectors and connector 10053 (the single lane connector which routes vehicles from the A43 north of Cherwell Services junction to the A43 bridge) is approximately 240m, while the original look back distance was

200m. This resulted in a number of trips joining the bridge in lane 1, changing to lane 2 and then immediately looking to change back to lane 1. This is observed in the screenshot below:

Figure 4: Original A43 Lane Change Behaviour between Cherwell and Ardley



19. Priority rules 88, 89, 100 and 101 were revised to reduce observed behaviour whereby vehicles on the A43 westbound approach to Ardley Roundabout were giving way to circulating trips exiting the roundabout at the A43 eastbound exit. This behaviour resulted in unrealistic queues on the A43 bridge, while correcting this behaviour results in a higher number of conflicting trips for the M40 northbound off-slip.

Demand Matrices

20. Demand matrices for VISSIM are derived from outputs from the Bicester Transport Model (BTM); details on the conversion from BTM output to VISSIM input are detailed in Appendix A.
21. The total peak hour demands are given in **Table 1** and **Table 2** below:

Table 1: AM Peak Hour Demands

AM Peak (07:45-08:45)			
Scenario	Lights	Heavies	Total
2016 Base	8955	1377	10332
2026 Ref	10564	948	11512
2026 Dev Sc4	11096	1238	12334
2026 Dev – Ref	532	290	821
2031 Ref	11786	1056	12842
2031 Dev Sc4	12227	1347	13573
2031 Dev – Ref	440	291	732

Table 2: PM Peak Hour Demands

PM Peak (16:30-17:30)			
Scenario	Lights	Heavies	Total
2016 Base	10527	1084	11611
2026 Ref	11532	907	12439
2026 Dev Sc4	11913	1133	13046
2026 Dev – Ref	381	226	607
2031 Ref	12731	959	13690
2031 Dev Sc4	13075	1182	14257
2031 Dev – Ref	344	223	567

VISSIM Modelling Results Summary

2026 AM

22. The introduction of the Development trips, along with the associated site accesses and Baynards Green mitigation scheme, results in average delay per vehicle decreasing by 26s in 2026 for the AM peak compared to the Reference Case.
23. While VISSIM average queue results show a reduction of ~700m in the 2026 AM DS scenario compared with the Reference Case on the A43 southbound approach to Baynards Green, the queue reduction in reality would be far higher due to the presence of latent/unreleased demand in the Reference Case, which stands at over 1000 vehicles. Following introduction of the proposed mitigation scheme, this reduces to zero.
24. The mitigation at the roundabout introduces an additional ahead lane on the southbound approach and a separate left-turn filter, which, combined with the signals creating more gaps, means throughput improves and queues decrease.
25. As a result of the improved throughput from the north, some minor queue increases are forecast on the southbound approaches to Padbury Roundabout and Cherwell, however these are contained within the road sections between the junctions and do not reach back to upstream junctions. Queue increases are also forecast on M40 northbound off-slip due to the additional number of vehicles able to traverse the network following the unlocking of Baynards Green Roundabout, which conflict against the northbound slip give-way. These queues however reach a maximum of ~340m which is well within the road-space available on the slip road.

2026 PM

26. Compared to the 2026 PM Reference Case, average delay per vehicle decreases by 15s in the 2026 Development Scenario.
27. Queues decrease by an average of nearly 400m on B4100 East at Baynards Green Roundabout, as well as releasing the ~50 vehicles of latent demand that are present within the Reference Case. Large average queue reductions of ~300m are also observed on the A43 South (northbound) approach to Baynards Green as a result of the proposed mitigation scheme.
28. As observed in the AM, improvements at Baynards Green result in minor queue increases on the southbound approaches to Padbury and Cherwell, however maximum queue lengths on these approaches are maintained within the available space between the upstream junction.

2031 AM

29. In the AM 2031 testing, average delay per vehicle decreases by 4s in the AM DS Scenario in comparison to the 2031 Reference Case.
30. Although the average delay statistics do not indicate a major betterment on the Reference Case, the total latent demand value has decreased by ~900 vehicles indicating significant delay savings outside of the model network. The 2031 AM Development Scenario removes the small amount of latent demand from B4100 West, and significantly reduces the latent demand from A43 North. These improvements are attributable to the Baynards Green scheme improving throughput at the roundabout and mean average queue lengths on B4100 West decrease by nearly 400m compared to the 2031 Ref. Reported queues on A43 North remain similar to the Reference values due to the queues often reaching the edge of the model, however it is clear this approach to the roundabout has improved due to the significant reduction in latent demand. Queues on B4100 East approach to Baynards Green are also reduced by an average of ~200m.
31. As per the 2026 scenario, southbound approaches to Padbury and Cherwell exhibit minor queue increases but are maintained within the available road-space. Similarly, queue lengths are forecast to increase on the M40 northbound off-slip, however these are well within the available length of the slip road.

2031 PM

32. Compared to the 2031 PM Reference Case, average delay per vehicle decreases by 33s in the DS Scenario.
33. Where the 2031 Reference Case model exhibits latent demand of over 300 vehicles from B4100 East, inclusion of the proposed mitigation scheme removes this entirely. Average queue lengths are ~450m shorter on this approach.
34. In a similar pattern to 2026, average queues decrease by ~550m on the A43 South (northbound) approach to Baynards Green, meaning that where these queues reach back to Padbury Roundabout in the Reference Case, thereby posing a risk to the southbound off-slip, delivery of the proposed mitigation scheme at Baynards Green removes this risk.
35. Average queue length reductions of ~250m are also observed on the western arm of the junction.

Summary & Conclusion

36. Vectos Microsim, part of SLR Consulting (VM) has been commissioned to provide microsimulation modelling expertise in support of two proposed logistics developments near to M40 J10 in Cherwell District, Oxfordshire. The developments are promoted by Tritax Symmetry and Albion Land, with highways support provided by SLR Consulting and David Tucker Associates respectively.
37. VM has previously engaged with National Highways on the development of a VISSIM Reference Case, and on the development of a set of demand matrices to be used within the VISSIM modelling informed by turn count outputs from the Bicester Transport Model (BTM). Both the Reference Case and the With Development demand matrices have been agreed and signed off by National Highways.
38. This Note sets out how the VISSIM assessment has been carried out, and presents a proposed mitigation strategy at Baynard's Green Roundabout to facilitate delivery of the two proposed development sites.
39. Results of the VISSIM modelling demonstrate that the proposed mitigation results in significant improvements at the junction. In the AM period, existing queuing on the A43 southbound is significantly reduced, along with improvements on the B4100 east and west arms, particularly in 2031. In the PM period, forecast queues on the A43 northbound to Baynard's Green are significantly reduced. In 2031, where queues are forecast to extend back to the southbound off-slip at Padbury, the proposed mitigation is highly successful at mitigating this impact.
40. Overall the results show that the mitigation scheme put forward is more than commensurate with the forecast impact of the combined developments, resulting in a network-wide performance that far exceeds that of the respective Reference Case models in both AM and PM peak periods.

Appendix A: Matrix Development Methodology Note

vectos microsim.

— PART OF SLR[®]

REPORT

M40 J10 VISSIM

Matrix Development Methodology

February 2023

Vectos South

vectos.co.uk

Contents

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1 Introduction

- 1.1 Vectos Microsim (VM) has been commissioned by Vectos South on behalf of Tritax, to provide VISSIM microsimulation modelling support regarding an on-going planning application for a proposed logistics development on land to the east and west of the A43, adjacent to M40 J10 in Cherwell District, Oxfordshire.
- 1.2 AECOM, in their capacity as Highway Consultant for National Highways (NH), undertook proposed scheme testing around M40 J10 in March 2020. VM acquired the models from AECOM via email on 5th May 2022, along with the results of those tests. These were also accompanied by a Technical Note¹ outlining the contents of each tested scenario. VM has utilised these models to develop new Reference Case models to become the basis for the Tritax testing.

2 Background

- 2.1 In addition to the models received on 5th May 2022, AECOM provided further commentary outlining that the DS3 scheme was selected as the preferred option and taken forward for delivery through the Growth Fund, but that the schemes had been updated since completion of the initial testing. As a result, VM proceeded to update the model in line with the latest drawings, as well as presenting results for scenarios that preceded the update.
- 2.2 Throughout testing however, the funds allocated for the improvements at Baynards Green roundabout were re-allocated elsewhere, resulting in this scheme no longer being considered. Following correspondence with NH, the scheme will now only comprise of the Padbury junction element, corresponding to the DS2 model provided by AECOM which VM has therefore taken as the new starting point for testing. This Note sets out the methodology for developing the Reference Case and Do-Something matrices for use within the testing.
- 2.3 This Note follows a previous Note² that was submitted to NH on 5th January 2022. The Note included a proposed methodology for the Reference Case demands, details regarding amendments required to the model network following errors noted in the models received (i.e. the DS2 scenario that has become the 'Reference Case' network for the purposes of this testing), and results of the new Reference Case tests.
- 2.4 The proposed methodology involved taking turn count outputs and converting to network matrices by a process of proportional calculations, taking trips through the network based on turning proportions calculated from the turn counts. The method in principle is accurate, however the original calculations failed to exclude the M40 southbound off-slip to Padbury to Cherwell to M40 southbound on-slip movement which distorted the matrix once these trips were removed and replaced with mainline counts.
- 2.5 NH provided comments on 5th January 2023 highlighting the issue and proposing an amendment to the methodology for calculating the Reference Case demands:

“We therefore recommend that you calculate a growth factor using the BTM flows by comparing the Base BTM flows and Reference Case BTM flows and applying these percentages on top of the base VISSIM matrices in order to develop the future year matrices. [...] Should you have an alternative approach to propose please let us know. We recommend that a matrix methodology note be provided to us for our review prior to undertaking any further assessment.”

¹ M40 J10 TN11_submitted.pdf

² VM210412.TN002 VISSIM Methodology Note

- 2.6 Having considered this approach we do not consider this to be suitable in this instance. Applying a growth percentage to the baseline matrices removes any re-routing that is forecast within the BTM following the application of growth and/or proposed highway schemes. In addition, various development scenarios are being tested within the BTM and turn counts are being extracted for each individually. We cannot use this 'growth percentage' methodology for the development scenarios because not only will background re-routing and trip pattern changes be unaccounted for, but the development itself will also be unaccounted for (as the specific development values will become lost within the overall growth percentage).
- 2.7 The alternative could be to develop the Reference Case as per the methodology proposed by NH, and then add development trips directly onto that Reference Case (through a development-specific trip generation and distribution – a 'development-only matrix'). However this maintains the Reference Case demands as they are, again discounting the possibility of background re-routing following inclusion of development and any associated mitigation thereby removing the very purpose of the BTM testing.
- 2.8 As a result, VM has revisited the original methodology and recalculated the demand matrices, but this time excluding, amongst others, the M40 southbound off-slip to M40 southbound on-slip as a possible movement. Details are provided in the section to follow.

3 Reference Case Demands

- 3.1 Base model turn counts were supplied by TetraTech on 6th February 2023, which supplemented the 2026 and 2031 Reference Case turn counts already received. The turn counts have been compiled into a single spreadsheet and this, alongside all BTM outputs, are contained within the package of data that accompanies this Note.
- 3.2 The broad methodology remains unchanged from the original; the number of trips entering from a particular zone are proportioned through the network based on turning proportions at downstream junctions. However, some rules are observed that prevent certain movements from being included in the calculations:
- i) As per paragraph 2.8 above, the movement from zone 6 (M40 North) to zone 4 (M40 South) is assumed to be zero. To be clear, this refers only to movements that would take this movement via Padbury and Cherwell. Mainline counts are included separately later on (to be discussed)
 - ii) Movements from zone 6 to zone 6, and from zone 4 to zone 4 (M40 U-turns in either direction), are also assumed to be zero
- 3.3 In fixing these values, the methodology of proportioning in-bound trips through downstream junctions is insufficient in some cases, as the totals travelling to/from particular zones becomes distorted by these fixed values that are not subjected to the proportional method. Therefore calculations for some movements are revised and bespoke to that particular movement.
- 3.4 One example is as follows. As we assume the M40 South to M40 South demand movement to be zero, that means we assume all movements from the A43 bridge to M40 South to be originated from B430 west. This is highly likely to be the case in reality. This fixed value must be taken into consideration when proportioning all other trips from B430 west to the north of the network.
- 3.5 Similarly, of all trips leaving the M40 at the southbound off-slip and travelling south towards Cherwell, none of these are assumed to re-join the mainline. This therefore changes the values used to proportion every other trip through Cherwell from the north of the model.

- 3.6 As a final step, any minor negative values resulting from the calculations are removed.
- 3.7 The calculations are provided within the spreadsheets and are therefore available for a full review. As a check that the demands are an accurate reflection of the turning movements output from the BTM, the total inbound and outbound zone totals in the calculated matrices are compared with the total turning movements at that appropriate zone location, and the majority show a close correlation. The exception is in the 2031 PM Lights calculations, where the matrix total for trips travelling to A43 north of Baynards Green and B4100 east of Baynards Green is 93 trips and 15 trips lower than the totals from the respective turn count totals. The reason this discrepancy exists is that the turn counts do not correlate between Padbury Roundabout and Baynards Green Roundabout. The recorded turn count total travelling northbound away from Padbury Roundabout (Cars + LGV) is equal to 2007 trips. The recorded turn count total travelling northbound towards Baynards Green is 2117 trips. This is the source of the difference as the total amount of traffic feeding the Baynards Green exits is lower than the recorded turn movements.
- 3.8 Having requested clarification from TetraTech, suppliers of the BTM outputs, the response was as follows:

The reason for these differences is that the turning movements for Padbury, Cherwell and Ardley are calculated by Select Link Analysis (SLA). The SLA process effectively runs one extra iteration of traffic assignment and hence the results are likely to be slightly different from the original model assignment.

This SLA process is described in detail in SATURN manual Chapter 11. Section 11.8.1.2 states:

“the routes which are reconstructed in order to carry out a select link analysis do not necessarily correspond exactly to those used within the actual assignment.....any output data at this level of disaggregation should always be taken with a large pinch of salt. We therefore recommend treating SLA outputs as representative rather than precise estimates.”

- 3.9 While this presents a level of uncertainty insofar as it is impossible for us to reconcile all matrix totals with the BTM turn count outputs, we still maintain this methodology is superior to the % growth method for the reasons outlined earlier.
- 3.10 Regarding the mainline movements that do not interact with Padbury/Ardley/Cherwell, no BTM output is available. As a result, as per the NH suggestion a growth factor is calculated by comparing total demands in the Base with the total demands in the 2026 and 2031 outputs. The total traffic in each case is calculated as the total amount of traffic from the strategic model outputs that correspond to counts that would enter the VISSIM model network.
- 3.11 The resulting growth factors are provided in **Table 1** below:

Table 1: 2026 and 2031 Growth Factors

	2026		2031	
	Lights	Heavies	Lights	Heavies
AM	116.0%	78.0%	129.4%	86.0%
PM	110.6%	89.8%	122.1%	94.9%

- 3.12 These growth totals are applied to the zone totals present within the Base VISSIM models, thereby providing the necessary mainline growth.
- 3.13 **The final proposed hourly demands for 2026 AM and PM Lights and Heavies matrices are contained within the “BTM 2026 Turning Movements” tab, cells AA32:AU54. It is proposed that these are entered into VISSIM as a single hourly matrix. Warm up and cool-down matrices will be calculated by applying the proportion present within the Base.**
- 3.14 **Corresponding 2031 demands are contained within the same location of the “BTM 2031 Turning Movements” tab.**

4 Next Steps

- 4.1 Following review of this proposed methodology, VM seek agreement from National Highways that it is considered appropriate for development of a 2026 and 2031 VISSIM Reference Case. Once agreed VM will run and report the Reference Cases whilst also reviewing the approach to the development demands, which assuming the above is agreeable will follow the exact same methodology to ensure consistency through the testing.

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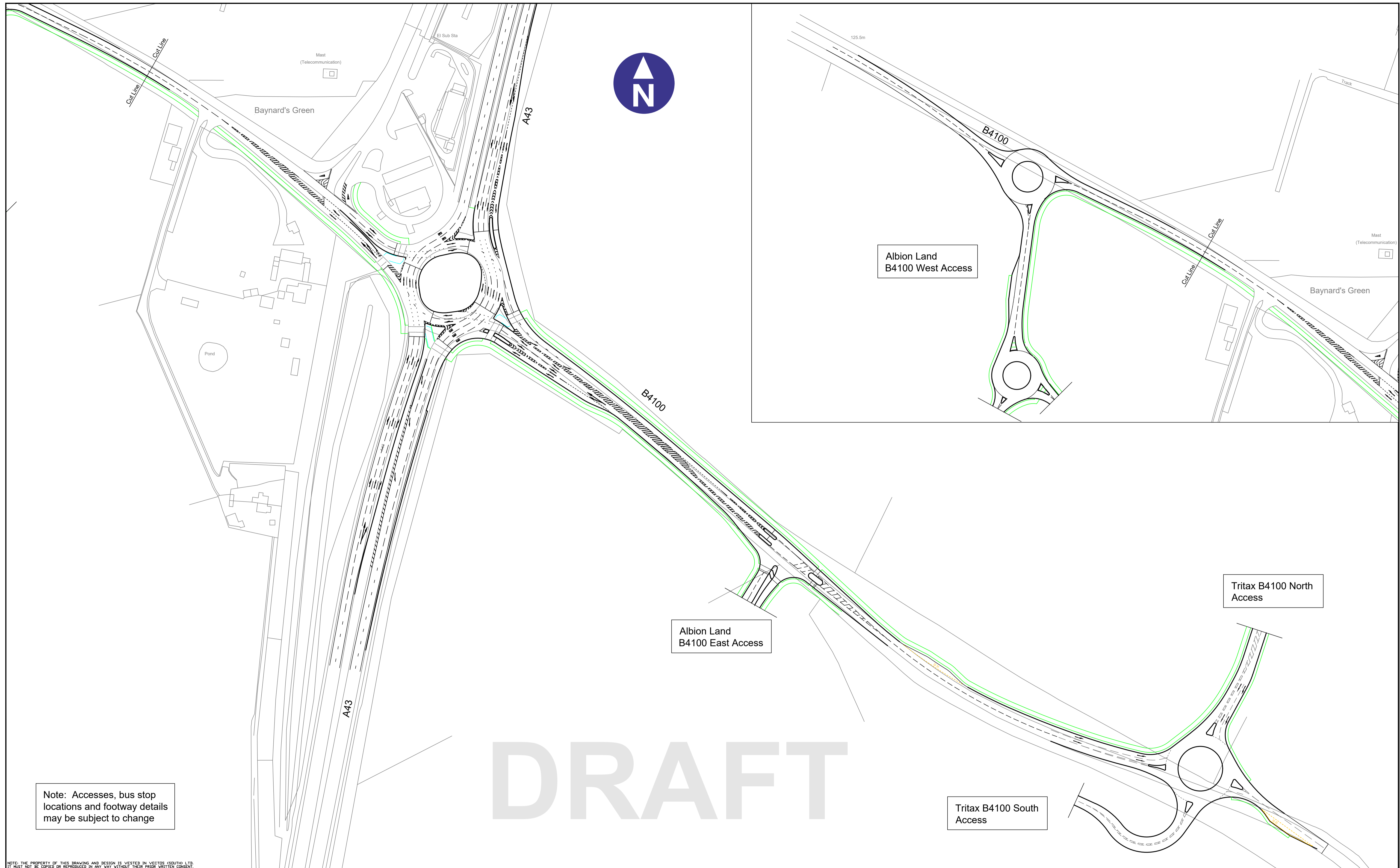
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Appendix B: Development Site Accesses and Baynards Green Scheme



Note: Accesses, bus stop locations and footway details may be subject to change

DRAFT

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REV.	DETAILS	DRAWN	CHECKED	DATE	REV.	DETAILS	DRAWN	CHECKED	DATE
A	West Albion access included.	RB	JB	25.04.23					

Notes:

- This is not a construction drawing and is intended for illustrative purposes only.
- White lining is indicative only.

PROJECT: Symmetry Park Ardley		CLIENT: Tritax Group	
DRAWING TITLE: Baynards Green & B4100 Accesses General Arrangement			
DRAWN: HC	CHECKED: RB	DATE: 21.04.23	SCALE: 1:1250 at A1

DRAWING NUMBER: 216285/SK/06	REVISION: A
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M40 J10 VISSIM Modelling

Audit Response

Prepared by:

SLR Consulting Limited

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

SLR Project No.: 431.000087.00000

Client Reference No: TN005

5 October 2023

Revision: 01

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
	5 October 2023	AJH	JE	JE
	Click to enter a date.			
	Click to enter a date.			
	Click to enter a date.			
	Click to enter a date.			



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Figures in Text

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1.0 Introduction

- 1.1 SLR Consulting Ltd (SLR) has been commissioned to provide microsimulation modelling expertise in support of two proposed logistics developments near to M40 J10 in Cherwell District, Oxfordshire. The two sites are:
- Symmetry Park Ardley; Tritax Symmetry; and
 - Axis J10; Albion Land
- 1.2 Details of the modelling assessments undertaken are found within the supporting Technical Note¹.
- 1.3 The VISSIM model files, results spreadsheet and supporting documentation have been provided to National Highways (NH). NH has now reviewed the modelling and has requested clarification on a number of points.
- 1.4 This Note sets out the queries raised by NH, and our responses to those points. In some cases the comments raised have required additional analysis, as well as re-runs of the core modelling assessment, and therefore this Note accompanies a re-package of the VISSIM development assessment.

¹ VM210412.TN004 M40 J10 Dev Sc4 Testing_Final



2.0 Queries & Responses

- 2.1 Set out below are the queries and comments raised by NH in their response, provided by email on 09 September 2023, followed by our response in green text.

Network Layout

- 2.2 We have identified some discrepancies in the modelling of the Albion Land B4100 West roundabout access when compared to the drawing provided within Appendix B of the “N02_216285_RB Baynards Green M40 Jcn 10 TN (AS ISSUED)” note. All three approaches have been modelled as two lanes, while the drawing does not appear to show any road markings to indicate this. The entry widths have also been measured at approximately 5 metres which would suggest the likelihood for a one-lane approach only.

The VISSIM coding assumed a short flare lane of ~15m on the immediate approach to the Albion Land West Access Roundabout. This was based on the general arrangement present within drawing “216285-SK-06 Rev A B4100 Junctions Plan GA”. The primary purpose of the VISSIM testing is to assess the development impact on the existing junctions at Baynards Green, Padbury, Cherwell Services and Ardley and the presence of these short flare lengths at this access junction has no impact on those conclusions. Queues westbound towards the site access roundabout and eastbound towards Baynards Green are insignificant, with no interaction between these junctions. Furthermore, each exit from the roundabout remains one lane, as is the section between Albion Land West Access Roundabout and Baynards Green, meaning flows both away from and towards Baynards Green would behave the same in the event that these flare lengths were removed.

- 2.3 Further to this, if the approaches are altered to a single-lane layout, then the Albion Land B4100 West roundabout circulatory may also be a single-lane link.

As above, the general arrangement used for the VISSIM assessment suggested a 2-lane circulatory, however with exits all set to one lane there is no risk that conclusions drawn at Baynards Green, or anywhere else, would be affected by this as the circulatory essentially behaves as a single lane. No assessment is being made of the site access junctions in VISSIM as they are proposed junctions and therefore have no supporting baseline calibration. Junction modelling software is used primarily to evidence the performance of the site access junctions.



Link Types

- 2.4 Links 14 and 19 use the “merge” link behaviour type which is a change from the DS2 model which used the left side rule. It is recommended that the left side rule link behaviour type be used to be consistent with the base and the Reference Case model. Has this change also been coded into the base model network to identify if the alteration has affected the model validation levels?

These have been reset to the left side link behaviour type as recommended. The AM and PM 2026 DS Dev 4 models have been re-run and are re-reported in the revised results spreadsheet that accompanies this Note².

Lane Change Distance

- 2.5 The lane change distance increase of links 10050 and 10051 from 250m to 500m seems excessive and extends through Padbury roundabout. Is an alteration of the lane change distance by this magnitude required to avoid the lane change behaviour experienced on the A43 between Padbury and Cherwell?

SLR found the weaving behaviour on this section to be sub-standard due to the short lane change distance. This issue was exacerbated by the success of the proposed scheme at Baynards Green which allows significantly improved throughput and therefore higher traffic levels travelling southbound towards Cherwell. SLR increased the value in response to encourage better lane change and earlier lane selection on the approach to Cherwell to prevent the unusual behaviour illustrated in Figure 5 of TN004 that accompanied the initial assessment.

The lane change distance on connectors 10050 and 10051 is set to 400m in the Base. This was changed to 250m in the Reference Case modelling that NH developed and provided to SLR for use in this assessment. In response to NH comments SLR has set these to 400m (instead of 500m) for the purposes of the re-runs that accompany this Note, thereby returning the lane change parameters to the values present within the Base.

² VM210412.Sp014 Result Spreadsheet Dev Sc4 Post Audit



Priority Rules

- 2.6 A number of priority rule gap times were adjusted at Baynards Green roundabout. Although the reasoning behind the changes is understood, these alterations from the base model gap times seem excessive. Similar to the above, National Highways would like to check if these changes have been reflected in the base model to identify if the model validation is still valid.

SLR assumes this refers to Ardley Roundabout rather than Baynards Green, as no priority rules exist at Baynards Green in the DS Dev 4 scenarios following introduction of the proposed signal scheme.

Similarly to the lane change distance adjustments, the significant improvements at Baynards Green resulting from the proposed scheme, coupled with the growth and development traffic, results in higher traffic levels travelling southbound along the A43 particularly during the AM peak. Modelled outputs show an increase of over 400 vehicles on the A43 approach towards Ardley Roundabout in the 2031 With Development compared with the 2016 Base.

The revisions to priority rules have been made to prevent traffic on the A43 westbound approach to Ardley from giving way to trips leaving Ardley Roundabout at the A43 eastbound exit. In the Base model, the significantly lower trips mean that this hesitancy has little impact on overall network performance and therefore goes unnoticed, but in the 2031 DS scenario with much higher trip numbers the over-hesitancy is clear and locks the network. Through iterative testing SLR considers the revised priority rule parameters to be the most appropriate to represent realistic behaviour on this approach.

SLR has carried out an assessment whereby the updated priority rule settings are included within a version of the Base model and re-run. The results are then compared to both the original validation results and the observed 2016 data which underpins the Base, as reported in Chapter 8 of the LMVR. The results are provided within spreadsheet “*VM210412.Sp016 Re-Run Base Model Results*” which accompanies this submission.

Overall in the AM, the 2016 Base model exhibited a journey time validation pass rate of 90%, and following the revisions to the priority rules this remains at 90%.

Focussing on the validation routes between A43 North of Baynards Green and the B430 Station Road and M40 Northbound Off-Slip exits from Ardley Roundabout, the results are as follows:

Table A: AM Southbound A43 Corridor Journey Times, Original vs Updated Base

From	To	2016 Observed (s)	2016 Base Modelled (s)	Original Difference (s)	2016 Updated Base Modelled (s)	Updated Difference (s)
A43 North	B430 Station Road South	145	160	+15	155	+10
	M40 Northbound Off-Slip	136	153	+17	150	+14



Results of the updated Base model therefore show a closer level of validation along this section, which covers the A43 corridor in its entirety from Baynards Green to Ardley. It can therefore be considered that the adjustments are beneficial to the accuracy of the AM Base model.

In the PM, the 2016 Base model exhibited a pass rate of 95%, and now exhibits a pass rate of 90%. The one additional fail in the PM following the re-run refers to the route between B4100 Banbury Road West and M40 Southbound Off-slip, which does not interact with Ardley Roundabout. The 2016 Base modelled output journey time for this section was 125 seconds against an observed journey time of 109 seconds (a percentage difference of 14.7%, thereby just falling within the 15% threshold for a pass). Following the re-run the modelled journey time is now 127 seconds, meaning a percentage difference of 16.2% and therefore falling just outside of the threshold. Overall the network meets the requisite industry validation standards and shows an extremely close correlation with both the observed data and the original 2016 model output.

- 2.7 In addition to this, the reduction in gap time has also led to overlapping vehicles and close collisions being observed on occasions on the A43 Westbound approach to Ardley roundabout.

SLR has reviewed the simulation and found there to be very few instances of near collisions at this location. Circulating traffic is shown to be travelling at ~30mph, which arguably is faster than might be expected on street, which may be contributing to isolated occasions of near collisions. It is not unusual for this to occur in microsimulation models as vehicles show no regard for each other once they are on conflicting links/connectors. Based on the updated baseline validation data all sections on this approach validate, and indeed are slower than the observed in the AM where traffic levels are at their highest, therefore we consider the section to be representative of observed data and trustworthy for the development of the future year.

Desired Speed Decision

- 2.8 Within the VISSIM model, 30mph Desired Speed Decision markers 169 and 188 have been provided on the eastbound approach to the B4100 Albion Land East signalised junction. Please can it be confirmed that it is the intention of the development access works that the speed will be reduced to 30mph through the signalised access junction?

This is a query for the design team but is referenced here for completeness of response. In regards to the modelling the speed limit through the junction will have no bearing on model performance elsewhere nor the conclusions drawn therefrom.



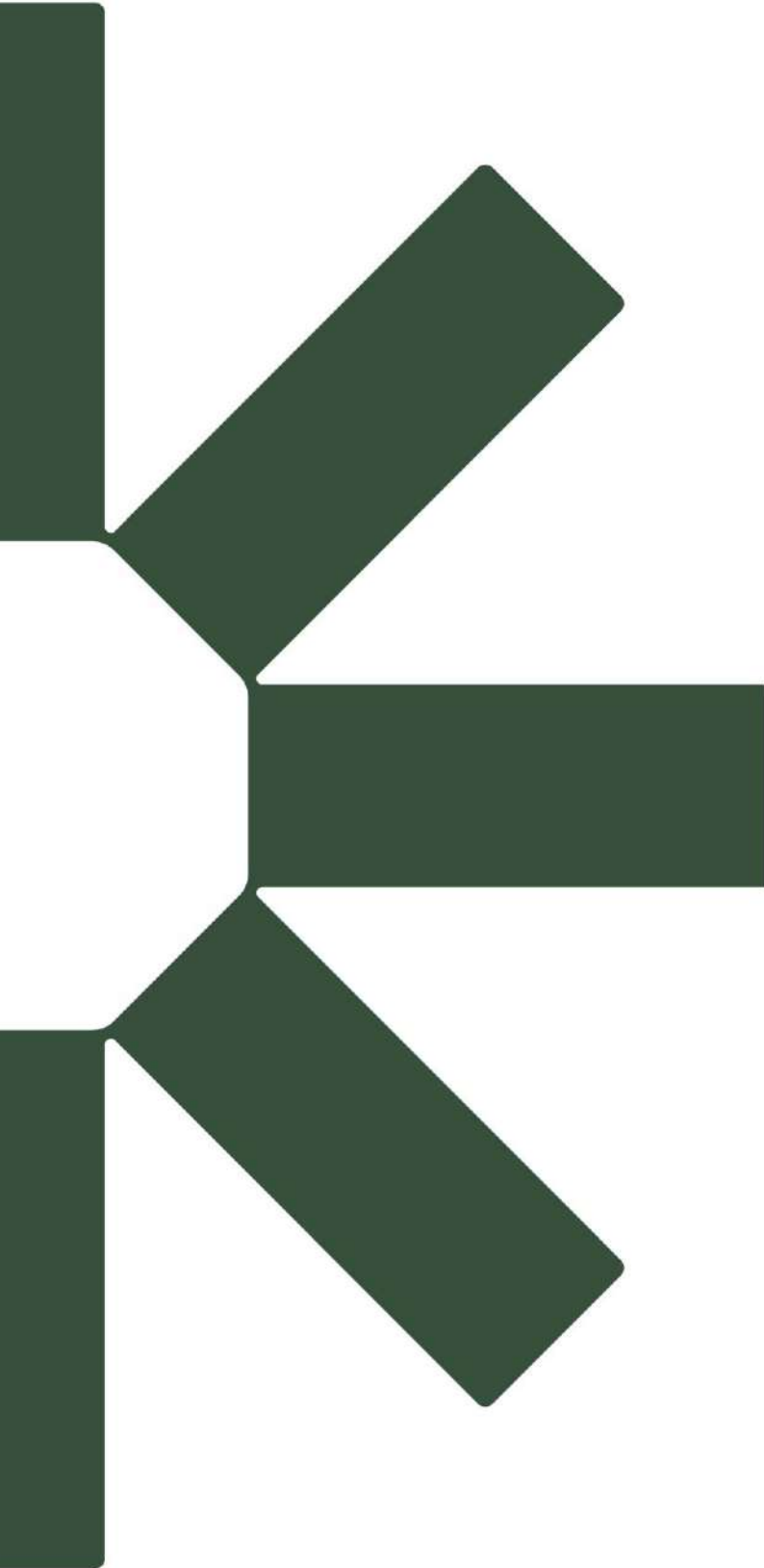
Public Transport Stops

- 2.9 Two new bus laybys have been modelled, however no public transport stops have been provided within the model within these laybys. Is it known which bus routes will use these stops and are they able to be coded within the model?

No buses are contained within the Base modelling and this approach has been maintained through the Reference Case and With Development testing. Bus laybys were coded for visual purposes only in line with the arrangement shown on the drawing³.

³ 216285-SK-06 Rev A B4100 Junctions Plan GA





From: Martin Seldon <[REDACTED]>
Sent: Friday, November 10, 2023 5:04 PM
To: Anthony Hogan <[REDACTED]>; Simon Parfitt <[REDACTED]>; Richard Bishop <[REDACTED]>
Cc: Lopez, Juan - Oxfordshire County Council <[REDACTED]>; Emma Lancaster <[REDACTED]>; Tom Leeming <[REDACTED]>; James Bancroft <[REDACTED]>; Will Broadhurst <[REDACTED]>; Louise Steele <[REDACTED]>; Manku, Amrik - Oxfordshire County Council <[REDACTED]>; James Werby <[REDACTED]>; Richard McCulloch <[REDACTED]>; Gogna, Sunil <[REDACTED]>; Kelly Milburn <[REDACTED]>; Jonathan Dawes <[REDACTED]>; Russell Gray <[REDACTED]>; Kelvin Pearce <[REDACTED]>; Richard McCulloch <[REDACTED]>; Andy Bateson <[REDACTED]>; Chanamoto, Alen - Communities <[REDACTED]>; Russell Gray <[REDACTED]>; Hari, Aarsha <[REDACTED]>; Mark Roxburgh <[REDACTED]>; White, Joy - Oxfordshire County Council <[REDACTED]>; Chris Wentworth <[REDACTED]>; Tom Cookson <[REDACTED]>
Subject: RE: M40 J10 Baynards Green planning applications

Hi Anthony

Thank you for providing your responses to our comments made on 29 September 2023, together with the audit response note titled “VM210412.TN005 M40 J10 Audit Response”. My apologies for the delay in responding to you.

We have reviewed the note provided and have set out for completeness our response to the comments below using the headings of the note.

Network Layout

We note that the network has remained unchanged at Albion Land B4100 West roundabout access and therefore, differs from Appendix B of the “N02_216285_RB Baynards Green M40 Jcn 10 TN (AS ISSUED)” note. However, we accept the response provided and acknowledge that the impact on the SRN junctions would remain unchanged. Therefore, we have no further comments on this except to reaffirm that the model assessments have not been used to assess the performance or capacity of the site access junctions and that the Junctions modelling results should be used in the assessment of these.

Link Types

We acknowledge that the DS2 Dev 4 models have now been amended and links 14 and 19 now use the “left-side rule” link behaviour type. Therefore, we have no further comments on this.

Lane Change Distance

Thank you for reviewing the lane change distances for connectors 10050 and 10051. The revision of the lane change distance distances for these connectors to the Base model values of 400 metres is accepted and we therefore have no further comments on this.

Priority Rules

We apologise for the incorrect referencing of Baynards Green roundabout and your assumption of the comment relating to Ardley Roundabout was correct. We appreciate that the journey time Base model validation comparison that has been undertaken includes the revised priority rule gap times and are comforted that the model has retained an acceptable validation level to TAG unit M3.1 requirements. With the instances of close collisions being low and the validation levels being acceptable, we therefore have no further comments on the priority rule amendments.

Desired Speed Decision

It is agreed that for the assessment of the SRN junctions, the effect of the speed change on the model performance is likely to be minor and therefore has been accepted for these modelling assessments. However, this speed alteration should be clarified to confirm the speed reduction intention.

Public Transport Stops

The exclusion of bus routes within the model is accepted given the assessment is for the SRN junctions and we have no further comments on this.

Results

We have reviewed the results provided and have concerns about the queues present in the M40 NB Off-Slip at Ardley roundabout in the “AM S2 2026 Dev 4 DS” and “AM S2 2031 Dev 4 DS”. The queues have increased significantly from a) 102 metres in the “AM S2 2026 New” scenario to 306 metres in the “AM S2 2026 dev 4 DS” scenario, and b) 176 metres in the “AM S2 2031 New” scenario to 361 metres in the “AM S2 2031 dev 4 DS” scenario.

The mitigation scheme proposed at the Baynards Green roundabout along with the development trips has resulted in an increase in queues on the off-slip section as noted above. However, the queues are still expected to be contained within the off-slip section without causing any spillover to the mainline.

Kind regards

Martin Seldon, Assistant Spatial Planner

[Redacted signature block]

For information about our engagement with the planning system please visit : <https://nationalhighways.co.uk/our-roads/planning-and-the-strategic-road-network-in-england/>

From: Anthony Hogan <[Redacted]>
Sent: Friday, October 6, 2023 5:19 PM
To: Martin Seldon <[Redacted]>; Simon Parfitt <[Redacted]>; Richard Bishop <[Redacted]>
Cc: Lopez, Juan - Oxfordshire County Council <[Redacted]>; Emma Lancaster <[Redacted]>; Tom Leeming <[Redacted]>; James Bancroft <[Redacted]>; Will Broadhurst <[Redacted]>; Louise Steele <[Redacted]>; Manku, Amrik - Oxfordshire County Council <[Redacted]>; James Werby <[Redacted]>; Richard McCulloch <[Redacted]>; Gogna, Sunil <[Redacted]>; Kelly Milburn <[Redacted]>; Jonathan Dawes <[Redacted]>; Russell Gray <[Redacted]>; Kelvin Pearce <[Redacted]>; Richard McCulloch <[Redacted]>

<[REDACTED]>; Andy Bateson <[REDACTED]>; Chanamoto, Alen -
Communities <[REDACTED]>; Russell Gray <[REDACTED]>; Hari,
Aarsha <[REDACTED]>; Mark Roxburgh <[REDACTED]>; White, Joy -
Oxfordshire County Council <[REDACTED]>; Chris Wentworth <[REDACTED]>
[REDACTED]>; Tom Cookson <[REDACTED]>

Subject: RE: M40 J10 Baynards Green planning applications

Hi Martin,

Thank you for the below. We have now considered the comments and provide a response in the link below:

<https://we.tl/t-KlqjcXYxVF>

The link includes:

- Post Audit Dev 4 – revised With Development VISSIM Modelling for 2026 and 2031
- Revised 2016 Base – an updated version of the Base model, in-line with NH recommendations regarding one of the points below
- VM210412.Sp015 Result Spreadsheet Dev Sc4 Post Audit.xls – revised results spreadsheet
- VM210412.Sp016 Re-Run Base Model Results.xls – results of the revised 2016 Base model; and
- VM210412.TN005 M40 J10 Audit Response.pdf – our Response to the queries raised in your email below

Look forward to your comments but any queries in the meantime please feel free to contact me.

Thanks,
Anthony

Anthony Hogan
Associate Director - Transport Modelling

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]



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From: Martin Seldon <[REDACTED]>
Sent: Friday, September 29, 2023 3:01 PM
To: Richard Bishop <[REDACTED]>; Simon Parfitt <[REDACTED]>
Cc: Lopez, Juan - Oxfordshire County Council <[REDACTED]>; Emma Lancaster <[REDACTED]>; Tom Leeming <[REDACTED]>; James Bancroft <[REDACTED]>

< >; Will Broadhurst < >; Louise Steele
< >; Manku, Amrik - Oxfordshire County Council
< >; James Werby < >; Richard McCulloch
< >; Gogna, Sunil < >; Kelly Milburn
< >; Jonathan Dawes < >; Russell Gray
< >; Kelvin Pearce < >; Richard McCulloch
< >; Andy Bateson < >; Chanamoto, Alen -
Communities < >; Russell Gray < >; Hari,
Aarsha < >; Mark Roxburgh < >; White, Joy -
Oxfordshire County Council < >; Chris Wentworth < >
< >; Tom Cookson < >

Subject: RE: M40 J10 Baynards Green planning applications

Hi Richard,

Thank you for sending the VISSIM model files through to accompany the N02/216285/RB Technical Note. We have reviewed the model files and have a few queries which we would like to resolve before considering the VISSIM results further. These have been set out below and broken down into different modelling sections.

Network Layout

1. We have identified some discrepancies in the modelling of the Albion Land B4100 West roundabout access when compared to the drawing provided within Appendix B of the "N02_216285_RB Baynards Green M40 Jcn 10 TN (AS ISSUED)" note. All three approaches have been modelled as two lanes, while the drawing does not appear to show any road markings to indicate this. The entry widths have also been measured at approximately 5 metres which would suggest the likeliness for a one-lane approach only.
2. Further to this, if the approaches are altered to a single-lane layout, then the Albion Land B4100 West roundabout circulatory may also be a single-lane link.

Link Types

1. Links 14 and 19 use the "merge" link behaviour type which is a change from the DS2 model which used the left side rule. It is recommended that the left side rule link behaviour type be used to be consistent with the base and the Reference Case model. Has this change also been coded into the base model network to identify if the alteration has affected the model validation levels?

Lane Change Distance

1. The lane change distance increase of links 10050 and 10051 from 250m to 500m seems excessive and extends through Padbury roundabout. Is an alteration of the lane change distance by this magnitude required to avoid the lane change behaviour experienced on the A43 between Padbury and Cherwell?

Priority Rules

1. A number of priority rule gap times were adjusted at Baynards Green roundabout. Although the reasoning behind the changes is understood, these alterations from the base model gap times seem excessive. Similar to the above, National Highways would like to check if these changes have been reflected in the base model to identify if the model validation is still valid.
2. In addition to this, the reduction in gap time has also led to overlapping vehicles and close collisions being observed on occasions on the A43 Westbound approach to Ardley roundabout.

Desired Speed Decision

1. Within the VISSIM model, 30mph Desired Speed Decision markers 169 and 188 have been provided on the eastbound approach to the B4100 Albion Land East signalised junction. Please can it be confirmed that it is the intention of the development access works that the speed will be reduced to 30mph through the signalised access junction?

Public Transport Stops

1. Two new bus laybys have been modelled, however no public transport stops have been provided within the model within these laybys. Is it known which bus routes will use these stops and are they able to be coded within the model?

Kind regards

Martin Seldon, Assistant Spatial Planner



For information about our engagement with the planning system please visit

<https://highwaysengland.co.uk/our-work/planning-and-the-strategic-road-network-in-england/>

From: Martin Seldon <[REDACTED]>
Sent: Tuesday, September 12, 2023 3:22 PM
To: Simon Parfitt <[REDACTED]>; Richard Bishop <[REDACTED]>
Cc: Lopez, Juan - Oxfordshire County Council <[REDACTED]>; Emma Lancaster <[REDACTED]>; Tom Leeming <[REDACTED]>; James Bancroft <[REDACTED]>; Will Broadhurst <[REDACTED]>; Louise Steele <[REDACTED]>; Manku, Amrik - Oxfordshire County Council <[REDACTED]>; James Werby <[REDACTED]>; Richard McCulloch <[REDACTED]>; Gogna, Sunil <[REDACTED]>; Richard Bishop <[REDACTED]>; Kelly Milburn <[REDACTED]>; Jonathan Dawes <[REDACTED]>; Russell Gray <[REDACTED]>; Kelvin Pearce <[REDACTED]>; Richard McCulloch <[REDACTED]>; Andy Bateson <[REDACTED]>; Chanamoto, Alen - Communities <[REDACTED]>; Russell Gray <[REDACTED]>; Hari, Aarsha <[REDACTED]>; Mark Roxburgh <[REDACTED]>; White, Joy - Oxfordshire County Council <[REDACTED]>; Chris Wentworth <[REDACTED]>; Tom Cookson <[REDACTED]>

Subject: RE: M40 J10 Baynards Green planning applications

Hi Simon

Thank you for providing the Technical Note (TN) N02/216285/RB dated August 2023 in support of the traffic modelling undertaken for the assessment of M40 J10 and Baynards Green junctions. To help us aid the review of the TN, we recommend that the VISSIM modelling files be submitted to National Highways for review. These are requested for the following reasons.

1. To provide a review of the coding of the mitigation scheme implemented into the model at the Baynards Green roundabout and development site accesses.
2. Annex A identifies a number of adjustments to the look back distances, emergency stop distances and priority rules within the Do Something model. This provides some concerns due to alterations being made from the Base Model and Reference Case VISSIM models and National Highways would like to examine the effect of these further.
3. To assess the effect of the increases in queue lengths on the A43 Northbound off-slip at the Ardley roundabout and A43 Southbound links between Baynards Green to Padbury and Padbury to Cherwell.

4. To identify the impact of the increases in journey times between A43 North to M40 South and M40 South to A43 North as identified in Table 2.
5. The changed give way parameters on the Ardley Roundabout (reported in TN004 para 15);
 - Presumably the original values were used in the model validation and therefore a clear justification as to why this gap acceptance behaviour would change in the future year scenarios is required,

We will provide further comments following the review of the model files.

Regarding the design for Baynards Green roundabout:

- the lane widths of the single lane sections past the splitter islands (north and east arms); these should ideally be 4.5m wide to allow space for a cycle and car side-by-side in line with CD116 para 7.11 – while there are off carriageway cycle facilities provided, some cyclists may still want to cycle on carriageway and the design should provide a safe and suitable layout to accommodate this so far as is reasonable. There appears to be ample space within the highway boundary to provide additional width on these lanes
- with regard to the entry path requirements, provided the scheme is maintaining or improving the existing layout and is providing suitable speed mitigation, this is likely to be an acceptable departure – however a submission for this will still be required. Mitigation for entry path curvature departures may include (not exhaustive): provision of signals, subsidiary deflection islands, enhanced markings / coloured surfacing, extended chevrons on island or approach, local reduced speed limits, additional warning signs. Provisional agreement may be sought in the first instance, followed by a formal application
- in terms of design speed, this is dictated by the nature and design of the link and should be calculated using the methodology within CD109, and specifically para 2.4 which states “*For road improvements of up to 2km in length on existing rural roads, the design speed shall be derived using Figure 2.1 with the value of Ac calculated for a minimum road length of 2 km incorporating the section of road improvement.*” For avoidance of doubt, the A43 and B4100 are considered rural roads at this location and this would not change with the proposed development. This is in part based on the nature of similar roads through Magna Park (A5 and A4303) and DIRFT (A5 and A428). There is no mechanism within DMRB to reduce the design speed outside of changing the factors that influence the design speed selection – the alignment and layout constraints, the latter of which will be changed on the B4100 by the introduction of new junctions for the development.

I note that you have just provided some suggested meeting dates and we will confirm availability shortly.

Kind regards

Martin Seldon, Assistant Spatial Planner

For information about our engagement with the planning system please visit <https://highwaysengland.co.uk/our-work/planning-and-the-strategic-road-network-in-england/>

From: Simon Parfitt <[REDACTED]>

Sent: Thursday, August 17, 2023 3:31 PM

To: Martin Seldon <[REDACTED]>; Richard Bishop <[REDACTED]>
Cc: Lopez, Juan - Oxfordshire County Council <[REDACTED]>; Emma Lancaster <[REDACTED]>; Tom Leeming <[REDACTED]>; James Bancroft <[REDACTED]>; Will Broadhurst <[REDACTED]>; Louise Steele <[REDACTED]>; Manku, Amrik - Oxfordshire County Council <[REDACTED]>; James Werby <[REDACTED]>; Richard McCulloch <[REDACTED]>; Gogna, Sunil <[REDACTED]>; Richard Bishop <[REDACTED]>; Kelly Milburn <[REDACTED]>; Jonathan Dawes <[REDACTED]>; Russell Gray <[REDACTED]>; Kelvin Pearce <[REDACTED]>; Richard McCulloch <[REDACTED]>; Andy Bateson <[REDACTED]>; Chanamoto, Alen - Communities <[REDACTED]>; Russell Gray <[REDACTED]>; Hari, Aarsha <[REDACTED]>; Mark Roxburgh <[REDACTED]>; White, Joy - Oxfordshire County Council <[REDACTED]>; Chris Wentworth <[REDACTED]>; Tom Cookson <[REDACTED]>

Subject: M40 J10 Baynards Green planning applications

Hi Martin

Please find attached Technical Note N02/216285/RB providing updated traffic impact appraisal of Baynards Green/M40 J10 and proposed mitigation scheme, prepared by the consultants collaboratively representing Tritax Symmetry and Albion Land. A supporting spreadsheet is also provided.

The document represents an update to Technical Note N01/21285/RB issued in April 2023, on which feedback was provided by the authorities, and includes detailed refinement to the proposed works at Baynards Green. You will see that the submission benefits from the VISSIM appraisal of the M40 J10 network, and in the Do-Something tests includes the site accesses for the various land parcels.

Should there be any immediate queries or requests please come back to either myself or James Bancroft.

Noting that you will need time to review the content, nonetheless, would it be possible to please suggest some dates now to discuss any feedback and to agree next steps in 3-4 weeks.

Kind regards
Simon

Simon Parfitt



[REDACTED]



Appendix M Detailed Modelling Results

Transport Assessment Addendum

Symmetry Park, Ardley

Tritax Symmetry Ardley Limited

SLR Project No.: 216285

30 April 2024

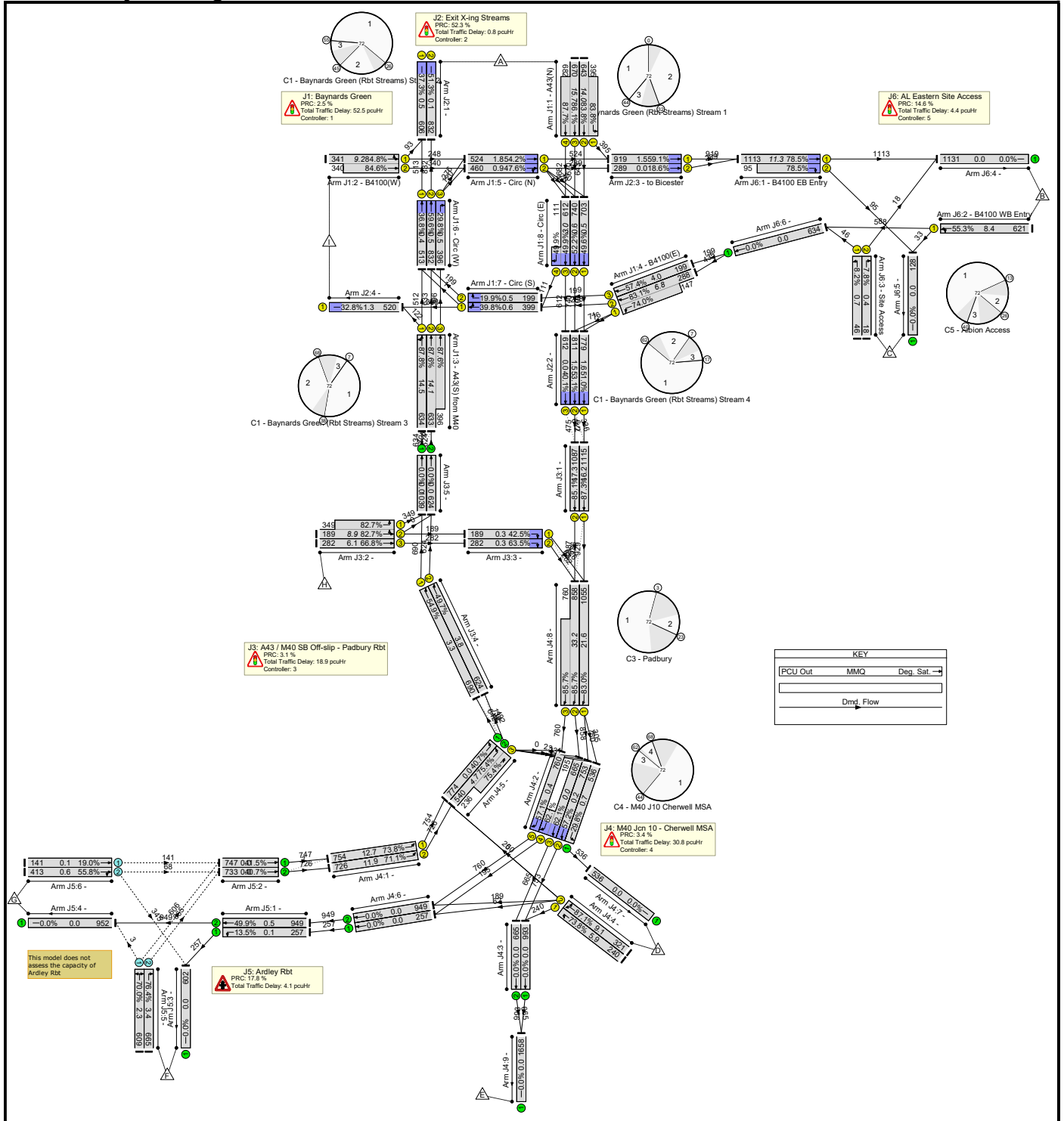
Basic Results Summary
Basic Results Summary

User and Project Details

Project:	Tritax Ardley
Title:	M40 Jcn 10 Cherwell & Baynards Green
Location:	
Client:	Tritax
Model Assumptions:	Only 'with dev' flows are presented in this model. They are based upon Tetra Tech BTM Scenario 4 outputs.
Additional detail:	
File name:	216285 M40 Cherwell Jcn10 Network v1_2.lsg3x
Author:	R Bishop
Company:	Vectos SLR
Address:	

Basic Results Summary

Scenario 1: 'AM 2026 BTM' (FG1: 'AM 2026 BTM', Plan 1: 'AM')
 Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: M40 Jcn 10 Cherwell & Baynards Green	-	-	-		-	-	-	-	-	-	87.8%	1828	0	0	111.5	-	-
J1: Baynards Green	-	-	-		-	-	-	-	-	-	87.8%	0	0	0	52.5	-	-
1/2+1/1	A43(N) Ahead Left	U	C1:B		1	27	-	1038	2000:1924	767+471	83.8 : 83.8%	-	-	-	7.9 (5.1+2.8)	27.5 (28.6:25.7)	14.0
1/3+1/4	A43(N) Ahead	U	C1:B		1	27	-	1352	2000:2000	778+778	86.1 : 87.7%	-	-	-	10.8 (5.4+5.5)	28.9 (28.8:29.0)	15.7
2/1+2/2	B4100(W) Ahead Left	U	C1:E		1	14	-	681	1930:1930	402+402	84.8 : 84.6%	-	-	-	7.8 (3.9+3.9)	41.4 (41.4:41.4)	9.2
3/1	A43(S) from M40 Ahead Left	U	C1:H		1	25	-	634	2000	722	87.8%	-	-	-	7.9	44.8	14.5
3/2+3/3	A43(S) from M40 Ahead	U	C1:H		1	25	-	1029	2000:1953	722+452	87.6 : 87.6%	-	-	-	10.5 (6.6+3.9)	36.7 (37.4:35.6)	14.1
4/2+4/1	B4100(E) Ahead Left	U	C1:K		1	12	-	435	1920:1859	347+199	83.1 : 74.0%	-	-	-	4.8 (3.2+1.6)	39.7 (39.6:39.8)	6.8
4/3	B4100(E) Ahead	U	C1:K		1	12	-	199	1920	347	57.4%	-	-	-	1.7	31.0	4.0
5/1	Circ (N) Ahead	U	C1:A		1	33	-	524	1990	967	54.2%	-	-	-	0.4	2.8	1.8
5/2	Circ (N) Right Ahead	U	C1:A		1	33	-	460	1990	967	47.6%	-	-	-	0.2	1.9	0.9
6/1	Circ (W) Ahead	U	C1:D		1	47	-	513	2050	1395	36.8%	-	-	-	0.0	0.1	0.4
6/2	Circ (W) Ahead	U	C1:D		1	47	-	832	2050	1395	59.6%	-	-	-	0.0	0.1	0.5
6/3	Circ (W) Right	U	C1:D		1	47	-	396	1950	1327	29.8%	-	-	-	0.0	0.3	0.5
7/1	Circ (S) Right Ahead	U	C1:G		1	35	-	399	1950	1002	39.8%	-	-	-	0.1	0.9	0.6
7/2	Circ (S) Right	U	C1:G		1	35	-	199	1950	1002	19.9%	-	-	-	0.0	0.4	0.5

Basic Results Summary

8/1	Circ (E) Ahead	U	C1:J		1	49	-	703	2000	1417	49.6%	-	-	-	0.1	0.3	0.5
8/2	Circ (E) Ahead	U	C1:J		1	49	-	740	2000	1417	52.2%	-	-	-	0.1	0.3	0.6
8/3+8/4	Circ (E) Right Ahead	U	C1:J		1	49	-	723	2000:1950	1227+223	49.9 : 49.9%	-	-	-	0.0 (0.0+0.0)	0.2 (0.2:0.2)	3.0
J2: Exit X-ing Streams	-	-	-		-	-	-	-	-	-	59.1%	0	0	0	0.8	-	-
1/1		U	C2:A		1	56	-	606	2050	1623	37.3%	-	-	-	0.0	0.1	0.5
1/2		U	C2:A		1	56	-	832	2050	1623	51.3%	-	-	-	0.0	0.1	0.1
2/1	Ahead	U	C2:C		1	54	-	779	2000	1528	51.0%	-	-	-	0.2	1.0	1.6
2/2	Ahead	U	C2:C		1	54	-	811	2000	1528	53.1%	-	-	-	0.2	0.9	1.5
2/3	Ahead	U	C2:C		1	54	-	612	2000	1528	40.1%	-	-	-	0.0	0.0	0.0
3/1	to Bicester Ahead	U	C2:E		1	55	-	919	2000	1556	59.1%	-	-	-	0.2	0.9	1.5
3/2	to Bicester Ahead	U	C2:E		1	55	-	289	2000	1556	18.6%	-	-	-	0.0	0.0	0.0
4/1		U	C2:G		1	56	-	520	2000	1583	32.8%	-	-	-	0.1	0.7	1.3
J3: A43 / M40 SB Off-slip - Padbury Rbt	-	-	-		-	-	-	-	-	-	87.3%	0	0	0	18.9	-	-
1/1	Ahead	U	C3:B		1	45	-	1115	2000	1278	87.3%	-	-	-	4.3	13.9	16.2
1/2	Ahead	U	C3:B		1	45	-	1087	2000	1278	85.1%	-	-	-	3.7	12.2	17.3
2/2+2/1	Ahead Left	U	C3:C		1	15	-	538	1900:1900	229+422	82.7 : 82.7%	-	-	-	6.1 (2.1+4.1)	41.1 (39.5:42.0)	8.9
2/3	Ahead	U	C3:C		1	15	-	282	1900	422	66.8%	-	-	-	3.0	38.2	6.1
3/1	Right	U	C3:D		1	15	-	189	2000	444	42.5%	-	-	-	0.1	1.3	0.3
3/2	Right	U	C3:D		1	15	-	282	2000	444	63.5%	-	-	-	0.1	1.6	0.3
4/1	Ahead	U	C3:A		1	45	-	690	1967	1257	54.9%	-	-	-	0.8	4.3	3.3
4/2	Ahead	U	C3:A		1	45	-	624	1967	1257	49.7%	-	-	-	0.8	4.5	3.8
J4: M40 Jcn 10 - Cherwell MSA	-	-	-		-	-	-	-	-	-	87.1%	0	0	0	30.8	-	-
1/1	Ahead	U	C4:H		1	38	-	754	1886	1022	73.8%	-	-	-	4.0	19.2	12.7
1/2	Ahead	U	C4:H		1	38	-	726	1886	1022	71.1%	-	-	-	3.7	18.3	11.9

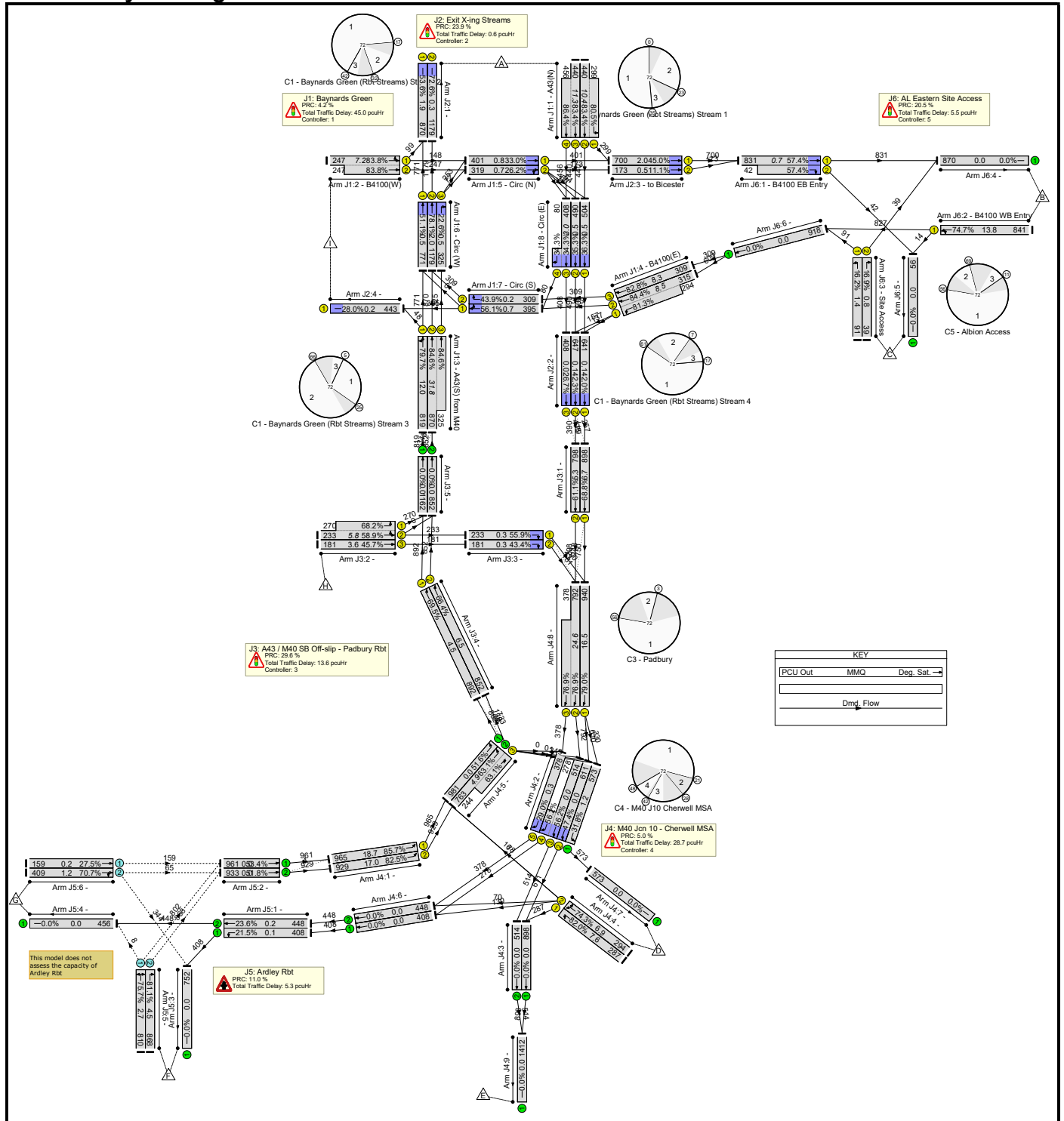
Basic Results Summary

2/1	Left	U	-		-	-	-	536	1800	1800	29.8%	-	-	-	0.2	1.4	0.7
2/2	Ahead	U	C4:C		1	47	-	753	1973	1315	57.2%	-	-	-	0.0	0.1	0.2
2/3+2/4	Ahead Right	U	C4:C		1	47	-	860	1973:1995	1071+314	62.1 : 62.1%	-	-	-	0.0 (0.0+0.0)	0.0 (0.0:0.0)	0.0
2/5	Right	U	C4:D		1	47	-	760	1995	1330	57.1%	-	-	-	0.0	0.2	0.4
4/1	Left	U	C4:F		1	12	-	240	1800	325	73.8%	-	-	-	3.2	48.4	5.9
4/2	Right Left	U	C4:E		1	13	-	321	1896	369	87.1%	-	-	-	5.5	61.7	9.1
5/1	Left	U	-		-	-	-	774	1900	1900	40.7%	-	-	-	0.0	0.0	0.0
5/2+5/3	U-Turn Left	U	- C4:A		-	-	-	776	1900:1877	716+313	75.4 : 75.4%	-	-	-	1.8 (0.0+1.8)	8.2 (0.0:26.9)	4.7
8/1	Ahead	U	C4:B		1	46	-	1055	1948	1272	83.0%	-	-	-	5.7	19.4	21.6
8/2+8/3	Ahead	U	C4:B		1	46	-	1618	1948:1948	1001+887	85.7 : 85.7%	-	-	-	6.6 (4.1+2.5)	14.7 (17.1:11.9)	33.2
J5: Ardley Rbt	-	-	-		-	-	-	-	-	-	76.4%	1828	0	0	4.1	-	-
1/1	Left	U	-		-	-	-	257	1900	1900	13.5%	-	-	-	0.1	1.1	0.1
1/2	Ahead	U	-		-	-	-	949	1900	1900	49.9%	-	-	-	0.5	1.9	0.5
2/1	Ahead	U	-		-	-	-	747	1800	1800	41.5%	-	-	-	0.0	0.0	0.0
2/2	Ahead	U	-		-	-	-	733	1800	1800	40.7%	-	-	-	0.0	0.0	0.0
5/1	Right Left	O	-		-	-	-	609	1800	870	70.0%	609	0	0	1.2	6.8	2.3
5/2	Right	O	-		-	-	-	665	1800	870	76.4%	665	0	0	1.6	8.7	3.4
6/1	Ahead	O	-		-	-	-	141	1800	740	19.0%	141	0	0	0.1	3.0	0.1
6/2	Ahead Right	O	-		-	-	-	413	1800	740	55.8%	413	0	0	0.6	5.5	0.6
J6: AL Eastern Site Access	-	-	-		-	-	-	-	-	-	78.5%	0	0	0	4.4	-	-
1/1+1/2	B4100 EB Entry Ahead Right	U	C5:A C5:B		1	53:7	-	1208	1980:1842	1417+121	78.5 : 78.5%	-	-	-	1.6 (1.0+0.7)	4.8 (3.1:24.8)	11.3
2/1	B4100 WB Entry Left Ahead	U	C5:C		1	40	-	621	1972	1123	55.3%	-	-	-	2.3	13.3	8.4
3/1	Site Access Left	U	C5:D	C5:E	1	21	13	46	1842	563	8.2%	-	-	-	0.3	21.3	0.7

Basic Results Summary

3/2	Site Access Right	U	C5:D		1	8	-	18	1842	230	7.8%	-	-	-	0.2	36.5	0.4
C1 - Baynards Green (Rbt Streams)			Stream: 1 PRC for Signalled Lanes (%)		2.6				Total Delay for Signalled Lanes (pcuHr):	19.42			Cycle Time (s):	72			
C1 - Baynards Green (Rbt Streams)			Stream: 2 PRC for Signalled Lanes (%)		6.1				Total Delay for Signalled Lanes (pcuHr):	7.91			Cycle Time (s):	72			
C1 - Baynards Green (Rbt Streams)			Stream: 3 PRC for Signalled Lanes (%)		2.5				Total Delay for Signalled Lanes (pcuHr):	18.51			Cycle Time (s):	72			
C1 - Baynards Green (Rbt Streams)			Stream: 4 PRC for Signalled Lanes (%)		8.3				Total Delay for Signalled Lanes (pcuHr):	6.68			Cycle Time (s):	72			
C2 - Baynards Green (Exit Streams)			Stream: 1 PRC for Signalled Lanes (%)		75.6				Total Delay for Signalled Lanes (pcuHr):	0.04			Cycle Time (s):	72			
C2 - Baynards Green (Exit Streams)			Stream: 2 PRC for Signalled Lanes (%)		69.5				Total Delay for Signalled Lanes (pcuHr):	0.43			Cycle Time (s):	72			
C2 - Baynards Green (Exit Streams)			Stream: 3 PRC for Signalled Lanes (%)		52.3				Total Delay for Signalled Lanes (pcuHr):	0.22			Cycle Time (s):	72			
C2 - Baynards Green (Exit Streams)			Stream: 4 PRC for Signalled Lanes (%)		174.0				Total Delay for Signalled Lanes (pcuHr):	0.11			Cycle Time (s):	72			
C3 - Padbury			PRC for Signalled Lanes (%)		3.1				Total Delay for Signalled Lanes (pcuHr):	18.91			Cycle Time (s):	72			
C4 - M40 J10 Cherwell MSA			PRC for Signalled Lanes (%)		3.4				Total Delay for Signalled Lanes (pcuHr):	28.78			Cycle Time (s):	72			
C5 - Albion Access			PRC for Signalled Lanes (%)		14.6				Total Delay for Signalled Lanes (pcuHr):	4.38			Cycle Time (s):	72			
			PRC Over All Lanes (%)		2.5				Total Delay Over All Lanes(pcuHr):	111.46							

Basic Results Summary
Scenario 2: 'PM 2026 BTM' (FG2: 'PM 2026 BTM', Plan 2: 'PM')
Network Layout Diagram



This model does not assess the capacity of Ardley Rbt

Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: M40 Jcn 10 Cherwell & Baynards Green	-	-	-		-	-	-	-	-	-	86.4%	2246	0	0	98.8	-	-
J1: Baynards Green	-	-	-		-	-	-	-	-	-	86.4%	0	0	0	45.0	-	-
1/2+1/1	A43(N) Ahead Left	U	C1:B		1	18	-	739	2000:1924	528+372	83.4 : 80.5%	-	-	-	7.2 (4.4+2.8)	35.2 (35.9:34.0)	10.4
1/3+1/4	A43(N) Ahead	U	C1:B		1	18	-	896	2000:2000	528+528	83.4 : 86.4%	-	-	-	9.0 (4.4+4.6)	36.1 (35.9:36.2)	11.3
2/1+2/2	B4100(W) Ahead Left	U	C1:E		1	10	-	494	1930:1930	295+295	83.8 : 83.8%	-	-	-	6.5 (3.3+3.3)	47.5 (47.5:47.5)	7.2
3/1	A43(S) from M40 Ahead Left	U	C1:H		1	36	-	819	2000	1028	79.7%	-	-	-	4.7	20.7	12.0
3/2+3/3	A43(S) from M40 Ahead	U	C1:H		1	36	-	1195	2000:1953	1028+384	84.6 : 84.6%	-	-	-	6.3 (4.7+1.6)	18.9 (19.3:17.9)	31.8
4/2+4/1	B4100(E) Ahead Left	U	C1:K		1	13	-	609	1920:1859	373+361	84.4 : 81.3%	-	-	-	5.9 (3.0+2.9)	34.9 (34.7:35.1)	8.5
4/3	B4100(E) Ahead	U	C1:K		1	13	-	309	1920	373	82.8%	-	-	-	4.3	49.7	8.3
5/1	Circ (N) Ahead	U	C1:A		1	42	-	401	1990	1216	33.0%	-	-	-	0.2	1.9	0.8
5/2	Circ (N) Right Ahead	U	C1:A		1	42	-	319	1990	1216	26.2%	-	-	-	0.1	1.2	0.7
6/1	Circ (W) Ahead	U	C1:D		1	51	-	771	2050	1509	51.1%	-	-	-	0.0	0.1	0.5
6/2	Circ (W) Ahead	U	C1:D		1	51	-	1179	2050	1509	78.1%	-	-	-	0.3	0.9	2.0
6/3	Circ (W) Right	U	C1:D		1	51	-	325	1950	1435	22.6%	-	-	-	0.0	0.3	0.5
7/1	Circ (S) Right Ahead	U	C1:G		1	24	-	395	1950	704	56.1%	-	-	-	0.3	3.0	0.7
7/2	Circ (S) Right	U	C1:G		1	24	-	309	1950	704	43.9%	-	-	-	0.0	0.0	0.2

Basic Results Summary

8/1	Circ (E) Ahead	U	C1:J		1	48	-	504	2000	1389	36.3%	-	-	-	0.0	0.3	0.5
8/2	Circ (E) Ahead	U	C1:J		1	48	-	490	2000	1389	35.3%	-	-	-	0.0	0.3	0.5
8/3+8/4	Circ (E) Right Ahead	U	C1:J		1	48	-	488	2000:1950	1191+233	34.3 : 34.3%	-	-	-	0.0 (0.0+0.0)	0.2 (0.2:0.3)	3.0
J2: Exit X-ing Streams	-	-	-		-	-	-	-	-	-	72.6%	0	0	0	0.6	-	-
1/1		U	C2:A		1	56	-	870	2050	1623	53.6%	-	-	-	0.2	0.7	1.9
1/2		U	C2:A		1	56	-	1179	2050	1623	72.6%	-	-	-	0.1	0.2	0.3
2/1	Ahead	U	C2:C		1	54	-	641	2000	1528	42.0%	-	-	-	0.0	0.2	0.1
2/2	Ahead	U	C2:C		1	54	-	647	2000	1528	42.3%	-	-	-	0.0	0.1	0.1
2/3	Ahead	U	C2:C		1	54	-	408	2000	1528	26.7%	-	-	-	0.0	0.1	0.0
3/1	to Bicester Ahead	U	C2:E		1	55	-	700	2000	1556	45.0%	-	-	-	0.2	1.1	2.0
3/2	to Bicester Ahead	U	C2:E		1	55	-	173	2000	1556	11.1%	-	-	-	0.1	1.3	0.5
4/1		U	C2:G		1	56	-	443	2000	1583	28.0%	-	-	-	0.0	0.3	0.2
J3: A43 / M40 SB Off-slip - Padbury Rbt	-	-	-		-	-	-	-	-	-	69.5%	0	0	0	13.6	-	-
1/1	Ahead	U	C3:B		1	46	-	898	2000	1306	68.8%	-	-	-	2.5	9.9	6.7
1/2	Ahead	U	C3:B		1	46	-	798	2000	1306	61.1%	-	-	-	1.9	8.7	5.3
2/2+2/1	Ahead Left	U	C3:C		1	14	-	503	1900:1900	396+396	58.9 : 68.2%	-	-	-	4.5 (2.1+2.4)	32.2 (31.9:32.5)	5.8
2/3	Ahead	U	C3:C		1	14	-	181	1900	396	45.7%	-	-	-	1.7	33.3	3.6
3/1	Right	U	C3:D		1	14	-	233	2000	417	55.9%	-	-	-	0.1	1.6	0.3
3/2	Right	U	C3:D		1	14	-	181	2000	417	43.4%	-	-	-	0.1	1.4	0.3
4/1	Ahead	U	C3:A		1	46	-	892	1967	1284	69.5%	-	-	-	1.4	5.8	4.5
4/2	Ahead	U	C3:A		1	46	-	852	1967	1284	66.4%	-	-	-	1.4	6.1	6.5
J4: M40 Jcn 10 - Cherwell MSA	-	-	-		-	-	-	-	-	-	85.7%	0	0	0	28.7	-	-
1/1	Ahead	U	C4:H		1	42	-	965	1886	1126	85.7%	-	-	-	6.1	22.7	18.7
1/2	Ahead	U	C4:H		1	42	-	929	1886	1126	82.5%	-	-	-	5.3	20.4	17.0

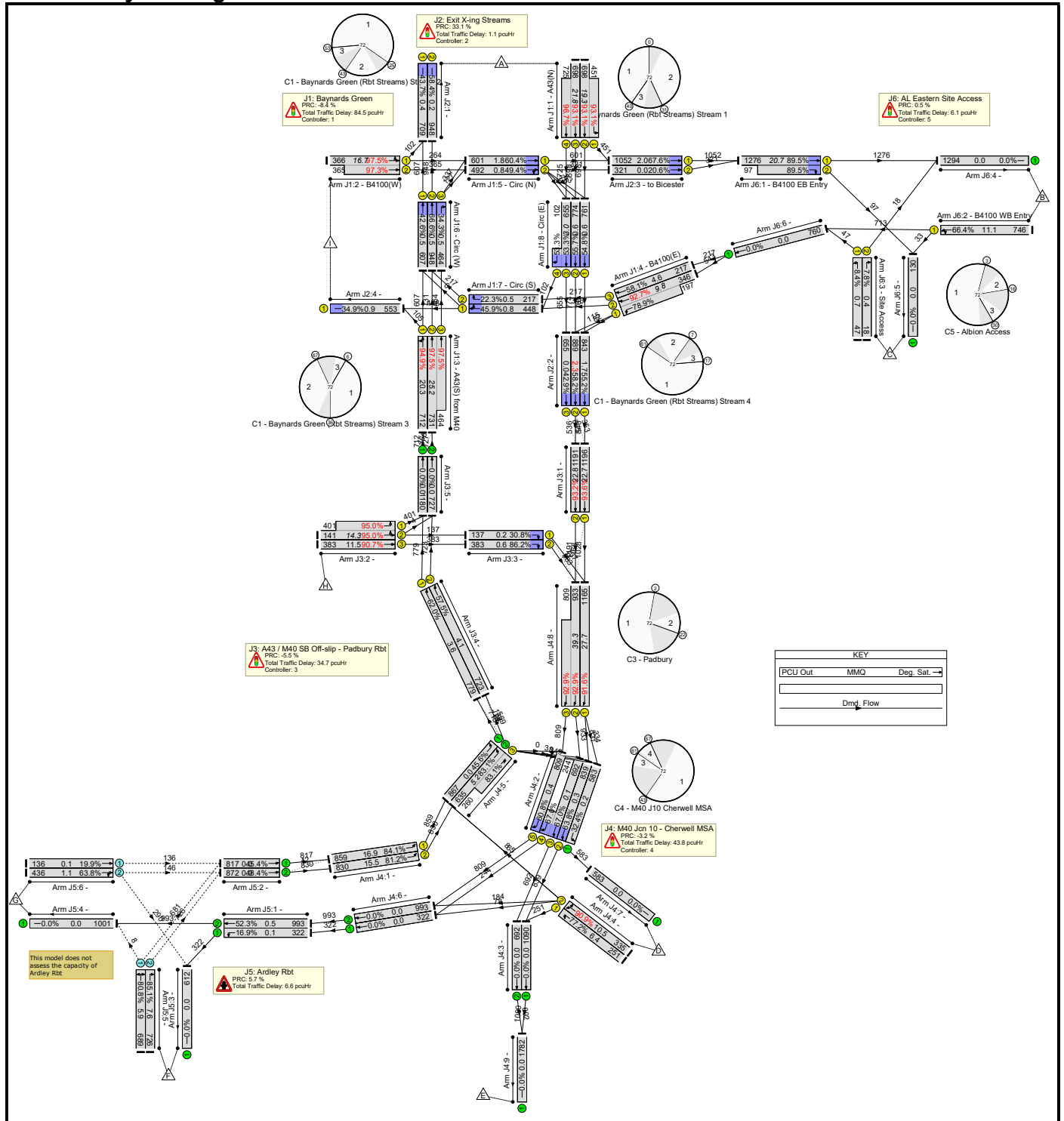
Basic Results Summary

2/1	Left	U	-		-	-	-	573	1800	1800	31.8%	-	-	-	0.2	1.5	1.2
2/2	Ahead	U	C4:C		1	46	-	611	1973	1288	47.4%	-	-	-	0.0	0.0	0.0
2/3+2/4	Ahead Right	U	C4:C		1	46	-	792	1973:1995	914+494	56.2 : 56.2%	-	-	-	0.0 (0.0+0.0)	0.0 (0.0:0.0)	0.0
2/5	Right	U	C4:D		1	46	-	378	1995	1302	29.0%	-	-	-	0.0	0.1	0.3
4/1	Left	U	C4:F		1	13	-	287	1800	350	82.0%	-	-	-	4.3	54.6	7.6
4/2	Right Left	U	C4:E		1	14	-	294	1900	396	74.3%	-	-	-	3.6	43.9	6.9
5/1	Left	U	-		-	-	-	981	1900	1900	51.6%	-	-	-	0.0	0.0	0.0
5/2+5/3	U-Turn Left	U	- C4:A		-	-	-	1007	1900:1877	1209+386	63.1 : 63.1%	-	-	-	1.4 (0.0+1.4)	5.0 (0.0:20.8)	4.9
8/1	Ahead	U	C4:B		1	43	-	940	1948	1190	79.0%	-	-	-	4.1	15.8	16.5
8/2+8/3	Ahead	U	C4:B		1	43	-	1170	1948:1948	1030+491	76.9 : 76.9%	-	-	-	3.6 (2.6+1.0)	11.2 (11.8:10.0)	24.6
J5: Ardley Rbt	-	-	-		-	-	-	-	-	-	81.1%	2246	0	0	5.3	-	-
1/1	Left	U	-		-	-	-	408	1900	1900	21.5%	-	-	-	0.1	1.2	0.1
1/2	Ahead	U	-		-	-	-	448	1900	1900	23.6%	-	-	-	0.2	1.2	0.2
2/1	Ahead	U	-		-	-	-	961	1800	1800	53.4%	-	-	-	0.0	0.0	0.0
2/2	Ahead	U	-		-	-	-	933	1800	1800	51.8%	-	-	-	0.0	0.0	0.0
5/1	Right Left	O	-		-	-	-	810	1800	1071	75.7%	810	0	0	1.5	6.8	2.7
5/2	Right	O	-		-	-	-	868	1800	1071	81.1%	868	0	0	2.1	8.7	4.5
6/1	Ahead	O	-		-	-	-	159	1800	579	27.5%	159	0	0	0.2	4.3	0.2
6/2	Ahead Right	O	-		-	-	-	409	1800	579	70.7%	409	0	0	1.2	10.5	1.2
J6: AL Eastern Site Access	-	-	-		-	-	-	-	-	-	74.7%	0	0	0	5.5	-	-
1/1+1/2	B4100 EB Entry Ahead Right	U	C5:A C5:B		1	53:7	-	873	1980:1842	1449+73	57.4 : 57.4%	-	-	-	0.4 (0.1+0.3)	1.6 (0.5:23.9)	0.7
2/1	B4100 WB Entry Left Ahead	U	C5:C		1	40	-	841	1978	1126	74.7%	-	-	-	4.2	17.9	13.8
3/1	Site Access Left	U	C5:D	C5:E	1	21	13	91	1842	563	16.2%	-	-	-	0.6	22.1	1.4

Basic Results Summary

3/2	Site Access Right	U	C5:D		1	8	-	39	1842	230	16.9%	-	-	-	0.4	37.6	0.8
	C1 - Baynards Green (Rbt Streams)		Stream: 1 PRC for Signalled Lanes (%)		4.2				Total Delay for Signalled Lanes (pcuHr):	16.50				Cycle Time (s):	72		
	C1 - Baynards Green (Rbt Streams)		Stream: 2 PRC for Signalled Lanes (%)		7.4				Total Delay for Signalled Lanes (pcuHr):	6.85				Cycle Time (s):	72		
	C1 - Baynards Green (Rbt Streams)		Stream: 3 PRC for Signalled Lanes (%)		6.3				Total Delay for Signalled Lanes (pcuHr):	11.33				Cycle Time (s):	72		
	C1 - Baynards Green (Rbt Streams)		Stream: 4 PRC for Signalled Lanes (%)		6.7				Total Delay for Signalled Lanes (pcuHr):	10.29				Cycle Time (s):	72		
	C2 - Baynards Green (Exit Streams)		Stream: 1 PRC for Signalled Lanes (%)		23.9				Total Delay for Signalled Lanes (pcuHr):	0.23				Cycle Time (s):	72		
	C2 - Baynards Green (Exit Streams)		Stream: 2 PRC for Signalled Lanes (%)		112.5				Total Delay for Signalled Lanes (pcuHr):	0.06				Cycle Time (s):	72		
	C2 - Baynards Green (Exit Streams)		Stream: 3 PRC for Signalled Lanes (%)		100.0				Total Delay for Signalled Lanes (pcuHr):	0.28				Cycle Time (s):	72		
	C2 - Baynards Green (Exit Streams)		Stream: 4 PRC for Signalled Lanes (%)		221.7				Total Delay for Signalled Lanes (pcuHr):	0.03				Cycle Time (s):	72		
	C3 - Padbury		PRC for Signalled Lanes (%)		29.6				Total Delay for Signalled Lanes (pcuHr):	13.64				Cycle Time (s):	72		
	C4 - M40 J10 Cherwell MSA		PRC for Signalled Lanes (%)		5.0				Total Delay for Signalled Lanes (pcuHr):	27.06				Cycle Time (s):	72		
	C5 - Albion Access		PRC for Signalled Lanes (%)		20.5				Total Delay for Signalled Lanes (pcuHr):	5.53				Cycle Time (s):	72		
			PRC Over All Lanes (%)		4.2				Total Delay Over All Lanes(pcuHr):	98.75							

Basic Results Summary
Scenario 3: 'AM 2031 BTM' (FG3: 'AM 2031 BTM', Plan 1: 'AM')
Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: M40 Jcn 10 Cherwell & Baynards Green	-	-	-		-	-	-	-	-	-	97.5%	1987	0	0	176.9	-	-
J1: Baynards Green	-	-	-		-	-	-	-	-	-	97.5%	0	0	0	84.5	-	-
1/2+1/1	A43(N) Ahead Left	U	C1:B		1	26	-	1149	2000:1924	750+485	93.1 : 93.1%	-	-	-	12.4 (7.8+4.6)	38.8 (40.1:36.9)	19.3
1/3+1/4	A43(N) Ahead	U	C1:B		1	26	-	1423	2000:2000	750+750	93.1 : 96.7%	-	-	-	16.3 (8.0+8.4)	41.3 (41.1:41.5)	21.8
2/1+2/2	B4100(W) Ahead Left	U	C1:E		1	13	-	731	1930:1930	375+375	97.5 : 97.3%	-	-	-	15.3 (7.7+7.7)	75.5 (75.6:75.5)	16.7
3/1	A43(S) from M40 Ahead Left	U	C1:H		1	26	-	712	2000	750	94.9%	-	-	-	12.2	61.8	20.3
3/2+3/3	A43(S) from M40 Ahead	U	C1:H		1	26	-	1195	2000:1953	750+476	97.5 : 97.5%	-	-	-	19.4 (12.0+7.4)	58.5 (59.2:57.5)	25.2
4/2+4/1	B4100(E) Ahead Left	U	C1:K		1	13	-	543	1920:1859	373+250	92.7 : 78.9%	-	-	-	6.0 (3.9+2.1)	39.8 (40.5:38.8)	9.8
4/3	B4100(E) Ahead	U	C1:K		1	13	-	217	1920	373	58.1%	-	-	-	1.7	28.5	4.6
5/1	Circ (N) Ahead	U	C1:A		1	34	-	601	1990	995	60.4%	-	-	-	0.4	2.4	1.8
5/2	Circ (N) Right Ahead	U	C1:A		1	34	-	492	1990	995	49.4%	-	-	-	0.2	1.5	0.8
6/1	Circ (W) Ahead	U	C1:D		1	48	-	607	2050	1424	42.6%	-	-	-	0.0	0.1	0.5
6/2	Circ (W) Ahead	U	C1:D		1	48	-	948	2050	1424	66.6%	-	-	-	0.0	0.1	0.5
6/3	Circ (W) Right	U	C1:D		1	48	-	464	1950	1354	34.3%	-	-	-	0.0	0.3	0.5
7/1	Circ (S) Right Ahead	U	C1:G		1	34	-	448	1950	975	45.9%	-	-	-	0.2	1.8	0.8
7/2	Circ (S) Right	U	C1:G		1	34	-	217	1950	975	22.3%	-	-	-	0.0	0.4	0.5

Basic Results Summary

8/1	Circ (E) Ahead	U	C1:J		1	48	-	761	2000	1389	54.8%	-	-	-	0.1	0.4	0.6
8/2	Circ (E) Ahead	U	C1:J		1	48	-	774	2000	1389	55.7%	-	-	-	0.1	0.4	0.6
8/3+8/4	Circ (E) Right Ahead	U	C1:J		1	48	-	757	2000:1950	1228+191	53.3 : 53.3%	-	-	-	0.0 (0.0+0.0)	0.2 (0.2:0.2)	3.0
J2: Exit X-ing Streams	-	-	-		-	-	-	-	-	-	67.6%	0	0	0	1.1	-	-
1/1		U	C2:A		1	56	-	709	2050	1623	43.7%	-	-	-	0.0	0.1	0.4
1/2		U	C2:A		1	56	-	948	2050	1623	58.4%	-	-	-	0.0	0.2	0.2
2/1	Ahead	U	C2:C		1	54	-	843	2000	1528	55.2%	-	-	-	0.3	1.2	1.7
2/2	Ahead	U	C2:C		1	54	-	889	2000	1528	58.2%	-	-	-	0.4	1.6	2.3
2/3	Ahead	U	C2:C		1	54	-	655	2000	1528	42.9%	-	-	-	0.0	0.0	0.0
3/1	to Bicester Ahead	U	C2:E		1	55	-	1052	2000	1556	67.6%	-	-	-	0.3	1.1	2.0
3/2	to Bicester Ahead	U	C2:E		1	55	-	321	2000	1556	20.6%	-	-	-	0.0	0.0	0.0
4/1		U	C2:G		1	56	-	553	2000	1583	34.9%	-	-	-	0.1	0.6	0.9
J3: A43 / M40 SB Off-slip - Padbury Rbt	-	-	-		-	-	-	-	-	-	95.0%	0	0	0	34.7	-	-
1/1	Ahead	U	C3:B		1	45	-	1196	2000	1278	93.6%	-	-	-	7.6	22.8	22.7
1/2	Ahead	U	C3:B		1	45	-	1191	2000	1278	93.2%	-	-	-	7.3	21.9	22.8
2/2+2/1	Ahead Left	U	C3:C		1	15	-	542	1900:1900	148+422	95.0 : 95.0%	-	-	-	10.5 (2.6+7.9)	69.7 (66.7:70.8)	14.3
2/3	Ahead	U	C3:C		1	15	-	383	1900	422	90.7%	-	-	-	6.9	65.3	11.5
3/1	Right	U	C3:D		1	15	-	137	2000	444	30.8%	-	-	-	0.0	1.3	0.2
3/2	Right	U	C3:D		1	15	-	383	2000	444	86.2%	-	-	-	0.3	3.2	0.6
4/1	Ahead	U	C3:A		1	45	-	779	1967	1257	62.0%	-	-	-	1.0	4.8	3.6
4/2	Ahead	U	C3:A		1	45	-	723	1967	1257	57.5%	-	-	-	1.0	4.9	4.1
J4: M40 Jcn 10 - Cherwell MSA	-	-	-		-	-	-	-	-	-	92.9%	0	0	0	43.8	-	-
1/1	Ahead	U	C4:H		1	38	-	859	1886	1022	84.1%	-	-	-	5.8	24.3	16.9
1/2	Ahead	U	C4:H		1	38	-	830	1886	1022	81.2%	-	-	-	5.1	22.2	15.5

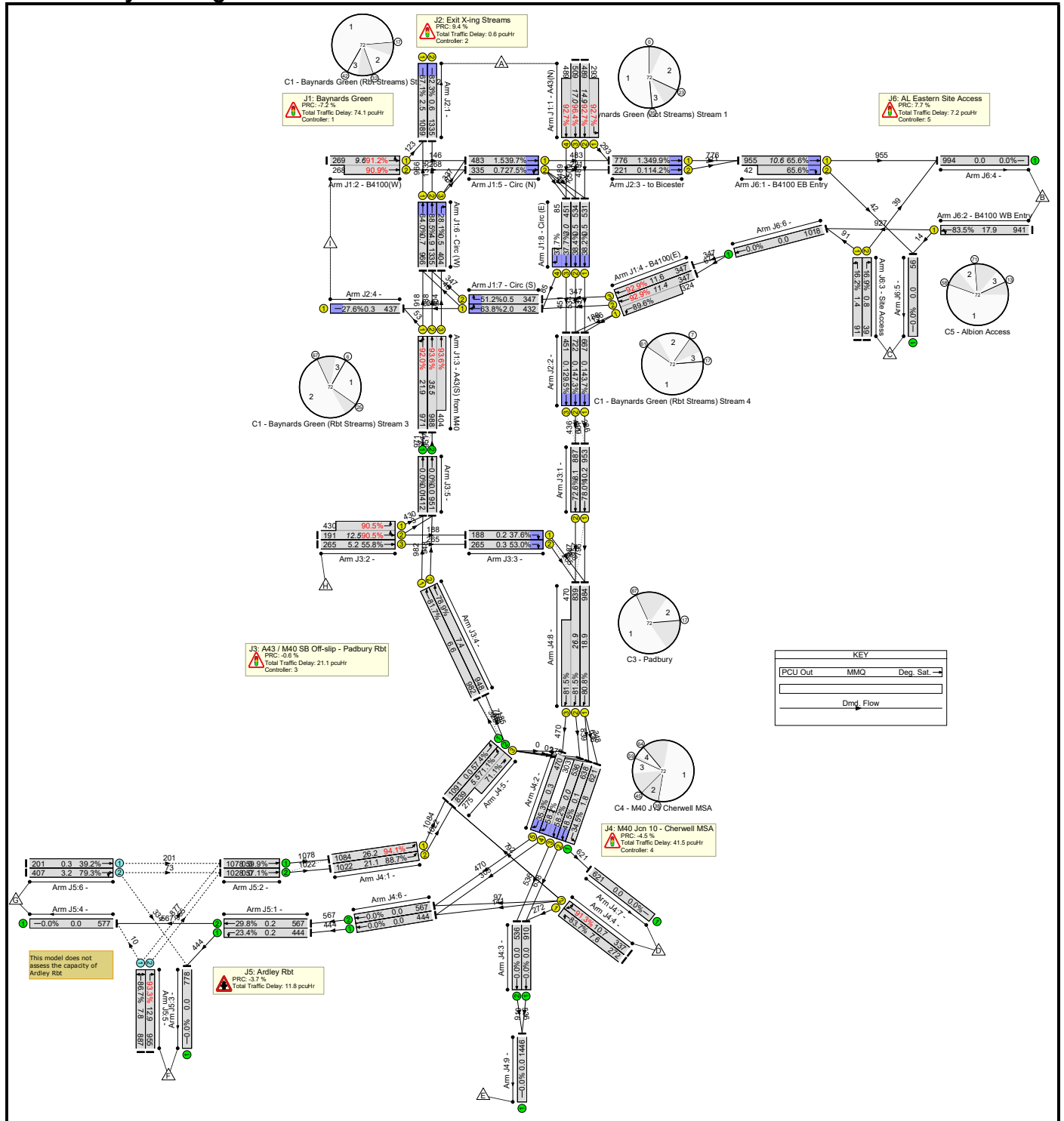
Basic Results Summary

2/1	Left	U	-		-	-	-	583	1800	1800	32.4%	-	-	-	0.2	1.5	0.2
2/2	Ahead	U	C4:C		1	47	-	839	1973	1315	63.8%	-	-	-	0.0	0.1	0.3
2/3+2/4	Ahead Right	U	C4:C		1	47	-	936	1973:1995	1033+364	67.0 : 67.0%	-	-	-	0.0 (0.0+0.0)	0.0 (0.1:0.0)	0.1
2/5	Right	U	C4:D		1	47	-	809	1995	1330	60.8%	-	-	-	0.1	0.3	0.4
4/1	Left	U	C4:F		1	12	-	251	1800	325	77.2%	-	-	-	3.6	51.4	6.4
4/2	Right Left	U	C4:E		1	13	-	335	1896	369	90.9%	-	-	-	6.7	71.5	10.5
5/1	Left	U	-		-	-	-	867	1900	1900	45.6%	-	-	-	0.0	0.0	0.0
5/2+5/3	U-Turn Left	U	- C4:A		-	-	-	895	1900:1877	764+313	83.1 : 83.1%	-	-	-	1.9 (0.0+1.9)	7.6 (0.0:26.1)	5.2
8/1	Ahead	U	C4:B		1	46	-	1165	1948	1272	91.6%	-	-	-	8.7	27.0	27.7
8/2+8/3	Ahead	U	C4:B		1	46	-	1742	1948:1948	1004+871	92.9 : 92.9%	-	-	-	11.7 (6.2+5.5)	24.2 (23.8:24.6)	39.3
J5: Ardley Rbt	-	-	-		-	-	-	-	-	-	85.1%	1987	0	0	6.6	-	-
1/1	Left	U	-		-	-	-	322	1900	1900	16.9%	-	-	-	0.1	1.1	0.1
1/2	Ahead	U	-		-	-	-	993	1900	1900	52.3%	-	-	-	0.5	2.0	0.5
2/1	Ahead	U	-		-	-	-	817	1800	1800	45.4%	-	-	-	0.0	0.0	0.0
2/2	Ahead	U	-		-	-	-	872	1800	1800	48.4%	-	-	-	0.0	0.0	0.0
5/1	Right Left	O	-		-	-	-	689	1800	853	80.8%	689	0	0	2.1	11.1	5.9
5/2	Right	O	-		-	-	-	726	1800	853	85.1%	726	0	0	2.9	14.2	7.6
6/1	Ahead	O	-		-	-	-	136	1800	684	19.9%	136	0	0	0.1	3.3	0.1
6/2	Ahead Right	O	-		-	-	-	436	1800	684	63.8%	436	0	0	0.9	7.2	1.1
J6: AL Eastern Site Access	-	-	-		-	-	-	-	-	-	89.5%	0	0	0	6.1	-	-
1/1+1/2	B4100 EB Entry Ahead Right	U	C5:A C5:B		1	53:7	-	1373	1980:1842	1426+108	89.5 : 89.5%	-	-	-	2.4 (1.8+0.7)	6.4 (5.0:25.0)	20.7
2/1	B4100 WB Entry Left Ahead	U	C5:C		1	40	-	746	1973	1124	66.4%	-	-	-	3.2	15.5	11.1
3/1	Site Access Left	U	C5:D	C5:E	1	21	13	47	1842	563	8.4%	-	-	-	0.3	21.4	0.7

Basic Results Summary

3/2	Site Access Right	U	C5:D		1	8	-	18	1842	230	7.8%	-	-	-	0.2	36.5	0.4
	C1 - Baynards Green (Rbt Streams)		Stream: 1 PRC for Signalled Lanes (%)		-7.4				Total Delay for Signalled Lanes (pcuHr):	29.32				Cycle Time (s):	72		
	C1 - Baynards Green (Rbt Streams)		Stream: 2 PRC for Signalled Lanes (%)		-8.4				Total Delay for Signalled Lanes (pcuHr):	15.43				Cycle Time (s):	72		
	C1 - Baynards Green (Rbt Streams)		Stream: 3 PRC for Signalled Lanes (%)		-8.3				Total Delay for Signalled Lanes (pcuHr):	31.89				Cycle Time (s):	72		
	C1 - Baynards Green (Rbt Streams)		Stream: 4 PRC for Signalled Lanes (%)		-3.0				Total Delay for Signalled Lanes (pcuHr):	7.91				Cycle Time (s):	72		
	C2 - Baynards Green (Exit Streams)		Stream: 1 PRC for Signalled Lanes (%)		54.1				Total Delay for Signalled Lanes (pcuHr):	0.05				Cycle Time (s):	72		
	C2 - Baynards Green (Exit Streams)		Stream: 2 PRC for Signalled Lanes (%)		54.7				Total Delay for Signalled Lanes (pcuHr):	0.67				Cycle Time (s):	72		
	C2 - Baynards Green (Exit Streams)		Stream: 3 PRC for Signalled Lanes (%)		33.1				Total Delay for Signalled Lanes (pcuHr):	0.32				Cycle Time (s):	72		
	C2 - Baynards Green (Exit Streams)		Stream: 4 PRC for Signalled Lanes (%)		157.7				Total Delay for Signalled Lanes (pcuHr):	0.09				Cycle Time (s):	72		
	C3 - Padbury		PRC for Signalled Lanes (%)		-5.5				Total Delay for Signalled Lanes (pcuHr):	34.71				Cycle Time (s):	72		
	C4 - M40 J10 Cherwell MSA		PRC for Signalled Lanes (%)		-3.2				Total Delay for Signalled Lanes (pcuHr):	41.69				Cycle Time (s):	72		
	C5 - Albion Access		PRC for Signalled Lanes (%)		0.5				Total Delay for Signalled Lanes (pcuHr):	6.11				Cycle Time (s):	72		
			PRC Over All Lanes (%)		-8.4				Total Delay Over All Lanes(pcuHr):	176.95							

Basic Results Summary
Scenario 4: 'PM 2031 BTM' (FG4: 'PM 2031 BTM', Plan 2: 'PM')
Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: M40 Jcn 10 Cherwell & Baynards Green	-	-	-		-	-	-	-	-	-	96.4%	2450	0	0	156.3	-	-
J1: Baynards Green	-	-	-		-	-	-	-	-	-	96.4%	0	0	0	74.1	-	-
1/2+1/1	A43(N) Ahead Left	U	C1:B		1	18	-	782	2000:1924	528+316	92.7 : 92.7%	-	-	-	10.8 (6.9+3.9)	49.5 (50.6:47.8)	14.9
1/3+1/4	A43(N) Ahead	U	C1:B		1	18	-	998	2000:2000	528+528	96.4 : 92.7%	-	-	-	14.2 (7.3+6.9)	51.2 (51.3:51.0)	17.0
2/1+2/2	B4100(W) Ahead Left	U	C1:E		1	10	-	537	1930:1930	295+295	91.2 : 90.9%	-	-	-	8.8 (4.4+4.4)	59.3 (59.3:59.3)	9.6
3/1	A43(S) from M40 Ahead Left	U	C1:H		1	37	-	971	2000	1056	92.0%	-	-	-	10.2	37.7	21.9
3/2+3/3	A43(S) from M40 Ahead	U	C1:H		1	37	-	1392	2000:1953	1056+432	93.6 : 93.6%	-	-	-	13.3 (9.8+3.5)	34.3 (35.7:30.9)	35.5
4/2+4/1	B4100(E) Ahead Left	U	C1:K		1	13	-	671	1920:1859	373+361	92.9 : 89.6%	-	-	-	8.2 (4.2+4.0)	44.0 (43.8:44.3)	11.4
4/3	B4100(E) Ahead	U	C1:K		1	13	-	347	1920	373	92.9%	-	-	-	7.0	72.3	11.6
5/1	Circ (N) Ahead	U	C1:A		1	42	-	483	1990	1216	39.7%	-	-	-	0.3	2.1	1.5
5/2	Circ (N) Right Ahead	U	C1:A		1	42	-	335	1990	1216	27.5%	-	-	-	0.1	1.1	0.7
6/1	Circ (W) Ahead	U	C1:D		1	51	-	966	2050	1509	64.0%	-	-	-	0.1	0.3	0.7
6/2	Circ (W) Ahead	U	C1:D		1	51	-	1335	2050	1509	88.5%	-	-	-	0.6	1.6	4.9
6/3	Circ (W) Right	U	C1:D		1	51	-	404	1950	1435	28.1%	-	-	-	0.0	0.3	0.5
7/1	Circ (S) Right Ahead	U	C1:G		1	23	-	432	1950	677	63.8%	-	-	-	0.5	4.3	2.0
7/2	Circ (S) Right	U	C1:G		1	23	-	347	1950	677	51.2%	-	-	-	0.0	0.3	0.5

Basic Results Summary

8/1	Circ (E) Ahead	U	C1:J		1	48	-	531	2000	1389	38.2%	-	-	-	0.0	0.3	0.5
8/2	Circ (E) Ahead	U	C1:J		1	48	-	534	2000	1389	38.4%	-	-	-	0.1	0.3	0.5
8/3+8/4	Circ (E) Right Ahead	U	C1:J		1	48	-	536	2000:1950	1198+226	37.7 : 37.7%	-	-	-	0.0 (0.0+0.0)	0.2 (0.2:0.3)	3.0
J2: Exit X-ing Streams	-	-	-		-	-	-	-	-	-	82.3%	0	0	0	0.6	-	-
1/1		U	C2:A		1	56	-	1089	2050	1623	67.1%	-	-	-	0.2	0.7	2.5
1/2		U	C2:A		1	56	-	1335	2050	1623	82.3%	-	-	-	0.1	0.3	0.6
2/1	Ahead	U	C2:C		1	54	-	667	2000	1528	43.7%	-	-	-	0.0	0.1	0.1
2/2	Ahead	U	C2:C		1	54	-	722	2000	1528	47.3%	-	-	-	0.0	0.1	0.1
2/3	Ahead	U	C2:C		1	54	-	451	2000	1528	29.5%	-	-	-	0.0	0.1	0.1
3/1	to Bicester Ahead	U	C2:E		1	55	-	776	2000	1556	49.9%	-	-	-	0.1	0.7	1.3
3/2	to Bicester Ahead	U	C2:E		1	55	-	221	2000	1556	14.2%	-	-	-	0.0	0.2	0.1
4/1		U	C2:G		1	56	-	437	2000	1583	27.6%	-	-	-	0.0	0.3	0.3
J3: A43 / M40 SB Off-slip - Padbury Rbt	-	-	-		-	-	-	-	-	-	90.5%	0	0	0	21.1	-	-
1/1	Ahead	U	C3:B		1	43	-	953	2000	1222	78.0%	-	-	-	2.6	9.8	10.2
1/2	Ahead	U	C3:B		1	43	-	887	2000	1222	72.6%	-	-	-	2.0	8.2	8.1
2/2+2/1	Ahead Left	U	C3:C		1	17	-	621	1900:1900	211+475	90.5 : 90.5%	-	-	-	8.5 (2.5+6.1)	49.6 (47.0:50.7)	12.5
2/3	Ahead	U	C3:C		1	17	-	265	1900	475	55.8%	-	-	-	2.4	32.1	5.2
3/1	Right	U	C3:D		1	17	-	188	2000	500	37.6%	-	-	-	0.1	1.1	0.2
3/2	Right	U	C3:D		1	17	-	265	2000	500	53.0%	-	-	-	0.1	1.2	0.3
4/1	Ahead	U	C3:A		1	43	-	982	1967	1202	81.7%	-	-	-	2.8	10.1	6.6
4/2	Ahead	U	C3:A		1	43	-	948	1967	1202	78.9%	-	-	-	2.6	10.0	7.4
J4: M40 Jcn 10 - Cherwell MSA	-	-	-		-	-	-	-	-	-	94.1%	0	0	0	41.5	-	-
1/1	Ahead	U	C4:H		1	43	-	1084	1886	1153	94.1%	-	-	-	10.4	34.7	26.2
1/2	Ahead	U	C4:H		1	43	-	1022	1886	1153	88.7%	-	-	-	7.0	24.7	21.1

Basic Results Summary

2/1	Left	U	-		-	-	-	621	1800	1800	34.5%	-	-	-	0.3	1.5	1.8
2/2	Ahead	U	C4:C		1	47	-	638	1973	1315	48.5%	-	-	-	0.0	0.0	0.1
2/3+2/4	Ahead Right	U	C4:C		1	47	-	839	1973:1995	921+520	58.2 : 58.2%	-	-	-	0.0 (0.0+0.0)	0.0 (0.0:0.0)	0.0
2/5	Right	U	C4:D		1	47	-	470	1995	1330	35.3%	-	-	-	0.0	0.1	0.3
4/1	Left	U	C4:F		1	12	-	272	1800	325	83.7%	-	-	-	4.5	59.7	7.6
4/2	Right Left	U	C4:E		1	13	-	337	1899	369	91.3%	-	-	-	6.8	72.8	10.7
5/1	Left	U	-		-	-	-	1091	1900	1900	57.4%	-	-	-	0.0	0.0	0.0
5/2+5/3	U-Turn Left	U	- C4:A		-	-	-	1114	1900:1877	1180+387	71.1 : 71.1%	-	-	-	1.6 (0.0+1.6)	5.2 (0.0:21.1)	5.5
8/1	Ahead	U	C4:B		1	44	-	984	1948	1217	80.8%	-	-	-	5.0	18.4	18.9
8/2+8/3	Ahead	U	C4:B		1	44	-	1309	1948:1948	1029+577	81.5 : 81.5%	-	-	-	5.8 (4.4+1.4)	16.0 (18.9:10.8)	26.9
J5: Ardley Rbt	-	-	-		-	-	-	-	-	-	93.3%	2450	0	0	11.8	-	-
1/1	Left	U	-		-	-	-	444	1900	1900	23.4%	-	-	-	0.2	1.2	0.2
1/2	Ahead	U	-		-	-	-	567	1900	1900	29.8%	-	-	-	0.2	1.3	0.2
2/1	Ahead	U	-		-	-	-	1078	1800	1800	59.9%	-	-	-	0.0	0.0	0.0
2/2	Ahead	U	-		-	-	-	1028	1800	1800	57.1%	-	-	-	0.0	0.0	0.0
5/1	Right Left	O	-		-	-	-	887	1800	1023	86.7%	887	0	0	3.2	12.9	7.8
5/2	Right	O	-		-	-	-	955	1800	1023	93.3%	955	0	0	6.1	23.0	12.9
6/1	Ahead	O	-		-	-	-	201	1800	513	39.2%	201	0	0	0.3	5.8	0.3
6/2	Ahead Right	O	-		-	-	-	407	1800	513	79.3%	407	0	0	1.9	16.5	3.2
J6: AL Eastern Site Access	-	-	-		-	-	-	-	-	-	83.5%	0	0	0	7.2	-	-
1/1+1/2	B4100 EB Entry Ahead Right	U	C5:A C5:B		1	53:7	-	997	1980:1842	1455+64	65.6 : 65.6%	-	-	-	0.4 (0.2+0.2)	1.6 (0.9:19.0)	10.6
2/1	B4100 WB Entry Left Ahead	U	C5:C		1	40	-	941	1978	1126	83.5%	-	-	-	5.8	22.2	17.9
3/1	Site Access Left	U	C5:D	C5:E	1	21	13	91	1842	563	16.2%	-	-	-	0.6	22.1	1.4

Basic Results Summary

3/2	Site Access Right	U	C5:D		1	8	-	39	1842	230	16.9%	-	-	-	0.4	37.6	0.8
C1 - Baynards Green (Rbt Streams)			Stream: 1 PRC for Signalled Lanes (%)		-7.2				Total Delay for Signalled Lanes (pcuHr):	25.32		Cycle Time (s):	72				
C1 - Baynards Green (Rbt Streams)			Stream: 2 PRC for Signalled Lanes (%)		-1.4				Total Delay for Signalled Lanes (pcuHr):	9.53		Cycle Time (s):	72				
C1 - Baynards Green (Rbt Streams)			Stream: 3 PRC for Signalled Lanes (%)		-4.0				Total Delay for Signalled Lanes (pcuHr):	23.97		Cycle Time (s):	72				
C1 - Baynards Green (Rbt Streams)			Stream: 4 PRC for Signalled Lanes (%)		-3.3				Total Delay for Signalled Lanes (pcuHr):	15.31		Cycle Time (s):	72				
C2 - Baynards Green (Exit Streams)			Stream: 1 PRC for Signalled Lanes (%)		9.4				Total Delay for Signalled Lanes (pcuHr):	0.33		Cycle Time (s):	72				
C2 - Baynards Green (Exit Streams)			Stream: 2 PRC for Signalled Lanes (%)		90.4				Total Delay for Signalled Lanes (pcuHr):	0.05		Cycle Time (s):	72				
C2 - Baynards Green (Exit Streams)			Stream: 3 PRC for Signalled Lanes (%)		80.4				Total Delay for Signalled Lanes (pcuHr):	0.16		Cycle Time (s):	72				
C2 - Baynards Green (Exit Streams)			Stream: 4 PRC for Signalled Lanes (%)		226.1				Total Delay for Signalled Lanes (pcuHr):	0.04		Cycle Time (s):	72				
C3 - Padbury			PRC for Signalled Lanes (%)		-0.6				Total Delay for Signalled Lanes (pcuHr):	21.07		Cycle Time (s):	72				
C4 - M40 J10 Cherwell MSA			PRC for Signalled Lanes (%)		-4.5				Total Delay for Signalled Lanes (pcuHr):	39.65		Cycle Time (s):	72				
C5 - Albion Access			PRC for Signalled Lanes (%)		7.7				Total Delay for Signalled Lanes (pcuHr):	7.22		Cycle Time (s):	72				
			PRC Over All Lanes (%)		-7.2				Total Delay Over All Lanes(pcuHr):	156.35							



Appendix N Junction Modelling Outputs

Transport Assessment Addendum

Symmetry Park, Ardley

Tritax Symmetry Ardley Limited

SLR Project No.: 216285

30 April 2024

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.5.2.1013 © Copyright TRL Limited, 2019
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Filename: 216285-Site Access Roundabout-V0b.j9
Path: \\slr.local\eu\Offices\UK\Exeter\Vectors\Exeter\Projects\210000\216285 - Symmetry Park, Ardley\Technical\A - Deliverable\Modelling\Arcady
Report generation date: 01/02/2024 14:26:43

- »2026 Tritax, AM
- »2026 Tritax, PM
- »2026 Tritax + Albion, AM
- »2026 Tritax + Albion, PM
- »2031 Tritax, AM
- »2031 Tritax, PM
- »2031 Tritax + Albion, AM
- »2031 Tritax + Albion, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
2026 Tritax										
1 - Northern Access	D1	0.1	3.67	0.12	A	D2	0.3	2.98	0.22	A
2 - B4100 (E)		0.6	4.25	0.39	A		0.8	4.71	0.46	A
3 - Southern Access		0.0	4.75	0.03	A		0.1	4.38	0.07	A
4 - B4100 (W)		1.2	3.77	0.54	A		0.5	2.69	0.35	A
2026 Tritax + Albion										
1 - Northern Access	D3	0.1	3.58	0.12	A	D4	0.3	3.14	0.22	A
2 - B4100 (E)		0.7	4.52	0.43	A		0.8	4.69	0.45	A
3 - Southern Access		0.0	4.89	0.03	A		0.1	4.35	0.07	A
4 - B4100 (W)		1.1	3.68	0.52	A		0.7	2.92	0.40	A
2031 Tritax										
1 - Northern Access	D5	0.1	3.85	0.12	A	D6	0.3	3.18	0.23	A
2 - B4100 (E)		1.0	5.14	0.50	A		1.3	5.77	0.56	A
3 - Southern Access		0.0	5.22	0.03	A		0.1	4.77	0.07	A
4 - B4100 (W)		1.4	4.11	0.58	A		0.7	2.95	0.42	A
2031 Tritax + Albion										
1 - Northern Access	D7	0.1	3.90	0.12	A	D8	0.3	3.35	0.24	A
2 - B4100 (E)		1.0	5.21	0.51	A		1.0	5.04	0.49	A
3 - Southern Access		0.0	5.27	0.03	A		0.1	4.49	0.07	A
4 - B4100 (W)		1.5	4.32	0.60	A		0.8	3.16	0.46	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	
Location	
Site number	
Date	30/11/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	VECTOSJack.Clarke-Williams
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2026 Tritax	AM	DIRECT	08:00	09:00	60	15	✓
D2	2026 Tritax	PM	DIRECT	17:00	18:00	60	15	✓
D3	2026 Tritax + Albion	AM	DIRECT	08:00	09:00	60	15	✓
D4	2026 Tritax + Albion	PM	DIRECT	17:00	18:00	60	15	✓
D5	2031 Tritax	AM	DIRECT	08:00	09:00	60	15	✓
D6	2031 Tritax	PM	DIRECT	17:00	18:00	60	15	✓
D7	2031 Tritax + Albion	AM	DIRECT	08:00	09:00	60	15	✓
D8	2031 Tritax + Albion	PM	DIRECT	17:00	18:00	60	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2026 Tritax, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Northern Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4100 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Site Access Roundabout	Standard Roundabout		1, 2, 3, 4	3.93	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Northern Access	
2	B4100 (E)	
3	Southern Access	
4	B4100 (W)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Northern Access	3.65	8.99	46.6	20.0	50.0	36.9	
2 - B4100 (E)	3.50	7.50	8.8	30.0	50.0	33.5	
3 - Southern Access	3.65	6.97	7.8	22.0	50.0	40.8	
4 - B4100 (W)	3.65	8.46	85.8	25.0	50.0	38.8	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Northern Access	0.703	2235
2 - B4100 (E)	0.584	1562
3 - Southern Access	0.558	1482
4 - B4100 (W)	0.715	2293

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2026 Tritax	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Northern Access		DIRECT	✓	100.000
2 - B4100 (E)		DIRECT	✓	100.000
3 - Southern Access		DIRECT	✓	100.000
4 - B4100 (W)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)	
08:00 - 08:15	From	1 - Northern Access	0	50	0	82
		2 - B4100 (E)	115	0	20	413
		3 - Southern Access	0	9	0	14
		4 - B4100 (W)	196	867	35	0

Demand (Veh/hr)

		To				
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)	
08:15 - 08:30	From	1 - Northern Access	0	14	0	21
		2 - B4100 (E)	34	0	5	147
		3 - Southern Access	0	2	0	3
		4 - B4100 (W)	51	236	7	0

Demand (Veh/hr)

		To				
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)	
08:30 - 08:45	From	1 - Northern Access	0	11	0	16
		2 - B4100 (E)	26	0	3	111
		3 - Southern Access	0	1	0	2
		4 - B4100 (W)	39	179	5	0

Demand (Veh/hr)

		To				
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)	
08:45 - 09:00	From	1 - Northern Access	0	11	0	17
		2 - B4100 (E)	28	0	4	120
		3 - Southern Access	0	2	0	2
		4 - B4100 (W)	41	192	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	6	0	63
	2 - B4100 (E)	2	0	2	6
	3 - Southern Access	0	6	0	63
	4 - B4100 (W)	26	3	26	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Northern Access	0.12	3.67	0.1	A	55	55
2 - B4100 (E)	0.39	4.25	0.6	A	256	256
3 - Southern Access	0.03	4.75	0.0	A	9	9
4 - B4100 (W)	0.54	3.77	1.2	A	464	464

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	132	33	907	1112	0.119	131	310	0.0	0.1	3.670	A
2 - B4100 (E)	548	137	117	1389	0.395	545	922	0.0	0.6	4.254	A
3 - Southern Access	23	6	607	781	0.029	23	55	0.0	0.0	4.746	A
4 - B4100 (W)	1098	274	123	2043	0.538	1093	507	0.0	1.2	3.774	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	35	9	248	1465	0.024	35	86	0.1	0.0	2.519	A
2 - B4100 (E)	186	47	28	1461	0.127	188	255	0.6	0.1	2.831	A
3 - Southern Access	5	1	204	966	0.005	5	12	0.0	0.0	3.744	A
4 - B4100 (W)	294	74	36	2107	0.140	298	173	1.2	0.2	1.993	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	27	7	185	1502	0.018	27	65	0.0	0.0	2.439	A
2 - B4100 (E)	140	35	21	1467	0.095	140	191	0.1	0.1	2.712	A
3 - Southern Access	3	1	153	963	0.003	3	8	0.0	0.0	3.748	A
4 - B4100 (W)	223	56	27	2114	0.105	223	129	0.2	0.1	1.903	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	28	7	200	1486	0.019	28	69	0.0	0.0	2.469	A
2 - B4100 (E)	152	38	23	1466	0.104	152	205	0.1	0.1	2.739	A
3 - Southern Access	4	1	165	1025	0.004	4	10	0.0	0.0	3.523	A
4 - B4100 (W)	239	60	30	2112	0.113	239	139	0.1	0.1	1.921	A

2026 Tritax, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Northern Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4100 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Site Access Roundabout	Standard Roundabout		1, 2, 3, 4	3.57	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	2026 Tritax	PM	DIRECT	17:00	18:00	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Northern Access		DIRECT	✓	100.000
2 - B4100 (E)		DIRECT	✓	100.000
3 - Southern Access		DIRECT	✓	100.000
4 - B4100 (W)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
17:00 - 17:15	From				
	1 - Northern Access	0	134	0	196
	2 - B4100 (E)	50	0	9	588
	3 - Southern Access	0	24	0	35
	4 - B4100 (W)	68	647	12	0

Demand (Veh/hr)

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
17:15 - 17:30	From				
	1 - Northern Access	0	29	0	43
	2 - B4100 (E)	10	0	1	172
	3 - Southern Access	0	4	0	6
	4 - B4100 (W)	16	122	2	0

Demand (Veh/hr)

17:30 - 17:45

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	28	0	42
	2 - B4100 (E)	10	0	1	168
	3 - Southern Access	0	4	0	6
	4 - B4100 (W)	15	119	2	0

Demand (Veh/hr)

17:45 - 18:00

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	25	0	38
	2 - B4100 (E)	9	0	1	151
	3 - Southern Access	0	3	0	5
	4 - B4100 (W)	14	107	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	1	0	22
	2 - B4100 (E)	6	0	6	0
	3 - Southern Access	0	1	0	21
	4 - B4100 (W)	63	2	63	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Northern Access	0.22	2.98	0.3	A	134	134
2 - B4100 (E)	0.46	4.71	0.8	A	292	292
3 - Southern Access	0.07	4.38	0.1	A	22	22
4 - B4100 (W)	0.35	2.69	0.5	A	281	281

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	330	82	681	1535	0.215	329	118	0.0	0.3	2.982	A
2 - B4100 (E)	647	162	207	1404	0.461	644	803	0.0	0.8	4.714	A
3 - Southern Access	59	15	830	880	0.067	59	21	0.0	0.1	4.382	A
4 - B4100 (W)	727	182	74	2059	0.353	725	815	0.0	0.5	2.694	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	72	18	130	1885	0.038	73	26	0.3	0.0	1.988	A
2 - B4100 (E)	183	46	46	1524	0.120	186	157	0.8	0.1	2.698	A
3 - Southern Access	10	3	228	1194	0.008	10	3	0.1	0.0	3.044	A
4 - B4100 (W)	140	35	14	2078	0.067	142	224	0.5	0.1	1.863	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	70	18	125	1888	0.037	70	25	0.0	0.0	1.980	A
2 - B4100 (E)	179	45	44	1525	0.117	179	151	0.1	0.1	2.676	A
3 - Southern Access	10	3	220	1198	0.008	10	3	0.0	0.0	3.032	A
4 - B4100 (W)	136	34	14	2082	0.065	136	216	0.1	0.1	1.851	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	63	16	112	1895	0.033	63	23	0.0	0.0	1.965	A
2 - B4100 (E)	161	40	40	1527	0.105	161	135	0.1	0.1	2.636	A
3 - Southern Access	8	2	198	1204	0.007	8	3	0.0	0.0	3.009	A
4 - B4100 (W)	123	31	12	2078	0.059	123	194	0.1	0.1	1.843	A

2026 Tritax + Albion, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Northern Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4100 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Site Access Roundabout	Standard Roundabout		1, 2, 3, 4	3.97	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	2026 Tritax + Albion	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Northern Access		DIRECT	✓	100.000
2 - B4100 (E)		DIRECT	✓	100.000
3 - Southern Access		DIRECT	✓	100.000
4 - B4100 (W)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
08:00 - 08:15	From				
	1 - Northern Access	0	50	0	82
	2 - B4100 (E)	115	0	20	462
	3 - Southern Access	0	9	0	15
	4 - B4100 (W)	202	818	36	0

Demand (Veh/hr)

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
08:15 - 08:30	From				
	1 - Northern Access	0	14	0	21
	2 - B4100 (E)	34	0	5	182
	3 - Southern Access	0	2	0	3
	4 - B4100 (W)	51	258	7	0

Demand (Veh/hr)

08:30 - 08:45

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	11	0	16
	2 - B4100 (E)	26	0	3	138
	3 - Southern Access	0	1	0	2
	4 - B4100 (W)	39	196	5	0

Demand (Veh/hr)

08:45 - 09:00

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	11	0	17
	2 - B4100 (E)	28	0	4	148
	3 - Southern Access	0	2	0	2
	4 - B4100 (W)	41	210	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	6	0	62
	2 - B4100 (E)	2	0	2	6
	3 - Southern Access	0	6	0	62
	4 - B4100 (W)	25	4	25	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Northern Access	0.12	3.58	0.1	A	56	56
2 - B4100 (E)	0.43	4.52	0.7	A	291	291
3 - Southern Access	0.03	4.89	0.0	A	9	9
4 - B4100 (W)	0.52	3.68	1.1	A	467	467

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	132	33	859	1137	0.116	131	316	0.0	0.1	3.577	A
2 - B4100 (E)	597	149	118	1388	0.430	594	873	0.0	0.7	4.517	A
3 - Southern Access	24	6	656	760	0.032	24	56	0.0	0.0	4.892	A
4 - B4100 (W)	1056	264	123	2026	0.521	1052	556	0.0	1.1	3.678	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	35	9	270	1458	0.024	35	86	0.1	0.0	2.530	A
2 - B4100 (E)	221	55	28	1460	0.151	223	277	0.7	0.2	2.916	A
3 - Southern Access	5	1	239	956	0.005	5	12	0.0	0.0	3.789	A
4 - B4100 (W)	316	79	37	2101	0.150	320	208	1.1	0.2	2.026	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	27	7	202	1499	0.018	27	65	0.0	0.0	2.445	A
2 - B4100 (E)	167	42	21	1466	0.114	167	208	0.2	0.1	2.774	A
3 - Southern Access	3	1	180	957	0.003	3	8	0.0	0.0	3.777	A
4 - B4100 (W)	240	60	27	2108	0.114	240	156	0.2	0.1	1.927	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	28	7	218	1482	0.019	28	69	0.0	0.0	2.475	A
2 - B4100 (E)	180	45	23	1464	0.123	180	223	0.1	0.1	2.802	A
3 - Southern Access	4	1	193	1017	0.004	4	10	0.0	0.0	3.552	A
4 - B4100 (W)	257	64	30	2106	0.122	257	167	0.1	0.1	1.946	A

2026 Tritax + Albion, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Northern Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4100 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Site Access Roundabout	Standard Roundabout		1, 2, 3, 4	3.65	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	2026 Tritax + Albion	PM	DIRECT	17:00	18:00	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Northern Access		DIRECT	✓	100.000
2 - B4100 (E)		DIRECT	✓	100.000
3 - Southern Access		DIRECT	✓	100.000
4 - B4100 (W)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
17:00 - 17:15	From				
	1 - Northern Access	0	134	0	196
	2 - B4100 (E)	50	0	9	572
	3 - Southern Access	0	24	0	35
	4 - B4100 (W)	69	747	12	0

Demand (Veh/hr)

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
17:15 - 17:30	From				
	1 - Northern Access	0	29	0	43
	2 - B4100 (E)	10	0	1	206
	3 - Southern Access	0	4	0	6
	4 - B4100 (W)	16	172	2	0

Demand (Veh/hr)

17:30 - 17:45

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	28	0	42
	2 - B4100 (E)	10	0	1	201
	3 - Southern Access	0	4	0	6
	4 - B4100 (W)	15	167	2	0

Demand (Veh/hr)

17:45 - 18:00

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	25	0	38
	2 - B4100 (E)	9	0	1	181
	3 - Southern Access	0	3	0	5
	4 - B4100 (W)	14	151	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	1	0	21
	2 - B4100 (E)	6	0	6	1
	3 - Southern Access	0	1	0	21
	4 - B4100 (W)	62	3	62	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Northern Access	0.22	3.14	0.3	A	134	134
2 - B4100 (E)	0.45	4.69	0.8	A	313	313
3 - Southern Access	0.07	4.35	0.1	A	22	22
4 - B4100 (W)	0.40	2.92	0.7	A	342	342

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	330	82	780	1475	0.224	329	119	0.0	0.3	3.138	A
2 - B4100 (E)	631	158	207	1392	0.453	628	902	0.0	0.8	4.688	A
3 - Southern Access	59	15	814	886	0.067	59	21	0.0	0.1	4.350	A
4 - B4100 (W)	828	207	74	2058	0.402	825	799	0.0	0.7	2.915	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	72	18	180	1862	0.039	73	26	0.3	0.0	2.012	A
2 - B4100 (E)	217	54	46	1510	0.144	220	208	0.8	0.2	2.796	A
3 - Southern Access	10	3	262	1176	0.009	10	3	0.1	0.0	3.090	A
4 - B4100 (W)	190	48	14	2102	0.090	192	258	0.7	0.1	1.889	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	70	18	173	1866	0.038	70	25	0.0	0.0	2.004	A
2 - B4100 (E)	212	53	44	1511	0.140	212	199	0.2	0.2	2.769	A
3 - Southern Access	10	3	253	1181	0.008	10	3	0.0	0.0	3.076	A
4 - B4100 (W)	184	46	14	2105	0.087	184	249	0.1	0.1	1.873	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	63	16	156	1876	0.034	63	23	0.0	0.0	1.987	A
2 - B4100 (E)	191	48	40	1514	0.126	191	179	0.2	0.1	2.722	A
3 - Southern Access	8	2	228	1188	0.007	8	3	0.0	0.0	3.049	A
4 - B4100 (W)	167	42	12	2102	0.079	167	224	0.1	0.1	1.859	A

2031 Tritax, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Northern Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4100 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Site Access Roundabout	Standard Roundabout		1, 2, 3, 4	4.45	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D5	2031 Tritax	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Northern Access		DIRECT	✓	100.000
2 - B4100 (E)		DIRECT	✓	100.000
3 - Southern Access		DIRECT	✓	100.000
4 - B4100 (W)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
08:00 - 08:15	From				
	1 - Northern Access	0	47	0	82
	2 - B4100 (E)	109	0	19	573
	3 - Southern Access	0	8	0	14
	4 - B4100 (W)	203	950	36	0

Demand (Veh/hr)

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
08:15 - 08:30	From				
	1 - Northern Access	0	14	0	21
	2 - B4100 (E)	34	0	5	153
	3 - Southern Access	0	2	0	3
	4 - B4100 (W)	51	245	7	0

Demand (Veh/hr)

08:30 - 08:45

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	11	0	16
	2 - B4100 (E)	26	0	3	116
	3 - Southern Access	0	1	0	2
	4 - B4100 (W)	39	186	5	0

Demand (Veh/hr)

08:45 - 09:00

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	11	0	17
	2 - B4100 (E)	28	0	4	124
	3 - Southern Access	0	2	0	2
	4 - B4100 (W)	41	199	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	6	0	63
	2 - B4100 (E)	3	0	3	5
	3 - Southern Access	0	6	0	63
	4 - B4100 (W)	25	3	25	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Northern Access	0.12	3.85	0.1	A	55	55
2 - B4100 (E)	0.50	5.14	1.0	A	299	299
3 - Southern Access	0.03	5.22	0.0	A	8	8
4 - B4100 (W)	0.58	4.11	1.4	A	492	492

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	129	32	989	1064	0.121	128	310	0.0	0.1	3.849	A
2 - B4100 (E)	701	175	117	1394	0.503	697	1000	0.0	1.0	5.140	A
3 - Southern Access	22	5	760	711	0.031	22	55	0.0	0.0	5.223	A
4 - B4100 (W)	1189	297	116	2055	0.579	1184	665	0.0	1.4	4.107	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	35	9	258	1460	0.024	35	86	0.1	0.0	2.528	A
2 - B4100 (E)	192	48	28	1469	0.131	195	265	1.0	0.2	2.835	A
3 - Southern Access	5	1	212	964	0.005	5	12	0.0	0.0	3.758	A
4 - B4100 (W)	303	76	37	2114	0.143	308	180	1.4	0.2	2.000	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	27	7	192	1499	0.018	27	65	0.0	0.0	2.447	A
2 - B4100 (E)	145	36	21	1475	0.098	145	198	0.2	0.1	2.706	A
3 - Southern Access	3	1	158	962	0.003	3	8	0.0	0.0	3.754	A
4 - B4100 (W)	230	57	27	2120	0.108	230	134	0.2	0.1	1.906	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	28	7	207	1482	0.019	28	69	0.0	0.0	2.475	A
2 - B4100 (E)	156	39	23	1474	0.106	156	212	0.1	0.1	2.731	A
3 - Southern Access	4	1	169	1024	0.004	4	10	0.0	0.0	3.528	A
4 - B4100 (W)	246	62	30	2118	0.116	246	143	0.1	0.1	1.922	A

2031 Tritax, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Northern Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4100 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Site Access Roundabout	Standard Roundabout		1, 2, 3, 4	4.15	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D6	2031 Tritax	PM	DIRECT	17:00	18:00	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Northern Access		DIRECT	✓	100.000
2 - B4100 (E)		DIRECT	✓	100.000
3 - Southern Access		DIRECT	✓	100.000
4 - B4100 (W)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
17:00 - 17:15	From				
	1 - Northern Access	0	136	0	195
	2 - B4100 (E)	51	0	9	733
	3 - Southern Access	0	24	0	34
	4 - B4100 (W)	73	777	13	0

Demand (Veh/hr)

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
17:15 - 17:30	From				
	1 - Northern Access	0	29	0	43
	2 - B4100 (E)	10	0	1	177
	3 - Southern Access	0	4	0	6
	4 - B4100 (W)	16	127	2	0

Demand (Veh/hr)

17:30 - 17:45

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	28	0	42
	2 - B4100 (E)	10	0	1	173
	3 - Southern Access	0	4	0	6
	4 - B4100 (W)	15	124	2	0

Demand (Veh/hr)

17:45 - 18:00

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	25	0	38
	2 - B4100 (E)	9	0	1	155
	3 - Southern Access	0	3	0	5
	4 - B4100 (W)	14	111	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	1	0	21
	2 - B4100 (E)	6	0	6	0
	3 - Southern Access	0	1	0	21
	4 - B4100 (W)	59	2	59	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Northern Access	0.23	3.18	0.3	A	134	134
2 - B4100 (E)	0.56	5.77	1.3	A	333	333
3 - Southern Access	0.07	4.77	0.1	A	22	22
4 - B4100 (W)	0.42	2.95	0.7	A	319	319

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	331	83	811	1461	0.227	330	123	0.0	0.3	3.179	A
2 - B4100 (E)	793	198	207	1406	0.564	788	934	0.0	1.3	5.773	A
3 - Southern Access	58	15	973	811	0.071	58	22	0.0	0.1	4.774	A
4 - B4100 (W)	863	216	75	2078	0.415	860	956	0.0	0.7	2.951	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	72	18	135	1892	0.038	73	27	0.3	0.0	1.979	A
2 - B4100 (E)	188	47	46	1524	0.123	193	163	1.3	0.1	2.714	A
3 - Southern Access	10	3	235	1191	0.008	10	3	0.1	0.0	3.050	A
4 - B4100 (W)	145	36	14	2093	0.069	148	231	0.7	0.1	1.854	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	70	18	130	1894	0.037	70	25	0.0	0.0	1.974	A
2 - B4100 (E)	184	46	44	1525	0.121	184	156	0.1	0.1	2.683	A
3 - Southern Access	10	3	225	1196	0.008	10	3	0.0	0.0	3.035	A
4 - B4100 (W)	141	35	14	2097	0.067	141	221	0.1	0.1	1.840	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	63	16	116	1902	0.033	63	23	0.0	0.0	1.958	A
2 - B4100 (E)	165	41	40	1528	0.108	165	139	0.1	0.1	2.643	A
3 - Southern Access	8	2	202	1202	0.007	8	3	0.0	0.0	3.014	A
4 - B4100 (W)	127	32	12	2092	0.061	127	198	0.1	0.1	1.834	A

2031 Tritax + Albion, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Northern Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4100 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Site Access Roundabout	Standard Roundabout		1, 2, 3, 4	4.60	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D7	2031 Tritax + Albion	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Northern Access		DIRECT	✓	100.000
2 - B4100 (E)		DIRECT	✓	100.000
3 - Southern Access		DIRECT	✓	100.000
4 - B4100 (W)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
08:00 - 08:15	From				
	1 - Northern Access	0	47	0	82
	2 - B4100 (E)	109	0	19	583
	3 - Southern Access	0	8	0	15
	4 - B4100 (W)	208	972	37	0

Demand (Veh/hr)

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
08:15 - 08:30	From				
	1 - Northern Access	0	14	0	21
	2 - B4100 (E)	34	0	5	188
	3 - Southern Access	0	2	0	3
	4 - B4100 (W)	51	267	7	0

Demand (Veh/hr)

08:30 - 08:45

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	11	0	16
	2 - B4100 (E)	26	0	3	143
	3 - Southern Access	0	1	0	2
	4 - B4100 (W)	39	202	5	0

Demand (Veh/hr)

08:45 - 09:00

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	11	0	17
	2 - B4100 (E)	28	0	4	153
	3 - Southern Access	0	2	0	2
	4 - B4100 (W)	41	217	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	6	0	62
	2 - B4100 (E)	3	0	3	5
	3 - Southern Access	0	6	0	62
	4 - B4100 (W)	25	4	25	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Northern Access	0.12	3.90	0.1	A	55	55
2 - B4100 (E)	0.51	5.21	1.0	A	324	324
3 - Southern Access	0.03	5.27	0.0	A	9	9
4 - B4100 (W)	0.60	4.32	1.5	A	513	513

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	129	32	1012	1052	0.123	128	315	0.0	0.1	3.896	A
2 - B4100 (E)	711	178	118	1393	0.510	707	1022	0.0	1.0	5.213	A
3 - Southern Access	23	6	770	706	0.033	23	56	0.0	0.0	5.269	A
4 - B4100 (W)	1217	304	116	2039	0.597	1211	676	0.0	1.5	4.317	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	35	9	280	1453	0.024	35	86	0.1	0.0	2.542	A
2 - B4100 (E)	227	57	28	1468	0.155	230	287	1.0	0.2	2.917	A
3 - Southern Access	5	1	247	953	0.005	5	12	0.0	0.0	3.797	A
4 - B4100 (W)	325	81	37	2103	0.155	330	215	1.5	0.2	2.036	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	27	7	208	1496	0.018	27	65	0.0	0.0	2.452	A
2 - B4100 (E)	172	43	21	1475	0.117	172	214	0.2	0.1	2.764	A
3 - Southern Access	3	1	185	955	0.003	3	8	0.0	0.0	3.783	A
4 - B4100 (W)	246	62	27	2109	0.117	246	161	0.2	0.1	1.933	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	28	7	225	1478	0.019	28	69	0.0	0.0	2.482	A
2 - B4100 (E)	185	46	23	1473	0.126	185	230	0.1	0.1	2.794	A
3 - Southern Access	4	1	198	1015	0.004	4	10	0.0	0.0	3.558	A
4 - B4100 (W)	264	66	30	2108	0.125	264	172	0.1	0.1	1.952	A

2031 Tritax + Albion, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Northern Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4100 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Site Access Roundabout	Standard Roundabout		1, 2, 3, 4	3.92	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D8	2031 Tritax + Albion	PM	DIRECT	17:00	18:00	60	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
1 - Northern Access		DIRECT	✓	100.000
2 - B4100 (E)		DIRECT	✓	100.000
3 - Southern Access		DIRECT	✓	100.000
4 - B4100 (W)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
17:00 - 17:15	From				
	1 - Northern Access	0	136	0	195
	2 - B4100 (E)	51	0	9	627
	3 - Southern Access	0	24	0	34
	4 - B4100 (W)	74	870	13	0

Demand (Veh/hr)

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
17:15 - 17:30	From				
	1 - Northern Access	0	29	0	43
	2 - B4100 (E)	10	0	1	211
	3 - Southern Access	0	4	0	6
	4 - B4100 (W)	16	176	2	0

Demand (Veh/hr)

17:30 - 17:45

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	28	0	42
	2 - B4100 (E)	10	0	1	206
	3 - Southern Access	0	4	0	6
	4 - B4100 (W)	15	172	2	0

Demand (Veh/hr)

17:45 - 18:00

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	25	0	38
	2 - B4100 (E)	9	0	1	186
	3 - Southern Access	0	3	0	5
	4 - B4100 (W)	14	155	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Northern Access	2 - B4100 (E)	3 - Southern Access	4 - B4100 (W)
From	1 - Northern Access	0	1	0	21
	2 - B4100 (E)	6	0	6	1
	3 - Southern Access	0	1	0	21
	4 - B4100 (W)	58	2	58	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Northern Access	0.24	3.35	0.3	A	134	134
2 - B4100 (E)	0.49	5.04	1.0	A	330	330
3 - Southern Access	0.07	4.49	0.1	A	22	22
4 - B4100 (W)	0.46	3.16	0.8	A	378	378

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	331	83	904	1403	0.236	330	124	0.0	0.3	3.353	A
2 - B4100 (E)	687	172	207	1393	0.493	683	1026	0.0	1.0	5.045	A
3 - Southern Access	58	15	868	860	0.067	58	22	0.0	0.1	4.486	A
4 - B4100 (W)	957	239	75	2089	0.458	954	852	0.0	0.8	3.161	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	72	18	185	1861	0.039	73	26	0.3	0.0	2.014	A
2 - B4100 (E)	222	55	46	1510	0.147	225	212	1.0	0.2	2.809	A
3 - Southern Access	10	3	268	1173	0.009	10	3	0.1	0.0	3.097	A
4 - B4100 (W)	194	48	14	2129	0.091	197	264	0.8	0.1	1.868	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	70	18	178	1864	0.038	70	25	0.0	0.0	2.008	A
2 - B4100 (E)	217	54	44	1512	0.144	217	204	0.2	0.2	2.782	A
3 - Southern Access	10	3	258	1178	0.008	10	3	0.0	0.0	3.083	A
4 - B4100 (W)	189	47	14	2132	0.089	189	254	0.1	0.1	1.851	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - Northern Access	63	16	160	1874	0.034	63	23	0.0	0.0	1.988	A
2 - B4100 (E)	196	49	40	1514	0.129	196	183	0.2	0.1	2.730	A
3 - Southern Access	8	2	233	1186	0.007	8	3	0.0	0.0	3.057	A
4 - B4100 (W)	171	43	12	2130	0.080	171	229	0.1	0.1	1.839	A

