



Land at Gosford Oxfordshire

Transport Assessment

Barwood Development Securities Ltd

Document Control Sheet

Document Title	Transport Assessment
Document Ref	10669TA01
Project Name	Land at Gosford, Oxfordshire
Project Number	10669
Client	Barwood Development Securities Ltd

Document Status

Rev	Issue Status	Prepared / Date	Checked / Date	Approved / Date
0	Final	A Eggleston 05.11.21	D Swann 17.02.22	D Swann 17.02.22
1	Final	A Eggleston 17.02.21	D Swann 22.02.22	D Swann 22.02.22

Issue Record

Name / Date & Revision	17.02.22	22.02.22				
S Dorrian – Barwood Development Securities Ltd	-	-				
B Entwistle – Barwood Development Securities Ltd						

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1 Scheme Overview

Introduction

- 1.1** Brookbanks is appointed by Barwood Development Securities Ltd to produce a Transport Assessment (TA) and Travel Plan (TP) in support of an outline planning application for the development of up to 370 homes, public open space (including play areas and woodland planting), sports pitches and pavilion, drainage and engineering works, with all matters reserved (appearance, landscaping, layout and scale) except for vehicular and emergency accesses to Bicester Road.

Scheme Proposals

- 1.2** The development will consist of several distinct areas, with each area having a strong landscape and green infrastructure framework, which will define and shape the development.
- 1.3** The application provides for up to 370 dwellings that will build on the existing character of the area and improve links to the surrounding countryside. The layout comprises a series of residential land parcels developed on a connected network of routes. The development will provide strategic landscaped areas. These areas will provide attractive informal open and/or amenity space.
- 1.4** The Development illustrative Masterplan, attached in **Appendix A**, sets out built development components, areas of formal and informal open space and the alignment of the transport routes running through the application site. The development will be comprised of a walkable residential neighbourhood around distinct character areas, which benefits from access to key areas of formal and informal open space.
- 1.5** Legibility of the development will be ensured by developing a positive relationship between buildings, streets and spaces, with buildings fronting onto and providing opportunities for overlooking and surveillance. In addition, ensuring there is a strong definition of public (streets, opens space) and private spaces (back gardens, private driveways) making the layout legible and safe.

Site Location

- 1.6** The proposed site is located to the east of Bicester Road with the A34 located to the east. Open land is located to the north and south. The residential area of Kidlington is located to the west of Bicester Road.
- 1.7** Oxford is located circa eight kilometres to the south of the development site where there is a range of retail, employment, leisure, and public transport facilities available. The site is located circa 18 kilometres to the north of Abingdon and 12 kilometres south of Bicester, which provides additional employment and retail opportunities.
- 1.8** The location of the site in its wider geographical context is shown in **Figure 1-1**.

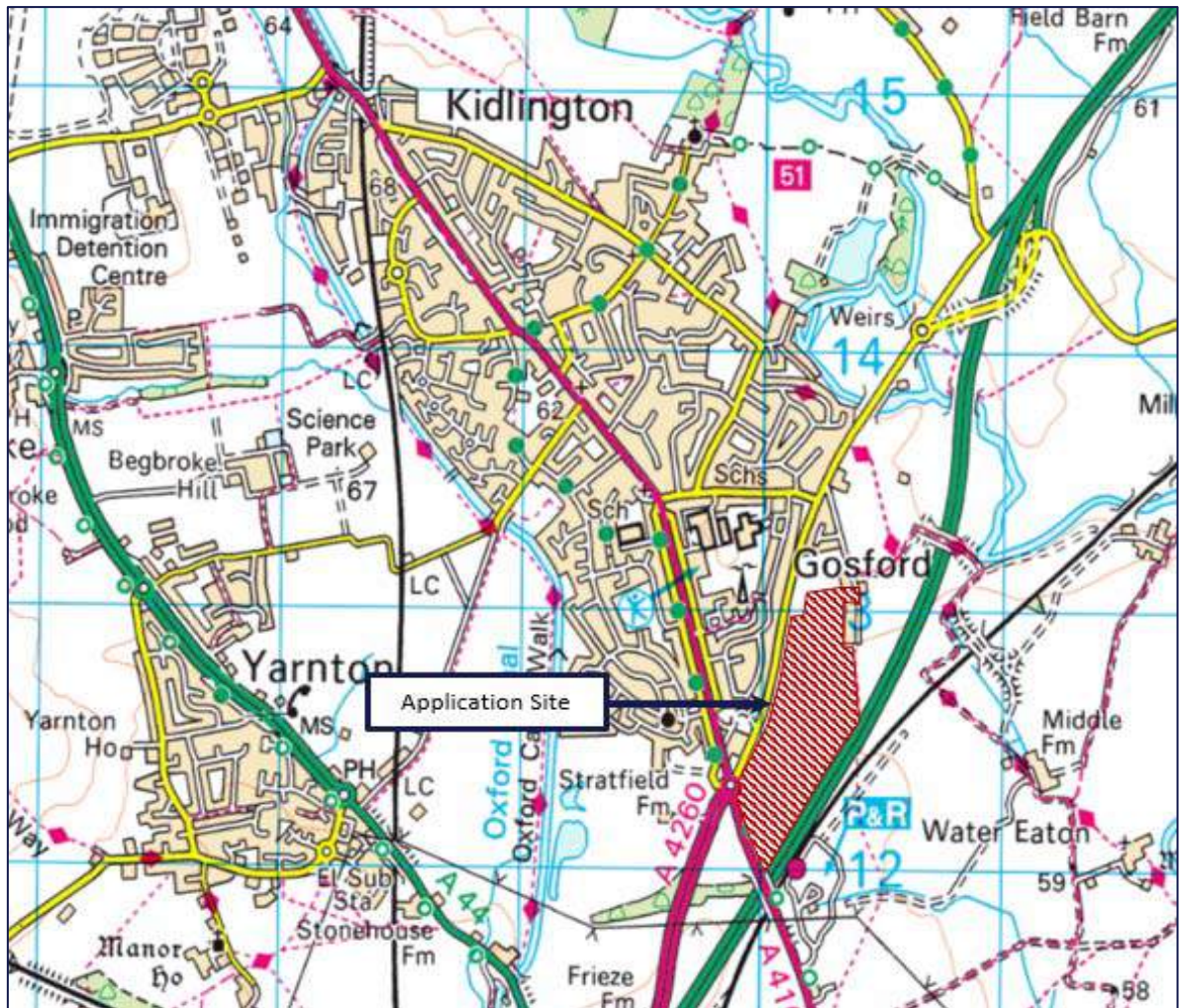


Figure 1-1: Development Site

Development Timescales

- 1.9** The timescales for development delivery are dependent on many factors, including the planning process and future market demand for housing. However, it is anticipated that the proposed development would commence onsite circa 2023. The development will be constructed over several years, with completion expected 2028/2029.

Transport Assessment Consultations

- 1.10** To define and agree the scope of this Transport Assessment, a Transport Scoping Note was submitted to Oxfordshire County Council (OCC) in August 2020. The Scoping Note is attached in **Appendix B**.
- 1.11** Various aspects covering the delivery of the scheme have been discussed with fundamental principles addressed, including the following key areas:
- Location and the form of the access points
 - Methodology to be adopted in order to review the development
 - Use of the area wide traffic model for the high-level overview
 - Trip generation rates to be applied
 - Method of trip distribution

- Travel Plan principles
- 1.12** Comments on the Scoping Note were formally received from OCC on the 3rd September 2020 and 23rd October 2020. The comments made have been addressed in this document and included in Appendix A.

Transport Assessment Structure

- 1.13** The report incorporates appropriate text that reflects the agreed matters and the remainder of the report is structured as follows:
- 1.14** Chapter 2: National and Local Policy Background: This chapter reviews both National and local planning and transport policy documentation to demonstrate that this site is suitable for residential use.
- 1.15** Chapter 3: Site Context: Existing conditions in the vicinity of the site will be described with reference to the layout, function and operation of the road network adjacent to the site. The TA will provide an overview of the highway hierarchy to understand the importance of the function of the highway characteristics. This chapter details the site location in relation to the public transport, walking, cycling networks, together with the road network.
- 1.16** Chapter 4: Movement Strategy: This chapter reviews the development proposals and details the proposed access arrangements.
- 1.17** Chapter 5: Development Impact Appraisal: This chapter assesses the development in relation to Accessibility, Safety, Economy, Environment, and Integration.
- 1.18** Chapter 6: Development Traffic Generation: This chapter provides details on the expected number of trips generated by this site and the methodology on how they are to be distributed within the local road network.
- 1.19** Chapter 7: Road network Review: This chapter indicates the results of the assessment on delay and queuing at key junctions within the road network.
- 1.20** Chapter 8: This chapter provides a summary and conclusion to the report.

2 National and Local Planning Policy Background

National Planning Policy Framework (July 2021)

- 2.1** The National Planning Policy Framework (NPPF) sets out the planning policies for England, providing a framework within which locally prepared plans for development can be produced. The NPPF is a material consideration in planning decisions.
- 2.2** Chapter 2 of the NPPF confirms that the purpose of the planning system is to contribute to the achievement of sustainable development. The objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs.
- 2.3** This TA assesses the travel habits of the existing residents and reviews the current transport networks to ensure the proposed development does not prejudice nor compromise the ability of free movement in the future.
- 2.4** NPPF identifies that planning decisions should apply a presumption in favour of sustainable development. For decision-taking this means:
- Approving development proposals that accord with an up-to-date development plan without delay; or
 - Where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, granting permission unless:
 - The application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed; or
 - Any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole.
- 2.5** Chapter 4 provides instructions on how Local Planning Authorities should approach decision making, indicating that those who make the decisions should seek to approve applications for sustainable development where possible.
- 2.6** NPPF highlighting that planning conditions should be kept to a minimum and only imposed where they are necessary, relevant, enforceable, precise and reasonable in all other respects. Furthermore, NPPF identifies that planning obligations must only be sought where they meet all of the following tests:

Policy Description	Compliance
The potential impacts of development on transport networks can be addressed	The analysis of the proposed development impact on local junctions' performance has been conducted. These performance appraisals are presented in the later chapters of this report.
Opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised	An assessment of the existing highways provision and existing sustainable travel options in the area have been undertaken, as presented in Chapter 3.
Opportunities to promote walking, cycling and public transport use are identified and pursued	The proposed development is committed to improving opportunities for sustainable travel and presents measures aimed to encourage sustainable travel in the area, as identified in Chapter 5. A Travel Plan has also been produced to encourage a modal shift towards sustainable travel choices.
The environmental impacts of traffic and transport infrastructure can be identified, assessed and considered	This TA identifies the potential impacts of the development to ensure the long-term ability for movement is maintained.
Patterns of movement, streets, site access and other transport considerations are integral to the design of schemes, and contribute to making high quality places	The illustrative masterplan establishes the context for the proposed development to ensure delivery of a high-quality development.

Table 2-1: NPPF Compliance Table

- 2.7** NPPF instructs that the planning system should actively manage patterns of growth in support of these objectives. 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 considered in both plan-making and decision-making.
- 2.8** This TA confirms that the future residents of the proposed development will have opportunities to travel by sustainable modes which will reduce congestion and emissions.
- 2.9** In assessing sites for development, NPPF identifies that it should be ensured that:
- Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location*
- Safe and suitable access to the site can be achieved for all users*
- Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree*
- 2.10** Sustainable travel is one of the key objectives of the development. The proposals aim to ensure accessibility and encourage the use of sustainable modes. The illustrative masterplan will take account needs of disabled and limited mobility user groups through the embedded design philosophy to ensure safety and convenience of movement for all.
- 2.11** Critically, NPPF states that development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

- 2.12** A highways impact appraisal has been undertaken in this report, considering both capacity and safety. It is considered that the impact of the proposed development falls below this key test.

National Planning Practice Guidance (NPPG)

- 2.13** Paragraph 006 of the NPPG states that the aims of a Travel Plan are to positively contribute to:
- Encouraging sustainable travel
 - Lessening traffic generation and its detrimental impacts
 - Reducing carbon emissions and climate impacts
 - Creating accessible, connected, inclusive communities
 - Improving health outcomes and quality of life
 - Improving road safety
 - Reducing the need for new development to increase existing road capacity or provide new roads
- 2.14** Paragraph 011 of the NPPG states that a Travel Plan should evaluate and consider:
- Benchmark travel data including trip generation databases
 - Information concerning the nature of the proposed development and the forecast level of trips by all modes of transport likely to be associated with the development
 - Relevant information about existing travel habits in the surrounding area
 - Proposals to reduce the need for travel to and from the site via all modes of transport
 - Provision of improved public transport services

Relevant Design Guidance

DfT Circular 02/2013 - The Strategic Road Network and the Delivery of Sustainable Development

- 2.15** The Circular was published in 2013 and explains how the Highways England (the HA at the time), will engage with the planning system and provides details on how the HA will fulfil its remit to be a delivery partner for sustainable economic growth whilst maintaining, managing and operating a safe and efficient strategic road network.
- 2.16** The Circular identifies that development proposals are likely to be acceptable if they can be accommodated within the available highway capacity on the strategic road network, or they do not increase demand for use of a section that is already operating at over-capacity levels, taking account of any travel plan, traffic management and/or capacity enhancement measures that may be agreed. Furthermore, it is noted that Paragraph 9 identifies that development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.
- 2.17** Paragraph 25 identifies that the overall forecast demand should be compared to the ability of the existing network to accommodate traffic over a period up to ten years after the date of registration of a planning application.
- 2.18** Paragraph 27 identifies that where the overall forecast demand at the time of opening of the development can be accommodated by the existing infrastructure, further capacity mitigation will not be sought.
- 2.19** With regard to travel plans Paragraphs 29 and 30 highlights that it may be possible to free up additional capacity within the road network so that the demand generated by a proposed new development, which would otherwise be unacceptable, can be accommodated.

- 2.20** Paragraph 34 identifies that at locations where there is insufficient capacity, the impact of the development will be mitigated to ensure that the strategic road network is able to accommodate existing and development generated traffic.
- 2.21** In relation to providing new access points, Paragraph 39 identifies that where appropriate, proposals for the creation of new junctions or direct means of access may be identified and developed at the Plan-making stage in circumstances where it can be established that such new infrastructure is essential for the delivery of strategic planned growth

Manual for Streets (MfS) 1 and Manual for Streets (MfS) 2

- 2.22** The UK Department for Transport (DfT) and the Department for Communities and Local Government (DCLG), with support from the Commission for Architecture and the Built Environment (CABE), commissioned WSP Group, Transport Research Laboratory (TRL), Llewelyn Davies Yeang and Phil Jones Associates to develop Manual for Streets to give guidance to a range of practitioners on effective street design.
- 2.23** The Manual for Streets (March 2007) guidance on the planning, design, provision and approval of new streets, and modifications to existing ones. It aims to increase quality of life through good design which creates more people-oriented streets. The detailed guidance applies mainly to residential streets although the overall design principles can be applied to all streets within urban areas.
- 2.24** A street is defined as "a highway with important public realm functions beyond the movement of motor traffic" – i.e., by its function rather than just the road hierarchy.
- 2.25** Manual for Streets has updated geometric guidelines for low trafficked residential streets, examines the effect of the environment on road user behaviour, and draws on practice in other countries. This research provides the evidence base upon which the revised geometric guidelines in the Manual for Streets are based, including link widths, forward visibility, visibility splays and junction spacing.
- 2.26** Manual for Streets 2 - Wider Application of the Principles is the result of collaborative working between the Department for Transport and the transportation industry.
- 2.27** The aim of the document is to extend the advantages of good design to streets and roads outside residential areas, largely covered in MfS1. By amending the way high streets and non-trunk roads are designed, the fabric of public spaces and the way people behave can be changed. It means embracing a new approach to design and breaking away from inflexible standards and traditional engineering solutions.
- 2.28** The new guide does not supersede Manual for Streets 1, rather it explains how the principles of the first document can be applied more widely.

Design Manual for Roads & Bridges (DMRB)

- 2.29** The DfT publish a large suite of documents known as the Design Manual for Roads and Bridges (DMRB), which provides detailed standards and guidance on the provision of highway networks.
- 2.30** The suite of documents provides a comprehensive manual which accommodates all current standards, advice notes and other published documents relating to the design, assessment and operation of trunk roads including motorways. The standards are routinely adopted by local highway authorities for their local highway network.

LTN 1/20 Cycle infrastructure design

- 2.31** The local transport note (LTN) provides guidance to local authorities on delivering high quality, cycle infrastructure including:
- Planning for cycling
 - Space for cycling within highways
 - Transitions between carriageways, cycle lanes and cycle tracks
 - Junctions and crossings

- Cycle parking and other equipment
- Planning and designing for commercial cycling
- Traffic signs and road markings
- Construction and maintenance

Adopted Cherwell Local Plan 2011-2031

- 2.32** The Adopted Cherwell Local Plan 2011-2031 contains strategic planning policies for development and the use of land. The Local Plan forms part of the statutory Development Plan for Cherwell which must be considered in the determination of planning applications.
- 2.33** The Plan was formally adopted by the Council on 20 July 2015.
- 2.34** The Local Plan provides fifteen strategic objectives for Cherwell in the interest of developing a sustainable communities and for ensuring sustainable development.
- 2.35** The key policies relating to transport are indicated below, together the confirmation the development proposals are compliant.

Policy PSD 1: Presumption in Favour of Sustainable Development: When considering development proposals, the Council will take a proactive approach to reflect the presumption in favour of sustainable development contained in the National Planning Policy Framework. The Council will always work proactively with applicants to jointly find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area. Planning applications that accord with the policies in this Local Plan (or other part of the statutory Development Plan) will be approved without delay unless material considerations indicate otherwise. Where there are no policies relevant to the application or relevant policies are out of date at the time of making the decision then the Council will grant permission unless material considerations indicate otherwise taking into account whether:

any adverse impacts of granting permission would significantly and demonstrably outweigh the benefits, when assessed against the policies in the National Planning Policy Framework taken as a whole; or

specific policies in the Framework indicate that development should be restricted.

Policy SLE 4: Improved Transport and Connections - The Council will support the implementation of the proposals in the Movement Strategies and the Local Transport Plan to deliver key connections, to support modal shift and to support more sustainable locations for employment and housing growth. New development in the District will be required to provide financial and/or in-kind contributions to mitigate the transport impacts of development. All development where reasonable to do so, should facilitate the use of sustainable modes of transport to make the fullest possible use of public transport, walking and cycling. Encouragement will be given to solutions which support reductions in greenhouse gas emissions and reduce congestion. Development which is not suitable for the roads that serve the development and which have a severe traffic impact will not be supported.

- 2.36** The Application Site is considered sustainable as the development will provide and contribute to the delivery of improved infrastructure. This TA identifies the potential impacts of the development and then continues to present the necessary mitigation measures to ensure the long-term ability for movement is maintained.
- 2.37** New development should offer maximum flexibility in the choice of travel modes and should reduce the need to travel by motor vehicle through the promotion of sustainable and active travel modes. The proposed development is committed to improving opportunities for sustainable travel and presents measures aimed to encourage sustainable travel in the area. A Travel Plan has also been produced to encourage a modal shift towards sustainable travel choices.

Local Plan 2011-2031 Partial Review - Oxford's Unmet Housing Need

- 2.38** The Cherwell Local Plan confirms the commitment to working with all other Oxfordshire local authorities to address the need for housing across the Oxfordshire housing market area. The Oxfordshire councils have recognised that Oxford may not be able to accommodate the housing requirement within the administrative boundary.
- 2.39** This document outlines the plan to provide Cherwell's share of the unmet housing needs of Oxford to 2031.
- 2.40** The Plan provides for the development of strategic sites that will best achieve the vision and objectives and deliver sustainable development in the Oxfordshire, Cherwell, Oxford and wider context. The Application Site is referenced as PR7a Land South East of Kidlington.
- 2.41** In relation to Transport, the following policies are relevant.

Policy PR4a: Sustainable Transport - The strategic developments provided for under Policies PR6 to PR9 will be expected to provide proportionate financial contributions directly related to the development in order to secure necessary improvements to, and mitigations for, the highway network and to deliver necessary improvements to infrastructure and services for public transport. Where necessary, the provision of land will be required to support the implementation of relevant schemes set out in the Local Transport Plan 4 (including the Oxford Transport Strategy), the A44/A4260 Corridor Study and Local Plan Partial Review Transport Mitigation Assessment. These schemes shall include:

improved bus services and facilities along the A4260/A4165 (Oxford Road) linking Kidlington, Gosford, Water Eaton and Oxford

the enhancement of the off-carriageway Cycle Track/ Shared Use Path along the western side of the A44 and the provision of at least one pedestrian and cycle and wheelchair crossing over the A44.

the prioritisation of the A44 over the A4260 as the primary north-south through route for private motor vehicles into and out of Oxford.

improved rapid transit/bus services and associated Super Cycleway along the A4260 into Oxford.

improvements to the public realm through the centre of Kidlington associated

the provision of new and enhanced pedestrian, cycling and wheelchair routes into and out of Oxford.

Policy PR4b: Kidlington Centre – Proposals to support sustainable transport improvements and associated infrastructure, to reduce private motorised through traffic along the A4260 in Kidlington and improve the built and natural environment along this corridor which are consistent with the themes and objectives of the adopted Kidlington Masterplan SPD will be supported.

Policy PR7a – Land South East of Kidlington - An extension to Kidlington will be developed on 32 hectares of land to the east of Bicester Road as shown on inset Policies Map PR7a. Development proposals will be permitted if they meet the following requirements:

An outline scheme for public vehicular, cycle, pedestrian and wheelchair connectivity within the site, to the built environment of Kidlington, to Oxford Parkway Railway Station and Water Eaton Park and Ride, to enable the crossing of Bicester Road, to achieve public accessibility between the residential development and the land for formal sports, and to existing or new points of connection off-site and to existing or potential public transport services.

The protection of the existing public right of way on the eastern boundary of the site and an outline scheme for pedestrian and cycle access to the surrounding countryside.

An outline scheme for vehicular access by the emergency services

The application(s) shall be supported by a Transport Assessment and Travel Plan including measures for maximising sustainable transport connectivity, minimising the impact of motor vehicles on new residents and existing communities, and actions for updating the Travel Plan during construction of the development.

The establishment of a connecting pedestrian, cycle and wheelchair route from the site across the Bicester Road and from the sports pitches and residential development to Water Eaton Lane and the public right of way along the eastern boundary of the site.

PR7a Land South East of Kidlington Development Brief (Draft October 2021)

- 2.42** The Cherwell Local Plan 2011-2031 identifies Land South East of Kidlington as one of six strategic housing sites. The Development Brief provides guidance for the planning application. The Development Brief has been jointly prepared between Cherwell District Council, Oxfordshire County Council, landowners and key stakeholders.
- 2.43** The Development Brief includes a review of the site's context and the site specific development constraints and opportunities. The overall vision is indicated below.

The development site will become an extension to Kidlington that will be fully integrated and connected with the surrounding built environment. It will provide an attractive residential neighbourhood, with high quality, publicly accessible and well-connected green infrastructure and a modern, highly functioning outdoor sports facility. The development will maximise opportunities for walking, cycling and wheelchair use and will connect to sustainable movement routes towards Oxford Parkway Station, Kidlington, Oxford and Begbroke and existing footpaths.

- 2.44** In relation to the general principles of the movement strategy the Development Brief highlights that the layout of the site is to directly connect with the existing street network, creating pedestrian and cycle links between the site and Kidlington's facilities and public transport routes. In doing so, the layout will encourage movement by walking, cycling and public transport whilst limiting unnecessary car trips.
- 2.45** To maximise site accessibility access points into the site will be provided on all boundaries. The development principles include:
- At least three walking/cycling access points west onto Bicester Road, connecting with existing and proposed crossing points, bus stops and Kidlington
 - Provision of routes towards PR7b and a direct link to Oxford Parkway station and Park & Ride
 - Access points to the east, joining with Water Eaton Lane, the existing public rights of way network and the surrounding countryside
 - An access to the north onto Beagles Close
 - Pedestrian and cycle crossing provision and design will be in line with guidance in the Government's Cycle Infrastructure Design LTN 1/20
- 2.46** In relation to vehicle access it has been agreed with OCC that the development will be served from Bicester Road.

3 Site Context

Site Location and Existing Use

- 3.1** The development site lies on the southern edge of Kidlington with Oxford located circa 8km to the south.
- 3.2** The Application Site comprises three irregular shaped pastoral fields and a rectangular shaped arable field, with established hedgerows and occasional trees along the field boundaries. An existing field gate on the western boundary provides access into the central and southern fields of the Site from Bicester Road and a gap in the north eastern boundary provides access into the northern field from Water Eaton Lane. To the west, the Site's central field is indented by a recently constructed allotment garden and cemetery, and includes a small car park, with vehicular access off Bicester Road.
- 3.3** The Site is located circa two kilometres from the centre of Kidlington and the secondary community/retail area lies immediately to the west and south west of the Site.
- 3.4** Kidlington acts as focal points for community and retail activity. The heart of the settlement serves as the primary focal point with a regular market, whilst the area in the southern part of the settlement acts as a secondary focal point, comprising the education and sports facilities around Gosford Hill School, the Sainsbury's superstore and small pockets of shopping parades along Oxford Road.

Existing Travel Behaviour Overview

- 3.5** A review of 2011 Census data has reviewed to identify the current travel pattern for residents who currently reside in around the Kidlington. This could provide an indication of the travel patterns for the future residents. The modal split is indicated in **Table 3-1** with the distance travelled to work is indicated in **Table 3-2**.

Mode of Travel to Work	2011 Census Trips	Mode Share
Driving a car or van	1,563	53.4%
Bus, minibus or coach	527	18.0%
Work mainly at or from home	247	8.4%
On foot	220	7.5%
Bicycle	168	5.7%
Passenger in a car or van	134	4.6%
Motorcycle, scooter or moped	31	1.1%
Train	14	0.5%
Other method of travel to work	13	0.4%
Taxi	10	0.3%

Table 3-1: Mode Split

Mode of Travel to Work	2011 Census Trips	Percentage
Work mainly at or from home	247	8.4%
Less than 2km	438	15.0%
2km to less than 5km	304	10.4%
5km to less than 10km	860	29.4%
10km to less than 20km	502	17.2%
20km to less than 30km	180	6.1%
30km to less than 40km	14	0.5%
40km to less than 60km	62	2.1%
60km and over	83	2.8%
Other	237	8.1%

Table 3-2: Distance Travelled to Work

- 3.6** Based on the Census date, the most dominant mode of travel is by car, resulting in 53.4% of all trips. The second most popular mode of travel is by road based public transport at 18.0%. The percentage of journey to work trips by walking is 7.5% and cycling is 5.7%. This indicates that there are alternatives to the motorcar.
- 3.7** The Census data provides an indication of the distance travelled to work. This indicates that 8.4% of residents work mainly at or from home, with 72.0% of working people travelling less than 20km. 25.4% of all journeys to work are less than 5km and could be made on foot or by bicycle.
- 3.8** The 2011 Census data has also been analysed to establish commuting patterns. **Table 3-3** provides a summary of the key work destinations for residents of the local area.

Destination	Percentage
Oxford	36.2%
Kidlington and Surrounding Area	20.1%
Vale of White Horse	8.8%
West Oxfordshire	8.4%
South Oxfordshire	4.5%

Table 3-3: Key Work Destinations

- 3.9** The principal place of work for residents in the local area is within Oxford, drawing 36.2% of residents.

Pedestrian / Cycleway Accessibility and Facilities

- 3.10** A combined footway / cycleway is provided on the western side of the carriageway of Bicester Road in the vicinity of the site, separated from the road by grass verges. This continues in a northerly direction to link in with the signalised junction, which provides access to northern edge of Kidlington.

- 3.11** To the south of the Application Site and on approach to the supermarket, the combined footway / cycleway crosses Bicester Road to the eastern side. The route continues to the south towards the roundabout junction with Oxford Road and National Cycle Route 51. At which point, the footpath / cycleway continues in a westerly direction via an uncontrolled crossing which facilitates access towards Kidlington.
- 3.12** Continuing from the junction with Oxford Road, the footway / cycleway continues towards the Oxford Parkway Park and Ride and beyond towards Oxford.

Public Rights of Way (PRoW)

- 3.13** These are classified as highways and as such are protected routes. The 1949 National Parks and Access to the Countryside Act placed a duty on every County Council in England and Wales to draw up and publish a definitive map and statement of PRoW in their area.
- 3.14** The Definitive Map is the legal record of the location and status of PRoW. The statement is a description of the PRoW shown on the definitive map.
- 3.15** There are four classifications of PRoW:
- Footpaths - by foot only
 - Bridleways - by foot, horse or bike
 - Restricted byways - by any form of transport that does not have a motor
 - Byways open to all traffic - let you travel by any form of transport, including cars
- 3.16** A review of OCC's PRoW Definitive Map confirms there are several PRoW's within the vicinity of the site, with the footpath (Ref: 229/4/30) bordering the site to the east.
- 3.17** The pedestrian and cycle provision in the vicinity of the site is shown in Figure 3-1.

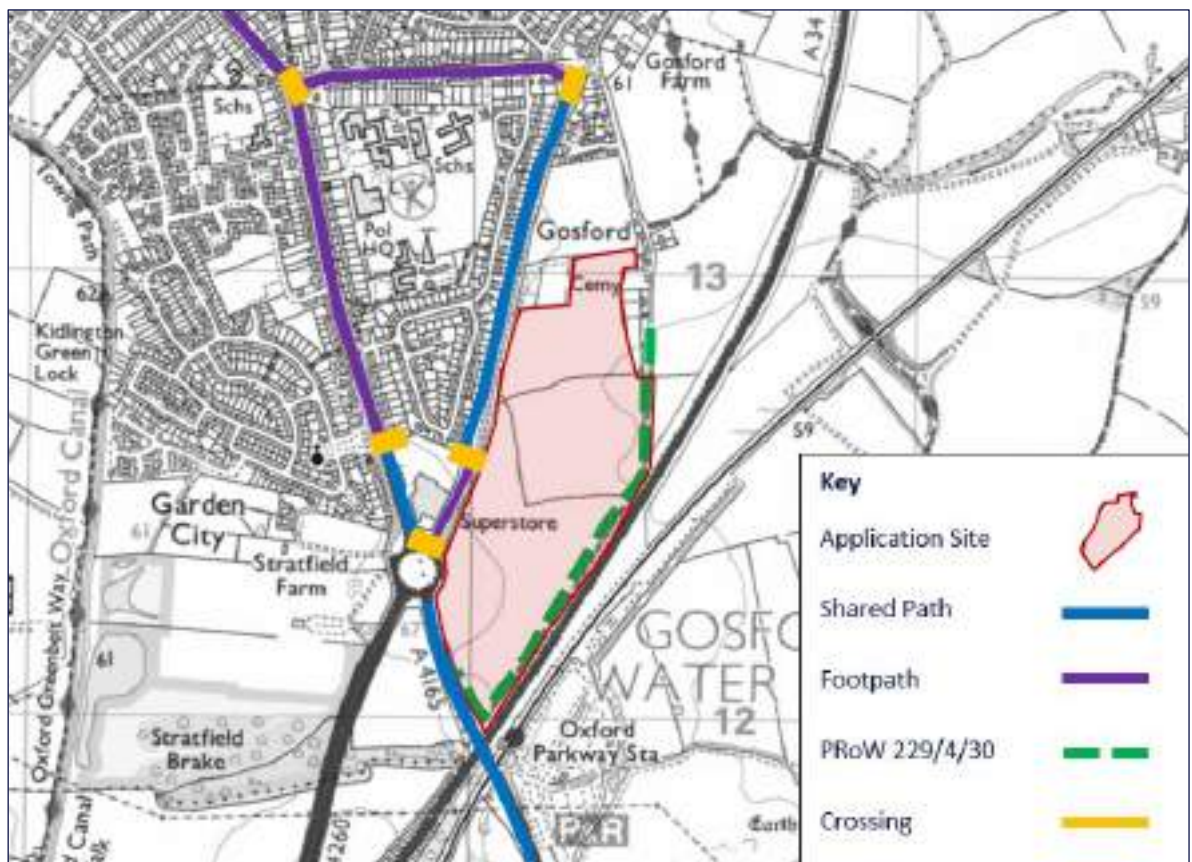


Figure 3-1: Local Pedestrian / Cycle Network in Relation to Site

Public Transport – Road

- 3.18** The Oxford Parkway Park and Ride is located circa 1km to the southeast of the site. This facility is served by the 500 and connects with Oxford town centre, having a journey time of 12 minutes. The service is operated by the Oxford Bus Company, which according to the online timetable offers a 15 / 20 minute service on weekdays and Saturdays with a half hourly service on Sunday.
- 3.19** The Pear Tree Park and Ride is located circa 2km to the south of the site. This facility is served by the 300 and connects with Oxford town centre, having a journey time of 12 minutes. The service is operated by the Oxford Bus Company, which according to the online timetable offers a circa 15 minute service seven days a week.
- 3.20** The closest bus stops to the site are located on Bicester Road, adjacent to the supermarket. The S5 which is operated by Stagecoach stops at this location three times in the morning peak, providing a connection between Bicester and Oxford, having a journey time of twenty minutes.

Public Transport - Rail

- 3.21** The closest train station is located to the southeast and is the Oxford Parkway. The station provides excellent nodes for onward routes to Oxford (having a journey time of circa 8 minutes) and Bicester (having a journey time of circa 10 minutes).
- 3.22** The train station offers the following services:
- Car park provided in combination with the Park and Ride
 - A 150 cycle spaces
 - Ticket office open 7 days of the week
 - Self-service ticket office
 - Manned help desk
 - ATM
 - Refreshment facilities
 - Toilets

Surrounding Highway Network

- 3.23** The following paragraphs describe the roads that are immediately adjacent to the Application Site and those most likely to be affected by the proposals.

Bicester Road

- 3.24** Bicester Road bounds the site to the west and is a single carriageway road subject to a 40MPH speed limit. Bicester Road runs north-south past the site connecting to the A34 to the north and the A4260 to the south. Circa 500 m to the north of the site, a signalised T-junction provides access to the residential edge of Kidlington. Towards the south Bicester Road provides access to a supermarket. Bicester Road forms a four arm roundabout to the south connecting with Oxford Road and the A4260.

Oxford Road

- 3.25** Oxford Road lies to the west of the Application Site and is a single carriageway road catering for north – south trips. To the north of Bicester Road, Oxford Road serves the wider residential area of Kidlington, together with the wider facilities and amenities available within Kidlington. To the south of Bicester Road, Oxford Road provides access to Oxford Parkway Park and Ride, then continues south towards Oxford.

A4260

- 3.26** The A4620 is a dual carriageway road heading in a generally southern direction from Bicester Road. The A4620 forms a roundabout junction with the A44. The A44 continues to the south, linking with the A34, Peartree Park and Ride and the wider Oxford conurbation.

Highway Safety Review

- 3.27** Personal Injury Collision data (PIC) has been obtained from OCC for the most recently available five-year period.
- 3.28** Further to discussions with OCC, the PIC analysis consists of the study area as a whole followed by analysis of individual off-site junctions in the network. These junctions comprise of the junction nearest to the site- Bicester Road / A4260 Oxford Road roundabout as well as the A44 / A43 (Pear Tree roundabout) and the A44 / A40 / A4114 (Wolvercote roundabout)
- 3.29** The study area, along with the junctions analysed in isolation are shown in **Figure 3-2**. A plan showing the location of the PIC's and broader details of the accident data is contained within **Appendix C** of this report.

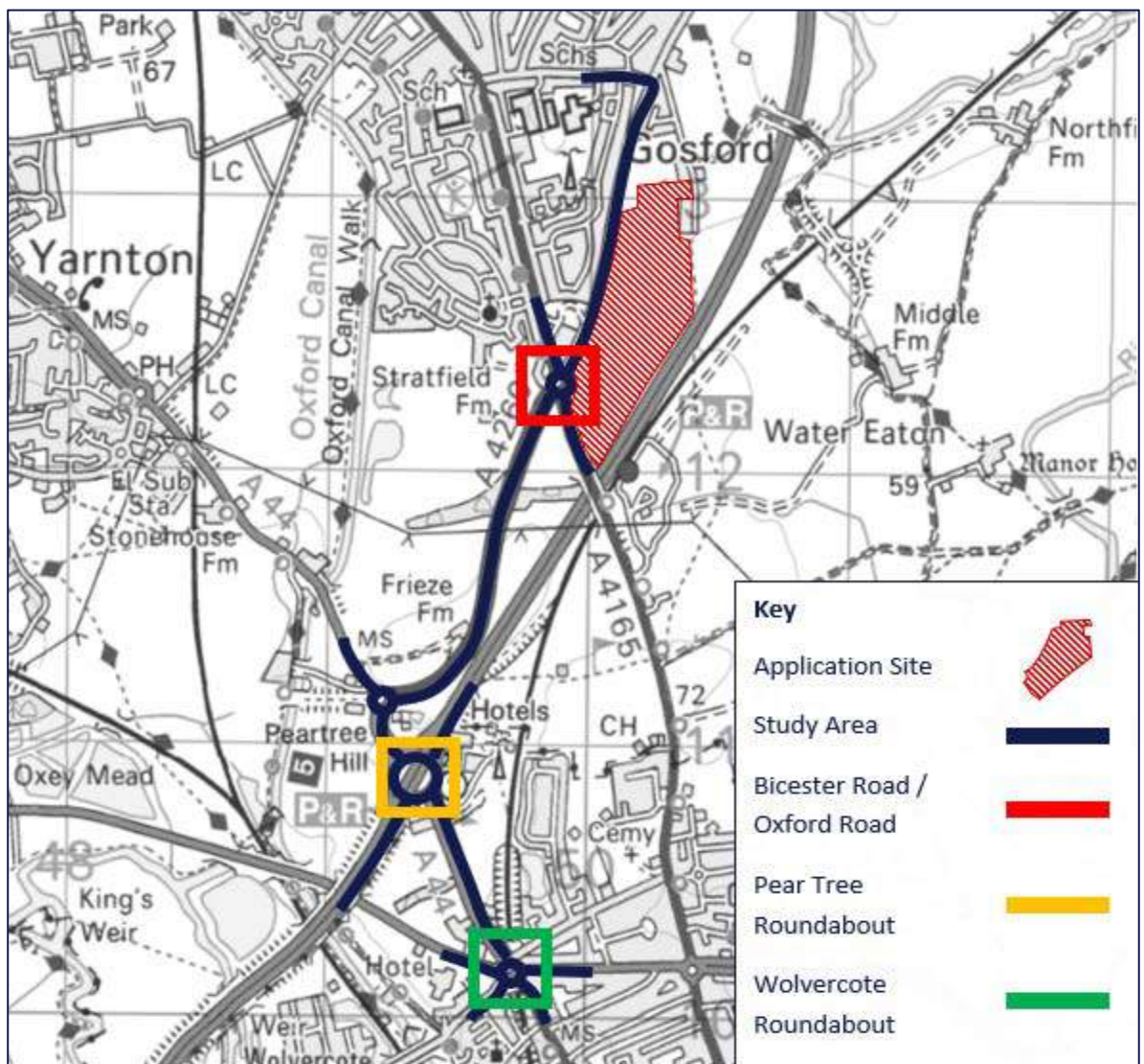


Figure 3-2: PIC Study Area

- 3.30** In total there have been 74 PIC's recorded within the study area during the available period. A summary of the number of recorded collisions, split by year, severity and vulnerable user is provided below in Table 3-4.

Collision Year	Collision Severity				Vulnerable Road User		
	Slight	Serious	Fatal	Total	Pedestrian	Cyclist	M-cycle
2015	14	4	0	18	0	4	3
2016	13	1	1	15	0	7	1
2017	14	2	0	16	2	3	3
2018	10	2	0	12	0	4	3
2019	9	4	0	13	0	3	3
Total	60	13	1	74	2	22	13

Table 3-4: Collisions Within Study Area

- 3.31** Table 3-4 shows that of the total collisions, 62 were of a slight severity, 13 classified as serious and one resulted in a fatality.
- 3.32** Along Bicester Road, where the site accesses will be formed, No PIC's were recorded over the assessment period.
- 3.33** Below is a summary of the recorded collisions recorded at each individual junction.

Bicester Road / Oxford Road roundabout

- 3.34** A summary of the collision data within this study area is shown below in Table 3-4.

Collision Year	Collision Severity				Vulnerable Road User		
	Slight	Serious	Fatal	Total	Pedestrian	Cyclist	M-cycle
2015	1	2	0	3	0	2	1
2016	6	0	0	6	0	3	1
2017	6	1	0	7	0	2	2
2018	2	1	0	3	0	3	0
2019	3	2	0	5	0	1	1
Total	18	6	0	24	0	12	5

Table 3-5: PIC's on Bicester Road Adjacent to Site

- 3.35** A total of 25 collisions were recorded within the vicinity of the Bicester Road A4260 Oxford Road roundabout. Most of the collisions were classified as slight (19), with the remaining six classified as serious PIC's. No fatalities were recorded. Of these collisions, 17 involved vulnerable road users.
- 3.36** The data has identified two clusters (four collisions or more) on the roundabout approach at Oxford Road and Bicester Road. Four collisions were recorded on each approach arm, with two recorded as serious. All eight collisions involved a cyclist.

- 3.37** The majority of the collisions were a result of misjudgements. Therefore, it is considered that the PIC data does not indicate that there is an obvious highway safety problem associated with the roundabout.

A44 / A43 (Pear Tree roundabout)

- 3.38** A total of seven collisions were reported to have occurred on the Pear Tree roundabout; six were recorded as slight with one involving a cyclist. The seventh was recorded as serious.
- 3.39** Due to the low number of accidents, it is considered there is no safety problem at this junction and therefore no further investigation has been undertaken.

A44 / A40 / A4114 (Wolvercote roundabout)

- 3.40** At the Wolvercote roundabout, a total of 11 PIC's were recorded, with eight light collisions, two serious and one fatal collision. The fatal collision, which occurred during darkness in 2016 involved a cyclist collision.
- 3.41** All the collisions were the result of misjudgements such as failing to look properly. Given the number of collisions recorded at this junction, there is not considered to be any highway safety issues that will need to be addressed as part of the proposed development.

Updated Collision Data

- 3.42** A review of collision data available on Crashmap has been undertaken to cover the period between the accident data provided by OCC and the period up to the submission of the outline planning application. This indicates collisions occurred in 2020 at the following locations:
- Bicester Road / Oxford Road roundabout – two slight
 - A44 / A43 (Pear Tree roundabout) – two slight
 - A44 / A40 / A4114 (Wolvercote roundabout) – three slight & one serious

4 Movement Strategy

Transport Strategy

- 4.1** To create a sustainable development, it is fundamental that the TA considers how the future residents will access the development through all modes of transport. A sequential approach is to be followed, as detailed below:
- Encouraging environmental sustainability: Reducing the need to travel, especially by car
 - Managing the existing network: Making best possible use of existing transport infrastructure
 - Mitigating residual impacts: Initially through improvements to the local public transport network, and walking and cycling facilities, and then through provision of new or expanded roads

Development Phasing and Access Strategy

- 4.2** The Application Site is part of the wider Site Allocation, which will be delivered via two planning applications. Vehicular access to the development will be taken from two points along Bicester Road. The first point of access will be taken via a new T junction ghost right turn that will access the development directly and will be the main access point. The second point of access is to be taken from a T junction that will be delivered via the second planning application.
- 4.3** The site access roads will be a minimum of 5.5m wide and incorporate a shared footway / cycleway on either side of the carriageway. The junctions will incorporate 10m corner kerb radii which allow suitable access for larger refuse vehicles.
- 4.4** A swept path analysis exercise of the access points has been undertaken to ensure that the development site can be served by large refuse vehicles. These details are provided in **Appendix D**.
- 4.5** The analysis demonstrates that both access arrangements operate well for the largest vehicles expected to enter the site and may therefore accommodate all general traffic.

Management and Adoption

- 4.6** Whilst the layout is a reserved matter, it is proposed that the majority of the roads within the site will be offered for adoption.

Internal Highway Network

- 4.7** The internal roads within the site will be designed in accordance with the principles identified Manual for Streets. The design will comply with the design criteria of MfS including geometry, visibility and the provision of emergency vehicles and refuse collection arrangements.
- 4.8** Within the site, the masterplan proposes a street network having a clear hierarchy. The masterplan is indicative and will be confirmed through Reserved Matters. The street hierarchy is described below:

Primary Route

- 4.9** The main street through the development will connect to the external access points on Bicester Road. The design speed for the internal street is based on a speed limit of 30mph, although the aspiration of the development is to achieve lower speeds through careful design of the streetscape and public realm.

- 4.10** The purpose of the main link is to distribute the traffic on to the secondary routes within the development, keeping the main link free flowing. However, at the appropriate time, ahead of implementation, the design of the main link will be reviewed
- 4.11** It is envisaged that pedestrian and cycle movements will be catered for through on and off carriageway provision.
- 4.12** The design of the main link through the site will be based on MfS, with the width of the road likely to be 5.5m, which will be confirmed through the subsequent reserved matters application.

Secondary Routes

- 4.13** Secondary routes are designed to penetrate the individual development blocks and cater for vehicles at the reduced speeds, which will be reflected in the design and appearance of these roads. The design of the secondary links will continue to be based on MfS, with the width of the road likely to be reduced to 4.8m, which again will be confirmed through the subsequent reserved matters application.

Tertiary Routes

- 4.14** These will be designed to penetrate individual housing clusters and will be designed to encourage lower vehicle speeds and could incorporate shared spaces between motor vehicles, pedestrians and cyclists. The aspiration is for design speeds of 20 MPH on tertiary and secondary routes, thereby affording priority to walking and on street cycle movements as well as enhancing the public realm.

Walking and Cycling Provision

- 4.15** Wherever possible pedestrian routes should consider the following:
- Convenience – follow desire lines without any undue deviation from route
 - Connectivity – link multiple origin and destinations
 - Conviviality – be pleasant to use
 - Coherence – be made legible through paving and/or signage
 - Conspicuousness – promote security and safety allowing pedestrians to see and be seen by others
- 4.16** The ‘Guidance for Cycle Audit and Cycle Review’ (The Institution of Highways and Transportation, 1998) determines five main requirements for cycle routes. It is highly crucial that these requirements are recognised if the promotion of cycling to the site as a viable and attractive alternative to car use is to be successful:
- Coherence: continuous and to a consistent standard
 - Directness: closely follow desire lines as much as possible
 - Attractiveness: in aesthetic as well as objective terms
 - Safety: designed to minimise risks for cyclists and others
 - Comfort: well-maintained smooth dry surfaces, flush kerbs and gentle gradients
- 4.17** Overall consideration should be given towards the former Commission for Architecture and the Built Environment (CABE) principles of inclusive design, as highlighted below:
- Inclusive: so everyone can use it safely, easily and with dignity
 - Responsive: taking account of what people say they need and want
 - Flexible: so different people can use them in different ways
 - Convenient: so everyone can use them without too much effort or separation
 - Accommodating: for all people, regardless of their age, gender, mobility, ethnicity or circumstances

- Welcoming: with no disabling barriers that might exclude some people
 - Realistic: offering more than one solution to help balance everyone's needs and recognising that one solution may not work for all
- 4.18** The Masterplan / Parameter Plan for the site will include numerous walking and cycling routes within the development to provide a comprehensive route network that will comprise both on and off-road paths. This would include a segregated walking / cycling route adjacent to the main link road through the development. This would deliver the main spine through the development, from which spurs would then access the wider development. Highway crossing points will be designed to cater for all types of pedestrian users with the routes lit where appropriate.
- 4.19** The walking and cycling paths will connect the individual housing blocks into the main route through the site that will ensure full connectivity and route choice throughout the development. A walking and cycling route will be provided to link in with Bicester Road to the south of the site entrance, this could be used as a secondary emergency access until the 2nd vehicle access is delivered via the secondary planning application.
- 4.20** To facilitate connections into Kidlington and the Park and Ride, crossing points are to be provided on Bicester Road to facilitate access towards the existing facility on the western side of Bicester Road. This would improve pedestrian links between the site and Kidlington and provide safer pedestrian crossing opportunities along Bicester Road which bounds the entire western boundary of the site. This will provide a connection to the existing signalised pedestrian crossing that will provide a connection to the Park and Ride and form part of the Parish Council "green ring" aspiration for this area of Kidlington for non motorised users.

Public Transport Provision

- 4.21** As indicated, the site is in close proximity to the park and ride which provides excellent onward connections into Oxford, with Banbury Road served by a limited service.
- 4.22** A review of travel to work statistics confirms that 78.4% of public transport commuter trips generated adjacent to the site travel into Oxford. On that basis, it is reasonable to support public transport initiatives that respond to the likely travel patterns of the future residents. Therefore, subject to discussions with the relevant stakeholders, it is recommended to increase the S5 frequency during peak periods.
- 4.23** The pair of existing bus stops nearest to the site on Bicester Road are recommended for improvement to new high quality bus stops with shelters, real time information and raised Kassel kerbs to facilitate passenger boarding / alighting.

Travel Plan

- 4.24** In addition to the measures already outlined above, a Residential Travel Plan for the site has been developed in accordance with national and HCC guidelines.
- 4.25** The main objective of the Travel Plan will be to reduce the number of vehicle trips to and from the site by promoting realistic and sustainable alternatives to the car and reducing the need to travel. Home working will also be heavily promoted, through the provision of infrastructure for internet and broadband access, and the implementation of a marketing regime.

Car Parking Policy

- 4.26** Car parking standards are contained within OCC's 'Transport for new developments, parking standards for new residential developments' (December 2011) document. The current standards for residential dwellings for 'Cherwell urban areas', in which the site falls are summarised in Table 4-1

Dwelling	Maximum Allocated	Maximum Unallocated
1 bed	1	0.4
2 bed	2	0.3
3 bed	2	0.3
4+ bed	2	0.5

Table 4-1: Parking Provision per Dwelling

Car Parking requirements

- 4.27** As the application is in outline, the exact parking provision will be determined at the reserved matters stage, when the precise development and housing mix is known. It is anticipated that parking provision will be compliant with the relevant standards outlined above.

Electrical Vehicle Charging

- 4.28** In order to ensure that all new developments are equipped with the necessary infrastructure, the application site will include, where practical, appropriate provision for electric car charging points. Electric vehicle parking should be counted as part of the total parking provision, with bays clearly marked.

Cycle Parking

- 4.29** As the development comprises wholly of houses and each dwelling will be provided with secure areas within curtilage of individual plots, it is considered that no communal/dedicated cycle parking provision will need to be required; residents will be able to park their bicycles within the confines of their own property (i.e., within garages). However, if the proposed development mix schedule changes to include apartment/flatted properties, then specific dedicated cycle storage areas (in accordance with Table 5.1 above) for these developments can be implemented.

Summary

- 4.30** The development will be designed in accordance with design standards and to reflect the sustainable travel objectives of national, regional and local planning policy. In particular, the proposed site access roads and pedestrian/cycle routes will establish sustainable connectivity between the application site and the surrounding area.

5 Development Impact Appraisal

Impact Appraisal

5.1 The TA has considered the impact of new development using the principles set out in the New Approach to Appraisal (NATA). The impact of proposals is assessed in terms of the five NATA objectives for transport:

- Accessibility
- Safety
- Economy
- Environment
- Integration

Accessibility

5.2 The proximity of local amenities to a site and the ability to reach such facilities by foot and cycle are a key consideration when determining the sustainability of a development. Guidance provided by the Institution of Highways and Transportation (IHT) in their publication 'Guidelines for Providing for Journeys on Foot' (2000) suggests that in terms of commuting, walking to school and recreational journeys; walk distances of up to 2km can be considered as a preferred maximum with 'desirable' and 'acceptable' distances being 500m and 1,000m respectively. It should however be noted that journeys of a longer length are often undertaken.

5.3 A qualitative review of the accessibility implications of the proposed development has been conducted. The existing level of access for cyclists and pedestrians between the proposed development and the surrounding transport system is described in Chapter 4.

5.4 A qualitative review of the accessibility implications of the proposed development has been conducted. In terms of local amenities, **Table 5-1** below, indicates the distances to local amenities from the development site with the distances recorded from the site's access point.

Local Amenity	Distance	Walking Journey Time	Cycling Journey Time
Edward Field Primary School	1 km	10 minutes	4 minutes
Gosford Hill Secondary School	1.7km	17 minutes	7 minutes
Gosford Hill Medical Centre	1.6km	16 minutes	6 minutes
Lloyds Pharmacy	0.7km	7 minutes	3 minutes
White Bridge Dental Clinic	1.7km	17 minutes	7 minutes
Morgan Optometry	1.9km	19 minutes	8 minutes
Sainsbury's Supermarket	0.7km	7 minutes	3 minutes
Post office	2.6km	26 minutes	10 minutes
Library	2.4km	24 minutes	10 minutes

Table 5-1: Distance to Employment, Healthcare and Educational Destinations

Walking and Cycling Isochrones

Walking

- 5.5** Short car journeys of up to 2km are considered replaceable by walking, and are considered appropriate for residents accessing education, training or employment. Figure 5-1 indicate the walking isochronal map, which has been prepared using online tool Open Route Services and is based on walking distances from the proposed site access point.
- 5.6** The isochrones are based on the CIHT walking distances and extend to 2km (approximately 20 minute walk) to illustrate the extent of the approximate extent of the existing walking catchment area.

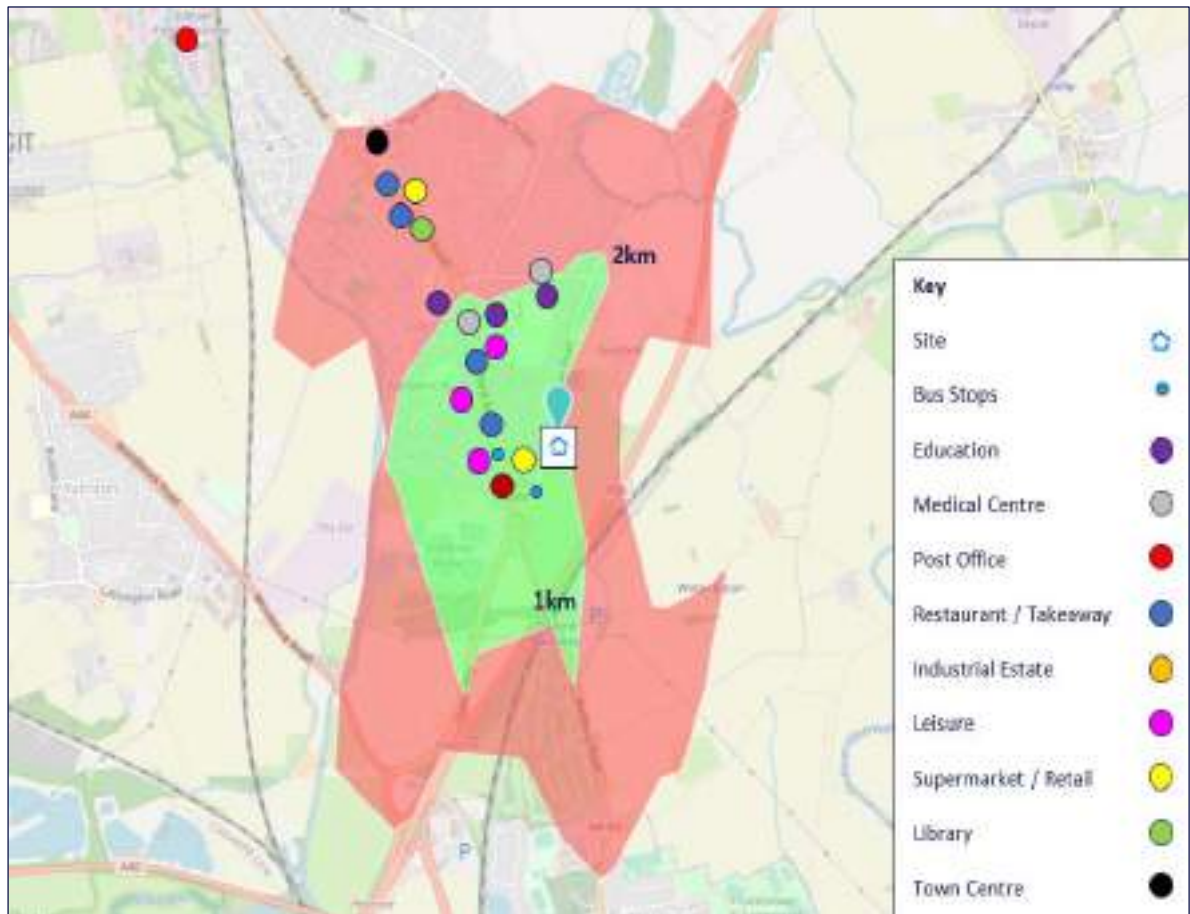


Figure 5-1: Walking Accessibility Isochronal and Amenities Plan

- 5.7** **Table 5-1** and **Figure 5-1** indicate that most of the core facilities and amenities are located within a 20 minute walk, with several of the facilities within the 2km distance.

Cycling

- 5.8** Cycling is a cheap, efficient and healthy way to travel. Cycling also provides a predictable arrival time which is often quicker than driving or using public transport.

- 5.9** Car journeys of up to 5km are considered to be replaceable by cycle journeys. The cycle catchment is shown below, which shows accessible locations within a 5km distance of the site at 1km intervals.

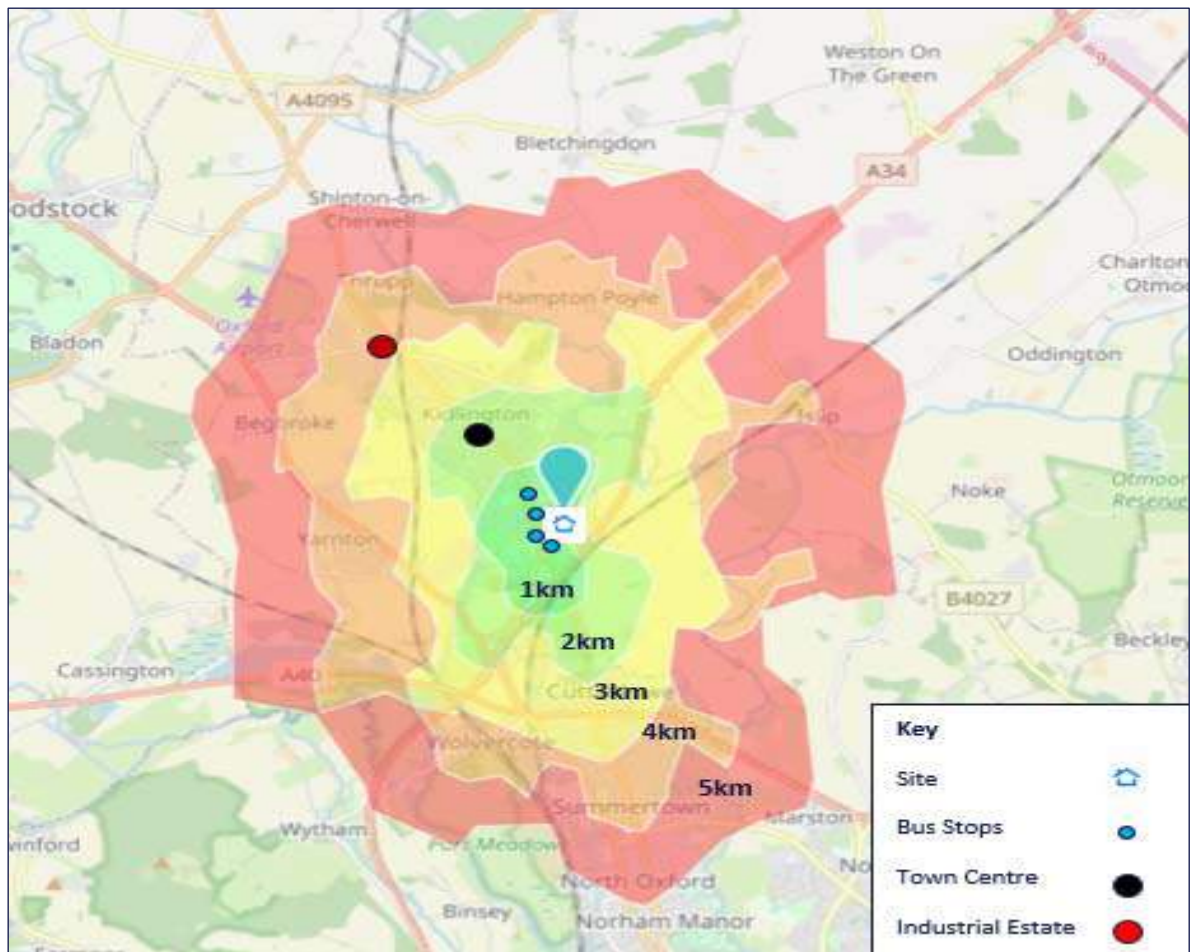


Figure 5-2: Cycling Accessibility Isochronal Plan

- 5.10** Assuming a typical cycling coverage of 1,200 metres every five minutes, the plan clearly indicates that the whole of Kidlington and the north part of Oxford can be accessed within a 25-minute cycle.
- 5.11** In addition to the accessibility assessment presented above, public transport is also a vital element in delivering a sustainable development. As indicated, public transport routes will be improved to ensure the site is served by a regular bus service. The site is readily accessible to the park a ride system. This provides a clear opportunity the future residents to access the local facilities and amenities and increases the opportunities to travel in a sustainable way.
- 5.12** It may be concluded that the development will have very good accessibility to a wide range of local amenities that will support the new and existing community. The proposed development will not create any new accessibility barriers within the surrounding area. The range of facilities and services, including the provision made for education will also significantly improve as a result of the application proposals.

Safety

- 5.13** With new developments comes the potential for increased risk of accidents in the immediate area, due to increased multi-modal traffic. The safety of the development is therefore achieved firstly by identifying the existing accident records and making changes as necessary to the highway network to mitigate any problems. Thereafter, the proposals must be designed to appropriate standards with safety reviews being conducted as necessary during the process. In respect of these requirements:

- 5.14** A review of the historical accidents has been completed that confirms there is no accident trend or risk that might materially be increased through the delivery of the development.
- 5.15** The proposals have been developed in line with recognised standards in the form of the Design Manual for Roads and Bridges and Manual for Streets. A Stage One Road Safety Audit can be completed with regards to the site access to ensure compliance with the relevant applied design standards.

Economy

- 5.16** The transport economic efficiency of the development is achieved in part through the successful delivery of a comprehensive transport access strategy that considers all modes of transport, to ensure journey reliability.
- 5.17** A key transport objective is to minimise any significant adverse impact on journey times, reliability and travel costs, and to maintain or reduce public transport and non-motorised journey times.
- 5.18** This has been achieved through modelling the highway network and ensuring appropriate improvements can be made to ensure that significant additional congestion as a result of the proposed development is unlikely to occur.
- 5.19** It should be noted that the proposed development will deliver high quality housing in an area that will increase the work force to maximise employment opportunities.

Environment

- 5.20** The transport environmental benefits of the development are achieved in part through the delivery of a sustainable transport strategy that encourages travel by walking, cycling and public transport and reduces the reliance of the single occupancy vehicle trip.
- 5.21** As a result of development proposals, local traffic generally increase, and appropriate mitigation may be implemented to accommodate this effect. Later Chapters in this report highlight that in this case no such mitigation is required. No significant issues are apparent in relation to the environmental issues.

Integration

- 5.22** Integration of the development into the community is achieved in part through the successful forming of travel links and through the availability of services and the like. It is important that integration is achieved to deliver a 'healthy new community'.
- 5.23** A sustainable Residential Travel Plan will contribute towards the ease of interaction between different modes of transport for residents within the development.
- 5.24** The development proposal is in line with transport planning policy. The Transport Assessment underlines areas in which the proposal supports local, regional and national planning transport policies as detailed in Chapter 2.
- 5.25** There will be no exacerbation of social exclusion resulting from the residential development since no existing travel movements will be cut off or hampered.

Summary of Site Accessibility

- 5.26** This section of the TA demonstrates that the proposed development site has a wide range of locational advantages in terms of site accessibility.
- 5.27** The site is close to Kidlington which provides a range of amenities to serve daily needs both in relation to food retail, education, healthcare, and employment. The development site will have excellent walking and cycling links into Kidlington. Future residents will easily be able to access both road and bus networks.

6 Development Traffic Generation

Introduction

- 6.1** In the context of the proposed development, the primary objective of transport network modelling is to provide the tool to assess the effects of traffic growth on the transport network and help inform the need for interventions to ensure the network operates satisfactorily into the future. The following chapters highlight the approach adopted.
- 6.2** Scoping discussions were held with representatives of OCC to ensure that the methodology used in the assessment was acceptable. These discussions concluded that the impact of the development should be considered based on traffic flows extracted from the OCC VISSIM traffic network model for the area.

Base Year Scenario

- 6.3** The traffic model is calibrated and validated to a base year of 2018.
- 6.4** As indicated, the traffic model has been used to assess the potential impact of the development on the local road network. Through discussions with OCC, it has been agreed that any detailed junction assessments should be carried out based on the traffic flows extracted from the VISSIM model.

Future Year Scenario

- 6.5** For the purposes of this assessment, it has been assumed that the traffic model will contain the growth trajectory necessary to confirm that the development is deliverable. This should include the necessary assumptions regarding background growth together with third party committed developments.
- 6.6** The traffic model will be used to assess the impacts of development. The model runs that have been considered are identified below.
- 2031 future year plus all committed developments
 - 2031 future year plus all committed development and the Application site

Committed Developments

- 6.7** Through discussions with OCC, in addition to the committed sites included with the traffic flows provided by OCC, it was agreed to include the allocated site identified as PR7b, Land at Stratfield Farm. The site has been identified to deliver 120 units.

Traffic Growth

- 6.8** In order to generate the 2031 forecast base traffic flows, growth factors have been calculated and applied to the 2023 VISSIM traffic flows using TEMPro and NTM datasets. Growth factors have been calculated based on data for the middle super output area (MSOA) Cherwell 18, which the proposed development site is located within.

Trip Distribution

- 6.9** The development trips are assigned to the work network in compliance with Census travel to work statistics.

Development Trip Generation

- 6.10** The trip base trip rates have been extracted from TRICS. The development will deliver 50% affordable housing. The external trips are shown in **Table 6-1**. For the purposes of this assessment, the trip generation has been based on 400 units. This is to present a robust assessment and to respond to any deviations in trip rates.

	Morning Peak		Evening Peak	
	Arrival	Departure	Arrival	Departure
Open market houses	0.126	0.358	0.332	0.149
Affordable houses	0.122	0.248	0.229	0.157
Resultant trips	50	121	112	61

Table 6-1: Development trip generation

- 6.11** The resultant traffic flow diagrams are provided in Appendix E.

7 Road Network Review / Highway Impact

Highway Impact

- 7.1** On the basis of the trip generation and distribution assumptions set out above, the proposed development is expected to increase traffic levels within the local road network, as shown below.

Link	Morning Peak			Evening Peak		
	2031 Base flows	Development Flows	Percentage	2031 Base flows	Development Flows	Percentage
Bicester Road (SB)	729	131	18.0%	1,066	133	12.5%
Oxford Road north of Bicester Road	1,504	11	0.7%	1,728	11	0.6%
Oxford Road south of Bicester Road	1,377	43	3.1%	1,887	43	2.3%
Frieze Way	1,240	78	6.3%	1,258	79	6.3%

Table 7-1: Development Impact

- 7.2** Table 7-1 demonstrates that based on the percentage increases due to the development, the site entrance and the Kidlington roundabout will be assessed in detail. The increase in traffic at adjacent junctions is not significant and is within daily variation of flow and on that basis do not need assessing in detail.

Junction Capacity Analysis

- 7.3** In order to understand the resultant effect from the change in traffic flows, capacity analysis has been carried out at the identified junctions using industry accepted computer modelling software.
- 7.4** Priority controlled T-junctions and roundabouts are assessed using JUNCTIONS9, with signal-controlled junctions assessed by the LINSIG.
- 7.5** The junction capacity output of JUNCTIONS9 refers to the maximum ratio of flow to capacity (RFC), which measures the predicted flow of vehicles against the junction capacity based on the junction geometry. Generally, a Ratio of Flow to Capacity (RFC) of below 0.85 indicates that a junction operates within capacity for the assessed flows. An RFC between 0.85 and 0.99 indicates that a junction is approaching theoretical capacity and queues and delay may start to occur. An RFC above 1.00 indicates that a junction has exceeded theoretical capacity. Above an RFC of 1.00 the model will show that queues and delay will increase exponentially and may not be representative of on-street performance.

- 7.6** The junction capacity output within Linsig relates to the Degree of Saturation. A degree of saturation of below 90% on any given arm indicates that a signal-controlled junction operates within theoretical capacity for the assessed flows.
- 7.7** A degree of saturation between 90% and 100% is considered to be operating at capacity, and above 100% the junction will be over saturated. The Practical Reserve Capacity (PRC) is related to the degree of saturation of a traffic signal junction. A positive PRC indicates that a junction as a whole has spare capacity (less than 90%). A negative PRC (greater than 90%) indicates that the junction is operating at capacity and may suffer congestion.

Junction 1: Site Access (T-junction)

- 7.8** To allow for access to the proposed development from Bicester Road, it is proposed to develop a priority junction with minor widening on Bicester Road to provide a right turn lane. The layout of the junction is contained in Appendix D.
- 7.9** This junction was assessed in Junctions9, with the results summarised below. The full outputs are provided in Appendix F.

Link	Morning Peak		Evening Peak	
	RFC	Queue	RFC	Queue
Site Access	0.26	0	0.13	0
Bicester Road South	0.06	0	0.13	0

Table 7-2: Site Access Results- 2031 + Development

- 7.10** The analysis shows that the junction will operate well within capacity thresholds, with no queuing expected on all arms.

Junction 2: Bicester Road / Oxford Road (Roundabout)

- 7.11** This junction is a five arm roundabout with the layout presented below.



Figure 7-1: Bicester Road / Oxford Road / A4260 Layout

- 7.12** Following discussions with OCC, an improvement scheme for this junction is being promoted by OCC. At the time of writing, the scheme feasibility had been completed and discussions between OCC and members of the Parish council took place in early 2021. Details of the scheme had been requested however were not made available. Given this, the development impact has been undertaken upon the existing layout.
- 7.13** This junction was assessed in Junctions9, with the results summarised below. The full outputs are provided in Appendix F.

Link	Morning Peak		Evening Peak	
	RFC	Queue	RFC	Queue
Oxford Road (N)	0.46	1	0.55	1
Bicester Road	0.27	0	0.18	0
Oxford Road (S)	0.32	1	0.57	1
Frieze Way	0.21	0	0.37	1
Oxford Road (NW)	0.31	0	0.29	0

Table 7-3: Bicester Road / Oxford Road / A4260 Assessment Results- 2031 + Development

- 7.14** The assessment demonstrates that the junction will operate within capacity following the inclusion of the development traffic. Furthermore, the level of queuing vehicles at the priority arms are predicted to be negligible.

- 7.15** As indicated, the traffic flows have been extracted from the OCC Traffic model. Together with traffic volumes the traffic model also predicted average queue lengths, which have been compared to the junction assessment presented in Table 7-3. The traffic model predicted average queues of circa 1-2m, which corresponds to the predicted junction assessments results.
- 7.16** As highlighted above, this junction will operate within accessible limits when assessed in 2031. Therefore, it is assumed this junction will operate throughout the trajectory of the buildout of the development.
- 7.17** It is considered that should the promoted scheme come forward, the assumed increased capacity will further mitigate the impact of the development.

8 Summary and Recommendations

- 8.1** Brookbanks Consulting has been appointed by Barwood Development Securities Ltd to prepare this Transport Assessment (TA) in support of planning permission sought for 370 dwellings on Land at Gosford, Oxfordshire.
- 8.2** The site is considered to be ideally located for residential development, and sustainable, for the following reasons:
- The surrounding area exhibits good levels of pedestrian and cycling infrastructure, with public transport opportunities within acceptable walking distance of the site.
 - Key local amenities within Kidlington, including primary schools and shops are accessible within the recommended maximum walking distances;
 - A review of Personal Injury Collision data indicates that there are no highway safety concerns that require further assessment.
- 8.3** The Application Site is identified within the Local Plan and has been assessed against the policy requirements. A Development Brief has been produced to support the delivery of the Application Site. The development proposals are compliant to the relevant policy statements.
- 8.4** Junction capacity modelling has been undertaken at the Kidlington roundabout, as agreed with OCC. The results indicate that the junction operates with reserve capacity and the proposed development has a negligible impact on the performance of the junction.
- 8.5** In conclusion, it is considered that the site is a sustainable location for development and that the local highway network can accommodate the proposals.
- 8.6** NPPF states that: ‘...Development should only be prevented or refused on transport grounds where the residual cumulative impacts of the development are severe.’
- 8.7** This report has demonstrated that the impacts of the proposed development are not deemed severe.

Appendix A – Masterplan

Appendix B – Scoping Note

**Land south of Kidlington
Oxfordshire**

Transport Assessment Scoping Note



Document Control Sheet

Document Title: Transport Statement Scoping Note

Document Ref: 10669/SR/01

Project Name: Land south of Kidlington

Project Number: 10669

Client: Barwood Land

Document Status

Rev	Issue Status	Prepared / Date	Checked / Date	Approved / Date
0	Draft	A Eggleston 27/07/20	D Swann 27/07/20	P Boileau 27/07/20

Issue Record

Name / Date & Revision	27/07/20					
S Dorrian – Barwood Land	-					
B Entwistle – Barwood Land						

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Appendix

Appendix A – Trip Rates

1 Introduction

- 1.1 This Transportation Scoping Note has been prepared by Brookbanks Consultants Ltd on behalf of Barwood Homes for a proposed residential development, delivering 400 units on land at south of Kidlington, Oxfordshire.
- 1.2 The proposed development is located to the south of Bicester Road, to the south of Kidlington, as indicated below. Kidlington is located in Oxfordshire, 8km north of Oxford.



Figure 1a: Site location

- 1.3 Following initial discussions with Oxfordshire County Council, (OCC) this note sets out the scope for a Transport Assessment which is to be undertaken in due course to demonstrate the viability of the site in transport terms to support a residential development.
- 1.4 This document aims to scope the proposed approach that will be utilised for the TA. It provides, where appropriate, the extent of the proposed study area for the analysis of the impacts arising from the scheme proposals. It is important to note that the options for the scheme are still being refined. Therefore, some of the detail for the final proposed scheme are unknown at present and as a result, the final document may vary slightly from that indicated within this document.
- 1.5 In October 2014, the Guidance for Transport Assessment (GTA) was archived. This document has been replaced by the National Planning Policy Framework (NPPF). NPPF indicates that developments that generate significant amounts of transport movement should be supported by a TA or a Transport Statement (TS).
- 1.6 The Transport Assessment (TA) will follow the broad structure as detailed below, reflecting the key areas identified within NPPF.

Chapter 1: Introduction

Chapter 2: National and Local Policy Review

Chapter 3: Site Context

Chapter 4: Existing Transport Conditions

Chapter 5: Movement Strategy

Chapter 6: Development Impact Appraisal

Chapter 7: Development Traffic Generation

Chapter 8: Highway Network Review

Chapter 9: Summary and Conclusions

- 1.7 The following chapters in this note provide a framework for the information to be included within the chapters to be included within the TA.

2 Policy and Design Guidance Review

- 2.1 Local and regional policies regarding the development of new sites within Oxfordshire will be presented and interpreted in respect of the proposed site. The suitability of the site in the context of these policies will be assessed.
- 2.2 This will include a review of the following documents:
- National Planning Policy Framework
 - Design Manual for Road and Bridges
 - Manual for Streets
 - Local Plan
 - Relevant Local Plan saved policies
 - Local Transport Plan
- 2.3 The policies identified above will inform the key policy framework that this proposal sits within. The section will demonstrate the compliance extent to which the scheme is aligned with national and local policy.

3 Site Context

- 3.1 A detailed review of the site location will be provided. In order to understand the base line conditions, a short review of existing land uses will be undertaken
- 3.2 Existing conditions in the vicinity of the site will be described with reference to the layout, function and operation of the road network adjacent to the site. The TA will provide an overview of the highway hierarchy to understand the importance of the function of the highway characteristics.

4 Existing Transport Conditions

- 4.1 A detailed review of the site location will be provided. Existing conditions in the vicinity of the site will be described with reference to the layout, function and operation of the local transport network, for all modes of movement. Any existing barriers or constraints to sustainable movement will be identified, investigated and described. This will include a review of the networks:
- 4.2 Travel habits extracted from Census statistics will be reviewed to understand how the future residents of the scheme will travel.
- 4.3 A baseline review of public transport services will consider at both commercially operated and council funded public transport services. The review will consider frequencies throughout the week and typical journey times from the nearest bus stops to key locations.
- 4.4 Walking and cycling connections will be reviewed, including Public Rights of Way, in order to assess the extent and quality of the links to and from the site assuming 2km and 5km thresholds.

- 4.5 Historical accident data will be collated for a five year period for the highway network surrounding the site. An analysis of the data by severity and cause will be undertaken to determine whether the data shows evidence of any accident cluster. The analysis will also examine any accidents involving vulnerable users such as pedestrians and cyclists.

5 Movement Strategy

- 5.1 This chapter will describe in detail the scheme proposals, which includes the potential to deliver 400 dwellings.
- 5.2 The chapter will explain how the development will coalesce with the existing wider area and provide a draft timescale for the delivery of the development. At the time of writing it is expected that the planning application will be submitted in 2020, with the first occupation in 2023.
- 5.3 In advance the detailed modelling, it is expected that the development will be accessed from a T junction from Bicester Road with a secondary point taken through the sports field access to the south. This chapter will provide an indication of the phasing.
- 5.4 The masterplan for the development will be presented which will highlight the access strategy for walking, cycling and vehicular.
- 5.5 The design of the internal site layout will use Manual for Streets (MfS) philosophy. Parking for the site overall will be provided at an appropriate level with regard to maximum standards and consistent with local standards.
- 5.6 A description of the network of pedestrians and cycle routes will be provided.
- 5.7 The level of public transport enhancements proposed to support the development will be indicated. This will be guided by discussions with local operators.
- 5.8 This chapter will provide details on the Travel Plan that has been drafted to support this development including any measures that can be utilised to achieve the 10% modal shift in Single Occupancy Vehicles.

6 Development Impact Appraisal

- 6.1 This chapter will assess the development in relation to accessibility. The location and accessibility, by all modes, of community facilities, schools and other local trip generators will be identified and assessed in relation to the proposed site. This will identify key facilities including:
- Key employment opportunities
 - Retail destinations
 - Education
 - Health
 - Leisure
- 6.2 The accessibility of the site will be reviewed in line with 2km and 5km maximum isochrones for trips to be made by walking and cycling.

7 Development Traffic Generation

Introduction

- 7.1 In the context of development proposals, the primary objective of transport network modelling is to provide the tool to assess the effects of additional traffic and growth on the transport network and help inform the need for interventions to ensure the network operates satisfactorily into the future.
- 7.2 To assess the potential impacts of development, two methodologies are typically used. These are described below.
- 7.3 **Formal Traffic model:** A tool for analysing the performance of road networks based on a set of mathematical algorithms that evaluate the movement of vehicle over a set time period. The model is a simplified representation of real time traffic conditions. To ensure these reflect traffic conditions accurately, the output from the model are calibrated and validated based on traffic count data. Once a base model has been set up, the traffic flows are projected forward to assess how the network will operate in the future. These models are computer simulations using software like Paramics or Saturn and can be expensive to establish.
- 7.4 **Traditional Method of Traffic Generation:** In the absence of a formal traffic model, a manual method to assess development impacts can be used. This typically uses classified traffic counts at key locations as the basis for junction assessments. The observed traffic flows are then included with development traffic flows which are generated by using trip rates from Trics, distributed by Census travel statistics.
- 7.5 Through the initial discussions with OCC, it has been confirmed that the development impacts should be considered through the use of a formal traffic model held by OCC.

Assessment Years

- 7.6 The application is expected to be submitted in 2020, with consent given in 2021. However, it is expected that the Local Plan horizon year will be assessed.

Committed Developments

- 7.7 NPPF indicates an assessment of trips from all directly relevant committed development in the area (development that there is a reasonable degree of certainty will proceed) should be undertaken. For the purposes of this assessment it has been assumed that the traffic model will contain the necessary growth trajectory.

Traffic Scenarios

- 7.8 The traffic model will be used to assess the impacts of development. The model runs that are likely to be require are:
- Future year plus all committed developments and associated highway interventions - Local Plan horizon year
 - Future year plus all committed development and associated highway interventions plus development - Local Plan horizon year

Trip Rates

- 7.9 The trip base trip rates have been extracted from TRICS. The development will also deliver a local centre to support the resident population. This is likely to serve the development and as such unlikely to generate any external trips.
- 7.10 The Trics outputs are contained in Appendix A and illustrated below.

Time Periods	Private Housing		Affordable Housing	
	IN	OUT	In	Out
0800-0900	0.126	0.358	0.122	0.248
1700-1800	0.332	0.149	0.229	0.157

Figure 7a: Vehicle trip rates

- 7.11 The development will deliver a percentage of affordable housing. To ensure a robust assessment, it has been assumed that 20% of the housing stock will be affordable. The resultant trip generation is identified below.

Time Periods	Housing	
	IN	OUT
0800-0900	50	135
1700-1800	124	61

Figure 7b: Resultant vehicle trip rates

8 Highway Network Review

- 8.1 This chapter will review the output from the traffic modelling work in relation to the operation of the local road network. An assessment will be provided that considers how the junctions closest to the site will operate. Where applicable, highway mitigation will be identified.

9 Summary and Recommendations

- 9.1 This chapter will summarise the findings of assessment, identifying the mitigation strategy.

Appendix A – Trip rates

Calculation Reference: AUDIT-346901-200428-0430

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED

VEHICLESSelected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	3 days
	EX ESSEX	1 days
	HC HAMPSHIRE	3 days
	HF HERTFORDSHIRE	1 days
	IW ISLE OF WIGHT	1 days
	KC KENT	6 days
	SC SURREY	2 days
	WS WEST SUSSEX	7 days
03	SOUTH WEST	
	DC DORSET	1 days
	DV DEVON	3 days
	SM SOMERSET	3 days
	WL WILTSHIRE	1 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	2 days
	NF NORFOLK	9 days
	SF SUFFOLK	4 days
05	EAST MIDLANDS	
	DS DERBYSHIRE	1 days
	LE LEICESTERSHIRE	1 days
	LN LINCOLNSHIRE	1 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	2 days
	ST STAFFORDSHIRE	2 days
	WK WARWICKSHIRE	2 days
	WM WEST MIDLANDS	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NE NORTH EAST LINCOLNSHIRE	1 days
	NY NORTH YORKSHIRE	5 days
	SY SOUTH YORKSHIRE	1 days
	WY WEST YORKSHIRE	1 days
08	NORTH WEST	
	CH CHESHIRE	4 days
	GM GREATER MANCHESTER	1 days
	LC LANCASHIRE	1 days
09	NORTH	
	DH DURHAM	3 days
	TW TYNE & WEAR	2 days

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

Primary Filtering selection:

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

Parameter: No of Dwellings
Actual Range: 7 to 1817 (units:)
Range Selected by User: 6 to 4334 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/12 to 19/11/19

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

Selected survey days:

Monday	17 days
Tuesday	16 days
Wednesday	17 days
Thursday	16 days
Friday	10 days

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

Selected survey types:

Manual count	75 days
Directional ATC Count	1 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	23
Edge of Town	38
Neighbourhood Centre (PPS6 Local Centre)	14
Free Standing (PPS6 Out of Town)	1

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

Selected Location Sub Categories:

Residential Zone	62
Village	10
Out of Town	2
No Sub Category	2

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

Secondary Filtering selection:Use Class:

C3	76 days
----	---------

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

Secondary Filtering selection (Cont.):Population within 1 mile:

1,000 or Less	2 days
1,001 to 5,000	13 days
5,001 to 10,000	17 days
10,001 to 15,000	20 days
15,001 to 20,000	9 days
20,001 to 25,000	7 days
25,001 to 50,000	7 days
50,001 to 100,000	1 days

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

Population within 5 miles:

5,001 to 25,000	7 days
25,001 to 50,000	8 days
50,001 to 75,000	12 days
75,001 to 100,000	16 days
100,001 to 125,000	2 days
125,001 to 250,000	22 days
250,001 to 500,000	8 days
500,001 or More	1 days

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

Car ownership within 5 miles:

0.6 to 1.0	22 days
1.1 to 1.5	50 days
1.6 to 2.0	4 days

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

Travel Plan:

Yes	20 days
No	56 days

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

PTAL Rating:

No PTAL Present	75 days
2 Poor	1 days

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

LIST OF SITES relevant to selection parameters

1	CA-03-A-05	DETACHED HOUSES	CAMBRIDGESHIRE
	EASTFIELD ROAD		
	PETERBOROUGH		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	28	
	Survey date: MONDAY	17/10/16	Survey Type: MANUAL
2	CA-03-A-06	MIXED HOUSES	CAMBRIDGESHIRE
	CRAFT'S WAY		
	NEAR CAMBRIDGE		
	BAR HILL		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	207	
	Survey date: FRIDAY	22/06/18	Survey Type: MANUAL
3	CH-03-A-08	DETACHED	CHESHIRE
	WHITCHURCH ROAD		
	CHESTER		
	BOUGHTON HEATH		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	11	
	Survey date: TUESDAY	22/05/12	Survey Type: MANUAL
4	CH-03-A-09	TERRACED HOUSES	CHESHIRE
	GREYSTOKE ROAD		
	MACCLESFIELD		
	HURDSFIELD		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	24	
	Survey date: MONDAY	24/11/14	Survey Type: MANUAL
5	CH-03-A-10	SEMI-DETACHED & TERRACED	CHESHIRE
	MEADOW DRIVE		
	NORTHWICH		
	BARNTON		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	40	
	Survey date: TUESDAY	04/06/19	Survey Type: MANUAL
6	CH-03-A-11	TOWN HOUSES	CHESHIRE
	LONDON ROAD		
	NORTHWICH		
	LEFTWICH		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	24	
	Survey date: THURSDAY	06/06/19	Survey Type: MANUAL
7	DC-03-A-08	BUNGALOWS	DORSET
	HURSTDENE ROAD		
	BOURNEMOUTH		
	CASTLE LANE WEST		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	28	
	Survey date: MONDAY	24/03/14	Survey Type: MANUAL
8	DH-03-A-01	SEMI DETACHED	DURHAM
	GREENFIELDS ROAD		
	BISHOP AUCKLAND		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	50	
	Survey date: TUESDAY	28/03/17	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

9	DH-03-A-02	MIXED HOUSES	DURHAM
	LEAZES LANE		
	BISHOP AUCKLAND		
	ST HELEN AUCKLAND		
	Neighbourhood Centre (PPS6 Local Centre)		
	Residential Zone		
	Total No of Dwellings:	125	
	Survey date: MONDAY	27/03/17	Survey Type: MANUAL
10	DH-03-A-03	SEMI-DETACHED & TERRACED	DURHAM
	PILGRIMS WAY		
	DURHAM		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	57	
	Survey date: FRIDAY	19/10/18	Survey Type: MANUAL
11	DS-03-A-02	MIXED HOUSES	DERBYSHIRE
	RADBOURNE LANE		
	DERBY		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	371	
	Survey date: TUESDAY	10/07/18	Survey Type: MANUAL
12	DV-03-A-01	TERRACED HOUSES	DEVON
	BRONSHILL ROAD		
	TORQUAY		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	37	
	Survey date: WEDNESDAY	30/09/15	Survey Type: MANUAL
13	DV-03-A-02	HOUSES & BUNGALOWS	DEVON
	MILLHEAD ROAD		
	HONITON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	116	
	Survey date: FRIDAY	25/09/15	Survey Type: MANUAL
14	DV-03-A-03	TERRACED & SEMI DETACHED	DEVON
	LOWER BRAND LANE		
	HONITON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	70	
	Survey date: MONDAY	28/09/15	Survey Type: MANUAL
15	ES-03-A-03	MIXED HOUSES & FLATS	EAST SUSSEX
	SHEPHAM LANE		
	POLEGATE		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	212	
	Survey date: MONDAY	11/07/16	Survey Type: MANUAL
16	ES-03-A-04	MIXED HOUSES & FLATS	EAST SUSSEX
	NEW LYDD ROAD		
	CAMBER		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	134	
	Survey date: FRIDAY	15/07/16	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

17	ES-03-A-05	MIXED HOUSES & FLATS	EAST SUSSEX
	RATTLE ROAD		
	NEAR EASTBOURNE		
	STONE CROSS		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	99	
	Survey date: WEDNESDAY	05/06/19	Survey Type: MANUAL
18	EX-03-A-02	DETACHED & SEMI-DETACHED	ESSEX
	MANOR ROAD		
	CHIGWELL		
	GRANGE HILL		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	97	
	Survey date: MONDAY	27/11/17	Survey Type: MANUAL
19	GM-03-A-11	TERRACED & SEMI-DETACHED	GREATER MANCHESTER
	RUSHFORD STREET		
	MANCHESTER		
	LEVENSHULME		
	Neighbourhood Centre (PPS6 Local Centre)		
	Residential Zone		
	Total No of Dwellings:	37	
	Survey date: MONDAY	26/09/16	Survey Type: MANUAL
20	HC-03-A-21	TERRACED & SEMI-DETACHED	HAMPSHIRE
	PRIESTLEY ROAD		
	BASINGSTOKE		
	HOUNDMILLS		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	39	
	Survey date: TUESDAY	13/11/18	Survey Type: MANUAL
21	HC-03-A-22	MIXED HOUSES	HAMPSHIRE
	BOW LAKE GARDENS		
	NEAR EASTLEIGH		
	BISHOPSTOKE		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	40	
	Survey date: WEDNESDAY	31/10/18	Survey Type: MANUAL
22	HC-03-A-23	HOUSES & FLATS	HAMPSHIRE
	CANADA WAY		
	LIPHOOK		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	62	
	Survey date: TUESDAY	19/11/19	Survey Type: MANUAL
23	HF-03-A-03	MIXED HOUSES	HERTFORDSHIRE
	HARE STREET ROAD		
	BUNTINGFORD		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	160	
	Survey date: MONDAY	08/07/19	Survey Type: MANUAL
24	IW-03-A-01	DETACHED HOUSES	ISLE OF WIGHT
	MEDHAM FARM LANE		
	NEAR COWES		
	MEDHAM		
	Free Standing (PPS6 Out of Town)		
	Out of Town		
	Total No of Dwellings:	72	
	Survey date: TUESDAY	25/06/19	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

25	KC-03-A-03	MIXED HOUSES & FLATS	KENT
	HYTHE ROAD ASHFORD WILLESBOROUGH Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 51 Survey date: THURSDAY 14/07/16 Survey Type: MANUAL		
26	KC-03-A-04	SEMI-DETACHED & TERRACED	KENT
	KILN BARN ROAD AYLESFORD DITTON Edge of Town Residential Zone Total No of Dwellings: 110 Survey date: FRIDAY 22/09/17 Survey Type: MANUAL		
27	KC-03-A-05	DETACHED & SEMI-DETACHED	KENT
	ROCHESTER ROAD NEAR CHATHAM BURHAM Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 8 Survey date: FRIDAY 22/09/17 Survey Type: MANUAL		
28	KC-03-A-06	MIXED HOUSES & FLATS	KENT
	MARGATE ROAD HERNE BAY Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 363 Survey date: WEDNESDAY 27/09/17 Survey Type: MANUAL		
29	KC-03-A-07	MIXED HOUSES	KENT
	RECVLVER ROAD HERNE BAY Edge of Town Residential Zone Total No of Dwellings: 288 Survey date: WEDNESDAY 27/09/17 Survey Type: MANUAL		
30	KC-03-A-08	MIXED HOUSES	KENT
	MAIDSTONE ROAD CHARING Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 159 Survey date: TUESDAY 22/05/18 Survey Type: MANUAL		
31	LC-03-A-31	DETACHED HOUSES	LANCASHIRE
	GREENSIDE PRESTON COTTAM Edge of Town Residential Zone Total No of Dwellings: 32 Survey date: FRIDAY 17/11/17 Survey Type: MANUAL		
32	LE-03-A-02	DETACHED & OTHERS	LEICESTERSHIRE
	MELBOURNE ROAD IBSTOCK Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 85 Survey date: THURSDAY 28/06/18 Survey Type: MANUAL		
33	LN-03-A-03	SEMI DETACHED	LINCOLNSHIRE
	ROOKERY LANE LINCOLN BOULTHAM Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 22 Survey date: TUESDAY 18/09/12 Survey Type: MANUAL		

LIST OF SITES relevant to selection parameters (Cont.)

34	NE-03-A-02	SEMI DETACHED & DETACHED	NORTH EAST LINCOLNSHIRE
	HANOVER WALK SCUNTHORPE		
	Edge of Town No Sub Category Total No of Dwellings: 432 Survey date: MONDAY 12/05/14		Survey Type: MANUAL
35	NF-03-A-01	SEMI DET. & BUNGALOWS	NORFOLK
	YARMOUTH ROAD CAISTER-ON-SEA		
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 27 Survey date: TUESDAY 16/10/12		Survey Type: MANUAL
36	NF-03-A-02	HOUSES & FLATS	NORFOLK
	DEREHAM ROAD NORWICH		
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 98 Survey date: MONDAY 22/10/12		Survey Type: MANUAL
37	NF-03-A-03	DETACHED HOUSES	NORFOLK
	HALING WAY THETFORD		
	Edge of Town Residential Zone Total No of Dwellings: 10 Survey date: WEDNESDAY 16/09/15		Survey Type: MANUAL
38	NF-03-A-04	MIXED HOUSES	NORFOLK
	NORTH WALSHAM ROAD NORTH WALSHAM		
	Edge of Town Residential Zone Total No of Dwellings: 70 Survey date: WEDNESDAY 18/09/19		Survey Type: MANUAL
39	NF-03-A-05	MIXED HOUSES	NORFOLK
	HEATH DRIVE HOLT		
	Edge of Town Residential Zone Total No of Dwellings: 40 Survey date: THURSDAY 19/09/19		Survey Type: MANUAL
40	NF-03-A-06	MIXED HOUSES	NORFOLK
	BEAUFORT WAY GREAT YARMOUTH BRADWELL		
	Edge of Town Residential Zone Total No of Dwellings: 275 Survey date: MONDAY 23/09/19		Survey Type: MANUAL
41	NF-03-A-07	MIXED HOUSES & FLATS	NORFOLK
	SILFIELD ROAD WYMONDHAM		
	Edge of Town Out of Town Total No of Dwellings: 297 Survey date: FRIDAY 20/09/19		Survey Type: DIRECTIONAL ATC COUNT

LIST OF SITES relevant to selection parameters (Cont.)

42	NF-03-A-08	MIXED HOUSES & FLATS	NORFOLK
	SIR ALFRED MUNNINGS RD		
	NEAR NORWICH		
	COSTESSEY		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	1817	
	Survey date: THURSDAY	19/09/19	Survey Type: MANUAL
43	NF-03-A-09	MIXED HOUSES & FLATS	NORFOLK
	ROUND HOUSE WAY		
	NORWICH		
	CRINGLEFORD		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	984	
	Survey date: TUESDAY	24/09/19	Survey Type: MANUAL
44	NY-03-A-08	TERRACED HOUSES	NORTH YORKSHIRE
	NICHOLAS STREET		
	YORK		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	21	
	Survey date: MONDAY	16/09/13	Survey Type: MANUAL
45	NY-03-A-09	MIXED HOUSING	NORTH YORKSHIRE
	GRAMMAR SCHOOL LANE		
	NORTHALLERTON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	52	
	Survey date: MONDAY	16/09/13	Survey Type: MANUAL
46	NY-03-A-10	HOUSES AND FLATS	NORTH YORKSHIRE
	BOROUGHBRIDGE ROAD		
	RIPON		
	Edge of Town		
	No Sub Category		
	Total No of Dwellings:	71	
	Survey date: TUESDAY	17/09/13	Survey Type: MANUAL
47	NY-03-A-11	PRIVATE HOUSING	NORTH YORKSHIRE
	HORSEFAIR		
	BOROUGHBRIDGE		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	23	
	Survey date: WEDNESDAY	18/09/13	Survey Type: MANUAL
48	NY-03-A-13	TERRACED HOUSES	NORTH YORKSHIRE
	CATTERICK ROAD		
	CATTERICK GARRISON		
	OLD HOSPITAL COMPOUND		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	10	
	Survey date: WEDNESDAY	10/05/17	Survey Type: MANUAL
49	SC-03-A-04	DETACHED & TERRACED	SURREY
	HIGH ROAD		
	BYFLEET		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	71	
	Survey date: THURSDAY	23/01/14	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

50	SC-03-A-05	MIXED HOUSES	SURREY
	REIGATE ROAD HORLEY		
	Edge of Town Residential Zone		
	Total No of Dwellings:	207	
	Survey date: MONDAY	01/04/19	Survey Type: MANUAL
51	SF-03-A-04	DETACHED & BUNGALOWS	SUFFOLK
	NORMANSTON DRIVE LOWESTOFT		
	Suburban Area (PPS6 Out of Centre) Residential Zone		
	Total No of Dwellings:	7	
	Survey date: TUESDAY	23/10/12	Survey Type: MANUAL
52	SF-03-A-05	DETACHED HOUSES	SUFFOLK
	VALE LANE BURY ST EDMUNDS		
	Edge of Town Residential Zone		
	Total No of Dwellings:	18	
	Survey date: WEDNESDAY	09/09/15	Survey Type: MANUAL
53	SF-03-A-06	DETACHED & SEMI-DETACHED	SUFFOLK
	BURY ROAD KENTFORD		
	Neighbourhood Centre (PPS6 Local Centre) Village		
	Total No of Dwellings:	38	
	Survey date: FRIDAY	22/09/17	Survey Type: MANUAL
54	SF-03-A-07	MIXED HOUSES	SUFFOLK
	FOXHALL ROAD IPSWICH		
	Suburban Area (PPS6 Out of Centre) Residential Zone		
	Total No of Dwellings:	73	
	Survey date: THURSDAY	09/05/19	Survey Type: MANUAL
55	SH-03-A-05	SEMI-DETACHED/TERRACED	SHROPSHIRE
	SANDCROFT TELFORD SUTTON HILL		
	Edge of Town Residential Zone		
	Total No of Dwellings:	54	
	Survey date: THURSDAY	24/10/13	Survey Type: MANUAL
56	SH-03-A-06	BUNGALOWS	SHROPSHIRE
	ELLESMERE ROAD SHREWSBURY		
	Edge of Town Residential Zone		
	Total No of Dwellings:	16	
	Survey date: THURSDAY	22/05/14	Survey Type: MANUAL
57	SM-03-A-01	DETACHED & SEMI	SOMERSET
	WEMBDON ROAD BRIDGWATER NORTHFIELD		
	Edge of Town Residential Zone		
	Total No of Dwellings:	33	
	Survey date: THURSDAY	24/09/15	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

58	SM-03-A-02	MIXED HOUSES	SOMERSET
	HYDE LANE NEAR TAUNTON CREECH SAINT MICHAEL Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 42 Survey date: TUESDAY 25/09/18		Survey Type: MANUAL
59	SM-03-A-03	MIXED HOUSES	SOMERSET
	HYDE LANE NEAR TAUNTON CREECH ST MICHAEL Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 41 Survey date: TUESDAY 25/09/18		Survey Type: MANUAL
60	ST-03-A-07	DETACHED & SEMI-DETACHED	STAFFORDSHIRE
	BEACONSIDE STAFFORD MARSTON GATE Edge of Town Residential Zone Total No of Dwellings: 248 Survey date: WEDNESDAY 22/11/17		Survey Type: MANUAL
61	ST-03-A-08	DETACHED HOUSES	STAFFORDSHIRE
	SILKMORE CRESCENT STAFFORD MEADOWCROFT PARK Edge of Town Residential Zone Total No of Dwellings: 26 Survey date: WEDNESDAY 22/11/17		Survey Type: MANUAL
62	SY-03-A-01	SEMI DETACHED HOUSES	SOUTH YORKSHIRE
	A19 BENTLEY ROAD DONCASTER BENTLEY RISE Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 54 Survey date: WEDNESDAY 18/09/13		Survey Type: MANUAL
63	TW-03-A-02	SEMI-DETACHED	TYNE & WEAR
	WEST PARK ROAD GATESHEAD Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 16 Survey date: MONDAY 07/10/13		Survey Type: MANUAL
64	TW-03-A-03	MIXED HOUSES	TYNE & WEAR
	STATION ROAD NEAR NEWCASTLE BACKWORTH Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 33 Survey date: FRIDAY 13/11/15		Survey Type: MANUAL
65	WK-03-A-02	BUNGALOWS	WARWICKSHIRE
	NARBERTH WAY COVENTRY POTTERS GREEN Edge of Town Residential Zone Total No of Dwellings: 17 Survey date: THURSDAY 17/10/13		Survey Type: MANUAL
66	WK-03-A-03	DETACHED HOUSES	WARWICKSHIRE
	BRESE AVENUE WARWICK GUYS CLIFFE Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 23 Survey date: WEDNESDAY 25/09/19		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

67	WL-03-A-02	SEMI DETACHED	WILTSHIRE
	HEADLANDS GROVE		
	SWINDON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	27	
	Survey date: THURSDAY	22/09/16	Survey Type: MANUAL
68	WM-03-A-04	TERRACED HOUSES	WEST MIDLANDS
	OSBORNE ROAD		
	COVENTRY		
	EARLSDON		
	Neighbourhood Centre (PPS6 Local Centre)		
	Residential Zone		
	Total No of Dwellings:	39	
	Survey date: MONDAY	21/11/16	Survey Type: MANUAL
69	WS-03-A-04	MIXED HOUSES	WEST SUSSEX
	HILLS FARM LANE		
	HORSHAM		
	BROADBRIDGE HEATH		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	151	
	Survey date: THURSDAY	11/12/14	Survey Type: MANUAL
70	WS-03-A-05	TERRACED & FLATS	WEST SUSSEX
	UPPER SHOREHAM ROAD		
	SHOREHAM BY SEA		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	48	
	Survey date: WEDNESDAY	18/04/12	Survey Type: MANUAL
71	WS-03-A-07	BUNGALOWS	WEST SUSSEX
	EMMS LANE		
	NEAR HORSHAM		
	BROOKS GREEN		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	57	
	Survey date: THURSDAY	19/10/17	Survey Type: MANUAL
72	WS-03-A-08	MIXED HOUSES	WEST SUSSEX
	ROUNDSTONE LANE		
	ANGMERING		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	180	
	Survey date: THURSDAY	19/04/18	Survey Type: MANUAL
73	WS-03-A-09	MIXED HOUSES & FLATS	WEST SUSSEX
	LITTLEHAMPTON ROAD		
	WORTHING		
	WEST DURRINGTON		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	197	
	Survey date: THURSDAY	05/07/18	Survey Type: MANUAL
74	WS-03-A-10	MIXED HOUSES	WEST SUSSEX
	TODDINGTON LANE		
	LITTLEHAMPTON		
	WICK		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	79	
	Survey date: WEDNESDAY	07/11/18	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

75	WS-03-A-11	MIXED HOUSES	WEST SUSSEX
	ELLIS ROAD		
	WEST HORSHAM		
	S BROADBRIDGE HEATH		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	918	
	Survey date: TUESDAY	02/04/19	Survey Type: MANUAL
76	WY-03-A-01	MIXED HOUSING	WEST YORKSHIRE
	SPRING VALLEY CRESCENT		
	LEEDS		
	BRAMLEY		
	Neighbourhood Centre (PPS6 Local Centre)		
	Residential Zone		
	Total No of Dwellings:	46	
	Survey date: WEDNESDAY	21/09/16	Survey Type: MANUAL

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

VEHICLES**Calculation factor: 1 DWELLS****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	76	135	0.070	76	135	0.304	76	135	0.374
08:00 - 09:00	76	135	0.126	76	135	0.358	76	135	0.484
09:00 - 10:00	76	135	0.137	76	135	0.166	76	135	0.303
10:00 - 11:00	76	135	0.116	76	135	0.140	76	135	0.256
11:00 - 12:00	76	135	0.121	76	135	0.129	76	135	0.250
12:00 - 13:00	76	135	0.141	76	135	0.138	76	135	0.279
13:00 - 14:00	76	135	0.146	76	135	0.138	76	135	0.284
14:00 - 15:00	76	135	0.154	76	135	0.165	76	135	0.319
15:00 - 16:00	76	135	0.229	76	135	0.163	76	135	0.392
16:00 - 17:00	76	135	0.260	76	135	0.153	76	135	0.413
17:00 - 18:00	76	135	0.332	76	135	0.149	76	135	0.481
18:00 - 19:00	76	135	0.287	76	135	0.156	76	135	0.443
19:00 - 20:00	1	97	0.062	1	97	0.052	1	97	0.114
20:00 - 21:00	1	97	0.031	1	97	0.021	1	97	0.052
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.212			2.232			4.444

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

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

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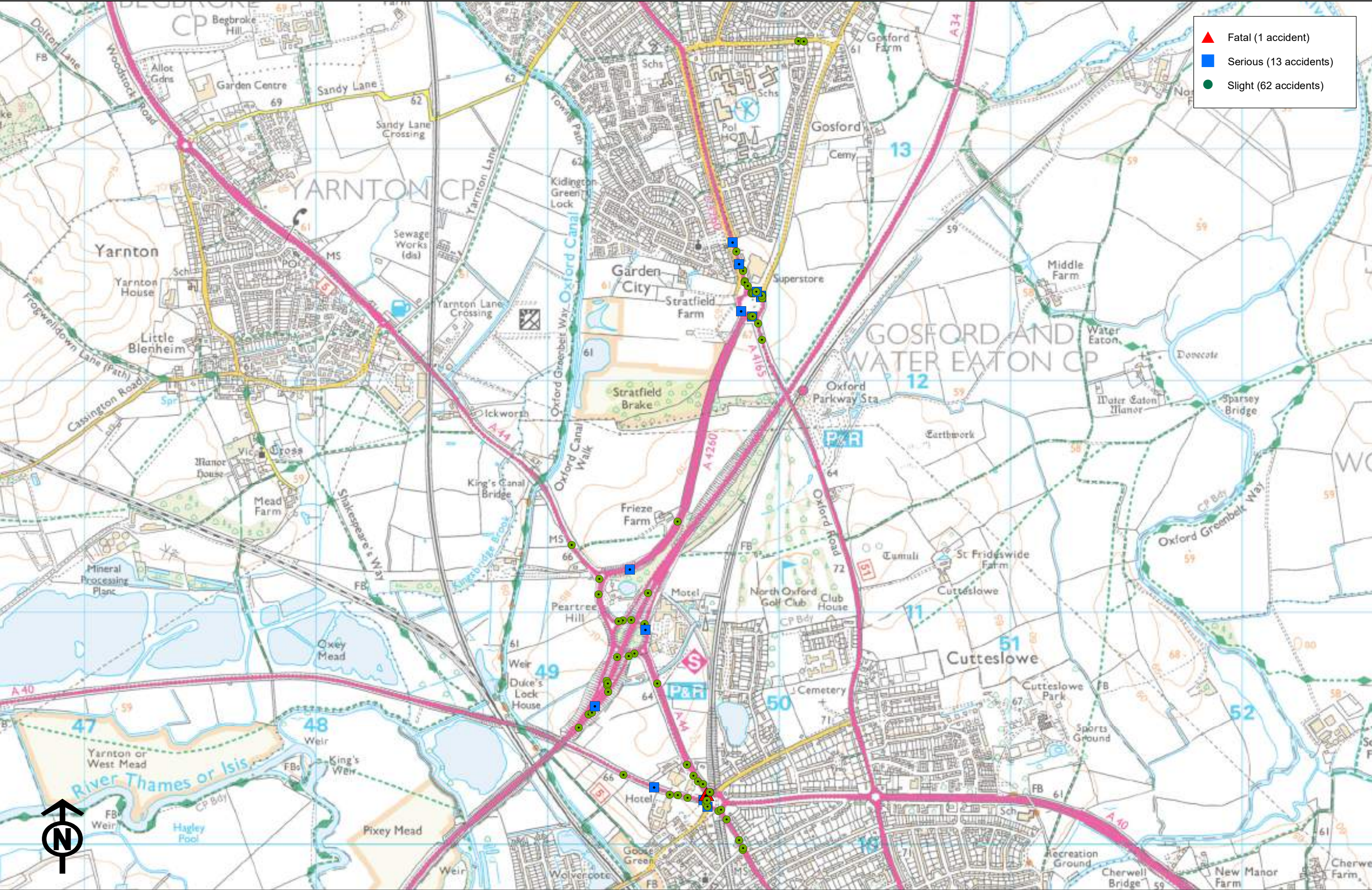
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Parameter summary

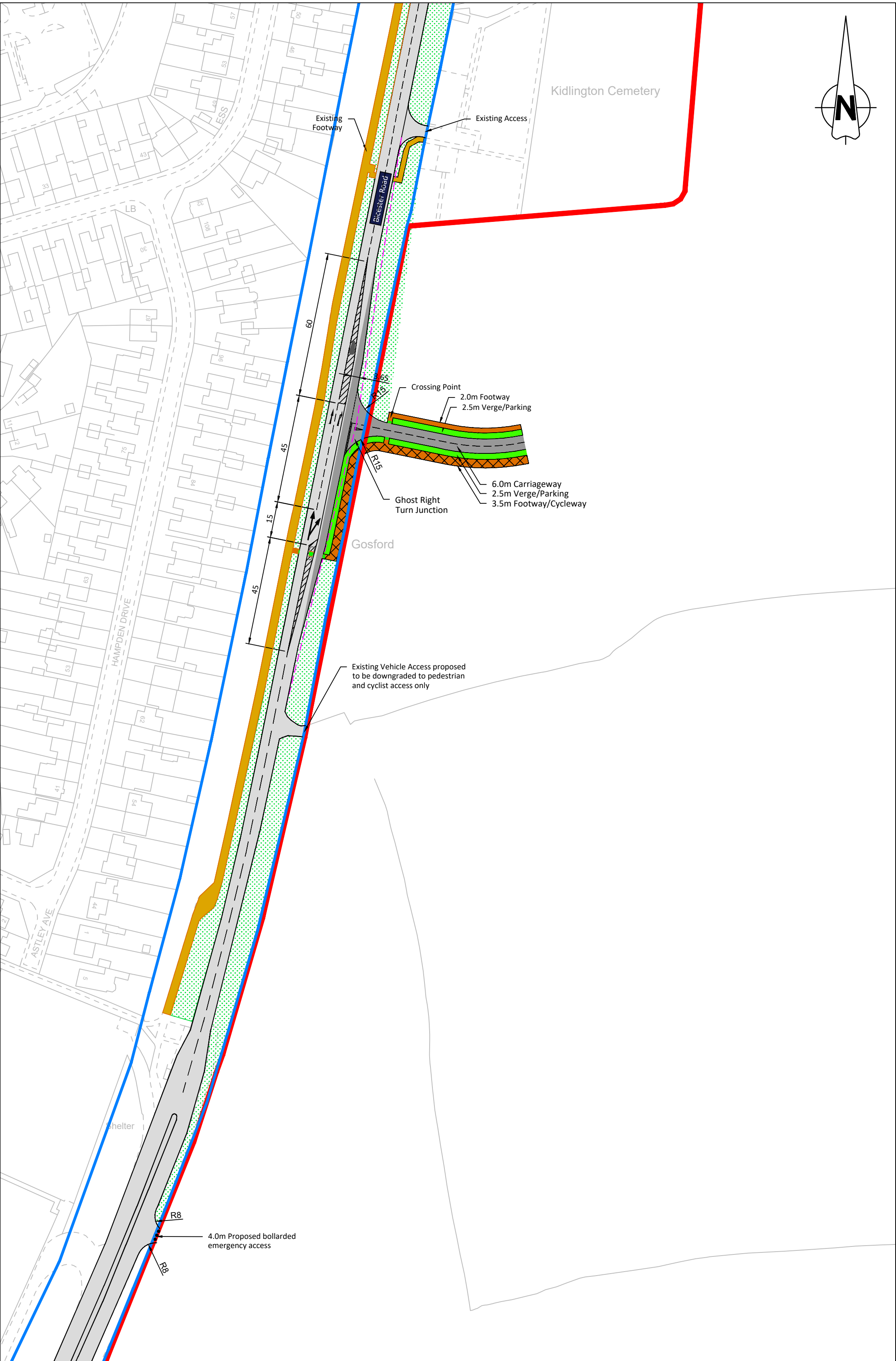
Trip rate parameter range selected:	7 - 1817 (units:)
Survey date range:	01/01/12 - 19/11/19
Number of weekdays (Monday-Friday):	81
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	6
Surveys manually removed from selection:	0

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

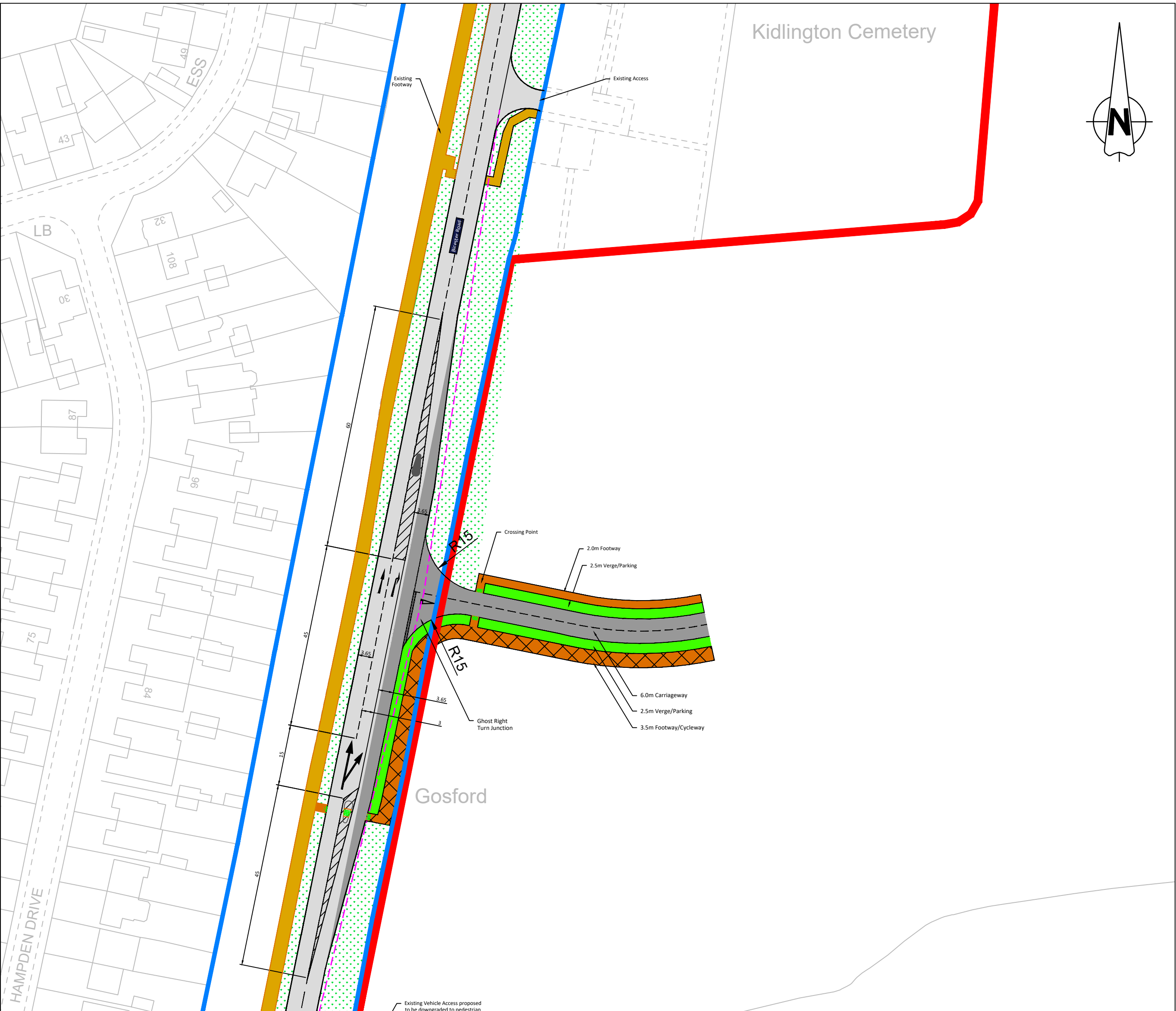
Appendix C – Personal Injury Collisions data



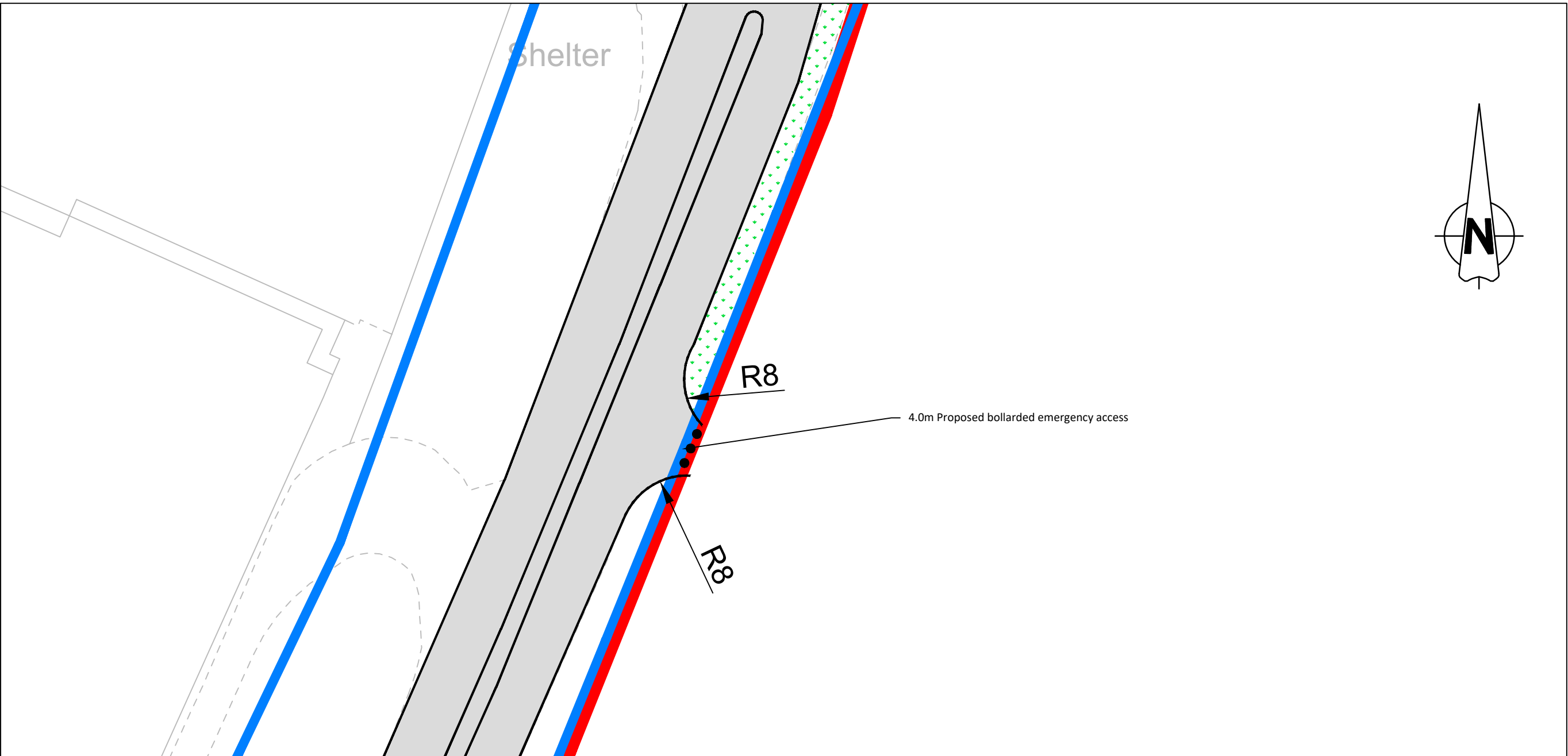
Appendix D – Site Access / Swept Path Plan



Context Plan
1:1250



Northern Access
1:500



Southern Access
1:500

UNTIL TECHNICAL APPROVAL HAS BEEN OBTAINED FROM THE RELEVANT LOCAL AUTHORITIES, IT SHOULD BE UNDERSTOOD THAT ALL DRAWINGS ARE ISSUED AS PRELIMINARY AND NOT FOR CONSTRUCTION. SHOULD THE CONTRACTOR COMMENCE SITE WORK PRIOR TO APPROVAL BEING GIVEN, IT IS ENTIRELY AT HIS OWN RISK.

Construction Design and Management (CDM)

Key Residual Risks

Contractors entering the site should gain permission from the relevant land owners and/or principle contractor working on site at the time of entry. Contractors shall be responsible for carrying out their own risk assessments and for liaising with the relevant services companies and authorities. Listed below are Site Specific key risks associated with the project.

- 1) Overhead and underground services
- 2) Street Lighting Cables
- 3) Working adjacent to water courses and flood plain
- 4) Soft ground conditions
- 5) Working adjacent to live highways and railway line
- 6) Uncharted services
- 7) Existing buildings with potential asbestos hazards

NOTES:

1. Do not scale from this drawing.
2. All dimensions are in metres unless otherwise stated.
3. Brookbanks Consulting Ltd has prepared this drawing for the sole use of the client. The drawing may not be relied upon by any other party without the express agreement of the client and Brookbanks Consulting Ltd. Where any data supplied by the client or from other sources has been used, it has been assumed that the information is correct. No responsibility can be accepted by Brookbanks Consulting Ltd for inaccuracies in the data supplied by any other party. The drawing has been produced based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.
4. No part of this drawing may be copied or duplicated without the express permission of Brookbanks Consulting Ltd.
5. Preliminary design based on OS data and therefore subject to detailed design and survey.

KEY:

Development Boundary	
Existing Highway Boundary	
Tactile Paving	
Existing Carriageway	
New / Overlaid Carriageway	
Existing Verge	
Proposed Verge	
Existing Footway	
Proposed Footway	
Proposed Footway and Cycleway	
Visibility Splay (DMRB 70kph - 2.4 x 120 m)	

A	Bollards added to drawing	HG	DS	DS	02.03.22
-	First Issue	HG	AE	AE	22.02.22



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T +44 (0)121 329 4330 E mail@brookbanks.com
W brookbanks.com

Barwood Land

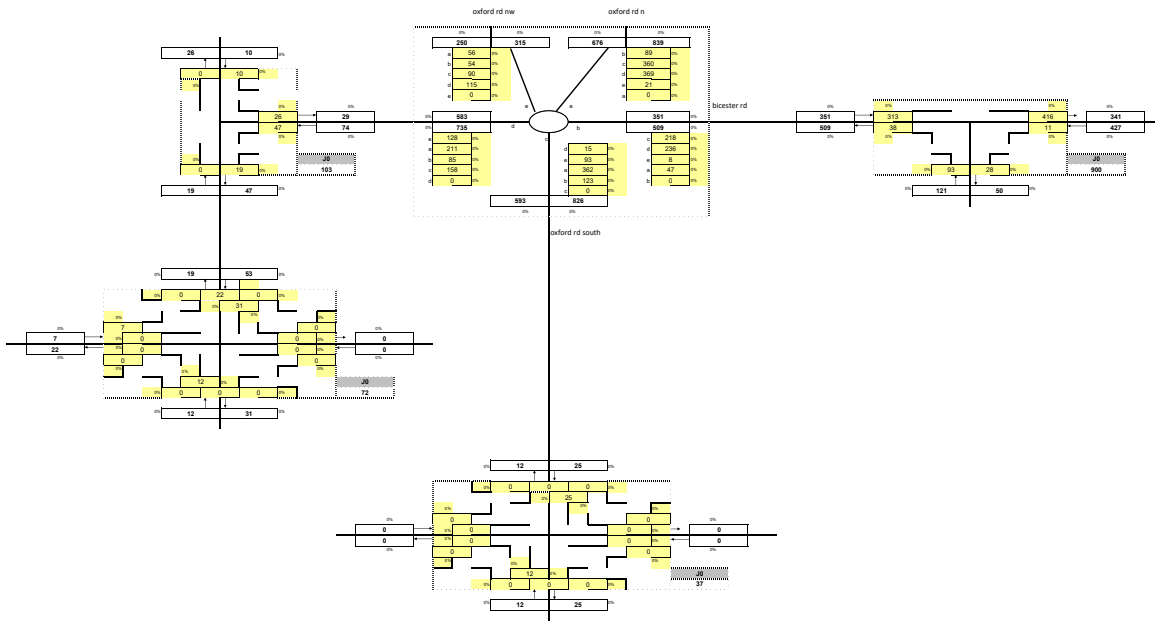
Land South East of Kidlington,
Oxfordshire

Access Strategy

Status		Status Date
Finalized		Feb. 22
Drawn	Checked	Date
HG	AE	22.02.22
Scale	Number	Rev
As shown	10669-SK-05	A
METRES		

Appendix E- Traffic Flow Diagrams

2031 AM - Development VEHICLES



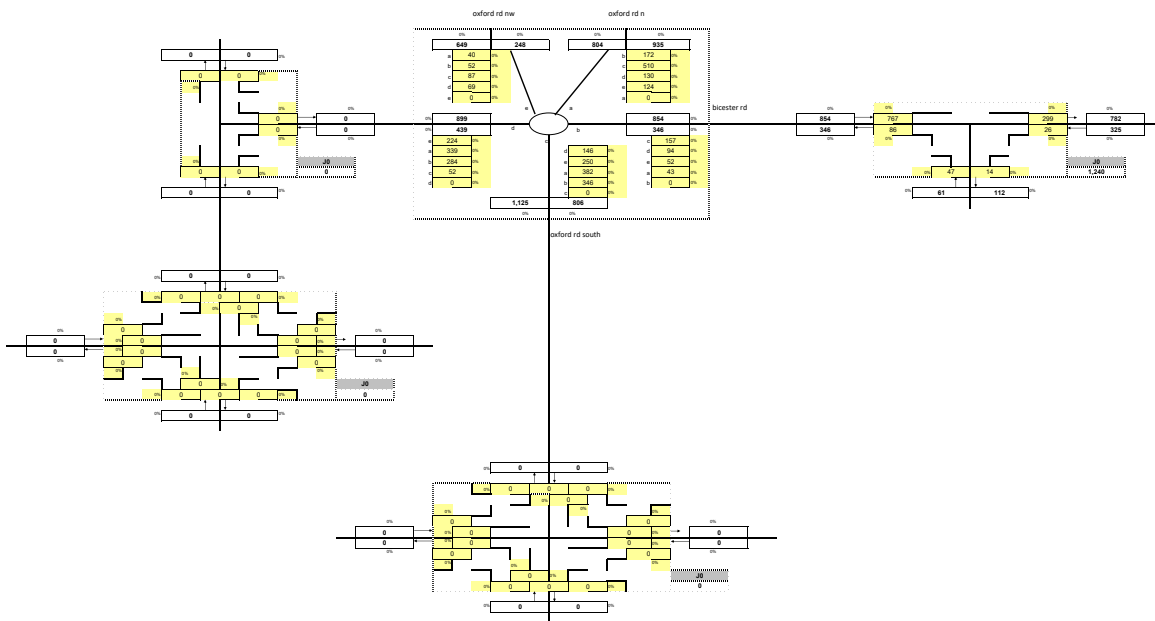
Site access

	a	b	c	d	e
a	0	11	416		
b	28	0	93		
c	313	38	0		

Bicester Rd / Oxford Rd

	a	b	c	d	e
a	0	89	360	369	21
b	47	0	218	236	8
c	362	123	0	15	93
d	211	85	158	0	128
e	56	54	90	115	0

2031 PM - Development VEHICLES



Site access

	a	b	c	d	e
a	0	26	299		
b	14	0	47		
c	767	86	0		

Bicester Rd / Oxford Rd

	a	b	c	d	e
a	0	172	150	130	124
b	43	0	157	94	52
c	382	346	0	146	250
d	239	284	52	0	214
e	40	52	87	69	0

Appendix F – Junction Assessment Output

Junctions 9											
PICADY 9 - Priority Intersection Module											
Version: 9.5.1.7462											
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+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk											
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution											

Filename: J1 site acces Mar 2022.j9

Path: P:\10669\Traffic\Junctions\Traffic Modelling 2022

Report generation date: 02/03/2022 09:08:52

»2031, AM

»2031, PM

»2031 + dev, AM

»2031 + dev, PM

Summary of junction performance

	AM						PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	2031											
Stream B-AC	D1	0.0	0.00	0.00	A	900 %	D2	0.0	0.00	0.00	A	900 %
Stream C-AB		0.0	0.00	0.00	A	[]		0.0	0.00	0.00	A	[]
	2031 + dev											
Stream B-AC	D3	0.4	11.57	0.26	B	94 %	D4	0.2	10.11	0.13	B	105 %
Stream C-AB		0.1	6.65	0.06	A	[Stream B-AC]		0.2	6.89	0.13	A	[Stream B-AC]

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

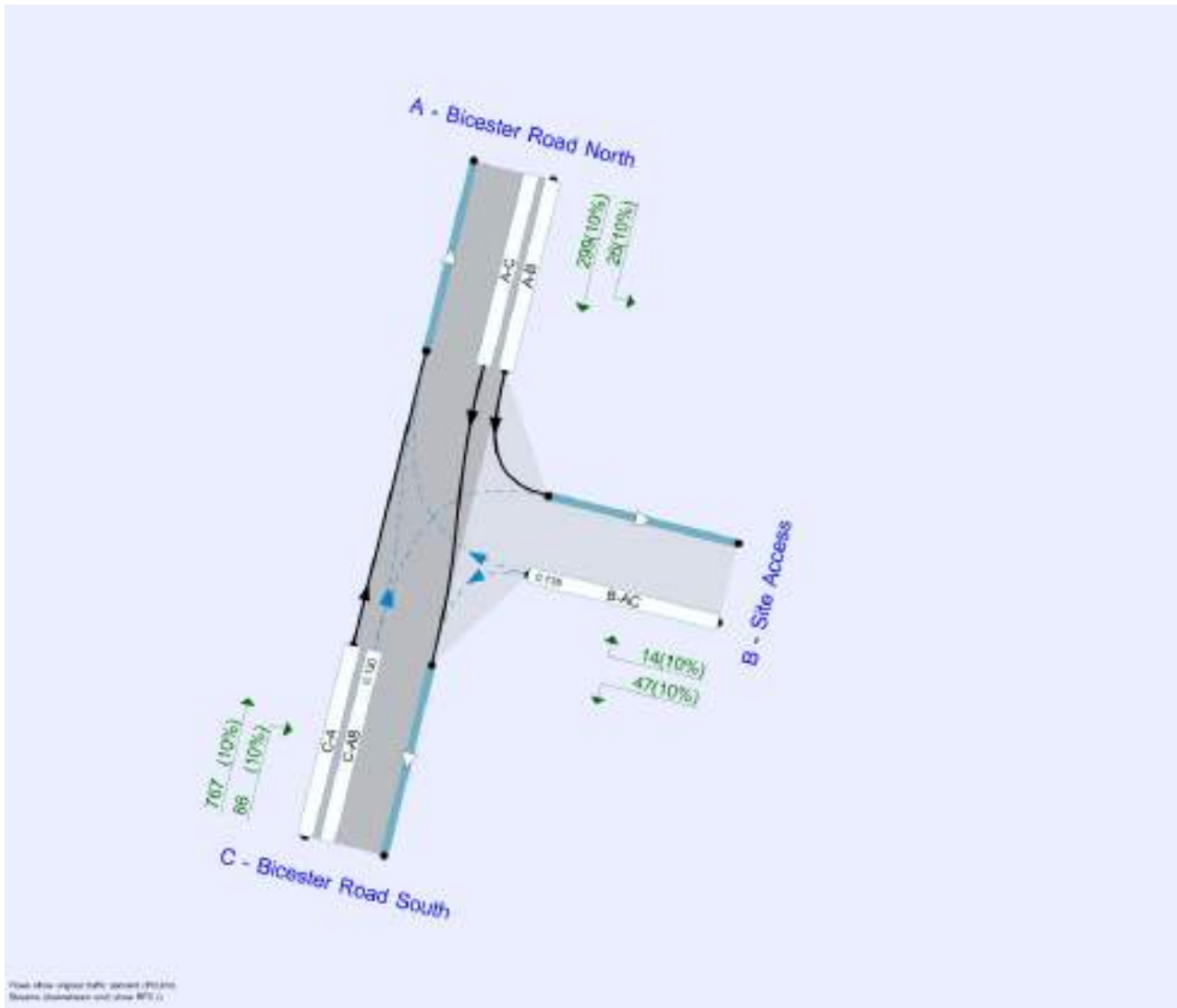
File summary

File Description

Title	10669 Kidlington
Location	Site Access
Site number	
Date	02/03/2022
Version	Draft
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	BCL\Alejandro.Marcotegui
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	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75			✓	Delay	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	2031	AM	FLAT	08:00	09:30	90	15	✓
D2	2031	PM	FLAT	17:00	18:30	90	15	✓
D3	2031 + dev	AM	FLAT	08:00	09:30	90	15	✓
D4	2031 + dev	PM	FLAT	17:00	18:30	90	15	✓

Analysis Set Details

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

2031, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.00	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	900	

Arms

Arms

Arm	Name	Description	Arm type
A	Bicester Road North		Major
B	Site Access		Minor
C	Bicester Road South		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Bicester Road South	7.33		✓	3.00	200.0	✓	5.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	One lane	2.75	13	13

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	476	0.082	0.206	0.130	0.295
B-C	616	0.089	0.225	-	-
C-B	750	0.274	0.274	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

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	2031	AM	FLAT	08:00	09:30	90	15	✓

Default vehicle mix	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bicester Road North		FLAT	✓	412	100.000
B - Site Access		FLAT	✓	0	100.000
C - Bicester Road South		FLAT	✓	304	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Bicester Road North	B - Site Access	C - Bicester Road South
From	A - Bicester Road North	0	0	412
	B - Site Access	0	0	0
	C - Bicester Road South	304	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Bicester Road North	B - Site Access	C - Bicester Road South
From	A - Bicester Road North	10	10	10
	B - Site Access	10	10	10
	C - Bicester Road South	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.00	0.00	0.0	A	0	0
C-AB	0.00	0.00	0.0	A	0	0
C-A					304	456
A-B					0	0
A-C					412	618

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	421	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	1274	0.000	0	0.0	0.0	0.000	A
C-A	304	76			304				
A-B	0	0			0				
A-C	412	103			412				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	421	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	1274	0.000	0	0.0	0.0	0.000	A
C-A	304	76			304				
A-B	0	0			0				
A-C	412	103			412				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	421	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	1274	0.000	0	0.0	0.0	0.000	A
C-A	304	76			304				
A-B	0	0			0				
A-C	412	103			412				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	421	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	1274	0.000	0	0.0	0.0	0.000	A
C-A	304	76			304				
A-B	0	0			0				
A-C	412	103			412				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	421	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	1274	0.000	0	0.0	0.0	0.000	A
C-A	304	76			304				
A-B	0	0			0				
A-C	412	103			412				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	421	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	1274	0.000	0	0.0	0.0	0.000	A
C-A	304	76			304				
A-B	0	0			0				
A-C	412	103			412				

2031, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.00	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	900	

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	2031	PM	FLAT	17:00	18:30	90	15	✓

Default vehicle mix	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bicester Road North		FLAT	✓	290	100.000
B - Site Access		FLAT	✓	0	100.000
C - Bicester Road South		FLAT	✓	763	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Bicester Road North	B - Site Access	C - Bicester Road South
From	A - Bicester Road North	0	0	290
	B - Site Access	0	0	0
	C - Bicester Road South	763	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Bicester Road North	B - Site Access	C - Bicester Road South
From	A - Bicester Road North	10	10	10
	B - Site Access	10	10	10
	C - Bicester Road South	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.00	0.00	0.0	A	0	0
C-AB	0.00	0.00	0.0	A	0	0
C-A					763	1145
A-B					0	0
A-C					290	435

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	403	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	1341	0.000	0	0.0	0.0	0.000	A
C-A	763	191			763				
A-B	0	0			0				
A-C	290	73			290				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	403	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	1341	0.000	0	0.0	0.0	0.000	A
C-A	763	191			763				
A-B	0	0			0				
A-C	290	73			290				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	403	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	1341	0.000	0	0.0	0.0	0.000	A
C-A	763	191			763				
A-B	0	0			0				
A-C	290	73			290				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	403	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	1341	0.000	0	0.0	0.0	0.000	A
C-A	763	191			763				
A-B	0	0			0				
A-C	290	73			290				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	403	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	1341	0.000	0	0.0	0.0	0.000	A
C-A	763	191			763				
A-B	0	0			0				
A-C	290	73			290				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	403	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	1341	0.000	0	0.0	0.0	0.000	A
C-A	763	191			763				
A-B	0	0			0				
A-C	290	73			290				

2031 + dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.84	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	94	Stream B-AC

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	2031 + dev	AM	FLAT	08:00	09:30	90	15	✓

Default vehicle mix	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bicester Road North		FLAT	✓	427	100.000
B - Site Access		FLAT	✓	121	100.000
C - Bicester Road South		FLAT	✓	351	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Bicester Road North	B - Site Access	C - Bicester Road South
From	A - Bicester Road North	0	11	416
	B - Site Access	28	0	93
	C - Bicester Road South	313	38	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Bicester Road North	B - Site Access	C - Bicester Road South
From	A - Bicester Road North	10	10	10
	B - Site Access	10	10	10
	C - Bicester Road South	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.26	11.57	0.4	B	121	182
C-AB	0.06	6.65	0.1	A	38	57
C-A					313	469
A-B					11	17
A-C					416	624

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	121	30	463	0.261	119	0.0	0.4	11.473	B
C-AB	38	10	633	0.060	38	0.0	0.1	6.649	A
C-A	313	78			313				
A-B	11	3			11				
A-C	416	104			416				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	121	30	463	0.261	121	0.4	0.4	11.573	B
C-AB	38	10	633	0.060	38	0.1	0.1	6.655	A
C-A	313	78			313				
A-B	11	3			11				
A-C	416	104			416				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	121	30	463	0.261	121	0.4	0.4	11.573	B
C-AB	38	10	633	0.060	38	0.1	0.1	6.655	A
C-A	313	78			313				
A-B	11	3			11				
A-C	416	104			416				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	121	30	463	0.261	121	0.4	0.4	11.573	B
C-AB	38	10	633	0.060	38	0.1	0.1	6.655	A
C-A	313	78			313				
A-B	11	3			11				
A-C	416	104			416				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	121	30	463	0.261	121	0.4	0.4	11.573	B
C-AB	38	10	633	0.060	38	0.1	0.1	6.655	A
C-A	313	78			313				
A-B	11	3			11				
A-C	416	104			416				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	121	30	463	0.261	121	0.4	0.4	11.573	B
C-AB	38	10	633	0.060	38	0.1	0.1	6.655	A
C-A	313	78			313				
A-B	11	3			11				
A-C	416	104			416				

2031 + dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.98	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	105	Stream B-AC

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	2031 + dev	PM	FLAT	17:00	18:30	90	15	✓

Default vehicle mix	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bicester Road North		FLAT	✓	325	100.000
B - Site Access		FLAT	✓	61	100.000
C - Bicester Road South		FLAT	✓	853	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Bicester Road North	B - Site Access	C - Bicester Road South
From	A - Bicester Road North	0	26	299
	B - Site Access	14	0	47
	C - Bicester Road South	767	86	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Bicester Road North	B - Site Access	C - Bicester Road South
From	A - Bicester Road North	10	10	10
	B - Site Access	10	10	10
	C - Bicester Road South	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.13	10.11	0.2	B	61	92
C-AB	0.13	6.89	0.2	A	86	129
C-A					767	1150
A-B					26	39
A-C					299	449

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	61	15	453	0.135	60	0.0	0.2	10.073	B
C-AB	86	22	661	0.130	85	0.0	0.2	6.873	A
C-A	767	192			767				
A-B	26	7			26				
A-C	299	75			299				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	61	15	453	0.135	61	0.2	0.2	10.109	B
C-AB	86	22	661	0.130	86	0.2	0.2	6.886	A
C-A	767	192			767				
A-B	26	7			26				
A-C	299	75			299				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	61	15	453	0.135	61	0.2	0.2	10.109	B
C-AB	86	22	661	0.130	86	0.2	0.2	6.886	A
C-A	767	192			767				
A-B	26	7			26				
A-C	299	75			299				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	61	15	453	0.135	61	0.2	0.2	10.109	B
C-AB	86	22	661	0.130	86	0.2	0.2	6.886	A
C-A	767	192			767				
A-B	26	7			26				
A-C	299	75			299				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	61	15	453	0.135	61	0.2	0.2	10.109	B
C-AB	86	22	661	0.130	86	0.2	0.2	6.886	A
C-A	767	192			767				
A-B	26	7			26				
A-C	299	75			299				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	61	15	453	0.135	61	0.2	0.2	10.109	B
C-AB	86	22	661	0.130	86	0.2	0.2	6.886	A
C-A	767	192			767				
A-B	26	7			26				
A-C	299	75			299				

Junctions 9												
ARCADY 9 - Roundabout Module												
Version: 9.5.1.7462 © Copyright TRL Limited, 2019												
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Filename: J2 Bicester Road jw Oxford Rd Mar 2022.j9

Path: P:\10669\Traffic\Junctions\Traffic Modelling 2022

Report generation date: 02/03/2022 09:37:18

- »2031, AM
- »2031, PM
- »2031 + dev, AM
- »2031 + dev, PM

Summary of junction performance

	AM						PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	2031											
A - Oxford Road (N)	D1	0.9	3.80	0.44	A	84 % [A - Oxford Road (N)]	D2	1.2	4.78	0.53	A	54 % [A - Oxford Road (N)]
B - Bicester Road		0.3	2.70	0.22	A			0.2	2.39	0.15	A	
C - Oxford Road (S)		0.5	3.03	0.31	A			1.3	4.27	0.54	A	
D - A4260 Frieze Way		0.3	1.75	0.20	A			0.6	2.42	0.34	A	
E - Oxford Road (NW)		0.4	5.16	0.26	A			0.4	6.08	0.26	A	
	2031 + dev											
A - Oxford Road (N)	D3	0.9	3.96	0.46	A	77 % [A - Oxford Road (N)]	D4	1.3	5.14	0.55	A	48 % [A - Oxford Road (N)]
B - Bicester Road		0.4	2.93	0.27	A			0.2	2.49	0.18	A	
C - Oxford Road (S)		0.5	3.18	0.32	A			1.4	4.59	0.57	A	
D - A4260 Frieze Way		0.3	1.79	0.21	A			0.6	2.59	0.37	A	
E - Oxford Road (NW)		0.5	5.58	0.31	A			0.5	6.58	0.29	A	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

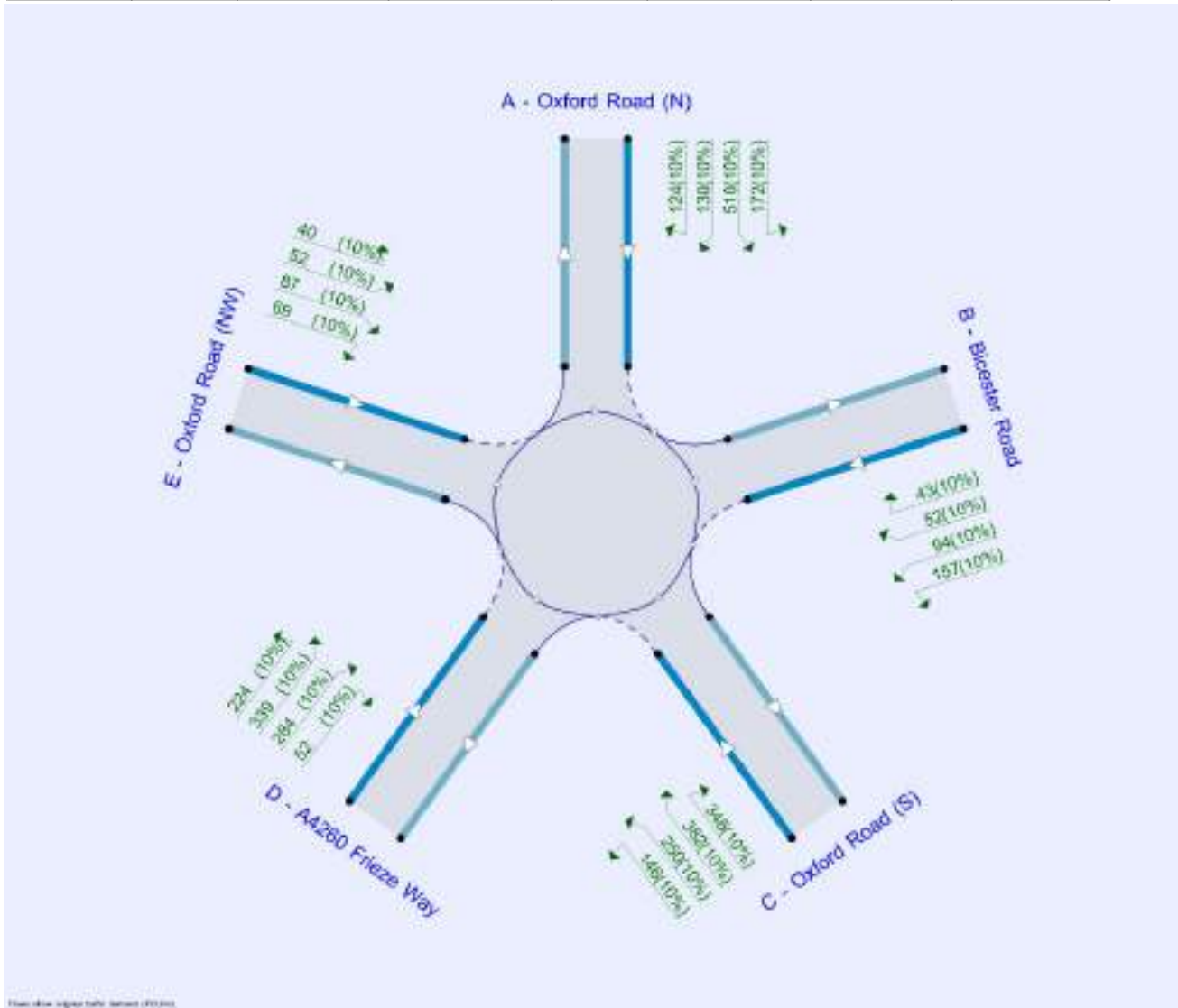
File summary

File Description

Title	10669 Kidlington
Location	Oxford Rd Bicester Roundabout
Site number	
Date	02/03/2022
Version	
Status	Draft
Identifier	
Client	
Jobnumber	
Enumerator	BCL\Alejandro.Marcotegui
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	PCU	PCU	perHour	s	-Min	perMin



Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75			✓	Delay	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	2031	AM	FLAT	08:00	09:30	90	15	✓
D2	2031	PM	FLAT	17:00	18:30	90	15	✓
D3	2031 + dev	AM	FLAT	08:00	09:30	90	15	✓
D4	2031 + dev	PM	FLAT	17:00	18:30	90	15	✓

Analysis Set Details

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

2031, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	3.18	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	84	A - Oxford Road (N)

Arms

Arms

Arm	Name	Description
A	Oxford Road (N)	
B	Bicester Road	
C	Oxford Road (S)	
D	A4260 Frieze Way	
E	Oxford Road (NW)	

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
A - Oxford Road (N)	3.70	10.20	27.8	21.3	109.7	43.0	
B - Bicester Road	6.00	8.70	24.9	45.3	109.7	31.0	
C - Oxford Road (S)	6.40	8.70	8.2	20.4	109.7	37.0	
D - A4260 Frieze Way	10.40	10.40	0.0	63.4	109.7	33.0	
E - Oxford Road (NW)	4.10	7.10	6.0	11.3	109.7	54.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - Oxford Road (N)	0.501	2153
B - Bicester Road	0.561	2483
C - Oxford Road (S)	0.519	2253
D - A4260 Frieze Way	0.664	3224
E - Oxford Road (NW)	0.380	1399

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	2031	AM	FLAT	08:00	09:30	90	15	✓

Default vehicle mix	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Oxford Road (N)		FLAT	✓	835	100.000
B - Bicester Road		FLAT	✓	411	100.000
C - Oxford Road (S)		FLAT	✓	577	100.000
D - A4260 Frieze Way		FLAT	✓	552	100.000
E - Oxford Road (NW)		FLAT	✓	275	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		A - Oxford Road (N)	B - Bicester Road	C - Oxford Road (S)	D - A4260 Frieze Way	E - Oxford Road (NW)
From	A - Oxford Road (N)	0	86	360	369	20
	B - Bicester Road	39	0	188	180	4
	C - Oxford Road (S)	362	110	0	15	90
	D - A4260 Frieze Way	211	62	158	0	121
	E - Oxford Road (NW)	54	45	80	96	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A - Oxford Road (N)	B - Bicester Road	C - Oxford Road (S)	D - A4260 Frieze Way	E - Oxford Road (NW)
From	A - Oxford Road (N)	10	10	10	10	10
	B - Bicester Road	10	10	10	10	10
	C - Oxford Road (S)	10	10	10	10	10
	D - A4260 Frieze Way	10	10	10	10	10
	E - Oxford Road (NW)	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Oxford Road (N)	0.44	3.80	0.9	A	835	1253
B - Bicester Road	0.22	2.70	0.3	A	411	617
C - Oxford Road (S)	0.31	3.03	0.5	A	577	866
D - A4260 Frieze Way	0.20	1.75	0.3	A	552	828
E - Oxford Road (NW)	0.26	5.16	0.4	A	275	413

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	835	209	549	1878	0.445	832	664	0.0	0.9	3.772	A
B - Bicester Road	411	103	1079	1878	0.219	410	302	0.0	0.3	2.694	A
C - Oxford Road (S)	577	144	705	1887	0.306	575	783	0.0	0.5	3.016	A
D - A4260 Frieze Way	552	138	623	2810	0.196	551	657	0.0	0.3	1.752	A
E - Oxford Road (NW)	275	69	939	1043	0.264	273	234	0.0	0.4	5.138	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	835	209	551	1877	0.445	835	666	0.9	0.9	3.800	A
B - Bicester Road	411	103	1083	1875	0.219	411	303	0.3	0.3	2.703	A
C - Oxford Road (S)	577	144	708	1885	0.306	577	786	0.5	0.5	3.026	A
D - A4260 Frieze Way	552	138	625	2809	0.197	552	660	0.3	0.3	1.753	A
E - Oxford Road (NW)	275	69	942	1042	0.264	275	235	0.4	0.4	5.165	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	835	209	551	1877	0.445	835	666	0.9	0.9	3.800	A
B - Bicester Road	411	103	1083	1875	0.219	411	303	0.3	0.3	2.703	A
C - Oxford Road (S)	577	144	708	1885	0.306	577	786	0.5	0.5	3.026	A
D - A4260 Frieze Way	552	138	625	2809	0.197	552	660	0.3	0.3	1.753	A
E - Oxford Road (NW)	275	69	942	1042	0.264	275	235	0.4	0.4	5.165	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	835	209	551	1877	0.445	835	666	0.9	0.9	3.800	A
B - Bicester Road	411	103	1083	1875	0.219	411	303	0.3	0.3	2.703	A
C - Oxford Road (S)	577	144	708	1885	0.306	577	786	0.5	0.5	3.026	A
D - A4260 Frieze Way	552	138	625	2809	0.197	552	660	0.3	0.3	1.753	A
E - Oxford Road (NW)	275	69	942	1042	0.264	275	235	0.4	0.4	5.165	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	835	209	551	1877	0.445	835	666	0.9	0.9	3.800	A
B - Bicester Road	411	103	1083	1875	0.219	411	303	0.3	0.3	2.703	A
C - Oxford Road (S)	577	144	708	1885	0.306	577	786	0.5	0.5	3.026	A
D - A4260 Frieze Way	552	138	625	2809	0.197	552	660	0.3	0.3	1.753	A
E - Oxford Road (NW)	275	69	942	1042	0.264	275	235	0.4	0.4	5.165	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	835	209	551	1877	0.445	835	666	0.9	0.9	3.800	A
B - Bicester Road	411	103	1083	1875	0.219	411	303	0.3	0.3	2.703	A
C - Oxford Road (S)	577	144	708	1885	0.306	577	786	0.5	0.5	3.026	A
D - A4260 Frieze Way	552	138	625	2809	0.197	552	660	0.3	0.3	1.753	A
E - Oxford Road (NW)	275	69	942	1042	0.264	275	235	0.4	0.4	5.165	A

2031, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	3.91	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	54	A - Oxford Road (N)

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	2031	PM	FLAT	17:00	18:30	90	15	✓

Default vehicle mix	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Oxford Road (N)		FLAT	✓	926	100.000
B - Bicester Road		FLAT	✓	290	100.000
C - Oxford Road (S)		FLAT	✓	1086	100.000
D - A4260 Frieze Way		FLAT	✓	831	100.000
E - Oxford Road (NW)		FLAT	✓	230	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
		A - Oxford Road (N)	B - Bicester Road	C - Oxford Road (S)	D - A4260 Frieze Way	E - Oxford Road (NW)
From	A - Oxford Road (N)	0	165	510	130	121
	B - Bicester Road	39	0	142	66	43
	C - Oxford Road (S)	382	318	0	146	240
	D - A4260 Frieze Way	339	233	52	0	207
	E - Oxford Road (NW)	39	48	82	61	0

Vehicle Mix

Heavy Vehicle Percentages

	To					
		A - Oxford Road (N)	B - Bicester Road	C - Oxford Road (S)	D - A4260 Frieze Way	E - Oxford Road (NW)
From	A - Oxford Road (N)	10	10	10	10	10
	B - Bicester Road	10	10	10	10	10
	C - Oxford Road (S)	10	10	10	10	10
	D - A4260 Frieze Way	10	10	10	10	10
	E - Oxford Road (NW)	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Oxford Road (N)	0.53	4.78	1.2	A	926	1389
B - Bicester Road	0.15	2.39	0.2	A	290	435
C - Oxford Road (S)	0.54	4.27	1.3	A	1086	1629
D - A4260 Frieze Way	0.34	2.42	0.6	A	831	1247
E - Oxford Road (NW)	0.26	6.08	0.4	A	230	345

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	926	232	790	1757	0.527	921	796	0.0	1.2	4.712	A
B - Bicester Road	290	73	951	1950	0.149	289	761	0.0	0.2	2.383	A
C - Oxford Road (S)	1086	272	458	2015	0.539	1081	782	0.0	1.3	4.217	A
D - A4260 Frieze Way	831	208	1138	2468	0.337	829	401	0.0	0.6	2.412	A
E - Oxford Road (NW)	230	58	1358	884	0.260	228	609	0.0	0.4	6.032	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	926	232	794	1755	0.528	926	799	1.2	1.2	4.776	A
B - Bicester Road	290	73	956	1947	0.149	290	764	0.2	0.2	2.389	A
C - Oxford Road (S)	1086	272	460	2014	0.539	1086	786	1.3	1.3	4.267	A
D - A4260 Frieze Way	831	208	1143	2465	0.337	831	403	0.6	0.6	2.423	A
E - Oxford Road (NW)	230	58	1363	882	0.261	230	611	0.4	0.4	6.076	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	926	232	794	1755	0.528	926	799	1.2	1.2	4.776	A
B - Bicester Road	290	73	956	1947	0.149	290	764	0.2	0.2	2.389	A
C - Oxford Road (S)	1086	272	460	2014	0.539	1086	786	1.3	1.3	4.267	A
D - A4260 Frieze Way	831	208	1143	2465	0.337	831	403	0.6	0.6	2.423	A
E - Oxford Road (NW)	230	58	1363	882	0.261	230	611	0.4	0.4	6.076	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	926	232	794	1755	0.528	926	799	1.2	1.2	4.776	A
B - Bicester Road	290	73	956	1947	0.149	290	764	0.2	0.2	2.389	A
C - Oxford Road (S)	1086	272	460	2014	0.539	1086	786	1.3	1.3	4.267	A
D - A4260 Frieze Way	831	208	1143	2465	0.337	831	403	0.6	0.6	2.423	A
E - Oxford Road (NW)	230	58	1363	882	0.261	230	611	0.4	0.4	6.076	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	926	232	794	1755	0.528	926	799	1.2	1.2	4.776	A
B - Bicester Road	290	73	956	1947	0.149	290	764	0.2	0.2	2.389	A
C - Oxford Road (S)	1086	272	460	2014	0.539	1086	786	1.3	1.3	4.267	A
D - A4260 Frieze Way	831	208	1143	2465	0.337	831	403	0.6	0.6	2.423	A
E - Oxford Road (NW)	230	58	1363	882	0.261	230	611	0.4	0.4	6.076	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	926	232	794	1755	0.528	926	799	1.2	1.2	4.776	A
B - Bicester Road	290	73	956	1947	0.149	290	764	0.2	0.2	2.389	A
C - Oxford Road (S)	1086	272	460	2014	0.539	1086	786	1.3	1.3	4.267	A
D - A4260 Frieze Way	831	208	1143	2465	0.337	831	403	0.6	0.6	2.423	A
E - Oxford Road (NW)	230	58	1363	882	0.261	230	611	0.4	0.4	6.076	A

2031 + dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	3.35	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	77	A - Oxford Road (N)

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	2031 + dev	AM	FLAT	08:00	09:30	90	15	✓

Default vehicle mix	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Oxford Road (N)		FLAT	✓	839	100.000
B - Bicester Road		FLAT	✓	509	100.000
C - Oxford Road (S)		FLAT	✓	593	100.000
D - A4260 Frieze Way		FLAT	✓	582	100.000
E - Oxford Road (NW)		FLAT	✓	315	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
		A - Oxford Road (N)	B - Bicester Road	C - Oxford Road (S)	D - A4260 Frieze Way	E - Oxford Road (NW)
From	A - Oxford Road (N)	0	89	360	369	21
	B - Bicester Road	47	0	218	236	8
	C - Oxford Road (S)	362	123	0	15	93
	D - A4260 Frieze Way	211	85	158	0	128
	E - Oxford Road (NW)	56	54	90	115	0

Vehicle Mix

Heavy Vehicle Percentages

	To					
		A - Oxford Road (N)	B - Bicester Road	C - Oxford Road (S)	D - A4260 Frieze Way	E - Oxford Road (NW)
From	A - Oxford Road (N)	10	10	10	10	10
	B - Bicester Road	10	10	10	10	10
	C - Oxford Road (S)	10	10	10	10	10
	D - A4260 Frieze Way	10	10	10	10	10
	E - Oxford Road (NW)	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Oxford Road (N)	0.46	3.96	0.9	A	839	1259
B - Bicester Road	0.27	2.93	0.4	A	509	764
C - Oxford Road (S)	0.32	3.18	0.5	A	593	890
D - A4260 Frieze Way	0.21	1.79	0.3	A	582	873
E - Oxford Road (NW)	0.31	5.58	0.5	A	315	473

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	839	210	622	1841	0.456	835	674	0.0	0.9	3.924	A
B - Bicester Road	509	127	1108	1861	0.273	507	350	0.0	0.4	2.920	A
C - Oxford Road (S)	593	148	793	1841	0.322	591	823	0.0	0.5	3.162	A
D - A4260 Frieze Way	582	146	652	2791	0.209	581	732	0.0	0.3	1.791	A
E - Oxford Road (NW)	315	79	983	1026	0.307	313	249	0.0	0.5	5.541	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	839	210	625	1840	0.456	839	676	0.9	0.9	3.957	A
B - Bicester Road	509	127	1113	1859	0.274	509	351	0.4	0.4	2.933	A
C - Oxford Road (S)	593	148	796	1839	0.322	593	826	0.5	0.5	3.176	A
D - A4260 Frieze Way	582	146	654	2790	0.209	582	735	0.3	0.3	1.792	A
E - Oxford Road (NW)	315	79	986	1025	0.307	315	250	0.5	0.5	5.578	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	839	210	625	1840	0.456	839	676	0.9	0.9	3.957	A
B - Bicester Road	509	127	1113	1859	0.274	509	351	0.4	0.4	2.933	A
C - Oxford Road (S)	593	148	796	1839	0.322	593	826	0.5	0.5	3.176	A
D - A4260 Frieze Way	582	146	654	2790	0.209	582	735	0.3	0.3	1.792	A
E - Oxford Road (NW)	315	79	986	1025	0.307	315	250	0.5	0.5	5.578	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	839	210	625	1840	0.456	839	676	0.9	0.9	3.957	A
B - Bicester Road	509	127	1113	1859	0.274	509	351	0.4	0.4	2.933	A
C - Oxford Road (S)	593	148	796	1839	0.322	593	826	0.5	0.5	3.176	A
D - A4260 Frieze Way	582	146	654	2790	0.209	582	735	0.3	0.3	1.792	A
E - Oxford Road (NW)	315	79	986	1025	0.307	315	250	0.5	0.5	5.578	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	839	210	625	1840	0.456	839	676	0.9	0.9	3.957	A
B - Bicester Road	509	127	1113	1859	0.274	509	351	0.4	0.4	2.933	A
C - Oxford Road (S)	593	148	796	1839	0.322	593	826	0.5	0.5	3.176	A
D - A4260 Frieze Way	582	146	654	2790	0.209	582	735	0.3	0.3	1.792	A
E - Oxford Road (NW)	315	79	986	1025	0.307	315	250	0.5	0.5	5.578	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	839	210	625	1840	0.456	839	676	0.9	0.9	3.957	A
B - Bicester Road	509	127	1113	1859	0.274	509	351	0.4	0.4	2.933	A
C - Oxford Road (S)	593	148	796	1839	0.322	593	826	0.5	0.5	3.176	A
D - A4260 Frieze Way	582	146	654	2790	0.209	582	735	0.3	0.3	1.792	A
E - Oxford Road (NW)	315	79	986	1025	0.307	315	250	0.5	0.5	5.578	A

2031 + dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	4.16	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	48	A - Oxford Road (N)

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	2031 + dev	PM	FLAT	17:00	18:30	90	15	✓

Default vehicle mix	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Oxford Road (N)		FLAT	✓	936	100.000
B - Bicester Road		FLAT	✓	346	100.000
C - Oxford Road (S)		FLAT	✓	1124	100.000
D - A4260 Frieze Way		FLAT	✓	899	100.000
E - Oxford Road (NW)		FLAT	✓	248	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
		A - Oxford Road (N)	B - Bicester Road	C - Oxford Road (S)	D - A4260 Frieze Way	E - Oxford Road (NW)
From	A - Oxford Road (N)	0	172	510	130	124
	B - Bicester Road	43	0	157	94	52
	C - Oxford Road (S)	382	346	0	146	250
	D - A4260 Frieze Way	339	284	52	0	224
	E - Oxford Road (NW)	40	52	87	69	0

Vehicle Mix

Heavy Vehicle Percentages

	To					
		A - Oxford Road (N)	B - Bicester Road	C - Oxford Road (S)	D - A4260 Frieze Way	E - Oxford Road (NW)
From	A - Oxford Road (N)	10	10	10	10	10
	B - Bicester Road	10	10	10	10	10
	C - Oxford Road (S)	10	10	10	10	10
	D - A4260 Frieze Way	10	10	10	10	10
	E - Oxford Road (NW)	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Oxford Road (N)	0.55	5.14	1.3	A	936	1404
B - Bicester Road	0.18	2.49	0.2	A	346	519
C - Oxford Road (S)	0.57	4.59	1.4	A	1124	1686
D - A4260 Frieze Way	0.37	2.59	0.6	A	899	1349
E - Oxford Road (NW)	0.29	6.58	0.5	A	248	372

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	936	234	886	1709	0.548	931	801	0.0	1.3	5.057	A
B - Bicester Road	346	87	966	1941	0.178	345	850	0.0	0.2	2.480	A
C - Oxford Road (S)	1124	281	510	1988	0.565	1118	802	0.0	1.4	4.525	A
D - A4260 Frieze Way	899	225	1191	2433	0.370	896	437	0.0	0.6	2.572	A
E - Oxford Road (NW)	248	62	1440	852	0.291	246	647	0.0	0.4	6.516	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	936	234	890	1707	0.548	936	804	1.3	1.3	5.136	A
B - Bicester Road	346	87	972	1938	0.179	346	854	0.2	0.2	2.487	A
C - Oxford Road (S)	1124	281	512	1987	0.566	1124	806	1.4	1.4	4.588	A
D - A4260 Frieze Way	899	225	1197	2429	0.370	899	439	0.6	0.6	2.587	A
E - Oxford Road (NW)	248	62	1446	850	0.292	248	650	0.4	0.5	6.576	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	936	234	890	1707	0.548	936	804	1.3	1.3	5.136	A
B - Bicester Road	346	87	972	1938	0.179	346	854	0.2	0.2	2.487	A
C - Oxford Road (S)	1124	281	512	1987	0.566	1124	806	1.4	1.4	4.589	A
D - A4260 Frieze Way	899	225	1197	2429	0.370	899	439	0.6	0.6	2.587	A
E - Oxford Road (NW)	248	62	1446	850	0.292	248	650	0.5	0.5	6.576	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
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B - Bicester Road	346	87	972	1938	0.179	346	854	0.2	0.2	2.487	A
C - Oxford Road (S)	1124	281	512	1987	0.566	1124	806	1.4	1.4	4.589	A
D - A4260 Frieze Way	899	225	1197	2429	0.370	899	439	0.6	0.6	2.587	A
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18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
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18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Oxford Road (N)	936	234	890	1707	0.548	936	804	1.3	1.3	5.136	A
B - Bicester Road	346	87	972	1938	0.179	346	854	0.2	0.2	2.487	A
C - Oxford Road (S)	1124	281	512	1987	0.566	1124	806	1.4	1.4	4.589	A
D - A4260 Frieze Way	899	225	1197	2429	0.370	899	439	0.6	0.6	2.587	A
E - Oxford Road (NW)	248	62	1446	850	0.292	248	650	0.5	0.5	6.576	A



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