# Appendix 9.1

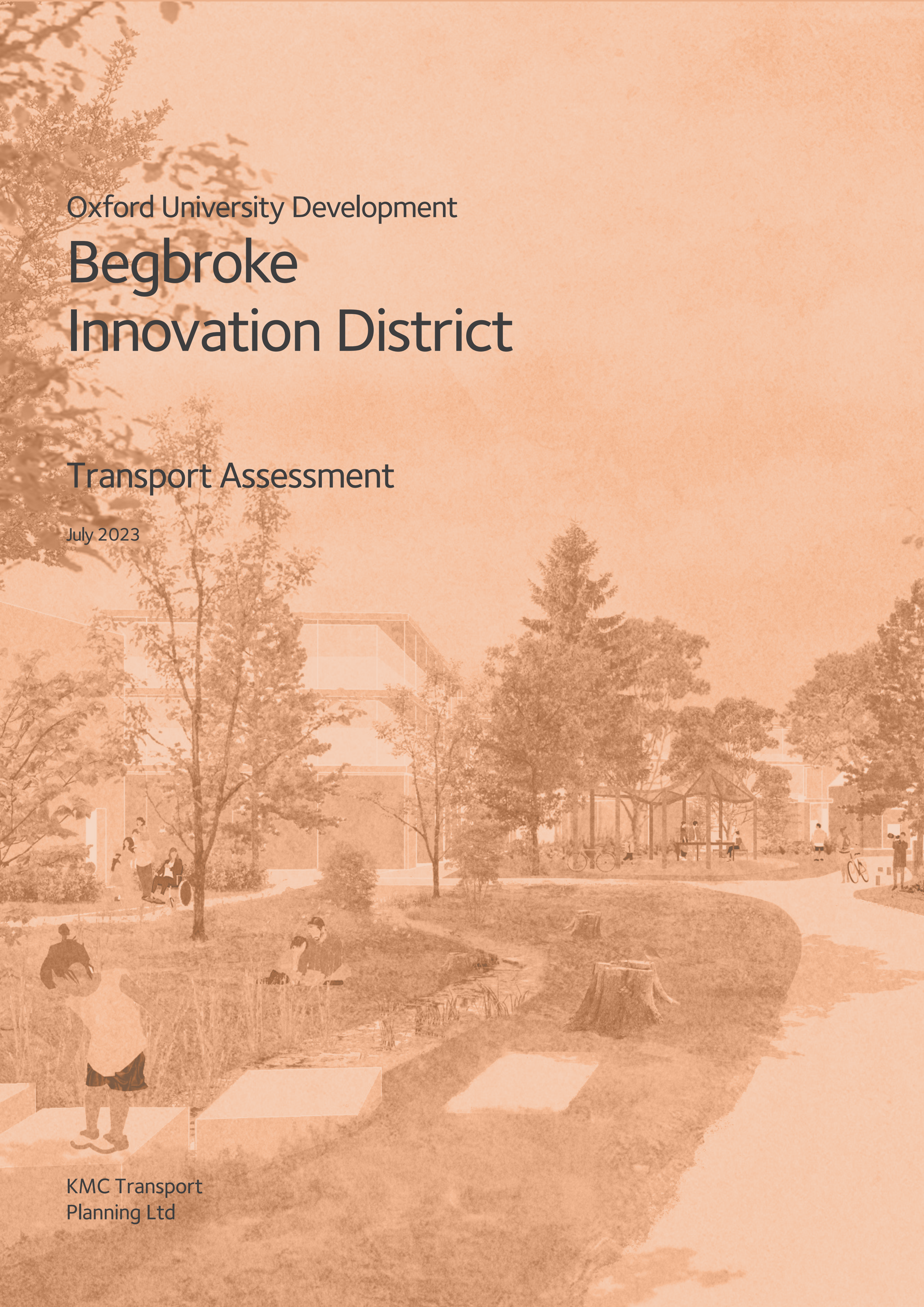
## TRANSPORT ASSESSMENT

Oxford University Development

# Begbroke Innovation District

## Transport Assessment

July 2023



KMC Transport
Planning Ltd

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# 1 INTRODUCTION

## 1.1 Background

1.1.1 KMC Transport Planning Ltd (KMC) has been appointed by Oxford Development Limited (OUD), a joint venture between the University of Oxford (OU) and Legal and General, to provide transport advice and prepare supporting technical documentation to accompany the outline planning application relating to the proposed development of Begbroke Innovation District (the Site). The Site forms part of the land that was allocated as part of the Cherwell Local Plan (Part 1) 2011-2031 Partial Review (referred to herein as the 'Partial Review Local Plan') under Policy PR8 in order to meet Oxford's unmet housing needs.

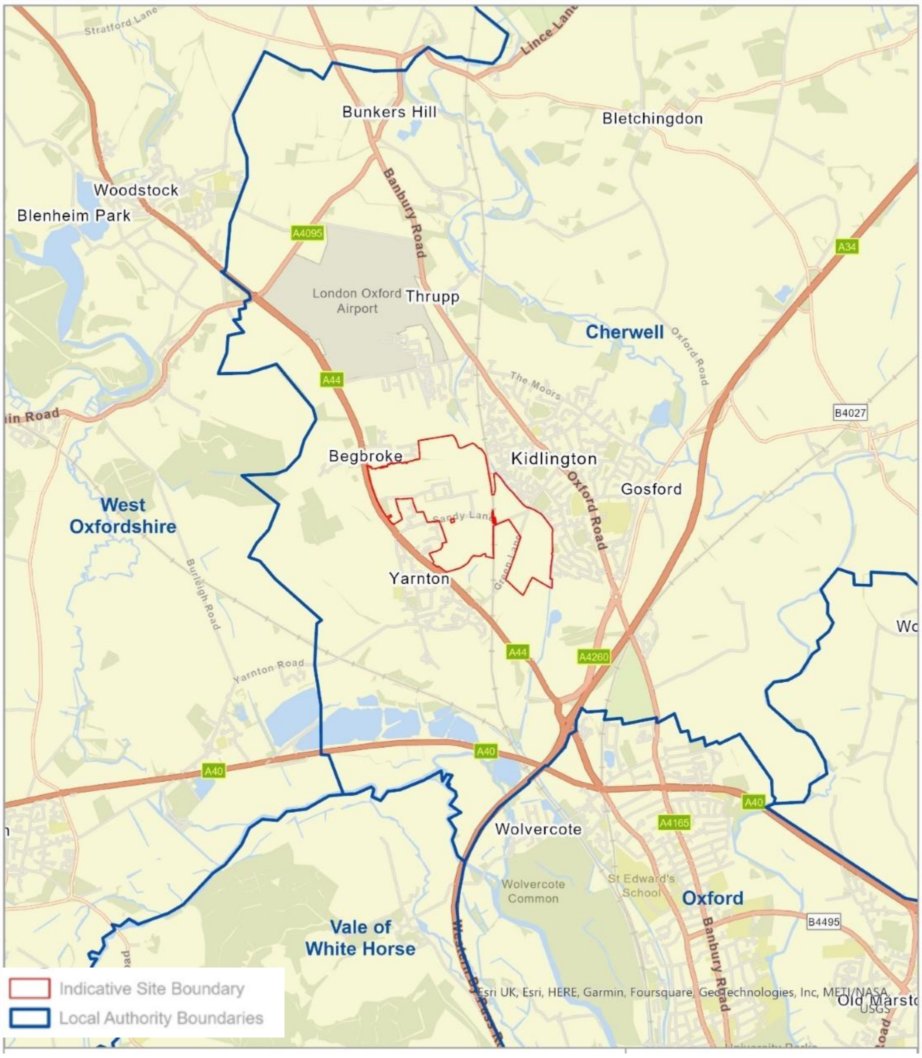
1.1.2 The circa 170 hectare (ha) site has been allocated within the Partial Review Local Plan as it is considered there are "*the 'ingredients' for a contemporary, higher density, environmentally responsible, landmark development, which marks a new approach along the A44 to Oxford and which becomes the connecting centre piece of the Partial Review's vision for the area*."[1] From a transport perspective, the key ingredient is the *"opportunity to integrate an overarching sustainable transport strategy from the outset."*

## 1.2 The Site

1.2.1 The Site is bisected by the Oxford-Banbury railway line, with roughly two thirds lying to the west and one third to the east. The land to the east of the railway line, closer to Kidlington village, is not identified for built development and so the operational centre can be taken to be Begbroke Science Park. This is located circa 7.35km northwest of Oxford city centre, circa 1.25km west of Kidlington village centre and close to the villages of Yarnton and Begbroke. The existing Begbroke Science Park is situated in the northern portion of the Site, which accommodates laboratories, engineering facilities and administrative buildings, with the remainder of the Site predominantly agricultural land. An historical landfill site, known as Sandy Lane East, is located in the centre of the Site and is approximately 5.2ha in area. The Site location is shown in **Figure 1.1**.

[1] Paragraph 5.110 of the Cherwell Local Plan 2011-2031 Partial Review (2020)

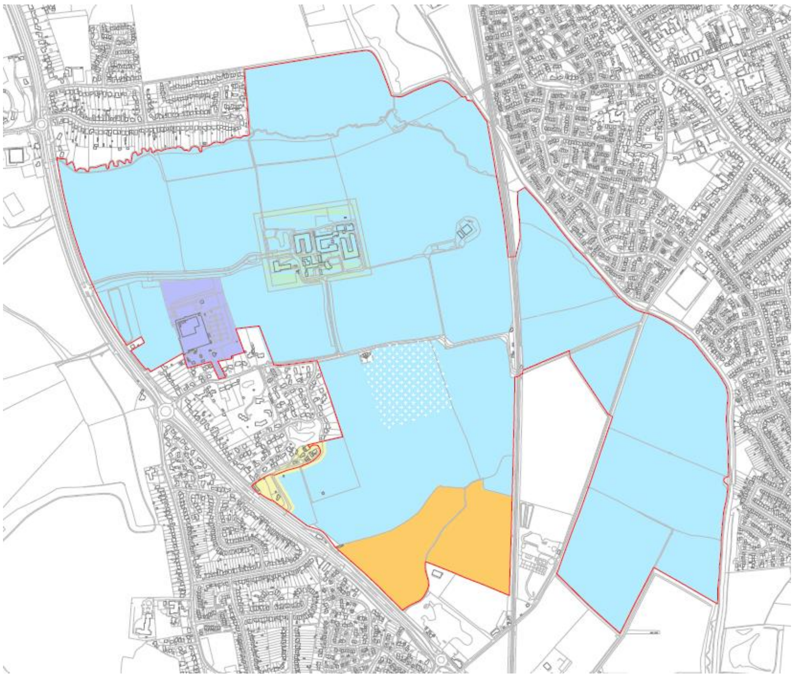
**Figure 1.1: Site Location**




1.2.2 Sandy Lane crosses the Site on an east-west alignment on an axis which is broadly midway across the Site, joining the A44 (Woodstock Road) to the west of the Site and Yarnton Road in Kidlington to the east of the Site. The Cherwell Valley railway line passes through the Site on an approximate north-south alignment and Oxford canal runs along the eastern boundary of the Site.

1.2.3 **Figure 1.2** illustrates the land ownership of the PR8 allocated site. The land owned by OUD, which forms the basis of this outline application for Begbroke Innovation District, forms the vast majority of the PR8 allocation and is identified in blue in **Figure 1.2**. The remaining PR8 allocation is formed of land owned by Hallam Land (identified in orange in **Figure 1.2**) and Newcore (identified in purple in **Figure 1.2**).

**Figure 1.2: Land ownership of the PR8 allocated site**



## 1.3 Overview of Proposals

1.3.1 An Innovation District is an *"area with networks of knowledge-producing organisations such as universities, research bodies, teaching hospitals, cultural institutions, and knowledge-intensive businesses. They bring together innovators, entrepreneurs, researchers, creatives, knowledge workers and investors to work together, to collaborate, compare and compete, creating the conditions for business growth."*[2]

1.3.2 However, research in Innovation Districts[3] has identified a need to create a stronger sense of place and vibrancy and that the right type of mix of residential accommodation, cafes, restaurants, retail, event spaces and opportunities for animation are important components to support interactions between people.

1.3.3 OUD's vision is aligned to this emerging thinking in Innovation Districts and seeks to develop a well-connected new community that provides much-needed housing and excellent new places for learning, leisure and work – generating a wide range of jobs and activities.

1.3.4 It is proposed to develop a residential-led mixed used development, which will include up to 215,000 sqm of residential floorspace (which has been equated to circa 1,800 homes for the purposes of this assessment), up to 155,000 sqm of flexible employment uses and supporting social, retail, leisure and community uses, including two primary schools, a secondary school and local centre.

[2] UK Innovation Districts and Knowledge Quarters, UK Innovation Districts Group, Arup

[3] UK Innovation Districts and Knowledge Quarters, UK Innovation Districts Group, Arup

1.3.5 The development is supported by a comprehensive sustainable transport strategy. OUD's plans for Begbroke Innovation District are to take a long-term, high-quality approach to placemaking. The development will deliver high levels of environmental sustainability, putting active travel and public transport at the top of the movement hierarchy. The development seeks to create a vibrant new community, while also building strong connections with the existing communities around it. Indeed, the Partial Review Local Plan recognises that the development has the ingredients to become *"the connecting centre piece of the Partial Review's vision for the area."*[4]

## 1.4 Engagement

1.4.1 The transport aspects of the proposed development have been subject to comprehensive pre-application discussions with Cherwell District Council (CDC), as local planning authority and Oxfordshire County Council (OCC), as local highway authority. In relation to transport, the pre-application engagement has included discussions on:

- Transport modelling;
- Development of the illustrative masterplan from a transport perspective;
- Active travel strategy both in terms of the masterplan design and connections to the wider area and off-site active travel improvements;
- Public transport strategy in terms of provision for public transport within the Site and strategy for improvements to public transport services and infrastructure;
- Street design; and
- Sandy Lane bridge and bridge across Oxford Canal.

1.4.2 In addition, a pre-application Scoping Opinion was published by CDC dated 27th January 2023 regarding an Environmental Impact Assessment for the development.

1.4.3 A series of Community Drop-in Exhibitions were undertaken in July 2022, November 2022, and March 2023 to get feedback on the emerging development proposals. A series of stakeholder workshops were also undertaken alongside the drop-in exhibitions. A final series of Community Drop-in Exhibitions were held in July 2023 to show the local communities what will be included in the outline planning application.

1.4.4 Design Review Panels were also held in November 2022 and May 2023. The Panel was made up of a number of nationally respected built and natural environment professionals who critiqued the emerging Begbroke Innovation District masterplan and identified where the design and strategy could be improved to achieve the best possible outcomes.

1.4.5 Transport related comments arising from the pre-application engagement have informed the design of the proposed development, the development of the Transport Strategy and assessment of the transport effects.

[4] Paragraph 5.110 of the Cherwell Local Plan 2011-2031 Partial Review (2020)

## 1.5 Purpose of Report

1.5.1 This Transport Assessment (TA) has been prepared by KMC to support the outline planning application for the Begbroke Innovation District, which forms a major part of the allocated PR8 site in the Partial Review Local Plan (land identified in blue in **Figure 1.2**).

1.5.2 This TA analyses the transport effects of the proposed development of Begbroke Innovation District once it is fully occupied as well as the cumulative transport effects of the PR8 allocated site, the other PR sites adopted in the Partial Review Local Plan and other relevant committed development as agreed with OCC.

1.5.3 This TA sets out the strategies for walking, wheeling, cycling, public transport and private vehicles in order to deliver sustainable development. From a transport perspective, the key objective of the proposed development is to achieve a low car mode share, with a preference for sustainable modes of transport. This TA details how this objective will be met at the proposed development.

1.5.4 There are a number of transport related control documents that support the outline planning application, which are:

- Framework Site Wide Travel Plan;
- Framework Construction Traffic Management Plan; and
- Framework Delivery and Servicing Plan.

1.5.5 The transport control documents sit alongside the other control documents, which are the Development Specification, Parameter Plans and Strategic Design Guide. The control documents along with a Planning Permission and Section 106 Agreement, would establish a framework within which future Development Area Briefs and Reserved Matters Applications would be prepared.

1.5.6 In addition to this TA and the transport control documents, there is as a Transport and Access Chapter of the Environmental Statement (ES).

1.5.7 This TA should be read in conjunction with all other documents submitted in the outline planning application.

## 1.6 Scope of Report

1.6.1 This TA is based upon 'Planning Practice Guidance: Travel Plans, Transport Statements, and Statements in Decision-Taking', published by the Department for Transport (DfT) in 2014 and OCC's 'Transport for New Developments: Transport Assessments and Travel Plans' also published in 2014. The remainder of this TA is structured as follows:

- Section 2: Policy Context and Guidance;
- Section 3: Existing Transport Conditions;
- Section 4: Future Transport Conditions;

- Section 5: Development Proposals;
- Section 6: Sustainable Transport Strategy;
- Section 7: Trip Generation, Distribution and Mode Share;
- Section 8: Transport Effects;
- Section 9: Approach to Decide and Provide; and
- Section 10: Conclusions.

# 2 POLICY CONTEXT AND GUIDANCE

## 2.1 Introduction

2.1.1 This section of the TA summarises the relevant national and local policy in the context of the Site and the proposed development at Begbroke Innovation District. The following national and local policy documents are of relevance:

2.1.2 National:

- National Planning Policy Framework (NPPF) (2021);
- Planning Practice Guidance: Travel Plans, Transport Statements, and Statements in Decision-Taking (2014);
- Manual for Streets;
- Sport England: Active Design (2023); and
- Local Transport Note (LTN) 1/20 Cycle Infrastructure Design (2020).

2.1.3 Local:

- Cherwell Local Plan Part 1 (2015);
- Cherwell Local Plan Part 1 Partial Review (2020);
- Oxfordshire Local Transport and Connectivity Plan (2022);
- Central Oxfordshire Travel Plan (2023);
- Oxfordshire County Council New Street Design Guide (2021);
- Oxfordshire County Council Transport for New Developments: Transport Assessments and Travel Plans (2014); and
- Oxfordshire County Council Parking Standards for New Developments (2022).

## 2.2 National Policy and Guidance

### National Planning Policy Framework (2021)

2.2.1 The revised National Planning Policy Framework (NPPF) came into force in July 2021 and sets out the Government's planning policies for England and how these are expected to be applied. Section 9 of the NPPF sets out the national policy on promoting sustainable transport.

2.2.2 Paragraph 104 states that "*transport issues should be considered from the earliest stages of plan-making and development proposals, so that:*

- *the potential impacts of development on transport networks can be addressed;*
- *opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;*
- *opportunities to promote walking, cycling and public transport use are identified and pursued;*

- *the environmental impacts of traffic and transport infrastructure can be identified, assessed, and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and*
- *patterns of movement, streets, parking, and other transport considerations are integral to the design of schemes and contribute to making high quality places."*

2.2.3 Paragraph 110 states that within new development 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;*
- *the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and*
- *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."*

2.2.4 Paragraph 111 goes on to state 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."*

2.2.5 Paragraph 112 sets out the priorities for developments from a transport perspective. Of note is the need to "*give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas." It goes on to note the importance of creating places that are "safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards*."

2.2.6 The approach taken to the development of the Transport Strategy for Begbroke Innovation District has demonstrably adopted a sustainable, hierarchical approach, with active travel and public transport modes being considered and planned for first, and given greater emphasis and priority in the design process than has been given to the private car. This assessment recognises that there will be a need for some car use, and, more particularly, that deliveries and service activities will need to be undertaken by road to achieve a sustainable development. Therefore, the residual effects of road-based movement activity have been assessed and their impacts considered and mitigated where appropriate in line with the approach set out in NPPF.

2.2.7 The cumulative residual highway impacts that have been shown to arise cannot be considered severe in the context that meaningful alternative modes have been incorporated into the development proposals. This means that these trips are not reliant on car based travel, and so user choices are both created and can be encouraged to avoid excessive demand on the highway network. In addition, where appropriate, mitigation measures have been defined that are capable of offsetting these impacts to levels that are below what may be considered severe.

### Planning Practice Guidance: Travel Plans, Transport Statements, and Statements in Decision-Taking (2014)

2.2.8 Following the withdrawal in October 2014 of The Department for Transport (DfT) 'Guidance on Transport Assessment' (March 2007), the DfT published the Planning Practice Guidance (PPG) suite of guidance, which is continually being updated. This guidance is intended to assist all stakeholders in determining whether an assessment may be required and, if so, what level and scope that assessment should include.

2.2.9 The PPG provides guidance on:

- whether a Transport Assessment or Transport Statement is required;
- when a Travel Plan is required;
- establishing a scope for the Transport Assessment and Travel Plan; and
- what information is to be included in the Transport Assessment and Travel Plan.

2.2.10 The scale and nature of the proposals at Begbroke Innovation District mean that a Transport Assessment and Travel Plan are required to support the application, and this approach was recognised by the Partial Review Local Plan. The scope of the Transport Assessment, and other supporting transport documents, was informed by the PPG, but also supported by a process of liaison and agreement with the relevant authorities during the preparation of the application. The wider consultation process that was undertaken was also used to inform the content and approach to this Transport Assessment.

### Manual for Streets

**2.2.11** In 2007 the DfT published Manual for Streets (MfS), which provided guidance on the design, construction and maintenance of residential streets based on a detailed appraisal of operational factors and the findings of empirical research.

2.2.12 For the purpose of MfS, a street is defined as a place in its own right, which, although it may well contain a highway, has important public realm function beyond the pure movement of traffic. Most highways in built-up areas can be considered as streets.

2.2.13 MfS aims to assist in the creation of streets that:

- *"help to build and strengthen the communities they serve;*
- *meet the needs of all users, by embodying the principles of inclusive design;*
- *form part of a well-connected network;*
- *are attractive and have their own distinctive identity;*
- *are cost-effective to construct and maintain; and*
- *are safe."*

*2.2.14* The illustrative masterplan and the Access and Movement Parameter Plan have been designed in accordance with principles set out in MfS. The detailed design of the streets within the proposed development will form part of future reserved matters applications, and the streets will be designed in accordance with the MfS design guidance, taking account of other relevant design guidance set out in this Section.

*2.2.15* It is also noted that MfS should be considered as a starting point for good design, and that the principles it espouses should not be applied blindly, but should be interpreted in the light of new innovations and technologies. As an example, MfS pre-dates the widespread adoption of "wheeling" modes of personal transport, and so does not address the requirements and interactions of these users with others who may legitimately use a street. However, the hierarchical, sustainable and safety conscious principles that it sets out can be easily applied to design solutions in the context of these, and other, more recent innovations.

*2.2.16* In common with best practice in terms of place-making, the MfS principles also make clear that thought should be given to potential future changes and trends, and that it may well be sensible to incorporate and allow for these in the design of streets now. Therefore, at Begbroke Innovation District, it is intended that the detailed designs of streets, as they come forward as part of reserved matters applications, will give consideration to maintaining resilience in the transport network, as far as possible.

### Sports England: Active Design

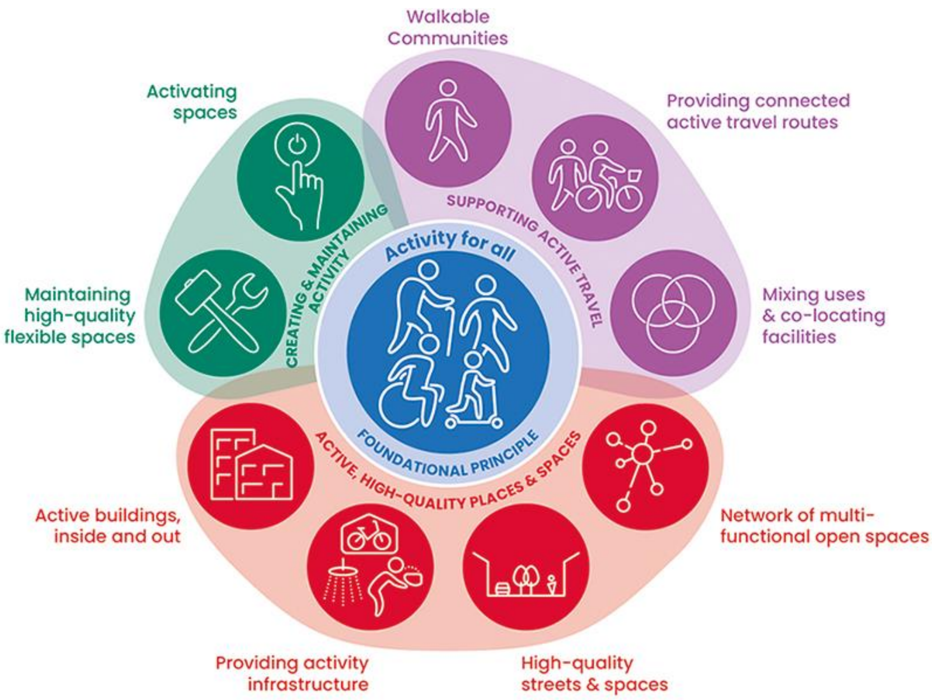
2.2.17 Active Travel England is the government's executive agency sponsored by the Department for Transport and responsible for making walking, wheeling and cycling the preferred choice for everyone to get around in England.

2.2.18 Active Travel England became a statutory consultee on the 1st June 2023 on all major planning applications that include 150 dwellings or more, building(s) (not exclusively residential) of 7,500 sqm internal floor space or more and sites where the overall development area is 5ha or more. Active Travel England will therefore be a statutory consultee for the outline application for Begbroke Innovation District.

2.2.19 Active Travel England will apply their latest 'Active Design' guidance (released by Sport England in May 2023, supported by Active Travel England and the Office for Health Improvements and Disparities) to consider developments that they are consulted on. The guidance provides a toolkit for developers, officers, and consultants to ensure that 'activity for all' is at the heart of new developments.

**2.2.20** The guidance puts 'Activity for All' as the founding principle of good design, building upon this foundation with a further nine principles. **Figure 2.1** is an extract from the Active Design guidance and summarises the 10 active travel principles.

**Figure 2.1: Active Travel England Design Principles**




2.2.21 The application of these Active Design Principles at the Site will ensure that residents, employees and visitors will be able to lead healthier and more active lifestyles. Section 6 of this Transport Assessment summarises the overarching Transport Strategy for the proposed development and how it accords with the Active Design Principles.

### Local Transport Note (LTN) 1/20 Cycle Infrastructure Design

2.2.22 LTN 1/20 'Cycle Infrastructure Design' was published by the Department for Transport in July 2020 and provides guidance to local authorities and developers 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; and
- construction and maintenance.

2.2.23 There are five core design principles which represent the essential requirements to achieve more people travelling by cycle or on foot, based on best practice both internationally and across the UK. Networks and routes should be Coherent; Direct; Safe; Comfortable and Attractive.

*2.2.24* The illustrative masterplan has been designed in accordance with the core design principles set out in LTN1/20. The detailed design of the street design will form part of future reserved matters applications, and the cycle infrastructure will be designed in accordance with LTN1/20.

*2.2.25* In addition, the government has more recently incorporated "wheeling"[5] into its active travel guidance, with measures contained in the 'Second Cycling and Walking Investment Strategy'[6] that make clear that other forms of personal mobility will be considered legitimate as part of active travel proposals. Therefore, these modes will also be considered, within the broad principles set out by LTN1/20 in respect of wheeling.

## 2.3 Local Policy and Guidance

### Cherwell Local Plan 2011-2031 (Part 1) Partial Review (2020)

2.3.1 The Partial Review Local Plan forms an addendum to the Cherwell Local Plan 2011-2031 (adopted 2015) and provides a vision, objectives, and specific policies for delivering additional development to help meet Oxford's housing needs.

2.3.2 The Partial Review Local Plan has been prepared to meet a commitment Cherwell made to neighbour councils to provide a share of Oxford City's unmet housing needs by 2031 as Oxford City cannot fulfil these needs itself. Oxford City requires an additional 28,000 homes to be built between 2011-2031. In 2016, the Oxfordshire Growth Board decided on an apportionment of 14,850 homes to the district and city councils. Cherwell District was asked to consider the accommodation of 4,400 homes in addition to its existing Local Plan commitments (22,840 homes).

2.3.3 The Partial Review Local Plan seeks to ensure that developments proposed because of these needs are:

*"Well connected to Oxford and supports the city's economy, universities, and its local employment base. In addition, growth must ensure that people have convenient, affordable, and sustainable travel opportunities to the city's places of work and to its services and facilities"*

2.3.4 The Partial Review Local Plan allocated a number of sites, referred to as the Partial Review (PR) sites. The Site forms part of the PR8 site, which is the largest of the allocated sites. **Table 2.1** summarises the number of dwellings each of the PR sites was allocated for.

[5] Wheeling includes people who use wheelchairs and mobility scooters who may not identify with walking

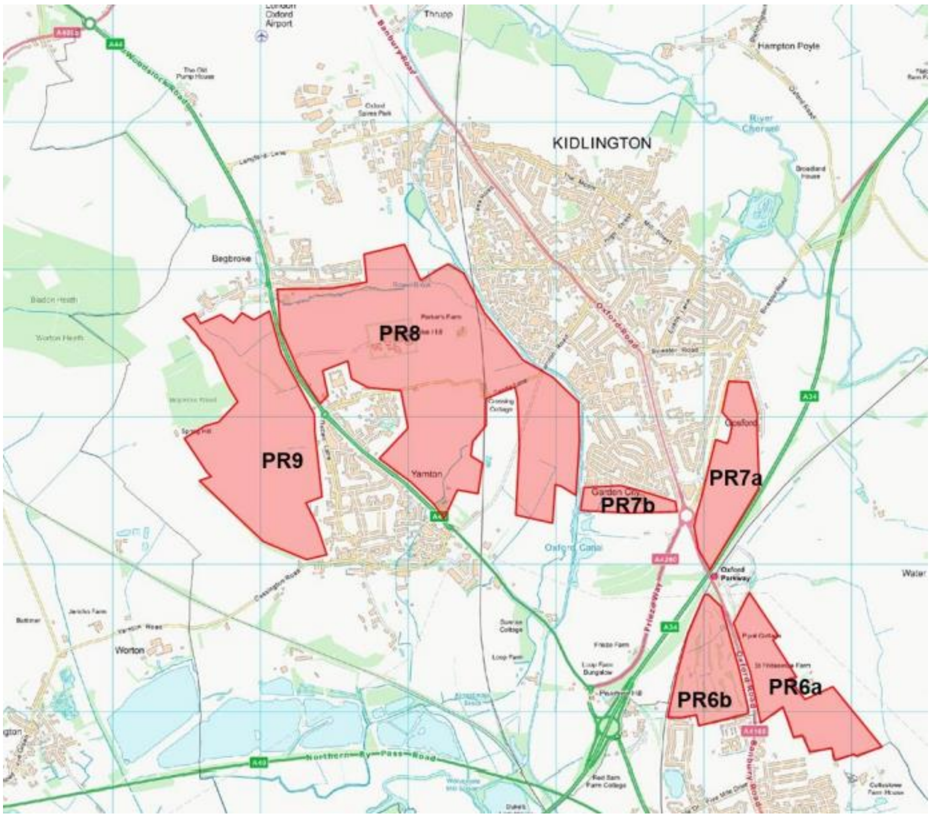
[6] Second Cycling and Walking Investment Strategy, DfT and Active Travel England, July 2022 and updated March 2023 (https://www.gov.uk/government/publications/the-second-cycling-and-walking-investment-strategy/the-second-cycling-and-walking-investment-strategy-cwis2)

**Table 2.1: Allocated housing schedule for PR sites**

| Area | Allocated site | Number of dwellings |
|---|---|---|
| North Oxford | PR6a | 680 |
| | PR6b | 670 |
| | PR6c | Reserved for replacement golf course |
| Kidlington | PR7a | 430 |
| | PR7b | 120 |
| Begbroke/Yarnton | PR8 | 1,950 |
| Yarnton | PR9 | 540 |
| **Total** | | **4,400** |

2.3.5 **Figure 2.2** illustrates the location of the PR sites.

**Figure 2.2: Location of Allocated PR Sites**




2.3.6 From a transport perspective, the Partial Review Local Plan has nine measures that seek to respond to transport issues in the area (paragraph 5.61). These are listed below:

- *"Integrating the County Council's sustainable transport proposals into the planning of new development.*

- *Assisting with the implementation of Rapid Transit proposals and the delivery of new infrastructure and facilities for cycling, walking and wheelchair users.*
- *Reducing traffic impacts, including on air quality.*
- *Improving priority for pedestrians, cyclists, and wheelchair users.*
- *Helping improve connectivity between Kidlington, existing employment areas, Begbroke and Yarnton.*
- *Helping to achieve improvements to the routeing of traffic and traffic management.*
- *Improving the quality and usability of connections to Oxford.*
- *Planning for a more integrated network for pedestrian, cyclists, and wheelchair users.*
- *Helping to deliver sustainable transport improvements through the centre of Kidlington in a way that will achieve improvements to central Kidlington and the public realm."*

2.3.7 Notable in the above is the need to improve connectivity between Kidlington, existing employment areas, Begbroke and Yarnton. The development proposals for the Begbroke Innovation District seek to achieve this through a network of high-quality walk, wheeling and cycle routes through the Site.

2.3.8 The Site forms part of the land allocated under Policy PR8 of the Partial Review Local Plan. Paragraph 5.110 of the Partial Review Local Plan states that in the location of the PR8 site "*there are the 'ingredients' for a contemporary, higher density, environmentally responsible, landmark development which marks a new approach along the A44 to Oxford and which becomes the connecting centre piece of the Partial Review's vision for the area."*

2.3.9 Amongst other important components, the Partial Review Local Plan considers that the PR8 allocation should be accompanied by fully integrated sustainable transport infrastructure and services. It must represent the "*best fit with the County Council's Oxford Transport Strategy, its proposal for rapid transit into Oxford, which contributes to achieving an overall modal shift in the proportion of commuters accessing Oxford by public transport rather than by car, in the delivery of cycling improvements along the A44 and in improving sustainable transport connections between Kidlington, Begbroke and Yarnton."*

2.3.10 In summary, the PR8 allocation is expected to deliver 'a new urban neighbourhood on 190 hectares (ha) of land inclusive of the following:

- 1,950 dwellings (net) with 50% affordable housing;
- Reservation of 14.7 hectares of land for the potential expansion of Begbroke Science Park
- A secondary school with a four court sports hall available to the public;
- A 3-form entry primary school;
- A 2-form entry primary school, if required by the Education Authority;
- A local centre with between 350-500 sqm A1 retail, ancillary business development and/or financial and professional uses, a café or restaurant, and community building;
- Formal sports and play areas, nature conservation area and public open green space;
- Two points of vehicular access from the A44, including the use of the existing Science Park access road;

- Use of Sandy Lane as a 'green' pedestrian, cycle, and wheelchair route between the development and the built up area of Kidlington including the incorporation of a bridge or subway;
- Provision for a pedestrian, cycle, and wheelchair bridge across the Oxford Canal to facilitate connections to the allocated site at Stratfield Farm (Policy PR7b); and
- The reservation of 0.5 ha of land for a future railway halt/station.

2.3.11 Appendix 4 of the Partial Review Local Plan identifies infrastructure schemes that are intended to support the sustainable development of the PR sites.

2.3.12 Of relevance within the original Local Plan adopted in 2015 is Policy SLE4, which highlights the need for *'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.*

*[…] 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."*

### Oxfordshire Local Transport and Connectivity Plan (2022)

2.3.13 OCC adopted the Local Transport and Connectivity Plan (LTCP) in July 2022, which is the fifth Local Transport Plan and outlines the long-term vision for transport in Oxfordshire up to 2050 and the polices required to deliver this.

2.3.14 The LTCP vision is to deliver a zero-carbon transport system in Oxfordshire that enables the county to thrive whilst protecting the environment and making it a better place to live for residents. The LTCP summarises the vision as:

*"Our Local Transport Plan Vision is for a zero-carbon Oxfordshire transport system that enables all parts of the county to thrive. Our transport system will enable the county to be one of the world's leading innovation economies, whilst supporting clean growth, tackling inequality, and protecting our natural and historic environment. It will also be better for health, wellbeing, social inclusivity, and education. Our plan sets out to achieve this by reducing the need to travel and discouraging unnecessary individual private vehicle use through making walking, cycling, public and shared transport the natural first choice."*

2.3.15 The Council plans to achieve this vision by reducing the need to travel, discouraging unnecessary individual private vehicle journeys, while making walking, cycling, public and shared transport the natural first choice for transport.

2.3.16 Three key headline targets have been set in the Oxfordshire LTCP to assist in the achievement of this vision, all containing equal weight. These are listed below:

- By 2030: Replace or remove 1 out of every 4 current car trips in Oxfordshire.
- By 2040: Deliver a zero-carbon transport network. Replace or remove one out of every three current car trips in Oxfordshire.
- By 2050: Deliver a transport network that contributes to a climate positive future.

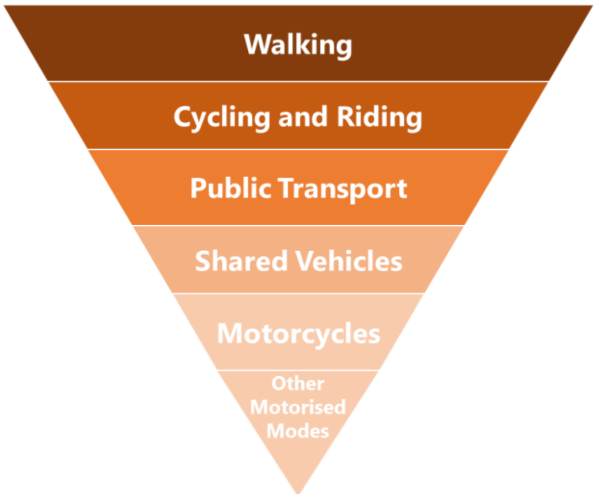
2.3.17 OCC aims to achieve the transport targets by the following measures:

- Promoting waking and cycling through new and upgraded physical infrastructure and community activation measures;
- Investment in strategic public transport networks and the provision of better and quicker bus and rail services;
- Improving multi-modal travel, including the development of mobility hubs where people can easily change between different forms of transport, so that a longer trip is not made by car;
- Improving road safety to create safe and attractive infrastructure for vulnerable road users, including people walking and cycling;
- Improving digital connectivity to support remote working and digital access to services; and
- Supporting transport innovations that will help us make walking, cycling, public and shared transport more attractive.

2.3.18 The LTCP also provides a number of transport related policies that will help deliver the Council's vision and respective targets. The key policies relevant to the proposed development are summarised below:

- Policy 1: Develop, assess, and prioritise transport schemes and policies according to the following transport user hierarchy shown in **Figure 2.3**

**Figure 2.3: LTCP Transport User Hierarchy**



- Policy 2: Develop comprehensive walking and cycling networks that are inclusive and attractive to the preferences and abilities of all residents in all towns and ensure all new developments have safe and attractive walking and cycling connections.
- Policy 5: Protect and enhance PROWs.
- Policy 8: Embed the Healthy Streets Approach to encourage walking and cycling.
- Policy 10: Support the creation of safe streets through traffic measures and encourage the use of filtered permeability in new developments to create safe and strategic walking and cycling routes.
- Policy 11: Work with schools to encourage walking and cycling.
- Policy 13: Support the application of the 20-minute neighbourhood concept to create walkable and vibrant neighbourhoods.
- Policy 15: Adopt a zero vision approach, which aims to eliminate all fatalities and severe injuries on Oxfordshire's roads and streets.
- Policy 16: Promote 20mph zones within the County.
- Policy 18: Improve the bus network within Oxfordshire and seek to make bus the natural first choice, giving it priority over the private car.
- Policy 21: Develop a detailed rail strategy that identifies potential future rail projects and opportunities.
- Policy 23: Support the development of mobility hubs in order to improve interchange opportunities, connectivity, and accessibility.
- Policy 24: Promote fibre broadband connectivity for all new residential developments to increase the ability to work from home, and support the creation of Local Community Hubs, thus reducing the need to travel.
- Policy 29: Ensure that all new development have appropriate and future proofed provision for EV charging infrastructure.
- Policy 31: Undertake network management, utilising emerging technologies, to maximise the ability to tackle congestion issues in the County.
- Policy 33: Ensure parking requirements for all modes of transport are considered, in line with the transport user hierarchy (Policy 1), taking measures to reduce and restrict car parking availability.
- Policy 36: Adopt a Decide and Provide approach to manage and develop the country's road network in the assessment of development proposals, and in planning policy development to support a site assessment.
- Policy 38: Manage, support, and monitor the use of micro mobility (e-scooters) to further complement Oxfordshire's active travel network.
- Policy 39: Support the delivery of zero emission shared cars and car clubs to reduce the dominance of private cars.
- Policy 40: Seek to ensure new infrastructure is future-proofed for use by connected and autonomous vehicles.

2.3.19 The Transport Strategy for Begbroke Innovation District has been developed with each of these elements in mind, with specific measures and facilities that respond directly to these policy objectives where it is appropriate for the development to provide them. Some of the requirements will form the design requirements for more detailed reserved matters applications in due course (for example, the requirement for 20mph zones and provision for micro-mobility), whilst others are part of the over-arching proposals set out as part of the Transport Strategy and therefore incorporated as measures within this assessment (for example, the transport user hierarchy and support for mobility hubs).

### Oxfordshire County Council Decide and Provide Guidance

2.3.20 In September 2022, OCC adopted the guidance on 'Implementing Decide and Provide: Requirements for Transport Assessments.'

2.3.21 As set out in Policy 36 of the LTCP, another significant element of realising these aims will be to make the shift from an approach to transport planning characterised as 'predict and provide' towards adopting a 'decide and provide' approach instead.

2.3.22 The Decide and Provide guidance details how the 'decide and provide' approach is to be implemented through the transport assessments (or transport statements) and infrastructure delivery mechanisms which accompany planning applications for proposed development.

2.3.23 The guidance is set out in three main parts:

- the guiding principles that underpin the decide and provide approach;
- how potential traffic impacts are to be modelled and how trip rates should be appropriately evidenced; and
- the process for implementing the decide and provide approach through transport assessments by modelling a range of plausible scenarios and monitoring and managing outcomes.

2.3.24 This TA has been prepared in accordance with the Decide and Provide guidance and the approach to Decide and Provide is set out in Section 9, and this has been undertaken in liaison with the highway authority as part of the scoping process.

### Oxfordshire County Council New Street Design Guide (2021)

2.3.25 OCC adopted the 'Oxfordshire Street Design Guide' in September 2021. The guide aims to create:

*"A place where streets, through integrated quality and design, lead to a greater economic and social wellbeing and improved health for its residents, creating an environment for health lifestyles, sustainable travel and a zero-carbon economy."*

2.3.26 These standards have been prepared to ensure that new streets function in a practical and safe manner, while looking forwards to a future where the allocation of street space is reprioritised, and car ownership is reduced due to modal shift. In practical terms, the design guide needs to be applied in a way that builds on the idea of the "street as a place" that was initially explored in MfS. In this context, the relatively prescriptive criteria for hierarchies of streets may, in practice, need to be taken on a case-by-case basis to ensure that place-making as well as simply movement corridor demands are properly taken into account.

2.3.27 Creating high-quality streets and environment is dependent on meeting the following objectives:

- Prioritise sustainable and active travel to help reduce congestion - Design streets and places in a way that reduces car use while promoting sustainable active travel modes to help combat the climate emergency. This means creating streets that are linked, well connected, safe and attractive for walking and cycling;
- Provide a clear and permeable hierarchy of streets, routes and spaces which are inclusive and create safe and convenient ease of movement by all users;
- Ensure local services and facilities beyond the development are easily accessible by sustainable and active modes of travel;
- Built to last and to meet the County Council's maintenance needs;
- Understands and addresses the needs of all potential users to ensure inclusive design;
- Ensures a sufficient level of well-integrated and imaginative solutions for car and bicycle parking and external storage including bins;
- Take into account all relevant County Council/District Council Design Guides - including County Council School Design and Process documents in a holistic manner, ensuring streets are designed through multidisciplinary collaboration; and
- Be informed by a contextual analysis of the area.

2.3.28 The Oxford Street Design Guide also places a focus upon the creation of 'filtered permeability' using the user hierarchy guide, stating that:

*"Walking and cycling routes must be direct, convenient, and well designed. When designing new developments, establishing the movement framework using the above user hierarchy will show the opportunities to create modal filters throughout the development"*

2.3.29 Section 2 of the document examines general streetscape parameters categorised by different route types.

2.3.30 General design principles of Primary Streets include:

- 5.5m wide roads;
- 2m wide footways;
- Direct residential access permissible in both forward and reverse gear;
- Parallel on street parking bays where no driveways present with 0.5m buffer to protect cyclists;
- 2m cycle lane on the footway side of the on-street parking to avoid conflicts;
- Raised table or surface change to announce side road junction (at-grade for bus routes);
- Horizontal changes of direction to provide landscaping, parking, and traffic speed reduction opportunities; and
- Access to side roads: reduce junction geometry to a tracked minimum to help reduce vehicle speeds and provide better pedestrian environment.

2.3.31 Following from this, general design principles of Secondary Streets include:

- Appropriate carriageway width (approx. 5m);
- 2m wide footways;
- Pedestrian priority over minor junction;
- Wider carriageway at access point when directly off a primary routes;
- Direct residential access permissible;
- Informal planting to create horizontal deviation;
- Potential for surface changes of raised table treatment with side junctions;
- Private perpendicular parking permissible; and
- Verge or adopted visitor parking.

2.3.32 Oxford Street Design Guide section 3.1 states the need for high quality infrastructure for cycling, predominantly based upon LTN 1/20 (DfT, 2020). It is a requirement that all new development must be designed in line with LTN 1/20, where special attention should be given to cycle infrastructure set out in table 4.1 and 5.2 of LTN 1/20.

2.3.33 The Oxford Street Design Guide states that cycle parking provision, along with the quality and type, should be considered at the start of the development, in order to assist in the promotion of cycling as an active travel mode. Reference should be made to OCC's 'Cycling Design Standards' and Chapter 11 of LTN 1/20 (DfT, 2020) when considering cycle parking provision.

2.3.34 The Oxford Street Design Guide provides guidance on car parking provision for new developments, exploring which style of parking provides the most suitable provision ensuring the maximum benefits. This includes:

- On-plot;
- Rear Parking Court;
- On street; and
- Frontage parking.

2.3.35 The guide also considers school drop off areas, including what measures can be taken to provide the highest levels of convenience and safety. A key message from the guidance is that at the early stage of the planning process, it is encouraged that schools should be placed close to other amenities (e.g., sports centres, community centres etc). This makes it possible to share parking spaces for a brief period of time. Only if this is not feasible should dedicated drop off places be considered.

2.3.36 Regarding electric vehicle (EV) parking provision, The UK Government's 'Road to Zero Strategy' restricts the sale of fossil-fuelled cars from 2030 with all new cars and vans being fully zero emission from 2035 i.e., no plug-in hybrid electric vehicles (using batteries and diesel or petrol). Current predictions by OCC are that at least 1 in 5 cars on Oxfordshire's roads will be fully electric by 2030.

2.3.37 The Oxfordshire Street Design Guide includes requirements related to Electric Vehicle (EV) charging in section 3.2:

- All houses with on-plot parking should have a dedicated EV charging point;

- A minimum of 25% of unallocated spaces should be equipped with EV charging;
- A minimum of 25% of non-residential parking spaces should be equipped with EV charging;
- Smart chargers should be used (minimum 7kWh AC);
- Fast charging points recommended for most applications, with rapid only appropriate in some specific situations (e.g., some higher density housing, workplaces and for commercial vehicles); and
- EV provision should be accommodated at transport hubs, such as Park and Ride sites.

2.3.38 Further to this guidance, OCC has prepared the 'Oxfordshire Electric Vehicle Infrastructure Strategy' (OxEVIS), which sets out the policies and plans to realise OCC's vision for EV charging between now and 2040. This focusses more on public EV charging infrastructure to ensure that the changing needs of Oxfordshire are met more broadly across the County.

### Oxfordshire County Council Transport for New Development: Transport Assessments and Travel Plans (2014)

2.3.39 OCC's Transport for New Development: Transport Assessments and Travel Plan sets out the thresholds for Transport Statements, Transport Assessments and Travel Plans and the scope of these planning documents. Appendix 1 of the guidance sets out the thresholds and based on this a Transport Assessment and Travel Plan is required to support the outline planning application for the Site.

### Oxfordshire County Council Parking Standards for New Developments (2022)

2.3.40 OCC's 'Parking Standards for New Developments' was adopted in November 2022. This document replaces OCC's previous parking guidance 'Transport for New Developments Parking Standards for New Residential Developments' (2011), the Second Edition of OCC's Residential Road Design Guide (2015) and paragraph 2.4.1 of the Oxfordshire Cycling Design Standards (2017).

2.3.41 The parking standards within the adopted guidance should be used alongside OCC's Street Design Guide and secure by design provisions. The recently adopted parking standards seek to reduce the parking provision within new developments compared to the previous standards as the County Council considers that the mode of transportation people choose for their journeys is significantly influenced by the availability of parking, both at the source and the destination. It is important to strike the right balance between ensuring highway safety for all users, promoting active and sustainable transportation choices, and offering an appropriate volume and type of parking.

2.3.42 Paragraph 6.0 of the Revised 'Parking Standards for New Developments' outlines the residential car parking standards for Edge of Oxford City sites. These are sites that Local Plans will support in meeting Oxford's unmet housing needs. The relevant adopted parking standards for Edge of Oxford City site are summarised in **Table 2.2**.

**Table 2.2: Edge of Oxford City Sites Car Parking Standards**

| Land Use | | Maximum Parking Standard |
|---|---|---|
| **Residential** | 1-2 bedroom dwelling | 1 space per dwelling to be provided within the development site |
| | 3 bedroom dwelling | Up to 2 spaces per dwelling to be provided within the development site |
| | 4+ bedroom dwelling | 2 spaces per dwelling to be provided within the development site |
| | Wheelchair accessible or adaptable houses and flats | 1 space per dwelling to be provided within the curtilage of the dwelling (must be designed in accordance with Part M of Building Regulations |
| | Student accommodation | 0 spaces per resident room. Operational parking and disabled parking to be considered on a case- |
| **Use E – Commercial, business and services** | Office, research and development and light industrial process | 1 space per 45 sqm |
| | Food and drink (mainly in premises) i.e. restaurants and cafes | 1 space per 10 sqm of public floor area |
| | Shops and retail | 1 space per 30 sqm |
| **Use F1 – Learning and non-residential institutions** | Assembly and Leisure (indoor sport, recreation or fitness, gyms) | 1 space per 30 sqm of public floor area |
| **Use F2 – Local community** | Shop no larger than 280 sqm (selling mostly essential foods and at least 1km from another similar shop), community hall, outdoor sport/recreation area, indoor or outdoor swimming pool, skating rink | 1 space per 30 sqm |

2.3.43 As part of the revised parking standards, all houses (including flats/apartments) should be provided with 1 electric vehicle (EV) charging point. Off-plot residential car parking provisions is to be provided with at least 25% active charging points for all parking spaces. Such infrastructure is to be provided in accordance with the Autonomous and Electric Vehicles Act (2018), Building Regulations Document S, and the government's ambitions on 'Smart EV Charging'.

2.3.44 'Active' charging points for electric vehicles for new non-residential development proposals are to be provided at a minimum level of 25% for all parking spaces with ducting provided at all remaining spaces to 'future proof' such spaces to be upgraded in the future.

2.3.45 In terms of visitor parking, developers are expected to take an approach that is consistent with national research which suggests, "that no special provision should be made for visitors where at least half of the parking provision associated with the development is unallocated. In other circumstances it may be appropriate to allow for additional demand for visitor parking of 0.2 spaces per dwelling" (DCL, 2007, Residential Car Parking Research). For some residential developments this approach may not necessarily be feasible. If this is the case, a maximum visitor parking level of 1 car parking space per every 5 residential units will be considered.

2.3.46 All development proposals will be expected to promote inclusive cycling, provision for cycles for disabled people and other needs (such as tricycles, cargo bikes, tandems, mobility scooters and adapted bicycles). Double decked or vertical cycle parking should not be used unless agreed by OCC in specific circumstances.

2.3.47 Parking facilities are required to be provided in accordance with LTN 1/20 standards. The minimum cycle parking standards are summarised in **Table 2.3** below.

**Table 2.3: Minimum Cycle Parking Standards**

| Land Use | | Minimum Cycle Parking Standard |
|---|---|---|
| **Residential** | All except sheltered/elderly housing or nursing homes | 1 space per bedroom* |
| **Use E – Commercial, business and services** | Office, research and development and light industrial process | 1 space per 100 sqm for staff and 1 space per 250 sqm for visitors |
| | Food and drink (mainly in premises) i.e. restaurants and cafes | 1 space per 4 staff and 1 space per 25sqm for customers. |
| | Shops and retail | 1 space per 50sqm for staff and 1 space per 50sqm for customers. |
| | Assembly and Leisure (indoor sport, recreation or fitness, gyms) | 1 space 50 sqm or 1 per 30 seats capacity. Plus 1 space 5 per employees. |
| **Use F1 – Learning and non-residential institutions** | Education, gallery, museum, public library, public exhibition hall, place of worship, law courts | Staff provision 1 space per 20 staff. Student provision 1 space per 10 students. |
| **Use F2 – Local community** | Shop no larger than 280 sqm (selling mostly essential foods and at least 1km from another similar shop), community hall, outdoor sport/recreation area, indoor or outdoor swimming pool, skating rink | 1 space per 50 sqm for staff and 1 space per 50 sqm for customers |

*Based on LTN 1/20 Table 11-1

# 3 EXISTING TRANSPORT CONDITIONS

## 3.1 Introduction

3.1.1 In order to consider the implications of development in transport terms, it is important to consider the status of existing transport networks. The proposed development in combination with the other PR sites will fund improvements to transport networks, which will result in a step change in transport provision to the north of Oxford and this will be captured in other sections of this TA. The existing transport networks that are currently in place provide the 'building blocks' for any future transport strategy and are summarised in this section.

## 3.2 Walk and Cycle Networks

### Walking Network

3.2.1 Footways are provided along the radial routes of the A44 and A4260, which connect Oxford with Woodstock and Kidlington, respectively. Along most of their length, these pedestrian routes benefit from verge separation from the adjacent carriageway, making them more comfortable for users. However, the route surfaces and widths are of a relatively poor standard and do not comply with the latest design standards.

3.2.2 No pedestrian facilities are provided along Sandy Lane, which takes the form of a narrow single carriageway road with a barrier-controlled level crossing. Begbroke Hill connects the A44 with the existing Begbroke Science Park and accommodates a shared footway/cycleway along its northern edge.

3.2.3 Limited formal east-west crossing opportunities are provided for pedestrians across the A44, which therefore creates a barrier to pedestrian permeability between the Site and origins/destinations further west. The following signal controlled and uncontrolled crossings are provided across the A44 corridor in the vicinity of the Site:

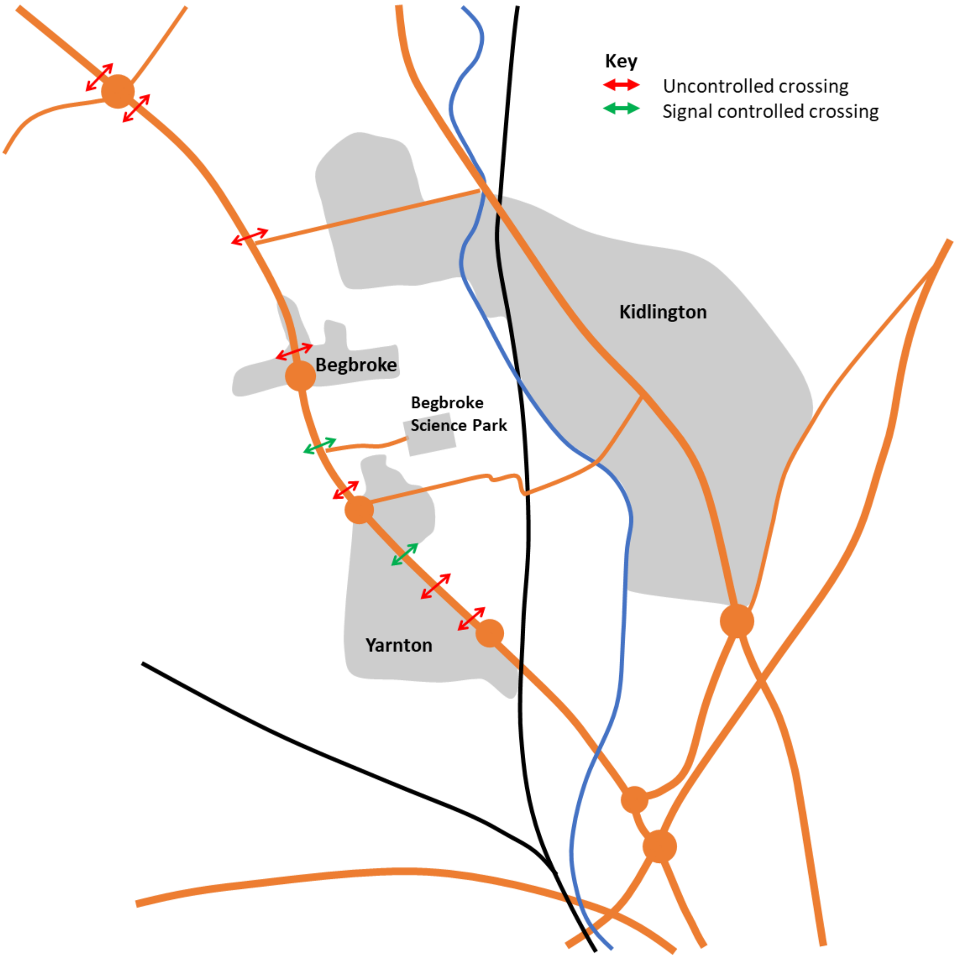
- Bladon roundabout: Uncontrolled pedestrian crossing points are provided across all arms of the Bladon roundabout at the junction of A44/A4095/Grove Road. The western and northern uncontrolled crossing points have recently been upgraded to include new surfacing and tactile paving.
- A44/Langford Lane: Uncontrolled pedestrian crossing points are provided across the northern and eastern arm of the three-arm signal-controlled junction. Pedestrians are required to cross the A44 in three movements (i.e. northbound carriageway, southbound carriageway and left turn filter lane). Dropped kerbs are provided at the crossings but with no tactile paving.
- A44/Spring Hill Road roundabout: Uncontrolled pedestrian crossing across the northern arm of the roundabout, which connects the eastern and western parts of Begbroke village to each other as well as providing a connection to the set of bus stops that serve the village. Dropped kerbs are provided at the crossings but with no tactile paving.

Pedestrians are required to cross both the A44 carriageway and the service road that runs parallel to the A44.

- A44/Begbroke Science Park: Staggered signalised pedestrian crossing facilities are provided across the A44 northern arm and Begbroke Science Park arm of the three-arm signalised junction. Dropped kerbs and tactile paving is provided on all crossing points of the junction.
- A44/Sandy Lane/Rutten Lane roundabout: Uncontrolled pedestrian crossing across the northern arm of the roundabout to enable pedestrians to access the set of bus stops on the A44 just to the north of Sandy Lane. Dropped kerbs are provided at the crossing but with no tactile paving. Pedestrians are required to cross both the A44 carriageway and the service road that runs parallel to the A44.
- A44/Gravel Pits Lane: A staggered signal-controlled pedestrian crossing is provided across the A44 connecting the east and west of Yarnton. The pedestrian crossing is in the vicinity of Gravel Pit Lane. Dropped kerbs and tactile paving are provided.
- A44/ BP and Shell Garages: Uncontrolled pedestrian crossing across the A44 mid-way between Sandy Lane and Cassington Road roundabouts to provide access between the BP and Shell garages, which also include a Spar and Budgens convenience shop. The crossing is of a poor quality and is sub-standard in all respects.
- A44/Cassington Road roundabout: Uncontrolled pedestrian crossing across the northern arm of the roundabout of A44/Cassington Road. Dropped kerbs are provided at the crossing but with no tactile paving.

3.2.4 **Figure 3.1** overleaf summarises the existing uncontrolled and signal-controlled crossings across the A44. There are currently only two signal-controlled crossing points across the A44 between Bladon roundabout and Pear Tree Interchange.

**Figure 3.1: Location of existing pedestrian crossings along the A44 corridor**




3.2.5 **Figure 3.2** illustrates the condition of the existing pedestrian crossing facilities along the A44 corridor based.

**Figure 3.2: Existing pedestrian crossing facilities along the A44 corridor**

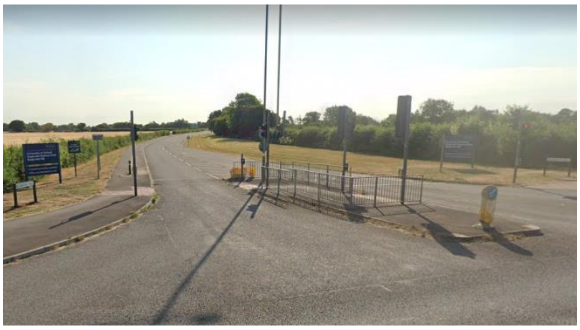
**Bladon roundabout (A44/A4095)**

### A44 / Langford Lane


### A44/ Spring Hill Road, Begbroke



### Begbroke Science Park




### A44/Sandy Lane/Rutten Lane


### A44/ Gravel Pit Lane

### A44/ BP and Shell Garage


### A44/ Cassington Road roundabout


### Cycle Network

3.2.6 Within the vicinity of the Site, the A44 forms part of National Cycle Route (NCR) 5; a long-distance route that begins in Reading and follows the northern half of the Thames Valley cycle route as it crosses the Chiltern Hills on the way to Oxford and further west. Along the A44, NCR 5 accommodates traffic-free sections in both directions with shorter intervals of on-road route sections. Notwithstanding this, the traffic free sections are not currently in accordance with latest standards set out in LTN1/20 'Cycle Infrastructure Design'.

3.2.7 NCR 51 is another long-distance cycling route that begins in Oxford and routes to Bicester, Milton Keynes, and Bedford. Within the vicinity of the Site it routes along Kidlington High Street, through residential streets to the west of A4260 before joining the A4260 and routing through Kidlington roundabout and along Oxford Road. It bypasses Cutteslowe roundabout and routes across a pedestrian/cycle bridge over the A40 and then through residential streets in Sunnymead and Summertown to access Oxford city centre, where the route terminates.

3.2.8 To the north corner of the Site, Begbroke Lane is a designated byway that can be used by cyclists, and this connects NCR 5 with NCR 51. **Figure 3.3** shows the national cycle network in the vicinity of the Site.

**Figure 3.3: National Cycle Routes in vicinity of the Site**


3.2.9 Along the eastern boundary of the Site, a canal towpath forms part of the 'Green Belt Way'; a 50 miles circular route through the Oxford green belt. The towpath is managed by the Canal and River Trust.

3.2.10 The Canal and River Trust guidance on cycling on towpaths[7] states that the majority of their tow paths are permissive paths rather than public rights of way (PRoW) and that cycling is permitted provided that care is taken for pedestrians, wildlife and the waterways.

3.2.11 The towpath along the Oxford Canal has been upgraded in phases. The first phase of the upgrade was undertaken in 2014 between Isis Lock by Rewley Road in Oxford city centre to Aristotle Lane. The Canal and River Trust in partnership with OCC has recently upgraded the section of towpath from Aristotle Lane to just north of A44. The Canal and River Trust plans to undertake further upgrades of the towpath in the vicinity of the Site.

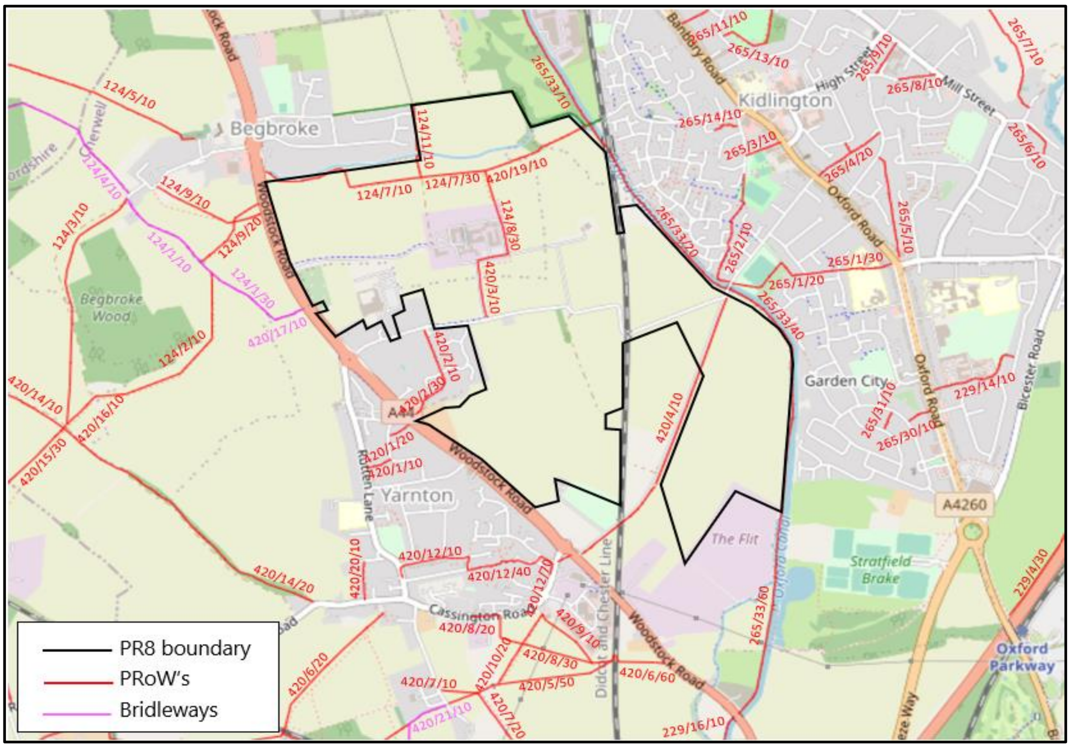
[7] https://canalrivertrust.org.uk/enjoy-the-waterways/cycling/cycling-faqs#:~:text=Is%20the%20towpath%20a%20public,to%20carry%20out%20maintenance%20work.

## 3.3 Public Rights of Way

3.3.1 A series of PRoW are provided within the Site. Immediately east of the existing Begbroke Science Park a public footpath follows a north-south orientation and connects Sandy Lane to the south with Rowel Brook to the north. Further public footpaths follow the general east-west alignment of Rowel Brook, in addition to crossing Rowel Brook and providing an onwards connection to Begbroke Lane, which is designated as a restricted byway.

3.3.2 Additional PRoWs are provided along Yarnton Lane to the south of the Site between the A44 and the canal towpath, through the village of Yarnton, and around the perimeter of Begbroke Wood to the west. The existing PROWs are illustrated in **Figure 3.4**.

**Figure 3.4: Existing Public Right of Way Network**




3.3.3 In conjunction with the existing walking and cycle network, the existing PRoWs provide connectivity to Begbroke, Yarnton and Kidlington as well as to the wider area.

## 3.4 Existing Walking and Cycling Catchments

### Existing Walking Catchments

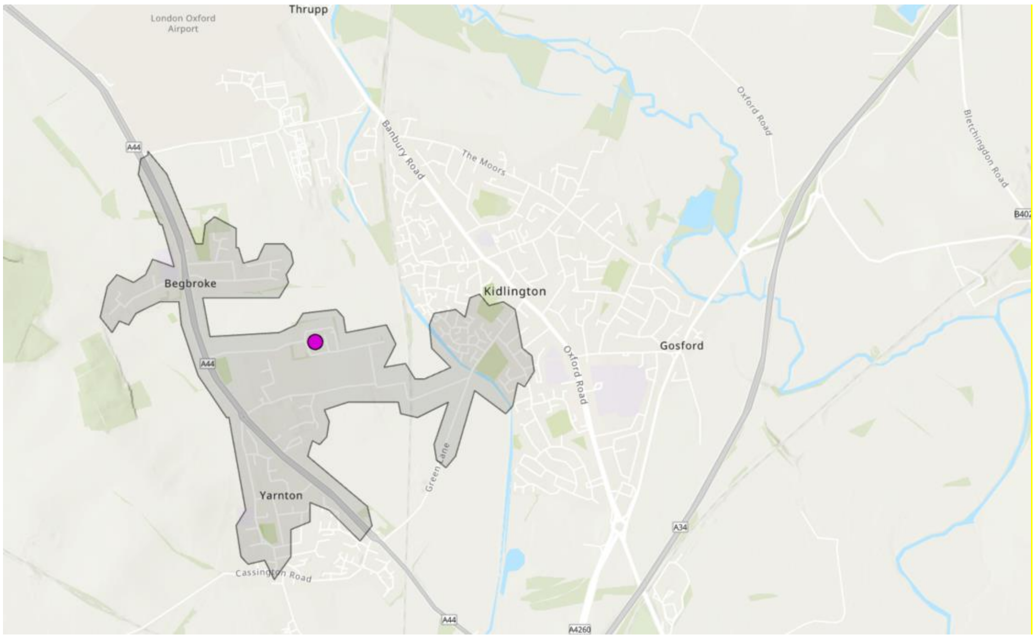
3.4.1 NPPF does not provide any specific guidance on walking distances. Manual for Streets (MfS) states that:

*"Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes' (up to about 800 m) walking distance of residential areas which residents may access comfortably on foot. However, this is not an upper limit and PPG13 states that walking offers the*

*greatest potential to replace short car trips, particularly those under 2 km."* It should be noted that PPG13 is no longer current guidance and was replaced by the NPPF. However, this is still considered to be valid criteria for walking distances.

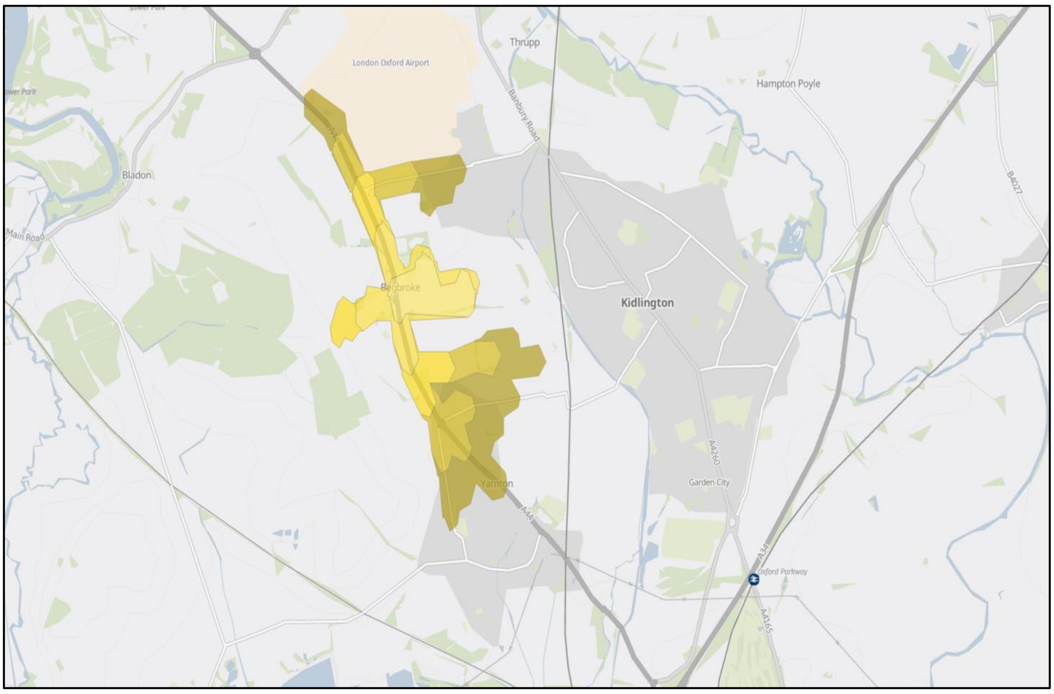
**3.4.2** **Figure 3.5** illustrates the 2km walking catchment from the centre of the existing Site. It shows that pedestrians can walk to the centre of Begbroke, Yarnton and Kidlington within 2km.

**Figure 3.5: Existing 2km isochrone from the Site**




3.4.3 **Figures 3.6** to **3.8** show the existing 2km isochrone from the villages of Begbroke, Yarnton and Kidlington.

**Figure 3.6: Existing 2km isochrones from Begbroke (400m increments)**

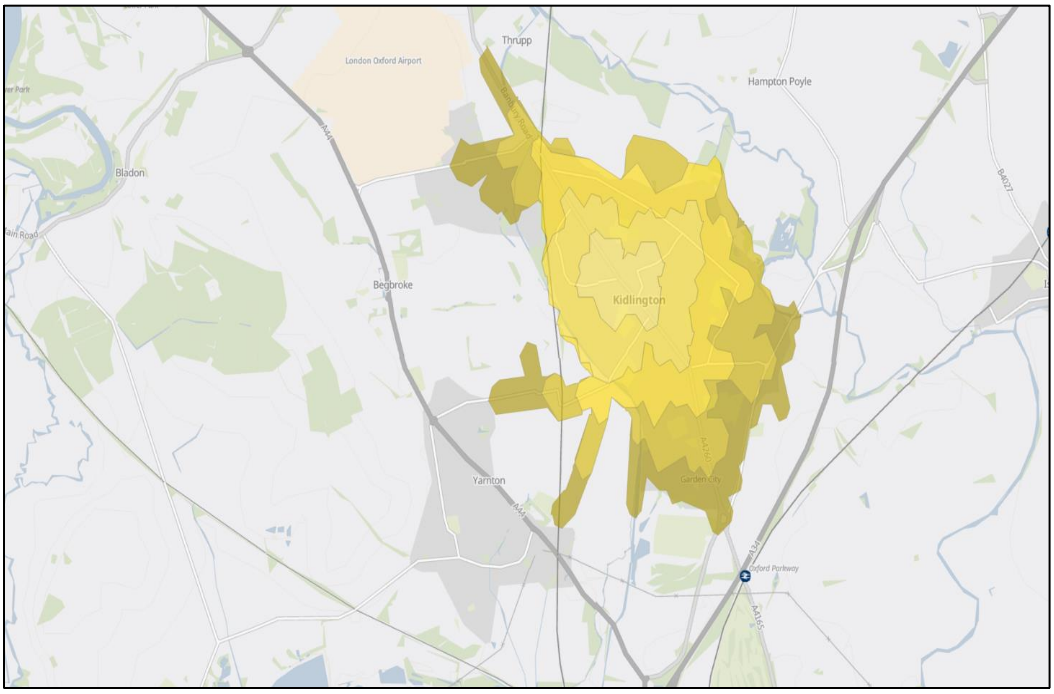



3.4.4 **Figure 3.6** illustrates the existing 2km walking isochrone from the centre of Begbroke village and shows that areas of Yarnton are accessible within 2km, as well as the existing services and facilities such as bus stops on the A44, Yarnton garden centre and the William Fletcher primary school in Yarnton. The limitations of the isochrone software are such that accessibility can only be measured via footways rather than PRoW provision, resulting in restrictions to the illustrated east-west connectivity to Kidlington village. However, as mentioned previously, the existing PRoW network connects via Sandy Lane, Rowel Brook, and Begbroke Lane, and in turn provides existing pedestrian access between the Begbroke village and Kidlington.

**Figure 3.7: Existing 2km isochrones from Yarnton (400m increments)**


3.4.5 **Figure 3.7** illustrates the existing 2km walking isochrone from the centre of Yarnton village and shows that walking connectivity is largely confined internally to the village, or towards rural areas.

**Figure 3.8: Existing 2km isochrones for Kidlington (400m increments)**




3.4.6 **Figure 3.8** illustrates the existing 2km walking isochrone for the settlement of Kidlington. While the whole of Kidlington is accessible from the centre within a 2km walking distance, connectivity outside the settlement is confined.

## 3.5 Existing Bus Network

### Public Bus Services

3.5.1 There are no public bus services that serve the existing Begbroke Science Park. A map of the bus network is included in **Appendix A**. The S3 service which runs between Oxford and Chipping Norton routes along the A44 past the Site. Within the vicinity of the Site, the S3 service routes through Yarnton via Rutten Lane and along the Woodstock Road (A44) further north. The service has a 30-minute frequency from Monday to Saturday. A single NS3 (night) service runs once in a northbound direction, passing through Yarnton at approximately 01:00. In accordance with the bus timetable, it takes approximately 33 minutes on the S3 from Begbroke village to Oxford railway station. The existing bus service is summarised in **Table 3.1**.

**Table 3.1: Existing Bus Services**

| Service / Operator | Route | Frequency (Peak) | |
|---|---|---|---|
| | | Mon-Sat Daytime | Evening / Sunday |
| **S3 Stagecoach** | Oxford – Summertown – Yarnton – Begbroke – Woodstock- Chipping Norton | 30 minutes | Hourly |

3.5.2 The 'Sandy Lane' bus stop, located on the A44 circa 0.35km south of Begbroke Hill, is the closest bus stop in the vicinity of the Site that is served by the S3 service. The bus stop is flagged and benefits from infrastructure such as live timetable information, seating, shelter as well as cycle parking provision in the form of Sheffield stands.

3.5.3 The 'Royal Sun' bus stop is located circa 0.5km north of Begbroke Hill. The S3 also serves this bus stop. The bus stop is flagged, as well as being equipped with a shelter, seating and timetable information.

3.5.4 Access from Begbroke Science Park to these bus stops is made via Begbroke Hill, which has a shared pedestrian/cycle path along the northern side and the existing footways along both sides of the A44. Pedestrians would cross the A44 to access the northbound bus stop via the existing signal-controlled crossing at the A44/Begbroke Hill junction.

### Begbroke Science Park Minibus

3.5.5 Oxford University currently funds a private minibus service between the Science Park and Oxford city centre, which is free of charge to all University members, Begbroke Science Park companies and visitors.

3.5.6 The minibus service operates between Oxford city centre (Broad Street) and Begbroke Science Park and calls at the Sherrington Road Science Area, Parks Road Materials Laboratory and Banbury Road outside BBC Oxford (as a request stop). The Broad Street stops are around a 15-minute walk from Oxford railway station.

3.5.7 The University currently operates 25 services per day between 07:10 and 19:10 hours, typically at 15 to 30 minute intervals. The minibus timetable service is available at Begbroke Science Park's website[8].

3.5.8 Additional taxis have, on occasions, been laid on to provide additional capacity in the later afternoon/early evening peak to meet demand.

### Park and Ride

3.5.9 There are also 'Park and Ride' facilities nearby to the Site. The Peartree Park and Ride facility is located at the Peartree Interchange, the junction between the A44 and A34 to the south of the Site. It has 1,035 parking spaces and is served by route 300, which routes between Peartree and Redbridge Park and Ride facilities via Oxford city centre 5 times per hour (i.e. 12 minute frequency).

3.5.10 Oxford Parkway 'Park and Ride' (formerly referred to as Water Eaton) is located to the southeast of the Site and has 758 parking spaces. The Park and Ride facility is served by bus routes 2 and 2a and 700 services, providing frequent connections to Oxford city centre and John Radcliffe

[8] https://www.begbroke.ox.ac.uk/wp-content/uploads/2023/05/minibus-timetable-may-2023.pdf

hospital, respectively. Routes 2 and 2a have a 15 minute frequency and route 700 has a 30 minute frequency.

3.5.11 OCC is proposing to develop a new Park and Ride at Oxford Airport, which is summarised in Section 4.

## 3.6 Existing Rail Network

3.6.1 The nearest railway station to the Site is Oxford Parkway railway station located 2.5km south-east of the Site (as the crow flies), and adjacent to the Park & Ride facilities set out above.

3.6.2 The station is currently managed by Chiltern Railways and has a number of available facilities including a ticket office, self-service ticket machines, refreshment facilities, seating, public toilets, waiting rooms and shelters.

3.6.3 The station has an approximate 830-space car park located immediately east, with 18 accessible spaces available. Cycle parking is also provided, with 150 spaces in a dedicated parking area.

3.6.4 Oxford Parkway station is served by train services operated by Chiltern Railways between Oxford and London Marylebone.

3.6.5 The basic weekday daytime frequency of services to and from Oxford, High Wycombe, Beaconsfield, and London is every 30-minutes, with a similar frequency operating in the evenings and on Sundays. During the peak periods there are four peak period (07:00-09:00) trains to Oxford in the morning and 2 trains to London leaving after 07:00 and getting into London before or around 09:00.

3.6.6 The typical journey time to Oxford is around 8 minutes, with the typical journey time to London Marylebone being approximately 75 minutes.

3.6.7 Some of the services to London serve intermediate railway stations, such as Bicester Village (10 minutes), Haddenham & Thame Parkway (24 minutes), Princes Risborough (30 minutes), Saunderton (36 minutes), High Wycombe (42 minutes) Beaconsfield (49 minutes) and Gerrards Cross (55 minutes). To the south, Oxford Railway Station is the only station served.

3.6.8 **Table 3.2** provides a summary of existing rail services from Oxford Parkway Railway Station

**Table 3.2: Oxford Parkway Railway Station Existing Rail Services and Frequency**

| Terminus | Operator | General Frequency (Peak) | | Fastest Journey |
|---|---|---|---|---|
| | | Mon-Sat daytime | Evening/Sunday | |
| **Oxford** | Chiltern Railways | 3 per hour | 3 per hour | 6 minutes |
| **London Marylebone** | Chiltern Railways | 3 per hour | 3 per hour | 62 minutes |

3.6.9 Oxford railway station is the closest significant interchange station, and it is located within the city centre and is served by services operated by Great Western, Chiltern Railways and Cross Country services, providing direct connections to a range of stations including London Paddington, Reading, Didcot, Worcester, Banbury, Birmingham, and Manchester Piccadilly.

## 3.7 Existing Highway Network

3.7.1 The A44 passes immediately to the west of the Site and runs broadly north-south. The A44 is a single carriageway road with a 30mph speed limit as it passes through Woodstock. To the south of Bladon roundabout (junction of A44 / Grove Road) the A44 widens to a dual carriageway and is subject to the national speed limit. To the south of the Cassington roundabout.

3.7.2 To the south of the Site, the A44 forms a grade-separated junction with the A34 at Peartree Interchange before joining the Oxford ring road at its southernmost extent: a roundabout junction with the A40 referred to as the Wolvercote roundabout. Further north, the A44 serves destinations in Oxfordshire that include Woodstock and Chipping Norton.

3.7.3 Several key strategic routes intersect with the A44 close to the Site. To the south, the A4260 meets the A44 at Loop Farm roundabout. The A4260 takes the form of a dual carriageway subject to the national speed limit along its initial section (A4260 Frieze Way). Continuing northbound, the A4260 forms part of a five-armed roundabout with Bicester Road and Oxford Road (i.e. Kidlington roundabout), narrowing to a single carriageway with a speed limit reducing to 40mph and then 30mph as it continues towards the centre of Kidlington.

3.7.4 The A34 intersects the A44 at a grade-separated interchange. Locally, the A34 connects Oxford with the M40 and Bicester to the northeast and Abingdon to the southwest. The highway network of the county relies heavily on the A34 as a core strategic corridor that serves numerous different journey purposes, both locally and regionally, and hence it is particularly vulnerable to disruption due to incidents, because of the lack of alternative north-south routes for journeys both within and through the county.

3.7.5 In addition to supporting strategic connections, the A44 also provides points of access into the Site via Sandy Lane and Begbroke Hill.

3.7.6 Sandy Lane is a single carriageway road that connects the A44 to the west with Yarnton Road and Kidlington to the east. Approximately 1.2km east of the A44, Sandy Lane meets the Cherwell Valley Line (railway) at-grade, with the interaction managed by a half-barrier automatic level crossing. Further east of the level crossing, Sandy Lane becomes Yarnton Lane and crosses the Oxford canal into Kidlington via a single lane bridge with a 3-tonne weight limit. The bridge is sufficiently narrow, and with a pronounced hump that limits forward visibility, that it operates under shuttle working control by traffic lights to manage the conflict between vehicles crossing from either direction.

3.7.7 Begbroke Hill connects Begbroke Science Park with the A44 via a single carriageway road subject to a 30mph speed limit. It forms the eastern approach of a three-armed, signal-controlled junction with the A44.

3.7.8 North of the Site, Langford Lane connects the A44 with the A4260 to the west and east, respectively. It provides direct access to Oxford Airport as well as Oxford Technology Park. Like Begbroke Hill, it forms the eastern approach of a three-armed, signal-controlled junction with the A44. Langford Lane is a single carriageway subject to the national speed limit, which reduces to a 30mph speed limit on the approach to the Oxford Airport access.

## 3.8 Collision Analysis

### A44 Corridor Collision Analysis

3.8.1 Personal injury Collision (PIC) data for the most recently available five year period has been obtained from OCC for a study area which covers the A44 corridor from, and including, Bladon roundabout to, and including, the Peartree Interchange as well as the A34 within the vicinity of Peartree Interchange. The data covers the period 01/01/2018 – 16/04/2023 which is the latest complete five years, and also includes the latest 2023 provisional data. The full PIC data is contained in **Appendix B.**

3.8.2 Between 2018-2023, a total of 56 incidents occurred within the A44 study area. **Table 3.3** contains a summary of the incidents by year and severity, as well as a summary of incidents involving vulnerable users.

**Table 3.3: Summary of PIC data by Severity and Year**

| Year | Slight | Serious | Fatal | Total | Pedestrian | Cyclist | P2W |
|---|---|---|---|---|---|---|---|
| **2018** | 8 | 1 | 1 | 10 | 1 | 1 | 3 |
| **2019** | 9 | 2 | 0 | 11 | 1 | 1 | 1 |
| **2020** | 10 | 2 | 0 | 12 | 0 | 3 | 0 |
| **2021** | 7 | 1 | 0 | 8 | 0 | 0 | 1 |
| **2022** | 14 | 0 | 1 | 15 | 1 | 0 | 1 |
| **2023** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | 48 | 6 | 2 | 56 | 3 | 5 | 6 |

Note: data only covers up to 16th April 2023

3.8.3 As shown in **Table 3.3**, the majority (86%) of PICs recorded across the A44 study area between 2018-2023 were classified as 'slight'. 11% of the total PICs were classified as 'serious' and 3% as 'fatal'.

3.8.4 **Table 3.3** shows that the number of PICs that involved a pedestrian casualty is 5%, involving a cyclist casualty is 9% and involving a motorcyclist is 11%. OCC's 'Road Traffic Collisions: Casualty Data Summary (2021)' outlines the county wide averages for the percentage of collisions involving vulnerable road users that occurred in Oxfordshire in 2021. Across Oxfordshire, 8.7% of collisions involved a pedestrian, 22.3% involved a pedal cycle and 12.7% involved a two-wheeled motor vehicle. Therefore, the percentage of PICs within the study area involving vulnerable road users are lower than county wide averages.

3.8.5 The PIC data has also been reviewed to identify any collision cluster locations and identify any common causation factors within clusters that could highlight any existing safety issues. **Table 3.4** summarises locations within the A44 study area where more than five PICs have occurred between 2018 – 2023.

**Table 3.4: PICs at Study Area Junctions and Links**

| Junction/Link | Slight | Serious | Fatal | Total |
|---|---|---|---|---|
| A44 / A4095 'Bladon Roundabout' | 5 | 1 | 1 | 7 |
| A44 between Bladon Roundabout and Langford Lane | 1 | 0 | 0 | 1 |
| A44 / Langford Lane junction | 2 | 1 | | 3 |
| A44 / Springhill Road / Fernhill Road Roundabout | 3 | 0 | 0 | 3 |
| A44 / Sandy Lane / Rutten Lane Roundabout | 3 | 0 | 0 | 3 |
| A44 / The Garth junction | 1 | 0 | 0 | 1 |
| A44 adjacent to Yarnton | 4 | 0 | 0 | 4 |
| A44 / Cassington Road Roundabout | 2 | 0 | 1 | 3 |
| A44 between A44/ Cassington Road Roundabout and 'Loop Farm Roundabout' | 6 | 1 | 0 | 7 |
| A44 / A4260 'Loop Farm Roundabout' | 2 | 0 | 0 | 2 |
| A44 /A34 'Peartree Roundabout' | 8 | 1 | 0 | 9 |
| A44 between Peartree Roundabout and A40 | 2 | 1 | 0 | 3 |
| A34 approach to Peartree Roundabout (westbound) | 5 | 1 | 0 | 6 |
| A34 approach to Peartree Roundabout (eastbound) | 4 | 0 | 0 | 4 |

3.8.6 Cluster location analysis shows that, of the 56 PICs, there were four links and junctions where five or more PICs occurred between 2018-2023, these were:

- A44 / A4905 'Bladon Roundabout'
- A44 between A44/Cassington Road Roundabout and 'Loop Farm Roundabout'
- A44 /A34 Peartree Interchange
- A34 approach to Peartree Interchange (westbound)

3.8.7 There have been seven collisions reported at the A44 / A4905 'Bladon Roundabout'. Five of these were classified as slight, one as serious and one as fatal.

3.8.8 There have been seven collisions reported on the A44 between Yarnton and 'Loop Farm Roundabout'. Six of these are classified as slight, and one as serious. These collisions occurred across a length of 1.5km, with three of the six collisions occurring at the A44 / Solar Farm junction.

3.8.9 A further nine collisions have occurred at the A44 / A34 Peartree Interchange. Eight of these collisions were classified as slight, with one serious PIC.

### Wider Area Collison Analysis

3.8.10 Crashmap data has also been consulted to understand the safety conditions of the wider highway network, outside of the A44 study area for the latest available five year period (2017-2021).

3.8.11 On the A34 mainline, within the vicinity of the Site, two serious incidents were also recorded. These occurred in 2018 and 2019, respectively. Neither incident involved a vulnerable road user. Two fatal incidents were also reported, in 2017 and 2019 respectively. Of these, one involved a motorcycle and a goods vehicle while the other involved one car.

3.8.12 At the A4260 / A4165 Kidlington roundabout, located to the southeast of the Site, three serious incidents have been recorded between 2017-2021. These occurred in 2017, 2018 and 2018, respectively. Each incident is reported to have involved a pedal cycle.

3.8.13 Whilst all road traffic collisions are regrettable, the PIC data gives no indication of specific concerns relating to the level or nature/pattern of PICs in this large study area in relation to the proposed development. As outlined in Section 4 of this TA, future improvements to the highway network are likely to improve road safety.

## 3.9 Existing Travel Patterns

3.9.1 **Table 3.5** outlines the 2011 'Travel to Work' mode share (residents) for Cherwell 019 Middle Super Output Area (MSOA), where the Site lies, and displays this comparatively with the wider area.

**Table 3.5: 2011 Travel to Work Census Data (Resident Population)**

| Mode | Cherwell 019 MSOA | Cherwell District | Oxfordshire |
|---|---|---|---|
| **Car Driver** | 62% | 66% | 61% |
| **Car Passenger** | 5% | 6% | 5% |
| **Rail** | 1% | 3% | 3% |
| **Bus** | 17% | 6% | 8% |
| **Taxi** | 0% | 0% | 0% |
| **Motorcycle** | 2% | 1% | 1% |
| **Bicycle** | 7% | 4% | 8% |
| **On Foot** | 6% | 13% | 13% |
| **Other** | 0% | 0% | 0% |
| **Total** | 100% | 100% | 100% |

3.9.2 **Table 3.5** shows that circa 30% of all trips to work in Cherwell 019 are made by sustainable modes of travel. This is consistent with the wider Cherwell and Oxfordshire area.

3.9.3 **Table 3.6** summarises the 2011 'Travel to Work' mode share (day-time population) for Cherwell 019 MSOA.

**Table 3.6: 2011 Travel to Work Census Data (Daytime Population)**

| Mode | Cherwell 019 MSOA | Cherwell District | Oxfordshire |
|---|---|---|---|
| **Car Driver** | 81% | 70% | 63% |
| **Car Passenger** | 4% | 6% | 5% |
| **Rail** | 1% | 1% | 2% |
| **Bus** | 5% | 4% | 8% |
| **Taxi** | 0% | 0% | 0% |
| **Motorcycle** | 1% | 1% | 1% |
| **Bicycle** | 4% | 4% | 8% |
| **On Foot** | 5% | 14% | 13% |
| **Other** | 0% | 0% | 0% |
| **Total** | 100% | 100% | 100% |

3.9.4 **Table 3.6** shows that 15% of employment trips to Cherwell 019 are made by sustainable modes of travel, which is lower than the sustainable mode share for Cherwell and Oxfordshire.

3.9.5 Begbroke Science Park currently provides some 14,200 sqm of research and development floorspace, typically with between 500-700 people (staff, researchers/post-docs and employees) based at the Science Park on any one day. Outline permission was granted in September 2018 for a further 12,500 sqm of employment floorspace, which is currently being built out. A travel survey was undertaken for employees at the existing Begbroke Science Park to determine their mode share for the journey to work and the results are summarised in **Table 3.7** below and compared against the Cherwell 019 daytime population travel to work mode share.

**Table 3.7: 2011 Travel to Work Census Data (Daytime Population)**

| Mode | Students/ Post Docs | University Staff | Non-University Staff | Cherwell 019 |
|---|---|---|---|---|
| **Car Driver** | 35% | 48% | 60% | 81% |
| **Car Passenger** | 0% | 0% | 0% | 4% |
| **Public Transport** | 53% | 37% | 30% | 6% |
| **Bicycle** | 7% | 6% | 10% | 4% |
| **On Foot** | 5% | 9% | 0% | 5% |
| **Other** | 0% | 0% | 0% | 1% |
| **Total** | 100% | 100% | 100% | 101% |

3.9.6 The results show that the existing Begbroke Science Park employees have a considerably lower car use for the journey to work than the surrounding area within Cherwell 019. It also shows that there is a range of propensity to travel to work by car at the existing Science Park for students/post docs, university staff and non-university staff. The existing Site benefits from a high sustainable mode share, particularly by public transport, which includes the well-used University minibus service between the Begbroke Science Park and Oxford city.

# 4 FUTURE TRANSPORT CONDITIONS

## 4.1 Introduction

4.1.1 In order to understand the transport conditions likely to exist across the network as a future baseline case, (i.e. without the development) a review of the planned and committed transport infrastructure improvements has been undertaken. This review is summarised in this section. This section is subdivided into the following elements:

- Oxfordshire County Council's Transport Strategies;
- Oxfordshire County Council's funded improvements;
- Planned and potential rail improvements;
- Committed development transport improvements.

## 4.2 Oxfordshire County Council Transport Strategies

### Central Oxfordshire Travel Plan

4.2.1 As set out in Section 2 of this TA, OCC adopted the Local Transport and Connectivity Plan (LTCP) in July 2022, which is the fifth Local Transport Plan and outlines the long-term vision for transport in Oxfordshire up to 2050 and the polices required to deliver this.

4.2.2 The adopted LTCP forms Part 1 of the LTCP process, and Part 2 of the process is to set out how the Part 1 LTCP policies will be implemented in specific areas (Area Travel Plans) and along specific transport corridors (Corridor Travel Plans).

4.2.3 In November 2022 OCC adopted the Central Oxfordshire Travel Plan (COTP), which is the first of the Area Travel Plans to have been adopted and sets out the transport strategy for the central Oxfordshire area to 2040. The COTP area is illustrated in **Figure 4.1** and includes the area to the north of Oxford and all of the PR sites.


**Figure 4.1: Area of Central Oxfordshire Travel Plan**

4.2.4 The COTP sets out a package of 22 actions, which are summarised as follows:

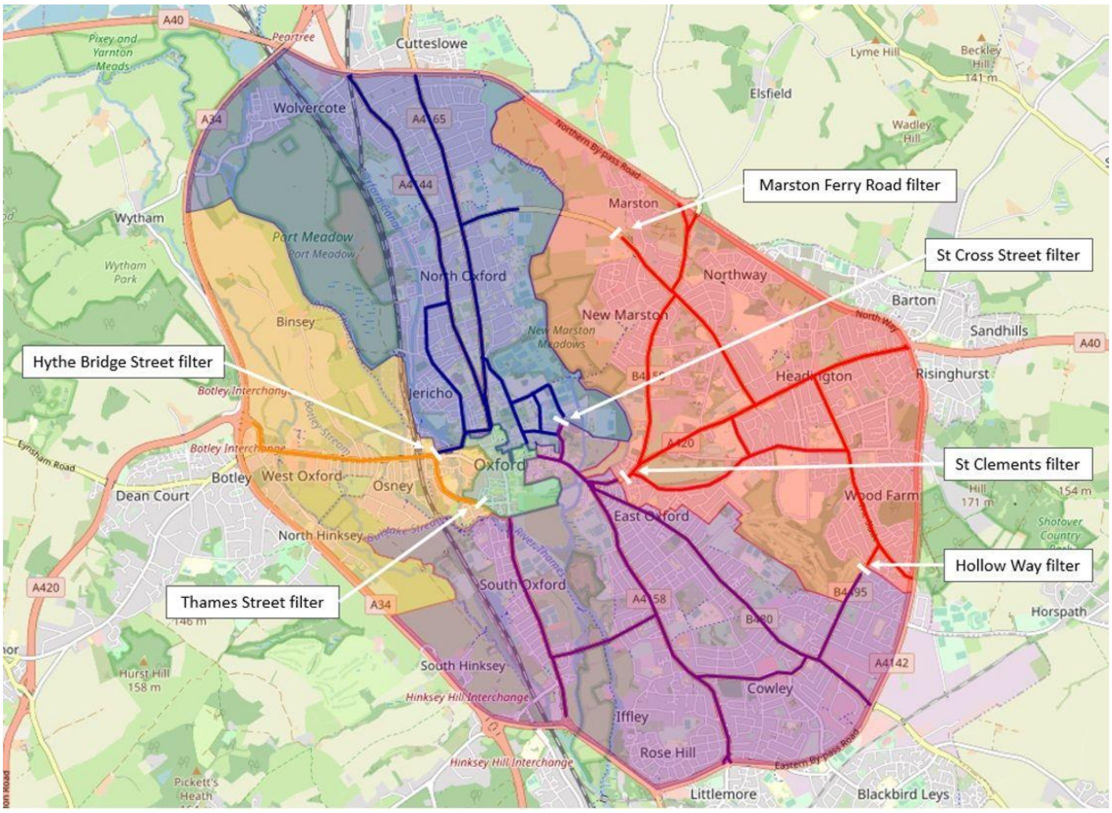
- Action 1 – Expanding upon the pilot scheme, develop proposals for a Zero Emission Zone for Oxford city centre.
- Action 2 – Develop proposals for a set of strategic traffic filters for locations across Oxford.
- Action 3 – A Workplace Parking Levy to cover businesses with 11 or more staff parking spaces in Oxford City Council's administrative area, within the Oxford ring road.
- Action 4 – Develop proposals for further Controlled Parking Zones (CPZ) across the city and to review eligibility and quantity of permits in existing CPZ areas.
- Action 5 – Support a case-by-case review of public parking provision across the area and a consolidation and/or a reduction in public parking provision where appropriate.
- Action 6 – Remove on-street public parking where necessary on corridors identified in the strategy as either being active travel Primary Routes (Quickways) or situated on core bus routes.
- Action 7 – Regularly review parking pricing to favour sustainable travel.
- Action 8 – Deliver a central Oxfordshire cycle network, consistent with the Oxfordshire Strategic Active Travel Network and the latest LCWIP plans.
- Action 9 – Deliver a wayfinding scheme across central Oxfordshire's active travel network.
- Action 10 – To help meet Vision Zero, deliver junction improvements for active travel users where there:
  - is a poor road safety record for those who are walking or cycling;
  - is insufficient dedicated infrastructure for those walking or cycling;
  - is significant severance for those walking and cycling.
- Action 11 – Deliver:
  - increased cycle parking at key destinations including for non-standard bikes;
  - a public hire cycle scheme including e-bikes, which could also include e-scooters.
- Action 12 – Deliver bus priority measures along key inter-urban bus routes and on key orbital routes in the Oxford area.
- Action 13 – Alongside partners, deliver a zero emission local bus fleet across the Oxford Smartzone area by 2024/25 and seek delivery of a fully zero emission bus fleet by 2035,
- Action 14 – Alongside partners, deliver:
  - Oxford Station enhancements;
  - a passenger rail service and two new passenger stations on the Cowley Branch Line;
  - local rail capacity and service frequency enhancements.
- Action 15 – Deliver a transport hub strategy for a network of transport hubs across Oxfordshire.
- Action 16 - Deliver a freight consolidation feasibility study and first / last mile delivery pilot.
- Action 17 – Deliver a safer lorry scheme pilot across central Oxfordshire.
- Action 18 - Develop and support implementation of a local toolkit of transport interventions that support the 20-minute neighbourhood approach and work to the principles of the healthy streets approach.
- Action 19 – Alongside partners, deliver a City Centre Movement Framework for Oxford.

- Action 20 - Deliver attractive tourist coach drop off and pick up facilities in the city centre and convenient lay over facilities, consistent with proposals in a City Centre Movement Framework.
- Action 21 – Deliver an e-scooter hire scheme across central Oxfordshire, subject to ongoing trial performance and national legislation.
- Action 22 - Deliver publicly accessible electric vehicle charging points across central Oxfordshire.

### Traffic Filters

4.2.5 One of the CTOP actions is to implement traffic filters within Oxford (Action 2). Traffic filters are points on roads through which only certain types of vehicles (e.g., buses, taxis, and cycles) may pass. In November 2022 the County approved the implementation of six experimental traffic filters in Oxford, which are illustrated in **Figure 4.2**.

**Figure 4.2: Proposed Location of Traffic Filters in Oxford**




4.2.6 The purpose of the traffic filters is to target short journeys by cars and private vehicles, and so reduce overall traffic levels in Oxford. This is therefore also anticipated to result in improved bus times and reliability for all services between other districts and Oxford, including park and ride sites. As well as this, the proposed traffic filters are expected to:

- Make walking and cycling safer and more attractive for those living in and around Oxford, increasing the respective mode shares;
- Increase park and ride use;

- Improve road safety;
- Enable new and improved bus routes; and
- Support investment in modern buses.

4.2.7 There will be exemptions to the traffic filters, such as resident permit holders, blue badge holders and carers, and the traffic filters are expected to benefit these users in making their journey times quicker.

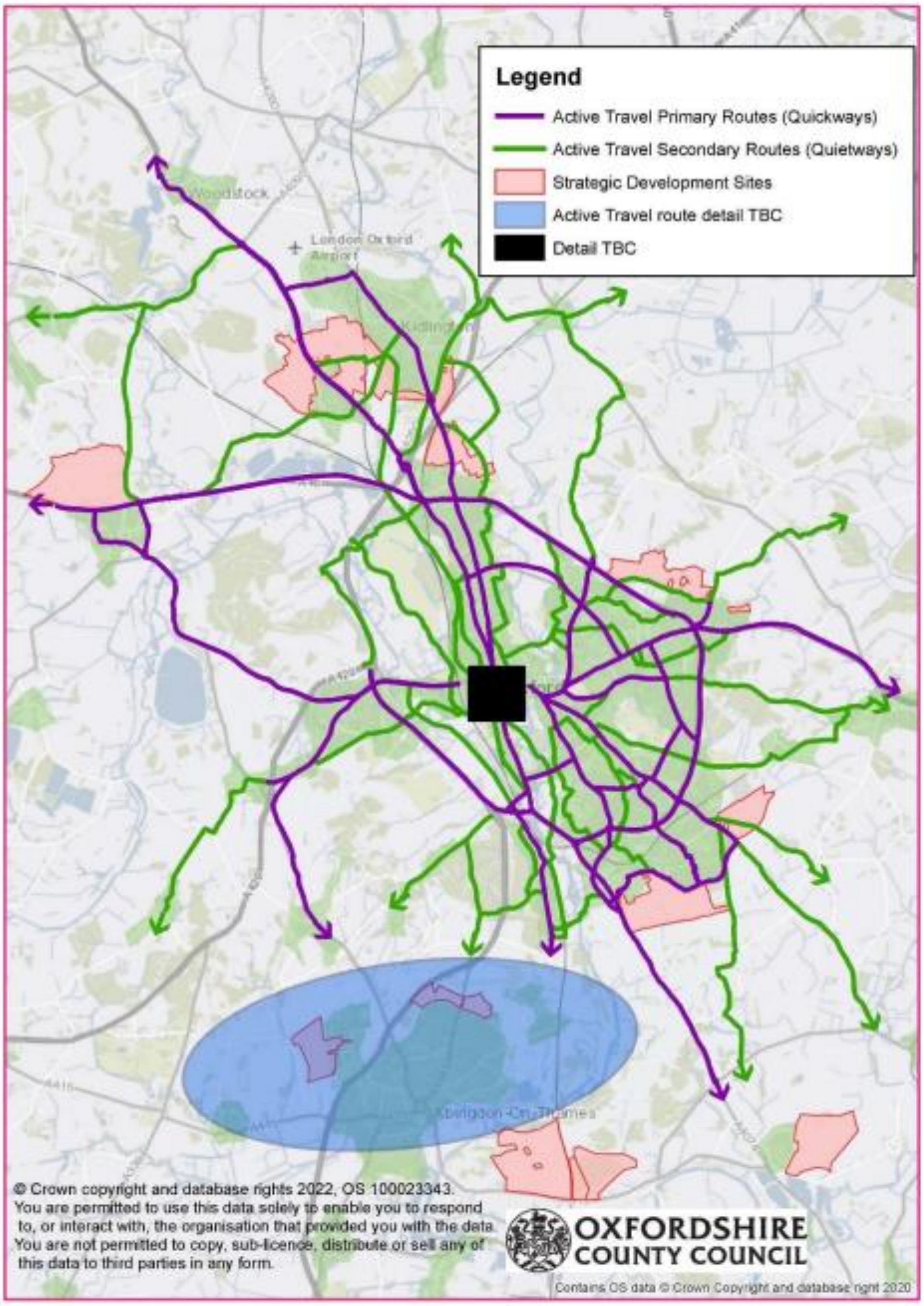
4.2.8 The proposed traffic filter scheme has been designed to ensure that all destinations within the city can be accessed by car but will lead to some journeys by car being longer and hence, it is hoped it will encourage these journeys to switch to more sustainable modes that should then be quicker and so more attractive. It will impact the level of traffic routing to and from Oxford and travelling within the city. The trial of the traffic filters is proposed to be undertaken once work to Oxford railway station has been completed by Network Rail in 2024. Given that the traffic filters are subject to a trial, they have not been assessed as part of this Transport Assessment and included in the traffic modelling for the PR sites, which is detailed in Section 8. This approach was agreed with OCC as part of pre-application scoping discussions.

### Active Travel

4.2.9 Action 8 of the COTP sets out the network of active travel routes that are to be implemented. The network consists of a mixture of primary routes (Quickways), which form the core of the network and extend along main radial/ arterial transit corridors and secondary routes (Quietways), which offer a lower trafficked alternative route choice between key trip attractors and residential areas. **Figure 4.3** illustrates the proposed Active Travel Network to be delivered through the COTP. The A44, Langford Lane and A4260 are identified as Quickways and Sandy Lane, which routes through the Site, is identified as a Quietway.

4.2.10 Improvements to active travel along the A44 Quickway are being implemented by OCC as part of the North Oxford Corridor Improvements, which are detailed later in this Section. In addition, further improvements to active travel along the A44, Langford Lane and A4260 Quickways are to be implemented through developer funding from both the PR sites and other committed developments in the area. Sandy Lane is identified as a Quietway and Policy PR8 of the Partial Review Local Plan requires Sandy Lane to be closed to vehicular traffic and to be for active travel only.

**Figure 4.3: COTP Active Travel Network**

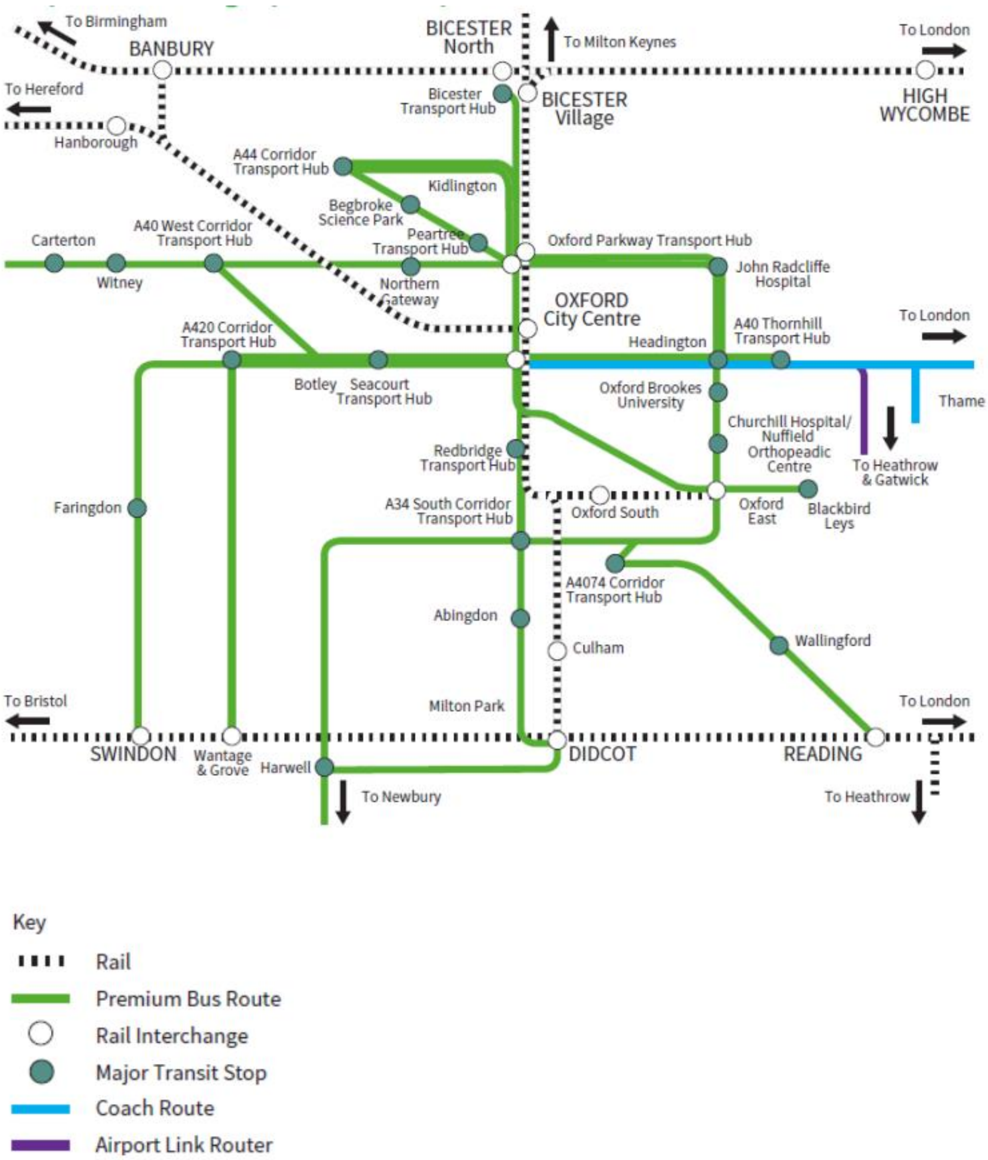



### Public Transport

4.2.11 Action 12 of the COTP is to deliver enhancements to the public transport network, including bus priority measures along key corridors. **Figure 4.4** illustrates the proposed strategic public transport network for Oxford as set out in the COTP. It shows the A44 and A4260 as being premium bus route corridors, connected to Oxford city centre as well as John Radcliffe hospital and Headington to the east and Eynsham and Witney to the west. The network includes a series of proposed major transit stops and interchanges. Begbroke Science Park is identified as a major transit stop. Improvements to bus services and infrastructure are proposed to be funded /

delivered by the PR sites and committed developments to the north of Oxford and this has been included for within the transport modelling detailed in Section 8 of this TA.

**Figure 4.4: Proposed Strategic Public Transport Network**




4.2.12 Action 15 is to deliver a transport hub strategy, also known as mobility hubs. A transport hub is a recognisable place where people can interchange between modes of transport and access a range of shared and public transport services for part or all of their journey. Transport hubs can also include additional facilities such as shops and provide up to date travel information to both attract and benefit users. The COTP identifies a transport hub at Oxford airport as well as in the vicinity of Begbroke Science Park. As set out later in this TA, it is proposed to provide a transport hub (mobility hub) at the proposed development, which aligns with Action 15 of the COTP.

### Kidlington Local Cycling and Walking Infrastructure Plan (LCWIP) (2021)

4.2.13 The Draft Kidlington LCWIP has been prepared by OCC to support the Kidlington and Gosford built-up area and is currently in draft format. The LCWIP identifies key destinations where people can walk and/or cycle in a particular area, including Begbroke and Yarnton, and makes suggestions for improving routes at these locations and between these locations. Section 2.5 of the LCWIP accounts for trips generated by future development areas (including PR8) given that these will increase demand for travel on foot and by bicycle. With regards to PR8, the LCWIP states: *"Once PR8 is complete many local trips will be internalised with the provision of primary and secondary trips alongside a local centre. In advance of these facilities coming forward, existing facilities in Kidlington will be a focus of walking and cycling for utility purposes."*

4.2.14 **Tables 4.1** and **Table 4.2** summarise the LCWIP measures related to walking and cycling respectively and of relevance to the walk/cycle catchment of the Site. Many of these improvements are either being incorporated into the masterplans for the PR sites or are included in the IDP in Appendix 4 of the Partial Review Local Plan, which is proposed to be funded by the PR sites.

**Table 4.1: Kidlington LCWIP Walk Improvements**

| Location | Measure |
|---|---|
| **General** | Removal of restrictive barriers on footpath links.<br>Improved management of vegetation on traffic free routes. |
| **A44** | Provision of safe crossing facilities |
| **Yarnton Road / The Ridings** | Provision of dropped kerbs at crossing points on the traffic free route between Yarnton Road and The Ridings (across Willesden Way, Chorefields, The Phelphs) |
| **Yarnton Road** | Sloped access to the canal from the canal bridge on Yarnton Road and measures to reduce traffic speeds in the interim period before the closure of the level crossing |
| **Begbroke Lane** | Visibility improvements for pedestrians walking towards Begbroke Lane from Partridge Close |
| **Oxford Canal** | Focus utility cycle trips to non-canal routes to create a pleasant and safer walking environment<br>Widening and surfacing of canal towpath to enable wider access |

**Table 4.2: Kidlington LCWIP Cycle Improvements**

| Location | Measure |
|---|---|
| **Kidlington Roundabout** | Signalisation and provision of parallel routes on main arms connecting off road section and any future provision to the south of the roundabout. |
| **Banbury Road, Kidlington** | Measures to increase attractiveness of service road east of Banbury Road carriageway.<br>20mph speed limit.<br>Additional tree planting.<br>Reduced carriageway parking. |

| | |
|---|---|
| | Defined crossing area over Lyne Road.<br>Clear transition to shared use path. |
| **Langford Lane** | 20mph speed limit between junction with Banbury Road and roundabout junction with The Boulevard<br>Clear transition to off-road cycle infrastructure<br>All HGVs to route via A44<br>Shared use path to the west of The Boulevard to be 3.0m minimum to junction with A44.<br>Speed reduction to 30mph between Evenlode Close and the A44. |
| **Yarnton Road** | Measures to increase the visibility of people walking and cycling as they cross from Morton Avenue to the traffic-free path.<br>20mph speed limit. |
| **Sandy Lane** | Closure of level crossing and installation of cycle/footbridge (being undertaken by Network Rail).<br>Low level lighting.<br>Vehicle access restrictions.<br>20mph speed limit within Begbroke. |
| **Oxford Canal Towpath** | Surface and width improvements to the north of Yarnton Road (improvements to the south being delivered separately).<br>Formal access route to Langford Locks from towpath.<br>Formal access route to Langford Lane from towpath.<br>Ramped access from Yarnton Road to the towpath.<br>New bridge over the canal as part of the development of PR8. |
| **A44** | 3m shared use path<br>Future shared use path to have priority over minor side access points<br>Clear transition where shared use path merges onto service road areas |
| **Yarnton** | 20mph speed limit within village |

### Oxfordshire Bus Service Improvement Plan (BSIP)

4.2.15 The Oxfordshire BSIP (updated October 2022) describes how OCC and local bus operators will achieve the overarching outcomes of the national bus strategy, which are to return bus use to pre-pandemic levels and to increase mode share still further in the future. The BSIP recognises forthcoming allocations, including the PR8 site.

4.2.16 The BSIP outlines plans for the construction of new bus lanes adjacent to the A44 and the improvement of bus frequencies along this route from 2 to 6 buses per hour.

4.2.17 Bus lanes funded with £15 million of Growth Deal monies are currently being constructed between Yarnton (Cassington Road) and the Pear Tree Interchange (A44 junction with the A34) as set out below as part of the North Oxford Corridor Improvements. Improvements to bus services and infrastructure are proposed to be funded / delivered by the PR sites and committed developments to the north of Oxford and this has been included for within the transport modelling detailed in Section 8 of this TA.

## 4.3 Oxfordshire County Council funded improvements

4.3.1 There are a number of major transport improvements that are being delivered by the County on the key corridors in the vicinity of the Site (i.e. A44, A4260 and A40).

### North Oxford Corridor Improvements

4.3.2 The North Oxford Corridor improvements is a scheme by OCC consisting of several road improvement projects. The improvements are currently being implemented by OCC and are included in the transport modelling, which is detailed in Section 8 of this TA.

#### A44 Loop Farm Roundabout to Cassington Road

4.3.3 This scheme is currently being constructed and includes the following elements:

- New signalised toucan crossing on the A44 to the north of Cassington Road;
- Creation of a new parallel crossing on Cassington Road at the junction with the A44;
- New dedicated southbound bus lane;
- A new footpath on the eastern side of the A44;
- New continuous, and widened shared use pedestrian and cycle path on the western side of the A44;
- New and improved informal crossing facilities; and
- Improved street lighting and footway lightning for pedestrians.

#### A34 / A44 Peartree Interchange

4.3.4 This scheme is currently being constructed and includes the following elements:

- Creation of a new, dedicated, southbound bus lanes between Loop Farm Roundabout and Peartree Interchange;
- A new footpath on the eastern side of the A44;
- New continuous and improved shared use pedestrian and cycle path on the western side of the A44;
- Upgraded informal crossing facilities on Frieze Way;
- Development of  signalised crossings on the Peartree Interchange;
- Additional lanes for traffic on the Peartree circulatory; and
- Improved street lighting.

#### A4260 / A4165 Kidlington Roundabout

4.3.5 This scheme has been designed and is due to be constructed shortly. It includes the following elements:

- Dedicated bus lanes on the Bicester Road (southbound) linking with the bus lane on the eastern section of Kidlington Roundabout and a revised arrangement on the Oxford Road;
- Frieze Way, Oxford Road South, and Bicester Road have new signalised crossing facilities;

- Speed limit reductions to 30mph on the Kidlington Roundabout and the approaches (additional changes, including along the remaining length of A4260 north of the roundabout, and on Banbury Road south of the roundabout toward Oxford are also being proposed alongside the main scheme); and
- Segregated pedestrian and cycle routes to connect to existing infrastructure;
- Improved street lighting.

4.3.6 The aim of these improvements to the North Oxford network are as follows:

- Improve access and connectivity into Oxford city centre;
- Improve bus journey times;
- Improve pedestrian and cycle connectivity;
- Create an inclusive, integrated, and sustainable transport network; and
- Support the expected growth across the Cherwell District by 2031.

### A40 Improvements

4.3.7 OCC is providing investment to six major schemes, which will form the A40 improvements to the southeast of the Site. These schemes will address traffic and transport issues, resulting in improved transport links, improved journey times, more sustainable travel options and reduced emissions. The A40 improvements have been included in the transport modelling, which is detailed in Section 8 of this TA. The six schemes are described in **Table 4.3**.

**Table 4.3: A40 Improvement Schemes**

| Scheme | Improvements |
|---|---|
| **A40 dual carriageway extension** | Increase road capacity by upgrading the A40 east of Witney from a single carriageway to a dual carriageway.<br>Improve journey times along the A40.<br>Allow easy access into Eynsham park and ride.<br>Improve dedicated routes for walking and cycling. |
| **Eynsham park and ride** | Provision of a new 850 space park and ride in Eynsham, located on the A40 eastbound, providing easier access to frequent and reliable bus services into Oxford.<br>Park and ride will benefit from 24 hour security, dedicated cycle storage, EV parking facilities and public toilets.<br>Improved bus and cycle lanes on A40. |
| **A40 integrated bus lanes** | Widen the carriageway along a 6.5km strength of A40 to provide integrated bus lanes on A40.<br>Provision of bus gates to provide priority to buses.<br>New and improved walking and cycling routes parrel with new bus lanes. |
| **A40 Duke's Cut** | Realignment of road space to create an eastbound bus lane and two traffic lanes to link up the A40 Oxford North project and A40 integrated bus lanes projects.<br>Improved southbound and northbound cycling and pedestrian routes into Oxford. |

| | |
|---|---|
| **A40 Access to Witney** | Addition of westbound slip roads at the A40 / B4022 Shores Green junction to improve access to Witney. |
| **A40 Oxford north** | Upgrades to A40 between the A34 overbridge and Wolvercote roundabout.<br>New dedicated eastbound bus lane.<br>Improved widened footpaths. |

## 4.4 Planned and Potential Rail Improvements

### Oxford Corridor Phase 2

4.4.1 The rail infrastructure at Oxford railway station is close to capacity and would be unable to accommodate the increase in services planned for 2024. To increase capacity, 'Oxford Corridor Phase 2' is currently being implemented by Network Rail and will provide a number of improvements:

- New platform with improved passenger facilities;
- New secondary station entrance on the western side of the railway to improve accessibility and passenger experience; and
- Closure of level crossings at Yarnton Lane and Sandy Lane, as well as creation of three high-speed crossovers at Oxford North Junction.

4.4.2 The Oxford corridor is a key freight route from the port of Southampton to the Midlands and the north. Increasing demand for rail freight services means more train paths are required. More trains on the line would increase the risk at two level crossings along the route at Sandy Lane and Yarnton Lane. To reduce level crossing risk, improve safety and reduce instances of misuse, Network Rail has decided that these level crossings need to be closed.

4.4.3 The level crossing closures would provide capacity for an additional two freight trains per hour, additional Birmingham to Oxford services, and increased maintenance access and safety improvements.

4.4.4 Separate to this outline application for Begbroke Innovation District, Network Rail is currently proposing that the Yarnton Lane level crossing is to be replaced with a pedestrian bridge and the Sandy Lane level crossing is to be replaced with a ramped cycle/pedestrian bridge. These proposals will be subject to a separate application(s), expected to be submitted in Autumn 2023 by Network Rail.

4.4.5 OUD is currently working with Network Rail to prepare an alternative design for a bridge over the railway that could accommodate cyclists, pedestrians and public transport vehicles. Further information on this is set out in Section 5 of the Planning Statement. To be clear, neither the Network Rail cycle/pedestrian bridge nor the alternative bridge design are part of the scheme for which planning permission is being sought. However, given that Sandy Lane is to be closed to vehicular traffic within Partial Review Local Plan policy and that Network Rail's application for the closure of the level crossing is imminent, the modelling included in Section 8 of this TA includes the closure of Sandy Lane to through vehicular traffic.

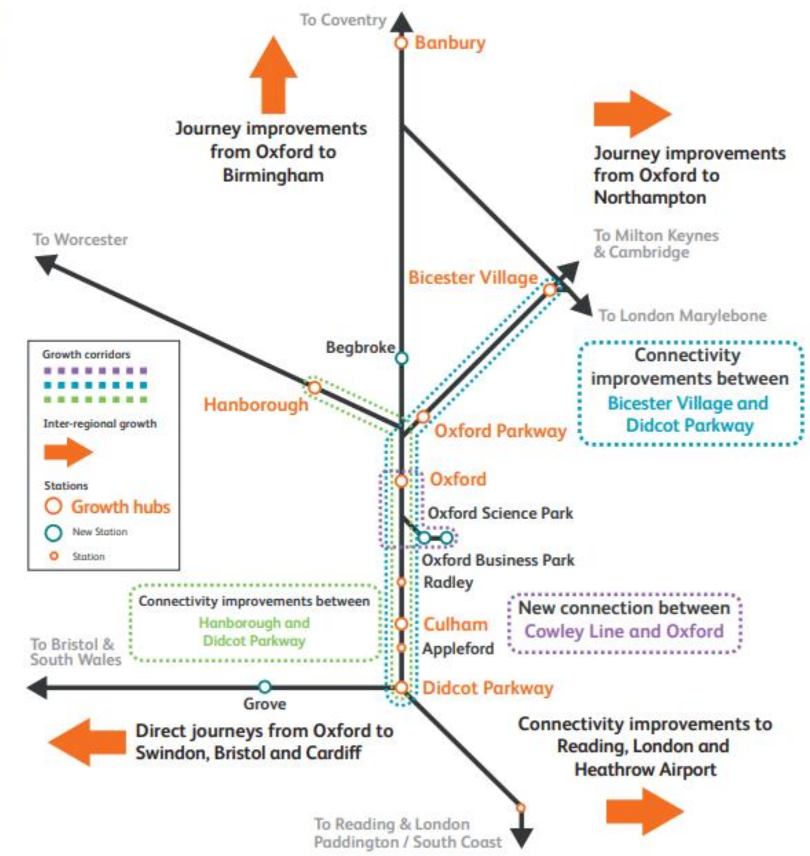
### Oxford Rail Corridor Study (ORCS)

4.4.6 In June 2021, Network Rail published the Oxford Rail Corridor Study (ORCS), which assesses the impact of planned growth in jobs and housing on Oxfordshire's rail system and identifies the role that rail can play to support the delivery of that growth.

4.4.7 **Figure 4.5** is an extract from the ORCS that sets out proposed rail improvements required to support the delivery of the growth forecasts. It shows a new railway station at Begbroke and the report states that *"most passenger services should be extended across Oxford to link growth areas, rather than terminating at Oxford station."*

4.4.8 As part of the outline planning application for the Site, land is being safeguarded for a potential railway station at Begbroke Innovation District, which is set out in more detail in Section 6 as part of the Transport Strategy for the Site. However, no consideration has been given to a potential railway station in the mode share assumptions and trip generation forecasts for the Site.

**Figure 4.5: ORCS Rail improvements to Support Growth**



### Cowley Branch Line

4.4.9 Oxford City Council has approved a £4.56 million package of funding for the detailed design and feasibility works required to reopen the Cowley Branch Line to passengers. Reopening the Cowley Branch Line to passengers has been identified as one of the major projects to transform Oxford within the Oxford Local Plan, the Oxfordshire Local Transport and Connectivity Plan and the Oxfordshire Rail Corridor Study.

4.4.10 The first proposed station would be next to the Oxford Science Park, Littlemore and the Ozone Leisure Complex – to be called Oxford South. The second proposed station, Oxford East, would be next to ARC Oxford (formerly Oxford Business Park), Oxford Retail Park and Blackbird Leys. Both stations would also be ideally located to serve new developments planned in South Oxfordshire adjacent to the Science Park and at the nearby Northfields site.

4.4.11 Given the current status of the Cowley Branch Line, it has not been considered within the assessment in this TA.

## 4.5 Committed Development Improvements

4.5.1 As part of committed developments being developed to the north of Oxford there are a series of transport improvements that are being delivered. These committed developments and associated infrastructure improvements have been included in the transport modelling, which is detailed in Section 8 of this TA.

### Oxford Technology Park

4.5.2 Oxford Technology Park is a consented employment development located on Langford Lane, Kidlington. The consented scheme is for up to 38,394sqm of B-use employment space, comprising of 20,227sqm B1(a) office space, 4455sqm of B1(b) research and development space and 22,022 sqm of B8 warehousing space. The site will be served via a new single priority T-junction on Langford Lane, with a dedicated right turn lane into the site to limit queuing for straight ahead traffic. Active travel measures are also proposed, such as improved footways along Langford Lane and an informal crossing point with tactile paving across the new access.

### North Oxford

4.5.3 Oxford North is a consented mixed use development located north-west of Wolvercote roundabout. The consented scheme is for 87,300m² of B1 employment, up to 480 dwellings, a hotel and up to 2,500m² of local retail uses. The site will be served via a new link road that is currently being constructed to connect the A44 with the A40 through the site. The link road will be connected at either end by two signalised junctions; one on the northern end with A44 Woodstock Road and one on the southern end with A40 Northern Bypass Road. Active travel and bus priority measures are also being delivered on the A44 between Wolvercote roundabout and Pear Tree Interchange.

# 5 OVERVIEW OF DEVELOPMENT PROPOSALS

## 5.1 Introduction

5.1.1 At this stage the development is being brought forward as a parameter based outline planning application with all matters reserved. This, by definition, means that there is flexibility in the way in which the proposals are brought forward through subsequent stages of the planning process. The outline application sets out parameters within which the reserved matters applications will come forward in the future. Included within the parameters are elements such as development quantum, building heights, development zones, green infrastructure and access and movement parameters.

5.1.2 Despite the outline nature of this application, an extensive level of design work has been undertaken to ensure that a comprehensive and viable illustrative masterplan can be developed in accordance with the parameters. The illustrative masterplan therefore represents one way, but not the only way, that the development might come forward.

5.1.3 This section of the TA therefore details the quantum of development that is being applied for as part of the outline planning application and the assumptions made within this TA to inform the assessment. This section also summarises the strategy for access, parking and servicing. Hence, for clarity, the assessment undertaken has been defined by the parameters contained in the Development Specification and Parameter Plans, and is not based purely on the illustrative masterplan.

5.1.4 The Transport Strategy that supports the proposed development, both in terms of the on-site movement principles and strategy and the off-site package of infrastructure improvements is set out in detail in Section 6 of this TA.

## 5.2 Development Quantum

5.2.1 The proposed development is summarised in **Table 5.1** below Further detail is provided in the Development Specification, which supports the outline planning application.

**Table 5.1: Development Quantum**

| Land Use | Use Classes | Quantum (GEA) |
|---|---|---|
| Uses associated with the expansion of Begbroke Science Park | Classes B2, B8, E(g), and F1(a). | 155,000 sqm |
| Residential | C3/C4/Sui Generis | 215,000 sqm |
| Ancillary Supporting Uses | | |
| Retail (including the sale of food and drink) | E(a), (b), (c) | 3,500 sqm |
| Hotel | C1 | 10,000 sqm |
| Non-residential and leisure institutions, including nursery, medical | E(d), (e), and (f) | 5,600 sqm |

| | | |
|---|---|---|
| or health services, indoor sport or fitness facilities, and creches and/or nurseries. | | |
| Halls and meeting places | F2(b) | 1,200 |
| Sui generis uses including (but not limited to) public houses, wine bars or drinking establishments | Sui generis | 700 |
| Open outdoor recreation, play and sport space | F2(c) | In accordance with the CDC Local Plan policy |
| Education facilities | F1(a) | Land safeguarded for 2no. primary schools and 1no. secondary school |

5.2.2 With regards to the residential use, **Table 5.2** summarises the unit mix ranges.

**Table 5.2: Residential Unit Mix Ranges**

| | Unit Size | | | |
|---|---|---|---|---|
| | Studio / 1 bedroom | 2 bedroom | 3 bedroom | 4+ bedroom |
| **Range** | 20-40% | 30-40% | 15-30% | 5-20% |

5.2.3 The precise unit mix, including the proportion of apartments, sharer accommodation and traditional housing will be defined through the submission of reserved matters applications. For the purposes of this Transport Assessment, it is anticipated that circa 1,800 homes would be delivered on the Site and this has formed the basis of the assessment of the transport effects of the proposed development.

5.2.4 The residential unit mix will comprise 20-40% studios/1-bedroom units, which for the purposes of this assessment have been assumed to be flats. Flats tend to have lower trip rates than houses and therefore in order to provide a robust assessment, it has been assumed that 25% of residential units will be flats, which is at the lower end of the 20-40% range.

5.2.5 For the purposes of this assessment, it has also been assumed that the 25% flats are all affordable, with the remaining 75% of residential units assumed to be market houses. This is considered to be robust, as it is expected that, overall, 50% of the residential units would be affordable homes.

## 5.3 Illustrative Masterplan

5.3.1 Extensive engagement has been undertaken at the pre-application stage to develop the illustrative masterplan for the Site, which is included as **Appendix C**.

5.3.2 The illustrative masterplan has been produced to illustrate one way in which high quality development can be achieved within the parameters and principles of the Development Specification, Parameter Plans and Strategic Design Guide. The illustrative masterplan is also used to demonstrate how the proposals can achieve key planning policy objectives whilst achieving a viable quantum and mix of uses across the Site.

5.3.3 Parameter Plan 01 – Development Zones and the Development Specification sets out three neighbourhoods within the Site, centred around a local centre. The neighbourhoods are referred to as Begbroke Hill (north-west), Parkers Farm (north-east) and Foxes Cover (south).

5.3.4 The Proposed Developments seeks to enable growth, with reduced reliance on the car and a more active and integrated community.

## 5.4 Access Strategy

5.4.1 In accordance with Policy PR8 of the Partial Review Local Plan, it is proposed that the Site will be served by two vehicular accesses as follows:

- Vehicular access will be taken from the existing signal controlled A44/Begbroke Hill access. The PR9 allocated site, which is to the west of the A44, is seeking outline planning consent for up to 540 dwellings and an elderly care facility and proposes to provide a fourth arm of the signalised A44/Begbroke Hill junction to provide vehicular access to the site. As part of the proposed PR9 access improvements, it is proposed to install direct (i.e. non-staggered) pedestrian crossing facilities across the A44 northbound and southbound arms as well as across the PR9 arm of the junction. The PR9 proposals also include changing the existing staggered pedestrian crossing across the Begbroke Hill arm from staggered to a direct crossing. The direct pedestrian crossings on each arm of the upgraded A44/Begbroke Hill junction would require pedestrians to cross in two phases but they would cross along the desire line.
- Vehicular access to the Site would also be provided via a new three arm signal-controlled junction on the A44 to the south of the Site, which is proposed to be delivered by Hallam Land as part of their development proposals. The land owned by Hallam Land forms part of the PR8 site and access to the southern part of the Site would be provided through the proposed Hallam Land development (referred to as the southern PR8 access).

5.4.2 From the northern access, Begbroke Hill will pass with an east-west orientation within the vicinity of the commercial element of the masterplan, close to the existing Begbroke Science Park. At its eastern extent, this vehicular route will terminate within the vicinity of the railway. In accordance with policy and as detailed in Section 6 of this TA, through vehicular access will not be provided for over the railway for general traffic.

## 5.5 Parking

### Cycle Parking

5.5.1 Cycle parking within the Development will be provided in accordance with the minimum standards set out in OCC's 'Parking Standards for New Developments' (November 2022) or the appropriate policy of the reserved matters application for the specific phase.

5.5.2 Residential and employment cycle parking will be provided in secure locations using appropriate Secured by Design approved storage solutions. All provision will be convenient and secure for all occupiers and visitors and workplaces will be required to include showering, changing and storage areas for cycling equipment. Additional on-street visitor cycle parking will be provided.

5.5.3 The needs of Cargo bikes and bikes with child seats will also need to be met and will be designed for as there is an increasing uptake of these types of bikes. For the residential properties cycle parking could be provided within garages or secure cycle stores.

5.5.4 It is proposed that through Travel Plan Monitoring and Surveys, any cycle parking demand in excess of supply could be identified and strategies including shared use facilities or additional locations for cycle parking agreed through the proposed Transport Review Group (TRG), the remit of which is set out in the Framework Site-Wide Travel Plan.

### Car Parking

5.5.5 Car parking within the development will be provided in accordance with the maximum standards set out in OCC's 'Parking Standards for New Developments' (November 2022) or the appropriate policy of the reserved matters application for the specific phase. This includes provision of accessible parking spaces and electric vehicle (EV) charging spaces. In accordance with the standards, it is proposed for roads within the Site to be fully controlled through the use of a Controlled Parking Zone (CPZ). The CPZ would be secured as part of reserved matters applications.

5.5.6 The proposed mix of uses allow a low car ownership model to be embraced. Residents (origin end of a trip) within the Site will have access to jobs and services in close proximity (either within the Site or within the surrounding area) meaning car ownership and dependency is reduced and the employment land uses (destination end of a trip) can be controlled through car parking at a level below the maximum parking standard.

5.5.7 In accordance with the Oxfordshire New Street Design Guide, it is expected that the residential parking will be provided in a mixture of on-plot and off-plot in shared parking areas. The mixture of on and off plot parking will allow for more flexibility in the parking strategy. As car dependency reduces, the level of overall provision within the Site can be balanced allowing opportunities to be opened up for using land set aside for car parking to be used more productively in the longer term e.g. amenity space. This allowance for re-purposing of land offers greater sustainability benefits, as well as using the scarce land resource in a more effective and efficient way.

5.5.8 As part of the parking strategy for the Site, an EV car club scheme is proposed as part of the Mobility Hub. Collaborative Mobility (CoMo) research[9] shows that 1 car club car replaces 20 private cars.

## 5.6 Servicing and Refuse Strategy

5.6.1 The outline nature of the planning application is such that the specific details of the servicing and refuse strategy (i.e. access, street design, loading areas and refuse stores) are not determined and will be subject to later reserved matters submissions.

5.6.2 A Framework Delivery and Servicing Management Plan (DSMP) has been prepared to support the planning application. The control document provides a framework for individual DSMPs that would be developed for the various Phases of the Proposed Development and land use types as part of reserved matters applications. The approach sets out that such submissions should be supported by Phase-specific DSMPs.

5.6.3 Any DSMP submitted for approval as part of reserved matters applications must be substantially in accordance with the Framework DSMP which provides a framework for:

- The basis for the delivery and servicing strategy to be adopted;
- The requirements to accommodate delivery and servicing vehicle movements; and
- The ongoing management of deliveries and servicing.

5.6.4 The overarching servicing and delivery strategy for the development is based on:

- Residential refuse collection will occur on street from waste collection points situated around the Site;
- Residential delivery and servicing trips are accommodated on-street due to the low level of movement, and to make the most efficient use of land when considering other factors such as public realm and landscaping;
- Delivery and servicing vehicles for commercial uses will use specific bays situated in close proximity to or within those commercial units; and
- A method of control will prevent unauthorised vehicles from accessing parts of the Site such as pedestrian priority routes using appropriate design or physical methods of control.

[9] https://www.como.org.uk/documents/car-club-annual-report-key-findings-uk-2021

# 6 SUSTAINABLE TRANSPORT STRATEGY

## 6.1 Introduction

6.1.1 This section of the report details the overarching Transport Strategy for Begbroke Innovation District. The way in which people and vehicles move around the Begbroke Innovation District will be integral to the creation of a sustainable and liveable place. Careful consideration needs to be given to the interactions of different modes, the efficiency and capacity of networks, and how, through the creation of a connected place, the Begbroke Innovation District can grow and contribute sustainably to the benefit of the surrounding communities. These considerations – from the micro to the macro – have informed the transport strategy for the development.

## 6.2 A New Science / Technology Cluster and Implications on Travel Behaviour

6.2.1 The planned growth in housing and jobs to the north of Oxford will result in a new science/technology cluster there. The proximity of housing and jobs will provide the ability for people to travel more sustainably.

6.2.2 Begbroke Innovation District provides up to 155,000 sqm of employment floorspace in addition to the 14,200 sqm of floorspace at the existing Begbroke Science Park and the consented 12,500 sqm of additional floorspace currently being built out.

6.2.3 This is in addition to the Oxford Technology Park and Oxford North, which both have consent for employment floorspace. Oxford Technology Park has consent for 38,394 sqm of employment floorspace. Oxford North has consent for 87,300 sqm of employment floorspace as well as 480 dwellings, a hotel and A1-5 and community uses.

6.2.4 In total, there would be 307,394 sqm of science/tech floorspace to the north of Oxford, which equates to over 12,000 jobs. These jobs, accompanied by the committed and allocated housing to the north of Oxford, creates the ability to reduce travel distances between home and work and increases the opportunities for more sustainable travel.

## 6.3 A Sustainable New Community

6.3.1 The Begbroke Innovation District is uniquely placed to reduce private motorised travel through an integrated settlement pattern with a mix of housing, jobs, education and supporting community uses. Strategic scale development of this size has significant advantages in transport terms. Achieving a critical mass of people means that services, facilities and leisure opportunities can be provided on site meaning a significant amount of travel will occur only within the Site itself. Likewise, the proposed mix of housing and jobs provides the opportunity for people to live and work within walking distance.

6.3.2 The RTPI[10] has produced an evidence base to summarise the multiple co-benefits that can be achieved through planning integrated settlements. This work indicated that these urban forms

[10] https://www.rtpi.org.uk/research/2020/june/net-zero-transport-the-role-of-spatial-planning-and-place-based-solutions/

reduce the need to travel and facilitate public and active transport when compared to single use, dispersed developments, and thereby reduce overall vehicle use. There is a close relationship between residential density and accessibility, with larger local populations providing patronage for a wider range of local shops and services in convenient locations, within easy walking or cycling distance. Land use mix around public transport stops also helps to make high-frequency services financially viable and increases the number of public transport stops. This in turn improves accessibility across the entire network, creating a virtuous cycle that reduces car dependency, increases levels of public and active transport and reduces the number of physically inactive 'door to door' trips.

## 6.4 Walking and Cycling

### People First

6.4.1 The proposals provide a strong foundation for pedestrian and cycle movement and connectivity across the Site, placing people not vehicles at the top of the movement hierarchy and the illustrative masterplan demonstrates that this can realistically be delivered across the Site. Active travel modes are to be prioritised above all other modes. They will be afforded with a permeable, high quality and fine grain network of walk and cycle routes. It will be easier to walk or cycle through the Site than by any other mode of transport.

6.4.2 Safe, connected walking routes are an essential part of any movement strategy as walking critically makes up the first and final part of every other journey and must therefore be planned for in this context. From the perspective of a cyclist, the most well documented challenges for those arriving by bicycle typically centre around the availability of high quality, legible, and safe cycle routes and secure cycle parking. Cycle parking will be provided at destinations throughout the Site in accordance with Oxfordshire's cycle parking standards and will be provided for all types of cycles, including tandems and cargo bikes.

### Green Arteries

6.4.3 The streets will be designed for 20mph, which will enable cyclists to safely mix with traffic. However, through filtered permeability, a network of entirely car free streets and places will be created which will aim to allow pedestrians and cyclists to travel from the centre of a neighbourhood to the heart of the development with minimal crossings of vehicular trafficked streets. Where such

crossings are necessary, the active modes will always be provided with the priority over vehicles and provided with a level grade crossing.

6.4.4 Each neighbourhood will have a green corridor (referred to as the 'green arteries') running through the centre of it, which will create a high-quality traffic free corridor for people to move through and enjoy, whilst also offering opportunities for tranquillity and recreation in the heart of the neighbourhoods. It is only on the approach to the local centre that the green corridor would cross a low speed, trafficked street and pedestrians and cyclists would be given priority over vehicles at these locations.

### Living Streets

6.4.5 Low speed roads will connect to a network of 'living streets', which will consolidate on-street parking at the end of the street to make space for more green and social spaces. The RTPI research[11] describes the concept of living streets as follows:

*"Restricting vehicle access and removing on-street parking means children can play safely in the street. New trees, parklets and sustainable drainage features bring nature to every doorstep, with benefits to biodiversity and people's health and wellbeing. Previously tarmacked corridors lined by cars become green, social places with space for people to come together as a community, as well as playing a vital role in facilitating sustainable mobility within and outside of the neighbourhood."*

### Bridges

#### Rail Bridge

6.4.6 Policy PR8 within the Partial Review Local Plan requires Sandy Lane to be closed to vehicular traffic (other than direct access to properties on Sandy Lane) and through connectivity on Sandy Lane to become for pedestrians and cycling only.

6.4.7 As part of Oxford Phase 2, Network Rail is progressing a Transport and Works Act Order (TWAO) to close the Tackley, Sandy Lane and Yarnton Lane level crossings to support increased utilisation of this part of the rail network and to reduce risk. With regards to the Sandy Lane level crossing, which is within the Site, Network Rail is currently proposing to replace the level crossing with a ramped cycling and pedestrian bridge over the railway. An access only vehicle link road, with new access onto the A44 and improvements to Green Lane, is proposed to maintain access for residents and landowners to the east of the level crossings.

6.4.8 As a result of community representation for the Begbroke Innovation District, OUD recognises that not everyone can walk or cycle and therefore Oxford University appointed the OUD design team to design a pedestrian, cycle and public transport bridge, liaising with Network Rail on the design. Oxford University and OUD continue to work with Network Rail to enable Network Rail to deliver a bridge that would be suitable for active travel, but accommodating public transport

[11] https://www.rtpi.org.uk/research/2020/june/net-zero-transport-the-role-of-spatial-planning-and-place-based-solutions/

as well as vehicular access to the east of the railway for maintenance purposes. To be clear, should they come forward these proposals would be subject to a separate application by Network Rail and are not part of the Begbroke Innovation District for which outline planning permission is being sought.

6.4.9 The illustrative masterplan has incorporated a walk, cycle and public transport bridge over the railway into the scheme layout as shown in **Appendix C**. Parameter Plan 04 - Access and Movementprovides an indicative location for a bridge over the railway.

6.4.10 This work is ongoing and subject to approval, detailed design and funding discussions with Network Rail and the local authorities and could replace the current Network Rail proposal for the ramped cycle and pedestrian bridge. OUD will continue to liaise with Network Rail to seek for Network Rail to promote a separate planning application for the Oxford University designed pedestrian, cycle and public transport bridge.

#### Oxford Canal

6.4.11 Policies PR8 and PR7b within the Partial Review Local Plan require these two allocated sites to provide for a walk/cycle bridge over the Oxford canal and to provide a walk/cycle route from PR8, through PR7b to provide a connection to Kidlington and Oxford Parkway. Meetings have been held with the Canal and River Trust to understand their design requirements and a concept bridge has been designed as included in **Appendix D**. To be clear, the concept design of the Oxford Canal bridge included in **Appendix D** does not form part of the outline application for the Site. The proposed active travel route to Kidlington roundabout would tie into the improvements that are to be delivered by OCC at Kidlingtonroundabout as part of the North Oxford Corridor Improvements detailed in Section 4 of this TA.

6.4.12 Consideration is also being given to this bridge being capable for walk, cycle and public transport use, the potential benefits of which are discussed in the public transport section below.

6.4.13 At this stage OUD is seeking for obligations to be included in the S106 Agreements for both PR7b and PR8 to safeguard the walk, cycle and public transport bridge solution and for a feasibility study to be jointly undertaken by PR7b and PR8, in consultation with CDC, OCC and the Canal and River Trust, ahead of any reserved matters applications being submitted for either site. The feasibility study would consider the feasibility and deliverability of a multimodal pedestrian, cycle and public transport link along the safeguarded route.

### Connecting Communities

6.4.14 Setting the tone for a scheme layout that prioritises active travel begins with providing gateways to the Site that are welcoming and safe. The design of the Begbroke Innovation District will ensure that infrastructure caters for all users and maximises inclusivity and reduces apprehension when using spaces and crossing roads, particularly where the internal road network meets the A44 corridor.

6.4.15 The Development seeks to deliver a highly legible and permeable network of walk, wheeling and cycle routes to connect into the surrounding communities of Yarnton, Begbroke and Kidlington as well as to Oxford Parkway and the existing and proposed cycle routes to Oxford city. This increased connectivity will help to realise the full benefit that the Begbroke Innovation District offers but also help to deliver a more pleasant and prioritised walk and cycle environment that connects communities.

6.4.16 As set out in Section 3, there are currently only two signal-controlled pedestrian crossing facilities across the A44 corridor between Pear Tree Interchange and Bladon roundabout. These are located at the A44/Begbroke Hill junction, which provides access to the Site and across the A44 south of Sandy Lane, connecting residents of Yarnton.

6.4.17 As part of the development of the PR sites, improvements will be jointly funded to the A44 and A4260 corridors for sustainable travel. OUD is currently liaising with OCC with respect to the design of improvements to the A44 corridor north of Cassington roundabout, which would tie into the improvements that have been delivered by OCC as part of the North Oxford Corridor Improvement scheme summarised in Section 3 of this report. This work is ongoing and will inform the legal agreements between OUD, CDC and OCC (i.e. S106 and/or S278 Agreements).

6.4.18 In respect to the A44, the following new or improved signal-controlled pedestrian/cycle crossings across the A44 are proposed to be provided by either OCC (through joint funding within S106 Agreements for each of the PR sites) or the PR sites (through S278 Agreements):

- **Begbroke village:** Currently there is no signal-controlled crossing over the A44 connecting the eastern and western parts of Begbroke village. Pedestrians are required to cross the corridor uncontrolled via sub-standard facilities. We understand that OCC is currently designing a signal-controlled crossing across the A44 at Begbroke village to provide a safe crossing across the A44.
- **Begbroke Hill:** as part of the PR9 development proposals, a fourth arm is to be provided to the existing Begbroke Hill signal-controlled junction and direct (i.e. not staggered) pedestrian and cycle crossing facilities provided across all arms of the junction to provide safe access between PR9 and PR8 and bus stops on the A44.
- **South of Begbroke Hill:** as part of the PR9 development proposals, a signal controlled direct (i.e. not staggered) pedestrian crossing is proposed to be provided across the A44 mid-way between Begbroke Hill and Sandy Lane.
- **Sandy Lane:** as part of the improvements to the A44, it is proposed to provide a signal-controlled crossing across the A44 at the junction with Sandy Lane. This would connect the Site to Yarnton.
- **Southern PR8 access:** as part of the proposed development of part of the PR8 site being brought forward by Hallam Land (referred to as the southern PR8 access), a signal controlled access is proposed with the A44, which includes signal controlled pedestrian and cycle crossings.
- **Cassington roundabout:** as part of the North Oxford Corridor Improvements currently being implemented by OCC, a signal-controlled pedestrian and cycle crossing is

proposed immediately to the north of the Cassington roundabout at the junction of A44 with Cassington road.

6.4.19 Pedestrians and wheelers / cyclists travelling to Begbroke would be able to route via the following:

- Along the pedestrian/cycle network within the Begbroke Innovation District, which will connect into Begbroke Lane to provide a traffic free route to Begbroke.
- Alternatively, pedestrians and cyclists would be able to travel between the Site and Begbroke via the proposed green artery through the Begbroke Hill neighbourhood to access the A44 and travel to Begbroke village.

6.4.20 Pedestrians and wheelers / cyclists travelling to Yarnton and PR9 would be able to route via the following:

- Begbroke Hill would be upgraded to provide upgraded pedestrian and cycle routes along both sides of the road. Pedestrians and cyclists would be able to travel along Begbroke Hill to the junction with the A44 and cross at the proposed signal-controlled crossings to access PR9 and Yarnton.
- Alternatively, pedestrians and cyclists would be able to route through the Site to Sandy Lane and cross the A44 at the proposed signal-controlled crossing at Sandy Lane.
- Pedestrians and cyclists would also be able to travel through the Site along the green artery through the Foxes Cover neighbourhood to the southern PR8 access and cross the A44 at the proposed signal-controlled junction to access Yarnton.

6.4.21 Pedestrians and wheelers / cyclists travelling to Kidlington would be able to route via the following:

- Along the upgraded and new traffic free routes through the Parker's Farm neighbourhood to access Roundham lock and onwards to Lyne Road, which connects to the local centre at High Street, Kidlington.
- Along Begbroke Hill or Sandy Lane and over the new Network Rail bridge and onwards to the existing Yarnton Lane canal bridge.
- Along the pedestrian/cycle route that will connect to the proposed bridge over the canal to PR7b and onwards to the southern part of Kidlington, Oxford Parkway and the wider city.

6.4.22 Cyclists and wheelers travelling to/from Oxford city would be afforded with a number of route options:

- Along the A44 and Woodstock Road via the upgraded active travel facilities.
- Along the canal, which the Canal and River Trust is proposed to upgrade along the Site boundary through developer funding, to connect into the already upgraded towpath to the south of the Site.

- Along the pedestrian/cycle route that will connect to the proposed bridge over the canal to PR7b and onwards to the city centre via the A4260, which is proposed to have active travel improvements along the corridor.

## 6.5 Public Transport

### Mobility Hubs

#### Airport Mobility Hub

6.5.1 The Infrastructure Schedule in Appendix 4 of the Partial Review Local Plan identifies transport infrastructure schemes to support the growth identified in the Partial Review Local Plan and to facilitate a mode shift towards sustainable travel. As part of the Infrastructure Schedule, the County is seeking to develop a mobility hub at Oxford airport, which would intercept traffic further north along the A44 and transfer them to a range of sustainable transport at the proposed mobility hub. The County is seeking joint contributions from the PR sites and other relevant consented development to fund the Airport mobility hub.

#### Begbroke Innovation District Mobility Hub

6.5.2 In a time where transportation services, infrastructure, and amenities are evolving rapidly, mobility hubs present an opportunity to integrate different sustainable transportation options that enhance connectivity across the masterplan.

6.5.3 The Development Specification requires a Primary Mobility Hub to be provided with regard for the local centre. This will be accessible to the wider community including visitors, future employees and residents. It is envisaged to incorporate mobility measures such as bus stops, cycle parking, cycle hire, parking, car clubs, rapid electric vehicle charging, delivery lockers and travel information. It will sit alongside retail and cafes to provide an obvious destination for people. The precise design of the Primary Mobility Hub will form part of reserved matters applications.

6.5.4 The concept of Mobility Hubs has evolved from thinking and delivery in Europe and parts of North America. They are increasingly featuring in Transport Strategies for new developments and towns and cities in the UK. CoMo UK is a market leader on shared mobility solutions and has prepared a number of guidance documents on Mobility Hubs. They apply the following definition for a Mobility Hub:

*"A mobility hub is a recognisable place with an offer of different and connected transport modes supplemented with enhanced facilities and information features to both attract and benefit the traveller."*

6.5.5 In addition to the central Primary Mobility Hub within the local centre, there is the opportunity to provide smaller secondary Mobility Hubs within each of the neighbourhoods. The image provides an example of a small scale Mobility Hub within a new development near Exeter. The hub includes ebike hire, car club access, EV charging and is close to a bus stop.


6.5.6 The difference between Primary and Secondary Mobility Hubs is generally about the quantity of the facilities provided. The Primary Mobility Hub will have more cycle stands, more bikes available to hire, more car club spaces etc. The Primary Mobility Hub will also incorporate access to public amenities, such as toilets, as well as cafes and provide a place for site management activities. Should they be provided, Secondary Mobility Hubs would form part of the reserved matters applications.

6.5.7 The hubs will form the core of a larger area of influence (or catchment area) that benefits from the services provided. Residential and employment areas will be located within this catchment area to support the uptake of services offered. In addition to providing efficient and seamless integration of transportation options, the Mobility Hubs will also focus on user experience ensuring safety and security for all travellers, flexibility and resiliency to embrace technological innovations, and will address equity for all users.

### Bus Priority

6.5.8 Within the Site, it is proposed to provide a traffic filter along the edge of the Central Park with only active travel and buses being able to route through the filter. This would provide priority of buses within the Site to ensure reliable journey times.

6.5.9 In addition, Policy within the Partial Review Local Plan assumes Sandy Lane to be closed to general traffic and to be for active travel only. As set out in the bridges section, OUD is seeking for the rail bridge being progressed by Network Rail to be for active travel and public transport. Should this bridge come forward via a Network Rail planning application, it would provide a further traffic filter within the Site and priority for buses to route to/from Kidlington and the city.

6.5.10 As part of the North Oxford Corridor Improvements, a southbound bus lane is being installed along the A44 between Loop Farm roundabout and Cassington roundabout. As part of the Infrastructure Schedule included in Appendix 4 of the Partial Review Local Plan, the A44 corridor between Cassington roundabout and Bladon roundabout is to be improved for sustainable travel through developer funding, which would include bus priority along the A44. OUD is liaising with OCC to develop the sustainable travel proposals for the A44 and location and extent of additional bus priority.

### Improvements to Bus Services

6.5.11 **Figure 6.1** illustrates the existing bus route S3, which provides a service between Chipping Norton and Oxford city (including Oxford railway station) and routes along the A44 past the Site, diverting through Yarnton village. It operates 2 services an hour, Monday – Saturday and 1 service an hour on Sundays.

6.5.12 As part of Appendix 4 of the Partial Review Local Plan, which sets out the transport infrastructure requirements for the PR sites, it is proposed for the S3 route to be increased to 4 buses per hour in each direction and for the route to run directly along the A44 without diverting through Yarnton. Appendix 4 of the Partial Review Local Plan requires PR8 and PR9 to jointly fund the S3 improved service.

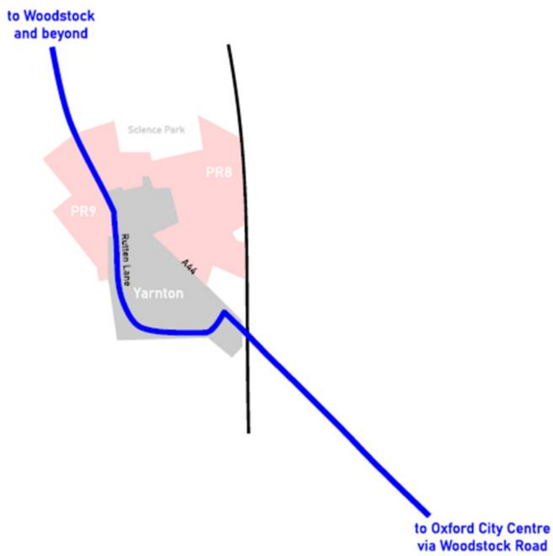
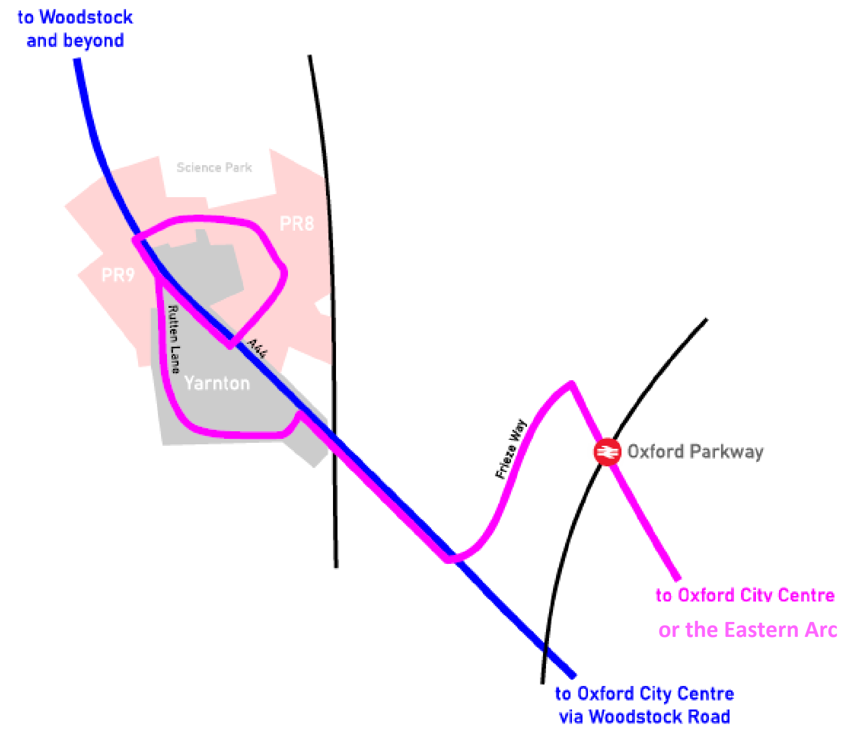



**Figure 6.1: Existing S3 bus route along A44**

6.5.13 In addition to the improved S3 service, OCC proposes for a new route to be introduced, which would route around the Begbroke Innovation District and Yarnton before routing along the A44 to Loop Farm roundabout and then along Frieze Way to Oxford Parkway and onwards to Oxford city or the Eastern Arc.

6.5.14 The new bus route, subject to agreement with OCC of the precise route, is illustrated in **Figure 6.2** below along with the proposed upgraded S3 service. The frequency of this new route is envisaged to be a half hourly service.

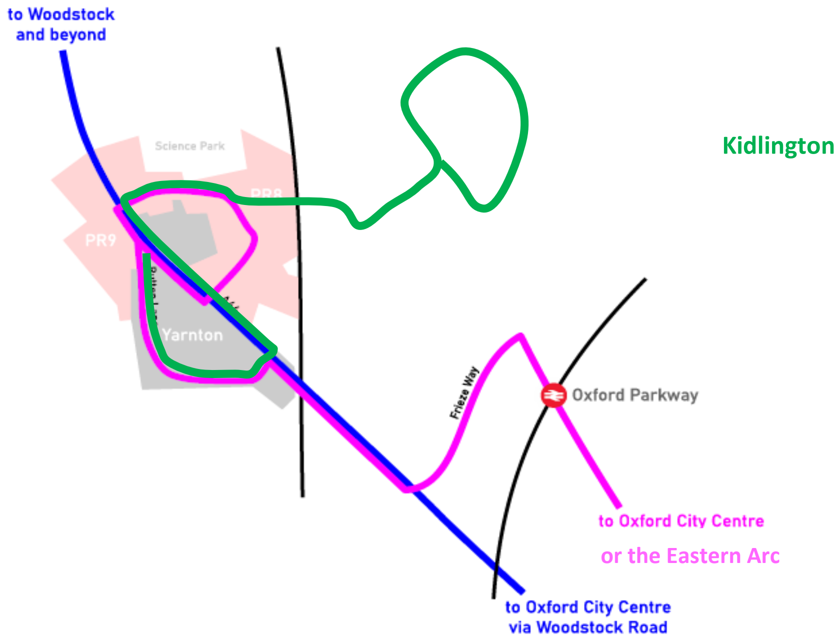
**Figure 6.2: Oxfordshire County Council proposed bus routes to serve PR8 and PR9**



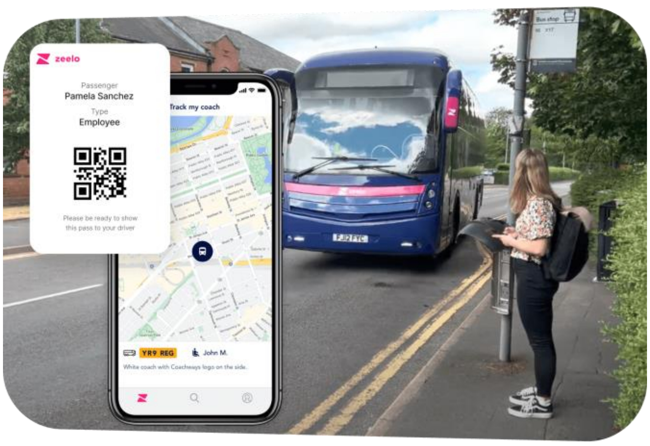

6.5.15 There is currently no bus service between Yarnton and Kidlington. Therefore, as part of the Begbroke Innovation District, it is proposed to provide a community bus service between Yarnton, Begbroke Innovation District and Kidlington.

6.5.16 **Figure 6.3** below illustrates the County Council's bus proposals with the proposed community bus in green (indicative routing at this stage, which is subject to detailed route planning). At this stage, the commitment is for a community bus to be funded by the development but the precise details of the route, vehicle type and timetable would need to be agreed with OCC.

**Figure 6.3: Oxfordshire County Council proposed bus routes to serve PR8 and PR9 + community bus**




6.5.17 Community bus services are evolving across the UK to include elements of demand responsiveness. The Herts Lynx service in Hertfordshire is an example of where demand responsive services are in place connecting villages to key towns and employment locations.




6.5.18 Operators such as Zeelo provide app-based technology which can benefit bespoke shuttle services and could be deployed at Begbroke Innovation District. The booking technology provides greater certainty of service and allows services to be adapted to meet demand.

## 6.6 Safeguarding for the Future

6.6.1 As stated earlier, Policies PR7b and PR8 of the Partial Review Local Plan requires PR7b and PR8 to provide for a new walk/cycle bridge over the canal, with PR8 providing a walk/cycle route between the new bridge and the PR8 site and PR7b providing a walk/cycle route through the PR7b site that would provide a connection to the southern part of Kidlington and Oxford Parkway.

6.6.2 There is potential for the new canal bridge to be for walk, cycle and public transport, which would provide a faster and far more direct route between Oxford Parkway and PR8 (i.e. circa 3km v 7km).

6.6.3 The benefits of safeguarding for this 'enhanced' canal bridge are:

- OCC's Local Transport and Connectivity Plan (LTCP) sets ambitious targets for mode shift and achieving a zero carbon transport network. It seeks to replace or remove 1 in 4 current car trips (25%) in Oxfordshire by 2030 and deliver zero-carbon transport network and replace/remove 1 in 3 current car trips (33%) in Oxfordshire by 2040. In order to achieve these targets, every possible step will need to be taken by OCC to deliver and safeguard for high quality sustainable travel choices across Oxford and the wider area.

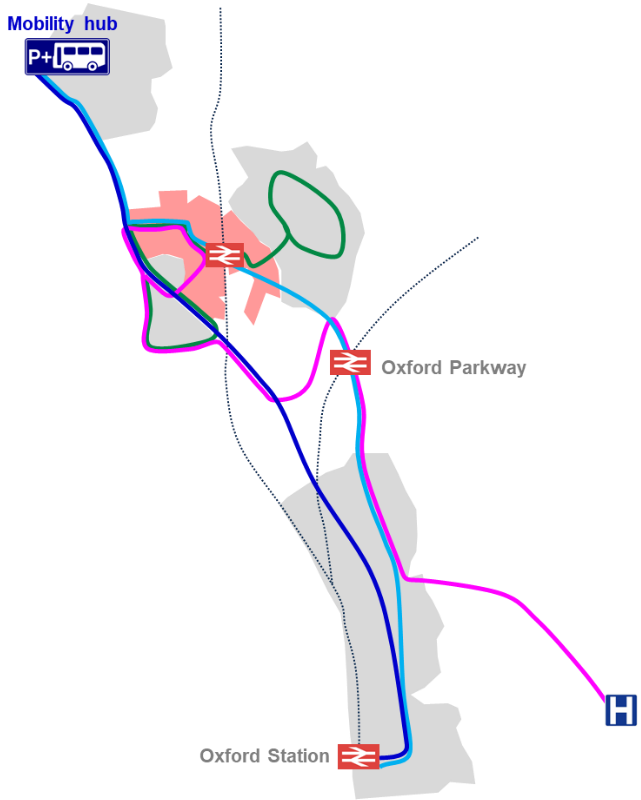
- A potential public transport route across the canal would provide an additional layer to the LTCP transport strategy for the north of Oxford area connecting allocated sites with Oxford Parkway via an off-road, direct sustainable travel corridor. It would be half the distance of the equivalent route by road, providing residents and employees with a fast connection to rail and onward to the city. It would not be an 'either/or' scenario whereby the improvements to bus priority being delivered along the A44 would be redundant, rather a public transport connection across the canal would complement and add to the sustainable transport choices north of Oxford.

- East-West Rail is in the process of being delivered and would provide a rail connection between Cambridge and Oxford via Bedford and Milton Keynes. Having a direct and fast connection between the allocated sites and Oxford Parkway, which would form part of East-West Rail, would open up the north of Oxford area to further opportunities both in terms of employment opportunities for local residents and attraction of employees for local businesses, including the Begbroke Innovation District.

6.6.4 The proposed mechanism for safeguarding for a potential multi-modal bridge over the canal has been set out in the bridges sub-section earlier in this section.

6.6.5 A plan showing the potential bus routes that could serve the Site should the canal bridge be delivered for public transport as well as walk and cycling is illustrated in **Figure 6.4** below.

**Figure 6.4: Potential Bus Routes with a New Canal Bridge between PR8 and PR7b**




## Potential for a Railway Station

6.6.6 Policy PR8 of the Partial Review Local Plan requires the reservation of 0.5ha for a potential railway station within the PR8 site. A station at the Begbroke Innovation District would be on the Cherwell Valley Line, which runs between Didcot Parkway and Banbury via Oxford.

6.6.7 OUD commissioned SLC Rail to work with the design team to:

- determine the most appropriate location for a railway station within the masterplan;
- design concept railway station options based on current guidance; and
- input into the masterplan to ensure potential rail options have been safeguarded for.

6.6.8 OUD is seeking for the bridge over the railway to be designed to allow for walk, cycle and public transport. This would provide a multi-modal interchange with the potential railway station, should it come forward in the future.

6.6.9 A railway station does not form part of outline planning application for Begbroke Innovation District but OUD will continue to engage with Network Rail and Department for Transport on the potential for a railway station as the development progresses.

# 7 TRIP GENERATION AND DISTRIBUTION

## 7.1 Introduction

7.1.1 This section outlines the approach taken to derive multi-modal trip forecasts for the development proposals. It builds upon trip generation analysis completed by IMA Transport Planning in 2021 to support pre-application discussions for the Begbroke Innovation District with OCC.

7.1.2 Building upon the earlier trip forecasting approaches developed for the Site, the general framework within this assessment is as follows:

- Predict total person trips using TRICS or employment/education projections;
- Separate residential trips by trip purpose using the National Travel Survey (NTS);
- Apply reductions based on opportunities for internalisation within the Site and work-from-home (WFH) trends;
- Consider zones for origin-destination purposes;
- Identify destinations for each land use/trip purpose using 2011 Census data, Partial Review Local Plan allocations and areas of expected growth, locations of employer-linked sites, and location of existing facilities;
- Review opportunities for trips to be made by accessible forms of transport. This assessment considers existing and identified improvements to sustainable transport infrastructure, Census travel to work data, existing and emerging local transport policies, availability, and cost of parking, and potential links with other developments. Residual trips that could not be made sustainably are assumed to be made by car; and
- Apply factors to account for the principle of peak spreading, which is already observed across the County.

## 7.2 Peak Spreading

7.2.1 As traffic congestion increases, the proportion of daily traffic volumes that occur during peak hours is expected to decrease. This behavioural response is known as peak spreading: as congestion grows during the peak travel times, motorists may shift their departure time to a non-peak hour. As an aside, it is unknown whether the same phenomenon affects public transport usage, but it seems sensible to conclude that people may seek to shift their journey-making to the edges of the peak times if public transport capacity is low. In the post-pandemic world of changing work patterns and practices, it also seems probable that a much higher proportion of employers will be sympathetic to workers adopting more flexible work patterns where appropriate, and higher numbers of workers than ever before continue to work from home for a proportion of the time.

7.2.2 All of these effects have changed, and continue to change, the demand patterns that are seen on the wider transport network on a day to day basis.

7.2.3 The methodology used in this TA accounts for the principle of highway network peak spreading given that there is evidence of this trend already occurring on the surrounding highway network within Oxfordshire. To support this, two-way vehicle counts collected and reported by the Department for Transport (DfT) have been reviewed at six count sites within the vicinity of the Site at locations along the A44, A40, and A34. Data is provided on an annual basis, either collected anew or factored using rates calculated by DfT.

7.2.4 For the purposes of this exercise, data was analysed at each count site for the most recently available year ranging from 2019 to 2021. For the data reported during the COVID-19 pandemic, it is considered that the temporal spread of trips would not be impacted.

7.2.5 The two-way traffic volumes by peak period hour at each count site are presented in **Table 7.1** below. The overall spread of vehicle trips within both the AM and PM peak period is also calculated.

**Table 7.1: DfT Two-Way Traffic Volumes & Peak Spreading Calculation**

| Time Period | A44 (Site 1) | A44 (Site 2) | A40 | A34 (Site 1) | A34 (Site 2) | Total | Proportion |
|---|---|---|---|---|---|---|---|
| **07:00-08:00** | 690 | 1,855 | 2,837 | 5,183 | 5,691 | 16,256 | 36% |
| **08:00-09:00** | 814 | 1,929 | 2,499 | 4,900 | 5,350 | 15,492 | 34% |
| **09:00-10:00** | 914 | 1,465 | 2,348 | 4,516 | 4,343 | 13,586 | 30% |
| **AM** | 2,418 | 5,249 | 7,684 | 14,599 | 15,384 | 45,334 | 100% |
| **15:00-16:00** | 1,123 | 2,066 | 2,762 | 5,519 | 5,180 | 16,650 | 33% |
| **16:00-17:00** | 1,081 | 1,975 | 2,872 | 5,642 | 5,855 | 17,425 | 35% |
| **17:00-18:00** | 1,015 | 1,893 | 2,687 | 5,402 | 5,263 | 16,260 | 32% |
| **PM** | 3,219 | 5,934 | 8,321 | 16,563 | 16,298 | 50,335 | 100% |

7.2.6 As presented, the spread of hourly trips on the highway network local to the Site within each peak period is relatively balanced with an AM peak of 36% of trips occurring between 07:00-08:00 and a PM peak of 35% of trips occurring between 16:00-17:00.

7.2.7 Aside from the derivation of total person trip rates, the following analysis presents trip forecasts for complete peak periods (AM: 07:00-10:00 and PM: 15:00-18:00) rather than peak hours. Peak hour results are only presented at the final stage following the application of the peak spreading factors outlined above in **Table 7-1**.

7.2.8 Note that peak spreading factors are only applied to car driver and car passenger trips as all other modes within the Oxfordshire conurbation are currently assumed to be less affected by congestion, which is the predominant motivation for trends towards peak spreading.

## 7.3 Total Person Trip Generation & Internalisation

7.3.1 This section outlines the methodology for calculating the total person trip generation for each of land use, as well as application of internalisation estimates.

### Residential

7.3.2 Total person trip rates for 'Privately Owned' residential dwellings were extracted from the TRICS database based on the following parameters:

- Land Use: Residential
- Category: Houses Privately Owned
- Regions: England, excluding London

7.3.3 The Partial Review Local Plan policy for the PR8 allocation outlined an expectation that 50% of the total residential dwelling supply would be affordable housing. For this reason, additional total person trip rates have been extracted from TRICS for affordable rental dwellings, which typically show different trip-making behaviour when compared with privately owned residences.

7.3.4 Although TRICS offers multiple datasets comprising affordable housing trip rates, category 'D – Affordable/Local Authority Flats' was selected for this assessment given that it includes the largest sample size (n=5) for total person trip rates.

7.3.5 Both sets of total person trip rates are presented below in **Table 7.2**, whilst the full TRICS outputs are contained at **Appendix E**.

**Table 7.2: Total Person Residential Trip Rates**

| Time Period | Privately Owned | | | Rental | | |
|---|---|---|---|---|---|---|
| | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way |
| **07:00-08:00** | 0.107 | 0.501 | 0.608 | 0.018 | 0.111 | 0.129 |
| **08:00-09:00** | 0.207 | 0.743 | 0.950 | 0.082 | 0.291 | 0.373 |
| **09:00-10:00** | 0.202 | 0.272 | 0.474 | 0.082 | 0.111 | 0.193 |
| **15:00-16:00** | 0.510 | 0.269 | 0.779 | 0.267 | 0.175 | 0.442 |
| **16:00-17:00** | 0.485 | 0.260 | 0.745 | 0.249 | 0.151 | 0.400 |
| **17:00-18:00** | 0.562 | 0.263 | 0.825 | 0.258 | 0.153 | 0.411 |
| **07:00-19:00** | 3.636 | 3.694 | 7.330 | 1.838 | 1.986 | 3.824 |

7.3.6 As set out in the Development Specification, the residential unit mix will comprise 20-40% studios/1-bedrooms, which, for the purposes of this assessment, have been assumed to all be flats. Flats tend to have lower trip rates than houses and therefore in order to provide a robust assessment, it has been assumed that 25% of residential units will be flats, which is at the lower end of the 20-40% range.

7.3.7 For the purposes of this assessment, it has also been assumed that the 25% flats are all affordable, with the remaining 75% of residential units assumed to be market houses. This is considered to be robust, as it is expected that, overall, 50% of the residential units would be affordable homes and it is expected that the affordable homes would generate less vehicle trips than the market houses.

7.3.8 Person trip rates extracted using the 'privately owned' selection parameter have been applied to the remaining 75% of units. The residential total person trip generation is outlined in **Table 7.3**.

**Table 7.3: Total Person Residential Trip Generation**

| Time Period | Privately Owned | | | Rental | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way |
| **07:00-10:00** | 813 | 2,388 | 3,200 | 96 | 269 | 365 | 908 | 2,657 | 3,565 |
| **15:00-18:00** | 2,452 | 1,247 | 3,700 | 406 | 251 | 658 | 2,859 | 1,499 | 4,358 |
| **07:00-19:00** | 5,727 | 5,818 | 11,545 | 965 | 1,043 | 2,008 | 6,692 | 6,861 | 13,552 |

7.3.9 Using National Travel Survey (NTS) data, it has been possible to breakdown the total person residential trip generation by trip purpose by hour of the day. A summary of trip purpose distributions for the selected assessment periods is provided in **Table 7.4** below.

**Table 7.4: Residential Trip Purpose by Time Period**

| Time Period | Employment | Education | Leisure | Shopping | Total |
|---|---|---|---|---|---|
| **07:00-08:00** | 67.2% | 19.8% | 10.0% | 3.0% | 100.0% |
| **08:00-09:00** | 37.1% | 51.4% | 7.3% | 4.2% | 100.0% |
| **09:00-10:00** | 41.6% | 10.0% | 26.3% | 22.1% | 100.0% |
| **15:00-16:00** | 23.4% | 47.0% | 17.7% | 11.9% | 100.0% |
| **16:00-17:00** | 46.4% | 11.2% | 27.5% | 15.0% | 100.0% |
| **17:00-18:00** | 55.5% | 5.2% | 27.3% | 12.0% | 100.0% |
| **07:00-19:00** | 40.5% | 14.5% | 25.3% | 19.7% | 100.0% |

Source: NTS Table NTS0502, 2019

7.3.10 These proportions have been applied to the total person trip totals in **Table 7.3** and the breakdown by trip purpose is presented in **Table 7.5**.

**Table 7.5: Residential Person Trip Generation**

| Time Period | Employment | | | Education | | | Leisure | | | Shopping | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way |
| **AM Peak Period** | 407 | 1,263 | 1,669 | 261 | 897 | 1,158 | 140 | 309 | 449 | 101 | 188 | 289 |
| **PM Peak Period** | 1,203 | 622 | 1,825 | 596 | 322 | 918 | 691 | 361 | 1,052 | 369 | 194 | 563 |
| **07:00-19:00** | 2,713 | 2,782 | 5,495 | 972 | 996 | 1,968 | 1,691 | 1,734 | 3,425 | 1,316 | 1,349 | 2,664 |

7.3.11 The following subsections discuss residential trip purpose internalisation and Work-From-Home (WFH) reductions, as well as other relevant steps in deriving external residential person trips.

### Residential to Employment

7.3.12 It is common practice to consider the "internalisation" of trips that may be made within a large, mixed use development site. Of course, it should be recognised that people don't live their lives making decisions based on the planning system, of which they are typically unaware, and so the principle of "internalisation" really relates to peoples' propensity to want to live and work in close proximity. For some people this is a key lifestyle driver, and so it results in a demonstrable likelihood that some proportion of employees will choose to live closer to where they work – and hence, in the case of Begbroke Innovation District, to be likely to both live and work within the site boundary. There is some evidence to suggest that this proportion may be higher among younger people, but this has not been included in this assessment.

7.3.13 Therefore, the internalisation of residential to employment trips has been estimated using 2011 Census origin-destination data. Census data for UK towns with locational characteristics and employed populations like that of the planned development were reviewed with the aim of calculating the level of residential-employment internalisation that they benefit from.

7.3.14 As a starting point, towns were selected if they were located within a similar distance of a larger city or town, as the Site sits relative to Oxford. At its simplest, travel distance to significant employment opportunities has a considerable impact on the willingness of an employee to travel for work or, conversely, work closer to home.

7.3.15 Secondly, of the towns selected, none had a reported employed population greater than 7,000 people. Towns with employment opportunities significantly higher than the employment total projected for the Site (circa. 5,500 employees) may result in a skewed estimate of internalisation.

7.3.16 In total, origin-destination datasets for 16 towns were extracted from the 2011 Census. This data outlined the following:

- 1) the total number of 'workers' that live within each town, and
- 2) the number of 'workers' that live and work within the same town, i.e., a subset of (1).

- The existing level of internalisation for each of the selected towns was then calculated by dividing (2) by (1).

7.3.17 **Table 7.6** shows the selected towns and the corresponding population totals and calculations, whilst the overall internalisation rate is also calculated as a weighted average. For reference, the total population of each town is also referenced.

**Table 7.6: Residential to Employment Internalisation of Existing Towns**

| Town | Nearest City | Total Pop. | Internal Working Pop. | Total Working Pop. | Internalisation |
|---|---|---|---|---|---|
| **Waterbeach** | Cambridge | 6,014 | 739 | 2,777 | 26.6% |
| **Cottenham** | Cambridge | 6,543 | 353 | 2,758 | 12.8% |
| **Swallowfield** | Reading | 6,715 | 259 | 2,773 | 9.3% |
| **Willingham** | Cambridge | 6,877 | 321 | 3,029 | 10.6% |
| **Sawston** | Cambridge | 7,145 | 539 | 3,206 | 16.8% |
| **Ampthill** | Bedford | 7,175 | 489 | 2,881 | 17.0% |
| **Cambourne** | Cambridge | 7,185 | 379 | 3,278 | 11.6% |
| **Princes Risborough** | High Wycombe | 8,101 | 530 | 2,898 | 18.3% |
| **Haddenham** | Aylesbury | 8,105 | 387 | 3,085 | 12.5% |
| **Cranfield** | Bedford | 8,312 | 643 | 2,915 | 22.1% |
| **Wendover** | Aylesbury | 8,334 | 814 | 3,193 | 25.5% |
| **Shefford** | Bedford | 10,017 | 922 | 4,309 | 21.4% |
| **Thame** | Oxford | 11,561 | 1,599 | 5,021 | 31.8% |
| **Kidlington** | Oxford | 12,142 | 528 | 5,310 | 9.9% |
| **Flitwick** | Bedford | 13,234 | 1,021 | 6,002 | 17.0% |
| **Wantage** | Oxford | 16,981 | 1,790 | 7,505 | 23.9% |
| **Total** | | 144,441 | 11,313 | 60,940 | 18.6% |

7.3.18 An average internalisation rate of 18.6% is observed across the sample towns. On this basis, a reduction of 18.6% has been applied to the residential-employment total person trips resulting in a proportion of 81.4% travelling externally to the Site by all modes. Or in other words, it is assumed that 18.6% of people who choose to live on the Site will also work on the Site.

7.3.19 It is important to note that 2011 Census origin-destination data excludes Work-From-Home (WFH) employees from the dataset summarised above, given that this would not constitute a 'trip'. Therefore, the trip generation methodology applies a further reduction to residential-employment person trips to account for a WFH reduction.

7.3.20 One of the many things that the Covid-19 pandemic has shifted is the previously sacrosanct perceptions around employees' abilities to work from home and remain as productive as in the workplace. Employers saw that employees could work effectively from home in many types of jobs, and moreover that there were lifestyle benefits to this that many enjoyed. The trend has therefore been that WFH activity has now become embedded – either wholly or in part, in many workplaces. Some employers have also noted that this effect has a beneficial effect for them, as they can reduce the office space they need and so reduce overhead costs.

7.3.21 This means that travel patterns for future occupants of the Site are likely to be less centred around the employers workspace, be more flexible on a day-to-day basis, and so will change with employers and employees striking a balance between pre-pandemic working in the office and a more flexible WFH culture. As a result, a greater number of employees are embracing a homeworking lifestyle either permanently or through a hybrid arrangement.

7.3.22 In December 2022, Cherwell District and Oxford City Councils published a Housing and Economic Needs Assessment (HENA) to inform their individual Local Plans. The HENA was intended to provide an integrated evidence base to identify the appropriate level and distribution of housing and employment over the period to 2040. As part of this evidence base, the role of home-based working was considered and incorporated into commuting calculations. At paragraph 7.4.31, the following assumptions were outlined:

*'[…] 20% of workers are fully remote, 30% are hybrid with a mix of home and workplace working (set to 2 days of homeworking a week), and 50% are fully workplace based'*

7.3.23 For the purposes of this assessment, a further reduction of 20% has been applied to residential-employment trips to account for future WFH activities. This excludes consideration of employees who would operate using a hybrid arrangement, which would otherwise result in a further reduction in external trip generation, but by not taking account of this it therefore strengthens the robustness of the assessment.

7.3.24 Combining internalisation and WFH reductions (18.6% + 20.0%), the proportion of "non-external" residential-employment trips is calculated at 38.6%.

### Residential to Education

7.3.25 The residential to education trip purpose has been further divided between primary, secondary, and Higher Education.

7.3.26 In pre-application advice received in December 2022, OCC outlined the expectations for the development of on-site education facilities. OCC has built flexibility into their assumptions and advice by requiring two primary education facilities to be incorporated into the development proposals. This provision comprises 1 x 3 Form Entry (3FE) and 1 x 2FE primary school, which would accommodate a combined 1,050 pupils.

7.3.27 With regards to secondary education, OCC's view is that the Site would accommodate a 900-place secondary school. As a worst-case assumption, the secondary school would accommodate an upper limit of 1,100 pupils allowing for reserve capacity for a further 200 pupils.

7.3.28 Mentioned previously, this methodology forms an update to trip forecasting work completed by IMA Transport Planning in 2021 to support pre-application discussions with OCC. At that time, OCC provided school population estimates using their PopCal model for the proposed primary and secondary school facilities within the development based on projected housing numbers. For this TA, these previous estimates have been pro-rated to reflect the latest proposals to deliver circa 1,800 residential units. On this basis, 489 secondary-aged pupils are expected to live on-site.

7.3.29 Finally, using 2011 Census data, it is estimated that 271 students living on-site will be in Higher Education.

7.3.30 These pupil estimates form a starting point for weighting the residential to education trip generation by the appropriate education tiers. In doing this, consideration has been given to escort trips in additional to the travel of pupils themselves. Most primary school education trips are likely to be escorted, some secondary education trips would be escorted, and higher education trips are likely to all be unescorted. The overall proportion of education trips for each category have been weighted to allow for education escort trips. The 2019 dataset indicates that on average 96% of primary school and 57% of secondary school trips are escorted. The resulting weighted proportion of education trips is as follows:

- Primary School – 66%
- Secondary School – 25%
- Higher Education – 9%

7.3.31 With regards to internalisation, it was assumed that 90% of primary school trips would remain internal to the Site. The remaining 10% would travel to external education locations, with 10% of pupils attending the primary school arriving from off-site. This is considered robust given that OCC has driven the capacity for primary education facilities to accommodate 1,050 pupils with the expectation that this will match the projected population requirement on-site, i.e., 100% of primary school pupil trips are actually expected to remain internal.

7.3.32 Similarly, it was assumed that, even allowing for some parental choice, the proposed secondary school would be predominantly attended by those living on-site as well as pupils living within neighbouring allocations such as Yarnton (PR9), allowing those trips to remain internal. Like the primary school, 10% of secondary school pupils living on-site have been assumed to travel off-site to other schools. With no Higher Education facilities proposed within the Site, all students are expected to travel off-site.

7.3.33 These assumptions are also reflected in the methodology for determining trips to the Site from off-site pupils, discussed later. For all education trips, no adjustments have been made to account for carpooling between pupils. With lower vehicle occupancy rates assumed, this analysis is considered to be additionally robust.

#### Residential to Leisure

7.3.34 It is proposed to internalise 20% of residential to leisure trips. The residential to leisure trip purpose includes the following based on National Travel Survey (NTS) definitions:

- Social or entertainment: Visits to meet friends, relatives, or acquaintances, both at someone's home or at a pub, restaurant; all types of entertainment or sport, clubs, and voluntary work, non-vocational evening classes, political meetings.
- Holidays or day trips: Trips (within GB) to or from any holiday (including stays of 4 or more nights with friends or relatives), or trips for pleasure (not otherwise classified as social or entertainment) within a single day.
- Just Walk: Walking trips for pleasure or exercise along public highways and rights of way, including taking the dog for a walk and jogging.

7.3.35 The Control Documents for the scheme require that any masterplan must deliver a highly legible and permeable network of walk and cycle routes throughout the Site – and the illustrative masterplan shows one way that a comprehensive network could be achieved. In delivering a more pleasant and prioritised walk and cycle environment, future residents are more likely to remain within the Site and internalise leisure trips for the purpose of, as examples, pleasure, exercise, or dog walking.

7.3.36 Particularly with the forecast trend towards WFH, future residents remaining at home during the workday will be able to take advantage of greater flexibility to take shorter, more frequent breaks that may allow employees to enjoy time outside. This indicates a trend towards more localised, leisure trips contained to the Site.

7.3.37 Furthermore, many community amenities will be provided on-site including sports pitches and assembly spaces. These amenities are intended to serve the local community and will provide opportunities to partake in numerous leisure activities, whilst remaining on-site. Given this, a significant portion of trips relating to social or entertainment activities are expected to remain internal to the Site.

7.3.38 Finally, intrinsic to the holistic design of any future masterplan will be the requirement to create a sense of community within the Site. A development of this size, complemented by a wealth of community facilities, will foster relationships such that many leisure trips to visit friends, relatives, or acquaintances are also expected to remain internal to the Site.

7.3.39 Overall, an internalisation rate of 20% for residential to leisure trips is considered robust.

### Residential to Shopping

7.3.40 The proposal for a local centre within the Site resulted in the assumption that 5% of all residential to shopping trips would remain internal.

### External Residential Person Trips

7.3.41 **Table 7.7** presents a summary of external residential person trips generation by the Site during both peak and daily periods. A full breakdown of the external person trips by residential trip purpose is provided in **Appendix F** along with the broader total person trip generation calculations.

**Table 7.7: External Residential Person Trip Generation**

| Journey Purpose | AM Peak Period | | | PM Peak Period | | | 07:00-19:00 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way |
| **Resi to Work** | 250 | 776 | 1,026 | 739 | 382 | 1,121 | 1,667 | 1,709 | 3,376 |
| **Resi to Leisure** | 112 | 247 | 359 | 553 | 288 | 841 | 1,353 | 1,387 | 2,740 |
| **Resi to Shopping** | 86 | 160 | 246 | 314 | 165 | 479 | 1,118 | 1,146 | 2,265 |
| **Resi to Education** | 47 | 160 | 207 | 106 | 58 | 164 | 174 | 178 | 352 |
| **Total** | **494** | **1,344** | **1,838** | **1,712** | **893** | **2,605** | **4,312** | **4,421** | **8,733** |

## Employment

### Commercial & Academic

7.3.42 To forecast employment trips, a blended employee density rate of 1 full-time equivalent (FTE) employee per 28 sqm GEA has been assumed.

7.3.43 This is extracted from Section 6.20 (p.110) of the 'Greater Cambridge Employment Land and Economic Development Evidence Study' prepared in November 2020 on behalf of South Cambridge District Council (SCDC) and Cambridge City Council (CCC). The purpose of this evidence was to review the economic development and land needs of both SCDC and CCC.

7.3.44 The rate of 1 FTE employee per 28 sqm GEA was derived for R&D (E(g)(ii)) uses calculated with Cambridgeshire-based sites including West Cambridge and the Genome Campus. Both Cherwell District and Oxford City Councils have adopted this same rate in their shared HENA document (published December 2022), acknowledging the similarities between Oxfordshire's and Cambridgeshire's science-based economies.

7.3.45 Furthermore, rather than adopt the existing employment ratio, this rate of 1 FTE employee per 28 sqm GEA is considered more reflective of the proposed employment uses, which will offer state-of-the-art employment facilities and accommodate the latest in terms of modern working practices. It is therefore considered a robust and appropriate estimate of the likely employee density for the Site.

7.3.46 The proposed commercial floorspace will comprise R&D uses, inclusive of laboratory and office floorspace. Anecdotally, it is understood from the University of Oxford that the division of this space between laboratory and office spaces is generally in the range of 60:40 or 70:30. Typically, employees working in the laboratories are also the same employees working within the office space, with the exception of a small number of administrative employees.

7.3.47 In this case, the number of employees could effectively be calculated using only the floor area of the land use with the highest employee density - typically office has a higher employee density that laboratory space. Although the development schedule is yet to be refined to this point, office floor area may comprise 30-40% of the overall commercial area based on the University's experience and the resulting employee total would be considerably lower than the figures derived for use in this assessment.

7.3.48 Finally, OCC's transport assessment to support the Partial Review Local Plan assumed a ratio of 1 employee per 41 sqm for B type development aligning with the Homes & Community Employment Density Guide 2015, which indicates an average employee density for R&D of 1 employee per 40-60 sqm. If a ratio of 1 employee per 41 sqm were used, it would lower the person trip generation by more than 30%.

7.3.49 In combination, this reasoning further reinforces the robustness of the assumptions outlined in this methodology. With 155,000 sqm GEA of employment floorspace proposed, the revised ratio of 1 FTE employee per 28 sqm would result in the Site accommodating 5,536 employees.

7.3.50 The breakdown of non-university (commercial) and university employees follows the same assumption for the overall floor area, i.e., 75% commercial floorspace and 25% university floorspace. Of the university employees (25%), 12.4% and 12.6% were assumed to be students/post-docs and university staff, respectively. These resulting employee totals are as follows:

- 4,152 non-university (commercial) employees
- 696 university employees
- 688 students/post-docs

7.3.51 Following this, employment person trip rates were calculated from existing Begbroke Science Park (BSP) trip data using the following approach:

- Calculated vehicle trip rates (assuming a floor area of 14,200 sqm GEA for the existing BSP) from vehicle survey counts undertaken at the Woodstock Road / Begbroke Hill in June 2017 (undertaken prior to the pandemic and construction of the consented development at Begbroke Science Park).
- Applied existing BSP car driver mode share proportions from a 2018 BSP travel survey to the vehicle trip rates to derive person trip rates (per 100 sqm).
- Calculated person trip generation by applying the proposed floor area (155,00 sqm GEA) to the person trip rates.
- Adjust person trip generation to account for linked (internalised residential to employment) trips and the propensity for employees to WFH.
- Divide the employment external person trip generation between non-university (commercial) and university employees based on the calculated ratios of the non-university/university employees.

7.3.52 The resulting employment external person trip generation with a breakdown by employee-type is presented in **Table 7.8**. The full calculation can be seen in **Appendix G**.

**Table 7.8: External Employment Person Trip Generation**

| Time Period | Student/Post-Doc | | | Uni. Staff | | | Commercial | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way |
| **AM Peak Period** | 463 | 63 | 527 | 469 | 64 | 533 | 2,797 | 383 | 3,180 | 3,729 | 511 | 4,240 |
| **PM Peak Period** | 61 | 346 | 408 | 62 | 351 | 413 | 368 | 2,092 | 2,461 | 491 | 2,790 | 3,281 |
| **07:00-19:00** | 817 | 806 | 1,624 | 828 | 817 | 1,645 | 4,936 | 4,870 | 9,806 | 6,582 | 6,493 | 13,075 |

### Primary & Secondary School Staff

7.3.53 School staff person trips were calculated based on pupil: staff ratios contained within the TRICS database for primary and secondary schools in England. The calculated ratios were as follows:

- 6.91 pupils per staff member for primary schools
- 7.67 pupils per staff member for secondary schools

7.3.54 With an on-site primary school capacity of 1,050 pupils, this results in 152 primary school staff. For a secondary school capacity of 1,100 pupils, this equates to 143 secondary school staff. All staff trips are assumed to arrive in the AM peak period and depart during the PM peak period. All trips are assumed to be external to the Site. The resulting external person trip generation for school staff is presented in **Table 7.9**.

**Table 7-9: External School Staff Person Trip Generation**

| Time Period | Primary School Staff | | | Secondary School Staff | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way |
| **AM Peak Period** | 152 | 0 | 152 | 143 | 0 | 143 | 296 | 0 | 296 |
| **PM Peak Period** | 0 | 152 | 152 | 0 | 143 | 143 | 0 | 296 | 296 |
| **07:00-19:00** | 152 | 152 | 304 | 143 | 143 | 286 | 295 | 295 | 590 |

## Education

### Primary Education – Off-Site Pupils

7.3.55 The Site will accommodate 1 x 3 Form Entry (3FE) and 1 x 2FE primary school with a combined capacity for 1,050 pupils. It has been assumed that 10% of primary school places will be filled by pupils travelling from off-site. Once again, this is considered robust given that OCC has driven the capacity for primary education facilities to accommodate 1,050 pupils with the expectation that this will match the projected population requirement on-site, i.e., 100% of primary school pupil trips are actually expected to remain internal.

7.3.56 Person trip rates have been calculated from the number of primary school person trips generated by the Site and applied to the off-site demand (including escort trips), resulting in the primary school person trip generation summarised in **Table 7.10**.

**Table 7.10: External Primary School Pupil Person Trip Generation**

| Time Period | Arr. | Dep. | 2-Way |
|---|---|---|---|
| **AM Peak Period** | 116 | 34 | 150 |
| **PM Peak Period** | 42 | 77 | 119 |
| **07:00-19:00** | 129 | 126 | 255 |

### Secondary Education – Off-Site Pupils

7.3.57 The proposed secondary school will accommodate 1,100 pupils. Based on OCC PopCal estimates, 489 secondary-aged pupils are expected to live on-site. Additionally, it is assumed that the school will be attended by pupils living within neighbouring allocations including Yarnton (PR9), allowing those trips to remain internal. Internal trips were assumed to be made on-foot or by bicycle and only trips travelling to the school from further afield may need to use alternative, vehicular modes. Like the primary school, 10% of secondary school pupils living on-site were assumed to travel off-site to other schools.

7.3.58 For the secondary school, trip rates have been calculated from the number of secondary school person trips generated by PR8 and applied to the off-site demand from Yarnton (PR9) and further afield. The results of this are presented in **Table 7.11**.

**Table 7.11: External Secondary School Pupil Person Trip Generation**

| Time Period | PR9 to Site | | | Other Off-Site to Site | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way |
| **AM Peak Period** | 81 | 24 | 105 | 394 | 115 | 508 | 475 | 138 | 613 |
| **PM Peak Period** | 29 | 54 | 83 | 142 | 262 | 403 | 171 | 316 | 486 |
| **07:00-19:00** | 90 | 88 | 178 | 438 | 427 | 864 | 528 | 515 | 1,042 |

### Hotel

7.3.1 The proposed development will include a hotel with an approximate floor area of 10,000 sqm. As a starting point, total person trip rates were extracted for hotels from the TRICS database. These are presented are **Table 7.12** below along with the resulting total person trip generation. No internalisation has been assumed for the proposed hotel use.

**Table 7.12: External (and Total) Person Hotel Trip Rates (per 100 sqm) & Trip Generation**

| Time Period | Trip Rates | | | Trip Generation | | |
|---|---|---|---|---|---|---|
| | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way |
| **AM Peak Period** | 1.258 | 1.658 | 2.916 | 126 | 166 | 292 |
| **PM Peak Period** | 1.465 | 1.302 | 2.767 | 147 | 130 | 277 |
| **07:00-19:00** | 4.958 | 4.970 | 9.928 | 496 | 497 | 993 |

## Summary

7.3.1 **Table 7.13** presents the proposed internalisation rates. Following this, **Table 7.14** outlines the weekday peak period external person trip generation for the proposed development.

**Table 7.13: Internalisation Rates**

| Land Use / Trip Purpose | Internal | WFH | Total |
|---|---|---|---|
| **Residential to Employment** | 18.6% | 20.0% | 38.6% |
| **Residential to Leisure** | 20.0% | - | 20.0% |
| **Residential to Shopping** | 15.0% | - | 15.0% |
| **Residential to Primary School** | 90.0% | - | 90.0% |
| **Residential to Secondary School** | 90.0% | - | 90.0% |
| **Residential to Higher Education** | 0.0% | - | 0.0% |
| **Off-Site to BSP** | - | 20.0% | 20.0% |
| **Off-Site to Education (Staff)** | - | - | - |
| **Off-Site to Primary School** | - | - | - |
| **Off-Site to Secondary School*** | 17.1% | - | 17.1% |

*Assumes 17.1% of off-site secondary school trips will originate within PR9

**Table 7.14: External Total Person Trip Generation**

| Land Use / Trip Purpose | AM Peak Period | | | PM Peak Period | | |
|---|---|---|---|---|---|---|
| | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way |
| **Residential to Employment** | 250 | 776 | 1,026 | 739 | 382 | 1,121 |
| **Residential to Leisure** | 112 | 247 | 359 | 553 | 288 | 841 |
| **Residential to Shopping** | 86 | 160 | 246 | 314 | 165 | 479 |
| **Residential to Education** | 47 | 160 | 207 | 106 | 58 | 164 |
| **Off-Site to BSP** | 3,729 | 511 | 4,240 | 491 | 2,790 | 3,281 |
| **Off-Site to Education (Staff)** | 295 | 0 | 295 | 0 | 295 | 295 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Off-Site to Primary School** | 116 | 34 | 150 | 42 | 77 | 119 |
| **Off-Site to Secondary School** | 394 | 115 | 508 | 142 | 262 | 403 |
| **Total** | 126 | 166 | 292 | 147 | 130 | 277 |

## 7.4 Trip Distribution

7.4.1 Following the derivation of external person trips, the next step taken was to determine origin-destination patterns on a zonal basis. Zones at Middle Super Output Area (MSOA) scale were reviewed for Cherwell and Oxford. Zones were expanded to full districts to cover travel patterns to/from Vale of White Horse, West Oxfordshire, and South Oxfordshire. All origins and destinations outside of Oxfordshire are considered as one zone.

7.4.2 The methodology for deriving and applying individual origin-destination patterns to each land use or trip purpose are summarised in the following section. The complete distributions by zone are included at the end of this section, whilst a detailed set of calculations are included in **Appendix H**.

### Residential

#### Residential to Employment

7.4.3 As a starting point, 2011 census data was extracted for travel to work destinations for Cherwell 017 MSOA; north Kidlington within the district of Cherwell. Given the existing density of residents within this MSOA, it was considered a more appropriate comparator of resident to employment travel patterns for the proposed development.

7.4.4 Building from this 2011 baseline, adjustments were made to the travel to work distribution to account for the effect of planned employment growth on the likely distribution of employment trips from the Site.

#### Residential to Education

7.4.5 The predicted education person trips will be split between primary school, secondary school and further education trips. Based on the analysis outlined previously, residential to education trips will be weighted as follows: 66% primary education, 25% secondary education, and 9% Higher Education.

7.4.6 The distribution of the 10% external primary education trips has been split equally between local schools within 2 miles of the Site; William Fletcher Primary School, St Thomas More Catholic Primary School, and Edward Field Primary School.

7.4.7 The distribution of the 10% external secondary education trips has been split equally between the closest existing facilities to the Site; The Marlborough School (3.4 miles), Gosford Hill School (1.7 miles), Cherwell School (4.5 miles), and The Swan School (5.5 miles).

7.4.8 In terms of Higher Education, the main destination is assumed to be University of Oxford sites within the city (75%) as well as Oxford Brookes (25%).

#### Residential to Leisure

7.4.9 It has been assumed, for assessment purposes, that Oxford city centre will be the focus of leisure trips from the Site given the wide range of leisure facilities located there.

7.4.10 Remaining trips will be distributed widely across Oxford and Cherwell. Given that a high proportion of leisure trips are visiting friends and that it is not possible to predict where these trips may be destined, each assessed destination area has been assumed to have at least 1% of leisure trips associated with it. Areas which are closer to the Site and/or have a specific leisure destination such as Ferry Leisure Centre in MSOA Oxford 002 have a higher assumed percentage allocated (between 2%-5%). To account for holidays and day trips a total of 5% of leisure trips have been assumed to have a destination outside of Oxfordshire.

#### Residential to Shopping

7.4.11 Similar to leisure, it is expected that Oxford city centre will be the main focus of shopping trips. Cherwell zones close to the Site with retail destinations have also had a higher proportion of shopping trips allocated to them given the convenience, particularly for food retail, of shopping locally. With regards to other zones, those offering a higher density of retail outlets have been allocated 1-5% of the total distribution for this trip purpose.

### Employment

#### Commercial & Academic

7.4.12 The distribution of employment trips originating off-site has been based upon postcode data extracted from a 2015 Begbroke Science Park staff travel survey, which has then been adjusted to account for planned housing growth based on Local Plan allocations.

#### Primary & Secondary School Staff

7.4.13 The distribution of school staff trips originating off-site is based upon 2011 census travel to work data for a daytime population travelling to Cherwell 017 MSOA (north Kidlington). As before, the higher density of daytime commuters to this MSOA when compared with Begbroke itself, was considered a more appropriate comparator of employee travel patterns for the proposed development. The 2011 census data was then adjusted to account for planned housing growth based on Partial Review Local Plan allocations.

### Education

#### Primary Education – Off-Site Pupils

7.4.14 It is assumed that the Site would serve a primary school catchment extending to the Cherwell 019 MSOA, within which the development sits, and neighbouring Cherwell 017 and Cherwell 018

MSOAs forming north and south Kidlington, respectively. On this basis, pupil trips originating off-site have been assumed to distribute equally from these three MSOAs.

### Secondary Education – Off-Site Pupils

7.4.15 Secondary school trips travelling from PR9 to the Site are considered effectively to be internal trips. Beyond the Site and PR9, off-site secondary school trips are assumed to distribute predominantly from the local MSOA (Cherwell 019) as well as neighbouring MSOAs in Kidlington. A smaller portion of secondary school trips are expected to originate in north Oxford city and West Oxfordshire.

7.4.16 In arriving at these assumptions, competing secondary school facilities have been accounted as well as travel distance.

### Hotel

7.4.17 Given the nature of the proposed hotel use, it is assumed that no patrons of the hotel would live locally. All trips are therefore assumed to originate from outside of Oxfordshire as a worst-case. This is considered robust given that hotel employees, which will form part of the overall trip generation, are likely to live within a reasonable commuting distance.

### Summary

7.4.18 The resulting distribution of residential trips by purpose to destinations is presented first in **Table 7.15**, whilst origins of non-residential trips to the Site are presented in **Table 7.16**.

**Table 7.15: Destinations of Residential Trips by Trip Purpose from the Site**

| Area | Emp. | Leisure | Shopping | Primary Ed. | Secondary Ed. | Higher Ed. | Total Ed. |
|---|---|---|---|---|---|---|---|
| **Internal** | 38.6% | 20.0% | 15.0% | 59.8% | 22.3% | 0.0% | 82.1% |
| **Oxford 001** | 4.4% | 0.8% | 1.0% | - | - | - | 0.0% |
| **Oxford 002** | 1.2% | 2.5% | 3.0% | - | - | - | 0.0% |
| **Oxford 003** | 1.4% | 1.7% | 0.0% | - | 0.3% | - | 0.3% |
| **Oxford 004** | 0.1% | 0.8% | 0.0% | - | 0.2% | - | 0.2% |
| **Oxford 005** | 0.1% | 0.8% | 0.0% | - | - | - | 0.0% |
| **Oxford 006** | 3.3% | 0.8% | 0.0% | - | - | - | 0.0% |
| **Oxford 007** | 0.3% | 0.8% | 0.0% | - | - | - | 0.0% |
| **Oxford 008** | 8.3% | 42.1% | 35.0% | - | - | 6.6% | 6.6% |
| **Oxford 009** | 1.7% | 1.7% | 5.0% | - | - | - | 0.0% |
| **Oxford 010** | 1.7% | 0.8% | 0.0% | - | - | 2.2% | 2.2% |
| **Oxford 011** | 0.5% | 0.8% | 0.0% | - | - | - | 0.0% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Oxford 012** | 0.2% | 0.8% | 0.0% | - | - | - | 0.0% |
| **Oxford 013** | 2.7% | 0.8% | 0.0% | - | - | - | 0.0% |
| **Oxford 014** | 0.2% | 0.8% | 0.0% | - | - | - | 0.0% |
| **Oxford 015** | 0.8% | 0.8% | 2.0% | - | - | - | 0.0% |
| **Oxford 016** | 0.5% | 0.8% | 2.0% | - | - | - | 0.0% |
| **Oxford 017** | 0.5% | 0.8% | 3.0% | - | - | - | 0.0% |
| **Oxford 018** | 0.1% | 0.8% | 0.0% | - | - | - | 0.0% |
| **Cherwell 017** | 4.2% | 2.5% | 12.0% | - | - | - | 0.0% |
| **Cherwell 018** | 1.1% | 2.5% | 2.0% | 2.3% | - | - | 2.3% |
| **Cherwell 019** | 8.2% | 1.7% | 19.0% | 4.3% | 0.6% | - | 5.0% |
| **Rest of Cherwell** | 6.6% | 4.2% | 1.0% | - | - | - | 0.0% |
| **South Oxfordshire** | 1.4% | 1.7% | 0.0% | - | - | - | 0.0% |
| **Vale of White Horse** | 3.4% | 1.7% | 0.0% | - | - | - | 0.0% |
| **West Oxfordshire** | 4.4% | 1.7% | 0.0% | - | 1.3% | - | 1.3% |
| **Out of Oxfordshire** | 4.2% | 4.2% | 0.0% | - | - | - | 0.0% |
| **Total** | 100.0% | 100.0% | 100.0% | 66.5% | 24.8% | 8.8% | 100.0% |

**Table 7.16: Origins of Non-Residential Trips to the Site**

| Area | Primary Ed. | Secondary Ed. | School Staff | Employment | Hotel |
|---|---|---|---|---|---|
| **Internal** | 0.0% | 17.1% | 0.0% | 0.0% | 0.0% |
| **Oxford 001** | - | 2.5% | 1.0% | 1.2% | 0.0% |
| **Oxford 002** | - | 1.7% | 0.8% | 2.9% | 0.0% |
| **Oxford 003** | - | - | 0.2% | 3.5% | 0.0% |
| **Oxford 004** | - | - | 0.5% | 3.0% | 0.0% |
| **Oxford 005** | - | - | 0.5% | 0.0% | 0.0% |
| **Oxford 006** | - | - | 0.5% | 0.0% | 0.0% |
| **Oxford 007** | - | - | 0.7% | 0.0% | 0.0% |
| **Oxford 008** | - | - | 0.2% | 6.1% | 0.0% |
| **Oxford 009** | - | - | 0.2% | 1.0% | 0.0% |
| **Oxford 010** | - | - | 0.2% | 0.0% | 0.0% |
| **Oxford 011** | - | - | 0.5% | 3.6% | 0.0% |
| **Oxford 012** | - | - | 0.3% | 1.9% | 0.0% |
| **Oxford 013** | - | - | 0.6% | 6.6% | 0.0% |

| | | | | | |
|---|---|---|---|---|---|
| **Oxford 014** | - | - | 0.2% | 0.9% | 0.0% |
| **Oxford 015** | - | - | 0.7% | 1.0% | 0.0% |
| **Oxford 016** | - | - | 1.0% | 0.0% | 0.0% |
| **Oxford 017** | - | - | 0.8% | 0.0% | 0.0% |
| **Oxford 018** | - | - | 0.5% | 0.0% | 0.0% |
| **Cherwell 017** | 33.3% | 18.7% | 14.0% | 2.7% | 0.0% |
| **Cherwell 018** | 33.3% | 18.7% | 8.3% | 1.9% | 0.0% |
| **Cherwell 019** | 33.3% | 29.0% | 14.9% | 9.4% | 0.0% |
| **Rest of Cherwell** | - | 0.0% | 19.7% | 11.5% | 0.0% |
| **South Oxfordshire** | - | - | 3.9% | 6.3% | 0.0% |
| **Vale of White Horse** | - | - | 6.9% | 14.8% | 0.0% |
| **West Oxfordshire** | - | 12.4% | 16.3% | 12.9% | 0.0% |
| **Out of Oxfordshire** | - | - | 6.4% | 8.8% | 100.0% |
| **Total** | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

## 7.5 Mode Share

7.5.1 The Site is uniquely placed to reduce private motorised travel through a compact settlement pattern with high levels of density, efficient land use mixes, and excellent accessibility through permeable transportation networks. Detailed within the supporting Transport Strategy, the Site will be supported by a transportation mitigation package including off-site measures creating high-quality, sustainable travel corridors between PR8, Oxford, and Kidlington amongst other locations. In combination, the willingness of future residents, visitors, and employees to travel via sustainable modes will increase, whilst the reliance on private vehicles will diminish.

7.5.2 This section considers the methodology used in arriving at the mode share assumptions in this assessment for each land use / trip purpose. In all instances, this assessment considered existing and identified improvements to sustainable infrastructure, census travel to work data, existing and emerging local transport policies, availability, and cost of parking, and potential links to other developments. Opportunities were first reviewed for trips to be made by accessible forms of transport and residual trips that could not be made sustainably were assumed to be made by car.

7.5.3 A detailed list of the mode shares applied to each distribution zone for each land use/trip purpose is contained at **Appendix I**. This includes notes on the professional judgement used in each case to adjust from a census baseline data point.

7.5.4 **Table 7.17** and **Table 7.18** presents the overall AM and PM peak period external mode share proportions established for each land use/trip purpose. Following this, **Table 7.19** outlines the weekday peak period external vehicle trip generation for the proposed development.

**Table 7.17: External Mode Share (AM Peak Period)**

| Land Use / Trip Purpose | Walk | Cycle | PT | Car Driver | Passenger | Total |
|---|---|---|---|---|---|---|
| **Residential to Employment** | 10.5% | 15.9% | 29.0% | 38.9% | 5.8% | 100.0% |
| **Residential to Leisure** | 5.4% | 16.7% | 45.8% | 26.9% | 5.3% | 100.0% |
| **Residential to Shopping** | 10.8% | 14.6% | 30.7% | 38.2% | 5.8% | 100.0% |
| **Residential to Education** | 17.9% | 26.0% | 27.5% | 15.2% | 13.4% | 100.0% |
| **Off-Site to BSP** | 6.8% | 21.1% | 21.0% | 46.8% | 4.3% | 100.0% |
| **Off-Site to Education (Staff)** | 15.1% | 24.4% | 16.3% | 41.1% | 3.1% | 100.0% |
| **Off-Site to Primary School** | 47.5% | 12.8% | 7.5% | 16.7% | 15.5% | 100.0% |
| **Off-Site to Secondary School** | 44.8% | 18.8% | 17.3% | 9.9% | 9.2% | 100.0% |
| **Off-Site to Hotel** | 0.0% | 0.0% | 50.0% | 46.9% | 3.1% | 100.0% |

**Table 7.18: External Mode Share (PM Peak Period)**

| Land Use / Trip Purpose | Walk | Cycle | PT | Car Driver | Passenger | Total |
|---|---|---|---|---|---|---|
| **Residential to Employment** | 10.5% | 15.9% | 29.0% | 38.9% | 5.8% | 100.0% |
| **Residential to Leisure** | 5.4% | 16.7% | 45.8% | 26.9% | 5.3% | 100.0% |
| **Residential to Shopping** | 10.8% | 14.6% | 30.7% | 38.2% | 5.8% | 100.0% |
| **Residential to Education** | 17.9% | 26.0% | 27.5% | 15.2% | 13.4% | 100.0% |
| **Off-Site to BSP** | 6.8% | 21.1% | 21.0% | 46.8% | 4.3% | 100.0% |
| **Off-Site to Education (Staff)** | 15.1% | 24.4% | 16.3% | 41.1% | 3.1% | 100.0% |
| **Off-Site to Primary School** | 47.5% | 12.8% | 7.5% | 16.7% | 15.5% | 100.0% |
| **Off-Site to Secondary School** | 44.8% | 18.8% | 17.3% | 9.9% | 9.2% | 100.0% |
| **Off-Site to Hotel** | 0.0% | 0.0% | 50.0% | 46.9% | 3.1% | 100.0% |

**Table 7.19: External Vehicle Trip Generation**

| Land Use / Trip Purpose | AM Peak Period | | | PM Peak Period | | |
|---|---|---|---|---|---|---|
| | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way |
| **Residential to Employment** | 97 | 302 | 399 | 287 | 149 | 436 |
| **Residential to Leisure** | 30 | 67 | 97 | 149 | 78 | 226 |
| **Residential to Shopping** | 33 | 61 | 94 | 120 | 63 | 183 |
| **Residential to Education** | 7 | 24 | 31 | 16 | 9 | 25 |
| **Off-Site to BSP** | 1,745 | 239 | 1,984 | 230 | 1,305 | 1,535 |
| **Off-Site to Education (Staff)** | 121 | 0 | 121 | 0 | 121 | 121 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Off-Site to Primary School** | 19 | 6 | 25 | 7 | 13 | 20 |
| **Off-Site to Secondary School** | 39 | 11 | 50 | 14 | 26 | 40 |
| **Off-Site to Hotel** | 59 | 78 | 137 | 69 | 61 | 130 |
| **Total** | 2,151 | 787 | 2,938 | 891 | 1,824 | 2,716 |

7.5.5 Following this, the peak spreading factors outlined previously in Table 7-1 have been applied to these external peak period vehicle trip totals to derive peak hour outputs. Consistent with the network peak hours that have been established as part of a separate exercise by Vectos Microsim, the external vehicle trip generation for the AM peak (08:00-09:00) and PM peak (17:00-18:00) is presented in **Table 7.20**.

**Table 7.20: External Vehicle Trip Generation (Peak Hour)**

| Land Use / Trip Purpose | AM Peak Hour (08:00-09:00) | | | PM Peak Hour (17:00-18:00) | | |
|---|---|---|---|---|---|---|
| | Arr. | Dep. | 2-Way | Arr. | Dep. | 2-Way |
| **Residential to Employment** | 33 | 103 | 136 | 93 | 48 | 141 |
| **Residential to Leisure** | 10 | 23 | 33 | 48 | 25 | 73 |
| **Residential to Shopping** | 11 | 21 | 32 | 39 | 20 | 59 |
| **Residential to Education** | 2 | 8 | 11 | 5 | 3 | 8 |
| **Off-Site to BSP** | 596 | 82 | 678 | 74 | 422 | 496 |
| **Off-Site to Education (Staff)** | 41 | 0 | 41 | 0 | 39 | 39 |
| **Off-Site to Primary School** | 7 | 2 | 9 | 2 | 4 | 6 |
| **Off-Site to Secondary School** | 13 | 4 | 17 | 5 | 8 | 13 |
| **Off-Site to Hotel** | 20 | 27 | 47 | 22 | 20 | 42 |
| **Total** | 735 | 269 | 1,004 | 288 | 589 | 877 |

# 8 TRANSPORT EFFECTS

## 8.1 Introduction

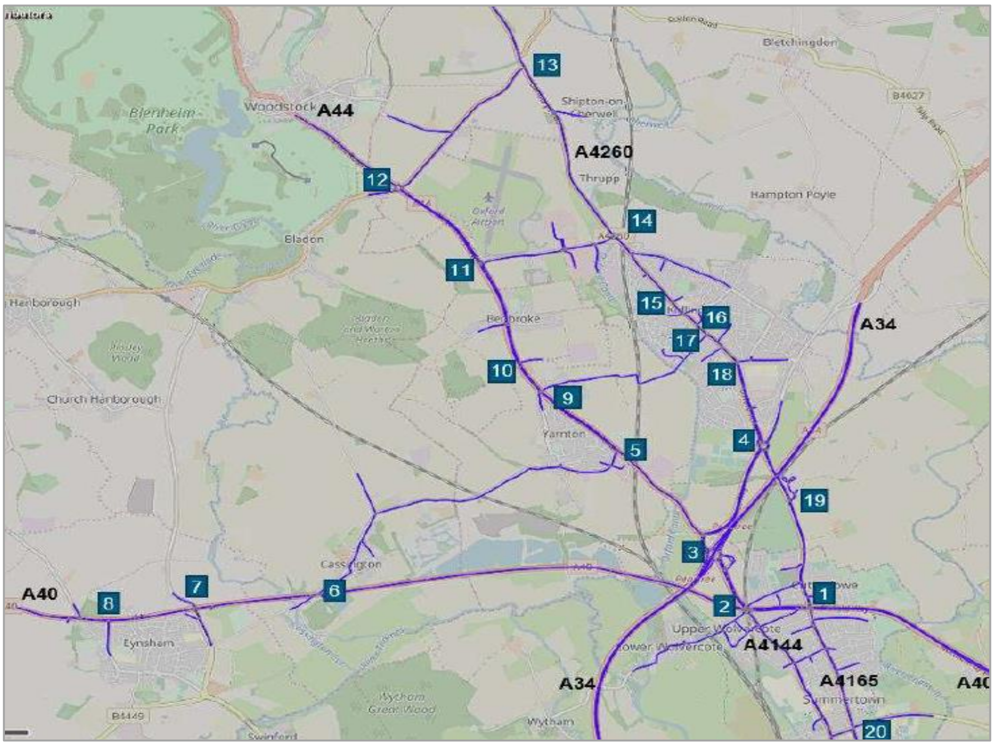
8.1.1 As agreed with OCC, the North Oxford VISSIM model has been used to assess the stand alone transport effects of the proposed development as well as the cumulative impact of development generated traffic from the PR sites and other committed development.

## 8.2 Local Model Validation Report

8.2.1 OCC provided the Local Model Validation Report (LMVR) that was prepared to support the North Oxford VISSIM model. The LMVR provides an overview of the development, calibration, and validation of the 2018 Base North Oxford VISSIM model.

8.2.2 The North Oxford VISSIM model is a micro-simulation model representing a large study area. The model is primarily formed of four key corridors including a 7km section of the A34 corridor, an 11km section of the A40 corridor, an 11km section of the A44-A4144 corridor and a 12km section of the A4260-A4165 corridor. The model extent is shown in **Figure 8.1** below.

**Figure 8.1 North Oxford VISSIM Model Extent**




8.2.3 The VISSIM model has been developed using the specifications shown in **Figure 8.2** below.

**Figure 8.2: North Oxford VISSIM Model Specifications**

**Base Year:** 2018

**Modelled Scenarios:** AM and PM Base year.

**Assignment:** Dynamic

**Modelled Time Periods:** 06:30 – 10:30 and 14:30 – 18:30

**Warm Up Period:** A 30 minute (1800 simulation second) warm up period has been modelled to ensure that the traffic conditions in the model are realistic at the start of the evaluation period. AM between 06:30 – 07:00 and PM between 14:30 – 15:00.

**Evaluation Period:** A three-hour evaluation period has been used for the purposes of model calibration. Individual hours of 07:00 – 08:00, 08:00 – 09:00 and 09:00 – 10:00 have been assessed. For the PM peak individual hours of 15:00 – 16:00, 16:00 – 17:00 and 17:00 – 18:00 have been assessed. The validation of the model is representative of a single hour 08:00 – 09:00 (AM) and 17:00 – 18:00 (PM)

**Cool Down Period:** A 30 minute (1800 simulation second) cool down period has been modelled to ensure the accuracy of the model results and that all demands during the evaluation period are loaded onto the network. AM between 10:00 – 10:30 and PM between 18:00 – 18:30.

**Vehicle Types:** The following vehicle types have been modelled

- Light vehicles – comprising cars and light goods vehicles (LGV); and
- Heavy vehicles – comprising of OGV1 and OGV2.
- Buses – specified routing, timetables and bus stops for each service number.

**VISSIM Version:** 10.00-12

## 8.3 Modelling Parameters

8.3.1 The Partial Review Local Plan runs to 2031. The PR sites are expected to be constructed and completed during this period up to 2031, albeit OUD's element of PR8 is expected to be completed shortly after, by 2033. Therefore, the future horizon period establishes local highway network conditions, taking into account any appropriate background traffic growth, consented development traffic and PR site traffic upon full completion.

8.3.2 This section summarises the assumptions with regards to traffic growth and committed development, which have informed the Future Year Reference Case model, when all of the PR sites are completed. In addition, this section summarises the model scenarios and the traffic and infrastructure that is included within each scenario.

### Model Scenarios

8.3.3 The following sets out the inclusions contained within each modelled scenario. For each scenario is a modelled AM and PM peak period. The AM simulates 06:30-10:30 with the 07:00-10:00 period assessed hourly, and the PM simulates 14:30-18:30 with the 15:00-18:00 period assessed hourly:

- 2018 Base (as provided by OCC)
- Future Year Reference Case (assumed to be 2033 when all PR sites will be complete)

    - Includes all committed developments as described in the Vectos Microsim Forecasting Report (**Appendix J**), with background traffic forecasting methodology as described in the Capping Discussion Note (**Appendix K**).
- Future Year Do-Something (Proposed Development) Low Mode Shift
    - As above for the Future Year Reference Case, with background demands adjusted in line with low mode shift assumptions as set out in the Mode Shift Discussion Note (**Appendix L**) + OUD proposed Begbroke Innovation District demands.
- Future Year Do-Something (Proposed Development) Medium Mode Shift
    - As above for the Future Year Reference Case, with background demands adjusted in line with medium mode shift assumptions as set out in the Mode Shift Discussion Note (**Appendix L**) + OUD proposed Begbroke Innovation District demands.
- Future Year Do-Something (Proposed Development) High Mode Shift
    - As above for the Future Year Reference Case, with background demands adjusted in line with high mode shift assumptions as set out in the Mode Shift Discussion Note (**Appendix L**) + proposed Begbroke Innovation District demands.
- Future Year Do-Something (Proposed Development + PR Sites) Low Mode Shift
    - As above for the Future Year Reference Case, with background demands adjusted in line with low mode shift assumptions as set out in the Mode Shift Discussion Note (**Appendix L**) + Proposed Development + PR sites traffic demand.
- Future Year Do-Something (Proposed Development + PR Sites) Medium Mode Shift
    - As above for the Future Year Reference Case, with background demands adjusted in line with medium mode shift assumptions as set out in the Mode Shift Discussion Note (**Appendix L**) + Proposed Development + PR sites traffic demand.
- Future Year Do-Something (Proposed Development + PR Sites) High Mode Shift
    - As above for the Future Year Reference Case, with background demands adjusted in line with high mode shift assumptions as set out in the Mode Shift Discussion Note (**Appendix L**) + Proposed Development + PR sites traffic demand.

8.3.4 **Table 8.1** summarises what is included within each of the modelled scenarios.

**Table 8.1: Summary of Assessment Scenarios**

| Scenario | Traffic | | | | Infrastructure | | | | Mode Shift |
|---|---|---|---|---|---|---|---|---|---|
| | Base Traffic | Committed Development | Begbroke Innovation District | Other PR Sites | OUD Accesses | Growth fund improvements | Sandy Lane closure | Local Plan Infrastructure | Mode Shift in background traffic |
| 2018 Base | ✓ | | | | | | | | |
| Future Year Reference Case | ✓ | ✓ | | | | ✓ | ✓ | | |
| Future Year Reference Case + Begbroke Innovation District | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | Low |
| | | | | | | | | | Medium |
| | | | | | | | | | High |
| Future Year Reference Case + Begbroke Innovation District + PR Sites | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Low |
| | | | | | | | | | Medium |
| | | | | | | | | | High |

## Committed Development

8.3.5 Section 3 of the Vectos MicroSim Forecasting report (**Appendix J**) sets out the assumptions in terms of committed development which have been included within the model. These were agreed with OCC as part of the initial scoping exercise and have been updated as part of this updated VISSIM modelling exercise to reflect comments from OCC (i.e. refinements to assumptions for Eynsham Garden Village trip generation and addition of a proposed development in Woodstock, which are set out in **Appendix J**).

8.3.6 It was agreed not to include vehicular trips forecast to be generated by other allocated sites in Oxford City or South Oxfordshire within the Future Year Reference Case model as these sites have the same status as the PR sites at the time of preparing the model (i.e., they are allocated but do not have planning consent). Unlike the committed development sites, the allocated sites do not have agreed trip generation, distribution, access strategies and transport mitigation, which can be included in the VISSIM model. Including traffic generated by Local Plan allocated sites within the Future Year Reference Case model without any mitigation is not considered appropriate or in accordance with Planning Policy Guidance paragraph 42-014-20140306, which states that *"It is important to give appropriate consideration to the cumulative impacts arising from other committed development (ie development that is consented or allocated where there is a reasonable degree of certainty will proceed within the next 3 years)."*

### PR Sites Trip Generation

8.3.7 The traffic generation associated with each of the PR sites is summarised in Section 4 of the Vectos MicroSim Forecasting report (**Appendix J**). The trip generation has been derived for each of the PR sites based on their location, opportunity for trips to be undertaken via active modes and public transport, and likely internalisation of trips. The proposed trip rates for PR8 have been agreed with OCC in advance and applied to the other PR sites, taking account of site-specific factors. The trip generation associated with the proposed quantum of development for the PR sites has been modelled based on their individual outline applications that have either been submitted or are forthcoming. PR6b is yet to fix the quantum of development to be applied for and therefore the trips associated with the allocated quantum of development for PR6b have been modelled.

8.3.8 Section 4 of the Vectos MicroSim Forecasting report **(Appendix J**) also identifies the proposed site access arrangements for each of the PR sites.

8.3.9 Section 5 of the Vectos MicroSim Forecasting report (**Appendix J**) presents a summary of the peak period input demands for both the committed development and the PR sites.

### Traffic Growth

8.3.10 The Forecast Capping Discussion Note (**Appendix K**) sets out the methodology for assessing traffic growth and its application in the Future Year Forecast Model. In summary:

- Analysis and interpolation of the trends observed within the historic traffic data for the study area (2000 – 2017) revealed that, should the trends be projected forward, traffic levels would fall within the AM and PM peak hours by 2031 (Partial Review Local Plan year) relative to 2017 levels.
- Comparison of the historic traffic trends (2000 and 2017) relative to housing delivery over that period revealed that the reduction in traffic volumes was accompanied by an increase in housing provision, which demonstrates that increased housing levels will not necessarily mean an increase in traffic volumes.

8.3.11 Therefore, in order to reflect these trends within the traffic modelling, the Future Year Reference Case has been derived whereby total growth within the model, following the assignment of the committed development demands, remains at 0%.

8.3.12 The application of capping in the manner set out within the Capping Forecast Note (**Appendix K)** allows for realistic forecasts to be derived for assignment within the model such that the network capacity is not exceeded prior to any PR sites coming forward, as clearly that would not be a realistic position given the findings of the trend analysis which points to a steady decline in peak hour and daily traffic volumes.

8.3.13 The resultant traffic figures assigned within the VISSIM model also align to some extent with OCC's adopted Local Transport and Connectivity Plan (LTCP). Continued application of increases in traffic volumes through the model forecasting would represent a significant failure in OCC's adopted policy approach.

### Interventions in the Future Year Modelling Scenarios

8.3.14 The following committed and planned infrastructure schemes and those planned to address growth elsewhere, have been included within the Future Year Reference Case:

- Infrastructure associated with Oxford North committed development;
- A40 HIF2 scheme improvement works;
- North Oxford Corridor schemes including sustainable travel improvements to:
  - Peartree Interchange, Loop Farm roundabout and Cassington roundabout;
  - A44 between Pear Tree Interchange and Cassington roundabout; and
  - Kidlington roundabout.

### Testing of the Infrastructure Delivery Plan Interventions

8.3.15 In 2015, OCC and its partners began Connecting Oxfordshire, a transformation of how people travel to and within Oxford, as part of their plan to create a less congested, less polluted city and county.

8.3.16 In allocating the PR sites, CDC and OCC had due regard to this strategy and the approach to delivering growth, which is predicated on the assumption that wholesale increases in road capacity is no longer a sustainable or acceptable option. It was established that the A44 and A4260 corridors were well placed to deliver growth in a sustainable manner due to:

- Their proximity and connections with Oxford;
- Them being served by high frequency bus services;
- There being an existing cycle network that encourages a relatively high proportion of cycle trips to be completed; and
- Access to local pedestrian infrastructure.

8.3.17 In addition to this it was recognised that there are opportunities to build upon and enhance the current sustainable transport networks to ensure their use is prioritised and maximised. These measures were developed by OCC having regard to its Strategic Transport Assessment (STA) and were included in the Infrastructure Delivery Plan (IDP) in Appendix 4 of the Partial Review Local Plan. They include:

- A Park and Ride at London-Oxford airport and expansion of Water Eaton Park and Ride (although it is understood that the latter is no longer proposed);
- Public transport priority improvements along the A44 corridor;
- Enhanced public transport services along the A44 corridor;
- Pedestrian and cycle improvements along the A44 with signalised crossings;
- Closure of Sandy Lane to through traffic and enhancements to assist its use by pedestrian and cyclists connecting between the A44 corridor and Kidlington; and
- Cycle superhighway along the A4260 and Oxford Road towards Oxford city centre.

8.3.18 The works set out in the IDP of the Partial Review Local Plan provide a sustainable transport network to support the proposed allocations through limiting the need to travel by car and offering a genuine choice of transport modes.

8.3.19 The range of mitigation measures included within the IDP have be tested within the model. The Vectos MicroSim Mode Shift Assessment Discussion Note (**Appendix L**) sets out the assumptions that have been applied to the demands within the VISSIM model to replicate the expected effects of changes in travel behaviour arising from the delivery of enhancements to the sustainable and active travel networks. The note considers demand adjustments for:

- Delivery of Park and Ride;
- Active Modes;
- Cycle corridor improvements; and
- Bus corridor improvements.

8.3.20 To assist with understanding which measures may be a priority, the note identifies the level of adjustment made at each stage of assessment. This will help to establish the extents of the IDP schemes that are specifically required to offset the increases in vehicle trips associated with the PR sites.

8.3.21 **Table 8.2** summarises the infrastructure identified in the IDP in Appendix 4 of the Partial Review Local Plan which has been included within the modelled mode shift mitigation strategy. Schemes that have been omitted from the list are either due to them not being necessary to mitigate the impacts of the PR sites, or are no longer being pursued by OCC, such as the expansion of the Water Eaton Park and Ride.

**Table 8.2: Summary of IDP Mitigation included in the VISSIM Modelling**

| Ref | Scheme | Comment* |
|---|---|---|
| **1** | Potential for new rail halt at Begbroke | Land reserved in masterplan for PR8 |
| **3** | Park and Ride at Oxford airport | Mode shift accounted for in model |
| **4a** | Improved bus lanes on A4165 between Kidlington roundabout and past new housing sites | Included in Oxford Road improvement promoted by PR6a and 6b |
| **6c** | A44 southbound bus lane between Spring Hill Road junction and Pear Tree Interchange. | Southbound bus lane between Cassington roundabout and Pear Tree Interchange included in the model as part of the growth fund scheme. A44 corridor north of Cassington roundabout currently being designed by OUD in consultation with OCC and the other PR sites. |

| | | |
|---|---|---|
| **7** | 4 buses per hour between Oxford and Begbroke | Limited mode shift accounted for in model |
| **8d** | Upgrade of outbound bus stop on A4165 opposite Parkway | As part of mitigation package |
| **9** | Cycle superhighway along the A4260/A4165 to/from Oxford Parkway | Design work progressing as part of PR6a application. |
| **10** | Pedestrian and cycle improvements linking Kidlington, Begbroke and Yarnton: Potential closure of Sandy Lane to form green cycle/pedestrian route linking A44 and the A4260. | Active travel improvements linking A44 to Kidlington provided for in PR8 site master planning and bridge being progressed by Network Rail as part of Oxford Phase 2 |
| **12** | Walking/cycling/wheelchair accessibility from land at Stratfield Farm (PR7b) to key facilities on the A4165, including proposed sporting facilities at PR7a | Included in site master planning of PR7b |
| **13** | New public bridleways suitable for pedestrians, all weather cycling, wheelchair use and horse riding and connecting with existing public rights of way network | Included in site master planning |
| **14** | Walking/cycling/ wheelchair accessibility from PR7b to PR8, including suitable crossing over the Oxford Canal | Included in site master planning of PR7b and PR8 |
| **15** | New public bridleway / green link connecting PR7b with PR8 across Oxford canal and exploration of links with the wider PRoW east of A4165 | |
| **16** | Wheelchair accessible pedestrian / cycle bridge over Oxford canal linking PR7b to PR8 | Included in site master planning of PR7b and PR8 |
| **17** | Sandy Lane – pedestrian and cycle new link over railway | Included in PR8 site master planning. To be applied for by Network Rail as part of closure of level crossing |
| **17a** | Sandy Lane ped/cycle railway bridge | Included in site master planning – PR8. To be applied for by Network Rail as part of closure of level crossing |
| **18** | Kidlington roundabout provision of ped/cycle crossing at roundabout | Growth fund scheme included |
| **19** | Connectivity from PR9 to local facilities within Yarnton | Included in PR9 site master planning |
| **20** | New walk and cycle routes from PR9 through Yarnton | Included in PR9 site master planning |
| **21** | Cycle and pedestrian improvements on A44, including ped/cycle crossing facilities | Included but extent and design of works to be agreed. |
| **23** | Reduction of speed limit and pedestrian/cycle crossing at key locations along A44 from Sandy Lane to Cassington Rd | Included |
| **24** | Footpaths / cycleways within all proposed development sites that link new development to existing and proposed networks | Included in site master planning for all PR sites |
| **25** | Pedestrian/cycle / wheelchair accessibility from PR6a to Water Eaton Park / Oxford Parkway | Included in PR6a site master planning |

| | | |
|---|---|---|
| **26** | Ped/cycle/wheelchair accessibility from PR6b to employment opportunities at Oxford Northern Gateway | Routes through PR6b to be included in site master planning |
| **27** | Upgrade existing footbridge over railway linking PR6b to Northern Gateway | Subject to land ownership and liaison with stakeholders, including Network Rail |
| **28** | Ped/cycle/wheelchair accessibility across A4165 from PR6b to PR6a | Included in proposed design of upgrades to A4165 Oxford Road set out in PR6a application |
| **29** | Footway along southbound carriageway of Bicester Road | Included in PR7a site master planning |
| **30** | Ped/cycle/wheelchair accessibility to Oxford Parkway across to Bicester Road and to formal sports pitches on site | Included in PR7a site master planning |
| **31** | Vehicular spine route through PR8 capable of being used by buses | Included in PR8 site master planning |
| **32** | Highway works to Kidlington roundabout to enable site access for PR7b | Included in PR7b site master planning |
| **33** | Ped/cycle bridges over railway and Oxford Canal | Provided for in site master planning PR8/PR7b but subject to liaison with stakeholders |

**It should be noted that notwithstanding the inclusion within the modelling of the interventions listed in Table 8.1, the direct delivery of individual infrastructure measures will be confirmed as part of the relevant PR site application(s). Equally, the funding of the proposed interventions that are not being delivered by each of the respective PR sites via inclusion within individual masterplans and/or Section 278 Agreements is to be agreed using a charging mechanism that accords with the usual requirements of Regulation 122 of the CIL Regulations.*

## 8.4 Begbroke Innovation District Modelling Outcomes

8.4.1 The VISSIM modelling was submitted to OCC in November 2022, which was reviewed by Pell Frischmann on behalf of OCC. It was agreed that some revisions were necessary to the modelling and **Appendix M** includes a note prepared by Vectos Microsim on behalf of the PR sites documenting the changes that were made to the model.

8.4.2 This section provides a summary of the following modelling outcomes for the Future Year Reference Case + Begbroke Innovation District when compared against the Future Year Reference Case:

- Network statistics across the network;
- Queue lengths and delay, including Level of Service assessment for the following junctions:
  - A44/ Cassington Road Roundabout;
  - Pear Tree Interchange;
  - Loop Farm Roundabout;

  - Wolvercote Roundabout;
  - Cutteslowe Roundabout; and
  - Kidlington Roundabout.
- Journey time information for the following routes:
  - Route 1: A34 within the model extents either side of the Pear Tree Interchange;
  - Route 2: A40 between Wolvercote Roundabout and River Cherwell;
  - Route 3: A44 / A4144 corridor between Oxford Airport and Staverton Road;
  - Route 4: A4260 / A4165 corridor between the A4095 and Linton Road;
  - Route 5: Upper Campsfield Road;
  - Route 6: Langford Lane between A44 Woodstock Road and A4260 Banbury Road;
  - Route 7: Frieze Way; and
  - Route 8: Bicester Road.

## Network Statistics

### Vehicle Trips in Network

8.4.3 **Table 8.3** below identifies the active number of vehicles in the modelled network, the total number of vehicle trips completed and the latent demand (number of vehicles not able to enter the network) for the Future Year Reference Case and Future Year Reference Case + Begbroke Innovation District in the AM and PM 3 hour peak periods.

**Table 8.3: Vehicles in Network (AM and PM 3 hour peak periods)**

| | | 2018 Base | Future Year Reference | Future Year Reference + Begbroke Innovation District | | |
|---|---|---|---|---|---|---|
| | | | | Mode Shift (Low) | Mode Shift (Medium) | Mode Shift (High) |
| **Vehicles Active in the Network** | AM Peak Period | 2,126 | 2,177 | 2,073 | 2,050 | 1,989 |
| | PM Peak Period | 2,803 | 2,439 | 2,483 | 2,396 | 2,340 |
| **Vehicle Trips Completed** | AM Peak Period | 48,889 | 48,891 | 47,317 | 46,377 | 46,094 |
| | PM Peak Period | 50,229 | 50,400 | 49,099 | 48,448 | 48,150 |
| **Latent Demand at End of Simulation** | AM Peak Period | 1 | 25 | 25 | 14 | 26 |
| | PM Peak Period | 2 | 125 | 260 | 236 | 214 |
| **Total Input Vehicle Numbers** | AM Peak Period | 51,016 | 51,093 | 49,415 | 48,441 | 48,109 |
| | PM Peak Period | 53,034 | 52,964 | 51,842 | 51,080 | 50,704 |

8.4.4 **Table 8.3** shows the latent demand remains consistently low in the AM and PM peak periods, which demonstrates that the vehicle demand in the "with Begbroke Innovation District" scenarios can continue to travel through the network during the peak periods.

### Vehicle Delay

8.4.5 **Table 8.4** below identifies the delay for all vehicles travelling within and through the network for the Future Year Reference and "with Begbroke Innovation District" scenarios in the AM and PM 3 hour peak periods.

**Table 8.4: Vehicle Delay (Seconds)**

| | | 2018 Base | Future Year Reference | Future Year Reference + Begbroke Innovation District | | |
|---|---|---|---|---|---|---|
| | | | | Mode Shift (Low) | Mode Shift (Medium) | Mode Shift (High) |
| **Average delay per vehicle in the network** | AM Peak Period | 169 | 187 | -3 | 0 | -19 |
| | PM Peak Period | 202 | 144 | +9 | +6 | +2 |
| **Overall delay per vehicle (including time off network)** | AM Peak Period | 171 | 189 | -2 | +1 | -18 |
| | PM Peak Period | 203 | 153 | +15 | +8 | +4 |

8.4.6 **Table 8.4** shows that the "with Begbroke Innovation District" scenarios average vehicle delay in the AM 3 hour peak period changes by -19 to +1 seconds per vehicle compared to the Future Year Reference Case, depending on the level of mode shift. In the PM 3 hour peak period the average vehicle delay increases by +2 to +15 seconds per vehicle in the "with development" scenarios compared to the Future Year Reference Case, depending on the level of mode shift. Overall, the results demonstrate that Begbroke Innovation District will have a negligible effect on vehicle delay, which demonstrate clear compliance with NPPF paragraph 111 of avoiding severe impacts on the road network.

### Average Vehicle Speeds

8.4.7 **Table 8.5** below summarises the average vehicle speeds (in mph) for all scenarios in the AM and PM 3 hour peak periods.

**Table 8.5: Average Vehicle Speeds (mph)**

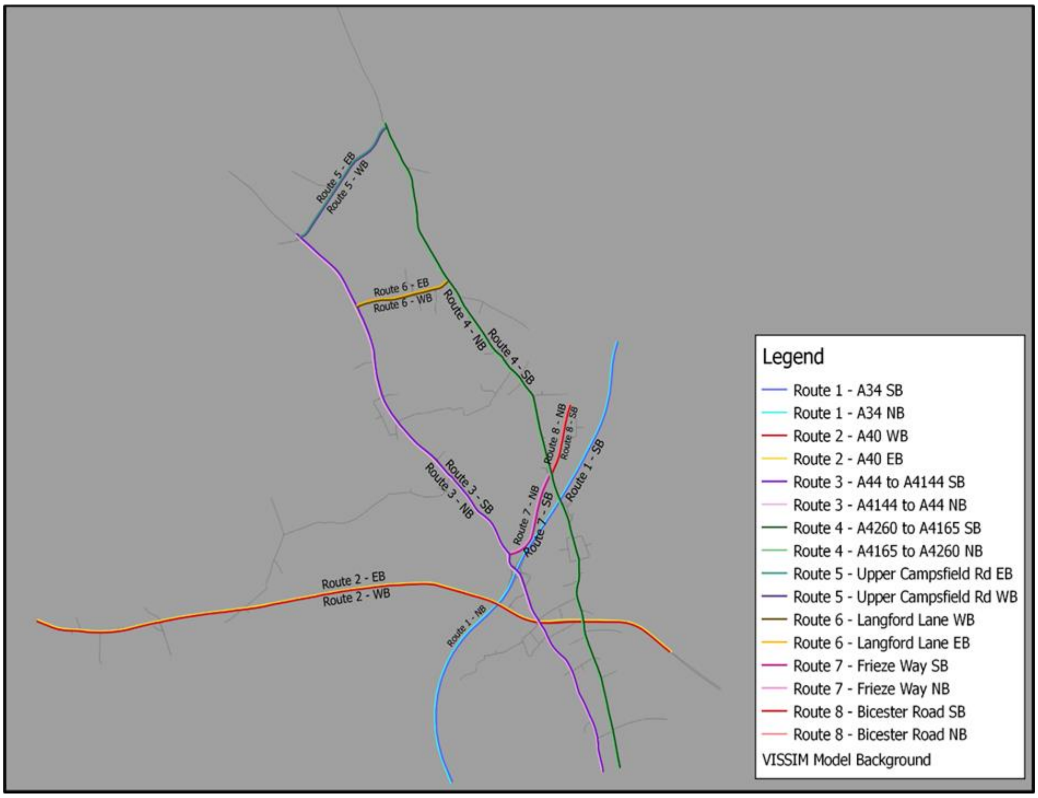
| | | 2018 Base | Future Year Reference | Future Year Reference + Begbroke Innovation District | | |
|---|---|---|---|---|---|---|
| | | | | Mode Shift (Low) | Mode Shift (Medium) | Mode Shift (High) |
| **Average Vehicle Speeds (mph)** | AM Peak Period | 27 | 26 | 27 | 27 | 28 |
| | PM Peak Period | 25 | 29 | 28 | 29 | 29 |

8.4.8 **Table 8.5** shows that in the "with Begbroke Innovation District" scenarios, there is forecast to be negligible impact on average vehicle speeds across the network compared to the Future Year Reference Case.

## Journey Times

8.4.9 Journey times along key corridors within the modelled network have been assessed. **Figure 8.3** below summarises the eight journey time routes that have been analysed within the model. Each journey time route has been analysed in each direction for each of the modelled hours within the AM and PM peak periods.

**Figure 8.3: Journey Time Routes**



8.4.10 **Table 8.6** below summarises the forecast Future Year Reference Case journey times for the journey time routes in the AM peak period as well as the forecast change in journey times along the routes for the "with Begbroke Innovation District" scenarios.

**Table 8.6: Forecast Change in Journey Times AM Peak Period (seconds)**

| Route | | | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | |
| | | | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| 1 | A34 | NB | 323 | +1 | +1 | +1 | 319 | +2 | +1 | +2 | 323 | +2 | +2 | -171 |
| | | SB | 323 | 0 | 0 | +1 | 318 | +2 | +4 | +4 | 322 | +2 | +1 | -228 |
| 2 | A40 | EB | 1954 | +2 | +8 | +5 | 1,034 | -18 | +3 | -18 | 1,000 | +22 | +42 | -910 |
| | | WB | 768 | +25 | +31 | +8 | 1,121 | -317 | -327 | -325 | 783 | -7 | -10 | -474 |
| 3a | A44 Staverton Rd – PR8/PR9 Access | NB | 632 | +36 | -42 | +27 | 679 | +194 | +292 | +48 | 657 | +244 | +303 | -551 |
| | | SB | 725 | -9 | -16 | -14 | 1,096 | -2 | -35 | -38 | 927 | -60 | -119 | -819 |
| 3b | A44 PR8/PR9 Access – Oxford Airport | NB | 160 | +23 | +54 | +13 | 172 | +91 | +191 | +39 | 164 | +103 | +175 | -69 |
| | | SB | 228 | +24 | +19 | +10 | 269 | +17 | -24 | -18 | 210 | +49 | +16 | -147 |
| 4 | A4260 | NB | 1,177 | +10 | -13 | -4 | 1,311 | +43 | +22 | +30 | 1,274 | +31 | +100 | -1239 |
| | | SB | 1,418 | -98 | -110 | -108 | 2,000 | -533 | -426 | -471 | 1,393 | -110 | -12 | -1325 |
| 5 | A4095 | EB | 155 | +2 | +2 | 3 | 204 | -1 | -2 | 0 | 157 | +2 | -2 | -80 |
| | | WB | 129 | -6 | -6 | -8 | 132 | -39 | -44 | -46 | 126 | -11 | -12 | -123 |
| 6 | Langford Lane | EB | 162 | -3 | -2 | -5 | 175 | -6 | -10 | -13 | 167 | -6 | -10 | -80 |
| | | WB | 151 | +1 | -1 | 0 | 154 | +1 | 0 | 0 | 150 | +3 | -2 | -99 |
| 7 | Frieze Way | NB | 62 | 0 | 0 | 0 | 63 | +1 | 0 | +1 | 63 | 0 | +1 | -19 |
| | | SB | 115 | -1 | -2 | -2 | 127 | -16 | -24 | -26 | 433 | -162 | -284 | -412 |
| 8 | Bicester Road | NB | 39 | 0 | 0 | 0 | 39 | 0 | 0 | 0 | 40 | 0 | 0 | +14 |
| | | SB | 58 | -5 | -4 | -6 | 52 | -2 | -4 | -4 | 56 | -5 | -7 | +51 |

8.4.11 The following conclusions are drawn from the journey time analysis in **Table 8.6:**

- Between 07:00-08:00 the journey times are forecast to increase by less than 60 seconds with all levels of mode shift in the "with development" scenario for all routes compared to the Future Year Reference Case, with some routes seeing journey time savings as a result of the small mode shift in background traffic.

- Between 08:00-09:00 the journey times are forecast to increase by no more than 60 seconds with all levels of mode shift in the "with development" scenario for all routes compared to the Future Year Reference Case, with the exception of A44 northbound.
    - The A44 northbound between Staverton Road and PR8 access (Begbroke Hill) sees increases in journey time in the model of +48 to +292 seconds depending on the level of mode shift.
    - The A44 northbound between PR8 access (Begbroke Hill) and Oxford Airport sees increases in journey time in the model of +39 to +191 seconds, depending on the level of mode shift.
- Between 09:00-10:00 the journey times are forecast to increase by no more than 60 seconds with all levels of mode shift in the "with development" scenario for all routes compared to the Future Year Reference Case, with the exception of the A44 northbound and the A4260 northbound.
    - The A44 northbound between Staverton Road and PR8 access (Begbroke Hill) sees changes in journey time in the model of -551 to +303 seconds, depending on the level of mode shift.
    - The A44 northbound between PR8 access (Begbroke Hill) and Oxford Airport sees changes in journey time in the model of -69 to +175 seconds, depending on the level of mode shift.
    - The A4260 northbound sees changes in journey time in the model of -1,239 to +100 seconds, depending on the level of mode shift.

8.4.12 **Table 8.7** summarises the journey times for the various routes in the PM peak period.

**Table 8.7: Forecast Change in Journey Times PM Peak Period (seconds)**

| Route | | | 15:00 – 16:00 | | | | 16:00 – 17:00 | | | | 17:00 – 18:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | |
| | | | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **1** | A34 | NB | 317 | +2 | +1 | +1 | 316 | +1 | +1 | +2 | 314 | +1 | 0 | +1 |
| | | SB | 312 | +2 | +2 | +2 | 314 | +2 | +1 | 0 | 313 | +1 | +3 | +3 |
| **2** | A40 | EB | 1,003 | +11 | 0 | +4 | 1,033 | -5 | -13 | -6 | 967 | +4 | -12 | -7 |
| | | WB | 740 | +6 | +6 | +5 | 742 | +5 | +5 | +3 | 756 | +9 | +5 | +10 |
| **3a** | A44 Staverton Rd – PR8/PR9 Access | NB | 650 | -2 | -3 | -6 | 691 | -10 | -10 | -24 | 725 | -12 | -23 | -38 |
| | | SB | 692 | +18 | +19 | +20 | 939 | +32 | +36 | +31 | 689 | +20 | +11 | +7 |
| **3b** | A44 PR8/PR9 Access – Oxford Airport | NB | 164 | +8 | +8 | +8 | 171 | +8 | +8 | +6 | 192 | +5 | +3 | -1 |
| | | SB | 189 | +24 | +23 | +23 | 201 | +179 | +168 | +156 | 208 | +264 | +281 | +230 |
| **4** | A4260 | NB | 1,217 | -28 | -36 | -42 | 1,211 | -17 | -18 | -26 | 1,240 | -17 | -30 | -29 |
| | | SB | 1,228 | +4 | +3 | -2 | 1,319 | +24 | +7 | +2 | 1,243 | +24 | +13 | 0 |
| **5** | A4095 | EB | 134 | 0 | 0 | 0 | 141 | +1 | 0 | +2 | 147 | +5 | +3 | +2 |
| | | WB | 131 | +3 | +1 | -2 | 132 | +3 | +3 | +2 | 133 | 0 | 0 | -2 |
| **6** | Langford Lane | EB | 153 | +1 | -2 | -2 | 160 | 0 | -1 | -2 | 162 | 0 | -2 | -4 |
| | | WB | 147 | +2 | +1 | +2 | 154 | 0 | 0 | +1 | 155 | +2 | +3 | +1 |
| **7** | Frieze Way | NB | 63 | 0 | -1 | -1 | 65 | -1 | -1 | -1 | 65 | -1 | -1 | -1 |
| | | SB | 91 | +3 | +3 | +3 | 97 | +2 | +1 | 0 | 97 | +1 | 0 | +2 |
| **8** | Bicester Road | NB | 38 | 0 | 0 | +1 | 37 | 0 | 0 | 0 | 38 | 0 | 0 | 0 |
| | | SB | 43 | 0 | 0 | 0 | 44 | +1 | 0 | 0 | 44 | +1 | 0 | 0 |

8.4.13 The following conclusions are drawn from the journey time analysis in **Table 8.7**:

- Between 15:00-16:00 the journey times are forecast to increase by less than 60 seconds with all "with development" scenarios for all routes compared to the Future Year Reference Case.
- Between 16:00-17:00 the journey times are forecast to increase by no more than 60 seconds with all "with development" scenarios for all routes compared to the Future Year Reference Case, with the exception of A44 southbound between Oxford Airport and the PR8 access (Begbroke Hill). The A44 southbound sees increases in journey time in the model of +156 to +179 seconds, depending on the level of mode shift.

- Between 17:00-18:00 the journey times are forecast to increase by no more than 60 seconds with all "with development" scenarios for all routes compared to the Future Year Reference Case, with the exception of A44 southbound between Oxford Airport and the PR8 access (Begbroke Hill). The A44 southbound sees increases in journey time in the model of +230 to +281 seconds, depending on the level of mode shift.

8.4.14 It can be seen from the journey time results that the "with Begbroke Innovation District" scenarios see some decreases and some increases in journey times in the model when compared against the Future Year Reference Case. The level of decrease / increase in journey time depends on the level of mode shift of background traffic.

### Queues

8.4.15 For the purposes of this section, queues have been reported for the scenarios outlined below to show the forecast change in average queue lengths at each junction:

- Future Year Reference Case (morning and evening peak period); and
- Future Year Reference + Begbroke Innovation District (morning and evening peak period).

8.4.16 This has been undertaken at the six key junctions as shown in **Figure 8.4**:

- A - Woodstock Road/Cassington Road;
- B - Oxford Road/Bicester Road roundabout;
- C - Loop Farm Roundabout;
- D - Peartree Roundabout;
- E - Wolvercote Roundabout; and
- F - Cutteslowe Roundabout.

**Figure 8.4: Junctions within Queue Analysis**


8.4.17 The average queue results in metres for each junction between the times of 07:00-10:00 and 15:00-18:00 is summarised in this section. A red/amber/green comparison of queue lengths is provided to understand the effect of the proposed development based on the criteria set out in **Table 8.8**. It should be noted that the red/amber/green criteria are arbitrary ranges and are not linked to planning policy tests or any guidance on traffic modelling. It simply provides a pictural illustration of the proportionate range of increases in queuing at the junctions.

**Table 8.8: Queue Length Criteria**

| | Colour Coding |
|---|---|
| Queue increases less than or equal to 50m | |
| Queue increase more than 50m, up to 100m | |
| Queue increase more than 100m, up to 150m | |
| Queue increases by greater than 150m | |

8.4.18 For the purposes of this section the queue differences between the DS scenarios and Future Reference Case the for the AM and PM peak periods have been summarised for each junction within the study area.

### A44/Cassington Road

8.4.19 **Tables 8.9** and **8.10** below summarise the forecast change in average queue lengths at the A44/Cassington Road roundabout in the AM and PM peak periods respectively.

**Table 8.9: A44/Cassington Road Change in Average Queue Length (m) AM Peak**

| Arm | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A44 SE Approach** | 1 | +1 | 0 | 0 | 1 | +6 | +30 | 0 | 0 | +2 | +26 | 0 |
| **Cassington Rd Approach** | 1 | +2 | +2 | +2 | 2 | +16 | +27 | +3 | 1 | +60 | +88 | +1 |
| **A44 NW Approach** | 16 | +1 | +2 | 0 | 13 | +4 | +1 | +2 | 21 | -1 | -12 | -15 |

8.4.20 **Table 8.9** shows that overall, there will be negligible changes in queuing on this junction in the AM peak period. The largest increase in queues in the model is on Cassington Road during the hour of 09:00-10:00, which sees increases of +1 to +88m (15 vehicles), depending on the level of mode shift.

**Table 8.10: A44/Cassington Road Change in Average Queue Length (m) PM Peak**

| Arm | 15:00-16:00 | | | | 16:00-17:00 | | | | 17:00-18:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A44 SE Approach** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cassington Rd Approach** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | +1 | 0 | 0 |
| **A44 NW Approach** | 2 | +6 | +6 | +6 | 3 | +9 | +8 | +8 | 9 | +15 | +15 | +12 |

8.4.21 **Table 8.10** shows that overall, there will be negligible changes in queuing on this junction in the PM peak period.

### Oxford Road/Bicester Road roundabout

8.4.22 **Tables 8.11** and **8.12** below summarise the forecast change in average queue lengths at the Oxford Road/Bicester Road roundabout in the AM and PM peak periods respectively.

**Table 8.11: Oxford Road/Bicester Road Change in Average Queue Length (m) AM Peak**

| Arm | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A4260 Oxford Rd Approach** | 8 | -4 | -4 | -5 | 2 | 3 | 2 | 4 | 12 | +1 | -5 | -3 |
| **Bicester Rd Approach** | 4 | -1 | -1 | -2 | 3 | -1 | -1 | -1 | 3 | -1 | -2 | -2 |
| **Oxford Rd Approach** | 4 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 5 | 0 | 0 | 0 |
| **Frieze Way Approach** | 1 | 0 | 0 | 0 | 1 | +1 | +1 | +1 | 1 | 0 | 0 | 0 |
| **Oxford Rd** | 2 | 0 | -1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| **Bicester Rd Approach** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

8.4.23 **Table 8.11** demonstrates that there would be a negligible change in queue length in the AM peak period at the junction of Oxford Road/Bicester Road.

**Table 8.12: Oxford Road/Bicester Road Change in Average Queue Length (m) PM Peak**

| Arm | 15:00-16:00 | | | | 16:00-17:00 | | | | 17:00-18:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A4260 Oxford Rd Approach** | 6 | 0 | 4 | +1 | 12 | +3 | -1 | +2 | 15 | +6 | +2 | +2 |
| **Bicester Rd Approach** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| **Oxford Rd Approach** | 7 | 0 | -1 | -1 | 8 | -1 | -1 | -1 | 8 | 0 | -1 | -1 |
| **Frieze Way Approach** | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| **Oxford Rd** | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Bicester Rd Approach** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**8.4.24** **Table 8.12** demonstrates that there would be a negligible change in queue length in the PM peak period at the junction of Oxford Road/Bicester Road.

### Loop Farm Roundabout

8.4.25 **Tables 8.13** and **8.14** below summarise the forecast change in average queue lengths at Loop Farm roundabout in the AM and PM peak periods respectively.

**Table 8.13: Loop Farm Roundabout Change in Average Queue Length (m) AM Peak**

| Arm | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A44 north-west approach** | 5 | +5 | -2 | +1 | 36 | -22 | -28 | -29 | 196 | -87 | -167 | -131 |
| **A4260 Frieze Way** | 8 | -1 | -2 | -2 | 16 | -6 | -11 | -13 | 93 | -42 | -74 | -52 |
| **A44 southern approach** | 3 | +1 | +2 | +1 | 2 | +4 | +5 | +3 | 1 | +1 | +1 | +1 |

8.4.26 **Table 8.13** shows that overall, the model forecasts a reduction in queuing at this junction in the AM peak period as a result of the small shift in mode of travel.

**Table 8.14: Loop Farm Roundabout Change in Average Queue Length (m) PM Peak**

| Arm | 15:00-16:00 | | | | 16:00-17:00 | | | | 17:00-18:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A44 north-west approach** | 2 | +1 | +1 | +1 | 9 | +5 | +16 | +8 | 7 | +6 | +2 | +4 |
| **A4260 Frieze Way** | 1 | +1 | +1 | +1 | 1 | +1 | +1 | +1 | 2 | +1 | 0 | 0 |
| **A44 southern approach** | 2 | 0 | 0 | 0 | 5 | +3 | +3 | +1 | 7 | +2 | -1 | 0 |

8.4.27 **Table 8.14** demonstrates that there would be a negligible change in queue length in the PM peak period at the junction.

### Peartree Interchange

8.4.28 **Tables 8.15** and **8.16** below summarise the forecast change in average queue lengths at Peartree Interchange in the AM and PM peak periods respectively.

**Table 8.15: Peartree Interchange (A44/A34) Change in Average Queue Length (m) AM Peak**

| Arm | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A34 South** | 11 | +1 | +1 | +1 | 15 | 0 | 0 | 0 | 10 | -1 | -1 | -1 |
| **A44 Woodstock West** | 17 | -1 | -1 | -1 | 63 | -8 | -14 | -14 | 127 | -10 | -20 | -10 |
| **A34 North** | 11 | +4 | +4 | +5 | 25 | +4 | +1 | +4 | 37 | 0 | -1 | 0 |
| **Oxford Peartree Services** | 3 | +2 | +3 | +1 | 65 | +5 | +4 | +2 | 170 | +2 | +3 | +2 |
| **A44 Woodstock East** | 9 | +2 | +2 | +2 | 13 | +3 | +4 | +3 | 10 | +2 | +2 | +2 |

**8.4.29** **Table 8.15** demonstrates that there would be a negligible increase in queue length in the AM peak period at the Peartree Interchange.

**Table 8.16: Peartree Interchange Change in Average Queue Length (m) PM Peak**

| Arm | 15:00-16:00 | | | | 16:00-17:00 | | | | 17:00-18:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A34 South** | 9 | -1 | -1 | -1 | 11 | 0 | 0 | 0 | 10 | 0 | +1 | 0 |
| **A44 Woodstock West** | 10 | +2 | +2 | +2 | 12 | +1 | +1 | +2 | 14 | +3 | +3 | +1 |
| **A34 North** | 5 | +3 | +3 | +3 | 4 | +4 | +1 | +6 | 4 | +11 | +9 | +4 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Oxford Peartree Services** | 0 | -1 | -1 | -1 | 0 | -6 | -4 | -8 | 0 | -3 | -7 | -9 |
| **A44 Woodstock East** | 19 | 0 | 0 | 0 | 39 | 0 | 0 | 0 | 41 | 0 | 0 | -1 |

**8.4.30** **Table 8.16** demonstrates that there would be a negligible increase in queue length in the PM peak period at the Peartree Interchange.

### Wolvercote Roundabout

8.4.31 **Tables 8.17** and **8.18** below summarise the forecast change in average queue lengths at Wolvercote roundabout in the AM and PM peak periods respectively.

**Table 8.17: Wolvercote Roundabout Change in Average Queue Length (m) AM Peak**

| Arm | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A44 northern arm** | 19 | -5 | -6 | -5 | 16 | -7 | -7 | -7 | 17 | -4 | -2 | -3 |
| **Five Mile Drive** | 1 | 0 | -1 | -1 | 0 | 0 | 0 | 0 | 1 | -1 | -1 | -1 |
| **A40 eastern arm** | 20 | +26 | +32 | +9 | 45 | -5 | -8 | -17 | 23 | +3 | +2 | -3 |
| **A4144** | 11 | +1 | +1 | +1 | 17 | +1 | -2 | +2 | 12 | 0 | -3 | +3 |
| **Godstow Rd** | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| **A40 western arm** | 21 | -3 | -2 | -2 | 35 | -3 | +2 | -5 | 26 | 0 | +7 | -1 |

8.4.32 **Table 8.17** demonstrates that there would be a negligible increase in queue length in the AM peak period at the Wolvercote roundabout.

**Table 8.18: Wolvercote Roundabout Change in Average Queue Length (m) PM Peak**

| Arm | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A44 northern arm** | 18 | +9 | +15 | +13 | 18 | +17 | +15 | +18 | 17 | 0 | 0 | -3 |
| **Five Mile Drive** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **A40 eastern arm** | 18 | -1 | -1 | 0 | 18 | -1 | -1 | -2 | 19 | 0 | -1 | 0 |
| **A4144** | 26 | -2 | -3 | -4 | 27 | -3 | -5 | -6 | 49 | -14 | -16 | -21 |
| **Godstow Rd** | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | -2 | -2 |
| **A40 western arm** | 26 | 0 | -4 | -4 | 52 | -17 | -20 | -21 | 15 | 0 | -1 | -2 |

8.4.33 **Table 8.18** demonstrates that there would be a negligible increase in queue length in the PM peak period at Wolvercote roundabout.

### Cutteslowe Roundabout

8.4.34 **Tables 8.19** and **8.20** below summarise the forecast change in average queue lengths at Wolvercote roundabout in the AM and PM peak periods respectively.

**Table 8.19: Cutteslowe Roundabout Change in Average Queue Length (m) AM Peak**

| Arm | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year R20ef | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A4165 north arm** | 29 | -15 | -16 | -17 | 502 | -486 | -488 | -489 | 27 | -15 | -15 | -17 |
| **A40 east arm** | 16 | -1 | -1 | -1 | 345 | -327 | -327 | -328 | 26 | -10 | -8 | -9 |
| **A4165 south arm** | 4 | 0 | -1 | -1 | 18 | -6 | -6 | -10 | 9 | +2 | +1 | -1 |
| **A40 west arm** | 17 | -5 | -4 | -4 | 36 | -24 | -25 | -24 | 10 | 0 | -1 | -1 |

8.4.35 **Table 8.19** demonstrates that there would be a negligible increase in queue length in the AM peak period at Cutteslowe roundabout. The modelling forecasts reductions in queues, particularly on the A4165 north arm and A40 east arm. The queuing in the AM peak is forecast to decrease as there is a reduction in southbound movements due to the mitigations from the IDP package, which is expected to result in more people using other modes than the car. This would reduce the number of vehicles on A4165, which would reduce the number of instances of A40 traffic giving way to A4165 traffic.

**Table 8.20: Cutteslowe Roundabout Change in Average Queue Length (m) PM Peak**

| Arm | 15:00-16:00 | | | | 16:00-17:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A4165 north arm** | 5 | 0 | 0 | 0 | 7 | +1 | +1 | 0 | 8 | +2 | +1 | 0 |
| **A40 east arm** | 19 | -2 | -2 | 0 | 17 | -1 | -1 | +2 | 18 | 0 | -1 | -1 |
| **A4165 south arm** | 12 | -6 | -7 | -7 | 9 | -2 | -3 | -4 | 15 | -6 | -7 | -8 |
| **A40 west arm** | 19 | +7 | +3 | +5 | 21 | +3 | +3 | +1 | 20 | +2 | -1 | 0 |

8.4.36 **Table 8.20** demonstrates that there would be a negligible increase in queue length in the PM peak period at Cutteslowe roundabout.

### Summary

8.4.37 In summary the addition of Begbroke Innovation District and a small mode shift in background traffic as a result of improved sustainable transport infrastructure would provide an overall negligible impact on queuing at junctions within the study area and in some locations there would be improvements. As a result, it is considered that there will not be a severe residual cumulative impact from a queuing perspective.

## Level of Service

8.4.38 Level of service (LOS) plots provide a qualitative measure of the operation of a junction based on the identified traffic scenarios. The LOS can be predicted as a measure of delay on each arm of the junction or across the junction as a whole. **Table 8.21** below defines the LOS by six levels ranging from level A to level F.

**Table 8.21: Level of Service (LOS) Analysis**

| LoS | Signalised Intersection | Non-Signalised Intersection |
|---|---|---|
| **LOS A** | Delay < 10 s or no volume | |
| **LOS B** | >10s to 20s | >10s to 15s |
| **LOS C** | >20s to 35s | >15s to 25s |
| **LOS D** | >35s to 55s | >25s to 35s |
| **LOS E** | >55s to 80s | >35s to 50s |
| **LOS F** | >80s | >50s |

8.4.39 The peak time operation (08:00-09:00 and 17:00-18:00) has been considered in detail across the junctions contained in the traffic model. A LOS of C or above is unlikely to affect journey reliability and the delay is unlikely to be discernible from daily variations in overall journey times.

8.4.40 The off-site junctions that are forecast to have a LOS of D or below, following the introduction of the package of mitigation, are indicated below. The identified junctions represent those that potentially have a residual highway impact.

8.4.41 The comparison has also identified where the LOS improves following the introduction of the package of mitigation, demonstrating that the development impact has been mitigated. However, the comparison has identified the junctions where the LOS also worsens, and these are identified below in **Table 8.22.**

**Table 8.22: LOS by Junction Comparison**

| Junction | 09:00-09:00 | | | | 17:00-18:00 | | | |
|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District | | | Future Year Ref | Future Year Ref + Begbroke Innovation District | | |
| | | Low | Med | High | | Low | Med | High |
| **A40/B4449** | E | F | E | E | F | F | E | F |
| **Banbury Road/The Moors** | D | F | F | F | C | C | C | C |
| **Langford Lane/Banbury Road** | E | E | F | F | C | C | C | C |
| **Banbury Road/Moreton Road** | E | D | D | D | D | E | D | D |
| **B449/Harnborough Road** | C | F | E | E | A | A | A | A |
| **A44 /Sandy Lane Roundabout** | C | F | F | E | C | D | D | C |

8.4.42 The model forecasts negligible changes to LOS across the majority of junctions across the network. At six junctions there is forecast to be a reduction in LOS, which varies depending on the level of mode shift. These junctions already operate with delay, which is forecast to increase slightly during one of the peak periods for each of the junctions.

### Summary

8.4.43 The modelling shows that Begbroke Innovation District would have a negligible effect on average delay per vehicle within the network and average speed of vehicles travelling through the network. Journey times are forecast to increase by less than 60 seconds across all routes and time periods as a consequence of Begbroke Innovation District with the exception of localised increases in journey times on A44 northbound and southbound in the AM and PM peak periods respectively. The modelling shows that there would be journey time savings on some parts of the network. The changes in journey time do not result in a discernible increase in vehicle delay across the network. The modelling also shows that the Begbroke Innovation District would have a negligible effect on queuing at junctions.

8.4.44 In summary, the Begbroke Innovation District cannot be regarded as having either a severe impact on the highway network or an unacceptable impact on highway safety which would otherwise give rise to grounds for objection in line with paragraph 111 of the NPPF.

## 8.5 Begbroke Innovation District and PR Sites in Combination Modelling Outcomes

**8.5.1** This section provides a summary of the "in combination with PR sites" modelling outcomes (i.e. Future Reference Case + Begbroke Innovation District + the PR sites compared against the Future Reference Case).

### Network Statistics

#### Vehicle Trips

8.5.2 **Table 8.24** below identifies the active number of vehicles in the modelled network, the total number of vehicle trips completed and the latent demand (number of vehicles not able to enter the network) for all "in combination with PR sites" scenarios in the AM and PM 3 hour peak periods.

**Table 8.24: Vehicles in Network (AM and PM 3 hour peak periods)**

| | | 2018 Base | Future Year Reference | Future Year Ref + Begbroke Innovation District + PR sites | | |
|---|---|---|---|---|---|---|
| | | | | Mode Shift (Low) | Mode Shift (Medium) | Mode Shift (High) |
| **Vehicles Active in the Network** | AM Peak Period | 2,126 | 2,177 | 2739 | 2521 | 2260 |
| | PM Peak Period | 2,803 | 2,439 | 3227 | 3145 | 3025 |
| **Vehicle Trips Completed** | AM Peak Period | 48,889 | 48,891 | 50,989 | 50,182 | 50,152 |
| | PM Peak Period | 50,229 | 50,400 | 52,840 | 52,321 | 52,091 |
| **Latent Demand at End of Simulation** | AM Peak Period | 1 | 25 | 47 | 90 | 40 |
| | PM Peak Period | 2 | 125 | 199 | 38 | 23 |
| **Total Input Vehicle Numbers** | AM Peak Period | 51,016 | 51,093 | 53,775 | 52,793 | 52,452 |
| | PM Peak Period | 53,034 | 52,964 | 56,226 | 55,504 | 55,139 |

8.5.3 **Table 8.24** shows that despite there being more vehicles in the network in the "in combination with PR sites" scenarios compared to the Future Year Reference scenario, the latent demand remains consistently very low and in the PM peak period it reduces in the "in combination with PR sites" high and medium mode share scenarios compared to the Future Year Reference scenario. This demonstrates that the vehicle demand in the "in combination PR sites" scenarios can travel through the network during the peak periods.

### Vehicle Delay

8.5.4 **Table 8.25** below identifies the delay for all vehicles travelling within and through the network for all scenarios in the AM and PM 3 hour peak periods.

**Table 8.25: Vehicle Delay (Seconds)**

| | | 2018 Base | Future Year Reference | Future Year Ref + Begbroke Innovation District + PR sites | | |
|---|---|---|---|---|---|---|
| | | | | Mode Shift (Low) | Mode Shift (Medium) | Mode Shift (High) |
| **Average delay per vehicle in the network** | AM Peak Period | 169 | 187 | 250 | 226 | 194 |
| | PM Peak Period | 202 | 144 | 199 | 193 | 187 |
| **Overall delay per vehicle (including time off network)** | AM Peak Period | 171 | 189 | 253 | 230 | 197 |
| | PM Peak Period | 203 | 153 | 211 | 196 | 190 |

8.5.5 **Table 8.25** shows that the "in combination with PR sites" scenarios average vehicle delay in the AM 3 hour peak period increases by +7 to 63 seconds per vehicle compared to the Future Year Reference Case, depending on the level of mode shift. In the PM 3 hour peak period the average vehicle delay increases by +43 to 55 seconds per vehicle in the "in combination with PR sites" scenarios compared to the Future Year Reference Case. Overall, the results demonstrate that following the introduction of the package of measures included within the IDP the impact of the PR sites will not result in a severe impact on vehicle delay.

### Average Vehicle Speeds

8.5.6 **Table 8.26** below summarises the average vehicle speeds (in mph) for all scenarios in the AM and PM 3 hour peak periods.

**Table 8.26: Average Vehicle Speeds (mph)**

| | | 2018 Base | Future Year Reference | Future Year Ref + Begbroke Innovation District + PR sites | | |
|---|---|---|---|---|---|---|
| | | | | Mode Shift (Low) | Mode Shift (Medium) | Mode Shift (High) |
| **Average Vehicle Speeds (mph)** | AM Peak Period | 27 | 26 | 23 | 25 | 26 |
| | PM Peak Period | 25 | 29 | 26 | 26 | 26 |

8.5.7 **Table 8.26** shows that in the "in combination with PR sites" scenarios, there is negligible impact on average vehicle speeds across the network compared to the Future Year Reference Case.

### Journey Times

8.5.8 Journey times along key corridors within the modelled network have been assessed. **Figure 8.3** below summarises the eight journey time routes that have been analysed within the model. Each journey time route has been analysed in each direction for each of the modelled hours within the AM and PM peak periods.

8.5.9 **Table 8.27** below summarises the forecast Future Year Reference Case journey times for the journey time routes in the AM peak period as well as the forecast change in journey times along the routes for the "in combination with PR sites" scenarios (i.e., Future Year Reference Case + PR sites + PR sites).

**Table 8.27: Forecast Change in Journey Times AM Peak Period (seconds)**

| Route | | | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | |
| | | | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **1** | A34 | NB | 323 | +1 | +1 | +1 | 319 | +3 | +1 | +2 | 323 | +4 | +3 | +1 |
| | | SB | 323 | 0 | +1 | +1 | 318 | +3 | +4 | +4 | 322 | +3 | +2 | +3 |
| **2** | A40 | EB | 1954 | +29 | +41 | +7 | 1,034 | +30 | +26 | -11 | 1,000 | +421 | +167 | -3 |
| | | WB | 768 | +36 | +41 | +48 | 1,121 | -113 | -227 | -271 | 783 | +68 | +1 | -5 |
| **3a** | A44 between Staverton Rd and PR8/PR9 access | NB | 632 | +65 | +47 | +44 | 679 | +212 | +210 | +94 | 657 | +390 | +198 | +78 |
| | | SB | 725 | +106 | +81 | +44 | 1,096 | +423 | +301 | +159 | 927 | +388 | +422 | +41 |
| **3b** | A44 between PR8/PR9 access and Oxford Airport | NB | 160 | +30 | +28 | +29 | 172 | +29 | +32 | +30 | 164 | +59 | +49 | +28 |
| | | SB | 228 | +58 | +42 | +36 | 269 | +30 | +13 | +17 | 210 | +52 | +52 | +45 |
| **4** | A4260 | NB | 1,177 | +30 | +48 | +24 | 1,311 | +99 | +37 | +47 | 1,274 | +416 | +67 | +32 |
| | | SB | 1,418 | -36 | -17 | -49 | 2,000 | -270 | -286 | -336 | 1,393 | +133 | +22 | -5 |
| **5** | A4095 | EB | 155 | -8 | +7 | -10 | 204 | -38 | +42 | -45 | 157 | -10 | -5 | -4 |
| | | WB | 129 | +2 | +4 | +2 | 132 | +1 | -1 | -2 | 126 | 0 | 0 | +1 |
| **6** | Langford Lane | EB | 162 | 0 | -5 | -2 | 175 | -6 | -8 | -11 | 167 | +4 | -7 | -10 |
| | | WB | 151 | 0 | -1 | 0 | 154 | +1 | -1 | -1 | 150 | +3 | +1 | 0 |
| **7** | Frieze Way | NB | 62 | 0 | +1 | 0 | 63 | 0 | +1 | +1 | 63 | 0 | +1 | +1 |
| | | SB | 115 | -2 | -4 | -1 | 127 | +6 | -12 | -4 | 433 | +270 | +293 | -106 |
| **8** | | NB | 39 | +30 | +28 | +30 | 39 | +29 | +28 | +29 | 40 | +30 | +30 | +30 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bicester Road | SB | 58 | +25 | +23 | +22 | 52 | +27 | +28 | +25 | 56 | +58 | +23 | +19 |

8.5.10 The following conclusions are drawn from the journey time analysis in **Table 8.27:**

- Between 07:00-08:00 the journey times are forecast to increase by less than 60 seconds with all levels of mode shift in the "in combination with PR sites" scenarios for all routes compared to the Future Year Reference Case, with the exception of A44 northbound between Staverton Road and PR8/PR9 access (ranging between +44 and +65 seconds) and A44 southbound between Staverton Road ad PR8/PR9 access (ranging between +44 and +106 seconds) depending on the level of mode shift.
- Between 08:00-09:00 the journey times are forecast to increase by no more than 60 seconds with all levels of mode shift in the "in combination with PR sites" scenario for all routes compared to the Future Year Reference Case, with the exception of A44 north and southbound, and the A4260 northbound.
  - The A44 northbound between Staverton Road and PR8/PR9 Access sees increases in journey time of +94 to +212 seconds and the A44 southbound sees increases of +159 to +423 seconds.
  - The A4260 northbound sees increases in journey time of +37 to +99 seconds.
  - There are also forecast to be some journey time savings on routes, most notably on the A4260 southbound (-270 to -336 seconds) and the A40 westbound (-113 to -271 seconds) depending on level of mode shift.
- Between 09:00-10:00 the journey times are forecast to increase by no more than 60 seconds with all levels of mode shift in the "in combination with PR sites" scenario for all routes compared to the Future Year Reference Case, with the exception of the A44 northbound and southbound, A40 eastbound and westbound, the A4260 northbound and southbound and Frieze Way southbound.
  - The A44 northbound between Staverton Road and PR8/PR9 Access sees increases in journey time of +78 to +390 seconds and the A44 southbound sees increases of +41 to +422 seconds.
  - The A4260 northbound sees increases in journey time of +32 to +416 seconds and the A4260 southbound sees changes in journey time of -5 to +133 seconds.
  - The A40 eastbound sees changes in journey time of -3 to +421 seconds and the A40 westbound sees changes in journey time of -5 to +68 seconds.
  - Frieze Way southbound sees changes in journey time of -106 to +293 seconds.
- It is clear from the results that a small increase in mode shift between medium and high mode shift scenarios (e.g. 0.62% to 0.75% depending on the hour, as set out in the Mode Shift Discussion Note **Appendix C**) would have a relatively material effect on journey time.

8.5.11 **Table 8.28** summarises the journey times for the eight routes in the PM peak period.

**Table 8.28: Forecast Change in Journey Times PM Peak Period (seconds)**

| Route | | | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | |
| | | | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| 1 | A34 | NB | 317 | +2 | +3 | +2 | 316 | +2 | +3 | +2 | 314 | +3 | +3 | +4 |
| | | SB | 312 | +4 | +3 | +2 | 314 | +2 | 0 | 0 | 313 | +2 | +3 | +2 |
| 2 | A40 | EB | 1003 | +12 | +32 | +26 | 1033 | +15 | +19 | +9 | 967 | +17 | +18 | +18 |
| | | WB | 740 | +15 | +16 | +18 | 742 | +8 | +17 | +18 | 756 | +16 | +19 | +20 |
| 3a | A44 between Staverton Rd and PR8/PR9 access | NB | 650 | +11 | +5 | +1 | 691 | +30 | +21 | +5 | 725 | +38 | +10 | -9 |
| | | SB | 692 | +63 | +46 | +55 | 939 | +330 | +288 | +266 | 689 | +789 | +800 | +731 |
| 3b | A44 between PR8/PR9 access and Oxford Airport | NB | 164 | +24 | +24 | +24 | 171 | +29 | +27 | +25 | 192 | +34 | +26 | +25 |
| | | SB | 189 | +30 | +28 | +27 | 201 | +61 | +47 | +58 | 208 | +78 | +54 | +34 |
| 4 | A4260 | NB | 1217 | +20 | +18 | +4 | 1211 | +37 | +31 | +24 | 1240 | +61 | +57 | +38 |
| | | SB | 1228 | +47 | +44 | +41 | 1319 | +116 | +111 | +80 | 1243 | +149 | +134 | +143 |
| 5 | A4095 | EB | 134 | +2 | +2 | 0 | 141 | -1 | 0 | -3 | 147 | -3 | -1 | -2 |
| | | WB | 131 | +2 | 0 | 0 | 132 | +8 | +8 | +7 | 133 | +15 | +20 | +14 |
| 6 | Langford Lane | EB | 153 | +1 | 0 | -1 | 160 | +10 | +8 | +3 | 162 | +46 | +43 | +43 |
| | | WB | 147 | +2 | +2 | +4 | 154 | 0 | 0 | +1 | 155 | +2 | 0 | +3 |
| 7 | Frieze Way | NB | 63 | 0 | -1 | 0 | 65 | 0 | -1 | 0 | 65 | 0 | 0 | -1 |
| | | SB | 91 | +4 | +3 | +4 | 97 | +1 | +1 | +2 | 97 | +1 | +2 | +3 |
| 8 | Bicester Road | NB | 38 | +29 | +31 | +29 | 37 | +29 | +28 | +29 | 38 | +31 | +29 | +30 |
| | | SB | 43 | +23 | +23 | +24 | 44 | +25 | +25 | +24 | 44 | +30 | +28 | +28 |

8.5.12 The following conclusions are drawn from the journey time analysis in **Table 8.28**:

- Between 15:00-16:00 the journey times are forecast to increase by less than 60 seconds with all "in combination with PR sites" scenarios for all routes compared to the Future Year Reference Case, with the exception of A44 southbound between Staverton Road and PR8/PR9 Access (+46 to +63 seconds), depending on the mode shift.

- Between 16:00-17:00 the journey times are forecast to increase by no more than 60 seconds with all "in combination with PR sites" scenarios for all routes compared to the Future Year Reference Case, with the exception of A44 southbound and A4260 southbound.
    - A44 southbound between Staverton Road and PR8/PR9 access forecasts increases in journey time of +266 to +330 seconds.
    - A4260 southbound forecasts increases in journey time of +80 to +116 seconds.
- Between 17:00-18:00 the journey times are forecast to increase by no more than 60 seconds with all "in combination with PR sites" scenarios for all routes compared to the Future Year Reference Case, with the exception of A44 southbound and A4260 northbound and southbound.
    - The A44 southbound between Staverton Road and PR8/PR9 access forecasts increases in journey time of +731 to +800 seconds and the A44 southbound between Oxford Airport and PR8/PR9 Access sees increases of +34 to +78 seconds.
    - A4260 southbound sees increases in journey time of +134 to +149 seconds and the A4260 northbound sees increases of +38 to +61 seconds.

8.5.13 It can be seen from the journey time results that the model forecasts some increases in journey times, focussed primarily along the A44 and A4260 corridors. The level of increase in journey time ranges depending on the level of mode shift of background traffic. There are also some forecast journey time savings.

8.5.14 With regards to the A44 corridor, a southbound bus lane is currently being constructed by OCC between Loop Farm roundabout and Cassington roundabout and therefore bus journey times will not be impacted on this section of the corridor. As part of the package of transport improvements in Appendix 4 of the Partial Review Local Plan, it is proposed to provide further bus priority and active travel improvements along the A44 between Cassington roundabout and Spring Hill Road, which would further mitigate bus journey time impacts. The modelling presented in this section of the TA does not include a southbound bus lane on the A44 between Cassington roundabout and Spring Hill Road. Whilst OUD is supportive of reallocating road space for sustainable modes, it would require further mode shift to buses than this assessment has provided for.

8.5.15 As stated earlier, the modelling of the "in combination" effects of the PR sites does not take account of the LTCP schemes being implemented by OCC and the resultant targeted mode shift of 25% reduction of car trips by 2030. As such, with the implementation of LTCP transport schemes beyond the infrastructure being brought forward by the PR sites, there would be expected to be a further reduction in journey times along the key routes within the modelled area.

### Queues

8.5.16 For the purposes of this section, queues have been reported for the scenarios outlined below to show the forecast change in average queue lengths at each junction:

- Future Year Reference Case + Growth Fund schemes (Morning and evening peak period)
- Future Year Do Something (DS) (Morning and evening peak period)

8.5.17 This has been undertaken at the six key junctions as shown in **Figure 8.4**:

- A - Woodstock Road/Cassington Road;
- B - Oxford Road/Bicester Road roundabout;
- C - Loop Farm Roundabout;
- D - Peartree Roundabout;
- E - Wolvercote Roundabout; and
- F - Cutteslowe Roundabout.

The average queue results in metres for each junction between the times of 07:00-10:00 and 15:00-18:00 is summarised in this section. A red/amber/green comparison of queue lengths is provided to understand the cumulative effect of the PR sites within each scenario based on the criteria set out in **Table 8.7**. It should be noted that the red/amber/green criteria are arbitrary ranges and are not linked to planning policy tests or any guidance on traffic modelling. It simply provides a pictural illustration of the proportionate range of increases in queuing at the junctions.

### A44/Cassington Road

8.5.18 **Tables 8.29** and **8.30** below summarise the forecast change in average queue lengths at the A44/Cassington Road roundabout in the AM and PM peak periods respectively.

**Table 8.29: A44/Cassington Road Change in Average Queue Length (m) AM Peak**

| Arm | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A44 SE Approach** | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cassington Rd Approach** | 1 | +3 | +2 | +4 | 2 | +4 | +5 | +8 | 1 | +2 | +2 | +3 |
| **A44 NW Approach** | 16 | +147 | +125 | +76 | 13 | +270 | +265 | +201 | 21 | +162 | +224 | +98 |

8.5.19 **Table 8.29** shows that overall, there will be negligible changes in queuing on this junction in the AM peak period except for the north-west approach to the roundabout which the model forecasts an average increase in queues ranging from +76m (13 vehicles) to +270m (47 vehicles) in the AM peak period depending on the hour and level of mode shift.

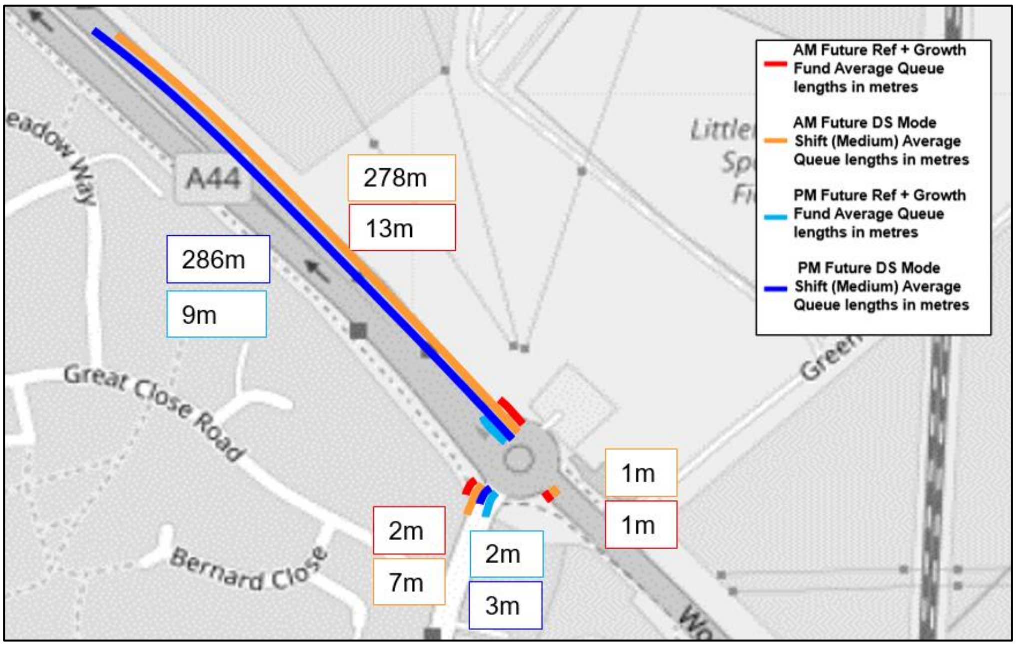
**Table 8.30: A44/Cassington Road Change in Average Queue Length (m) PM Peak**

| Arm | 15:00-16:00 | | | | 16:00-17:00 | | | | 17:00-18:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A44 SE Approach** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cassington Rd Approach** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | +2 | +1 | +1 |
| **A44 NW Approach** | 2 | +51 | +37 | +32 | 3 | +211 | +194 | +173 | 9 | +277 | +277 | +277 |

8.5.20 **Table 8.30** shows that overall, there will be negligible changes in queuing on this junction in the PM peak period except for the north-west approach to the roundabout which the model forecasts an average increase in queues ranging from +32m (6 vehicles) to +277m (48 vehicles) in the AM peak period depending on the hour and level of mode shift.

8.5.21 The analysis shows that the queue does not block back to any junctions in the AM and PM peak periods and is relatively short lived and is therefore not considered to have a severe impact on the network. This is demonstrated by the queue lengths for the AM (0800-0900) and PM (1700-1800) peak hours shown on **Figure 8.5**, which compares the "in combination with PR sites" medium mode shift queue lengths with the Future Year Reference Case queue lengths.

**Figure 8.5: A44/Cassington Road queue lengths in the AM and PM peak hours (0800-0900 and 1700-1800)**



### Oxford Road/Bicester Road roundabout

8.5.22 **Tables 8.31** and **8.32** below summarise the forecast change in average queue lengths at the Oxford Road/Bicester Road roundabout in the AM and PM peak periods respectively.

**Table 8.31: Oxford Road/Bicester Road Change in Average Queue Length (m) AM Peak**

| Arm | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A4260 Oxford Rd Approach** | 8 | -4 | -2 | -3 | 2 | +3 | +5 | +6 | 12 | -1 | +3 | -7 |
| **Bicester Rd Approach** | 4 | +2 | +2 | +1 | 3 | +3 | +3 | +3 | 3 | +19 | +1 | -1 |
| **Oxford Rd Approach** | 4 | +1 | +1 | +1 | 5 | +1 | +1 | +1 | 5 | 0 | 0 | 0 |
| **Frieze Way Approach** | 1 | 0 | 0 | 0 | 1 | 0 | +1 | +1 | 1 | 0 | 0 | 0 |
| **Oxford Rd** | 2 | 0 | +1 | 0 | 1 | 1 | +1 | +1 | 1 | 0 | 0 | 0 |
| **Bicester Rd Approach** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

8.5.23 **Table 8.31** demonstrates that there would be a negligible increase in queue length in the AM peak period at the junction of Oxford Road/Bicester Road.

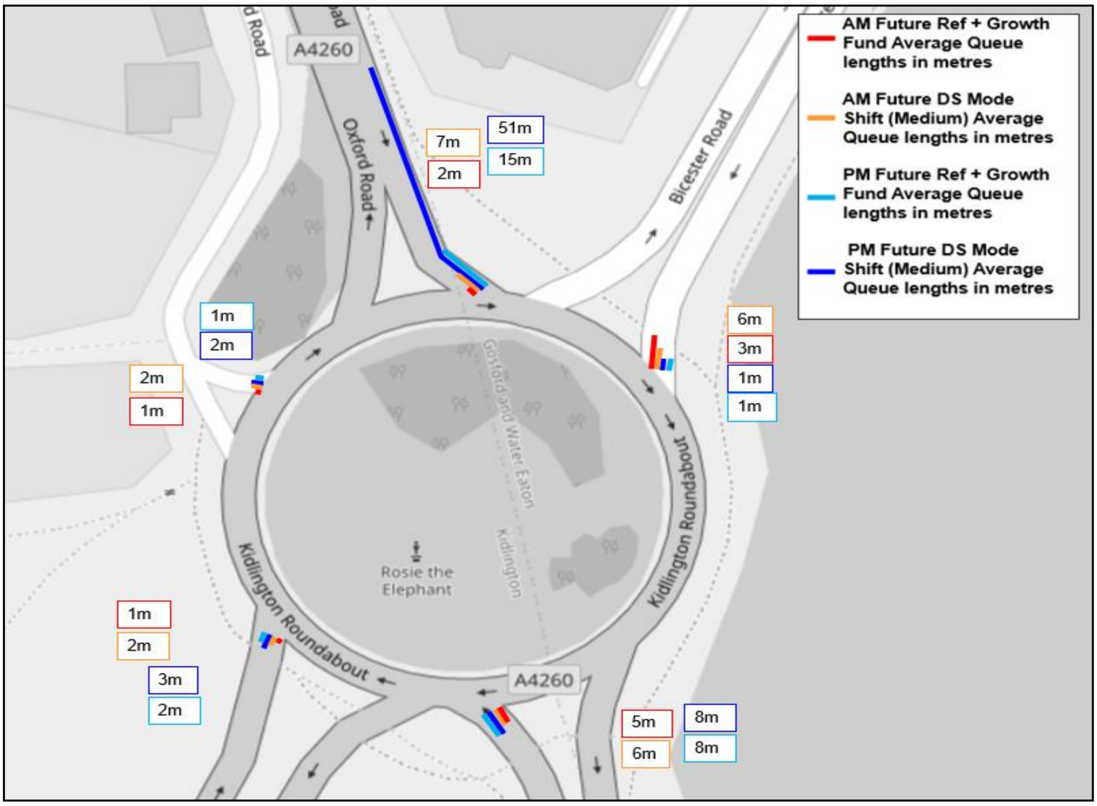
**Table 8.32: Oxford Road/Bicester Road Change in Average Queue Length (m) PM Peak**

| Arm | 15:00-16:00 | | | | 16:00-17:00 | | | | 17:00-18:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A4260 Oxford Rd Approach** | 6 | +7 | +4 | +9 | 12 | +32 | +26 | +18 | 15 | +47 | +36 | +58 |
| **Bicester Rd Approach** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| **Oxford Rd Approach** | 7 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 8 | 0 | 0 | 0 |
| **Frieze Way Approach** | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Oxford Rd** | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| **Bicester Rd Approach** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

8.5.24 **Table 8.32** shows that in the PM peak period there are no changes in queue lengths on all arms except the A4260 Oxford Road approach, consisting of an increase in queue ranging between +4m (1 vehicle) to +58m (10 vehicles). It should be noted that these queues do not block back to any key junction. This is demonstrated by the queue lengths for the AM (0800-0900) and PM (1700-1800) peak hours shown on **Figure 8.6** which compares the "in combination with PR sites" medium mode shift queue lengths with the Future Year Reference Case queue lengths.

**Figure 8.6: Oxford Road/Bicester Road Roundabout Average Queue lengths (0800-0900 and 1700-1800)**




## Loop Farm Roundabout

8.5.25 **Tables 8.33** and **8.34** below summarise the forecast change in average queue lengths at Loop Farm roundabout in the AM and PM peak periods respectively.

**Table 8.33: Loop Farm Roundabout Change in Average Queue Length (m) AM Peak**

| Arm | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A44 north-west approach** | 5 | -2 | +5 | 0 | 36 | +38 | -2 | -3 | 196 | +241 | +173 | -78 |
| **A4260 Frieze Way** | 8 | +1 | 0 | +1 | 16 | +14 | -3 | +2 | 93 | +52 | +52 | -26 |
| **A44 southern approach** | 3 | +3 | +4 | +2 | 2 | +7 | +15 | +4 | 1 | +1 | +1 | +1 |

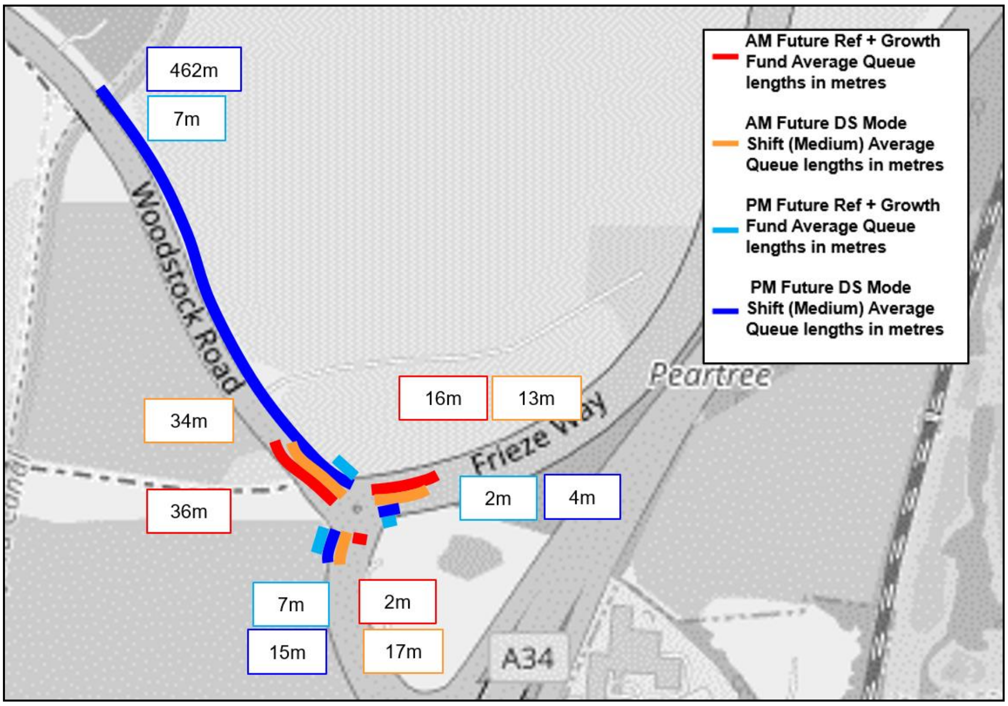
8.5.27 **Table 8.33** shows that overall, there will be negligible changes in queuing on this junction in the AM peak period except for the A44 NW approach to the roundabout which the model forecasts an average increase in queues ranging from -3m to +241m (42 vehicles) in the AM peak period depending on the hour and level of mode shift. It can be seen in the 0900-1000 hour that the small difference in mode shift between the medium and high scenarios would have a significant effect on queuing on the A44 north-west approach to the junction.

**Table 8.34: Loop Farm Roundabout Change in Average Queue Length (m) PM Peak**

| Arm | 15:00-16:00 | | | | 16:00-17:00 | | | | 17:00-18:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A44 north-west approach** | 2 | +4 | +4 | +4 | 9 | +546 | +560 | +437 | 7 | +263 | +455 | +350 |
| **A4260 Frieze Way** | 1 | +2 | +2 | +2 | 1 | +1 | +2 | +1 | 2 | +2 | +2 | +3 |
| **A44 southern approach** | 2 | +2 | +2 | +1 | 5 | +10 | +9 | +8 | 7 | +10 | +9 | +5 |

8.5.28 **Table 8.34** shows that the addition of the development would result in negligible changes in queues across the junction in the PM peak period with the exception of the A44 north-west approach, which the model forecasts to experience an increase in queue length ranging from +4m (1 vehicle) to +560m (99 vehicles) depending on the hour and level of mode shift. As shown in **Figure 8.7**, the increase in queuing on the A44 north-west approach does not result in blocking back to the Cassington Road roundabout. Likewise, buses would not be impacted as OCC has recently implemented a southbound bus lane on this section of the A44. As such the impact of the development at this junction is not anticipated to have a severe residual cumulative impact or introduce a road safety issue.

**Figure 8.7: Loop Farm Roundabout Average Queue lengths (0800-0900 and 1700-1800)**




### Peartree Interchange

8.5.29 **Tables 8.35** and **8.36** below summarise the forecast change in average queue lengths at Peartree Interchange in the AM and PM peak periods respectively.

**Table 8.35: Peartree Interchange (A44/A34) Change in Average Queue Length (m) AM Peak**

| Arm | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A34 South** | 11 | +4 | +4 | +3 | 15 | +5 | +8 | +5 | 10 | +3 | +2 | +2 |
| **A44 Woodstock West** | 17 | 0 | +1 | 0 | 63 | +12 | -6 | -19 | 127 | +23 | +52 | -41 |
| **A34 North** | 11 | 0 | 0 | 0 | 25 | +9 | +12 | +9 | 37 | +21 | +19 | +1 |
| **Oxford Peartree Services** | 3 | +1 | +2 | 0 | 65 | +5 | +10 | -5 | 170 | +13 | +15 | -3 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A44 Woodstock East** | 9 | +13 | +11 | +7 | 13 | +14 | +19 | +9 | 10 | +11 | +17 | +7 |

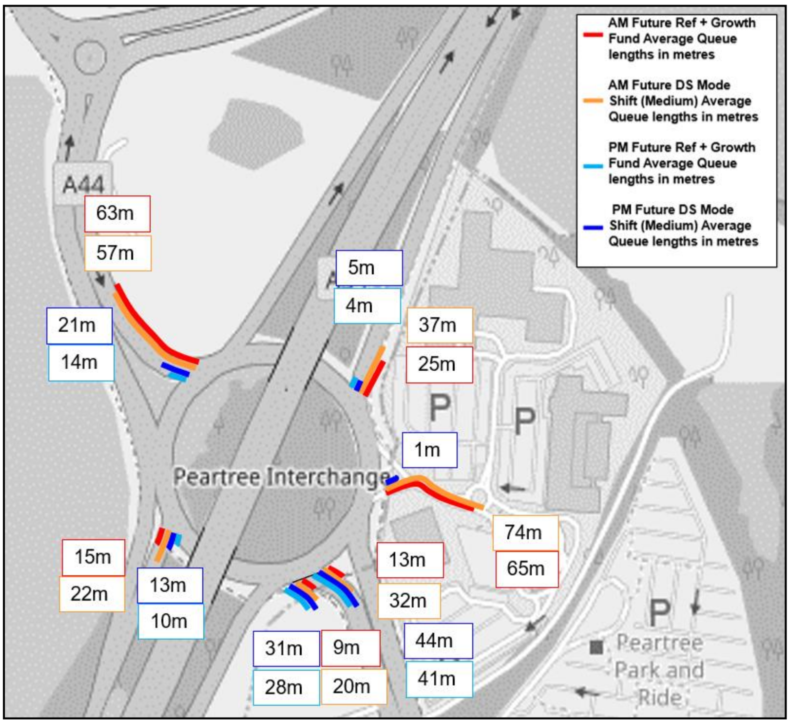
**8.5.30** **Table 8.35** demonstrates that there would be a negligible increase in queue length in the AM peak period at the Peartree Interchange.

**Table 8.36: Peartree Interchange Change in Average Queue Length (m) PM Peak**

| Arm | 15:00-16:00 | | | | 16:00-17:00 | | | | 17:00-18:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A34 South** | 9 | +1 | +1 | +1 | 11 | +2 | +2 | +2 | 10 | +3 | +2 | +2 |
| **A44 Woodstock West** | 10 | +6 | +5 | +6 | 12 | +3 | +4 | +3 | 14 | +10 | +7 | +5 |
| **A34 North** | 5 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 4 | 0 | +1 | 0 |
| **Oxford Peartree Services** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | +1 | +1 | +1 |
| **A44 Woodstock East** | 19 | +2 | 0 | -1 | 39 | +3 | +1 | -6 | 41 | +16 | +2 | -8 |

8.5.31 **Table 8.36** demonstrates that there would be a negligible increase in queue length in the PM peak period at the Peartree Interchange. **Figure 8.8** below illustrates the queue lengths in the AM and PM peak hours.

**Figure 8.8: Peartree Interchange Average Queue Lengths (0800-0900 and 1700-1800)**




### Wolvercote Roundabout

8.5.32 **Tables 8.37** and **8.38** below summarise the forecast change in average queue lengths at Wolvercote roundabout in the AM and PM peak periods respectively.

**Table 8.37: Wolvercote Roundabout Change in Average Queue Length (m) AM Peak**

| Arm | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A44 northern arm** | 19 | -3 | -4 | -3 | 16 | -6 | -6 | -7 | 17 | -5 | -6 | -5 |
| **Five Mile Drive** | 1 | -1 | -1 | -1 | 0 | 0 | 0 | 0 | 1 | 0 | -1 | -1 |
| **A40 eastern arm** | 20 | +43 | +56 | +63 | 45 | +82 | +43 | +13 | 23 | +109 | +33 | +16 |
| **A4144** | 11 | +2 | +1 | -1 | 17 | +5 | +4 | 0 | 12 | +4 | +2 | -2 |
| **Godstow Rd** | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | +6 | 0 | 0 |
| **A40 western arm** | 21 | +6 | +5 | -1 | 35 | +25 | +18 | 0 | 26 | +209 | +95 | +2 |

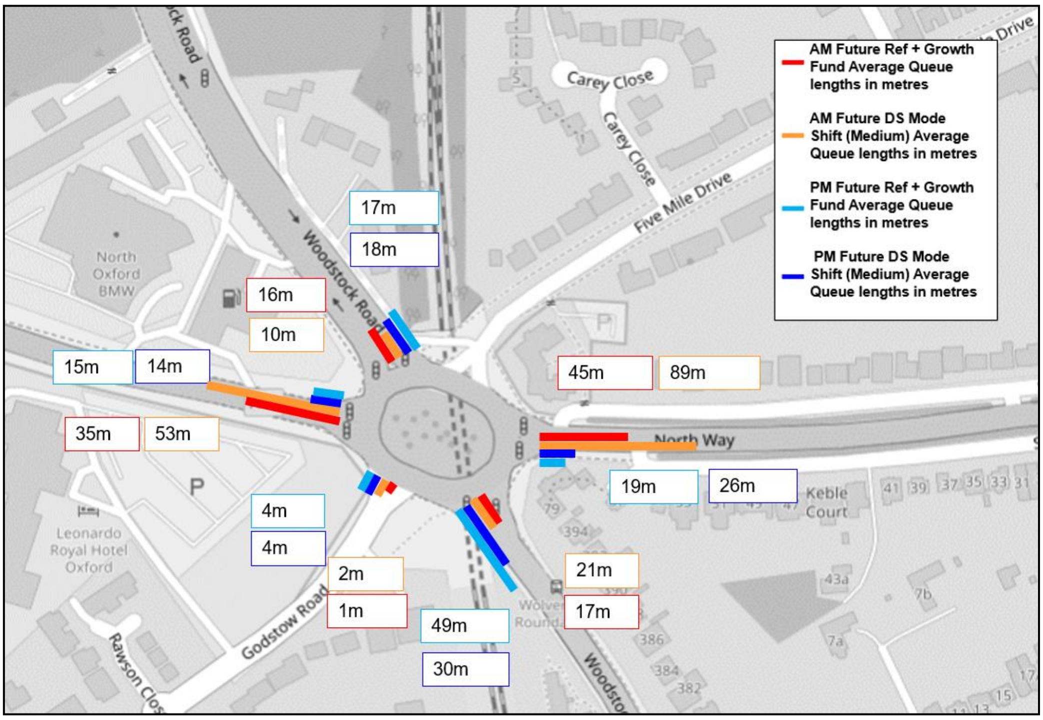
8.5.33 **Table 8.37** demonstrates that there would be a negligible increase in queue length in the AM peak period at the Wolvercote roundabout with the exception of the A40 east and west arms. The model forecasts the A40 eastern arm to experience an increase in queue length ranging from +13m (3 vehicles) to +109m (19 vehicles) depending on the hour and level of mode shift. The model forecasts the A40 western arm to experience an increase in queue length ranging from -1m to +209m (36 vehicles) depending on the hour and level of mode shift. It can be seen that in the hour of 0900-1000 the small difference in mode shift between the low and high scenarios would have a significant effect on queuing on the A40 western arm. The queuing does not result in blocking back to adjacent junctions and only materialises in the "in combination with PR sites" low mode shift scenario in one hour. As such the cumulative impact of the PR sites at this junction is not anticipated to have a severe residual impact or introduce a road safety issue.

**Table 8.38: Wolvercote Roundabout Change in Average Queue Length (m) PM Peak**

| Arm | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A44 northern arm** | 18 | +8 | +8 | +16 | 18 | +7 | +9 | +23 | 17 | -1 | +1 | -3 |
| **Five Mile Drive** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **A40 eastern arm** | 18 | +7 | +6 | +6 | 18 | +7 | +7 | +6 | 19 | +10 | +7 | +7 |
| **A4144** | 26 | -10 | -11 | -12 | 27 | -9 | -8 | -10 | 49 | -22 | -19 | -27 |
| **Godstow Rd** | 1 | +1 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | +1 | +1 | 0 |
| **A40 western arm** | 26 | -2 | +6 | -2 | 52 | -14 | -12 | -21 | 15 | +1 | -2 | -2 |

8.5.34 **Table 8.38** demonstrates that there would be a negligible increase in queue length in the PM peak period at Wolvercote roundabout. **Figure 8.9** below illustrates the queue lengths in the AM and PM peak hours.

**Figure 8.9: Wolvercote Average Queue lengths (0800-0900 and 1700-1800)**




## Cutteslowe Roundabout

8.5.35 **Tables 8.39** and **8.40** below summarise the forecast change in average queue lengths at Wolvercote roundabout in the AM and PM peak periods respectively.

**Table 8.39: Cutteslowe Roundabout Change in Average Queue Length (m) AM Peak**

| Arm | 07:00-08:00 | | | | 08:00-09:00 | | | | 09:00-10:00 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | |
| | | Low | Med | High | | Low | Med | High | | Low | Med | High |
| **A4165 north arm** | 29 | -8 | -11 | -12 | 502 | -376 | -467 | -473 | 27 | +58 | -2 | -7 |
| **A40 east arm** | 16 | 0 | +1 | 0 | 345 | -122 | -239 | -274 | 26 | +6 | -9 | -9 |
| **A4165 south arm** | 4 | +2 | +2 | 0 | 18 | +47 | +15 | -2 | 9 | +515 | +23 | +8 |
| **A40 west arm** | 17 | -5 | -5 | -4 | 36 | -25 | -25 | -24 | 10 | -2 | -2 | -1 |

8.5.36 **Table 8.39** demonstrates that there would be a negligible increase in queue length in the AM peak period at Cutteslowe roundabout with the exception of the A4165 south arm. The modelling forecasts reductions in queues, particularly on the A4165 north arm and A40 east arm.

The queuing in the AM peak is forecast to decrease as there is a reduction in southbound movements due to the mitigations from the IDP package, which is expected to result in more people using other modes than the car. This would reduce the number of vehicles on A4165, which would reduce the number of instances of A40 traffic giving way to A4165 traffic.

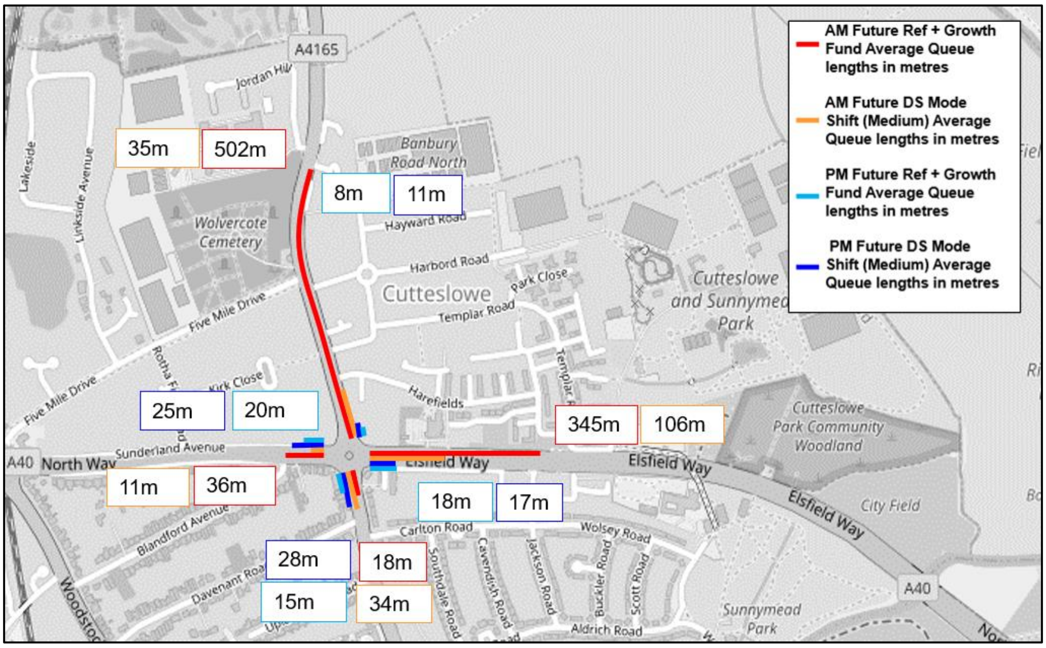
8.5.37 The model forecasts the A4165 south arm to experience an increase in queue length ranging from -2m to +515m (90 vehicles) depending on the hour and level of mode shift. It can be seen that in the hour of 0900-1000 the small difference in mode shift between the low and high scenarios would have a significant effect on queuing on the A4165 south arm. The queuing does not result in blocking back to adjacent junctions and only materialises in the "in combination with PR sites" low mode shift scenario in one hour. As such the cumulative impact of the PR sites at this junction is not anticipated to have a severe residual impact or introduce a road safety issue.

**Table 8.40: Cutteslowe Roundabout Change in Average Queue Length (m) PM Peak**

<table>
<tr><th rowspan="3">Arm</th><th colspan="4">15:00-16:00</th><th colspan="4">16:00-17:00</th><th colspan="4">09:00-10:00</th></tr>
<tr><th rowspan="2">Future Year Ref</th><th colspan="3">Future Year Ref + Begbroke Innovation District + PR sites</th><th rowspan="2">Future Year Ref</th><th colspan="3">Future Year Ref + Begbroke Innovation District + PR sites</th><th rowspan="2">Future Year Ref</th><th colspan="3">Future Year Ref + Begbroke Innovation District + PR sites</th></tr>
<tr><th>Low</th><th>Med</th><th>High</th><th>Low</th><th>Med</th><th>High</th><th>Low</th><th>Med</th><th>High</th></tr>
<tr><td>A4165 north arm</td><td>5</td><td>+2</td><td>+2</td><td>+2</td><td>7</td><td>+3</td><td>+2</td><td>+2</td><td>8</td><td>+4</td><td>+3</td><td>+4</td></tr>
<tr><td>A40 east arm</td><td>19</td><td>-1</td><td>-2</td><td>-1</td><td>17</td><td>0</td><td>0</td><td>-1</td><td>18</td><td>+1</td><td>-1</td><td>0</td></tr>
<tr><td>A4165 south arm</td><td>12</td><td>+2</td><td>-1</td><td>-1</td><td>9</td><td>+6</td><td>+3</td><td>+3</td><td>15</td><td>+22</td><td>+13</td><td>+7</td></tr>
<tr><td>A40 west arm</td><td>19</td><td>+3</td><td>+7</td><td>+5</td><td>21</td><td>0</td><td>+3</td><td>+1</td><td>20</td><td>+6</td><td>+5</td><td>+4</td></tr>
</table>

8.5.38 **Table 8.40** demonstrates that there would be a negligible increase in queue length in the PM peak period at Cutteslowe roundabout. **Figure 8.10** below illustrates the queue lengths in the AM and PM peak hours.

**Figure 8.10: Cutteslowe Roundabout Average Queue lengths (0800-0900 and 1700-1800)**




### Summary

8.5.39 In summary the addition of the PR sites and their mitigation provide an overall negligible impact at junctions within the study area. Where queuing does increase, this is anticipated to be an infrequent occurrence or does not block back to any key junction or is adequately mitigated by the on-going delivery of the Growth Fund works. As a result, it is considered that there will not be a severe residual cumulative impact from a queuing perspective.

### Level of Service

8.5.40 Level of service (LOS) plots provide a qualitative measure of the operation of a junction based on the identified traffic scenarios. The LOS can be predicted as a measure of delay on each arm of the junction or across the junction as a whole. **Table 8.41** below defines the LOS by six levels ranging from level A to level F.

**Table 8.41: Level of Service (LOS) Analysis**

| LoS | Signalised Intersection | Non-Signalised Intersection |
|---|---|---|
| **LOS A** | Delay < 10 s or no volume | |
| **LOS B** | >10s to 20s | >10s to 15s |
| **LOS C** | >20s to 35s | >15s to 25s |
| **LOS D** | >35s to 55s | >25s to 35s |
| **LOS E** | >55s to 80s | >35s to 50s |
| **LOS F** | >80s | >50s |

8.5.41 The peak time operation (08:00-09:00 and 17:00-18:00) has been considered in detail across the junctions contained in the traffic model. A LOS of C or above is unlikely to affect journey reliability and the delay is unlikely to be discernible from daily variations in overall journey times.

8.5.42 The off-site junctions that are forecast to have a LOS of D or below, following the introduction of the package of mitigation, are indicated below. The identified junctions represent those that potentially have a residual highway impact.

8.5.43 The comparison has also identified where the LOS improves following the introduction of the package of mitigation, demonstrating that the development impact has been mitigated. However, the comparison has identified the junctions where the LOS also worsens, and these are identified below in **Table 8.42.**

**Table 8.42: LOS by Junction Comparison**

| Junction | 09:00-09:00 | | | | 17:00-18:00 | | | |
|---|---|---|---|---|---|---|---|---|
| | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | |
| | | Low | Med | High | | Low | Med | High |
| **Loop Farm Roundabout** | C | C | C | C | B | D | D | D |
| **First Turn/Woodstock Road** | C | D | D | C | D | D | D | D |
| **A40 / Eynsham Road / Cassington Road** | D | D | D | D | D | D | E | D |
| **Langford Lane/Banbury Road** | F | E | F | F | C | D | D | D |
| **Banbury Road/Moreton Road** | E | E | E | E | D | E | E | E |
| **B449/Harnborough Road** | C | D | D | D | A | A | A | A |
| **A44 /Sandy Lane Roundabout** | C | F | F | F | C | E | E | D |
| **A44/Begbroke** | A | D | D | D | A | D | D | D |
| **A44/Cassington Road** | B | F | F | F | B | F | F | F |
| **A40/Sunderland Avenue** | D | F | E | D | B | C | C | C |

8.5.44 In order to identify the potential impact of the PR sites, the delay across the individual approach arms at those junctions where the LOS is forecast to worsen has been reviewed, as indicated in **Table 8.43. Table 8.43** summarises the change in delay on each arm of the junctions in the "in combination with PR sites" scenarios compared to the Future Year Reference Case.

**Table 8.43 Change in delay (seconds) at these junctions**

| Junction | Arm | 09:00-09:00 | | | | 17:00-18:00 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | | Future Year Ref | Future Year Ref + Begbroke Innovation District + PR sites | | |
| | | | Low | Med | High | | Low | Med | High |
| **Loop Farm Roundabout** | A44 South arm | 6 | +8 | +11 | +4 | 10 | +5 | +4 | +2 |
| | A44 North-west arm | 19 | +9 | +1 | +1 | 16 | +41 | +45 | +42 |
| | A4260 Frieze Way | 40 | +6 | -10 | -4 | 10 | +2 | +2 | +4 |
| | **Total** | **65** | **+23** | **+2** | **+1** | **36** | **+48** | **+51** | **+48** |
| **First Turn / Woodstock Road** | A4144 North | 12 | +1 | -1 | -2 | 8 | 0 | +1 | 0 |
| | First Turn | 12 | -1 | 0 | -3 | 15 | -4 | -2 | -3 |
| | A4144 South | 30 | +6 | +5 | +3 | 39 | +6 | +6 | +2 |
| | **Total** | **54** | **+6** | **+4** | **-2** | **62** | **+2** | **+5** | **-1** |
| **A40 / Eynsham Road / Cassington Road** | A40 West | 53 | +6 | +3 | -1 | 53 | +1 | +8 | +5 |
| | A40 East | 52 | -9 | -11 | 44 | +5 | +1 | +4 | +2 |
| | Eynsham Rd | 47 | -2 | -2 | -1 | 46 | +2 | +3 | 0 |
| | **Total** | **152** | **-5** | **-10** | **-10** | **148** | **-1** | **+11** | **+2** |
| **Langford Lane/A4260 Banbury Road** | Banbury Rd South | 58 | 0 | +2 | +2 | 23 | 0 | +1 | 0 |
| | Banbury Rd North | 179 | -47 | +16 | +16 | 16 | +2 | +2 | -1 |
| | Langford Lane | 18 | -2 | -2 | -2 | 25 | +29 | +29 | +28 |
| | **Total** | **255** | **-49** | **+16** | **+16** | **64** | **+31** | **+32** | **+30** |
| **A4260 Banbury Road/ Moreton Road** | Marston Ferry Rd | 46 | +4 | +2 | +3 | 51 | +8 | +9 | +4 |
| | Banbury Rd South | 41 | +1 | +1 | +1 | 47 | +3 | +2 | 0 |
| | Banbury Rd North | 113 | -78 | -107 | -33 | 67 | +32 | +22 | +24 |
| | Moreton Rd | 62 | +7 | +2 | +5 | 66 | +13 | +18 | +2 |
| | **Total** | **262** | **-66** | **-32** | **-24** | **231** | **+56** | **+51** | **+30** |
| **B449 / Harnborough Road** | B449 North | 11 | +1 | +3 | +3 | 2 | 0 | 0 | 0 |
| | Harnborough Rd | 47 | +14 | +29 | +34 | 4 | +1 | +1 | +1 |
| | B449 South | 19 | +7 | +12 | +15 | 3 | 0 | 0 | 0 |
| | **Total** | **77** | **+22** | **+44** | **+52** | **9** | **+1** | **+1** | **+1** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **A44/Sandy Lane/Rutten Lane Roundabout** | A44 South | 21 | +100 | +88 | +52 | 16 | +1 | 0 | +1 |
| | A44 North | 30 | +20 | +19 | +22 | 21 | +57 | +41 | +23 |
| | Rutten Lane | 6 | +11 | +8 | +9 | 8 | +3 | +2 | 0 |
| | **Total** | **57** | **+131** | **+115** | **+83** | **45** | **+61** | **+43** | **+24** |
| **A44 / Begbroke Innovation District /PR9** | A44 South | 4 | +39 | +48 | +49 | 5 | +27 | +27 | +27 |
| | A44 Road North | 6 | +46 | +37 | +40 | 6 | +29 | +22 | +19 |
| | Begbroke | 20 | +30 | +30 | +30 | 24 | +108 | +49 | +51 |
| | North Access | - | +41 | +41 | +40 | - | +31 | +32 | +32 |
| | **Total** | **30** | **+156** | **+156** | **+159** | **35** | **+195** | **+130** | **+129** |
| **A44/ Cassington Road** | A44 South | 6 | -1 | -1 | -2 | 4 | -1 | -1 | -1 |
| | A44 North | 18 | +189 | +184 | +135 | 16 | +182 | +188 | +182 |
| | Cassington Road | 11 | -10 | +12 | +12 | 14 | +4 | +3 | +2 |
| | **Total** | **35** | **+198** | **+195** | **+145** | **34** | **+185** | **+190** | **+183** |
| **A40/ Sunderland Avenue** | A40 West | 28 | +25 | +13 | +4 | 14 | +5 | +3 | +3 |
| | Sunderland Avenue | - | - | - | - | - | - | - | - |
| | **Total** | **28** | **+25** | **+13** | **+4** | **14** | **+5** | **+3** | **+3** |

### Loop Farm Roundabout

8.5.45 The results show that in the AM peak hour the model forecasts an increase in total delay at the Loop Farm roundabout of 2 seconds in the "in combination with PR sites" scenario (medium mode shift) compared to the Future Year Reference Case, indicating that the impact of development will be indiscernible. In the PM peak hour the total delay across the junction increases by 51 seconds, with a delay of 45 seconds forecast on the A44 north-west arm in the peak hour period. The increases on A44 south and A4260 Frieze Way arms are negligible.

### First Turn / Woodstock Road

8.5.46 The results show that the model forecasts that the AM and PM peak hours will see an increase in delay of between 4 and 5 seconds across the entire junction in the "in combination with PR sites" scenario (medium mode shift), indicating that the impact of PR sites at this junction will be negligible.

### A40 / Eynsham Road / Cassington Road

8.5.47 In the AM peak hour, the entire junction is forecast to see a decrease in delay in the "in combination with PR sites" scenario (medium mode shift) compared to the Future Year

Reference Case of 10 seconds. In the PM peak hour the junction is forecast to see an increase of 11 seconds in delay in the "in combination with PR sites" scenario (medium mode shift) compared to the Future Year Reference Case.

### Langford Lane/Banbury Road

8.5.48 The total increase in delay at the junction is forecast to be 16 seconds in the AM peak hour and 32 seconds in the PM peak hour in the "in combination with PR sites" scenario (medium mode shift) compared to the Future Year Reference Case. Overall, this is a minimal impact at this junction.

### Banbury Road/Moreton Road

8.5.49 In the AM peak hour, the total delay reduces across the entire junction by 32 seconds in the "in combination with PR sites" scenario (medium mode shift) compared to the Future Year Reference Case. In the PM peak hour, the total delay is forecast to increase across the junction by 51 seconds with the increases predicted on the Banbury Road (north) and Moreton Road arms being 22 and 18 seconds, respectively. The increases in delay on Banbury Road (south) and Marston Ferry Road is negligible. Overall, this is a minimal impact at this junction in the PM peak hour.

### B449/Harnborough Road

8.5.50 The total increase in delay at the junction is forecast to be 44 seconds in the AM peak hour and 1 second in the PM peak hour in the "in combination with PR sites" scenario (medium mode shift) compared to the Future Year Reference Case. In the AM peak hour, the increase in delay is primarily experienced on the Harnborough Road arm, where there is forecast to be a 29 second delay increase. The impact on the other arms is negligible. Overall, there is considered to be a minimal impact on delays at this junction.

### Woodstock Road/Sandy Lane/Rutten Lane Roundabout

8.5.51 There is forecast to be an increase in the total junction delay of 115 seconds in the AM peak hour in the "in combination with PR sites" scenario (medium mode shift) compared to the Future Year Reference Case. In the PM peak the increase in the total delay is forecast to be 43 seconds. There is forecast to be a delay of 88 seconds on Woodstock Road (south) arm in the AM peak hour and the impact across the Woodstock Road (north) arm and Rutten Lane during this period is negligible. In the PM peak hour, there is forecast to be an increase of 41 seconds on Woodstock Road (north). The increase on Woodstock Road (south) and Rutten Lane is negligible.

### Woodstock Road/Begbroke

8.5.52 The total increase in delay at the junction is forecast to be 156 seconds in the AM peak hour and 130 seconds in the PM peak hour in the "in combination with PR sites" scenario (medium mode shift) compared to the Future Year Reference Case. However, there is a maximum of 49 seconds increase in delay on any one arm in the weekday peak hours in the "in combination with PR sites" scenario (medium mode shift), which is not considered to be a severe impact.

#### Woodstock Road/Cassington Road

8.5.53 The total increase in delay at the junction is forecast to be 195 seconds in the AM peak hour and 190 seconds in the PM peak hour in the "in combination with PR sites" scenario (medium mode shift) compared to the Future Year Reference Case. The majority of the delay in the AM and PM peak hours materialises on the A44 northern arm (i.e. southbound movement) as it is at this location that southbound traffic is required to merge from two lanes to one lane.

#### A40/Sunderland Avenue

8.5.54 The total increase in delay at the junction is forecast to be 13 seconds in the AM peak hour and 3 seconds in the PM peak hour in the "in combination with PR sites" scenario (medium mode shift) compared to the Future Year Reference Case, which would have a negligible effect on the junction.

## 8.6 Site Access Capacity Assessment

### Begbroke Hill Access Junction

8.6.1 In addition to the microsimulation modelling, a stand-alone LinSig model has been developed for the Begbroke Hill access to the Begbroke Innovation District. The model includes the proposed alterations to the junction to provide access to the proposed PR9 site as well as the forecast traffic associated with the PR sites. The access improvements are to be brought forward by PR9 as part of their outline planning application.

8.6.2 The proposed modifications to the access being put forward by PR9 align with the PR9 Development Brief (November 2021), which shows a fourth arm being added to the existing A44/Begbroke Hill junction. The consultation responses from OCC on the PR9 application have required direct pedestrian and cycle crossings to be provided across all arms of the A44/Begbroke Hill/PR9 junction in order to provide sustainable connectivity between PR9 and PR8 and minimise the severance of the A44 corridor on local communities.

8.6.3 LinSig is a tool that enables the capacity of a junction to be determined and consider the effects of traffic on that capacity. The model outputs provide queue lengths and delay to traffic. The key metric in respect of capacity is the Practical Reserve Capacity (PRC) of the junction which equates to a percentage, of residual capacity against a practical operation of 90% of capacity.

8.6.4 Degree of Saturation (% Sat) results are available for each arm and each lane at the junction, providing an indication of the capacity of each as an individual link. A degree of saturation of 100% on a link indicates that forecast traffic flows are equal to its capacity on an average day – and hence some instability could be expected on a day to day basis with performance at this level, as traffic volumes fluctuate and vary.

8.6.5 A summary of the LinSig modelling for the Begbroke Hill site access junction with the proposed PR9 modifications are presented in **Table 8.44**. The LinSig output report is provided in **Appendix N**.

**Table 8.44: Begbroke Innovation District Northern Site Access LinSig modelling results**

| Arm | | AM peak hour (0800 to 0900) | | | PM peak (1700 to 1800) | | |
|---|---|---|---|---|---|---|---|
| | | Queue (PCU) | Delay (s/pcu) | DoS (%) | Queue (PCU) | Delay (s/pcu) | DoS (%) |
| **1/1** | A44 North (ahead and left) | 29.6 | 16.3 | 98.6% | 14.9 | 5.3 | 74.8% |
| **1/2** | A44 North (ahead) | 32.9 | 18.1 | 99.1% | 16.2 | 5.8 | 76.1% |
| **1/3** | A44 North (right) | - | - | 99.1% | - | - | 76.1% |
| **2/1** | Begbroke Hill (left) | 3.5 | 2.3 | 44.9% | 10.0 | 6.8 | 81.5% |
| **2/2** | Begbroke Hill (ahead and right) | - | - | 44.9% | - | - | 81.5% |
| **3/1** | A44 South (ahead and left) | 26.5 | 9.4 | 89.5% | 17.5 | 6.6 | 82.4% |
| **3/2** | A44 South (ahead) | 19.3 | 12.4 | 0% | 17.0 | 7.7 | 80.9% |
| **3/3** | A44 South (right) | - | - | 97.9% | - | - | 78.7% |
| **4/1** | PR9 access (left) | 0.6 | 0.4 | 13.6% | 0.3 | 0.1 | 4.9% |
| **4/2** | PR9 access (ahead and right) | - | - | 13.6% | - | - | 0% |
| | | **PRC -10.1%** | | | **PRC 9.3%** | | |

8.6.6 The modelling results indicate that the junction is expected to operate well within capacity during the PM peak hour with a positive PRC. For the AM peak, all arms are forecast to operate with a DoS below 100%. The PRC reflects that several arms are forecast to operate above 90% thereby limiting the reserve capacity, while still operating within theoretical maximum capacity. In accordance with OCC's transport strategy and associated mode shift targets towards sustainable travel, the approach has been to maximise sustainable connectivity across the A44 corridor and manage vehicular demand through the junction but not take a 'predict and provide' approach to junction design.

### Hallam Land Site Access

8.6.7 The Site is also proposed to be accessed from a new signal controlled junction to be delivered by Hallam Land as part of their forthcoming application for residential development, which forms part of the PR8 allocation. OUD has been liaising with Hallam Land during the pre-application stage, including their transport consultant with regards to the junction design and capacity assessment. As part of Hallam Land's outline planning application, their Transport Assessment will include an assessment of the proposed A44 signal controlled site access, which will include traffic generated by the PR8 allocated site as a whole and not just vehicular traffic generated by the Hallam Land proposed development.

## 8.7 Summary

8.7.1 Overall across the modelled peak periods and network, the modelling shows that vehicles are able to travel through the network with latent demand continuing to remain low (i.e. vehicles not able to enter the network).

8.7.2 Across the network the model forecasts a negligible effect on vehicle speed when compared with the Future Reference Case.

8.7.3 Where queuing increases at junctions, this is not of a magnitude that would result in a material effect on the highway network. For example, no junctions are blocked as a result of Begbroke Innovation District in combination with the PR sites and the mitigation coming forward.

8.7.4 Where the Level of Service of junctions has worsened as a result of the in combination effects of Begbroke Innovation District and the PR sites, further assessment has been undertaken on each arm of the junction. The detailed assessment identifies that there are no residual effects which would be considered severe.

8.7.5 The works set out in the IDP of the Local Plan provide the basis for the development of a sustainable transport network which will support the proposed PR sites allocations through limiting the need to travel by car and offering a genuine choice of transport modes in accordance with the NPPF.

8.7.6 A range of mitigation measures included within the IDP have be tested within the model and it is evident that the provision of active travel opportunities and public transport interventions, along with changes in travel behaviour arising from the delivery of enhancements to the sustainable and active travel networks will mitigate the impacts arising from the PR sites.

8.7.7 Given that the modelling undertaken makes no allowance for the ambitious reductions in background traffic set out in the Council's adopted LTCP and therefore the results presented are arguably a 'worst case', it is concluded that subject to the appropriate apportionment of contributions towards the infrastructure identified as being necessary to mitigate the cumulative impact of the PR sites, the Begbroke Innovation District cannot be regarded as having either a severe impact on the highway network or an unacceptable impact on highway safety which would otherwise give rise to grounds for objection in line with paragraph 111 of the NPPF.

# 9 APPROACH TO DECIDE AND PROVIDE

## 9.1 Introduction

9.1.1 OCC's LTCP, adopted in July 2022, outlines a clear vision to deliver a net-zero Oxfordshire transport and travel system by 2040 as well as reducing private vehicle use, and prioritising walking, cycling, and public transport.

9.1.2 In order to achieve this, the LTCP sets out the changes that will be needed to OCC's transport and travel system. This multi-pronged approach sets out the reshaping of the way places are connected, and infrastructure is upgraded and reconfigured in order to achieve these aspirations. The approach includes the forthcoming area transport strategies and transport corridor strategies, OCC's new Parking Standards for New Developments (2022), the OCC Street Design Guide (2021), and a shift from an approach to transport planning characterised as 'predict and provide' towards adopting a 'decide and provide' approach instead.

9.1.3 The recently approved OCC guidance 'Implementing Decide and Provide: Requirements for Transport Assessments' (September 2022) sets out how the transport assessment process needs to be adapted to help facilitate the 'decide and provide' approach, but also recognises that this is only one part of working towards and adopting this new approach to transport planning. The OCC guidance is broken down into three subsections:

- Part One - Guiding Principles;
- Part Two - Transport Modelling, Evidencing Trip Rates, and Document Updates; and
- Part Three - Implementing 'Decide and Provide' within Transport Assessments.

9.1.4 This section of the TA summarises how the proposed development and associated transport strategy and impact assessment accords with OCC's 'decide and provide' guidance.

## 9.2 Compliance with the Decide and Provide Guidance

### Part One – Guiding Principles

9.2.1 The OCC Decide and Provide guidance sets out that:

*'… the 'decide and provide' approach to transport planning decides on a preferred vision of the future and then provides the means to work towards that whilst also accommodating uncertainty about the future. This offers the opportunity for more positive transport planning and will help to implement the LTCP transport user hierarchy by considering walking, cycling and public transport upfront.*

*9.2.2 This approach is captured in LTCP Policy 36 (2022a, p.106), which states that: We will:*

*a. Only consider road capacity schemes after all other options have been explored.*

*b. Where appropriate, adopt a decide and provide approach to manage and develop the county's road network.*

*c. Assess opportunities for traffic reduction as part of any junction or road route improvement schemes.*

*d. Require transport assessments accompanying planning applications for new development to follow the County Council's 'Implementing 'Decide & Provide': Requirements for Transport Assessments' document.*

*e. Promote the use of the 'decide and provide' approach in planning policy development to support site assessment'*

9.2.3 The guidance sets out that planning policy supports the 'decide and provide' approach, including National Planning Policy Framework (NPPF), local plans for the districts of Oxfordshire and the Oxfordshire LTCP.

9.2.4 The traffic modelling undertaken for the proposed development and the cumulative impacts of the PR sites supports the approach of considering walking, wheeling, cycling and public transport ahead of any capacity improvements.

### Part Two – Transport Modelling, Evidencing Trip Rates, and Document Updates

9.2.5 This part of the Decide and Provide guidance sets out the assumptions that should be made for:

- permitted, committed, and planned growth;
- the suitability of various evidentiary sources;
- the consideration of the long-term effects of Covid-related transport impacts;
- the relationship between car parking provision and trip rates;
- the applicability of the car trip reduction targets in the LTCP;
- how this document should inform the evidence base for local plans; and
- the requirement for periodic updates to the document.

9.2.6 With regards to permitted, committed and planned growth, the guidance states that *"a scoping exercise will need to be undertaken to ensure that transport assessments (and transport statements) take appropriate account of permitted, committed, and planned growth which will generate traffic impacts on the area of the highway network also impacted by the proposed development."*

9.2.7 OUD and the PR sites have engaged with OCC over a number of years to agree the scope of the modelling including the model software, study area and assumptions for permitted, committed and planned growth.

9.2.8 With regards to evidence sources, the Forecasting Note and Forecast Capping Note included in **Appendices J** and **K** set out the proposed approach to traffic growth for the Future Year Reference Case based on various sources of evidence, including historic traffic data, housing projections and NTEM. The active travel and public transport mode shift assumptions set out in the Mode Shift Note included in **Appendix L** align with the infrastructure set out in Appendix 4 of the Partial Review Local Plan and provide a scenario which shows how the PR site interventions are likely to help towards OCC reaching their LTCP targets. Likewise, the trip rates and modal share for the proposed development have been based on TRICS data, local Census data, the destination of trips and ability to access facilities by active travel and public transport, both now and in the future, as well as future travel habits.

9.2.9 With regards to Covid related transport effects, the historic traffic trends analysis that has informed the traffic growth did not include traffic data during the Covid pandemic and therefore any traffic effects of the pandemic have not been accounted for by the traffic modelling.

9.2.10 With regards to the relationship between car parking and trip rates, providing car and cycle parking in line with the latest OCC 'Parking Standards for New Developments' (2022) will form part of the wider transport strategy for the proposed development to encourage modal shift by providing improvements to sustainable and active modes, demand management measures, and master planning.

9.2.11 The LTCP includes the following targets for replacing or removing car trips across the County:

9.2.12 By 2030:

- Replace or remove 1 out of every 4 current car trips in Oxfordshire.
- Increase the number of cycle trips from 600,000 to 1 million cycle trips per week: and
- Reduce road fatalities or life changing injuries by 50%.

9.2.13 By 2040:

- Deliver a net-zero transport network; and
- Replace or remove an additional 1 out of 3 car trips in Oxfordshire.

9.2.14 By 2050:

- Deliver a transport network that contributes to a climate positive future; and
- Have zero, or as close as possible, road fatalities or life-changing injuries.

9.2.15 The LTCP mode shift targets have not been included in the traffic modelling for the proposed development and cumulative impact assessment of the PR sites. If the LTCP targets are realised (i.e., 25% mode shift away from the car by 2030) through a wider set of interventions currently being planned by the County, then the network will operate significantly better than predicted through the modelling that is summarised in Section 8 of this TA. It is OUD's intention that the development should be sustainable, and it will work with the authorities to seek to achieve these objectives, and, in this context, the assessment set out in this TA should be considered a worst case assessment, of the highest likely traffic impact scenario that could be envisaged from the development, always assuming that OCC's policy position is realised.

### Part Three: Implementing 'Decide and Provide' within Transport Assessments

9.2.16 Part three of the 'decide and provide' guidance identifies three stages - identifying accessibility characteristics; scenario testing; and monitoring and managing outcomes.

#### Identifying accessibility characteristics

9.2.17 The proposed development site has been allocated based on its existing and future sustainable characteristics and is therefore well located to existing settlements and facilities. The proposed development will bring forward a range of facilities and measures, both internally and externally which will facilitate internalisation of trips, reducing the need to travel and ensure that as many residual trips as possible are catered for by active travel and public transport modes.

#### Scenario testing

9.2.18 The 'decide and provide' guidance requires scenario testing to be undertaken. Separate to the VISSIM modelling exercise summarised in Section 8 of this TA, alternative scenarios, which include the PR sites, have been tested within the following workstreams:

- The strategic modelling work which supported the Partial Review Local Plan, and which identified the infrastructure package included within Appendix 4. This modelling was based on highly robust trip rates, which did not consider aspects such as mode shift or internalisation of trips. It also included traffic growth in background traffic and committed developments; and
- Additional strategic modelling which is currently being undertaken by OCC to test implications of the LTCP and implementation of the Central Oxfordshire Travel Plan.

9.2.19 As part of the VISSIM modelling exercise summarised in Section 8 of this TA, a number of scenarios have been tested. Scenario testing has been undertaken on the level of mode share that may be achieved for the background traffic as a result of the proposed infrastructure being brought forward to the north of Oxford (i.e. low, medium and high mode shift scenarios).

#### Monitoring and managing outcomes

9.2.20 The OCC 'decide and provide' guidance requires a Monitoring and Evaluation Plan (MEP) to be secured and implemented through the Travel Plan as part of the S106 agreement.

9.2.21 In accordance with the guidance, the MEP will record how the trip generation and mode share of the site evolves over time. The survey specification will need to be agreed with OCC and should employ the TRICS Standard Assessment Methodology or similar.

9.2.22 The proposed development is committed to monitoring trips into and out of the Site over a number of years through an MEP, secured through the Travel Plan.

# 10 SUMMARY AND CONCLUSIONS

## 10.1 Summary

10.1.1 KMC is appointed by OUD to provide transport advice and prepare supporting technical documentation to accompany the outline planning application relating to the proposed development of Begbroke Innovation District.

10.1.2 The land owned by OUD, which forms part of this outline application for Begbroke Innovation District, forms the vast majority of the PR8 allocation within the Partial Review Local Plan. OUD has coordinated with the adjoining PR8 land owners to ensure that the PR8 proposals are brought forward on a comprehensive basis, especially with regard to transport infrastructure and connectivity.

10.1.3 It is proposed to develop a residential-led mixed used development, which will include up to 215,000 sqm of residential floorspace (which has been equated to circa 1,800 homes for the purposes of this assessment), up to 155,000 sqm of flexible employment uses and supporting social, retail, leisure and community uses, including two primary schools, a secondary school and local centre.

10.1.4 Strategic scale development of this size has significant advantages in transport terms. Achieving a critical mass of people means that services, facilities and leisure opportunities can be provided on site meaning a significant amount of travel will only need to occur within the Site itself. Likewise, the proposed mix of housing and jobs provides the opportunity for people to live and work within walking distance.

10.1.5 The development is supported by a comprehensive sustainable transport strategy. OUD's plans for Begbroke Innovation District are to take a long-term, high-quality approach to placemaking.

10.1.6 The parameters that have been assessed, and which will be used to develop a future masterplan for the Site, seek to reduce the need to use a car and provide a strong foundation for pedestrian, wheeling, cycle and public transport connectivity across the site. Pedestrians, wheelers and cyclists will be afforded with a permeable and high-quality network of routes. It will be easier to walk or cycle through the site than by any other mode of transport. Low speed roads will connect into a network of 'living streets', which will provide space for play, recreation and biodiversity.

10.1.7 Pedestrian and cycle improvements are proposed to link Begbroke Innovation District with the surrounding communities of Yarnton, Begbroke and Kidlington as well as to Oxford Parkway and to Oxford city. New pedestrian crossings are proposed across the A44 and off-site improvements to active travel infrastructure along the A44 and A4260 corridors is proposed to be jointly funded by the PR sites and other committed developments. In accordance with part 13 of Policy PR8, land has also been safeguarded in the southeast of the Site to provide for a future canal bridge that would connect to land at Stratfield Farm (allocated by Policy PR7b). Detailed proposals would be prepared in consultation with the third-party landowner(s), the Canal and

Rivers Trust, CDC and OCC at a future date. The intention would be to deliver a high quality connection through to Oxford Parkway.

10.1.8 The Council's Local Plan policy requires Sandy Lane to be closed to through vehicular traffic to become for pedestrians, wheeling and cycling only. Network Rail are proposing to install a ramped cycling and pedestrian bridge in its place. OUD has been working closely with Network Rail to explore the potential for delivering a bridge over the railway that would replace the level crossing, and provide connectivity for cyclists, pedestrians and public transport vehicles. This work with Network Rail is ongoing and as such does not form part of this Application. Land has been safeguarded, however, to ensure that such a bridge could be delivered in the future.

10.1.9 Oxfordshire County Council is seeking to bring forward a mobility hub at Oxford airport, which is intended to intercept traffic from further north along the A44 and offer users a range of sustainable transport modes to complete journeys into the Oxford conurbation area. It is proposed for the existing S3 bus service to be increased to 4 buses per hour in each direction and for the route to run directly along the A44 without diverting through Yarnton. In addition, a new bus route is proposed, which is expected to serve Yarnton, Begbroke Innovation District and Oxford Parkway. The improvements to the bus services are expected to be jointly funded by the PR sites and other committed development in the area, through financial contributions set out in S106 Agreements.

10.1.10 There is currently no bus service between Yarnton and Kidlington and therefore, as part of the Begbroke Innovation District, it is proposed to provide a community bus service between Yarnton, Begbroke Innovation District and Kidlington.

10.1.11 In accordance with policy, the Control Documents, and any subsequent masterplan that is developed, will safeguard land for a potential railway station to come forward in the future. Whilst a railway station does not form part of the outline planning application, OUD will continue to engage with Network Rail and the Department for Transport on the potential for a railway station as the development progresses.

10.1.12 These transport improvements will benefit residents, employees and visitors of the proposed development as well as the wider community and enable more trips to be made by sustainable modes.

10.1.13 To assess the cumulative impacts of the PR sites, OCC requested that the North Oxford VISSIM model be used to identify the impacts of the PR sites and test the infrastructure interventions identified in the IDP. The North Oxford VISSIM model is a micro-simulation model representing a large study area. The model is primarily formed of four key corridors including a 7 km section of the A34 corridor, an 11 km section of the A40 corridor, an 11 km section of the A44-A4144 corridor and a 12 km section of the A4260-A4165 corridor.

10.1.14 The assessment of the proposed development and cumulative PR site impacts is in accordance with OCC's 'decide and provide' guidance, whereby the transport vision for the proposed development has been set out alongside an evidence base for multi-modal trip generation, distribution and traffic growth. A range of scenarios have been tested on the level of mode share that may be achieved for the background traffic as a result of the proposed infrastructure being brought forward to the north of Oxford.

## 10.2 Conclusions

10.2.1 Appendix 3 of OCC's adopted LTCP sets out guidance for new developments to complement the 'decide and provide' approach. **Table 10.1** below demonstrates the compliance of the proposed development with the OCC guidance on 'Connectivity between new developments and existing settlements.'

**Table 10.1: Compliance with LTCP Guidance on Connectivity between New Developments and Existing Settlements**

| Objective | Approach to meeting objective within Begbroke Innovation District |
|---|---|
| Plan at an early stage and deliver direct and safe connections which prioritise access on foot, bike or bus to/from neighbouring settlements and places of employment, retail, education and leisure facilities. This includes improving existing cycling and walking infrastructure that link the development to neighbouring communities and avoid severance, particularly where communities are located next to major roads. | The pedestrian, wheeling and cycle network within the development provides links to the surrounding communities. Funding is to be provided by the PR sites and other committed development towards active travel improvements to the A44 and A4260 corridors. New active travel crossings will be provided across the A44 as part of these improvements. |
| Roads and junctions (including signals and roundabouts) connecting to developments need to prioritise walking, cycling and public transport from the outset so that there is sustainable access for residents and businesses. | The proposed accesses to the development prioritise sustainable travel to improve connectivity across and along the A44. Bus priority measures are also proposed along the A44 corridor. |
| New roads and junctions need to be futureproofed in line with the Innovation Framework. | As part of the Reserved Matters applications, OUD will consult with OCC with regards to the design of infrastructure and safeguarding for innovation. |
| New roads should be designed in accordance with DfT's 'Manual for Streets', Oxfordshire County Councils Street Design Guide and Oxfordshire County Councils Walking and Cycling Design Guides. | As part of the Reserved Matters applications the streets will be designed in accordance with Manual for Streets and OCC guidance. |
| New streets should be designed in accordance with the Healthy Streets Approach, LTN 120 and the Department for Transports Inclusive Mobility. | As part of the Reserved Matters applications the streets will be designed in accordance with Healthy Streets, LTN1/20 and Inclusive Mobility as well as Active Travel England Design Principles. |
| Implement traffic calming measures including 20 mph limits on sustainable routes to new developments to ensure safety. | Joint funding by the PR sites and other committed developments is to be secured through S106 Agreements to implement a package of sustainable transport infrastructure improvements along the A44 and A4260 corridors, which will seek to induce a mode shift towards active travel and public transport. |

| | |
|---|---|
| Excellent access to interchanges with other transport networks such as rail and park and ride hubs need to be designed and delivered early in the development. | A mobility hub is proposed within the local centre to be provided as part of the proposed development. In addition, land has also been safeguarded in the southeast of the Site to provide for a future canal bridge that would connect to land at Stratfield Farm (allocated by Policy PR7b. Detailed proposals would be prepared in consultation with the third-party landowner(s), the Canal and Rivers Trust, CDC and OCC at a future date. The intention would be to deliver a high quality connection through to Oxford Parkway railway station. |
| Plan ahead for future sustainable links where there are potential development extensions. | The transport strategy has sought to future proof and safeguard for future sustainable links. For example:<br><br>- The Development Specification safeguards for a potential railway station at Begbroke Innovation to come forward in the future, and this safeguarding would need to be a part of any future masterplan for the Site that was developed.<br><br>- OUD has been working closely with Network Rail to explore the potential for delivering a bridge over the railway that would replace the level crossing, and provide connectivity for pedestrians, wheelers, cyclists and public transport. This work with Network Rail is ongoing and does not form part of this Application. This would provide a multi-modal interchange with the potential railway station, should it come forward in the future.<br><br>- The Development Specification provide for a walk, wheeling and cycle bridge over the canal to connect to PR7b. Consideration is also being given to the potential for the bridge to accommodate public transport to connect to Oxford Parkway and onwards to the city centre. |
| Consider measures for deliveries to be deployed in a sustainable way e.g. freight consolidation to reduce impacts of larger vehicles in residential areas. | The Framework Delivery and Servicing Management Plan sets out the approach to manage servicing throughout the Site. |

10.2.2 **Table 10.2** below demonstrates the compliance of the proposed development with the OCC guidance on ‘Connectivity within the new development’, ‘access to local facilities, services and employment’, ‘access to communal spaces, including green or blue spaces.’

**Table 10.2: Compliance with LTCP Guidance for within the New Developments**

| Objective | Approach to meeting objective within Begbroke Innovation District |
|---|---|
| **Connectivity within the new development** | |
| Comprehensive networks for cycling, walking and public transport which offer direct, continuous and uninterrupted routes to facilities need to be delivered in Phase 1 of the development. | The Control Documents require the provision of green corridors within each neighbourhood within the proposed development, which would provide an off-road active travel route to connect to the local centre. In addition, a permeable and high quality network of walk, wheeling and cycle routes will be provided throughout the Site. |
| Spatial planning should aim to deliver well connected, walkable 20-minute neighbourhoods with facilities within the development that reduce the need for travel. | All residents will live well within 20 minutes' walk of all local facilities provided within the proposed development, including the local centre, community facilities, schools and mobility hub. |
| Walking and cycling routes should be safe (consider surveillance, sight lines, lighting, segregation), convenient (consider directness, design speeds, minimise need to stop or divert), well landscaped, and designed to provide an inclusive street environment that meets the needs of people from early to later life. | Low speed roads will connect into a network of 'living streets', which will provide space for play, recreation and biodiversity. |
| Wayfinding should be installed to promote movement on foot/by bike and needs to be designed to encourage residents to use active travel for short trips. | The Strategic Design Guide requires all parts of the urban landscape within the Site legible and easy to navigate through. Wayfinding will be installed to further support the active travel strategy for the Site. |
| Filtered permeability and low traffic neighbourhoods should be included, making cycling and walking routes more direct and attractive than using a car. | Filtered permeability will be provided as part of the development through measures including:<br>- the proposed green corridors through the neighbourhood;<br>- the bus gate adjacent to Central Park to provide a continuous sustainable travel route through the Site; and<br>- provision for sustainable travel only over the railway and canal. |
| Ensure the needs of those walking, including older or disabled residents, are fully considered, such as the need for shade and shelter (e.g. trees), gradients and seating for rest on the way. | Infrastructure within the Site will be designed in accordance with relevant standards for inclusive mobility, including appropriate gradients of routes, provision of step free access and rest areas in the shade. |
| Provide mobility hubs in a range of locations and sizes in order to improve interchange opportunities, connectivity and accessibility. | A mobility hub is proposed to be provided within the local centre. |
| Walking and cycling infrastructure should be designed to deliver LCWIP targets for modal shift | Tables 4.1 and 4.2 of this TA summarise the Kidlington LCWIP measures. Many of these improvements are either being incorporated into the masterplans for the PR sites or are included in the IDP in Appendix 4 of the |

| | |
|---|---|
| | Partial Review Local Plan, which is proposed to be funded by the PR sites. |
| **Access to local facilities, services and employment** | |
| Create easy access on foot/by bike to facilities within and close to the development that enable social interaction and reduce the need to travel. | A network of active travel routes is proposed through the Site, which would link the neighbourhoods to proposed local amenities. |
| Provide effective digital connectivity to enable home working and include flexible work/office space. | Provision will be made for virtual mobility as part of the proposed development to not only enable people to work flexibly but also to enable other activities to be undertaken virtually to reduce the need to travel. |
| Cycle parking that meets our best practice requirements (Appendix 5) and considers different users and types must be built into all new developments as the first consideration so that it is at least as easy to use a cycle as use a car. | Cycle parking will be provided in accordance with OCC minimum standards and for a range of types of cycles, including cargo bikes. |
| Parking should be provided in accordance with Oxfordshire County Councils parking standards. | Car parking will be provided in accordance with the maximum OCC standards. |
| Developments should be designed so that pavement parking does not occur. | A Controlled Parking Zone will be implemented in accordance with OCC guidance as part of Reserved Matters applications. |
| Where car parking is provided, an effective network of EV charging should be included following standards set out in OEVIS and access provided to an electric car club. | EV charging will be provided in accordance with OCC parking standards. |
| Provide suitable parking for motorcycles that meets our best practice requirements. | Motorcycle parking will be provided in accordance with relevant standards. |
| Limit car spaces for each household, including consideration of car free developments and encourage provision of well-designed parking courtyards with good surveillance. | A network of 'living streets' are proposed to be provided, which will consolidate parking to the end of the street and provide space for play, recreation and biodiversity. |
| Consider the allocation of visitor parking spaces that can be used flexibly during the master planning stage. | As part of the Reserved Matters applications the approach to visitor parking will be agreed with OCC. |
| Restrict non-residential parking to a minimum, consider implementation of complementary parking restrictions and design so that they can be easily repurposed for other uses. | As part of the Reserved Matters applications the approach to employment parking provision will be agreed with OCC, which will consider the potential for employment parking to be repurposed over time as travel behaviour changes. |
| Provide frequent, reliable and easily accessible public transport to local facilities, employment and nearby town centres. | A mobility hub is proposed within the development. Improvements to existing and new bus services are proposed to be jointly funded by the PR sites, which will serve the proposed development. |
| Create a positive bus environment, including real-time information at stops, accessible, safe and well-lit bus shelters which facilitate modal interchange by providing cycle parking at key bus stops. | A mobility hub is proposed within the development within the vicinity of the local centre, which will provide high quality bus facilities and facilitate modal interchange. |

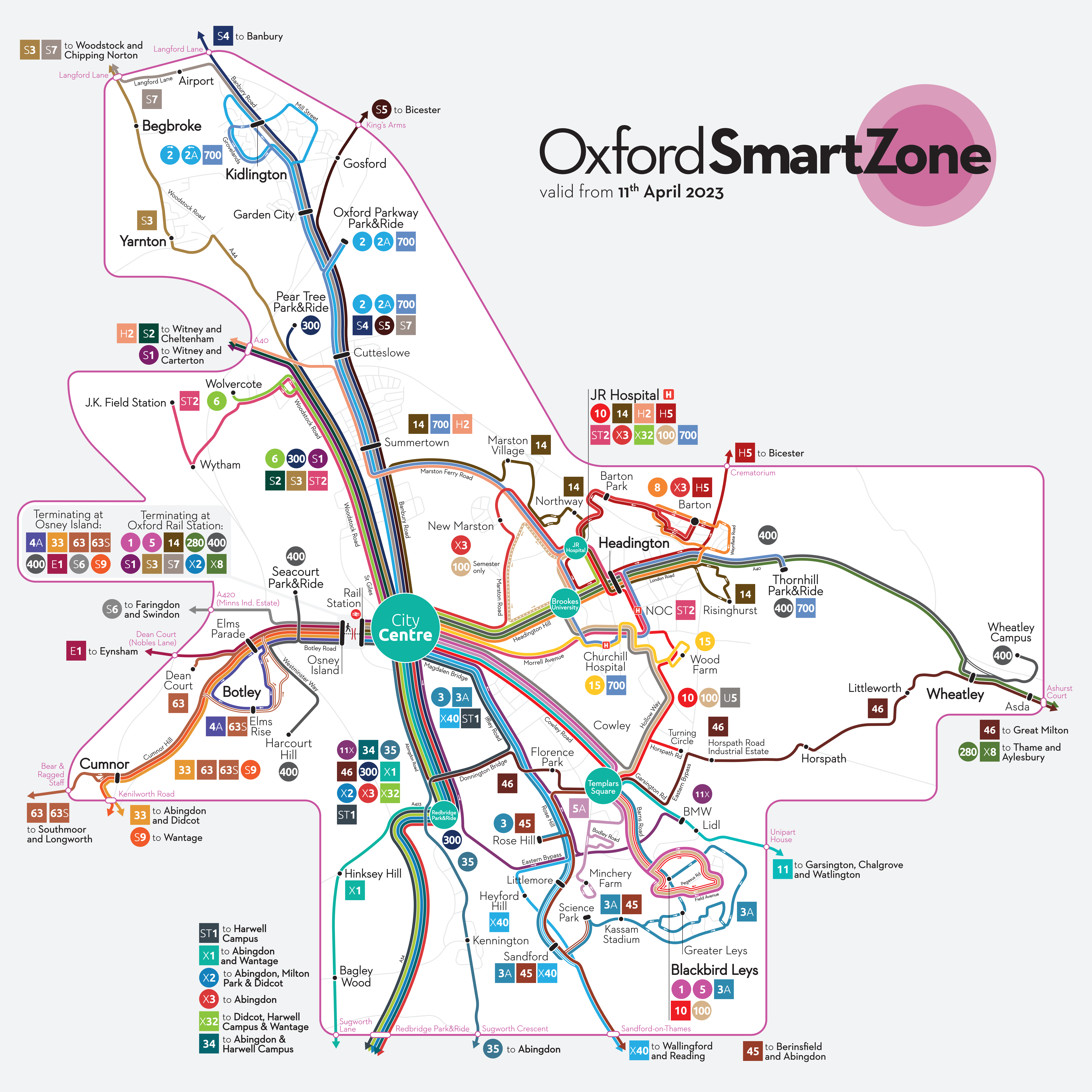
10.2.3 In conclusion, this TA has assessed the potential transport impacts of the development parameters that have been defined for the Site as part of the outline planning application. It demonstrates that the proposed development provides the opportunity for more positive and integrated transport and land use planning through the implementation of a meaningful transport modal hierarchy. It sets out how people travelling within, to and from the Site will be able to meet their mobility needs through healthier, higher capacity and sustainable ways.

10.2.4 The assessment has demonstrated that, with the implementation of a package of sustainable measures, traffic convenience will remain broadly similar when comparing the forecast situation "with development" to the future baseline situation without it. The network will remain less convenient during the commuter peak compared with otherwise, with some roads potentially experiencing longer journey times but congestion and vehicle speeds across the network as a whole will remain broadly the same as without the development. Bus priority measures will ensure that buses are not impacted by peak period congestion and this will become an attractive and reliable form of transport.

10.2.5 Given that the assessment undertaken makes no allowance for the ambitious reductions in background traffic set out in the Council's adopted LTCP and therefore the results presented are arguably a 'worst case', it is concluded that subject to the appropriate apportionment of contributions towards the infrastructure identified as being necessary to mitigate the cumulative impact of PR development, the Begbroke Innovation District cannot be regarded as having either a severe impact on the highway network or an unacceptable impact on highway safety which would otherwise give rise to grounds for objection in line with paragraph 111 of the NPPF.

# Appendix A

## Map of Bus Network



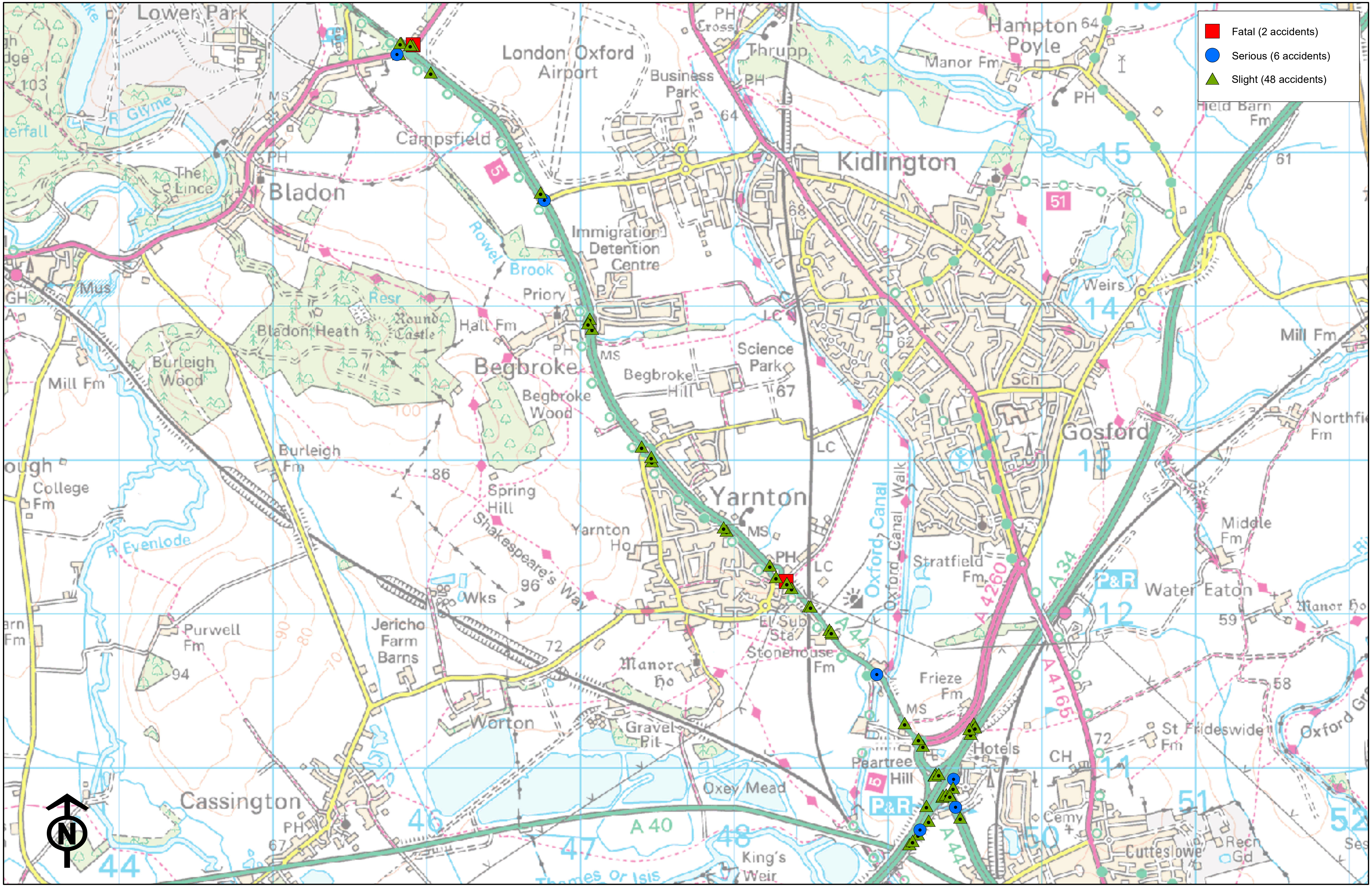
Oxford SmartZone
valid from 11th April 2023
S4 to Banbury
S3 S7 to Woodstock and Chipping Norton
Langford Lane
Airport
S7
Begbroke
2 2A 700
Kidlington
Banbury Road
Mill Street
Grovelands
S5 to Bicester
King's Arms
Gosford
Woodstock Road
S3
Yarnton
Garden City
Oxford Parkway Park&Ride
2 2A 700
A44
Pear Tree Park&Ride
300
2 2A 700
S4 S5 S7
H2 S2 to Witney and Cheltenham
S1 to Witney and Carterton
A40
Cutteslowe
Wolvercote
J.K. Field Station
ST2
6
Wytham
14 700 H2
Summertown
6 300 S1
S2 S3 ST2
Marston Village
14
Marston Ferry Road
JR Hospital H
10 14 H2 H5
ST2 X3 X32 100 700
H5 to Bicester
Crematorium
Barton Park
14
Northway
8 X3 H5
Barton
Terminating at Osney Island:
4A 33 63 63S
400 E1 S6 S9
Terminating at Oxford Rail Station:
1 5 14 280 400
S1 S3 S7 X2 X8
New Marston
X3
100 Semester only
Headington
400
JR Hospital
Windmill Road
A40
London Road
Thornhill Park&Ride
400 700
14
Risinghurst
400
Seacourt Park&Ride
Rail Station
St Giles
Marston Road
Brookes University
NOC ST2
City Centre
S6 to Faringdon and Swindon
A420 (Minns Ind. Estate)
Elms Parade
Botley Road
Osney Island
Headington Hill
Dean Court (Nobles Lane)
E1 to Eynsham
Dean Court
63
Botley
Westminster Way
Morrell Avenue
Churchill Hospital
15 700
15
Wood Farm
Wheatley Campus
400
Magdalen Bridge
3 3A
X40 ST1
4A 63S Elms Rise
Harcourt Hill
400
Cumnor Hill
10 100 U5
Cowley
Hollow Way
Cowley Road
Iffley Road
Littleworth
46
Wheatley
Asda
Ashurst Court
Bear & Ragged Staff
Cumnor
33 63 63S S9
11X 34 35
46 300 X1
X2 X3 X32
ST1
Abingdon Road
Turning Circle
Horspath Rd
46
Horspath Road Industrial Estate
Horspath
46 to Great Milton
280 X8 to Thame and Aylesbury
Kenilworth Road
63 63S to Southmoor and Longworth
33 to Abingdon and Didcot
S9 to Wantage
Florence Park
Donnington Bridge
46
Templars Square
Garsington Rd
Eastern Bypass
11X
BMW
Lidl
Unipart House
11 to Garsington, Chalgrove and Watlington
A423
Redbridge Park&Ride
300
35
3 45
Rose Hill
Rose Hill
5A
Barns Road
Bodley Road
Eastern Bypass
Hinksey Hill
X1
Littlemore
Minchery Farm
Pegasus Rd
Field Avenue
Heyford Hill
X40
Science Park
3A 45
Kassam Stadium
3A
Kennington
Sandford
3A 45 X40
Greater Leys
Blackbird Leys
1 5 3A
10 100
ST1 to Harwell Campus
X1 to Abingdon and Wantage
X2 to Abingdon, Milton Park & Didcot
X3 to Abingdon
X32 to Didcot, Harwell Campus & Wantage
34 to Abingdon & Harwell Campus
Bagley Wood
A34
Sugworth Lane
Redbridge Park&Ride
Sugworth Crescent
35 to Abingdon
Sandford-on-Thames
X40 to Wallingford and Reading
45 to Berinsfield and Abingdon

# Appendix B

## Personal Injury Collision Data

**OXFORDSHIRE COUNTY COUNCIL - ENVIRONMENT & PLACE**

accidents between: 01/01/2018 - 16/04/2023






date drawn: 26/04/2023
drawn by: CJM

approx. map centre:
easting: 447704, northing: 213112

OXFORDSHIRE COUNTY COUNCIL

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Tuesday 16/01/2018 Time 0818 Slight at A44 NORTHBOUND J/W A44 PEARTREE RBT/A34 SBOUND SLIP RD GOSFORD
E: 449353 N: 210812 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Motorcycle over 500cc Moving from SE to S Turning left
Vehicle Reference 2 Pedal Cycle Moving from N to SE Starting
Casualty Reference: 1 Age: 44 Male Driver/rider Severity: Slight Injured by vehicle: 2

Friday 19/01/2018 Time 1708 Slight at SERVICE RD J/W BP GARAGE ADJACENT TO A44 WOODSTOCK RD YARNTON
E: 447949 N: 212543 Junction Detail: 8 Control 4
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Goods 3.5 tonnes mgw and under Moving from N to S Turning right
Casualty Reference: 1 Age: 32 Female Pedestrian Severity: Slight Injured by vehicle: 1

Tuesday 23/01/2018 Time 0745 Slight at A44 PEARTREE RBT J/W A34 NBOUND ENTRY SLIP ROAD GOSFORD
E: 449309 N: 210962 Junction Detail: 1 Control 3
Raining without high winds Road surface Wet/Damp Daylight
Vehicle Reference 1 Car Moving from N to SE Going ahead other
Vehicle Reference 2 Car Moving from N to SE Going ahead but held up
Casualty Reference: 1 Age: 35 Female Driver/rider Severity: Slight Injured by vehicle: 2

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Tuesday 30/01/2018 Time 0830 Slight at A34 SBOUND ENTRY SLIP ROAD APPROACH TO A34 SBOUND MAIN CWAY AT A34 PEARTREE INTERCHAI
E: 449263 N: 210657 Junction Detail: 5 Control 4
Fine without high winds Road surface Dry Daylight

| | | | | | |
|---|---|---|---|---|---|
| Vehicle Reference 1 | Car | Moving from NE to S | Going ahead other | | |
| Vehicle Reference 2 | Car | Moving from NE to S | Going ahead but held up | | |
| Casualty Reference: 1 | Age: 19 | Male | Driver/rider | Severity: Slight | Injured by vehicle: 2 |

Friday 22/06/2018 Time 1645 Slight at A44 NBOUND CWAY APPROX 150M NW OF J/W A44 / A4260 LOOP FARM RBT GOSFORD
E: 449106 N: 211292 Junction Detail: 0 Control
Fine without high winds Road surface Dry Daylight

| | | | | | |
|---|---|---|---|---|---|
| Vehicle Reference 1 | Car | Moving from N to SE | Going ahead other | | |
| Casualty Reference: 1 | Age: 24 | Male | Driver/rider | Severity: Slight | Injured by vehicle: 1 |
| Vehicle Reference 2 | Car | Moving from SE to N | Going ahead other | | |
| Casualty Reference: 2 | Age: 27 | Female | Driver/rider | Severity: Slight | Injured by vehicle: 2 |

Monday 30/07/2018 Time 1129 Slight at A34 SBOUND J/W A34 SBOUND AT MP87/6B ENTRY SLIP RD AT PEARTREE INTERCHANGE GOSFO
E: 449194 N: 210568 Junction Detail: 5 Control 4
Fine without high winds Road surface Dry Daylight

| | | | | | |
|---|---|---|---|---|---|
| Vehicle Reference 1 | Car | Moving from NE to S | Stopping | | |
| Vehicle Reference 2 | Goods 3.5 tonnes mgw and under | Moving from NE to S | Stopping | | |
| Vehicle Reference 3 | Car | Moving from NE to S | Stopping | | |
| Vehicle Reference 4 | Car | Moving from NE to S | Stopping | | |
| Casualty Reference: 1 | Age: 21 | Male | Driver/rider | Severity: Slight | Injured by vehicle: 4 |

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Thursday 23/08/2018 Time 0935 Serious at A34 SBOUND EXIT SLIP RD J/W A44 PEARTREE RBT GOSFORD
E: 449424 N: 210926 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from N to S Going ahead other
Casualty Reference: 2 Age: 77 Female Driver/rider Severity: Slight Injured by vehicle: 1

Vehicle Reference 2 Motorcycle over 500cc Moving from N to S Going ahead other
Casualty Reference: 1 Age: 46 Male Driver/rider Severity: Serious Injured by vehicle: 2

Tuesday 11/09/2018 Time 0730 Slight at A34 SBOUND CWAY APPROX 50M SW OF J/W ENTRY SLIP ROAD FROM A44 PEARTREE INTERCHANGE
E: 449137 N: 210504 Junction Detail: 0 Control
Fine without high winds Road surface Dry Daylight

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

Vehicle Reference 2 Goods 3.5 tonnes mgw and under Moving from NE to S Going ahead other
Casualty Reference: 1 Age: 33 Male Driver/rider Severity: Slight Injured by vehicle: 2
Casualty Reference: 2 Age: 33 Male Passenger Severity: Slight Injured by vehicle: 2

Monday 17/09/2018 Time 0650 Fatal at A4095 APPROX 50M NE OF A44/ A4095 BLADON RBT KIDLINGTON
E: 445910 N: 215702 Junction Detail: 1 Control 4
Fine without high winds Road surface Wet/Damp Daylight

Vehicle Reference 1 Motorcycle over 500cc Moving from W to NE Going ahead left bend
Casualty Reference: 1 Age: 50 Female Driver/rider Severity: Fatal Injured by vehicle: 1

Vehicle Reference 2 Bus or coach Moving from NE to S Going ahead other

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months
**Selection:** **Notes:**
Selected using Manual Selection

Sunday 23/09/2018 Time 0338 Slight at A44 SBOUND JUST S OF RBT J/W SANDY LANE YARNTON
E: 447462 N: 212994 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from N to S Going ahead other
Casualty Reference: 1 Age: 33 Male Driver/rider Severity: Slight Injured by vehicle: 1

Tuesday 22/01/2019 Time 1817 Slight at A44 NW BOUND CWAY APPROX 200M SE OF RBT J/W A4095 KIDLINGTON
E: 446023 N: 215522 Junction Detail: 0 Control
Other Road surface Wet/Damp Darkness: no street lighting
Vehicle Reference 1 Car Moving from SE to N Going ahead other
Casualty Reference: 1 Age: 25 Female Driver/rider Severity: Slight Injured by vehicle: 1
Casualty Reference: 2 Age: 54 Female Passenger Severity: Slight Injured by vehicle: 1
Vehicle Reference 2 Car Moving from SE to N Going ahead but held up
Casualty Reference: 3 Age: 31 Female Driver/rider Severity: Slight Injured by vehicle: 2

Tuesday 05/02/2019 Time 1751 Slight at A4095 BLADON ROAD AT PED CROSSING POINT APPROX 15M SW OF RBT J/W A44 KIDLINGTON
E: 445818 N: 215640 Junction Detail: 1 Control 4
Raining without high winds Road surface Wet/Damp Darkness: street lighting unknown
Vehicle Reference 1 90 Moving from SE to W Turning left
Casualty Reference: 1 Age: 15 Female Pedestrian Severity: Slight Injured by vehicle: 1

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Saturday 23/03/2019 Time 1640 Slight at A44 APROX 250M SE OF RBT J/W CASSINGTON ROAD YARNTON
E: 448483 N: 212052 Junction Detail: 0 Control
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from SE to N Going ahead other
Casualty Reference: 1 Age: 23 Female Driver/rider Severity: Slight Injured by vehicle: 1
Vehicle Reference 2 Car Moving from SE to N Going ahead other
Casualty Reference: 2 Age: 38 Male Driver/rider Severity: Slight Injured by vehicle: 2

Monday 13/05/2019 Time 2329 Serious at A44 J/W A4095 AT BLADON ROUNDABOUT KIDLINGTON
E: 445803 N: 215637 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Darkness: no street lighting
Vehicle Reference 1 Car Moving from N to S Turning right
Vehicle Reference 2 Car Moving from N to S Turning right
Casualty Reference: 1 Age: 31 Female Driver/rider Severity: Serious Injured by vehicle: 2

Sunday 14/07/2019 Time 1135 Slight at A44 WOODSTOCK RD SBOUND CWAY J/W LANGFORD LANE KIDLINGTON
E: 446756 N: 214703 Junction Detail: 3 Control 2
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from N to SE Going ahead other
Vehicle Reference 2 Car Moving from N to SE Going ahead but held up
Casualty Reference: 1 Age: 37 Female Passenger Severity: Slight Injured by vehicle: 2

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Sunday 14/07/2019 Time 2230 Slight at A44 BLADON RBT J/W A4095 KIDLINGTON
E: 445832 N: 215713 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from S to NE Going ahead other
Vehicle Reference 2 Car Moving from N to SE Going ahead other
Casualty Reference: 1 Age: 22 Female Driver/rider Severity: Slight Injured by vehicle: 2

Thursday 01/08/2019 Time 1815 Slight at A44 LOOP FARM RBT J/W A4260 GOSFORD
E: 449226 N: 211146 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from E to N Turning right
Casualty Reference: 1 Age: 73 Male Driver/rider Severity: Slight Injured by vehicle: 1
Vehicle Reference 2 Car Moving from S to NE Turning right

Sunday 11/08/2019 Time 1314 Slight at A44 WOODSTOCK RD BY J/W ACCESS TO STONEHOUSE FARM YARNTON
E: 448616 N: 211899 Junction Detail: 8 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from SE to N Going ahead other
Casualty Reference: 1 Age: 34 Male Passenger Severity: Slight Injured by vehicle: 1
Vehicle Reference 2 Car Moving from N to SE Going ahead but held up
Vehicle Reference 3 Car Moving from N to SE Going ahead but held up

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Wednesday 21/08/2019 Time 2005 Slight at A44 BLADON RBT J/W A4095 KIDLINGTON
E: 445825 N: 215712 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from N to SE Going ahead other
Vehicle Reference 2 Pedal Cycle Moving from S to NE Going ahead other
Casualty Reference: 1 Age: 41 Male Driver/rider Severity: Slight Injured by vehicle: 2

Tuesday 27/08/2019 Time 0810 Serious at A34 SBOUND J/W A44 SBOUND ENTRY SLIP ROAD GOSFORD `
E: 449206 N: 210596 Junction Detail: 5 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from NE to S Changing lane to right
Vehicle Reference 2 Motorcycle over 500cc Moving from NE to S Overtaking nearside
Casualty Reference: 1 Age: 49 Male Driver/rider Severity: Serious Injured by vehicle: 2

Friday 08/11/2019 Time 0611 Slight at A4095 UPPER CAMPSFIELD ROAD APPROX 20M NE OF RBT J/W A44 WOODSTOCK
E: 445907 N: 215699 Junction Detail: 1 Control 4
Fine without high winds Road surface Wet/Damp Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from W to NE Going ahead left bend
Casualty Reference: 1 Age: 25 Male Driver/rider Severity: Slight Injured by vehicle: 1

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Monday 06/01/2020 Time 0834 Slight at A44 WOODSTOCK RD 100M N FROM SANDY LAND RBT YARNTON
E: 447395 N: 213090 Junction Detail: 0 Control
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from N to S Going ahead other
Casualty Reference: 1 Age: 27 Male Driver/rider Severity: Slight Injured by vehicle: 1

Vehicle Reference 2 Car Moving from N to S Going ahead other
Casualty Reference: 2 Age: 31 Female Driver/rider Severity: Slight Injured by vehicle: 2

Vehicle Reference 3 Car Moving from N to S Going ahead other

Vehicle Reference 4 Car Moving from N to S Going ahead other
Casualty Reference: 3 Age: Male Driver/rider Severity: Slight Injured by vehicle: 4

Tuesday 04/02/2020 Time 0745 Slight at SERVICE ROAD ON SW SIDE OF A44 J/W EXIT FROM BP FILLING STATION YARNTON
E: 447929 N: 212564 Junction Detail: 9 Control 4
Fine without high winds Road surface Dry Daylight

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

Vehicle Reference 2 Pedal Cycle Moving from N to SE Going ahead other
Casualty Reference: 1 Age: 59 Male Driver/rider Severity: Slight Injured by vehicle: 2

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Saturday 02/05/2020 Time 1355 Slight at A44 WOODSTOCK RD OUTSIDE MINNIS FARM YARNTON
E: 448635 N: 211875 Junction Detail: 8 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Pedal Cycle Moving from NE to S Going ahead other
Casualty Reference: 1 Age: 55 Male Driver/rider Severity: Slight Injured by vehicle: 1

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

Monday 11/05/2020 Time 1420 Slight at A44 WOODSTOCK ROAD AT J/W PEARTREE PARK & RIDE WOLVERCOTE OXFORDSHIRE
E: 449468 N: 210678 Junction Detail: 3 Control 2
Fine without high winds Road surface Dry Daylight

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

Vehicle Reference 2 Car Moving from SE to N Going ahead but held up
Casualty Reference: 1 Age: 30 Male Driver/rider Severity: Slight Injured by vehicle: 2

Friday 19/06/2020 Time 2006 Slight at A44 J/W A34 PEARTREE RBT OXFORD
E: 449301 N: 210952 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from W to E Stopping

Vehicle Reference 2 Car Moving from W to S Going ahead but held up
Casualty Reference: 1 Age: 26 Female Driver/rider Severity: Slight Injured by vehicle: 2

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Monday 06/07/2020 Time 1103 Slight at A44 SOUTH BEGBROKE RBT BY SLIP ROAD BEGBROKE
E: 447072 N: 213855 Junction Detail: 5 Control 4
Fine without high winds Road surface Dry Daylight

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

Vehicle Reference 2 Car Moving from N to E Turning left

Casualty Reference: 1 Age: 71 Male Driver/rider Severity: Slight Injured by vehicle: 2

Casualty Reference: 2 Age: 37 Male Passenger Severity: Slight Injured by vehicle: 2

Monday 05/10/2020 Time 1247 Serious at A44 WOODSTOCK ROAD J/W LANGFORD LANE KIDLINGTON
E: 446762 N: 214689 Junction Detail: 3 Control 2
Fine without high winds Road surface Dry Daylight

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

Casualty Reference: 1 Age: 59 Female Driver/rider Severity: Serious Injured by vehicle: 1

Vehicle Reference 2 Car Moving from NE to N Turning right

Casualty Reference: 2 Age: 52 Female Driver/rider Severity: Serious Injured by vehicle: 2

Tuesday 27/10/2020 Time 0835 Slight at A44 SBOUIND CWAY FROM LOOP FARM RBT J/W A44 PEARTREE RBT OXFORD
E: 449303 N: 210951 Junction Detail: 1 Control 4
Fine without high winds Road surface Wet/Damp Daylight

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

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

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

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Friday 06/11/2020 Time 0857 Slight at A44 WOODSTOCK ROAD SBOUND CWAY APPROX 75M NW OF RBT J/W CASSINGTON ROAD OUTSIDE R
E: 448229 N: 212317 Junction Detail: 0 Control
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Goods 3.5 tonnes mgw and under Moving from N to SE Going ahead other
Casualty Reference: 1 Age: 35 Male Driver/rider Severity: Slight Injured by vehicle: 1

Vehicle Reference 2 Goods 3.5 tonnes mgw and under Moving from N to SE Parked

Wednesday 11/11/2020 Time 1200 Slight at A44 WOODSTOCK ROAD OUTSIDE STONEHOUSE FARM YARNTON
E: 448630 N: 211884 Junction Detail: 0 Control
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from N to S Going ahead left bend
Casualty Reference: 1 Age: 31 Female Driver/rider Severity: Slight Injured by vehicle: 1

Vehicle Reference 2 Car Moving from S to N Going ahead right bend

Vehicle Reference 3 Car Moving from N to S Going ahead left bend
Casualty Reference: 2 Age: 26 Male Driver/rider Severity: Slight Injured by vehicle: 3

Friday 27/11/2020 Time 1504 Serious at A44 WOODSTOCK ROAD J/W ENTRANCE TO TRAX SITE APPROX 50M N OF J/W PEARTREE P+R OXFORD
E: 449437 N: 210744 Junction Detail: 8 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from W to E Starting

Vehicle Reference 2 Pedal Cycle Moving from N to S Going ahead other
Casualty Reference: 1 Age: 54 Male Driver/rider Severity: Serious Injured by vehicle: 2

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:**

Selected using Manual Selection

**Notes:**

Thursday 10/12/2020 Time 1145 Slight at A44 WOODSTOCK ROAD J/W AA PEARTREE RBT
E: 449398 N: 210830 Junction Detail: 1 Control 4
Fine without high winds Road surface Wet/Damp Daylight
Vehicle Reference 1 Car Moving from S to N Going ahead other
Vehicle Reference 2 Car Moving from S to N Going ahead other
Casualty Reference: 1 Age: 53 Female Driver/rider Severity: Slight Injured by vehicle: 2

Sunday 24/01/2021 Time 0930 Slight at A44 WOODSTOCK ROAD SANDY LANE RBT YARNTON
E: 447458 N: 213021 Junction Detail: 1 Control 4
Fine with high winds Road surface Snow Daylight
Vehicle Reference 1 Car Moving from N to S Going ahead other
Casualty Reference: 1 Age: 23 Female Driver/rider Severity: Slight Injured by vehicle: 1

Tuesday 20/04/2021 Time 1519 Slight at A44 PEARTREE RBT J/W ENTRY SLIP ROAD TO JOIN A34 SBOUND OXFORD
E: 449356 N: 210820 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from NE to S Going ahead other
Casualty Reference: 1 Age: 76 Female Driver/rider Severity: Slight Injured by vehicle: 1

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:**

Selected using Manual Selection

**Notes:**

Thursday 10/06/2021 Time 1600 Slight at A44 WOODSTOCK RD J/W PEARTREE RBT OXFORD
E: 449377 N: 210828 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from E to S Turning right

Vehicle Reference 2 Motor Cycle over 50 cc and up to 125cc Moving from N to SE Turning left

Casualty Reference: 1 Age: 20 Male Driver/rider Severity: Slight Injured by vehicle: 2

Thursday 29/07/2021 Time 1500 Slight at A44 THE ROYAL SUN RBT BEGBROKE
E: 447058 N: 213919 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from N to W Turning right

Vehicle Reference 2 Motorcycle over 500cc Moving from N to S Going ahead other

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

Thursday 16/09/2021 Time 1805 Slight at A44 WOODSTOCK RD APPROX 30M NW OF RBT J/W A4260 FRIEZE WAY GOSFORD
E: 449197 N: 211188 Junction Detail: 0 Control
Fine without high winds Road surface Dry Daylight

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

Vehicle Reference 2 Car Moving from N to SE Going ahead but held up

Vehicle Reference 3 Car Moving from N to SE Going ahead but held up

Casualty Reference: 1 Age: 71 Male Passenger Severity: Slight Injured by vehicle: 3

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Wednesday 06/10/2021 Time 1309 Serious at A44 J/W COULING CLOSE YARNTON
E: 448925 N: 211606 Junction Detail: 3 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from SE to N Going ahead other
Casualty Reference: 1 Age: 80 Male Driver/rider Severity: Serious Injured by vehicle: 1

Vehicle Reference 2 Goods 3.5 tonnes mgw and under Moving from SE to NE Turning right

Friday 05/11/2021 Time 1548 Slight at A34 A T END OF SLIP RD NORTH BOUND FROM PEAR TREE RBT OXFORD
E: 449556 N: 211288 Junction Detail: 5 Control 4
Fine without high winds Road surface Dry Daylight

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

Vehicle Reference 2 Car Moving from S to NE Going ahead but held up
Casualty Reference: 1 Age: 24 Female Driver/rider Severity: Slight Injured by vehicle: 2

Tuesday 16/11/2021 Time 0940 Slight at A34 SBOUND BY J/W EXIT TO A44 PEARTREE RBT PEAR TREE INTERCHANGE GOSFORD
E: 449535 N: 211223 Junction Detail: 5 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from NE to S Going ahead other
Casualty Reference: 1 Age: 28 Male Driver/rider Severity: Slight Injured by vehicle: 1

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

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Saturday 12/03/2022 Time 1030 Slight at A44 WOODSTOCK RD APPROX 50M N OF J/W LANGFORD LANE KIDLINGTON
E: 446738 N: 214741 Junction Detail: 3 Control 2
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from N to SE Going ahead but held up
Casualty Reference: 1 Age: 53 Male Driver/rider Severity: Slight Injured by vehicle: 1

Vehicle Reference 2 Car Moving from N to SE Going ahead other
Casualty Reference: 2 Age: 56 Male Driver/rider Severity: Slight Injured by vehicle: 2

Sunday 13/03/2022 Time 1738 Slight at A34 SOUTHBOUND 354M NE FROM PEARTREE INTERCHANGE GOSFORD
E: 449565 N: 211265 Junction Detail: 0 Control
Fine without high winds Road surface Dry Daylight

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

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

Vehicle Reference 3 Car Moving from NE to S Going ahead other
Casualty Reference: 1 Age: 20 Male Driver/rider Severity: Slight Injured by vehicle: 3

Casualty Reference: 2 Age: 28 Male Passenger Severity: Slight Injured by vehicle: 3

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Saturday 19/03/2022 Time 1337 Fatal at A44 J/W GREEN LANE / YARNTON LANE OUTSIDE THE TURNPIKE PH YARNTON
E: 448336 N: 212213 Junction Detail: 3 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from SE to NE Turning right

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

Casualty Reference: 1 Age: 64 Male Driver/rider Severity: Fatal Injured by vehicle: 2

Casualty Reference: 2 Age: 64 Female Passenger Severity: Slight Injured by vehicle: 2

Wednesday 06/04/2022 Time 1133 Slight at A44 WOODSTOCK RD RBT J/W SPRING HILL RD BEGBROKE
E: 447047 N: 213891 Junction Detail: 1 Control 4
Fine without high winds Road surface Wet/Damp Daylight

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

Casualty Reference: 1 Age: 46 Female Driver/rider Severity: Slight Injured by vehicle: 1

Thursday 19/05/2022 Time 1450 Slight at A44 AT RAIL BRIDGE 230M SE FROM GREEN LANE YARNTON
E: 448494 N: 212050 Junction Detail: 0 Control
Fine without high winds Road surface Dry Daylight

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

Casualty Reference: 1 Age: 46 Male Driver/rider Severity: Slight Injured by vehicle: 1

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

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Wednesday 01/06/2022 Time 0745 Slight at A44 PEARTREE RBT J/W A34 OXFORD
E: 449328 N: 210961 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from S to N Going ahead right bend
Casualty Reference: 1 Age: 32 Female Driver/rider Severity: Slight Injured by vehicle: 1

Vehicle Reference 2 Car Moving from S to N Going ahead right bend

Thursday 30/06/2022 Time 0810 Slight at A44 APPROX 100M SE OF RBT J.W CASSINGTON ROAD YARNTON
E: 448371 N: 212171 Junction Detail: 0 Control
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from SE to N Going ahead but held up
Casualty Reference: 1 Age: 52 Female Driver/rider Severity: Slight Injured by vehicle: 1

Vehicle Reference 2 Car Moving from SE to N Going ahead but held up

Vehicle Reference 3 Car Moving from SE to N Going ahead other

Thursday 18/08/2022 Time 1712 Slight at A4095 APPROX 10M NE OF A44 BLADON RBT KIDLINGTON
E: 445891 N: 215700 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Motor Cycle over 50 cc and up to 125cc Moving from W to NE Turning left
Casualty Reference: 1 Age: 23 Male Driver/rider Severity: Slight Injured by vehicle: 1

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Friday 26/08/2022 Time 0857 Slight at A34 NBOUND EXIT SLIP ROAD APPROX 100M SW OF RBT J/W A44 AT PEARTREE INTERCHANGE GOSFOR
E: 449248 N: 210754 Junction Detail: 0 Control
Fine without high winds Road surface Dry Daylight

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Reference 1 | Car | | | | Moving from S to NE | | Going ahead other | | | |
| Vehicle Reference 2 | Car | | | | Moving from S to NE | | Going ahead but held up | | | |
| | Casualty Reference: | 1 | Age: | 36 | Female | Driver/rider | Severity: | Slight | Injured by vehicle: | 2 |
| Vehicle Reference 3 | Car | | | | Moving from S to NE | | Going ahead but held up | | | |

Wednesday 14/09/2022 Time 1518 Slight at A34 NBOUND J/W ENTRY SLIP ROAD FROM PEARTREE RBT GOSFORD
E: 449528 N: 211253 Junction Detail: 5 Control 4
Fine without high winds Road surface Dry Daylight

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Reference 1 | Car | | | | Moving from S to NE | | Going ahead other | | | |
| | Casualty Reference: | 1 | Age: | 41 | Female | Driver/rider | Severity: | Slight | Injured by vehicle: | 1 |
| Vehicle Reference 2 | Agricultural vehicle | | | | Moving from S to NE | | Going ahead other | | | |
| | Casualty Reference: | 2 | Age: | 39 | Male | Driver/rider | Severity: | Slight | Injured by vehicle: | 2 |

Friday 23/09/2022 Time 1110 Slight at A44 APPROX 15M SE OF J/W GREEN LANE / YARNTON LANE YARNTON
E: 448340 N: 212202 Junction Detail: 3 Control 4
Fine without high winds Road surface Wet/Damp Daylight

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Reference 1 | Car | | | | Moving from SE to N | | Going ahead other | | | |
| | Casualty Reference: | 1 | Age: | 74 | Female | Driver/rider | Severity: | Slight | Injured by vehicle: | 1 |
| Vehicle Reference 2 | Car | | | | Moving from SE to W | | Stopping | | | |
| Vehicle Reference 3 | Car | | | | Moving from SE to N | | Stopping | | | |

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Wednesday 05/10/2022 Time 1526 Slight at A44 PEARTREE ROUNDABOUT BY A44 TO/FROM OXFORD OXFORD
E: 449422 N: 210872 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from N to S Going ahead right bend
Casualty Reference: 1 Age: 39 Male Pedestrian Severity: Slight Injured by vehicle: 1

Vehicle Reference 2 Car Moving from N to S Going ahead right bend

Friday 11/11/2022 Time 1740 Slight at A44 WOODSTOCK ROAD RBT J/W CASSINGTON ROAD YARNTON
E: 448270 N: 212241 Junction Detail: 1 Control 4
Fine without high winds Road surface Dry Darkness: street lights present and lit

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

Vehicle Reference 2 Car Moving from SE to N Going ahead other
Casualty Reference: 1 Age: 28 Female Driver/rider Severity: Slight Injured by vehicle: 2

Wednesday 16/11/2022 Time 0838 Slight at A34 SBOUND J/W A34 SBOUND ENTRY SLIP RPOAD FROM PEARTREEE INTERCHANGE BY MP 87/6 GOSF(
E: 449158 N: 210525 Junction Detail: 5 Control 4
Fine without high winds Road surface Dry Daylight

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

Vehicle Reference 2 Car Moving from N to S Going ahead other
Casualty Reference: 1 Age: 34 Male Driver/rider Severity: Slight Injured by vehicle: 2

**Accidents between dates** **01/01/2018** **and** **16/04/2023** (63) months

**Selection:** **Notes:**

Selected using Manual Selection

Saturday 10/12/2022 Time 1615 Slight at A44 NBOUND J/W A44/A34 PEARTREE RBT OXFORD

E: 449401 N: 210821 Junction Detail: 1 Control 4

Fine without high winds Road surface Frost/Ice Darkness: street lights present and lit

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

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

Casualty Reference: 1 Age: 32 Female Driver/rider Severity: Slight Injured by vehicle: 2

Accidents involving:

| | Fatal | Serious | Slight | Total |
|---|---|---|---|---|
| Motor vehicles only (excluding 2-wheels) | 1 | 3 | 41 | 45 |
| 2-wheeled motor vehicles | 1 | 2 | 4 | 7 |
| Pedal cycles | 0 | 1 | 4 | 5 |
| Horses & other | 0 | 0 | 2 | 2 |
| Total | 2 | 6 | 48 | 56 |

Casualties:

| | Fatal | Serious | Slight | Total |
|---|---|---|---|---|
| Vehicle driver | 1 | 4 | 44 | 49 |
| Passenger | 0 | 0 | 8 | 8 |
| Motorcycle rider | 1 | 2 | 3 | 6 |
| Cyclist | 0 | 1 | 4 | 5 |
| Pedestrian | 0 | 0 | 3 | 3 |
| Other | 0 | 0 | 0 | 0 |
| Total | 2 | 7 | 62 | 71 |

**Number of casualties meeting the criteria:** **71**

# Appendix C

## Illustrative Masterplan

# Appendix D

## Oxford Canal Bridge Concept Design

DO NOT SCALE THIS DRAWING.

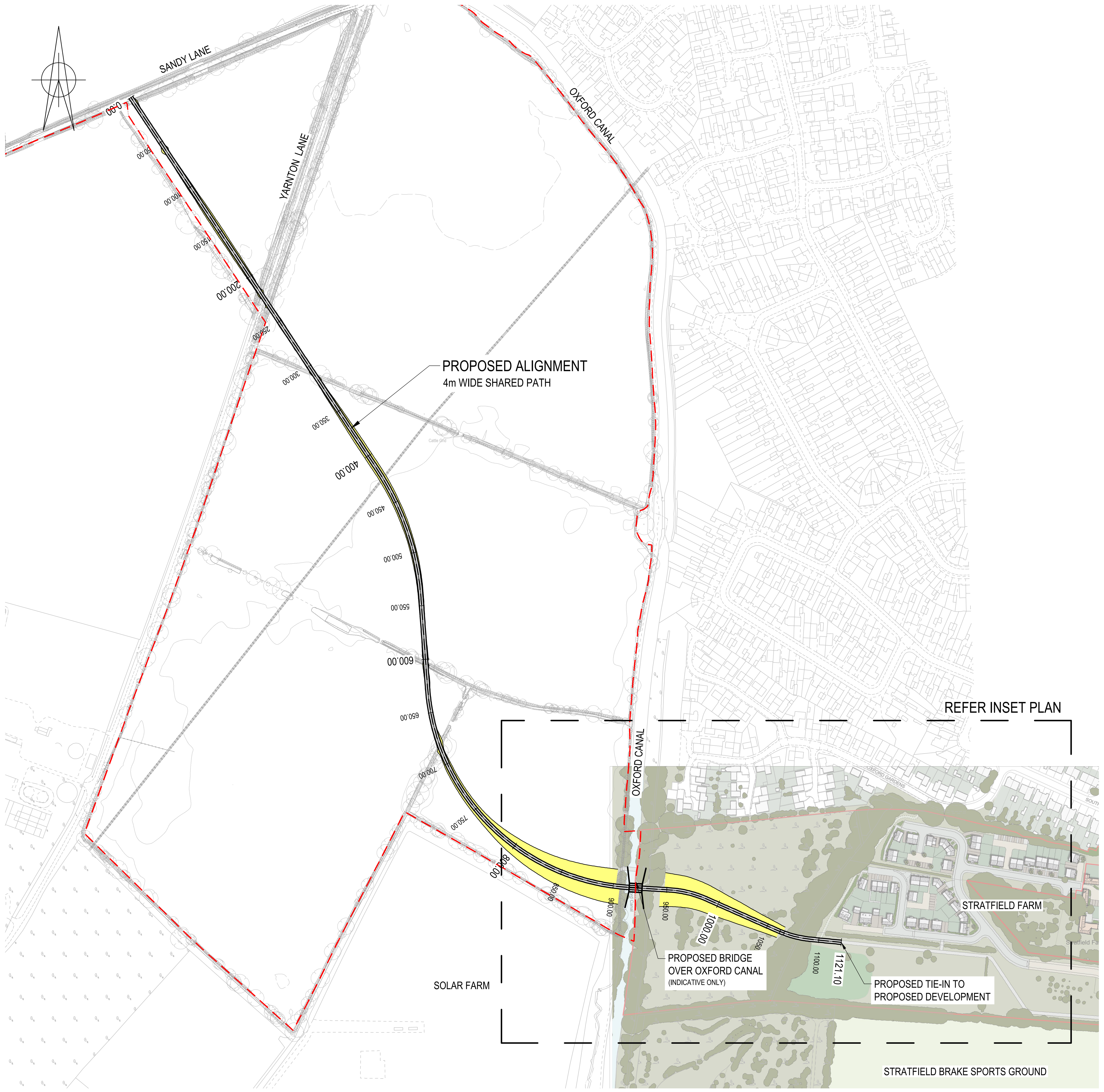
HEALTH AND SAFETY INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING

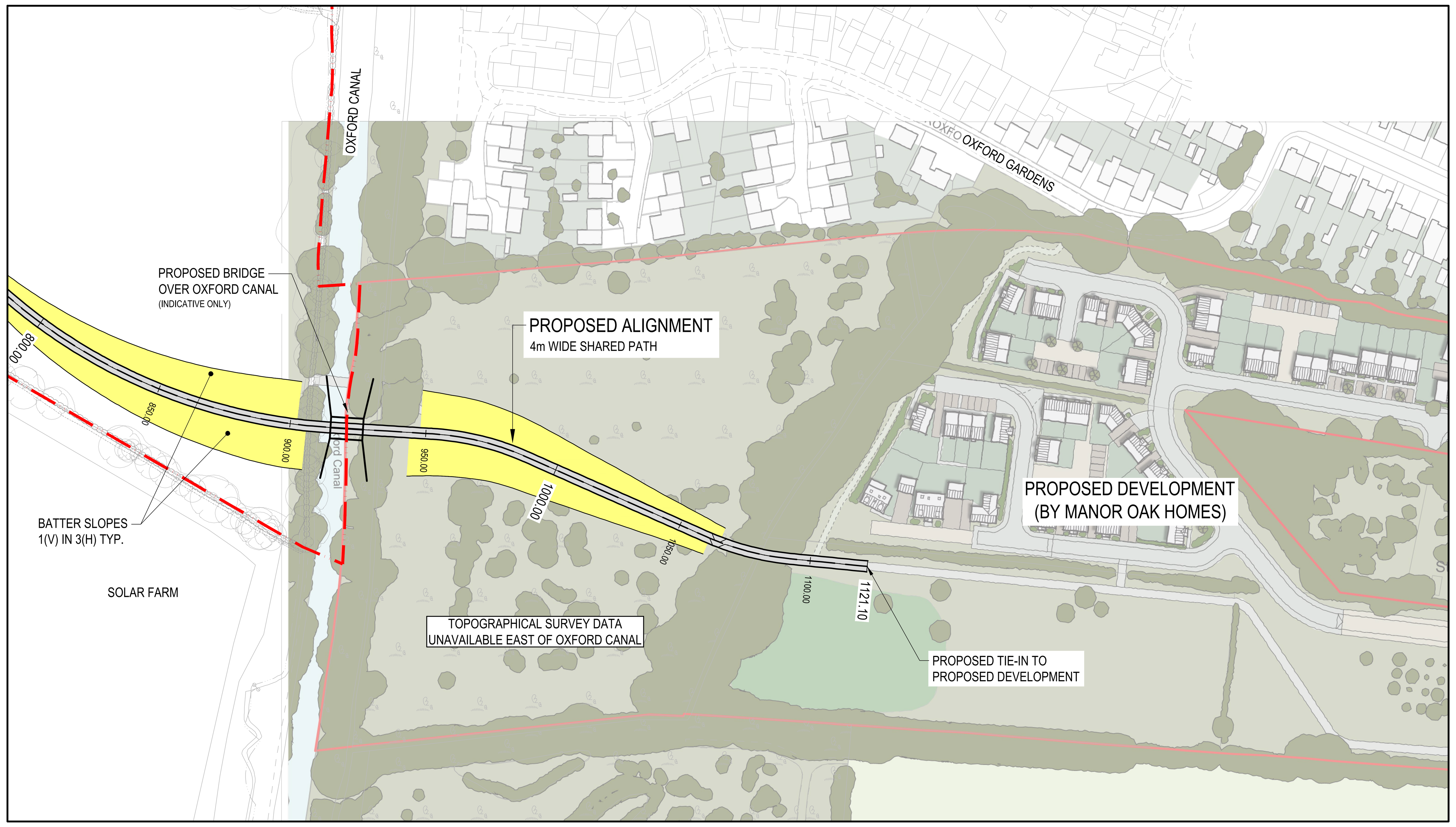
CONSTRUCTION.

MAINTENANCE/CLEANING/OPERATION.

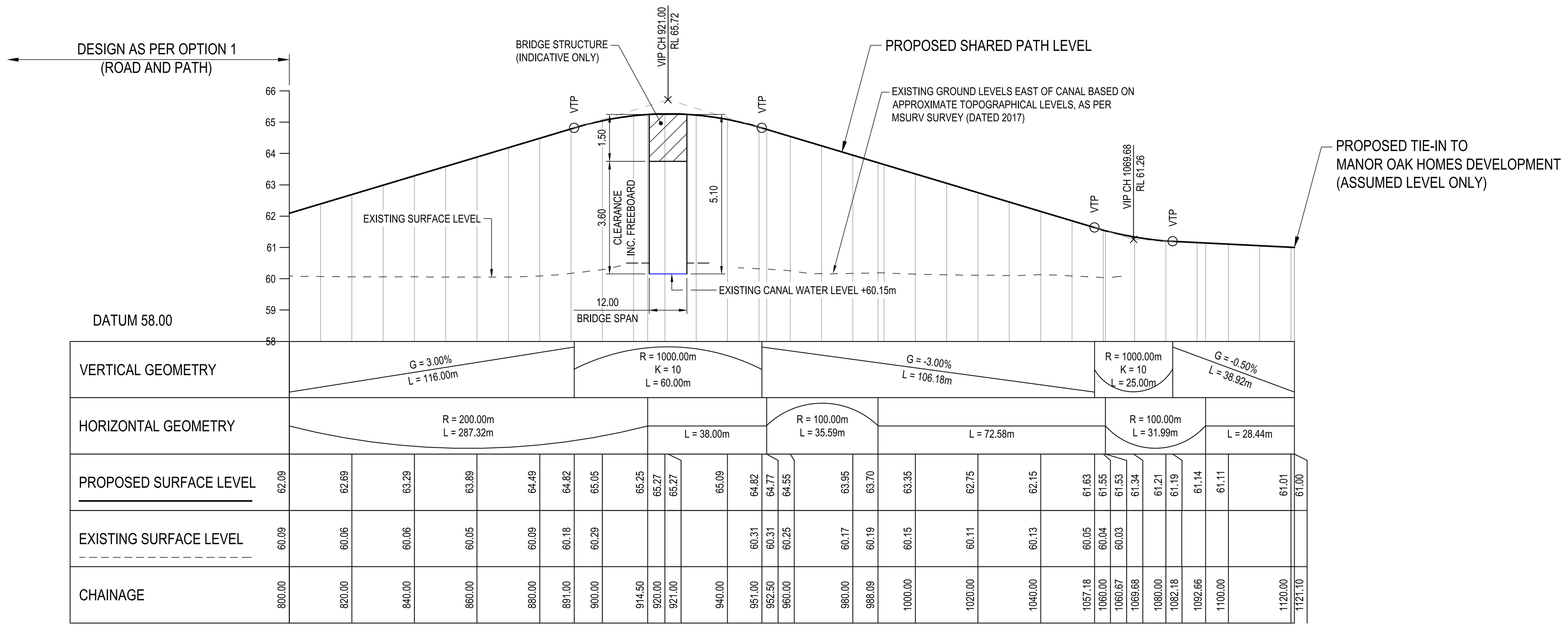
DECOMMISSIONING/DEMOLITION.




PLAN
SCALE 1:2000




INSET PLAN
SCALE 1:1000




LONGITUDINAL SECTION - Stratfield Farm Path
HORZ SCALE 1: 1000
VERT SCALE 1: 100

1 : 100
SCALE BEFORE REDUCTION

1 : 1000
SCALE BEFORE REDUCTION

1 : 2000
SCALE BEFORE REDUCTION



| Rev | Description | Date | Iss'd | Rev'd | App'd |
|---|---|---|---|---|---|
| P02 | ISSUED FOR INFORMATION | 22.03.2023 | D.G. | T.W. | T.W. |
| P01 | ISSUED FOR INFORMATION | 17.03.2023 | D.G. | T.W. | T.W. |

CONCEPT
Project Stage

INFORMATION
Status of Drawing

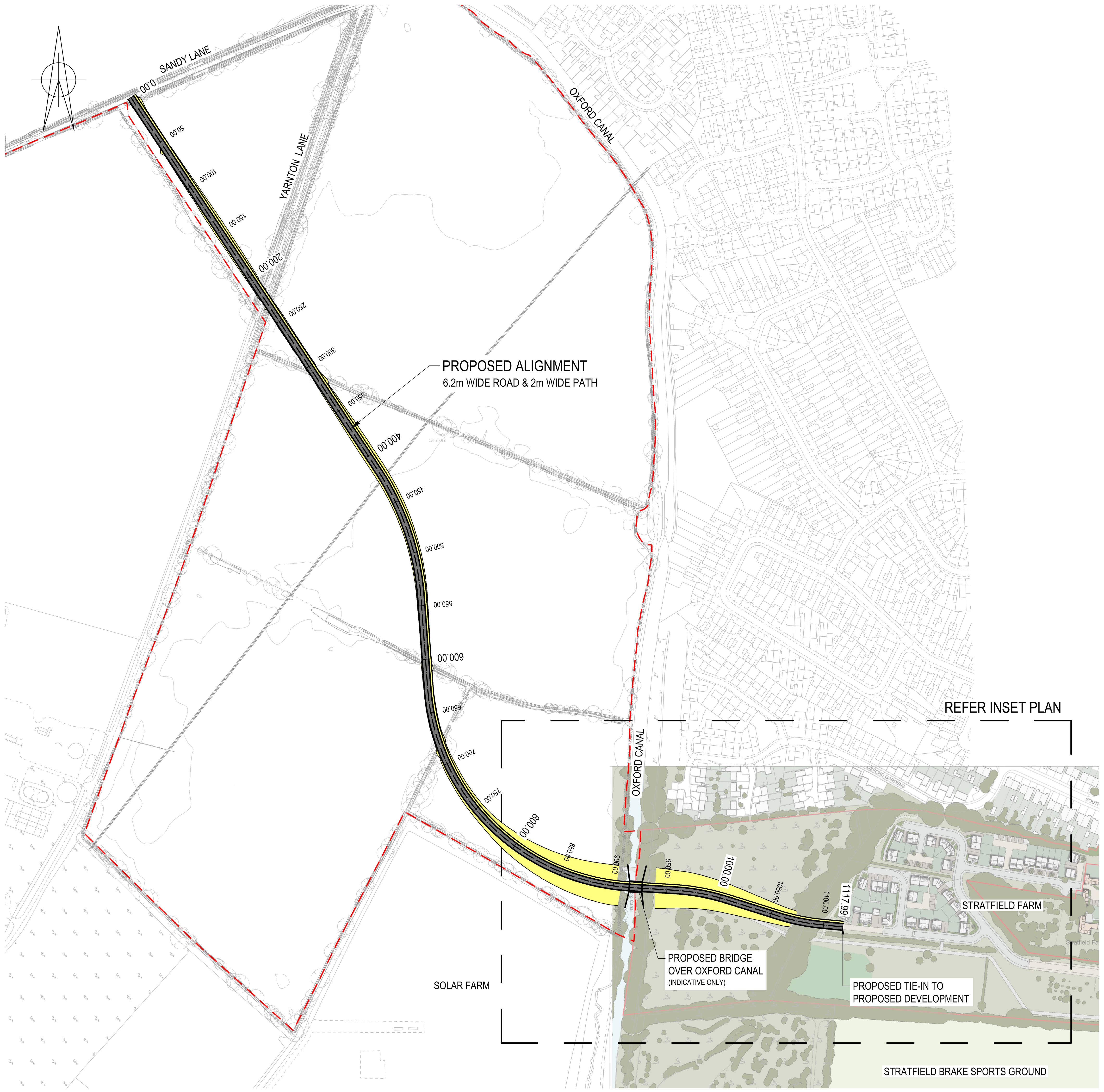
BURO HAPPOLD

17 Newman Street
London
W1T 1PD
UK
Tel: +44 (0)20 7927 9700
Fax: +44 (0)870 787 4145
Email: 0052188@burohappold.com
Web: www.burohappold.com

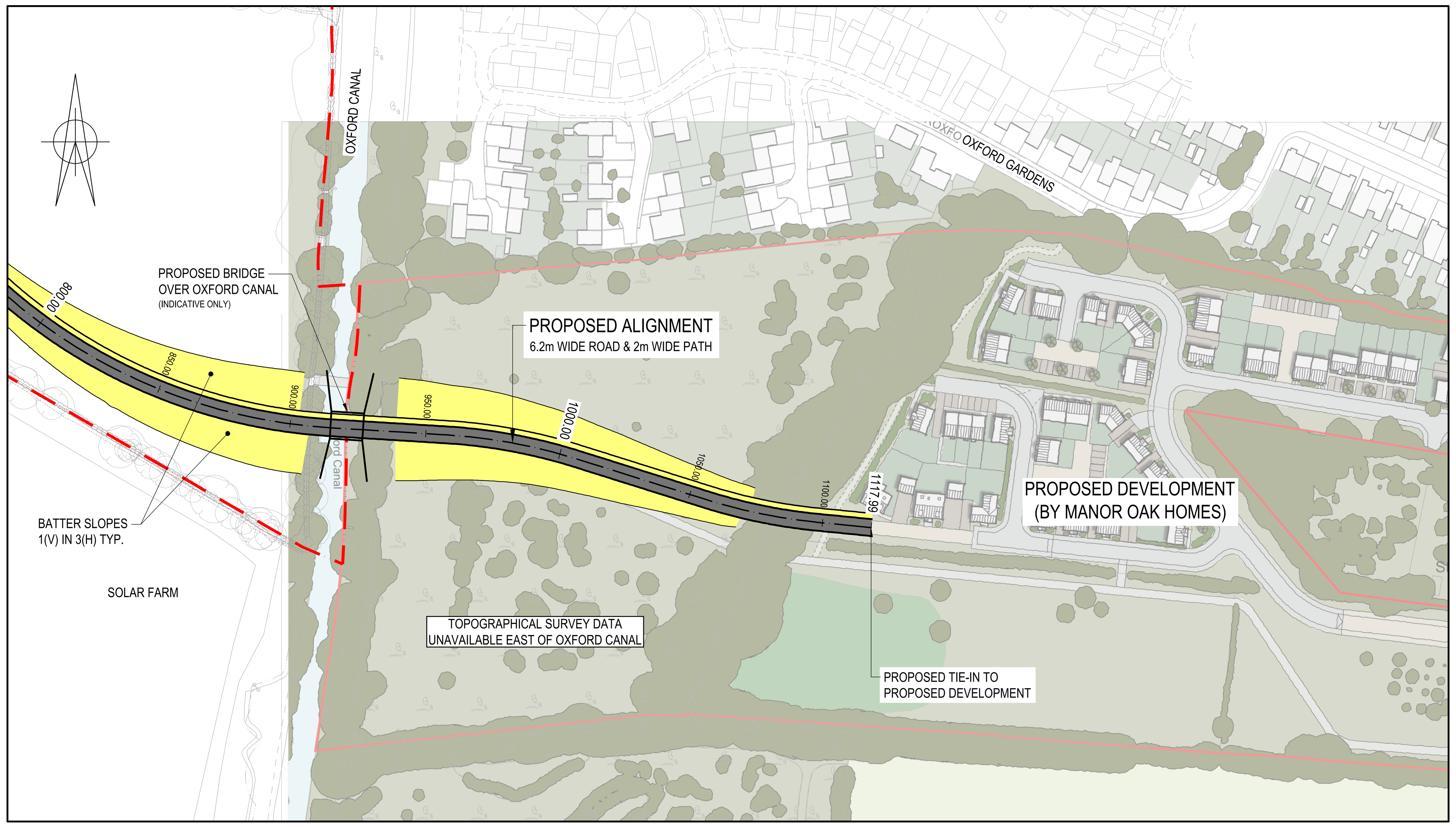
Client: *Oxford University Development (OUD) Ltd*
Architect: *HAWKINS BROWN*
Project: **BEGBROKE PARK**
Drg Title: PR7B SITE CONNECTION
OPTION 2 - SHARED PATH
PLAN & LONGITUDINAL SECTION

| Job No. | Scale@A0 | |
|---|---|---|
| 0052188 | AS SHOWN | |
| Drawn/Designed By. D.GROVER | Checked By. T.WHITER | Approved By. T.WHITER |
| Drawing No. BEG-BUR-XX-XX-SK-CE-0005 | | Revision P02 |

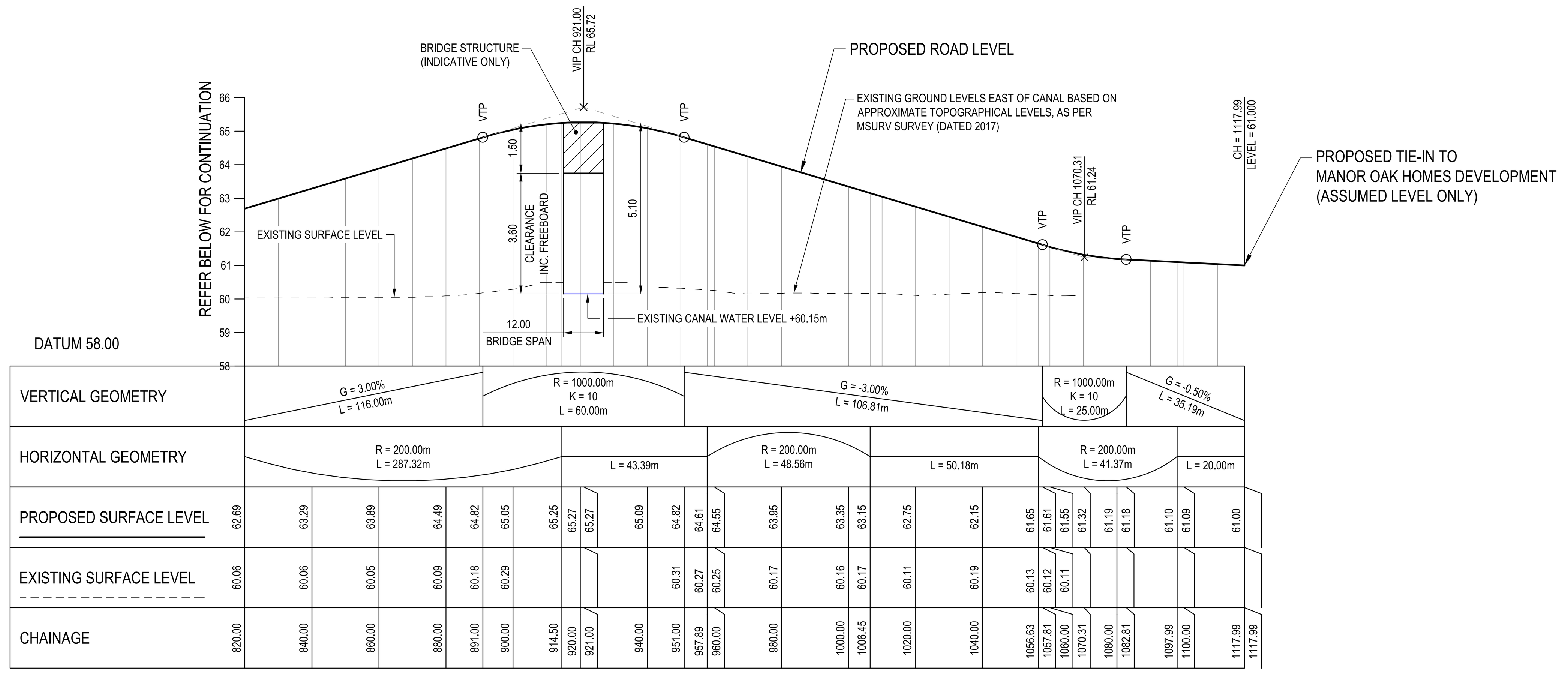
Daniel Grover P:\0052188 Begbroke Park Oxford - Root\08 Cities - Infra\01_Sheet\01_Sketch\BEG-BUR-XX-XX-SK-CE-0005_MOH_Site_Con_Opt_2.dwg



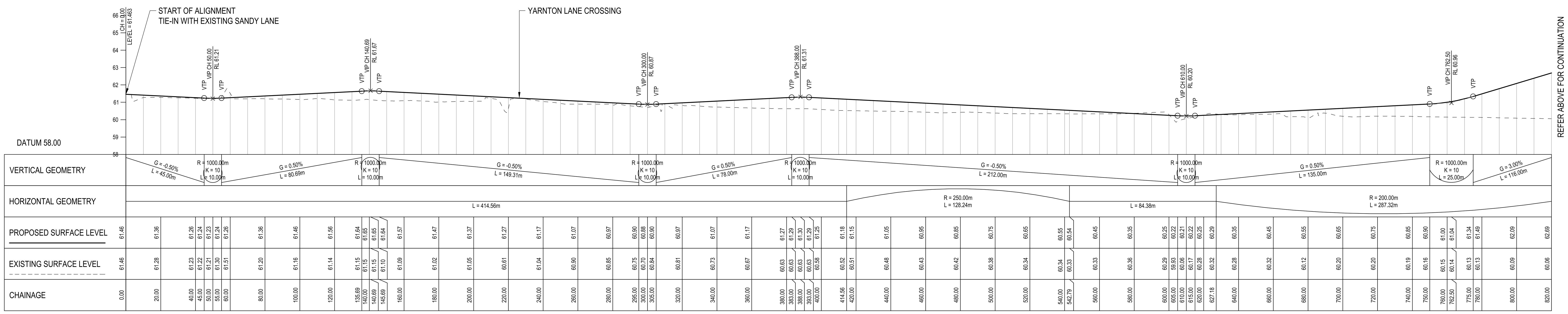

PLAN
SCALE 1:2000




INSET PLAN
SCALE 1:1000




LONGITUDINAL SECTION - Canal Crossing
HORZ SCALE 1: 1000
VERT SCALE 1: 100




LONGITUDINAL SECTION - Canal Crossing
HORZ SCALE 1: 1000
VERT SCALE 1: 100

SCALE BEFORE REDUCTION 1 : 100

SCALE BEFORE REDUCTION 1 : 1000

SCALE BEFORE REDUCTION 1 : 2000





DO NOT SCALE THIS DRAWING.

HEALTH AND SAFETY INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING

CONSTRUCTION.

MAINTENANCE/CLEANING/OPERATION.

DECOMMISSIONING/DEMOLITION.

| Rev | Description | Date | Iss'd | Rev'd | App'd |
|---|---|---|---|---|---|
| P02 | ISSUED FOR INFORMATION | 22.03.2023 | D.G. | T.W. | T.W. |
| P01 | ISSUED FOR INFORMATION | 17.03.2023 | D.G. | T.W. | T.W. |

CONCEPT
Project Stage

INFORMATION
Status of Drawing

BURO HAPPOLD

17 Newman Street
London
W1T 1PD
UK
Tel: +44 (0)20 7927 9700
Fax: +44 (0)870 787 4145
Email: 0052188@burohappold.com
Web: www.burohappold.com

Client: *Oxford University Development (OUD) Ltd*
Architect: *HAWKINS BROWN*
Project: **BEGBROKE PARK**
Drg Title: PR7B SITE CONNECTION
OPTION 1 - ROAD & SHARED PATH
PLAN & LONGITUDINAL SECTION

| Job No. | Scale@A0 | |
|---|---|---|
| 0052188 | AS SHOWN | |
| Drawn/Designed By. | Checked By. | Approved By. |
| D.GROVER | T.WHITER | T.WHITER |
| Drawing No. | | Revision |
| BEG-BUR-XX-XX-SK-CE-0004 | | P02 |

Daniel Grover P:\0052188 Begbroke Park Oxford - Root\08 Cities - Infra\01_Sheet\01_Sketch\BEG-BUR-XX-XX-SK-CE-0004_MOH_Site_Con_Opt_1.dwg

# Appendix E

## TRICS Output

TRICS 7.9.4
Trip Rate Parameter: No of Dwellings

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use 03 - RESIDENTIAL
Category A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE

Selected regions and areas:

| | | | | |
|---|---|---|---|---|
| 2 | SOUTH EAST | | | |
| | CT | CENTRAL BEDF | 1 days | 1 |
| | ES | EAST SUSSEX | 4 days | 4 |
| | EX | ESSEX | 1 days | 1 |
| | HC | HAMPSHIRE | 8 days | 8 |
| | HF | HERTFORDSHIF | 1 days | 1 |
| | KC | KENT | 5 days | 5 |
| | MW | MEDWAY | 2 days | 2 |
| | SC | SURREY | 5 days | 5 |
| | SP | SOUTHAMPTOI | 1 days | 1 |
| | WB | WEST BERKSHII | 1 days | 1 |
| | WS | WEST SUSSEX | 6 days | 6 |
| 3 | SOUTH WEST | | | |
| | BC | BOURNEMOUT | 1 days | 1 |
| | DC | DORSET | 1 days | 1 |
| | DV | DEVON | 2 days | 2 |
| | SD | SWINDON | 1 days | 1 |
| | SM | SOMERSET | 3 days | 3 |
| | TB | TORBAY | 1 days | 1 |
| 4 | EAST ANGLIA | | | |
| | NF | NORFOLK | 19 days | 19 |
| | PB | PETERBOROUG | 1 days | 1 |
| | SF | SUFFOLK | 2 days | 2 |
| 5 | EAST MIDLANDS | | | |
| | DY | DERBY | 1 days | 1 |
| | LE | LEICESTERSHIR | 1 days | 1 |
| | NT | NOTTINGHAMS | 1 days | 1 |
| 6 | WEST MIDLANDS | | | |
| | SH | SHROPSHIRE | 1 days | 1 |
| | ST | STAFFORDSHIR | 1 days | 1 |
| | WK | WARWICKSHIR | 1 days | 1 |
| | WM | WEST MIDLANI | 1 days | 1 |
| 7 | YORKSHIRE & NORTH LINCOLNSHIRE | | | |
| | NE | NORTH EAST LI | 1 days | 1 |
| | NY | NORTH YORKSI | 2 days | 2 |
| 8 | NORTH WEST | | | |
| | AC | CHESHIRE WES | 2 days | 2 |
| | EC | CHESHIRE EAST | 1 days | 1 |
| 9 | NORTH | | | |
| | DH | DURHAM | 3 days | 3 |

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: 8 to 1817 (units: )
Range Selected by User: 6 to 1817 (units: )

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/14 to 14/10/22

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 | 14 days |
| Tuesday | 19 days |
| Wednesday | 19 days |
| Thursday | 19 days |
| Friday | 11 days |

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

Selected survey types:

| | |
|---|---|
| Manual count | 82 days |
| Directional ATC Count | 0 days |

This data displays the nu the total addin whilst ATC surveys are undertaking using machines.

Selected Locations:

| | |
|---|---|
| Town Centre | 0 |
| Edge of Town Centre | 0 |
| Suburban Area (PPS6 Out | 11 |
| Edge of Town | 55 |
| Neighbourhood Centre (F | 16 |
| Free Standing (PPS6 Out | 0 |
| Not Known | 0 |

This data displays the nu Edge of Town Suburban Area Neighbourhoo Edge of Town ( Town Centre and Not Known.

Selected Location Sub Categories:

| | |
|---|---|
| Industrial Zone | 0 |
| Commercial Zone | 0 |
| Development Zone | 0 |
| Residential Zone | 62 |
| Retail Zone | 0 |
| Built-Up Zone | 0 |
| Village | 14 |
| Out of Town | 3 |
| High Street | 0 |
| No Sub Category | 3 |

This data displays the nu Industrial Zone Development Z Residential Zo Retail Zone Built-Up Zone Village Out of Town High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

| | |
|---|---|
| C3 | 82 days |

This data displays the nu which can be found within the Library module of TRICS®.

Population within 500m Range:
All Surveys Included

Population within 1 mile:

| | |
|---|---|
| 1,000 or Less | 2 days |
| 1,001 to 5,000 | 15 days |
| 5,001 to 10,000 | 19 days |
| 10,001 to 15,000 | 25 days |
| 15,001 to 20,000 | 11 days |
| 20,001 to 25,000 | 6 days |
| 25,001 to 50,000 | 4 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 | 12 days |
| 25,001 to 50,000 | 11 days |
| 50,001 to 75,000 | 13 days |
| 75,001 to 100,000 | 14 days |
| 100,001 to 125,000 | 4 days |
| 125,001 to 250,000 | 22 days |
| 250,001 to 500,000 | 6 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 | 17 days |
| 1.1 to 1.5 | 59 days |
| 1.6 to 2.0 | 6 days |

This data displays the nu within a radius of 5-miles of selected survey sites.

Travel Plan:

| | |
|---|---|
| Yes | 42 days |
| No | 40 days |

This data displays the nu and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

| | |
|---|---|
| No PTAL Present | 82 days |

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

LIST OF SITES relevant to selection parameters

1 AC-03-A-04 TOWN HOUSES CHESHIRE WEST & CHESTER
LONDON ROAD
LEFTWICH
NORTHWICH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 24
Survey date: THURSDAY 06/06/2019 Survey Type: MANUAL

2 AC-03-A-06 DETACHED HOI CHESHIRE WEST & CHESTER
COMMON LANE
WAVERTON
NEAR CHESTER
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 99
Survey date: FRIDAY 29/04/2022 Survey Type: MANUAL

3 BC-03-A-02 BUNGALOWS BOURNEMOUTH CHRISTCHURCH & POOLE
HURSTDENE ROAD
CASTLE LANE WEST
BOURNEMOUTH
Edge of Town
Residential Zone
Total No of Dwellings: 28
Survey date: MONDAY 24/03/2014 Survey Type: MANUAL

4 CT-03-A-01 MIXED HOUSES CENTRAL BEDFORDSHIRE
ARLESEY ROAD

STOTFOLD
Edge of Town
Residential Zone
Total No of Dwellings: 46
Survey date: WEDNESDAY 22/06/2022 Survey Type: MANUAL

5 DC-03-A-09 MIXED HOUSES DORSET
A350

SHAFTESBURY
Edge of Town
No Sub Category
Total No of Dwellings: 50
Survey date: FRIDAY 19/11/2021 Survey Type: MANUAL

6 DH-03-A-01 SEMI DETACHE DURHAM
GREENFIELDS ROAD

BISHOP AUCKLAND
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 50
Survey date: TUESDAY 28/03/2017 Survey Type: MANUAL

7 DH-03-A-02 MIXED HOUSES DURHAM
LEAZES LANE
ST HELEN AUCKLAND
BISHOP AUCKLAND
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total No of Dwellings: 125
Survey date: MONDAY 27/03/2017 Survey Type: MANUAL

8 DH-03-A-03 SEMI-DETACHE DURHAM
PILGRIMS WAY

DURHAM
Edge of Town
Residential Zone
Total No of Dwellings: 57
Survey date: FRIDAY 19/10/2018 Survey Type: MANUAL

9 DV-03-A-02 HOUSES & BUN DEVON
MILLHEAD ROAD

HONITON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 116
Survey date: FRIDAY 25/09/2015 Survey Type: MANUAL

10 DV-03-A-03 TERRACED & SE DEVON
LOWER BRAND LANE

HONITON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 70
Survey date: MONDAY 28/09/2015 Survey Type: MANUAL

11 DY-03-A-01 MIXED HOUSES DERBY
RADBOURNE LANE

DERBY
Edge of Town
Residential Zone
Total No of Dwellings: 371
Survey date: TUESDAY 10/07/2018 Survey Type: MANUAL
12 EC-03-A-06 TERRACED HOU CHESHIRE EAST
GREYSTOKE ROAD
HURDSFIELD
MACCLESFIELD
Edge of Town
Residential Zone
Total No of Dwellings: 24
Survey date: MONDAY 24/11/2014 Survey Type: MANUAL
13 ES-03-A-03 MIXED HOUSES EAST SUSSEX
SHEPHAM LANE

POLEGATE
Edge of Town
Residential Zone
Total No of Dwellings: 212
Survey date: MONDAY 11/07/2016 Survey Type: MANUAL
14 ES-03-A-04 MIXED HOUSES EAST SUSSEX
NEW LYDD ROAD

CAMBER
Edge of Town
Residential Zone
Total No of Dwellings: 134
Survey date: FRIDAY 15/07/2016 Survey Type: MANUAL
15 ES-03-A-05 MIXED HOUSES EAST SUSSEX
RATTLE ROAD
STONE CROSS
NEAR EASTBOURNE
Edge of Town
Residential Zone
Total No of Dwellings: 99
Survey date: WEDNESDAY 05/06/2019 Survey Type: MANUAL
16 ES-03-A-07 MIXED HOUSES EAST SUSSEX
NEW ROAD
HELLINGLY
HAILSHAM
Edge of Town
Residential Zone
Total No of Dwellings: 91
Survey date: THURSDAY 07/11/2019 Survey Type: MANUAL
17 EX-03-A-03 MIXED HOUSES ESSEX
KESTREL GROVE

RAYLEIGH
Edge of Town
Residential Zone
Total No of Dwellings: 123
Survey date: MONDAY 27/09/2021 Survey Type: MANUAL
18 HC-03-A-21 TERRACED & SE HAMPSHIRE
PRIESTLEY ROAD
HOUNDMILLS
BASINGSTOKE
Edge of Town
Residential Zone
Total No of Dwellings: 39
Survey date: TUESDAY 13/11/2018 Survey Type: MANUAL
19 HC-03-A-22 MIXED HOUSES HAMPSHIRE
BOW LAKE GARDENS
BISHOPSTOKE
NEAR EASTLEIGH
Edge of Town
Residential Zone
Total No of Dwellings: 40
Survey date: WEDNESDAY 31/10/2018 Survey Type: MANUAL
20 HC-03-A-23 HOUSES & FLAT HAMPSHIRE
CANADA WAY

LIPHOOK
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 62
Survey date: TUESDAY 19/11/2019 Survey Type: MANUAL
21 HC-03-A-24 MIXED HOUSES HAMPSHIRE
STONEHAM LANE

EASTLEIGH
Edge of Town

Residential Zone
Total No of Dwellings: 243
Survey date: WEDNESDAY 10/11/2021 Survey Type: MANUAL
22 HC-03-A-27 MIXED HOUSES HAMPSHIRE
DAIRY ROAD

ANDOVER
Edge of Town
Residential Zone
Total No of Dwellings: 73
Survey date: TUESDAY 16/11/2021 Survey Type: MANUAL
23 HC-03-A-28 MIXED HOUSES HAMPSHIRE
EAGLE AVENUE
LOVEDEAN
WATERLOOVILLE
Edge of Town
Residential Zone
Total No of Dwellings: 125
Survey date: MONDAY 08/11/2021 Survey Type: MANUAL
24 HC-03-A-29 MIXED HOUSES HAMPSHIRE
CROW LANE
CROW
RINGWOOD
Edge of Town
Residential Zone
Total No of Dwellings: 195
Survey date: THURSDAY 30/06/2022 Survey Type: MANUAL
25 HC-03-A-31 MIXED HOUSES HAMPSHIRE
KILN ROAD

LIPHOOK
Edge of Town
Residential Zone
Total No of Dwellings: 44
Survey date: FRIDAY 07/10/2022 Survey Type: MANUAL
26 HF-03-A-03 MIXED HOUSES HERTFORDSHIRE
HARE STREET ROAD

BUNTINGFORD
Edge of Town
Residential Zone
Total No of Dwellings: 160
Survey date: MONDAY 08/07/2019 Survey Type: MANUAL
27 KC-03-A-03 MIXED HOUSES KENT
HYTHE ROAD
WILLESBOROUGH
ASHFORD
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 51
Survey date: THURSDAY 14/07/2016 Survey Type: MANUAL
28 KC-03-A-04 SEMI-DETACHE KENT
KILN BARN ROAD
DITTON
AYLESFORD
Edge of Town
Residential Zone
Total No of Dwellings: 110
Survey date: FRIDAY 22/09/2017 Survey Type: MANUAL
29 KC-03-A-06 MIXED HOUSES KENT
MARGATE ROAD

HERNE BAY
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 363
Survey date: WEDNESDAY 27/09/2017 Survey Type: MANUAL
30 KC-03-A-07 MIXED HOUSES KENT
RECULVER ROAD

HERNE BAY
Edge of Town
Residential Zone
Total No of Dwellings: 288
Survey date: WEDNESDAY 27/09/2017 Survey Type: MANUAL
31 KC-03-A-08 MIXED HOUSES KENT
MAIDSTONE ROAD

CHARING
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 159
Survey date: TUESDAY 22/05/2018 Survey Type: MANUAL

32 LE-03-A-02 DETACHED & O LEICESTERSHIRE
MELBOURNE ROAD

IBSTOCK
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 85
Survey date: THURSDAY 28/06/2018 Survey Type: MANUAL
33 MW-03-A-01 DETACHED & S MEDWAY
ROCHESTER ROAD
BURHAM
NEAR CHATHAM
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 8
Survey date: FRIDAY 22/09/2017 Survey Type: MANUAL
34 MW-03-A-02 MIXED HOUSES MEDWAY
OTTERHAM QUAY LANE

RAINHAM
Edge of Town
Residential Zone
Total No of Dwellings: 19
Survey date: MONDAY 06/06/2022 Survey Type: MANUAL
35 NE-03-A-02 SEMI DETACHE NORTH EAST LINCOLNSHIRE
HANOVER WALK

SCUNTHORPE
Edge of Town
No Sub Category
Total No of Dwellings: 432
Survey date: MONDAY 12/05/2014 Survey Type: MANUAL
36 NF-03-A-03 DETACHED HOI NORFOLK
HALING WAY

THETFORD
Edge of Town
Residential Zone
Total No of Dwellings: 10
Survey date: WEDNESDAY 16/09/2015 Survey Type: MANUAL
37 NF-03-A-05 MIXED HOUSES NORFOLK
HEATH DRIVE

HOLT
Edge of Town
Residential Zone
Total No of Dwellings: 40
Survey date: THURSDAY 19/09/2019 Survey Type: MANUAL
38 NF-03-A-06 MIXED HOUSES NORFOLK
BEAUFORT WAY
BRADWELL
GREAT YARMOUTH
Edge of Town
Residential Zone
Total No of Dwellings: 275
Survey date: MONDAY 23/09/2019 Survey Type: MANUAL
39 NF-03-A-08 MIXED HOUSES NORFOLK
SIR ALFRED MUNNINGS RD
COSTESSEY
NEAR NORWICH
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 1817
Survey date: THURSDAY 19/09/2019 Survey Type: MANUAL
40 NF-03-A-09 MIXED HOUSES NORFOLK
ROUND HOUSE WAY
CRINGLEFORD
NORWICH
Edge of Town
Residential Zone
Total No of Dwellings: 984
Survey date: TUESDAY 24/09/2019 Survey Type: MANUAL
41 NF-03-A-23 MIXED HOUSES NORFOLK
SILFIELD ROAD

WYMONDHAM
Edge of Town
Out of Town
Total No of Dwellings: 514
Survey date: WEDNESDAY 22/09/2021 Survey Type: MANUAL
42 NF-03-A-25 MIXED HOUSES NORFOLK
WOODFARM LANE

GORLESTON-ON-SEA
Edge of Town
Residential Zone
Total No of Dwellings: 55
Survey date: TUESDAY 21/09/2021 Survey Type: MANUAL
43 NF-03-A-27 MIXED HOUSES NORFOLK
YARMOUTH ROAD
BLOFIELD
NEAR NORWICH
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 93
Survey date: THURSDAY 16/09/2021 Survey Type: MANUAL
44 NF-03-A-28 MIXED HOUSES NORFOLK
ATLANTIC AVENUE
SPROWSTON
NORWICH
Edge of Town
Residential Zone
Total No of Dwellings: 1146
Survey date: THURSDAY 22/09/2022 Survey Type: MANUAL
45 NF-03-A-30 MIXED HOUSES NORFOLK
BRANDON ROAD

SWAFFHAM
Edge of Town
Residential Zone
Total No of Dwellings: 266
Survey date: THURSDAY 23/09/2021 Survey Type: MANUAL
46 NF-03-A-33 MIXED HOUSES NORFOLK
LONDON ROAD

ATTLEBOROUGH
Edge of Town
Residential Zone
Total No of Dwellings: 143
Survey date: THURSDAY 29/09/2022 Survey Type: MANUAL
47 NF-03-A-34 MIXED HOUSES NORFOLK
NORWICH ROAD

SWAFFHAM
Edge of Town
Out of Town
Total No of Dwellings: 80
Survey date: TUESDAY 27/09/2022 Survey Type: MANUAL
48 NF-03-A-35 MIXED HOUSES NORFOLK
REPTON AVENUE

NORWICH
Edge of Town
Residential Zone
Total No of Dwellings: 116
Survey date: WEDNESDAY 28/09/2022 Survey Type: MANUAL
49 NF-03-A-36 MIXED HOUSES NORFOLK
LONDON ROAD

WYMONDHAM
Edge of Town
No Sub Category
Total No of Dwellings: 75
Survey date: THURSDAY 29/09/2022 Survey Type: MANUAL
50 NF-03-A-37 MIXED HOUSES NORFOLK
GREENFIELDS ROAD

DEREHAM
Edge of Town
Residential Zone
Total No of Dwellings: 44
Survey date: TUESDAY 27/09/2022 Survey Type: MANUAL
51 NF-03-A-38 MIXED HOUSES NORFOLK
BEAUFORT WAY
BRADWELL
GREAT YARMOUTH
Edge of Town
Residential Zone
Total No of Dwellings: 537
Survey date: TUESDAY 20/09/2022 Survey Type: MANUAL
52 NF-03-A-39 MIXED HOUSES NORFOLK
HEATH DRIVE

HOLT
Edge of Town
Residential Zone

Total No of Dwellings: 212
Survey date: TUESDAY 27/09/2022 Survey Type: MANUAL
53 NF-03-A-43 MIXED HOUSES NORFOLK
MILL LANE
HORSFORD
NEAR NORWICH
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 125
Survey date: WEDNESDAY 15/09/2021 Survey Type: MANUAL
54 NF-03-A-46 MIXED HOUSES NORFOLK
BURGH ROAD

AYLSHAM
Edge of Town
Residential Zone
Total No of Dwellings: 300
Survey date: TUESDAY 14/09/2021 Survey Type: MANUAL
55 NT-03-A-08 DETACHED HOI NOTTINGHAMSHIRE
WIGHAY ROAD

HUCKNALL
Edge of Town
Residential Zone
Total No of Dwellings: 36
Survey date: MONDAY 18/10/2021 Survey Type: MANUAL
56 NY-03-A-13 TERRACED HOL NORTH YORKSHIRE
CATTERICK ROAD
OLD HOSPITAL COMPOUND
CATTERICK GARRISON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 10
Survey date: WEDNESDAY 10/05/2017 Survey Type: MANUAL
57 NY-03-A-14 DETACHED & B NORTH YORKSHIRE
PALACE ROAD

RIPON
Edge of Town
Residential Zone
Total No of Dwellings: 45
Survey date: WEDNESDAY 18/05/2022 Survey Type: MANUAL
58 PB-03-A-04 DETACHED HOI PETERBOROUGH
EASTFIELD ROAD

PETERBOROUGH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 28
Survey date: MONDAY 17/10/2016 Survey Type: MANUAL
59 SC-03-A-04 DETACHED & T SURREY
HIGH ROAD

BYFLEET
Edge of Town
Residential Zone
Total No of Dwellings: 71
Survey date: THURSDAY 23/01/2014 Survey Type: MANUAL
60 SC-03-A-07 MIXED HOUSES SURREY
FOLLY HILL

FARNHAM
Edge of Town
Residential Zone
Total No of Dwellings: 41
Survey date: WEDNESDAY 11/05/2022 Survey Type: MANUAL
61 SC-03-A-08 MIXED HOUSES SURREY
REIGATE ROAD

HORLEY
Edge of Town
Residential Zone
Total No of Dwellings: 790
Survey date: WEDNESDAY 04/05/2022 Survey Type: MANUAL
62 SC-03-A-09 MIXED HOUSES SURREY
AMLETS LANE

CRANLEIGH
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 136
Survey date: TUESDAY 24/05/2022 Survey Type: MANUAL
63 SC-03-A-10 MIXED HOUSES SURREY

GUILDFORD ROAD

ASH
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 32
Survey date: WEDNESDAY 14/09/2022 Survey Type: MANUAL
64 SD-03-A-01 SEMI DETACHE SWINDON
HEADLANDS GROVE

SWINDON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 27
Survey date: THURSDAY 22/09/2016 Survey Type: MANUAL
65 SF-03-A-05 DETACHED HOI SUFFOLK
VALE LANE

BURY ST EDMUNDS
Edge of Town
Residential Zone
Total No of Dwellings: 18
Survey date: WEDNESDAY 09/09/2015 Survey Type: MANUAL
66 SF-03-A-06 DETACHED & SI SUFFOLK
BURY ROAD

KENTFORD
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 38
Survey date: FRIDAY 22/09/2017 Survey Type: MANUAL
67 SH-03-A-06 BUNGALOWS SHROPSHIRE
ELLESMERE ROAD

SHREWSBURY
Edge of Town
Residential Zone
Total No of Dwellings: 16
Survey date: THURSDAY 22/05/2014 Survey Type: MANUAL
68 SM-03-A-01 DETACHED & SI SOMERSET
WEMBDON ROAD
NORTHFIELD
BRIDGWATER
Edge of Town
Residential Zone
Total No of Dwellings: 33
Survey date: THURSDAY 24/09/2015 Survey Type: MANUAL
69 SM-03-A-02 MIXED HOUSES SOMERSET
HYDE LANE
CREECH SAINT MICHAEL
NEAR TAUNTON
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 42
Survey date: TUESDAY 25/09/2018 Survey Type: MANUAL
70 SM-03-A-03 MIXED HOUSES SOMERSET
HYDE LANE
CREECH ST MICHAEL
NEAR TAUNTON
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 41
Survey date: TUESDAY 25/09/2018 Survey Type: MANUAL
71 SP-03-A-02 MIXED HOUSES SOUTHAMPTON
BARNFIELD WAY
HEDGE END
NEAR SOUTHAMPTON
Edge of Town
Out of Town
Total No of Dwellings: 250
Survey date: TUESDAY 12/10/2021 Survey Type: MANUAL
72 ST-03-A-07 DETACHED & SI STAFFORDSHIRE
BEACONSIDE
MARSTON GATE
STAFFORD
Edge of Town
Residential Zone
Total No of Dwellings: 248
Survey date: WEDNESDAY 22/11/2017 Survey Type: MANUAL
73 TB-03-A-01 TERRACED HOU TORBAY
BRONSHILL ROAD

TORQUAY

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 37
Survey date: WEDNESDAY 30/09/2015 Survey Type: MANUAL

74 WB-03-A-03 MIXED HOUSES WEST BERKSHIRE
DORKING WAY
CALCOT
READING
Edge of Town
Residential Zone
Total No of Dwellings: 108
Survey date: FRIDAY 09/09/2022 Survey Type: MANUAL

75 WK-03-A-04 DETACHED HOI WARWICKSHIRE
DALEHOUSE LANE

KENILWORTH
Edge of Town
Residential Zone
Total No of Dwellings: 49
Survey date: FRIDAY 27/09/2019 Survey Type: MANUAL

76 WM-03-A-04 TERRACED HOL WEST MIDLANDS
OSBORNE ROAD
EARLSDON
COVENTRY
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total No of Dwellings: 39
Survey date: MONDAY 21/11/2016 Survey Type: MANUAL

77 WS-03-A-04 MIXED HOUSES WEST SUSSEX
HILLS FARM LANE
BROADBRIDGE HEATH
HORSHAM
Edge of Town
Residential Zone
Total No of Dwellings: 151
Survey date: THURSDAY 11/12/2014 Survey Type: MANUAL

78 WS-03-A-07 BUNGALOWS WEST SUSSEX
EMMS LANE
BROOKS GREEN
NEAR HORSHAM
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 57
Survey date: THURSDAY 19/10/2017 Survey Type: MANUAL

79 WS-03-A-08 MIXED HOUSES WEST SUSSEX
ROUNDSTONE LANE

ANGMERING
Edge of Town
Residential Zone
Total No of Dwellings: 180
Survey date: THURSDAY 19/04/2018 Survey Type: MANUAL

80 WS-03-A-11 MIXED HOUSES WEST SUSSEX
ELLIS ROAD
S BROADBRIDGE HEATH
WEST HORSHAM
Edge of Town
Residential Zone
Total No of Dwellings: 918
Survey date: TUESDAY 02/04/2019 Survey Type: MANUAL

81 WS-03-A-14 MIXED HOUSES WEST SUSSEX
TODDINGTON LANE
WICK
LITTLEHAMPTON
Edge of Town
Residential Zone
Total No of Dwellings: 117
Survey date: WEDNESDAY 20/10/2021 Survey Type: MANUAL

82 WS-03-A-15 MIXED HOUSES WEST SUSSEX
HILLAND ROAD

BILLINGSHURST
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 380
Survey date: TUESDAY 23/11/2021 Survey Type: MANUAL

This section provides a lis it displays a un the selected tr the day of the and whether the survey was a manual classified count or an ATC count.

Manually Deselected Surveys

| Site Ref | Survey Date | Reason for Deselection |
|---|---|---|
| AC-03-A-05 | 30/04/2021 | covid |

| | | |
|---|---|---|
| CA-03-A-07 | 27/05/2021 | covid |
| ES-03-A-06 | 16/06/2021 | covid |
| HC-03-A-26 | 24/06/2021 | covid |
| HF-03-A-04 | 08/06/2021 | covid |
| KC-03-A-09 | 09/06/2021 | covid |
| SF-03-A-09 | 24/06/2021 | covid |
| SF-03-A-10 | 22/06/2021 | covid |
| WS-03-A-12 | 16/06/2021 | covid |
| WS-03-A-13 | 23/06/2021 | covid |

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
Calculation Factor: 1 DWELLS
Count Type: TOTAL PEOPLE

| | | | ARRIVALS | | | DEPARTURES | | | TOTALS |
|---|---|---|---|---|---|---|---|---|---|
| | No. | Ave. | Trip | No. | Ave. | Trip | No. | Ave. | Trip |
| Time Range | Days | DWELLS | Rate | Days | DWELLS | Rate | Days | DWELLS | 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 | 82 | 183 | 0.107 | 82 | 183 | 0.501 | 82 | 183 | 0.608 |
| 08:00-09:00 | 82 | 183 | 0.207 | 82 | 183 | 0.743 | 82 | 183 | 0.95 |
| 09:00-10:00 | 82 | 183 | 0.202 | 82 | 183 | 0.272 | 82 | 183 | 0.474 |
| 10:00-11:00 | 82 | 183 | 0.184 | 82 | 183 | 0.231 | 82 | 183 | 0.415 |
| 11:00-12:00 | 82 | 183 | 0.193 | 82 | 183 | 0.211 | 82 | 183 | 0.404 |
| 12:00-13:00 | 82 | 183 | 0.228 | 82 | 183 | 0.218 | 82 | 183 | 0.446 |
| 13:00-14:00 | 82 | 183 | 0.233 | 82 | 183 | 0.209 | 82 | 183 | 0.442 |
| 14:00-15:00 | 82 | 183 | 0.255 | 82 | 183 | 0.254 | 82 | 183 | 0.509 |
| 15:00-16:00 | 82 | 183 | 0.51 | 82 | 183 | 0.269 | 82 | 183 | 0.779 |
| 16:00-17:00 | 82 | 183 | 0.485 | 82 | 183 | 0.26 | 82 | 183 | 0.745 |
| 17:00-18:00 | 82 | 183 | 0.562 | 82 | 183 | 0.263 | 82 | 183 | 0.825 |
| 18:00-19:00 | 82 | 183 | 0.47 | 82 | 183 | 0.263 | 82 | 183 | 0.733 |
| 19:00-20:00 | | | | | | | | | |
| 20:00-21:00 | | | | | | | | | |
| 21:00-22:00 | | | | | | | | | |
| 22:00-23:00 | | | | | | | | | |
| 23:00-24:00 | | | | | | | | | |
| Daily Trip Rates: | | | 3.636 | | | 3.694 | | | 7.33 |

TRICS 7.9.2
Trip Rate P No of Dwellings

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use 03 - RESIDENTIAL
Category D - AFFORDABLE/LOCAL AUTHORITY FLATS
MULTI-MODAL TOTAL PEOPLE

Selected regions and areas:

| | | | |
|---|---|---|---|
| 2 | SOUTH EAST | | |
| | ES | EAST SUSSI | 2 days |
| 3 | SOUTH WEST | | |
| | BR | BRISTOL CI | 1 days |
| 5 | EAST MIDLANDS | | |
| | LN | LINCOLNSH | 1 days |
| | NT | NOTTINGH | 1 days |

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

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.
Parameter No of Dwellings
Actual Ran 15 to 467 (units: )
Range Sele 6 to 467 (units: )

Public Transport Provision:
Selection b Include all surveys

Date Rang 01/01/14 to 24/11/21

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

| | |
|---|---|
| Tuesday | 1 days |
| Wednesda | 2 days |
| Thursday | 1 days |
| Friday | 1 days |

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

Selected survey types:
Manual co 5 days
Directional 0 days
This data d the total addi whilst ATC surveys are undertaking using machines.

Selected Locations:

| | |
|---|---|
| Town Cent | 1 |
| Edge of To | 0 |
| Suburban / | 3 |
| Edge of To | 1 |
| Neighbour | 0 |
| Free Stand | 0 |
| Not Know | 0 |

This data d Edge of Town Suburban Neighbourhood Centre Edge of To Town Centre and Not Known.

Selected Location Sub Categories:

| | |
|---|---|
| Industrial Z | 0 |
| Commercia | 0 |
| Developme | 0 |
| Residential | 3 |
| Retail Zone | 0 |
| Built-Up Zo | 1 |
| Village | 0 |
| Out of Tow | 0 |
| High Street | 0 |
| No Sub Cat | 1 |

This data d Industrial Zon Developm Residential Zone Retail Zon Built-Up Z Village Out of Tov High Street and No Sub Category.

Secondary Filtering selection:

Use Class:
C3 5 days
This data d which can be found within the Library module of TRICS®.

Population within 500m Range:
All Surveys Included

Population within 1 mile:
15,001 to 2 2 days
25,001 to 5 2 days
50,001 to 1 1 days
This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:
25,001 to 1 days
125,001 to 1 days
250,001 to 3 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 5 days
This data d within a radius of 5-miles of selected survey sites.

Travel Plan:
Yes 2 days
No 3 days
This data d and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:
No PTAL Pr 5 days
This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 BR-03-D-04 BLOCKS OF BRISTOL CITY
WHITCHURCH LANE
HARTCLIFFE
BRISTOL
Edge of Town
No Sub Category
Total No of Dwellings: 467
Survey date: WEDNESDA 24/11/2021 Survey Typ MANUAL

2 ES-03-D-05 BLOCKS OF EAST SUSSEX
WALWERS LANE

LEWES
Town Centre
Built-Up Zone
Total No of Dwellings: 24
Survey date: FRIDAY 10/10/2014 Survey Typ MANUAL

3 ES-03-D-06 FLATS & H( EAST SUSSEX
WELLINGTON ROAD

BRIGHTON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 15
Survey date: THURSDAY 16/10/2014 Survey Typ MANUAL

4 LN-03-D-02 FLATS LINCOLNSHIRE
ADDISON DRIVE

LINCOLN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 22
Survey date: WEDNESDA 01/07/2015 Survey Typ MANUAL

5 NT-03-D-02 BLOCK OF I NOTTINGHAMSHIRE
WATCOMBE ROAD
CARRINGTON
NOTTINGHAM
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 22
Survey date: TUESDAY 23/06/2015 Survey Typ MANUAL

This sectio it displays a u the select 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/D - AFFORDABLE/LOCAL AUTHORITY FLATS
Calculation Factor: 1 DWELLS
Count Type: TOTAL PEOPLE

| | ARRIVALS | | | DEPARTURES | | | TOTALS | | |
|---|---|---|---|---|---|---|---|---|---|
| Time Rang | 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 | | | | | | | | | |
| 07:00-08:0 | 5 | 110 | 0.018 | 5 | 110 | 0.111 | 5 | 110 | 0.129 |
| 08:00-09:0 | 5 | 110 | 0.082 | 5 | 110 | 0.291 | 5 | 110 | 0.373 |
| 09:00-10:0 | 5 | 110 | 0.082 | 5 | 110 | 0.111 | 5 | 110 | 0.193 |
| 10:00-11:0 | 5 | 110 | 0.16 | 5 | 110 | 0.162 | 5 | 110 | 0.322 |
| 11:00-12:0 | 5 | 110 | 0.131 | 5 | 110 | 0.165 | 5 | 110 | 0.296 |
| 12:00-13:0 | 5 | 110 | 0.118 | 5 | 110 | 0.149 | 5 | 110 | 0.267 |
| 13:00-14:0 | 5 | 110 | 0.147 | 5 | 110 | 0.178 | 5 | 110 | 0.325 |
| 14:00-15:0 | 5 | 110 | 0.151 | 5 | 110 | 0.215 | 5 | 110 | 0.366 |
| 15:00-16:0 | 5 | 110 | 0.267 | 5 | 110 | 0.175 | 5 | 110 | 0.442 |
| 16:00-17:0 | 5 | 110 | 0.249 | 5 | 110 | 0.151 | 5 | 110 | 0.4 |
| 17:00-18:0 | 5 | 110 | 0.258 | 5 | 110 | 0.153 | 5 | 110 | 0.411 |
| 18:00-19:0 | 5 | 110 | 0.175 | 5 | 110 | 0.125 | 5 | 110 | 0.3 |
| 19:00-20:00 | | | | | | | | | |
| 20:00-21:00 | | | | | | | | | |
| 21:00-22:00 | | | | | | | | | |
| 22:00-23:00 | | | | | | | | | |
| 23:00-24:00 | | | | | | | | | |
| Daily Trip Rates: | | | 1.838 | | | 1.986 | | | 3.824 |

# Appendix F

## Residential Person Trip Generation

## Residential Trip Generation

**Person Trip Generation**

| Time Period | Person Trip Rates | | | | | | Person Trip Generation | | | | | | Total Residential Person Trip Generation | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Privately Owned | | | Affordable | | | Privately Owned | | | Affordable | | | | | |
| | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total |
| 07:00-08:00 | 0.107 | 0.501 | 0.608 | 0.018 | 0.111 | 0.129 | 169 | 789 | 958 | 9 | 58 | 68 | 178 | 847 | 1,025 |
| 08:00-09:00 | 0.207 | 0.743 | 0.950 | 0.082 | 0.291 | 0.373 | 326 | 1,170 | 1,496 | 43 | 153 | 196 | 369 | 1,323 | 1,692 |
| 09:00-10:00 | 0.202 | 0.272 | 0.474 | 0.082 | 0.111 | 0.193 | 318 | 428 | 747 | 43 | 58 | 101 | 361 | 487 | 848 |
| 15:00-16:00 | 0.510 | 0.269 | 0.779 | 0.267 | 0.175 | 0.442 | 803 | 424 | 1,227 | 140 | 92 | 232 | 943 | 516 | 1,459 |
| 16:00-17:00 | 0.485 | 0.260 | 0.745 | 0.249 | 0.151 | 0.400 | 764 | 410 | 1,173 | 131 | 79 | 210 | 895 | 489 | 1,383 |
| 17:00-18:00 | 0.562 | 0.263 | 0.825 | 0.258 | 0.153 | 0.411 | 885 | 414 | 1,299 | 135 | 80 | 216 | 1,021 | 495 | 1,515 |
| 12-Hour (07:00-19 | 3.636 | 3.694 | 7.330 | 1.838 | 1.986 | 3.824 | 5,727 | 5,818 | 11,545 | 965 | 1,043 | 2,008 | 6,692 | 6,861 | 13,552 |

| | | |
|---|---|---|
| Privately Owned | 1,575 | dwelling units |
| Affordable | 525 | dwelling units |

**Journey Purpose**

| Start time | Commuting | Business | Education | Escort education | Shopping | Other work, other escort and personal business | Visiting friends / entertainment / sport | Holiday / Day trip / Other | All purposes | Unweighted sample size (trips '000s) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Percentage | | | | | | | | | |
| 0000 - 0059 | 49.5 | 3.3 | 0.5 | 0.3 | 3.0 | 10.6 | 27.3 | 5.5 | 100.0 | 1 |
| 0100 - 0159 | 51.0 | 3.6 | 0.3 | 0.2 | 1.4 | 7.9 | 31.9 | 3.6 | 100.0 | 0 |
| 0200 - 0259 | 63.1 | 3.3 | 0.0 | 0.4 | 2.4 | 7.5 | 13.1 | 10.4 | 100.0 | 0 |
| 0300 - 0359 | 62.3 | 7.1 | 1.7 | 0.3 | 2.0 | 9.1 | 7.7 | 9.8 | 100.0 | 1 |
| 0400 - 0459 | 70.6 | 7.8 | 0.3 | 0.1 | 0.6 | 8.4 | 3.1 | 9.2 | 100.0 | 2 |
| 0500 - 0559 | 75.2 | 6.5 | 0.4 | 0.1 | 0.9 | 6.0 | 3.4 | 7.5 | 100.0 | 7 |
| 0600 - 0659 | 66.1 | 6.7 | 1.4 | 0.5 | 2.2 | 8.6 | 4.5 | 10.1 | 100.0 | 20 |
| 0700 - 0759 | 47.8 | 5.5 | 14.3 | 5.5 | 3.0 | 13.9 | 3.8 | 6.2 | 100.0 | 56 |
| 0800 - 0859 | 19.8 | 3.1 | 28.6 | 22.9 | 4.2 | 14.2 | 3.5 | 3.8 | 100.0 | 118 |
| 0900 - 0959 | 10.9 | 4.9 | 3.1 | 6.8 | 22.1 | 25.8 | 14.8 | 11.5 | 100.0 | 58 |
| 1000 - 1059 | 5.1 | 4.0 | 1.6 | 0.5 | 34.1 | 24.4 | 16.7 | 13.7 | 100.0 | 60 |
| 1100 - 1159 | 4.9 | 4.1 | 1.8 | 1.6 | 35.2 | 23.3 | 18.0 | 11.2 | 100.0 | 61 |
| 1200 - 1259 | 6.8 | 4.3 | 2.4 | 1.8 | 30.5 | 24.8 | 20.2 | 9.3 | 100.0 | 58 |
| 1300 - 1359 | 10.0 | 4.6 | 2.3 | 1.0 | 28.3 | 24.1 | 19.1 | 10.5 | 100.0 | 54 |
| 1400 - 1459 | 9.6 | 3.9 | 3.6 | 11.2 | 24.7 | 19.7 | 17.2 | 10.0 | 100.0 | 61 |
| 1500 - 1559 | 7.1 | 2.4 | 25.5 | 21.4 | 11.9 | 14.0 | 11.7 | 6.1 | 100.0 | 112 |
| 1600 - 1659 | 22.0 | 4.1 | 6.7 | 4.5 | 15.0 | 20.3 | 17.9 | 9.6 | 100.0 | 75 |
| 1700 - 1759 | 32.3 | 3.3 | 3.0 | 2.2 | 12.0 | 20.0 | 19.7 | 7.6 | 100.0 | 76 |
| 1800 - 1859 | 20.9 | 2.9 | 1.3 | 0.7 | 14.9 | 17.8 | 30.9 | 10.6 | 100.0 | 55 |
| 1900 - 1959 | 11.2 | 2.2 | 0.5 | 0.3 | 16.0 | 17.5 | 41.1 | 11.1 | 100.0 | 37 |
| 2000 - 2059 | 12.6 | 2.5 | 0.7 | 0.3 | 14.0 | 15.5 | 43.2 | 11.1 | 100.0 | 23 |
| 2100 - 2159 | 14.1 | 2.6 | 0.8 | 0.2 | 9.0 | 15.2 | 49.3 | 8.9 | 100.0 | 16 |
| 2200 - 2259 | 22.2 | 2.7 | 0.5 | 0.1 | 4.7 | 11.3 | 49.7 | 8.8 | 100.0 | 11 |
| 2300 - 2359 | 24.5 | 2.2 | 1.1 | 0.1 | 3.2 | 11.1 | 52.2 | 5.7 | 100.0 | 6 |
| All day | 17.9 | 3.7 | 9.0 | 7.5 | 16.8 | 18.7 | 17.6 | 8.8 | 100.0 | 985 |

Source: Table NTS0502 (2019)

NTS for 2020 and 2021 had far smaller sample size and NTS advise against using it due to effects of COVID

| Time Period | Trip Purpose | | | | |
|---|---|---|---|---|---|
| | Work | Education | Leisure | Shopping | Total |
| 07:00-08:00 | 67.2% | 19.8% | 10.0% | 3.0% | 100.0% |
| 08:00-09:00 | 37.1% | 51.4% | 7.3% | 4.2% | 100.0% |
| 09:00-10:00 | 41.6% | 10.0% | 26.3% | 22.1% | 100.0% |
| 15:00-16:00 | 23.4% | 47.0% | 17.7% | 11.9% | 100.0% |
| 16:00-17:00 | 46.4% | 11.2% | 27.5% | 15.0% | 100.0% |
| 17:00-18:00 | 55.5% | 5.2% | 27.3% | 12.0% | 100.0% |
| 12-Hour (07:00-19: | **40.5%** | **14.5%** | **25.3%** | **19.7%** | **100.0%** |

**Person Trips - By Trip Start Time & Trip Purpose**

| Time Period | Work | | | Education | | | Leisure | | | Shopping | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total |
| 07:00-08:00 | 120 | 570 | 689 | 35 | 168 | 203 | 18 | 85 | 102 | 5 | 25 | 30 | 178 | 847 | 1,025 |
| 08:00-09:00 | 137 | 491 | 627 | 190 | 680 | 870 | 27 | 97 | 124 | 16 | 56 | 71 | 369 | 1,323 | 1,692 |
| 09:00-10:00 | 150 | 202 | 353 | 36 | 48 | 84 | 95 | 128 | 223 | 80 | 108 | 188 | 361 | 487 | 848 |
| 15:00-16:00 | 221 | 121 | 342 | 443 | 242 | 685 | 167 | 91 | 259 | 112 | 61 | 173 | 943 | 516 | 1,459 |
| 16:00-17:00 | 415 | 227 | 642 | 100 | 55 | 154 | 246 | 134 | 380 | 134 | 73 | 207 | 895 | 489 | 1,383 |
| 17:00-18:00 | 567 | 275 | 841 | 53 | 26 | 78 | 278 | 135 | 413 | 123 | 60 | 183 | 1,021 | 495 | 1,515 |
| 12-Hour (07:00-19 | 2,713 | 2,782 | 5,495 | 972 | 996 | 1,968 | 1,691 | 1,734 | 3,425 | 1,316 | 1,349 | 2,664 | 6,692 | 6,861 | 13,552 |

| | | |
|---|---|---|
| Primary | 66% | <- Rounded like IMA methodology |
| Secondary | 25% | <- Rounded like IMA methodology |
| Higher Education | 9% | <- Rounded like IMA methodology |

**Person Trips - By Trip Start Time & Trip Purpose (Education Breakdown)**

| Time Period | Work | | | Education - Primary | | | Education - Secondary | | | Education - Higher Education | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total |
| 07:00-08:00 | 120 | 570 | 689 | 23 | 111 | 134 | 9 | 42 | 51 | 3 | 15 | 18 |
| 08:00-09:00 | 137 | 491 | 627 | 125 | 449 | 574 | 47 | 170 | 218 | 17 | 61 | 78 |
| 09:00-10:00 | 150 | 202 | 353 | 24 | 32 | 56 | 9 | 12 | 21 | 3 | 4 | 8 |
| 15:00-16:00 | 221 | 121 | 342 | 292 | 160 | 452 | 111 | 61 | 171 | 40 | 22 | 62 |
| 16:00-17:00 | 415 | 227 | 642 | 66 | 36 | 102 | 25 | 14 | 39 | 9 | 5 | 14 |
| 17:00-18:00 | 567 | 275 | 841 | 35 | 17 | 52 | 13 | 6 | 20 | 5 | 2 | 7 |
| 12-Hour (07:00-19 | 2,713 | 2,782 | 5,495 | 641 | 657 | 1,299 | 243 | 249 | 492 | 87 | 90 | 177 |

| Time Period | Leisure | | | Shopping | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total |
| 07:00-08:00 | 18 | 85 | 102 | 5 | 25 | 30.402 | 177.975 | 847.350 | 1025.325 |
| 08:00-09:00 | 27 | 97 | 124 | 16 | 56 | 71.121 | 369.075 | 1323.000 | 1692.075 |
| 09:00-10:00 | 95 | 128 | 223 | 80 | 108 | 187.587 | 361.200 | 486.675 | 847.875 |
| 15:00-16:00 | 167 | 91 | 259 | 112 | 61 | 173.165 | 943.425 | 515.550 | 1458.975 |
| 16:00-17:00 | 246 | 134 | 380 | 134 | 73 | 207.389 | 894.600 | 488.775 | 1383.375 |
| 17:00-18:00 | 278 | 135 | 413 | 123 | 60 | 182.521 | 1020.600 | 494.550 | 1515.150 |
| 12-Hour (07:00-19 | 1,691 | 1,734 | 3,425 | 1,316 | 1,349 | 2664.402 | 6691.650 | 6860.700 | 13552.350 |

**Residential - Employment/Work**

| Time Period | Walk | | | Cycle | | | Public Transport | | | Car Driver | | | Passenger | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total |
| 07:00-08:00 | 40 | 190 | 230 | 26 | 121 | 147 | 21 | 101 | 123 | 29 | 136 | 165 | 4 | 20 | 25 | 120 | 570 | 689 |
| 08:00-09:00 | 46 | 164 | 210 | 29 | 105 | 134 | 24 | 87 | 112 | 33 | 117 | 150 | 5 | 17 | 22 | 137 | 491 | 627 |
| 09:00-10:00 | 50 | 68 | 118 | 32 | 43 | 75 | 27 | 36 | 63 | 36 | 48 | 84 | 5 | 7 | 13 | 150 | 202 | 353 |
| 15:00-16:00 | 74 | 40 | 114 | 47 | 26 | 73 | 39 | 22 | 61 | 53 | 29 | 82 | 8 | 4 | 12 | 221 | 121 | 342 |
| 16:00-17:00 | 139 | 76 | 214 | 88 | 48 | 137 | 74 | 40 | 114 | 99 | 54 | 153 | 15 | 8 | 23 | 415 | 227 | 642 |
| 17:00-18:00 | 189 | 92 | 281 | 121 | 59 | 179 | 101 | 49 | 150 | 135 | 66 | 201 | 20 | 10 | 30 | 567 | 275 | 841 |
| 12-Hour (07:00-19 | 907 | 930 | 1,837 | 579 | 593 | 1,172 | 483 | 495 | 978 | 648 | 665 | 1,313 | 97 | 99 | 196 | 2,713 | 2,782 | 5,495 |

**Residential - Leisure**

| Time Period | Walk | | | Cycle | | | Public Transport | | | Car Driver | | | Passenger | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total |
| 07:00-08:00 | 3 | 16 | 19 | 3 | 16 | 20 | 7 | 31 | 37 | 4 | 18 | 22 | 1 | 4 | 4 | 18 | 85 | 102 |
| 08:00-09:00 | 5 | 18 | 23 | 5 | 19 | 24 | 10 | 35 | 45 | 6 | 21 | 27 | 1 | 4 | 5 | 27 | 97 | 124 |
| 09:00-10:00 | 17 | 23 | 41 | 18 | 25 | 43 | 35 | 47 | 82 | 20 | 28 | 48 | 4 | 5 | 9 | 95 | 128 | 223 |
| 15:00-16:00 | 31 | 17 | 47 | 32 | 18 | 50 | 61 | 33 | 95 | 36 | 20 | 56 | 7 | 4 | 11 | 167 | 91 | 259 |
| 16:00-17:00 | 45 | 25 | 70 | 47 | 26 | 73 | 90 | 49 | 139 | 53 | 29 | 82 | 10 | 6 | 16 | 246 | 134 | 380 |
| 17:00-18:00 | 51 | 25 | 76 | 54 | 26 | 80 | 102 | 49 | 151 | 60 | 29 | 89 | 12 | 6 | 17 | 278 | 135 | 413 |
| 12-Hour (07:00-19 | 310 | 318 | 628 | 327 | 335 | 662 | 619 | 635 | 1,254 | 364 | 373 | 737 | 71 | 73 | 144 | 1,691 | 1,734 | 3,425 |

**Residential - Shopping**

| Time Period | Walk | | | Cycle | | | Public Transport | | | Car Driver | | | Passenger | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total |
| 07:00-08:00 | 1 | 5 | 6 | 1 | 4 | 5 | 1 | 7 | 8 | 2 | 8 | 10 | 0 | 1 | 1 | 5 | 25 | 30 |
| 08:00-09:00 | 3 | 11 | 14 | 3 | 9 | 12 | 4 | 14 | 19 | 5 | 18 | 23 | 1 | 3 | 3 | 16 | 56 | 71 |
| 09:00-10:00 | 16 | 21 | 37 | 14 | 18 | 32 | 21 | 28 | 49 | 26 | 35 | 61 | 4 | 5 | 9 | 80 | 108 | 188 |
| 15:00-16:00 | 22 | 12 | 34 | 19 | 10 | 29 | 29 | 16 | 45 | 36 | 20 | 56 | 6 | 3 | 9 | 112 | 61 | 173 |
| 16:00-17:00 | 26 | 14 | 41 | 23 | 12 | 35 | 35 | 19 | 54 | 44 | 24 | 67 | 7 | 4 | 10 | 134 | 73 | 207 |
| 17:00-18:00 | 24 | 12 | 36 | 21 | 10 | 31 | 32 | 16 | 48 | 40 | 19 | 59 | 6 | 3 | 9 | 123 | 60 | 183 |
| 12-Hour (07:00-19 | 259 | 265 | 524 | 223 | 228 | 451 | 343 | 352 | 695 | 427 | 438 | 864 | 65 | 66 | 131 | 1,316 | 1,349 | 2,664 |

**Residential - Education (Pupils & Escort)**

| Time Period | Walk | | | Cycle | | | Public Transport | | | Car Driver | | | Passenger | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total |
| 07:00-08:00 | 21 | 102 | 123 | 10 | 49 | 60 | 2 | 8 | 10 | 1 | 5 | 6 | 1 | 4 | 5 | 35 | 168 | 203 |
| 08:00-09:00 | 115 | 413 | 528 | 56 | 199 | 255 | 9 | 33 | 43 | 5 | 18 | 24 | 5 | 16 | 21 | 190 | 680 | 870 |
| 09:00-10:00 | 22 | 29 | 51 | 11 | 14 | 25 | 2 | 2 | 4 | 1 | 1 | 2 | 1 | 1 | 2 | 36 | 48 | 84 |
| 15:00-16:00 | 269 | 147 | 416 | 130 | 71 | 201 | 22 | 12 | 34 | 12 | 7 | 19 | 11 | 6 | 16 | 443 | 242 | 685 |
| 16:00-17:00 | 61 | 33 | 94 | 29 | 16 | 45 | 5 | 3 | 8 | 3 | 1 | 4 | 2 | 1 | 4 | 100 | 55 | 154 |
| 17:00-18:00 | 32 | 16 | 48 | 15 | 7 | 23 | 3 | 1 | 4 | 1 | 1 | 2 | 1 | 1 | 2 | 53 | 26 | 78 |
| 12-Hour (07:00-19 | 590 | 605 | 1,194 | 285 | 292 | 576 | 48 | 49 | 97 | 26 | 27 | 53 | 23 | 24 | 47 | 972 | 996 | 1,968 |

**Sub-Total: Residential**

| Time Period | Walk | | | Cycle | | | Public Transport | | | Car Driver | | | Passenger | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total |
| 07:00-08:00 | 66 | 313 | 378 | 40 | 191 | 231 | 31 | 147 | 178 | 35 | 167 | 202 | 6 | 29 | 35 | 178 | 847 | 1,025 |
| 08:00-09:00 | 169 | 605 | 774 | 93 | 332 | 424 | 48 | 171 | 218 | 49 | 174 | 223 | 11 | 41 | 52 | 369 | 1,323 | 1,692 |
| 09:00-10:00 | 105 | 142 | 247 | 74 | 100 | 175 | 84 | 113 | 198 | 83 | 112 | 195 | 14 | 19 | 33 | 361 | 487 | 848 |
| 15:00-16:00 | 395 | 216 | 612 | 228 | 125 | 353 | 152 | 83 | 234 | 137 | 75 | 212 | 31 | 17 | 48 | 943 | 516 | 1,459 |
| 16:00-17:00 | 271 | 148 | 419 | 188 | 103 | 291 | 204 | 111 | 315 | 198 | 108 | 306 | 34 | 19 | 53 | 895 | 489 | 1,383 |
| 17:00-18:00 | 297 | 144 | 440 | 211 | 102 | 313 | 237 | 115 | 353 | 237 | 115 | 351 | 39 | 19 | 58 | 1,021 | 495 | 1,515 |
| 12-Hour (07:00-19 | 2,065 | 2,117 | 4,183 | 1,412 | 1,448 | 2,861 | 1,493 | 1,531 | 3,024 | 1,465 | 1,502 | 2,967 | 256 | 262 | 518 | 6,692 | 6,861 | 13,552 |

# Appendix G

## Employment Trip Generation

**BSP - Existing Vehicle Trips**

| Time Range | Vehicle Trips | | | Trip Rates | | |
|---|---|---|---|---|---|---|
| | Arrivals | Departs | Total | Arrivals | Departs | Total |
| 07:00-08:00 | 43 | 4 | 47 | 0.303 | 0.028 | 0.331 |
| 08:00-09:00 | 91 | 11 | 102 | 0.641 | 0.077 | 0.718 |
| 09:00-10:00 | 62 | 14 | 76 | 0.437 | 0.099 | 0.535 |
| **07:00-10:00** | **196** | **29** | **225** | **1.380** | **0.204** | **1.585** |
| 10:00-11:00 | 24 | 12 | 36 | 0.169 | 0.085 | 0.254 |
| 11:00-12:00 | 23 | 19 | 42 | 0.162 | 0.134 | 0.296 |
| 12:00-13:00 | 21 | 56 | 77 | 0.148 | 0.394 | 0.542 |
| 13:00-14:00 | 37 | 28 | 65 | 0.261 | 0.197 | 0.458 |
| 14:00-15:00 | 15 | 21 | 36 | 0.106 | 0.148 | 0.254 |
| 15:00-16:00 | 8 | 27 | 35 | 0.056 | 0.190 | 0.246 |
| **10:00-16:00** | **128** | **163** | **291** | **0.901** | **1.148** | **2.049** |
| **10:00-16:00 Av Hr** | 21 | 27 | 49 | 0.150 | 0.191 | 0.342 |
| 16:00-17:00 | 12 | 43 | 55 | 0.085 | 0.303 | 0.387 |
| 17:00-18:00 | 10 | 79 | 89 | 0.070 | 0.556 | 0.627 |
| 18:00-19:00 | 5 | 32 | 37 | 0.035 | 0.225 | 0.261 |
| **16:00-19:00** | **27** | **154** | **181** | **0.190** | **1.085** | **1.275** |
| **Daily** | 351 | 346 | 697 | 2.472 | 2.437 | 4.908 |

Source - BSP Surveyed Flows

| Existing GFA |
|---|
| 14,200 |

| Employment Internalisation |
|---|
| 18.6% |

| Proposed GFA |
|---|
| 155,000 |

| | Proposed No. Employee | % |
|---|---|---|
| Students/Post Docs | 688 | 12% |
| Uni Staff | 696 | 13% |
| Non-Uni Staff | 4,152 | 75% |
| Total | 5,536 | 100% |

| WFH Reduction |
|---|
| 20.0% |

**BSP - Existing Mode Share**

| Mode | Non-University Staff | | University Staff | | All Staff | | Students | | UoO Staff/Students | | ALL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | % | Number | % | Number | % | Number | % | Number | % | Number | % |
| Walk | 0 | 0.0% | 3 | 8.6% | 3 | 4.6% | 0 | 0.0% | 3 | 5.2% | 3 | 3.4% |
| Cycle | 3 | 10.0% | 2 | 5.7% | 5 | 7.7% | 2 | 8.7% | 4 | 6.9% | 7 | 8.0% |
| Train | 1 | 3.3% | 1 | 2.9% | 2 | 3.1% | 0 | 0.0% | 1 | 1.7% | 2 | 2.3% |
| Minibus (BSP private) | 7 | 23.3% | 10 | 28.6% | 17 | 26.2% | 18 | 78.3% | 28 | 48.3% | 35 | 39.8% |
| Bus (public) | 1 | 3.3% | 2 | 5.7% | 3 | 4.6% | 0 | 0.0% | 2 | 3.4% | 3 | 3.4% |
| Taxi | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Motorbike | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Car driver: on your own | 15 | 50.0% | 16 | 45.7% | 31 | 47.7% | 3 | 13.0% | 19 | 32.8% | 34 | 38.6% |
| Car driver: with passeng | 3 | 10.0% | 1 | 2.9% | 4 | 6.2% | 0 | 0.0% | 1 | 1.7% | 4 | 4.5% |
| Car passenger | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Coach | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Work mainly from home | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Other | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Total | 30 | 100.0% | 35 | 100.0% | 65 | 100.0% | 23 | 100.0% | 58 | 100.0% | 88 | 100.0% |

Source - BSP Travel Survey (2018)

| Mode | Mode Share | | | |
|---|---|---|---|---|
| | All | Non-Uni | Uni Staff | Students/Post-Doc |
| Walking | 3.4% | 0.0% | 8.6% | 5.2% |
| Cycling | 8.0% | 10.0% | 5.7% | 6.9% |
| Public Transport | 45.5% | 30.0% | 37.1% | 53.4% |
| Car Driver | 43.2% | 60.0% | 48.6% | 34.5% |
| Car Passenger | 0.0% | 0.0% | 0.0% | 0.0% |
| Other | 0.0% | 0.0% | 0.0% | 0.0% |
| Total | 100.0% | 100.0% | 100.0% | 100.0% |

| External |
|---|
| 1.7% |
| 9.1% |
| 33.8% |
| 55.4% |
| 0.0% |
| 0.0% |
| 100.0% |

**BSP - Existing Person Trips**

| Time Range | Person Trips | | | Person Trip Rates | | |
|---|---|---|---|---|---|---|
| | Arrivals | Departs | Total | Arrivals | Departs | Total |
| 07:00-08:00 | 100 | 9 | 109 | 0.701 | 0.065 | 0.766 |
| 08:00-09:00 | 211 | 25 | 236 | 1.484 | 0.179 | 1.663 |
| 09:00-10:00 | 144 | 32 | 176 | 1.011 | 0.228 | 1.239 |
| **07:00-10:00** | **454** | **67** | **521** | **3.196** | **0.473** | **3.669** |
| 15:00-16:00 | 19 | 63 | 81 | 0.130 | 0.440 | 0.571 |
| 16:00-17:00 | 28 | 100 | 127 | 0.196 | 0.701 | 0.897 |
| 17:00-18:00 | 23 | 183 | 206 | 0.163 | 1.288 | 1.451 |
| **15:00-18:00** | **69** | **345** | **415** | **0.489** | **2.430** | **2.919** |
| **Daily** | 813 | 801 | 1614 | 5.724 | 5.643 | 11.367 |

**Projected Person Trips**

| Time Range | Work Origin Trips | | | WFH Reduction | | | Linked Housing/WorkTrips | | | Linked Housing/WorkTrips | | | Total External | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total |
| **AM 07:00-08:00** | 1,087 | 101 | 1,188 | 217 | 20 | 238 | 22 | 106 | 128 | 106 | 22 | 128 | 764 | 59 | 822 |
| **AM 08:00-09:00** | 2,300 | 278 | 2,578 | 460 | 56 | 516 | 25 | 91 | 116 | 91 | 25 | 116 | 1,749 | 197 | 1,946 |
| **AM 09:00-10:00** | 1,567 | 354 | 1,921 | 313 | 71 | 384 | 28 | 38 | 65 | 38 | 28 | 65 | 1,216 | 255 | 1,471 |
| **PM 15:00-16:00** | 202 | 683 | 885 | 40 | 137 | 177 | 41 | 22 | 63 | 22 | 41 | 63 | 139 | 505 | 644 |
| **PM 16:00-17:00** | 303 | 1,087 | 1,390 | 61 | 217 | 278 | 77 | 42 | 119 | 42 | 77 | 119 | 201 | 793 | 993 |
| **PM 17:00-18:00** | 253 | 1,997 | 2,250 | 51 | 399 | 450 | 105 | 51 | 156 | 51 | 105 | 156 | 151 | 1,492 | 1,644 |
| **12hr 07:00-19:00** | 8,873 | 8,746 | 17,619 | 1,775 | 1,749 | 3,524 | 504 | 516 | 1,020 | 516 | 504 | 1,020 | 6,582 | 6,493 | 13,075 |

Employment Person Trips (trips to PR8) — Assumed 14% of future employees will WFH — Internal Trips from Housing to Employment — Internal Trips to Employment from Housing — External Employment Trips to PR8

**Student/Post-Doc Trips by Mode Share - Proposed**

| Time Period | Walk | | | Cycle | | | Public Transport | | | Car Driver | | | Passenger | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total |
| **07:00-08:00** | 5 | 0 | 5 | 7 | 1 | 7 | 51 | 4 | 55 | 33 | 3 | 35 | 0 | 0 | 0 | 95 | 7 | 102 |
| **08:00-09:00** | 11 | 1 | 13 | 15 | 2 | 17 | 116 | 13 | 129 | 75 | 8 | 83 | 0 | 0 | 0 | 217 | 24 | 242 |
| **09:00-10:00** | 8 | 2 | 9 | 10 | 2 | 13 | 81 | 17 | 98 | 52 | 11 | 63 | 0 | 0 | 0 | 151 | 32 | 183 |
| **15:00-16:00** | 1 | 3 | 4 | 1 | 4 | 6 | 9 | 34 | 43 | 6 | 22 | 28 | 0 | 0 | 0 | 17 | 63 | 80 |
| **16:00-17:00** | 1 | 5 | 6 | 2 | 7 | 9 | 13 | 53 | 66 | 9 | 34 | 43 | 0 | 0 | 0 | 25 | 98 | 123 |
| **17:00-18:00** | 1 | 10 | 11 | 1 | 13 | 14 | 10 | 99 | 109 | 6 | 64 | 70 | 0 | 0 | 0 | 19 | 185 | 204 |
| **12-Hour (07:00-19:00)** | 42 | 42 | 84 | 56 | 56 | 112 | 437 | 431 | 868 | 282 | 278 | 560 | 0 | 0 | 0 | 817 | 806 | 1,624 |

**Uni-Staff Trips by Mode Share - Proposed**

| Time Period | Walk | | | Cycle | | | Public Transport | | | Car Driver | | | Passenger | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total |
| **07:00-08:00** | 8 | 1 | 9 | 5 | 0 | 6 | 36 | 3 | 38 | 47 | 4 | 50 | 0 | 0 | 0 | 96 | 7 | 103 |
| **08:00-09:00** | 19 | 2 | 21 | 13 | 1 | 14 | 82 | 9 | 91 | 107 | 12 | 119 | 0 | 0 | 0 | 220 | 25 | 245 |
| **09:00-10:00** | 13 | 3 | 16 | 9 | 2 | 11 | 57 | 12 | 69 | 74 | 16 | 90 | 0 | 0 | 0 | 153 | 32 | 185 |
| **15:00-16:00** | 2 | 5 | 7 | 1 | 4 | 5 | 7 | 24 | 30 | 9 | 31 | 39 | 0 | 0 | 0 | 18 | 64 | 81 |
| **16:00-17:00** | 2 | 9 | 11 | 1 | 6 | 7 | 9 | 37 | 46 | 12 | 48 | 61 | 0 | 0 | 0 | 25 | 100 | 125 |
| **17:00-18:00** | 2 | 16 | 18 | 1 | 11 | 12 | 7 | 70 | 77 | 9 | 91 | 100 | 0 | 0 | 0 | 19 | 188 | 207 |
| **12-Hour (07:00-19:00)** | 71 | 70 | 141 | 47 | 47 | 94 | 308 | 303 | 611 | 402 | 397 | 799 | 0 | 0 | 0 | 828 | 817 | 1,645 |

**Non Uni-Staff Trips by Mode Share - Proposed**

| Time Period | Walk | | | Cycle | | | Public Transport | | | Car Driver | | | Passenger | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total |
| **07:00-08:00** | 0 | 0 | 0 | 57 | 4 | 62 | 172 | 13 | 185 | 344 | 26 | 370 | 0 | 0 | 0 | 573 | 44 | 617 |
| **08:00-09:00** | 0 | 0 | 0 | 131 | 15 | 146 | 394 | 44 | 438 | 787 | 89 | 876 | 0 | 0 | 0 | 1,312 | 148 | 1,460 |
| **09:00-10:00** | 0 | 0 | 0 | 91 | 19 | 110 | 274 | 57 | 331 | 547 | 115 | 662 | 0 | 0 | 0 | 912 | 191 | 1,104 |
| **15:00-16:00** | 0 | 0 | 0 | 10 | 38 | 48 | 31 | 114 | 145 | 63 | 227 | 290 | 0 | 0 | 0 | 105 | 379 | 483 |
| **16:00-17:00** | 0 | 0 | 0 | 15 | 59 | 74 | 45 | 178 | 223 | 90 | 357 | 447 | 0 | 0 | 0 | 150 | 594 | 745 |
| **17:00-18:00** | 0 | 0 | 0 | 11 | 112 | 123 | 34 | 336 | 370 | 68 | 672 | 740 | 0 | 0 | 0 | 113 | 1,119 | 1,233 |
| **12-Hour (07:00-19:00)** | 0 | 0 | 0 | 494 | 487 | 981 | 1,481 | 1,461 | 2,942 | 2,962 | 2,922 | 5,884 | 0 | 0 | 0 | 4,936 | 4,870 | 9,806 |

**Total External Trips by Mode Share**

| Time Period | Walk | | | Cycle | | | Public Transport | | | Car Driver | | | Passenger | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total | Arrivals | Departs | Total |
| **07:00-08:00** | 13 | 1 | 14 | 69 | 5 | 75 | 258 | 20 | 278 | 423 | 33 | 456 | 0 | 0 | 0 | 764 | 59 | 822 |
| **08:00-09:00** | 30 | 3 | 33 | 159 | 18 | 177 | 591 | 67 | 658 | 969 | 109 | 1,078 | 0 | 0 | 0 | 1,749 | 197 | 1,946 |
| **09:00-10:00** | 21 | 4 | 25 | 110 | 23 | 134 | 411 | 86 | 498 | 674 | 141 | 815 | 0 | 0 | 0 | 1,216 | 255 | 1,471 |
| **15:00-16:00** | 2 | 9 | 11 | 13 | 46 | 58 | 47 | 171 | 218 | 77 | 280 | 357 | 0 | 0 | 0 | 139 | 505 | 644 |
| **16:00-17:00** | 3 | 14 | 17 | 18 | 72 | 90 | 68 | 268 | 336 | 111 | 439 | 550 | 0 | 0 | 0 | 201 | 793 | 993 |
| **17:00-18:00** | 3 | 26 | 28 | 14 | 135 | 149 | 51 | 505 | 556 | 84 | 827 | 910 | 0 | 0 | 0 | 151 | 1,492 | 1,644 |
| **12-Hour (07:00-19:00)** | 113 | 112 | 225 | 597 | 589 | 1,187 | 2,225 | 2,195 | 4,421 | 3,646 | 3,597 | 7,243 | 0 | 0 | 0 | 6,582 | 6,493 | 13,075 |
| | | | 1.7% | | | 9.1% | | | 33.8% | | | 55.4% | | | 0.0% | | | 100.0% |

# Appendix H

## Trip Distribution

**RESI TO WORK DESTINATIONS ASSESSMENT**

| | Trips from Cherwell 017 | Existing Distribution | Factored Trips from Cherwell 017 | Assumed PR8 Distribution | | Total Jobs at Planning |
|---|---|---|---|---|---|---|
| Cherwell | 963 | 33.7% | 1,147 | 32.7% | | 102249 |
| Cherwell 017 | 240 | 8.4% | 240 | 6.8% | | 1781 |
| Cherwell 018 | 62 | 2.2% | 62 | 1.8% | | 529 |
| Cherwell 019 | 379 | 13.3% | 469 | 13.4% | | 12208 |
| Rest of Cherwell | 282 | 9.9% | 375 | 10.7% | | 87730 |
| Oxford | 1,241 | 43.4% | 1,598 | 45.5% | | 147,600 |
| Oxford 001 | 43 | 1.5% | 251 | 7.1% | | 9,657 |
| Oxford 002 | 69 | 2.4% | 69 | 2.0% | | 3,276 |
| Oxford 003 | 80 | 2.8% | 80 | 2.3% | | 3,181 |
| Oxford 004 | 4 | 0.1% | 4 | 0.1% | | 673 |
| Oxford 005 | 4 | 0.1% | 4 | 0.1% | | 686 |
| Oxford 006 | 147 | 5.1% | 191 | 5.4% | | 21,817 |
| Oxford 007 | 16 | 0.6% | 16 | 0.5% | | 1,964 |
| Oxford 008 | 418 | 14.6% | 473 | 13.5% | | 42,759 |
| Oxford 009 | 100 | 3.5% | 100 | 2.8% | | 8,553 |
| Oxford 010 | 68 | 2.4% | 98 | 2.8% | | 13,104 |
| Oxford 011 | 26 | 0.9% | 26 | 0.7% | | 5,093 |
| Oxford 012 | 10 | 0.3% | 10 | 0.3% | | 717 |
| Oxford 013 | 133 | 4.7% | 153 | 4.4% | | 18,231 |
| Oxford 014 | 12 | 0.4% | 12 | 0.3% | | 1,028 |
| Oxford 015 | 48 | 1.7% | 48 | 1.4% | | 7,730 |
| Oxford 016 | 31 | 1.1% | 31 | 0.9% | | 6,091 |
| Oxford 017 | 26 | 0.9% | 26 | 0.7% | | 2,207 |
| Oxford 018 | 6 | 0.2% | 6 | 0.2% | | 831 |
| South Oxfordshire | 69 | 2.4% | 82 | 2.3% | | 76,500 |
| Vale of White Horse | 160 | 5.6% | 195 | 5.6% | | 90,200 |
| West Oxfordshire | 187 | 6.5% | 251 | 7.2% | | 57,451 |
| Out of Oxfordshire | 238 | 8.3% | 238 | 6.8% | | 0 |
| Total | 2,858 | 100.0% | 3,511 | 100.0% | | 474,000 |

Source: IMA methodology - see Appendix 2

| | |
|---|---|
| Oxford 001 | 7.1% |
| Oxford 002 | 2.0% |
| Oxford 003 | 2.3% |
| Oxford 004 | 0.1% |
| Oxford 005 | 0.1% |
| Oxford 006 | 5.4% |
| Oxford 007 | 0.5% |
| Oxford 008 | 13.5% |
| Oxford 009 | 2.8% |
| Oxford 010 | 2.8% |
| Oxford 011 | 0.7% |
| Oxford 012 | 0.3% |
| Oxford 013 | 4.4% |
| Oxford 014 | 0.3% |
| Oxford 015 | 1.4% |
| Oxford 016 | 0.9% |
| Oxford 017 | 0.7% |
| Oxford 018 | 0.2% |
| Cherwell 017 | 6.8% |
| Cherwell 018 | 1.8% |
| Cherwell 019 | 13.4% |
| Rest of Cherwell | 10.7% |
| South Oxfordshir | 2.3% |
| Vale of White Ho | 5.6% |
| West Oxfordshir | 7.2% |
| Out of Oxfordshi | 6.8% |
| | 100.0% |

**Background Information**

| **Cherwell** | Person trips to MSOA | Existing Jobs (Extrapolated) | Planned New Jobs | Total Jobs at Planning | Growth Factor |
|---|---|---|---|---|---|
| Cherwell 001 | 1,063 | 1,373 | | 1,373 | 1.000 |
| Cherwell 002 | 576 | 744 | | 744 | 1.000 |
| Cherwell 003 | 4,588 | 5,928 | | 5,928 | 1.000 |
| Cherwell 004 | 13,646 | 17,632 | 6,268 | 23,900 | 1.355 |
| Cherwell 005 | 298 | 385 | | 385 | 1.000 |
| Cherwell 006 | 3,456 | 4,465 | | 4,465 | 1.000 |
| Cherwell 007 | 2,207 | 2,852 | | 2,852 | 1.000 |
| Cherwell 008 | 2,708 | 3,499 | | 3,499 | 1.000 |
| Cherwell 009 | 1,216 | 1,571 | | 1,571 | 1.000 |
| Cherwell 010 | 1,775 | 2,293 | | 2,293 | 1.000 |
| Cherwell 011 | 2,546 | 3,290 | 9,350 | 12,640 | 3.842 |
| Cherwell 012 | 387 | 500 | | 500 | 1.000 |
| Cherwell 013 | 4,898 | 6,329 | | 6,329 | 1.000 |
| Cherwell 014 | 1,136 | 1,468 | | 1,468 | 1.000 |
| Cherwell 015 | 5,185 | 6,699 | 3,031 | 9,730 | 1.452 |
| Cherwell 016 | 3,465 | 4,477 | 1,850 | 6,327 | 1.413 |
| Cherwell 017 | 1,302 | 1,682 | | 1,682 | 1.000 |
| Cherwell 018 | 387 | 500 | | 500 | 1.000 |
| Cherwell 019 | 7,207 | 9,312 | | 9,312 | 1.000 |
| Total Person Trips | 58,046 | 75,000 | 20,499 | 95,499 | |
| **Total Jobs** | **75,000** | | Distribution Methodology - Appendix 2 of IMA Report | | |

| | Person trips to MSOA | Existing Jobs | Planned New Jobs | Total Jobs at Planning | Growth Factor | Trips from Cherwell 017 | Factored Trips from Cherwell 017 |
|---|---|---|---|---|---|---|---|
| Cherwell 001 | 1,063 | 1,454 | | 1,454 | 1.000 | 1 | 1 |
| Cherwell 002 | 576 | 788 | | 788 | 1.000 | 1 | 1 |
| Cherwell 003 | 4,588 | 6,276 | | 6,276 | 1.000 | 8 | 8 |
| Cherwell 004 | 13,646 | 18,666 | 6,268 | 24,934 | 1.336 | 41 | 55 |
| Cherwell 005 | 298 | 408 | | 408 | 1.000 | 1 | 1 |
| Cherwell 006 | 3,456 | 4,727 | | 4,727 | 1.000 | 13 | 13 |
| Cherwell 007 | 2,207 | 3,019 | | 3,019 | 1.000 | 5 | 5 |
| Cherwell 008 | 2,708 | 3,704 | | 3,704 | 1.000 | 16 | 16 |
| Cherwell 009 | 1,216 | 1,663 | | 1,663 | 1.000 | 5 | 5 |
| Cherwell 010 | 1,775 | 2,428 | | 2,428 | 1.000 | 14 | 14 |
| Cherwell 011 | 2,546 | 3,483 | 9,350 | 12,833 | 3.685 | 15 | 55 |
| Cherwell 012 | 387 | 529 | | 529 | 1.000 | 2 | 2 |
| Cherwell 013 | 4,898 | 6,700 | | 6,700 | 1.000 | 48 | 48 |
| Cherwell 014 | 1,136 | 1,554 | | 1,554 | 1.000 | 15 | 15 |
| Cherwell 015 | 5,185 | 7,092 | 3,031 | 10,123 | 1.427 | 38 | 54 |
| Cherwell 016 | 3,465 | 4,740 | 1,850 | 6,590 | 1.390 | 59 | 82 |
| Cherwell 017 | 1,302 | 1,781 | | 1,781 | 1.000 | 240 | 240 |
| Cherwell 018 | 387 | 529 | | 529 | 1.000 | 62 | 62 |
| Cherwell 019 | 7,207 | 9,858 | 2,350 | 12,208 | 1.238 | 379 | 469 |
| Total | 58,046 | 79,400 | 22,849 | 102,249 | | 963 | 1,147 |
| Total Jobs (2011) | 79,400 | | | | | | |

| **Oxford** | Person trips to MSOA | Existing Jobs (Extrapolated) | Planned New Jobs | Total Jobs at Planning | Growth Factor |
|---|---|---|---|---|---|
| Oxford 001 | 1,186 | 1,587 | 8,000 | 9,587 | 6.041 |
| Oxford 002 | 2,345 | 3,138 | | 3,138 | 1.000 |
| Oxford 003 | 2,277 | 3,047 | | 3,047 | 1.000 |
| Oxford 004 | 482 | 645 | | 645 | 1.000 |
| Oxford 005 | 491 | 657 | | 657 | 1.000 |
| Oxford 006 | 12,037 | 16,107 | | 16,107 | 1.000 |
| Oxford 007 | 1,406 | 1,881 | | 1,881 | 1.000 |
| Oxford 008 | 27,026 | 36,165 | | 36,165 | 1.000 |
| Oxford 009 | 6,122 | 8,192 | | 8,192 | 1.000 |
| Oxford 010 | 6,516 | 8,719 | | 8,719 | 1.000 |
| Oxford 011 | 3,645 | 4,878 | | 4,878 | 1.000 |
| Oxford 012 | 513 | 686 | | 686 | 1.000 |
| Oxford 013 | 11,331 | 15,163 | | 15,163 | 1.000 |
| Oxford 014 | 736 | 985 | | 985 | 1.000 |
| Oxford 015 | 5,533 | 7,404 | | 7,404 | 1.000 |
| Oxford 016 | 4,360 | 5,834 | | 5,834 | 1.000 |
| Oxford 017 | 1,580 | 2,114 | | 2,114 | 1.000 |
| Oxford 018 | 595 | 796 | | 796 | 1.000 |
| Total Person Trips | 88,181 | 118,000 | 8,000 | 126,000 | |
| **Total Jobs** | **118,000** | | Distribution Methodology - Appendix 2 of IMA Report | | |

| | Person trips to MSOA | Existing Jobs | Planned New Jobs | Total Jobs at Planning | Growth Factor | Trips from Cherwell 017 | Factored Trips from Cherwell 017 |
|---|---|---|---|---|---|---|---|
| Oxford 001 | 1,186 | 1,657 | 8,000 | 9,657 | 5.828 | 43 | 251 |
| Oxford 002 | 2,345 | 3,276 | | 3,276 | 1.000 | 69 | 69 |
| Oxford 003 | 2,277 | 3,181 | | 3,181 | 1.000 | 80 | 80 |
| Oxford 004 | 482 | 673 | | 673 | 1.000 | 4 | 4 |
| Oxford 005 | 491 | 686 | | 686 | 1.000 | 4 | 4 |
| Oxford 006 | 12,037 | 16,817 | 5,000 | 21,817 | 1.297 | 147 | 191 |
| Oxford 007 | 1,406 | 1,964 | | 1,964 | 1.000 | 16 | 16 |
| Oxford 008 | 27,026 | 37,759 | 5,000 | 42,759 | 1.132 | 418 | 473 |
| Oxford 009 | 6,122 | 8,553 | | 8,553 | 1.000 | 100 | 100 |
| Oxford 010 | 6,516 | 9,104 | 4,000 | 13,104 | 1.439 | 68 | 98 |
| Oxford 011 | 3,645 | 5,093 | | 5,093 | 1.000 | 26 | 26 |
| Oxford 012 | 513 | 717 | | 717 | 1.000 | 10 | 10 |
| Oxford 013 | 11,331 | 15,831 | 2,400 | 18,231 | 1.152 | 133 | 153 |
| Oxford 014 | 736 | 1,028 | | 1,028 | 1.000 | 12 | 12 |
| Oxford 015 | 5,533 | 7,730 | | 7,730 | 1.000 | 48 | 48 |
| Oxford 016 | 4,360 | 6,091 | | 6,091 | 1.000 | 31 | 31 |
| Oxford 017 | 1,580 | 2,207 | | 2,207 | 1.000 | 26 | 26 |
| Oxford 018 | 595 | 831 | | 831 | 1.000 | 6 | 6 |
| Total | 88,181 | 123,200 | 24,400 | 147,600 | | 1,241 | 1,598 |
| Total Jobs | 123,200 | | | | | | |

| **South Oxfordshire** | Person trips to MSOA | Existing Jobs (Extrapolated) | Planned New Jobs | Total Jobs at Planning | Growth Factor |
|---|---|---|---|---|---|
| South Oxfordshire 001 | 3,171 | 4,003 | 265 | 4,268 | 1.066 |
| South Oxfordshire 002 | 1,562 | 1,972 | 0 | 1,972 | 1.000 |
| South Oxfordshire 003 | 3,781 | 4,773 | | 4,773 | 1.000 |
| South Oxfordshire 004 | 2,458 | 3,103 | | 3,103 | 1.000 |
| South Oxfordshire 005 | 1,122 | 1,416 | | 1,416 | 1.000 |
| South Oxfordshire 006 | 3,223 | 4,068 | 3,691 | 7,759 | 1.907 |
| South Oxfordshire 007 | 1,415 | 1,786 | 1,200 | 2,986 | 1.672 |
| South Oxfordshire 008 | 1,255 | 1,584 | | 1,584 | 1.000 |
| South Oxfordshire 009 | 2,106 | 2,658 | 483 | 3,141 | 1.182 |
| South Oxfordshire 010 | 3,082 | 3,890 | | 3,890 | 1.000 |
| South Oxfordshire 011 | 5,551 | 7,007 | 46 | 7,053 | 1.007 |
| South Oxfordshire 012 | 3,999 | 5,048 | 885 | 5,933 | 1.175 |
| South Oxfordshire 013 | 586 | 740 | | 740 | 1.000 |
| South Oxfordshire 014 | 609 | 769 | | 769 | 1.000 |
| South Oxfordshire 015 | 1,309 | 1,652 | | 1,652 | 1.000 |
| South Oxfordshire 016 | 3,271 | 4,129 | | 4,129 | 1.000 |
| South Oxfordshire 017 | 2,720 | 3,434 | 166 | 3,600 | 1.048 |
| South Oxfordshire 018 | 2,078 | 2,623 | | 2,623 | 1.000 |
| South Oxfordshire 019 | 1,668 | 2,106 | | 2,106 | 1.000 |
| South Oxfordshire 020 | 981 | 1,238 | | 1,238 | 1.000 |
| Total Person Trips | 45,947 | 58,000 | 6,736 | 64,736 | |
| **Total Jobs** | **58,000** | | Distribution Methodology - Appendix 2 of IMA Report | | |

| | Person trips to MSOA | Existing Jobs | Planned New Jobs | Total Jobs at Planning | Growth Factor | Trips from Cherwell 017 | Factored Trips from Cherwell 017 |
|---|---|---|---|---|---|---|---|
| South Oxfordshire 001 | 3,171 | 4,493 | 448 | 4,941 | 1.100 | 8 | 9 |
| South Oxfordshire 002 | 1,562 | 2,213 | 0 | 2,213 | 1.000 | 18 | 18 |
| South Oxfordshire 003 | 3,781 | 5,357 | 0 | 5,357 | 1.000 | 7 | 7 |
| South Oxfordshire 004 | 2,458 | 3,483 | 0 | 3,483 | 1.000 | 8 | 8 |
| South Oxfordshire 005 | 1,122 | 1,590 | 0 | 1,590 | 1.000 | 1 | 1 |
| South Oxfordshire 006 | 3,223 | 4,567 | 6,247 | 10,813 | 2.368 | 3 | 7 |
| South Oxfordshire 007 | 1,415 | 2,005 | 2,031 | 4,036 | 2.013 | 5 | 10 |
| South Oxfordshire 008 | 1,255 | 1,778 | 0 | 1,778 | 1.000 | 0 | 0 |
| South Oxfordshire 009 | 2,106 | 2,984 | 817 | 3,801 | 1.274 | 8 | 10 |
| South Oxfordshire 010 | 3,082 | 4,367 | 0 | 4,367 | 1.000 | 4 | 4 |
| South Oxfordshire 011 | 5,551 | 7,865 | 78 | 7,943 | 1.010 | 1 | 1 |
| South Oxfordshire 012 | 3,999 | 5,666 | 1,498 | 7,164 | 1.264 | 4 | 5 |
| South Oxfordshire 013 | 586 | 830 | 0 | 830 | 1.000 | 1 | 1 |
| South Oxfordshire 014 | 609 | 863 | 0 | 863 | 1.000 | 0 | 0 |
| South Oxfordshire 015 | 1,309 | 1,855 | 0 | 1,855 | 1.000 | 0 | 0 |
| South Oxfordshire 016 | 3,271 | 4,635 | 0 | 4,635 | 1.000 | 1 | 1 |
| South Oxfordshire 017 | 2,720 | 3,854 | 281 | 4,135 | 1.073 | 0 | 0 |
| South Oxfordshire 018 | 2,078 | 2,944 | 0 | 2,944 | 1.000 | 0 | 0 |
| South Oxfordshire 019 | 1,668 | 2,363 | 0 | 2,363 | 1.000 | 0 | 0 |
| South Oxfordshire 020 | 981 | 1,390 | 0 | 1,390 | 1.000 | 0 | 0 |
| Total | 45,947 | 65,100 | 11,400 | 76,500 | | 69 | 82 |
| Total Jobs (2011) | 65,100 | | | | | | |

| | Person trips to MSOA | Existing Jobs (Extrapolated) | Planned New Jobs | Total Jobs at Planning | Growth Factor |
|---|---|---|---|---|---|
| Vale of WH 001 | 1,526 | 1,926 | 35 | 1,961 | 1.018 |
| Vale of WH 002 | 2,981 | 3,762 | | 3,762 | 1.000 |
| Vale of WH 003 | 4,077 | 5,145 | 173 | 5,318 | 1.034 |
| Vale of WH 004 | 313 | 395 | | 395 | 1.000 |
| Vale of WH 005 | 1,742 | 2,198 | 86 | 2,284 | 1.039 |
| Vale of WH 006 | 10,077 | 12,716 | 78 | 12,794 | 1.006 |
| Vale of WH 007 | 1,826 | 2,304 | | 2,304 | 1.000 |
| Vale of WH 008 | 986 | 1,244 | | 1,244 | 1.000 |
| Vale of WH 009 | 1,780 | 2,246 | 861 | 3,107 | 1.383 |
| Vale of WH 010 | 4,910 | 6,196 | 6,176 | 12,372 | 1.997 |
| Vale of WH 011 | 1,197 | 1,510 | 1,200 | 2,710 | 1.794 |
| Vale of WH 014 | 2,551 | 3,219 | | 3,219 | 1.000 |
| Vale of WH 015 | 10,482 | 13,227 | 6,761 | 19,988 | 1.511 |
| Vale of WH 016 | 5,477 | 6,911 | 630 | 7,541 | 1.091 |
| Total Person Trips | 49,925 | 63,000 | 16,000 | 79,000 | |
| **Total Jobs** | **63,000** | | Distribution Methodology - Appendix 2 of IMA Report | | |

| | Person trips to MSOA | Existing Jobs | Planned New Jobs | Total Jobs at Planning | Growth Factor | Trips from Cherwell 017 | Factored Trips from Cherwell 017 |
|---|---|---|---|---|---|---|---|
| Vale of WH 001 | 1,526 | 2,054 | 50 | 2,104 | 1.024 | 15 | 15 |
| Vale of WH 002 | 2,981 | 4,012 | 0 | 4,012 | 1.000 | 34 | 34 |
| Vale of WH 003 | 4,077 | 5,488 | 249 | 5,736 | 1.045 | 11 | 11 |
| Vale of WH 004 | 313 | 421 | 0 | 421 | 1.000 | 4 | 4 |
| Vale of WH 005 | 1,742 | 2,345 | 124 | 2,468 | 1.053 | 6 | 6 |
| Vale of WH 006 | 10,077 | 13,564 | 112 | 13,676 | 1.008 | 41 | 41 |
| Vale of WH 007 | 1,826 | 2,458 | 0 | 2,458 | 1.000 | 4 | 4 |
| Vale of WH 008 | 986 | 1,327 | 0 | 1,327 | 1.000 | 2 | 2 |
| Vale of WH 009 | 1,780 | 2,396 | 1,238 | 3,634 | 1.517 | 3 | 5 |
| Vale of WH 010 | 4,910 | 6,609 | 8,878 | 15,487 | 2.343 | 10 | 23 |
| Vale of WH 011 | 1,197 | 1,611 | 1,725 | 3,336 | 2.071 | 5 | 10 |
| Vale of WH 014 | 2,551 | 3,434 | 0 | 3,434 | 1.000 | 2 | 2 |
| Vale of WH 015 | 10,482 | 14,109 | 9,719 | 23,828 | 1.689 | 19 | 32 |
| Vale of WH 016 | 5,477 | 7,372 | 906 | 8,278 | 1.123 | 4 | 4 |
| Total | 49,925 | 67,200 | 23,000 | 90,200 | | 160 | 195 |
| Total Jobs | 67,200 | | | | | | |

| | Person trips to MSOA | Existing Jobs (Extrapolated) | Planned New Jobs | Total Jobs at Planning | Growth Factor |
|---|---|---|---|---|---|
| West Oxfordshire 001 | 2,596 | 3,155 | 828 | 3,983 | 1.262 |
| West Oxfordshire 002 | 1,891 | 2,298 | | 2,298 | 1.000 |
| West Oxfordshire 003 | 1,161 | 1,411 | | 1,411 | 1.000 |
| West Oxfordshire 004 | 2,062 | 2,506 | | 2,506 | 1.000 |
| West Oxfordshire 005 | 976 | 1,186 | | 1,186 | 1.000 |
| West Oxfordshire 006 | 1,940 | 2,358 | | 2,358 | 1.000 |
| West Oxfordshire 007 | 2,079 | 2,527 | | 2,527 | 1.000 |
| West Oxfordshire 008 | 1,471 | 1,788 | | 1,788 | 1.000 |
| West Oxfordshire 009 | 2,222 | 2,700 | | 2,700 | 1.000 |
| West Oxfordshire 010 | 7,116 | 8,648 | 2,979 | 11,627 | 1.344 |
| West Oxfordshire 011 | 2,920 | 3,549 | 6,620 | 10,169 | 2.865 |
| West Oxfordshire 012 | 2,027 | 2,463 | | 2,463 | 1.000 |
| West Oxfordshire 013 | 818 | 994 | 993 | 1,987 | 1.999 |
| West Oxfordshire 014 | 5,750 | 6,988 | 0 | 6,988 | 1.000 |
| West Oxfordshire 015 | 1,176 | 1,429 | 331 | 1,760 | 1.232 |
| Total Person Trips | 36,205 | 44,000 | 11,751 | 55,751 | |
| **Total Jobs** | **44,000** | | Distribution Methodology - Appendix 2 of IMA Report | | |

| | Person trips to MSOA | Existing Jobs | Planned New Jobs | Total Jobs at Planning | Growth Factor | Trips from Cherwell 017 | Factored Trips from Cherwell 017 |
|---|---|---|---|---|---|---|---|
| West Oxfordshire 001 | 2,596 | 3,277 | 828 | 4,105 | 1.253 | 6 | 8 |
| West Oxfordshire 002 | 1,891 | 2,387 | | 2,387 | 1.000 | 13 | 13 |
| West Oxfordshire 003 | 1,161 | 1,465 | | 1,465 | 1.000 | 0 | 0 |
| West Oxfordshire 004 | 2,062 | 2,603 | | 2,603 | 1.000 | 38 | 38 |
| West Oxfordshire 005 | 976 | 1,232 | | 1,232 | 1.000 | 5 | 5 |
| West Oxfordshire 006 | 1,940 | 2,449 | | 2,449 | 1.000 | 29 | 29 |
| West Oxfordshire 007 | 2,079 | 2,624 | | 2,624 | 1.000 | 11 | 11 |
| West Oxfordshire 008 | 1,471 | 1,857 | | 1,857 | 1.000 | 6 | 6 |
| West Oxfordshire 009 | 2,222 | 2,805 | | 2,805 | 1.000 | 15 | 15 |
| West Oxfordshire 010 | 7,116 | 8,982 | 2,979 | 11,961 | 1.332 | 29 | 39 |
| West Oxfordshire 011 | 2,920 | 3,686 | 6,620 | 10,306 | 2.796 | 29 | 81 |
| West Oxfordshire 012 | 2,027 | 2,559 | | 2,559 | 1.000 | 2 | 2 |
| West Oxfordshire 013 | 818 | 1,033 | 993 | 2,026 | 1.962 | 1 | 2 |
| West Oxfordshire 014 | 5,750 | 7,258 | 0 | 7,258 | 1.000 | 2 | 2 |
| West Oxfordshire 015 | 1,176 | 1,484 | 331 | 1,815 | 1.223 | 1 | 1 |
| Total | 36,205 | 45,700 | 11,751 | 57,451 | | 187 | 251 |
| Total Jobs | 45,700 | | | | | | |

| | 2011 | Planning | Increase |
|---|---|---|---|
| Oxford | 75.000 | 95.499 | 20.499 |
| Cherwell | 118.000 | 126.000 | 8.000 |
| South Oxfordshire | 58.000 | 64.736 | 6.736 |
| Vale of White Horse | 63.000 | 79.000 | 16.000 |
| West Oxfordshire | 44.000 | 55.751 | 11.751 |
| Oxfordshire (Total) | 358.000 | 420.986 | 62.986 |

Economic Forecast for Oxfordshire SHMA (Feb 2014)

| | PEG Forecast | | |
|---|---|---|---|
| | 2011 | 2031 | Increase |
| Cherwell | 79.400 | 100.900 | 21.500 |
| Oxford | 123.200 | 147.600 | 24.400 |
| South Oxfordshire | 65.100 | 76.500 | 11.400 |
| Vale of White Horse | 67.200 | 90.200 | 23.000 |
| West Oxfordshire | 45.700 | 53.500 | 7.800 |
| Oxfordshire (Total) | 380.600 | 468.800 | 88.200 |

Source: https://www.westoxon.gov.uk/media/ewcbz0rr/oxfordshire-economic-forecasting-final-report-2014.pdf (Table 5.2)

Local Plan Updates

| Oxford LP | | South Oxfordshire LP | | Vale of White Horse | | West Oxfordshire -Economic Snapshot | |
|---|---|---|---|---|---|---|---|
| 2036 | Increase | 2034 | Increase | 2031 | Increase | 2031 | Increase |
| 152.400 | 29.200 | 77.500 | 12.400 | 90.200 | 23.000 | 55.700 | 10.000 |

| District | Jobs | |
|---|---|---|
| | Existing | Future |
| Cherwell | 79,400 | 102,249 |
| Oxford | 123,200 | 147,600 |
| South Oxfordshire | 65,100 | 76,500 |
| Vale of White Horse | 67,200 | 90,200 |
| West Oxfordshire | 45,700 | 57,451 |
| Total | 380,600 | 474,000 |

**BSP STAFF - WORK ORIGINS ASSESSMENT**

| | Number of Households (2011 Census) | Planned New Housing | Total Housing at Planning | Growth Factor | Trips to BSP | Factored Employment Trips to Cherwell 017 | Assumed PR8 Distribution |
|---|---|---|---|---|---|---|---|
| Total - Cherwell | 56,728 | 26,134 | 82,862 | n/a | 18 | 29 | 25.4% |
| Cherwell 017 | 2,768 | 0 | 2,768 | 1.000 | 3 | 3 | 2.7% |
| Cherwell 018 | 2,149 | 120 | 2,269 | 1.056 | 2 | 2 | 1.9% |
| Cherwell 019 | 2,580 | 4,280 | 6,860 | 2.659 | 4 | 11 | 9.4% |
| Rest of Cherwell | 49,231 | 21,734 | 70,965 | 1.441 | 9 | 13 | 11.5% |
| Total - Oxford | 55,375 | 6,916 | 62,291 | n/a | 32 | 36 | 31.7% |
| Oxford 001 | 2,593 | 877 | 3,470 | 1.338 | 1 | 1 | 1.2% |
| Oxford 002 | 2,835 | 300 | 3,135 | 1.106 | 3 | 3 | 2.9% |
| Oxford 003 | 2,458 | 0 | 2,458 | 1.000 | 4 | 4 | 3.5% |
| Oxford 004 | 2,516 | 343 | 2,859 | 1.136 | 3 | 3 | 3.0% |
| Oxford 005 | 2,813 | 885 | 3,698 | 1.315 | 0 | 0 | 0.0% |
| Oxford 006 | 3,772 | 511 | 4,283 | 1.135 | 0 | 0 | 0.0% |
| Oxford 007 | 3,306 | 564 | 3,870 | 1.171 | 0 | 0 | 0.0% |
| Oxford 008 | 2,705 | 1,038 | 3,743 | 1.384 | 5 | 7 | 6.1% |
| Oxford 009 | 2,856 | 270 | 3,126 | 1.095 | 1 | 1 | 1.0% |
| Oxford 010 | 2,527 | 106 | 2,633 | 1.042 | 0 | 0 | 0.0% |
| Oxford 011 | 4,080 | 80 | 4,160 | 1.020 | 4 | 4 | 3.6% |
| Oxford 012 | 2,592 | 214 | 2,806 | 1.083 | 2 | 2 | 1.9% |
| Oxford 013 | 5,317 | 330 | 5,647 | 1.062 | 7 | 7 | 6.6% |
| Oxford 014 | 2,187 | 0 | 2,187 | 1.000 | 1 | 1 | 0.9% |
| Oxford 015 | 3,800 | 428 | 4,228 | 1.113 | 1 | 1 | 1.0% |
| Oxford 016 | 3,936 | 470 | 4,406 | 1.119 | 0 | 0 | 0.0% |
| Oxford 017 | 2,390 | 420 | 2,810 | 1.176 | 0 | 0 | 0.0% |
| Oxford 018 | 2,692 | 80 | 2,772 | 1.030 | 0 | 0 | 0.0% |
| South Oxfordshire | 54,104 | 22,878 | 76,982 | 1.423 | 5 | 7 | 6.3% |
| Vale of White Horse | 49,407 | 19,695 | 69,102 | 1.399 | 12 | 17 | 14.8% |
| West Oxfordshire | 43,241 | 13,968 | 57,209 | 1.323 | 11 | 15 | 12.9% |
| Out of Oxfordshire | - | - | - | 1.000 | 10 | 10 | 8.8% |
| Total | 258,855 | 89,591 | 348,446 | | 88 | 113 | 100% |

*Source: Method of Travel to Work in Cherwell 017.xls*

Source - 2015 BSP Travel Survey

| | |
|---|---|
| **Oxford 001** | 1.2% |
| **Oxford 002** | 2.9% |
| **Oxford 003** | 3.5% |
| **Oxford 004** | 3.0% |
| **Oxford 005** | 0.0% |
| **Oxford 006** | 0.0% |
| **Oxford 007** | 0.0% |
| **Oxford 008** | 6.1% |
| **Oxford 009** | 1.0% |
| **Oxford 010** | 0.0% |
| **Oxford 011** | 3.6% |
| **Oxford 012** | 1.9% |
| **Oxford 013** | 6.6% |
| **Oxford 014** | 0.9% |
| **Oxford 015** | 1.0% |
| **Oxford 016** | 0.0% |
| **Oxford 017** | 0.0% |
| **Oxford 018** | 0.0% |
| **Cherwell 017** | 2.7% |
| **Cherwell 018** | 1.9% |
| **Cherwell 019** | 9.4% |
| **Rest of Cherwell** | 11.5% |
| **South Oxfordshire** | 6.3% |
| **Vale of White Horse** | 14.8% |
| **West Oxfordshire** | 12.9% |
| **Out of Oxfordshire** | 8.8% |
| | 100.0% |

**Background Information**

**Oxford - Allocated sites and minimum no. dwellings predicted**

| Oxford LP Policy | Site | Dwellings | Source | MSOA |
|---|---|---|---|---|
| SP24 | St Frideswide Farm | 125 | Oxford LP | Oxford 001 |
| SP28 | Pear Tree Farm | 122 | Oxford LP | Oxford 001 |
| SP52 | Oxford University Pre | 130 | Oxford LP | Oxford 001 |
| | Oxford North | 500 | AAP | Oxford 001 |
| SP5 | Summer Fields Schoo | 120 | Oxford LP | Oxford 002 |
| SP6 | Diamond Place and E | 160 | Oxford LP | Oxford 002 |
| SP58 | Summertown House, | 20 | Oxford LP | Oxford 002 |
| SP23 | Marston Paddock | 39 | Oxford LP | Oxford 004 |
| SP25 | Hill View Farm | 110 | Oxford LP | Oxford 004 |
| SP26 | Land west of Mill Lane | 75 | Oxford LP | Oxford 004 |
| SP27 | Park Farm | 60 | Oxford LP | Oxford 004 |
| SP50 | Oxford Brookes Unive | 59 | Oxford LP | Oxford 004 |
| | Barton Park | 885 | AAP | Oxford 005 |
| SP16 | Government Building | 70 | Oxford LP | Oxford 006 |
| SP17 | Headington Hill Hall a | 200 | Oxford LP | Oxford 006 |
| SP20 | Nuffield Orthopaedic | 0 | Oxford LP | Oxford 006 |
| SP41 | John Radcliffe Hospita | 150 | HELAA | Oxford 006 |
| SP53 | No .1 Pullens Lane | 11 | Oxford LP | Oxford 006 |
| SP55 | Ruskin College Campu | 28 | HELAA | Oxford 006 |
| SP56 | Ruskin Field | 40 | HELAA | Oxford 006 |
| SP61 | Valentia Road Site | 12 | Oxford LP | Oxford 006 |
| SP47 | Thornhill Park | 534 | Oxford LP | Oxford 007 |
| SP63 | Bayards Hill Primary S | 30 | Oxford LP | Oxford 007 |
| SP1 | Sites in the West End | 734 | Oxford LP | Oxford 008 |
| SP30 | St Catherine's College | 31 | Oxford LP | Oxford 008 |
| SP31 | Banbury Road Univers | 60 | Oxford LP | Oxford 008 |
| SP36 | Faculty of Music, St A | 40 | Oxford LP | Oxford 008 |
| SP45 | Manor Place | 80 | HELAA | Oxford 008 |
| SP49 | Oriel College Land at I | 7 | Oxford LP | Oxford 008 |
| SP54 | Radcliffe Observatory | 48 | Oxford LP | Oxford 008 |
| SP60 | University of Oxford S | 20 | Oxford LP | Oxford 008 |
| SP62 | West Wellington Squa | 18 | Oxford LP | Oxford 008 |
| SP2 | Osney Mead | 247 | Oxford LP | Oxford 009 |
| SP33 | Canalside Land | 23 | HELAA | Oxford 009 |
| SP48 | Old Power Station | | Resi permitted | Oxford 009 |
| SP19 | Churchill Hospital Site | 36 | HELAA | Oxford 010 |
| SP21 | Old Road Campus | 0 | Oxford LP | Oxford 010 |
| SP22 | Warneford Hospital | 70 | HELAA | Oxford 010 |
| SP18 | Land surrounding St ( | 50 | HELAA | Oxford 011 |
| SP46 | Manzil Way Resource | 10 | HELAA | Oxford 011 |
| SP59 | Union Street Car Park | 20 | Oxford LP | Oxford 011 |
| SP29 | Land East of Redbridg | 162 | Oxford LP | Oxford 012 |
| SP32 | Bertie Place Recreatic | 30 | Oxford LP | Oxford 012 |
| SP39 | Grandpont Car Park | 22 | Oxford LP | Oxford 012 |
| SP7 | Unipart | 0 | Oxford LP | Oxford 013 |
| SP8 | MINI Plant Oxford | 0 | Oxford LP | Oxford 013 |
| SP35 | Cowley Marsh Depot | 80 | Oxford LP | Oxford 013 |
| SP40 | Jesus College Sports ( | 28 | Oxford LP | Oxford 013 |
| SP43 | Lincoln College Sports | 90 | Oxford LP | Oxford 013 |
| SP57 | Slade House | 50 | HELAA | Oxford 013 |
| SP64 | William Morris Close | 82 | Oxford LP | Oxford 013 |
| SP3 | Cowley Centre | 226 | Oxford LP | Oxford 015 |
| SP10 | Oxford Business Park | 0 | Oxford LP | Oxford 015 |
| SP34 | Court Place Gardens | 64 | HELAA | Oxford 015 |
| SP37 | Former Barns Road Ea | 25 | Oxford LP | Oxford 015 |
| SP38 | Former Iffley Mead Pl | 84 | Oxford LP | Oxford 015 |
| SP42 | Land at Meadow Lane | 29 | Oxford LP | Oxford 015 |
| SP9 | The Oxford Science Pa | 0 | Oxford LP | Oxford 016 |
| SP12 | Northfield Hostel | 30 | Oxford LP | Oxford 016 |
| SP13 | Edge of Playing Fields | 20 | Oxford LP | Oxford 016 |
| SP14 | Kassam Stadium Sites | 150 | Oxford LP | Oxford 016 |
| SP44 | Littlemore Park | 270 | Oxford LP | Oxford 016 |
| SP4 | Blackbird Leys Central | 200 | Oxford LP | Oxford 017 |
| SP11 | Sandy Lane Recreatio | 120 | Oxford LP | Oxford 017 |
| SP51 | Oxford Stadium | 100 | HELAA | Oxford 017 |
| SP15 | Knights Road | 80 | Oxford LP | Oxford 018 |
| Total | | 6916 | | |

**Oxford Allocations**

| | |
|---|---|
| Oxford 001 | 877 |
| Oxford 002 | 300 |
| Oxford 003 | 0 |
| Oxford 004 | 343 |
| Oxford 005 | 885 |
| Oxford 006 | 511 |
| Oxford 007 | 564 |
| Oxford 008 | 1038 |
| Oxford 009 | 270 |
| Oxford 010 | 106 |
| Oxford 011 | 80 |
| Oxford 012 | 214 |
| Oxford 013 | 330 |
| Oxford 014 | 0 |
| Oxford 015 | 428 |
| Oxford 016 | 470 |
| Oxford 017 | 420 |
| Oxford 018 | 80 |
| Total | 6,916 |

**Cherwell Allocations**

*Cherwell Local Plan Partial Review (Oxford Unmet Housing Need)*

| | Allocated Site | No. Units | MSOA |
|---|---|---|---|
| Oxford | PR6a | 690 | Cherwell 019 |
| | PR6b | 670 | Cherwell 019 |
| Kidlington | PR7a | 430 | Cherwell 019 |
| | PR7b | 120 | Cherwell 018 |
| Begbroke | PR8 | 1950 | Cherwell 019 |
| Yarnton | PR9 | 540 | Cherwell 019 |
| Total | | 4400 | |

*Cherwell Local Plan Part 1*

| | |
|---|---|
| Bicester | 9764 |
| Banbury | 7106 |
| RAF Upper Heyford | 2361 |
| Rural Areas | 2503 |
| Total | 21734 |

Cherwell Total 26134

**Vale of White Horse Allocations - Local Plan**

| | | |
|---|---|---|
| Vale of WH | 17495 | LP Part 1 |
| Oxford Unment Need | 2200 | LP Part 2 |
| Total | 19695 | |

**West Oxfordshire Allocations - Local Plan**

| | |
|---|---|
| West Oxfordshire | 11218 |
| Oxford Unment Need | 2750 |
| Total | 13968 |

**South Oxfordshire Allocations - Local Plan**

| | | |
|---|---|---|
| South Oxfordshire | 22878 | inc 4950 for Oxford |

**SCHOOL STAFF - WORK ORIGINS ASSESSMENT**

| | Number of Households (2011 Census) | Planned New Housing | Total Housing at Planning | Growth Factor | Trips to Cherwell 017 | Factored Employment Trips to Cherwell 017 | Assumed PR8 Distribution |
|---|---|---|---|---|---|---|---|
| Total - Cherwell | 56,728 | 26,134 | 82,862 | n/a | 705 | 975 | 56.9% |
| Cherwell 017 | 2,768 | 0 | 2,768 | 1.000 | 240 | 240 | 14.0% |
| Cherwell 018 | 2,149 | 120 | 2,269 | 1.056 | 135 | 143 | 8.3% |
| Cherwell 019 | 2,580 | 4,280 | 6,860 | 2.659 | 96 | 255 | 14.9% |
| Rest of Cherwell | 49,231 | 21,734 | 70,965 | 1.441 | 234 | 337 | 19.7% |
| Total - Oxford | 55,375 | 6,916 | 62,291 | n/a | 145 | 165 | 9.6% |
| Oxford 001 | 2,593 | 877 | 3,470 | 1.338 | 13 | 17 | 1.0% |
| Oxford 002 | 2,835 | 300 | 3,135 | 1.106 | 13 | 14 | 0.8% |
| Oxford 003 | 2,458 | 0 | 2,458 | 1.000 | 3 | 3 | 0.2% |
| Oxford 004 | 2,516 | 343 | 2,859 | 1.136 | 7 | 8 | 0.5% |
| Oxford 005 | 2,813 | 885 | 3,698 | 1.315 | 7 | 9 | 0.5% |
| Oxford 006 | 3,772 | 511 | 4,283 | 1.135 | 8 | 9 | 0.5% |
| Oxford 007 | 3,306 | 564 | 3,870 | 1.171 | 10 | 12 | 0.7% |
| Oxford 008 | 2,705 | 1,038 | 3,743 | 1.384 | 3 | 4 | 0.2% |
| Oxford 009 | 2,856 | 270 | 3,126 | 1.095 | 3 | 3 | 0.2% |
| Oxford 010 | 2,527 | 106 | 2,633 | 1.042 | 4 | 4 | 0.2% |
| Oxford 011 | 4,080 | 80 | 4,160 | 1.020 | 9 | 9 | 0.5% |
| Oxford 012 | 2,592 | 214 | 2,806 | 1.083 | 4 | 4 | 0.3% |
| Oxford 013 | 5,317 | 330 | 5,647 | 1.062 | 10 | 11 | 0.6% |
| Oxford 014 | 2,187 | 0 | 2,187 | 1.000 | 3 | 3 | 0.2% |
| Oxford 015 | 3,800 | 428 | 4,228 | 1.113 | 11 | 12 | 0.7% |
| Oxford 016 | 3,936 | 470 | 4,406 | 1.119 | 16 | 18 | 1.0% |
| Oxford 017 | 2,390 | 420 | 2,810 | 1.176 | 12 | 14 | 0.8% |
| Oxford 018 | 2,692 | 80 | 2,772 | 1.030 | 9 | 9 | 0.5% |
| South Oxfordshire | 54,104 | 22,878 | 76,982 | 1.423 | 47 | 67 | 3.9% |
| Vale of White Horse | 49,407 | 19,695 | 69,102 | 1.399 | 85 | 119 | 6.9% |
| West Oxfordshire | 43,241 | 13,968 | 57,209 | 1.323 | 211 | 279 | 16.3% |
| Out of Oxfordshire | - | - | - | 1.000 | 109 | 109 | 6.4% |
| Total | 258,855 | 89,591 | 348,446 | | 1,302 | 1,714 | 100% |

*Source: Method of Travel to Work in Cherwell 017.xls*

**Background Information**

**Oxford - Allocated sites and minimum no. dwellings predicted**

| Oxford LP Policy | Site | Dwellings | Source | MSOA |
|---|---|---|---|---|
| SP24 | St Frideswide Fa | 125 | Oxford LP | Oxford 001 |
| SP28 | Pear Tree Farm | 122 | Oxford LP | Oxford 001 |
| SP52 | Oxford Universit | 130 | Oxford LP | Oxford 001 |
| | Oxford North | 500 | AAP | Oxford 001 |
| SP5 | Summer Fields S | 120 | Oxford LP | Oxford 002 |
| SP6 | Diamond Place a | 160 | Oxford LP | Oxford 002 |
| SP58 | Summertown Ho | 20 | Oxford LP | Oxford 002 |
| SP23 | Marston Paddoc | 39 | Oxford LP | Oxford 004 |
| SP25 | Hill View Farm | 110 | Oxford LP | Oxford 004 |
| SP26 | Land west of Mil | 75 | Oxford LP | Oxford 004 |
| SP27 | Park Farm | 60 | Oxford LP | Oxford 004 |
| SP50 | Oxford Brookes | 59 | Oxford LP | Oxford 004 |
| | Barton Park | 885 | AAP | Oxford 005 |
| SP16 | Government Bui | 70 | Oxford LP | Oxford 006 |
| SP17 | Headington Hill | 200 | Oxford LP | Oxford 006 |
| SP20 | Nuffield Orthopa | 0 | Oxford LP | Oxford 006 |
| SP41 | John Radcliffe H | 150 | HELAA | Oxford 006 |
| SP53 | No .1 Pullens La | 11 | Oxford LP | Oxford 006 |
| SP55 | Ruskin College C | 28 | HELAA | Oxford 006 |
| SP56 | Ruskin Field | 40 | HELAA | Oxford 006 |
| SP61 | Valentia Road Si | 12 | Oxford LP | Oxford 006 |
| SP47 | Thornhill Park | 534 | Oxford LP | Oxford 007 |
| SP63 | Bayards Hill Prin | 30 | Oxford LP | Oxford 007 |
| SP1 | Sites in the Wes | 734 | Oxford LP | Oxford 008 |
| SP30 | St Catherine's Co | 31 | Oxford LP | Oxford 008 |
| SP31 | Banbury Road U | 60 | Oxford LP | Oxford 008 |
| SP36 | Faculty of Music | 40 | Oxford LP | Oxford 008 |
| SP45 | Manor Place | 80 | HELAA | Oxford 008 |
| SP49 | Oriel College Lar | 7 | Oxford LP | Oxford 008 |
| SP54 | Radcliffe Observ | 48 | Oxford LP | Oxford 008 |
| SP60 | University of Ox | 20 | Oxford LP | Oxford 008 |
| SP62 | West Wellingtor | 18 | Oxford LP | Oxford 008 |
| SP2 | Osney Mead | 247 | Oxford LP | Oxford 009 |
| SP33 | Canalside Land | 23 | HELAA | Oxford 009 |
| SP48 | Old Power Station | | Resi permitted | Oxford 009 |
| SP19 | Churchill Hospita | 36 | HELAA | Oxford 010 |
| SP21 | Old Road Campu | 0 | Oxford LP | Oxford 010 |
| SP22 | Warneford Hosp | 70 | HELAA | Oxford 010 |
| SP18 | Land surroundir | 50 | HELAA | Oxford 011 |
| SP46 | Manzil Way Reso | 10 | HELAA | Oxford 011 |
| SP59 | Union Street Car | 20 | Oxford LP | Oxford 011 |
| SP29 | Land East of Red | 162 | Oxford LP | Oxford 012 |
| SP32 | Bertie Place Rec | 30 | Oxford LP | Oxford 012 |
| SP39 | Grandpont Car P | 22 | Oxford LP | Oxford 012 |
| SP7 | Unipart | 0 | Oxford LP | Oxford 013 |
| SP8 | MINI Plant Oxfo | 0 | Oxford LP | Oxford 013 |
| SP35 | Cowley Marsh D | 80 | Oxford LP | Oxford 013 |
| SP40 | Jesus College Sp | 28 | Oxford LP | Oxford 013 |
| SP43 | Lincoln College S | 90 | Oxford LP | Oxford 013 |
| SP57 | Slade House | 50 | HELAA | Oxford 013 |
| SP64 | William Morris C | 82 | Oxford LP | Oxford 013 |
| SP3 | Cowley Centre | 226 | Oxford LP | Oxford 015 |
| SP10 | Oxford Business | 0 | Oxford LP | Oxford 015 |
| SP34 | Court Place Garc | 64 | HELAA | Oxford 015 |
| SP37 | Former Barns Ro | 25 | Oxford LP | Oxford 015 |
| SP38 | Former Iffley Me | 84 | Oxford LP | Oxford 015 |
| SP42 | Land at Meadow | 29 | Oxford LP | Oxford 015 |
| SP9 | The Oxford Scier | 0 | Oxford LP | Oxford 016 |
| SP12 | Northfield Hoste | 30 | Oxford LP | Oxford 016 |
| SP13 | Edge of Playing I | 20 | Oxford LP | Oxford 016 |
| SP14 | Kassam Stadium | 150 | Oxford LP | Oxford 016 |
| SP44 | Littlemore Park | 270 | Oxford LP | Oxford 016 |
| SP4 | Blackbird Leys C | 200 | Oxford LP | Oxford 017 |
| SP11 | Sandy Lane Recr | 120 | Oxford LP | Oxford 017 |
| SP51 | Oxford Stadium | 100 | HELAA | Oxford 017 |
| SP15 | Knights Road | 80 | Oxford LP | Oxford 018 |
| Total | | 6916 | | |

**Oxford Allocations**

| | |
|---|---|
| Oxford 001 | 877 |
| Oxford 002 | 300 |
| Oxford 003 | 0 |
| Oxford 004 | 343 |
| Oxford 005 | 885 |
| Oxford 006 | 511 |
| Oxford 007 | 564 |
| Oxford 008 | 1038 |
| Oxford 009 | 270 |
| Oxford 010 | 106 |
| Oxford 011 | 80 |
| Oxford 012 | 214 |
| Oxford 013 | 330 |
| Oxford 014 | 0 |
| Oxford 015 | 428 |
| Oxford 016 | 470 |
| Oxford 017 | 420 |
| Oxford 018 | 80 |
| Total | 6,916 |

**Cherwell Allocations**

*Cherwell Local Plan Partial Review (Oxford Unmet Housing Need)*

| | Allocated Site | No. Units | MSOA |
|---|---|---|---|
| Oxford | PR6a | 690 | Cherwell 019 |
| | PR6b | 670 | Cherwell 019 |
| Kidlington | PR7a | 430 | Cherwell 019 |
| | PR7b | 120 | Cherwell 018 |
| Begbroke | PR8 | 1950 | Cherwell 019 |
| Yarnton | PR9 | 540 | Cherwell 019 |
| Total | | 4400 | |

*Cherwell Local Plan Part 1*

| | |
|---|---|
| Bicester | 9764 |
| Banbury | 7106 |
| RAF Upper Heyford | 2361 |
| Rural Areas | 2503 |
| Total | 21734 |

Cherwell Total 26134

**Vale of White Horse Allocations - Local Plan**

| | | |
|---|---|---|
| Vale of WH | 17495 | LP Part 1 |
| Oxford Unment Neec | 2200 | LP Part 2 |
| Total | 19695 | |

**West Oxfordshire Allocations - Local Plan**

| | |
|---|---|
| West Oxfordshire | 11218 |
| Oxford Unment Neec | 2750 |
| Total | 13968 |

**South Oxfordshire Allocations - Local Plan**

| | | |
|---|---|---|
| South Oxfordshire | 22878 | inc 4950 for Oxford |

# Appendix I

## Mode Shares

**RESI-WORK DESTINATION & MODE**

| | Oxford Local Plan Category 1 Employment Sites | Oxford Local Plan Category 2 Employment Sites | Oxford Local Plan Allocation Sites with Employment | Census Cherwell 17 Destination Distribution | PR8 Assumed Destination Distribution | Mode Share | Walk | Cycle | Public Transport | Car Driver | Passenger | Total | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Internal Site Trips | - | - | - | - | 38.6% | - | 70.0% | 30.0% | 0.0% | 0.0% | 0.0% | 100.0% | - |
| Total Oxford | - | - | - | 43.4% | 28.0% | - | - | - | - | - | - | - | - |
| Oxford 001 Wolvercote & Cutteslowe | Northern Gateway/Oxford North | Jordan Hill Business Park | Northern Gateway/Oxford North | 1.5% | 4.4% | - | Circa 45 minutes to zone - unlikely to be pedestrians walking to work here | As per walk, but takes only 11 minutes. Proposed improvements to the A44 Cycle facilities may make this an attractive option. | 350m walk to Sandy Lane bus stop south of site, then 9 min bus journey via the S3. Likely to be popular and even more so with the proposed bus route | Between 4&6 minute drive to zone but subject to peak hour delays. Northern Gateway application states that a CPZ will be brought forward to prevent overspill parking at the Northern Gateway site. Parking restrictions implemented also in Yarnton which will discourage car parking further. Northern Gateway will have reduced parking provision | As per Car Driver | - | Car Driver mode share has been reduced significantly, based on the assumptions of reduced parking at Oxford North, Wolvercote will be covered by a CPZ & parking restrictions in Yarnton that will reduce car use. Public transport mode share has been increased slightly. Cycle mode share has also increased, due to the good cycle links to be provided from the site. |
| | | | | | | rwell 017 (2011 Ce | 0% | 14% | 16% | 63% | 7% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 25.0% | 60.0% | 10.0% | 5.0% | 100.0% | - |
| Oxford 002 Sunnymead and Summertown | - | Multiple Banbury Rd sites | - | 2.4% | 1.2% | - | 1 hr 11 to area - too far to reasonably assume walkers will go to zone via this mode | 5.8km (18 min) cycle ride. Quite a long cycle but relatively quick and with the improvements along the A44 it may be attractive to some keen cyclists | 350m walk to Sandy Lane bus stop south of site, then 19 min bus journey via the S3. Likely to be popular and even more so with the proposed bus route | Between a 7 & 16 minute car journey so highly likely to be a viable option. However, Summertown and North Summertown CPZs may discourage car use | As per Car Driver | - | Mode Shares adjusted in line with Oxford 001 |
| | | | | | | rwell 017 (2011 Ce | 1% | 6% | 55% | 30% | 7% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 25.0% | 60.0% | 10.0% | 5.0% | 100.0% | - |
| Oxford 003 North Oxford | - | Multiple Banbury Rd sites | - | 2.8% | 1.4% | - | 1 hour 21 walk - too far to reasonably assume walkers will go to zone via this mode | 6.6km (20 min) cycle ride. Quite a long cycle but relatively quick and with the improvements along the A44 it may be attractive to some keen cyclists | 350m walk to Sandy Lane bus stop south of site, then 24 min bus journey via the S3. Likely to be popular and even more so with the proposed bus route | Between a 9 & 18 minute car journey so highly likely to be a viable option. However, Summertown, Waterways and North Oxford CPZs may discourage car use | As per Car Driver | - | Mode Shares adjusted in line with Oxford 001 |
| | | | | | | rwell 017 (2011 Ce | 1% | 5% | 36% | 51% | 6% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 25.0% | 60.0% | 10.0% | 5.0% | 100.0% | - |
| Oxford 004 Marston and New Marston | - | - | - | 0.1% | 0.1% | - | 1 hr 49 walk- too far to reasonably assume walkers will go to zone via this mode | 8.9km (27 min) cycle. The proposed improvements along A44 may encourage very keen cyclists as route is quite long. | 350m walk to Sandy Lane bus stop south of site, but then bus journey requires a change and takes between 50-60 mins to reach zone. Unlikely to be an appealing choice | Between a 12 & 24 minute car journey so highly likely to be a viable option. CPZs only cover part of this area, so may be attractive for car drivers - residential areas may be used for parking | As per Car Driver | - | Walking decreased to 0% due to distance away from zone. Cycling significantly increased due to good current + improved links to zone but pub trans to remain at same level as the bus journey requires a change of services + long bus journey. Therefore, car driver has remained at its current level due to decrease in walk mode share |
| | | | | | | rwell 017 (2011 Ce | 25% | 0% | 0% | 75% | 0% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 15.0% | 5.0% | 70.0% | 10.0% | 100.0% | - |
| Oxford 005 Barto | - | - | - | 0.1% | 0.1% | - | 1 hr 51 walk- too far to reasonably assume walkers will go to zone via this mode | 9.1km (27 min) cycle ride. New cycle route through PR7b may cut journey time and provide a more attractive route for cyclists | 1 hour 18 bus route including changing services from S3 to 700 so unlikely to be a viable option | Between 9 & 16 min car journey - likely to be most attractive choice to residents. Lack of CPZ in Barton area provides an added incentive, too - residential area may be used for parking | As per Car Driver | - | Walking decreased to 0% due to distance away from zone. Cycling significantly increased due to good current + improved links to zone but pub trans to remain at same level as the bus journey requires a change of services + long bus journey. Therefore, car driver has slightly decreased due to increase in cycle mode share |
| | | | | | | rwell 017 (2011 Ce | 0% | 0% | 0% | 100% | 0% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 15.0% | 0.0% | 80.0% | 5.0% | 100.0% | - |
| Oxford 006 Headington | JR Hospital, Nuffield Orthopaedic | - | - | 5.1% | 3.3% | - | 2 hrs 8 to zone - too far to reasonably assume walkers will go to zone via this mode | 10.3km (35min) to zone. Proposed cycle routes may reduce this time, so may only be viable for very keen cyclists | 1 hour bus route including changing services from S3 to 700. Proposed new bus may make this more of a viable option, but time taken is likely to put users off | 16-35 min drive to zone. Restricted parking at Hospitals and CPZs cover most of zone | As per Car Driver | - | Walking reduced to 0% due to distance away from zone. Cycling slightly increased due to good current + improved links to zone, but pub trans significantly reduced due to long bus journey and requires a change of bus. Therefore, car driver increased due to decrease in pub trans mode share and also as a result of restricted parking opportunities. |
| | | | | | | rwell 017 (2011 Ce | 1.4% | 3.4% | 38.1% | 51.0% | 6.1% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 20.0% | 25.0% | 45.0% | 10.0% | 100.0% | - |
| Oxford 007 Risinghurst and Sandhills | - | - | - | 0.6% | 0.3% | - | 2 hours 20 - too far to reasonably assume walkers will go to zone via this mode | 11.6KM (38 min) to zone. Proposed cycle routes may reduce this time, so may only be viable for very keen cyclists | 1 hour 19 bus route including changing services from S3 to 8 so unlikely to be a viable option | 12-26 mins to zone. Commuter parking affected by Workplace Parking Levy cuurently zone mostly not in CPZ area but assume on-street parking will be controlled | As per Car Driver | - | Walking reduced to 0% due to distance away from zone. Cycling slightly decreased due to distance from zone and pub trans significantly reduced due to long bus journey and requires a change of bus. Therefore, car driver mode share remains at the same due to reductions in cycling and pub trans mode share |
| | | | | | | rwell 017 (2011 Ce | 0% | 6% | 19% | 75% | 0% | 100.0% | |
| | | | | | | PR8 Adjusted | 0.0% | 10.0% | 5.0% | 75.0% | 10.0% | 100.0% | |
| Oxford 008 City | Keble Road Triangle, Radcliffe Observatory Quarter, Oxford University Press, UoO Science Area, Oxford Centre for Innovation | Multiple City Centre Sites + Jericho Sites | - | 14.6% | 8.3% | - | 1 hr 43 to zone - too far to reasonably assume walkers will go to city centre via this mode | 8.3km (28 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into City Centre | 40 mins via S3 which may be cut with extension of S3 up to the site. Potentially attractive option into City Centre directly from the site | 14-26 mins into zone but subject to peak hour congestion plus city centre parking restriant/high commuter parking charges. Likelihood of city centre traffic management reducing car access in favour of public transport | As per Car Driver | - | Walking reduced to 0% due to distance away from zone. Cycling and pub trans slightly increased due to good current + improved links to zone. Therefore, Car Driver mode share slightly reduced as a result of parking restraint |
| | | | | | | rwell 017 (2011 Ce | 1% | 13% | 65% | 18% | 3% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 20.0% | 70.0% | 5.0% | 5.0% | 100.0% | - |
| Oxford 009 Osney, Jericho and Binsey | - | All Botley Road Site | - | 3.5% | 1.7% | - | 1 hr 52 to zone - too far to reasonably assume walkers will go to train station via this mode | 9.5km (30 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into Botley | 54 min bus journey via S3. As only one service may be viable/attractive for some users but time taken will also discourage | 10-18 mins to Oxford train station but subject to peak hour congestion and high commuter parking charges will discourage this option. | As per Car Driver | - | Walking remains 0% due to distance away from zone. Cycling significantly increased due to good current + improved links to zone, pub trans slightly reduced due to long bus journey. Therefore, Car Driver mode share slightly reduced as a result of parking restraint/charging |
| | | | | | | rwell 017 (2011 Ce | 0% | 8% | 42% | 47% | 3% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 20.0% | 35.0% | 40.0% | 5.0% | 100.0% | - |
| Oxford 010 Between A4142 and A429 | Churchill Hospital, Warneford Hospital, Old Road Campus | - | - | 2.4% | 1.7% | - | 2 hr 21 to zone - too far to reasonably assume walkers will go to zone via this mode | 12.3km (40 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into Headington via A40 cycle route | 1 hour 6 to zone via a bus change from S3 to 15. Unlikely to be an attractive option | 18-40 mins to zone so subject to peak hour congestion. Parking restrictions around Churchill Hosp and CPZs will discouraage users | As per Car Driver | - | Walking reduced to 0% due to distance away from zone. Cycling slightly increased due to good current + improved links to zone, pub trans slightly reduced due to long bus journey. Therefore, car driver slightly decreased due to increase in cycling mode share |
| | | | | | | rwell 017 (2011 Ce | 1% | 12% | 31% | 47% | 9% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 20.0% | 25.0% | 45.0% | 10.0% | 100.0% | - |
| Oxford 011 East Oxford between A4158 Iffley Road and A420 | - | All St Clement's Sites + Cowley Rd Workshop | - | 0.9% | 0.5% | - | 2 hr 11 to zone - too far to reasonably assume walkers will go to zone via this mode | 10.6km (34 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into St Clements | 59 min bus route including changing services from S3 to 1 so unlikely to be a viable option | 18-30 min to zone so likely attractive choice but subject to peak hour congestion. Entire zone in CPZ though so will discourage drivers | As per Car Driver | - | Walking remains at 0% due to distance away from zone. Cycling slightly increased due to good current + improved links to zone, pub trans slightly reduced due to long bus journey. Therefore, car driver slightly decreased due to increase in cycling mode share |
| | | | | | | rwell 017 (2011 Ce | 0% | 12% | 19% | 69% | 0% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 20.0% | 15.0% | 60.0% | 5.0% | 100.0% | - |
| Oxford 012 A4144 Abingdon Road | - | Some Cowley Rd Sites | - | 0.3% | 0.2% | - | 2 hr 7 to zone - too far to reasonably assume walkers will go to zone via this mode | 10.4km (33 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into New Hinksey | 53 min bus route including changing services from S3 to 35 so unlikely to be a viable option | 14-24 mins to zone so likely attractive choice but subject to peak hour congestion. South Oxford CPZ only covers part of zone so likely to encourage car use | As per Car Driver | - | Walking reduced to 0% due to distance away from zone. Cycling slightly increased due to good current + improved links to zone, pub trans remains at 0% due to long bus journey and requires a change of bus. Therefore, car driver slightly decreased due to increase in cycling mode share |
| | | | | | | rwell 017 (2011 Ce | 10% | 10% | 0% | 80% | 0% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 20.0% | 10.0% | 65.0% | 5.0% | 100.0% | - |
| Oxford 013 Between Cowley Road and The Slade | BMW (Mini), Unipart | Some Watlington Rd sites inc. Harrow Rd Industrial Estate and most Cowley sites | - | 4.7% | 2.7% | - | 2 hr 38 to zone - too far to reasonably assume walkers will go to zone via this mode | 13.7km (43 min) to zone. Potentially attractive option for very keen cyclists with improvements along A44 and cycle facilities down into Headington via A40 cycle route | 1 hr 16 bus journey via 2 changes via S3 and 10. Unlikely to be attractive option but tie in with LNBB Eastern Arc route may reduce time and make it viable for users | 16-35 mins to zone so subject to peak hour congestion. Parking availability/cost likely to be influenced by Workplace Parking Levy. | As per Car Driver | - | Walking reduced to 0% due to distance away from zone. Cycling slightly increased due to good current + improved links to zone, pub trans slightly reduced due to long bus journey and requires a change of bus. Therefore, car driver slightly decreased due to increase in cycling mode share and parking restraint |
| | | | | | | rwell 017 (2011 Ce | 1% | 3% | 3% | 86% | 7% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 15.0% | 5.0% | 75.0% | 5.0% | 100.0% | - |
| Oxford 014 Around Iffley Road from Thames to Cowley Road | - | - | - | 0.4% | 0.2% | - | 2 hr 12 to zone - too far to reasonably assume walkers will go to zone via this mode | 10.8km (34 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into New Hinksey | 54 min bus route including changing services from S3 to 35 so unlikely to be a viable option | 14-22 mins to zone but subject to peak hour congestion. | As per Car Driver | - | Walking remains at 0% due to distance away from zone. Cycling significantly increased due to good current + improved links to zone, pub trans slightly reduced due to long bus journey and requires a change of bus. Therefore, car driver slightly decreased due to increase in cycling mode share |
| | | | | | | rwell 017 (2011 Ce | 0% | 0% | 17% | 75% | 8% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 20.0% | 10.0% | 65.0% | 5.0% | 100.0% | - |
| Oxford 015 Cowley and Iffley | - | 21 Between Towns Rd | - | 1.7% | 0.8% | - | 2 hr 34 to zone - too far to reasonably assume walkers will go to zone via this mode | 12.5km (40 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into Iffley | 1 hr 10 min bus route including changing services from S3 to 16 so unlikely to be a viable option | 16-24 mins to zone and subject to peak hour congestion. Parking availability/cost likely to be influenced by Workplace Parking Levy. | As per Car Driver | - | Walking is 2 hrs 34 mins from site so walking reduced along with pub trans decreasing as it is a long journey including walk time. Cycling increased due to dedicated cycle facilities. Car Driver assumed to decrease remain at the same level due to parking restraint |
| | | | | | | rwell 017 (2011 Ce | 0% | 4% | 17% | 75% | 4% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 10.0% | 10.0% | 75.0% | 5.0% | 100.0% | - |
| Oxford 016 Littlemore and Rose Hill | - | - | - | 1.1% | 0.5% | - | 2 hr 44 to zone - too far to reasonably assume walkers will go to zone via this mode | 12.5km (40 min) to zone. Potentially attractive option for very keen cyclists with improvements along A44 and cycle facilities down into Iffley | 1 hr 20 bus journey via 2 changes via S3 and 3A. | 14-22 mins to zone and subject to peak hour congestion. Parking availability/cost likely to be influenced by Workplace Parking Levy. | As per Car Driver | - | Walking is 2 hr 44 mins from site so walking reduced to zero along with pub trans as it is requires 2 buses. Cycling increased due to segregated cycle lane. Car Driver assumed to decrease due to parking restraint |
| | | | | | | rwell 017 (2011 Ce | 1% | 10% | 3% | 6% | 81% | 101.1% | - |
| | | | | | | PR8 Adjusted | 0.0% | 10.0% | 10.0% | 75.0% | 5.0% | 100.0% | - |
| Oxford 017 Blackbird Leys | - | Some Cowley sites | - | 0.9% | 0.5% | - | 3 hr walk - too far to reasonably assume walkers will go to zone via this mode | 16.2km (51 min) to zone. Too far for cyclists, apart from potentially very keen cyclists | 1 hr 23 bus journey via 2 changes via S3 and 5 | 18-28 mins to zone and subject to peak hour congestion. Parking availability/cost likely to be influenced by Workplace Parking Levy. | As per Car Driver | - | Walking is 3 hr from site so walking reduced to zero along with pub trans as it is requires 2 buses. Cycling increased due to segregated cycle lane. Car Driver assumed to increase due to parking restraint |
| | | | | | | rwell 017 (2011 Ce | 1% | 4% | 4% | 15% | 73% | 97.1% | - |
| | | | | | | PR8 Adjusted | 0.0% | 5.0% | 10.0% | 80.0% | 5.0% | 100.0% | - |
| Oxford 018 Greater Leys | - | - | - | 0.2% | 0.1% | - | 3 hr 6 min walk - too far to reasonably assume walkers will go to zone via this mode | 15.3km (49min) to zone. Too far for cyclists, apart from potentially very keen cyclists | 1 hr 26 bus journey via 2 changes via S3 and 1 | 18-26 mins to zone and subject to peak hour congestion. Parking availability/cost likely to be influenced by Workplace Parking Levy. | As per Car Driver | - | Walking is 3 hr 6 mins from site so walking reduced to zero along with pub trans decreasing as it is requires 2 buses. Cycling increased due to segregated cycle lane. Car Driver assumed to increase due to parking restraint |
| | | | | | | rwell 017 (2011 Ce | 0% | 0% | 50% | 33% | 17% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 5.0% | 10.0% | 80.0% | 5.0% | 100.0% | - |
| Total Cherwell | | | | 33.7% | 20.1% | | | | | | | | |
| Cherwell 017 Kidlington North | | | | 8.4% | 4.2% | - | 27 min walk from Begbrooke Science Park via Sandy Lane. Likely to be an attractive choice with the proposals for Sandy Lane crossing etc | 7/8 min cycle from zone. Highly attractive route with the improvements/new routes being brought forward | Unlikely to need to use bus over walk and cycle | 6 min drive. Long stay car park prices at High St may discourage car use | As per Car Driver | - | High proportion expected to be making journeys by active modes given the links provided as part of the development. Therefore, people are unlikely to be using pub trans or driving a car so these mode shares significantly reduced |
| | | | | | | rwell 017 (2011 Ce | 57% | 12% | 3% | 25% | 4% | 100.0% | - |
| | | | | | | PR8 Adjusted | 60.0% | 25.0% | 5.0% | 5.0% | 5.0% | 100.0% | - |
| Cherwell 018 Kidlington South | | | | 2.2% | 1.1% | - | 30 min walk from Begbrooke Science Park via Sandy Lane. Likely to be an attractive choice with the proposals for Sandy Lane crossing etc | 7 min cycle from zone. Highly attractive route with the improvements/new routes being brought forward | Unlikely to need to use bus over walk and cycle | 7 min drive. Long stay car park prices at High St may discourage car use | As per Car Driver | - | High proportion expected to be making journeys by active modes given the links provided as part of the development. Therefore, people are unlikely to be using pub trans or driving a car so these mode shares significantly reduced |
| | | | | | | rwell 017 (2011 Ce | 39% | 13% | 8% | 39% | 2% | 100.0% | - |
| | | | | | | PR8 Adjusted | 60.0% | 25.0% | 5.0% | 5.0% | 5.0% | 100.0% | - |
| Cherwell 019 (PR8) Begbroke and Yarnton | | | | 13.3% | 8.2% | - | Site is located here | Site is located here | Site is located here | Site is located here | Site is located here | - | All non-car modes increased here due to proximity to site |
| | | | | | | rwell 017 (2011 Ce | 17% | 15% | 8% | 51% | 9% | 100.0% | - |
| | | | | | | PR8 Adjusted | 35.0% | 25.0% | 25.0% | 10.0% | 5.0% | 100.0% | - |
| Rest of Cherwell | | | | 9.9% | 6.6% | - | | | | | | | - |
| | | | | | | rwell 017 (2011 Ce | 6% | 3% | 12% | 72% | 7% | 100.0% | - |
| | | | | | | PR8 Adjusted | 2.5% | 2.5% | 15.0% | 72.5% | 7.5% | 100.0% | - |
| South Oxfordshire | | | | 2.4% | 1.4% | - | | | | | | | - |
| | | | | | | rwell 017 (2011 Ce | 0% | 1% | 9% | 87% | 3% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 1.0% | 9.0% | 87.0% | 3.0% | 100.0% | - |
| Vale of White Hor | | | | 5.6% | 3.4% | - | | | | | | | - |
| | | | | | | rwell 017 (2011 Ce | 1% | 3% | 7% | 84% | 5% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 5.0% | 10.0% | 80.0% | 5.0% | 100.0% | - |
| West Oxfordshire | | | | 6.5% | 4.4% | - | | | A44 bus improvements will serve West Oxfordshire | | | | - |
| | | | | | | rwell 017 (2011 Ce | 2% | 2% | 5% | 87% | 5% | 100.0% | - |
| | | | | | | PR8 Adjusted | 5.0% | 10.0% | 20.0% | 60.0% | 5.0% | 100.0% | - |
| Out of Oxfordshir | | | | 8.3% | 4.2% | - | | | | | | | - |
| | | | | | | rwell 017 (2011 Ce | 2% | 2% | 20% | 72% | 5% | 100.0% | - |
| | | | | | | PR8 Adjusted | 0.0% | 1.0% | 20.0% | 72.0% | 7.0% | 100.0% | - |
| Total | | | | 100.0% | 100.0% | - | - | - | - | - | - | - | - |

| | Walk | Cycle | Pub Trans | Car Driver | Passenger | Total |
|---|---|---|---|---|---|---|
| Internal Site Trips | 27.0% | 11.6% | 0.0% | 0.0% | 0.0% | 38.6% |
| Oxford (Total) | 0.0% | 5.5% | 12.3% | 8.4% | 1.7% | 28.0% |
| 001 | 0.0% | 1.1% | 2.6% | 0.4% | 0.2% | 4.4% |
| 002 | 0.0% | 0.3% | 0.7% | 0.1% | 0.1% | 1.2% |
| 003 | 0.0% | 0.3% | 0.8% | 0.1% | 0.1% | 1.4% |
| 004 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% |
| 005 | 0.0% | 0.0% | 0.0% | 0.1% | 0.0% | 0.1% |
| 006 | 0.0% | 0.7% | 0.8% | 1.5% | 0.3% | 3.3% |
| 007 | 0.0% | 0.0% | 0.0% | 0.2% | 0.0% | 0.3% |
| 008 | 0.0% | 1.7% | 5.8% | 0.4% | 0.4% | 8.3% |
| 009 | 0.0% | 0.3% | 0.6% | 0.7% | 0.1% | 1.7% |
| 010 | 0.0% | 0.3% | 0.4% | 0.8% | 0.2% | 1.7% |
| 011 | 0.0% | 0.1% | 0.1% | 0.3% | 0.0% | 0.5% |
| 012 | 0.0% | 0.0% | 0.0% | 0.1% | 0.0% | 0.2% |
| 013 | 0.0% | 0.4% | 0.1% | 2.0% | 0.1% | 2.7% |
| 014 | 0.0% | 0.0% | 0.0% | 0.1% | 0.0% | 0.2% |
| 015 | 0.0% | 0.1% | 0.1% | 0.6% | 0.0% | 0.8% |
| 016 | 0.0% | 0.1% | 0.1% | 0.4% | 0.0% | 0.5% |
| 017 | 0.0% | 0.0% | 0.0% | 0.4% | 0.0% | 0.5% |
| 018 | 0.0% | 0.0% | 0.0% | 0.1% | 0.0% | 0.1% |
| Cherwell (Total) | 6.2% | 3.5% | 3.3% | 5.8% | 1.2% | 20.1% |
| 017 | 2.5% | 1.0% | 0.2% | 0.2% | 0.2% | 4.2% |
| 018 | 0.7% | 0.3% | 0.1% | 0.1% | 0.1% | 1.1% |
| 019 | 2.9% | 2.1% | 2.1% | 0.8% | 0.4% | 8.2% |
| Rest of Cherwell | 0.2% | 0.2% | 1.0% | 4.8% | 0.5% | 6.6% |
| South Oxfordshire | 0.0% | 0.0% | 0.1% | 1.3% | 0.0% | 1.4% |
| Vale of White Hor | 0.0% | 0.2% | 0.3% | 2.7% | 0.2% | 3.4% |
| West Oxfordshire | 0.2% | 0.4% | 0.9% | 2.6% | 0.2% | 4.4% |
| Out of Oxfordshir | 0.0% | 0.0% | 0.8% | 3.0% | 0.3% | 4.2% |
| Total | 33.4% | 21.3% | 17.8% | 23.9% | 3.6% | 100.0% |

| | Destination | Walk | Cycle | Public Transport | Car | Passenger |
|---|---|---|---|---|---|---|
| Internal | 38.6% | 27.0% | 11.6% | 0.0% | 0.0% | 0.0% |
| Oxford | 28.0% | 0.0% | 5.5% | 12.3% | 8.4% | 1.7% |
| Cherwell | 20.1% | 6.2% | 3.5% | 3.3% | 5.8% | 1.2% |
| South Oxfordshire | 1.4% | 0.0% | 0.0% | 0.1% | 1.3% | 0.0% |
| Vale of White | 3.4% | 0.0% | 0.2% | 0.3% | 2.7% | 0.2% |
| West Oxfordshire | 4.4% | 0.2% | 0.4% | 0.9% | 2.6% | 0.2% |
| Outside of | 4.2% | 0.0% | 0.0% | 0.8% | 3.0% | 0.3% |
| Total Off-site | 61.4% | 6.4% | 9.8% | 17.8% | 23.9% | 3.6% |
| Total | 100.0% | 33.4% | 21.3% | 17.8% | 23.9% | 3.6% |

RESI-LEISURE DESTINATION & MODE

| | Leisure Destination | Census Cherwell 17 Destination Distribution | PR8 Assumed Destination Distribution | Mode Share | Walk | Cycle | Public Transport | Car Driver | Passenger | Total | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Internal Site Trips | Local Centre | - | 20.0% | - | 70.0% | 30.0% | 0.0% | 0.0% | 0.0% | 100.0% | - |
| Total Oxford | - | 43.4% | 59.8% | - | - | - | - | - | - | - | - |
| Oxford 001 Wolvercote & Cutteslowe | Cuttleslowe and Sunnymead Park | 1.5% | 0.8% | - | Circa 45 minutes to zone - unlikely to be pedestrians walking here | As per walk, but takes only 11 minutes. Proposed improvements to the A44 Cycle facilities may make this an attractive option. | 350m walk to Sandy Lane bus stop south of site, then 9 min bus journey via the S3. Likely to be popular and even more so with the proposed bus route | Between 4&6 minute drive to zone but subject to peak hour delays. Northern Gateway application states that a CPZ will be brought forward to prevent overspill parking at the Northern Gateway site. Parking restrictions implemented also in Yarnton which will discourage car parking further. Northern Gateway will have reduced parking provision | As per Car Driver | - | Car Driver mode share has been reduced significantly, based on the assumptions of reduced parking at Oxford North, Wolvercote will be covered by a CPZ & parking restrictions in Yarnton that will reduce car use. Public transport mode share has been increased slightly. Cycle mode share has also increased, due to the good cycle links to be provided from |
| | | | | rwell 017 (2011 Cer | 0.0% | 14.0% | 16.3% | 62.8% | 7.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 15.0% | 50.0% | 30.0% | 5.0% | 100.0% | - |
| Oxford 002 Sunnymead and Summertown | Ferry Leisure Centre | 2.4% | 2.5% | - | 1 hr 11 to area - too far to reasonably assume walkers will go to zone via this mode | 5.8km (18 min) cycle ride. Quite a long cycle but relatively quick and with the improvements along the A44 it may be attractive to some keen cyclists | 350m walk to Sandy Lane bus stop south of site, then 19 min bus journey via the S3. Likely to be popular and even more so with the proposed bus route | Between a 7 & 16 minute car journey so highly likely to be a viable option. However, Summertown and North Summertown CPZs may discourage car use | As per Car Driver | - | Mode Shares adjusted in line with Oxford 001 |
| | | | | rwell 017 (2011 Cer | 1.4% | 5.8% | 55.1% | 30.4% | 7.2% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 15.0% | 50.0% | 30.0% | 5.0% | 100.0% | - |
| Oxford 003 North Oxford | Port Meadow | 2.8% | 1.7% | - | 1 hour 21 walk - too far to reasonably assume walkers will go to zone via this mode | 6.6km (20 min) cycle ride. Quite a long cycle but relatively quick and with the improvements along the A44 it may be attractive to some keen cyclists | 350m walk to Sandy Lane bus stop south of site, then 24 min bus journey via the S3. Likely to be popular and even more so with the proposed bus route | Between a 9 & 18 minute car journey so highly likely to be a viable option. However, Summertown, Waterways and North Oxford CPZs may discourage car use | As per Car Driver | - | Mode Shares adjusted in line with Oxford 001 |
| | | | | rwell 017 (2011 Cer | 1.3% | 5.0% | 36.3% | 51.3% | 6.3% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 15.0% | 50.0% | 30.0% | 5.0% | 100.0% | - |
| Oxford 004 Marston and New Marston | ston Road Sports Gr | 0.1% | 0.8% | - | 1 hr 49 walk- too far to reasonably assume walkers will go to zone via this mode | 8.9km (27 min) cycle. The proposed improvements along A44 may encourage very keen cyclists as route is quite long. | 350m walk to Sandy Lane bus stop south of site, but then bus journey requires a change and takes between 50-60 mins to reach zone. Unlikely to be an appealing choice | Between a 12 & 24 minute car journey so highly likely to be a viable option. CPZs only cover part of this area, so may be attractive for car drivers - residential areas may be used for parking | As per Car Driver | - | Walking decreased to 0% due to distance away from zone. Cycling significantly increased due to good current + improved links to zone but pub trans to remain at same level as the bus journey requires a change of services + long bus journey. Therefore, car driver has remained at its current |
| | | | | rwell 017 (2011 Cer | 25.0% | 0.0% | 0.0% | 75.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 15.0% | 5.0% | 70.0% | 10.0% | 100.0% | - |
| Oxford 005 Barto | - | 0.1% | 0.8% | - | 1 hr 51 walk- too far to reasonably assume walkers will go to zone via this mode | 9.1km (27 min) cycle ride. New cycle route through PR7b may cut journey time and provide a more attractive route for cyclists | 1 hour 18 bus route including changing services from S3 to 700 so unlikely to be a viable option | Between 9 & 16 min car journey - likely to be most attractive choice to residents. Lack of CPZ in Barton area provides an added incentive, too - residential area may be used for parking | As per Car Driver | - | Walking decreased to 0% due to distance away from zone. Cycling significantly increased due to good current + improved links to zone but pub trans to remain at same level as the bus journey requires a change of services + long bus journey. Therefore, car driver has slightly decreased due to |
| | | | | rwell 017 (2011 Cer | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 15.0% | 0.0% | 80.0% | 5.0% | 100.0% | - |
| Oxford 006 Headington | Mihlahm Ford Nature Park | 5.1% | 0.8% | - | 2 hrs 8 to zone - too far to reasonably assume walkers will go to zone via this mode | 10.3km (35min) to zone. Proposed cycle routes may reduce this time, so may only be viable for very keen cyclists | 1 hour bus route including changing services from S3 to 700. Proposed new bus may make this more of a viable option, but time taken is likely to put users off | 16-35 min drive to zone. Restricted parking at Hospitals and CPZs cover most of zone | As per Car Driver | - | Walking reduced to 0% due to distance away from zone. Cycling slightly increased due to good current + improved links to zone, but pub trans significantly reduced due to long bus journey and requires a change of bus. Therefore, car driver increased due to decrease in pub trans mode |
| | | | | rwell 017 (2011 Cer | 1.4% | 3.4% | 38.1% | 51.0% | 6.1% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 25.0% | 45.0% | 10.0% | 100.0% | - |
| Oxford 007 Risinghurst and Sandhills | Lewis Nature Resou | 0.6% | 0.8% | - | 2 hours 20 - too far to reasonably assume walkers will go to zone via this mode | 11.6KM (38 min) to zone. Proposed cycle routes may reduce this time, so may only be viable for very keen cyclists | 1 hour 19 bus route including changing services from S3 to 8 so unlikely to be a viable option | 12-26 mins to zone. Commuter parking affected by Workplace Parking Levy - curently zone mostly not in CPZ area but assume on-street parking will be controlled | As per Car Driver | - | Walking reduced to 0% due to distance away from zone. Cycling slightly decreased due to distance from zone and pub trans significantly reduced due to long bus journey and requires a change of bus. Therefore, car driver mode share remains at the same due to reductions in cycling and pub |
| | | | | rwell 017 (2011 Cer | 0.0% | 6.3% | 18.8% | 75.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 5.0% | 10.0% | 75.0% | 10.0% | 100.0% | |
| Oxford 008 City C | Tourist sites in central Oxford, e.g., University, cathedral. | 14.6% | 42.1% | - | 1 hr 43 to zone - too far to reasonably assume walkers will go to city centre via this mode | 8.3km (28 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into City Centre | 40 mins via S3 which may be cut with extension of S3 up to the site. Potentially attractive option into City Centre directly from the site | 14-26 mins into zone but subject to peak hour congestion plus city centre parking restriant/high commuter parking charges. Likelihood of city centre traffic management reducing car access in favour of public transport | As per Car Driver | - | Walking reduced to 0% due to distance away from zone. Cycling and pub trans slightly increased due to good current + improved links to zone. Therefore, Car Driver mode share slightly reduced as a result of parking restraint |
| | | | | rwell 017 (2011 Cer | 0.7% | 13.2% | 64.6% | 18.2% | 3.3% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 70.0% | 5.0% | 5.0% | 100.0% | - |
| Oxford 009 Osney, Jericho and Binsey | Oxford Golf Centre | 3.5% | 1.7% | - | 1 hr 52 to zone - too far to reasonably assume walkers will go to train station via this mode | 9.5km (30 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into Botley | 54 min bus journey via S3. As only one service may be viable/attractive for some users but time taken will also discourage | 10-18 mins to Oxford train station but subject to peak hour congestion and high commuter parking charges will discourage this option. | As per Car Driver | - | Walking remains 0% due to distance away from zone. Cycling significantly increased due to good current + improved links to zone, pub trans slightly reduced due to long bus journey. Therefore, Car Driver mode share slightly reduced as a |
| | | | | rwell 017 (2011 Cer | 0.0% | 8.0% | 42.0% | 47.0% | 3.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 35.0% | 40.0% | 5.0% | 100.0% | - |
| Oxford 010 Between A4142 and A429 | Magdalen Woods | 2.4% | 0.8% | - | 2 hr 21 to zone - too far to reasonably assume walkers will go to zone via this mode | 12.3km (40 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into Headington via A40 cycle route | 1 hour 6 to zone via a bus change from S3 to 15. Unlikely to be an attractive option | 18-40 mins to zone so subject to peak hour congestion. Parking restrictions around Churchill Hosp and CPZs will discourage users | As per Car Driver | - | Walking reduced to 0% due to distance away from zone. Cycling slightly increased due to good current + improved links to zone, pub trans slightly reduced due to long bus journey. Therefore, car driver slightly decreased due to |
| | | | | rwell 017 (2011 Cer | 1.5% | 11.8% | 30.9% | 47.1% | 8.8% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 25.0% | 45.0% | 10.0% | 100.0% | - |
| Oxford 011 East Oxford between A4158 Iffley Road and A420 | Iffley Road Sports Centre | 0.9% | 0.8% | - | 2 hr 11 to zone - too far to reasonably assume walkers will go to zone via this mode | 10.6km (34 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into St Clements | 59 min bus route including changing services from S3 to 1 so unlikely to be a viable option | 18-30 min to zone so likely attractive choice but subject to peak hour congestion. Entire zone in CPZ though so will discourage drivers | As per Car Driver | - | Walking remains at 0% due to distance away from zone. Cycling slightly increased due to good current + improved links to zone, pub trans slightly reduced due to long bus journey. Therefore, car driver slightly decreased due to |
| | | | | rwell 017 (2011 Cer | 0.0% | 11.5% | 19.2% | 69.2% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 15.0% | 60.0% | 5.0% | 100.0% | - |
| Oxford 012 A4144 Abingdon Road | South Oxford Adventure Playground | 0.3% | 0.8% | - | 2 hr 7 to zone - too far to reasonably assume walkers will go to zone via this mode | 10.4km (33 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into New Hinksey | 53 min bus route including changing services from S3 to 35 so unlikely to be a viable option | 14-24 mins to zone so likely attractive choice but subject to peak hour congestion. South Oxford CPZ only covers part of zone so likely to encourage car use | As per Car Driver | - | Walking reduced to 0% due to distance away from zone. Cycling slightly increased due to good current + improved links to zone, pub trans remains at 0% due to long bus journey and requires a change of bus. Therefore, car driver |
| | | | | rwell 017 (2011 Cer | 10.0% | 10.0% | 0.0% | 80.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 10.0% | 65.0% | 5.0% | 100.0% | - |
| Oxford 013 Between Cowley Road and The Slade | Oxford Golf Club | 4.7% | 0.8% | - | 2 hr 38 to zone - too far to reasonably assume walkers will go to zone via this mode | 13.7km (43 min) to zone. Potentially attractive option for very keen cyclists with improvements along A44 and cycle facilities down into Headington via A40 cycle route | 1 hr 16 bus journey via 2 changes via S3 and 10. Unlikely to be attractive option but tie in with LNBB Eastern Arc route may reduce time and make it viable for users | 16-35 mins to zone so subject to peak hour congestion. Parking availability/cost likely to be influenced by Workplace Parking Levy. | As per Car Driver | - | Walking reduced to 0% due to distance away from zone. Cycling slightly increased due to good current + improved links to zone, pub trans slightly reduced due to long bus journey and requires a change of bus. Therefore, car driver slightly decreased due to increase in cycling mode share and |
| | | | | rwell 017 (2011 Cer | 0.8% | 3.0% | 3.0% | 86.5% | 6.8% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 10.0% | 5.0% | 80.0% | 5.0% | 100.0% | - |
| Oxford 014 Around Iffley Road from Thames to Cowley Road | Aston's Eyot Nature Reserve | 0.4% | 0.8% | - | 2 hr 12 to zone - too far to reasonably assume walkers will go to zone via this mode | 10.8km (34 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into New Hinksey | 54 min bus route including changing services from S3 to 35 so unlikely to be a viable option | 14-22 mins to zone but subject to peak hour congestion. | As per Car Driver | - | Walking remains at 0% due to distance away from zone. Cycling significantly increased due to good current + improved links to zone, pub trans slightly reduced due to long bus journey and requires a change of bus. Therefore, car driver slightly decreased due to increase in cycling mode |
| | | | | rwell 017 (2011 Cer | 0.0% | 0.0% | 16.7% | 75.0% | 8.3% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 10.0% | 65.0% | 5.0% | 100.0% | - |
| Oxford 015 Cowley and Iffley | Florence Park | 1.7% | 0.8% | - | 2 hr 34 to zone - too far to reasonably assume walkers will go to zone via this mode | 12.5km (40 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into Iffley | 1 hr 10 min bus route including changing services from S3 to 16 so unlikely to be a viable option | 16-24 mins to zone and subject to peak hour congestion. Parking availability/cost likely to be influenced by Workplace Parking Levy. | As per Car Driver | - | Walking is 2 hrs 34 mins from site so walking reduced along with pub trans decreasing as it is a long journey including walk time. Cycling increased due to dedicated cycle facilities. Car Driver assumed to decrease remain at the |
| | | | | rwell 017 (2011 Cer | 0.0% | 4.2% | 16.7% | 75.0% | 4.2% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 10.0% | 10.0% | 75.0% | 5.0% | 100.0% | - |
| Oxford 016 Littlemore and Rose Hill | Oxford United FC - Kassam Stadium | 1.1% | 0.8% | - | 2 hr 44 to zone - too far to reasonably assume walkers will go to zone via this mode | 12.5km (40 min) to zone. Potentially attractive option for very keen cyclists with improvements along A44 and cycle facilities down into Iffley | 1 hr 20 bus journey via 2 changes via S3 and 3A. | 14-22 mins to zone and subject to peak hour congestion. Parking availability/cost likely to be influenced by Workplace Parking Levy. | As per Car Driver | - | Walking is 2 hr 44 mins from site so walking reduced to zero along with pub trans as it is requires 2 buses. Cycling increased due to segregated cycle lane. Car Driver assumed |
| | | | | rwell 017 (2011 Cer | 1.1% | 9.7% | 3.2% | 6.5% | 80.6% | 101.1% | - |
| | | | | PR8 Adjusted | 0.0% | 10.0% | 10.0% | 75.0% | 5.0% | 100.0% | - |
| Oxford 017 Blackbird Leys | Leys Pool and Leisure Centre | 0.9% | 0.8% | - | 3 hr walk - too far to reasonably assume walkers will go to zone via this mode | 16.2km (51 min) to zone. Too far for cyclists, apart from potentially very keen cyclists | 1 hr 23 bus journey via 2 changes via S3 and 5 | 18-28 mins to zone and subject to peak hour congestion. Parking availability/cost likely to be influenced by Workplace Parking Levy. | As per Car Driver | - | Walking is 3 hr from site so walking reduced to zero along with pub trans as it is requires 2 buses. Cycling increased due to segregated cycle lane. Car Driver assumed to |
| | | | | rwell 017 (2011 Cer | 0.9% | 3.8% | 3.8% | 15.4% | 73.1% | 97.1% | - |
| | | | | PR8 Adjusted | 0.0% | 5.0% | 10.0% | 80.0% | 5.0% | 100.0% | - |
| Oxford 018 Greater Leys | Gillians Park | 0.2% | 0.8% | - | 3 hr 6 min walk - too far to reasonably assume walkers will go to zone via this mode | 15.3km (49min) to zone. Too far for cyclists, apart from potentially very keen cyclists | 1 hr 26 bus journey via 2 changes via S3 and 1 | 18-26 mins to zone and subject to peak hour congestion. Parking availability/cost likely to be influenced by Workplace Parking Levy. | As per Car Driver | - | Walking is 3 hr 6 mins from site so walking reduced to zero along with pub trans decreasing as it is requires 2 buses. Cycling increased due to segregated cycle lane. Car Driver assumed to increase due to parking restraint |
| | | | | rwell 017 (2011 Cer | 0.0% | 0.0% | 50.0% | 33.3% | 16.7% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 5.0% | 10.0% | 80.0% | 5.0% | 100.0% | - |
| Total Cherwell | | 33.7% | 10.9% | | | | | | | | |
| Cherwell 017 Kidlington North | dlington Football Cl | 8.4% | 2.5% | - | 27 min walk from Begbrooke Science Park via Sandy Lane. Likely to be an attractive choice with the proposals for Sandy Lane crossing etc | 7/8 min cycle from zone. Highly attractive route with the improvements/new routes being brought forward | Unlikely to need to use bus over walk and cycle | 6 min drive. Long stay car park prices at High St may discourage car use | As per Car Driver | - | High proportion expected to be making journeys by active modes given the links provided as part of the development. Therefore, people are unlikely to be using pub trans or driving a car so these mode shares significantly reduced |
| | | | | rwell 017 (2011 Cer | 56.7% | 11.7% | 2.5% | 25.4% | 3.8% | 100.0% | - |
| | | | | PR8 Adjusted | 60.0% | 25.0% | 5.0% | 5.0% | 5.0% | 100.0% | - |
| Cherwell 018 Kidlington South | Gosford All Blacks RF | 2.2% | 2.5% | - | 30 min walk from Begbrooke Science Park via Sandy Lane. Likely to be an attractive choice with the proposals for Sandy Lane crossing etc | 7 min cycle from zone. Highly attractive route with the improvements/new routes being brought forward | Unlikely to need to use bus over walk and cycle | 7 min drive. Long stay car park prices at High St may discourage car use | As per Car Driver | - | High proportion expected to be making journeys by active modes given the links provided as part of the development. Therefore, people are unlikely to be using pub trans or driving a car so these mode shares significantly reduced |
| | | | | rwell 017 (2011 Cer | 38.7% | 12.9% | 8.1% | 38.7% | 1.6% | 100.0% | - |
| | | | | PR8 Adjusted | 60.0% | 25.0% | 5.0% | 5.0% | 5.0% | 100.0% | - |
| Cherwell 019 (PR8) Begbroke and Yarnton | - | 13.3% | 1.7% | - | Site is located here | Site is located here | Site is located here | Site is located here | Site is located here | - | All non-car modes increased here due to proximity to site |
| | | | | rwell 017 (2011 Cer | 17.4% | 14.5% | 7.9% | 51.2% | 9.0% | 100.0% | - |
| | | | | PR8 Adjusted | 60.0% | 20.0% | 5.0% | 10.0% | 5.0% | 100.0% | - |
| Rest of Cherwell | - | 9.9% | 4.2% | - | | | | | | | - |
| | | | | rwell 017 (2011 Cer | 6.0% | 3.2% | 11.7% | 71.6% | 7.4% | 100.0% | - |
| | | | | PR8 Adjusted | 5.0% | 10.0% | 25.0% | 55.0% | 5.0% | 100.0% | - |
| South Oxfordshire | - | 2.4% | 1.7% | - | | | | | | | - |
| | | | | rwell 017 (2011 Cer | 0.0% | 1.4% | 8.7% | 87.0% | 2.9% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 1.0% | 9.0% | 87.0% | 3.0% | 100.0% | - |
| Vale of White Hors | - | 5.6% | 1.7% | - | | | | | | | - |
| | | | | rwell 017 (2011 Cer | 1.3% | 2.5% | 6.9% | 84.4% | 5.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 5.0% | 10.0% | 80.0% | 5.0% | 100.0% | - |
| West Oxfordshire | - | 6.5% | 1.7% | - | | | | | | | - |
| | | | | rwell 017 (2011 Cer | 1.6% | 1.6% | 5.3% | 86.6% | 4.8% | 100.0% | - |
| | | | | PR8 Adjusted | 5.0% | 10.0% | 15.0% | 65.0% | 5.0% | 100.0% | - |
| Out of Oxfordshire | - | 8.3% | 4.2% | - | | | | | | | - |
| | | | | rwell 017 (2011 Cer | 1.7% | 1.7% | 19.7% | 71.8% | 5.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 1.0% | 20.0% | 72.0% | 7.0% | 100.0% | - |
| Total | - | 100.0% | 100.0% | - | - | - | - | - | - | - | - |

| | Walk | Cycle | Pub Trans | Car Driver | Passenger | Total |
|---|---|---|---|---|---|---|
| **Internal Site Trips** | **14.0%** | **6.0%** | **0.0%** | **0.0%** | **0.0%** | **20.0%** |
| **Oxford (Total)** | **0.0%** | **11.0%** | **33.8%** | **11.8%** | **3.2%** | **59.8%** |
| 001 | 0.0% | 0.1% | 0.4% | 0.3% | 0.0% | 0.8% |
| 002 | 0.0% | 0.4% | 1.3% | 0.8% | 0.1% | 2.5% |
| 003 | 0.0% | 0.3% | 0.8% | 0.5% | 0.1% | 1.7% |
| 004 | 0.0% | 0.1% | 0.0% | 0.6% | 0.1% | 0.8% |
| 005 | 0.0% | 0.1% | 0.0% | 0.7% | 0.0% | 0.8% |
| 006 | 0.0% | 0.2% | 0.2% | 0.4% | 0.1% | 0.8% |
| 007 | 0.0% | 0.0% | 0.1% | 0.6% | 0.1% | 0.8% |
| 008 | 0.0% | 8.4% | 29.5% | 2.1% | 2.1% | 42.1% |
| 009 | 0.0% | 0.3% | 0.6% | 0.7% | 0.1% | 1.7% |
| 010 | 0.0% | 0.2% | 0.2% | 0.4% | 0.1% | 0.8% |
| 011 | 0.0% | 0.2% | 0.1% | 0.5% | 0.0% | 0.8% |
| 012 | 0.0% | 0.2% | 0.1% | 0.5% | 0.0% | 0.8% |
| 013 | 0.0% | 0.1% | 0.0% | 0.7% | 0.0% | 0.8% |
| 014 | 0.0% | 0.2% | 0.1% | 0.5% | 0.0% | 0.8% |
| 015 | 0.0% | 0.1% | 0.1% | 0.6% | 0.0% | 0.8% |
| 016 | 0.0% | 0.1% | 0.1% | 0.6% | 0.0% | 0.8% |
| 017 | 0.0% | 0.0% | 0.1% | 0.7% | 0.0% | 0.8% |
| 018 | 0.0% | 0.0% | 0.1% | 0.7% | 0.0% | 0.8% |
| **Cherwell (Total)** | **4.3%** | **2.0%** | **1.4%** | **2.7%** | **0.5%** | **10.9%** |
| 017 | 1.5% | 0.6% | 0.1% | 0.1% | 0.1% | 2.5% |
| 018 | 1.5% | 0.6% | 0.1% | 0.1% | 0.1% | 2.5% |
| 019 | 1.0% | 0.3% | 0.1% | 0.2% | 0.1% | 1.7% |
| Rest of Cherwell | 0.2% | 0.4% | 1.1% | 2.3% | 0.2% | 4.2% |
| **South Oxfordshire** | **0.0%** | **0.0%** | **0.2%** | **1.5%** | **0.1%** | **1.7%** |
| **Vale of White Hor** | **0.0%** | **0.1%** | **0.2%** | **1.3%** | **0.1%** | **1.7%** |
| **West Oxfordshire** | **0.1%** | **0.2%** | **0.3%** | **1.1%** | **0.1%** | **1.7%** |
| **Out of Oxfordshire** | **0.0%** | **0.0%** | **0.8%** | **3.0%** | **0.3%** | **4.2%** |
| **Total** | **18.3%** | **19.3%** | **36.6%** | **21.5%** | **4.2%** | **100.0%** |

| | Destination | Walk | Cycle | Public Transport | Car | Passenger |
|---|---|---|---|---|---|---|
| Internal | 20.0% | 14.0% | 6.0% | 0.0% | 0.0% | 0.0% |
| Oxford | 59.8% | 0.0% | 11.0% | 33.8% | 11.8% | 3.2% |
| Cherwell | 10.9% | 4.3% | 2.0% | 1.4% | 2.7% | 0.5% |
| South Oxfordshire | 1.7% | 0.0% | 0.0% | 0.2% | 1.5% | 0.1% |
| Vale of White | 1.7% | 0.0% | 0.1% | 0.2% | 1.3% | 0.1% |
| West Oxfordshire | 1.7% | 0.1% | 0.2% | 0.3% | 1.1% | 0.1% |
| Outside of | 4.2% | 0.0% | 0.0% | 0.8% | 3.0% | 0.3% |
| Total Off-site Trips | 80.0% | 4.3% | 13.3% | 36.6% | 21.5% | 4.2% |
| Total | 100.0% | 18.3% | 19.3% | 36.6% | 21.5% | 4.2% |

RESI-SHOPPING DESTINATION & MODE

| | Shopping Destinations | Census Cherwell 17 Destination Distribution | PR8 Assumed Destination Distribution | Mode Share | Walk | Cycle | Public Transport | Car Driver | Passenger | Total | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Internal Site Trips** | Local Centre | - | 15.0% | - | 70.0% | 30.0% | 0.0% | 0.0% | 0.0% | 100.0% | modes. |
| **Total Oxford** | - | 43.4% | 51.0% | - | - | - | - | - | - | - | - |
| **Oxford 001 Wolvercote & Cutteslowe** | M&S Simply Food | 1.5% | 1.0% | - | Circa 45 minutes to zone - unlikely to be pedestrians walking here | As per walk, but takes only 11 minutes. Proposed improvements to the A44 Cycle facilities may make this an attractive option. | 350m walk to Sandy Lane bus stop south of site, then 9 min bus journey via the S3. Likely to be popular and even more so with the proposed bus route | Between 4&6 minute drive to zone but subject to peak hour delays. Northern Gateway application states that a CPZ will be brought forward to prevent overspill parking at the Northern Gateway site. Parking restrictions implemented also in Yarnton which will discourage car parking further. Northern Gateway will have reduced parking provision | As per Car Driver | - | Walk reduced to zero, cycle reduced significantly and pub trans also increased significantly. Car driver mode share significantly decreased. This is based on the fact it is highly likely that this zone is highly accessible for shopping via public transport. |
| | | | | rwell 017 (2011 Cen | 0.0% | 14.0% | 16.3% | 62.8% | 7.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 20.0% | 55.0% | 5.0% | 100.0% | - |
| **Oxford 002 Sunnymead and Summertown** | Sainsbury's, Co-op Food, Tesco Express, Summertown Shops | 2.4% | 3.0% | - | 1 hr 11 to area - too far to reasonably assume walkers will go to zone via this mode | 5.8km (18 min) cycle ride. Quite a long cycle but relatively quick and with the improvements along the A44 it may be attractive to some keen cyclists | 350m walk to Sandy Lane bus stop south of site, then 19 min bus journey via the S3. Likely to be popular and even more so with the proposed bus route | Between a 7 & 16 minute car journey so highly likely to be a viable option. However, Summertown and North Summertown CPZs may discourage car use | As per Car Driver | - | Walk reduced to zero, cycle reduced slightly and pub trans also increased slightly. Car driver mode share slightly decreased. This is based on the fact it is highly likely that this zone is highly accessible for shopping via public transport. |
| | | | | rwell 017 (2011 Cen | 1.4% | 5.8% | 55.1% | 30.4% | 7.2% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 45.0% | 30.0% | 5.0% | 100.0% | - |
| **Oxford 003 North Oxford** | - | 2.8% | 0.0% | - | 1 hour 21 walk - too far to reasonably assume walkers will go to zone via this mode | 6.6km (20 min) cycle ride. Quite a long cycle but relatively quick and with the improvements along the A44 it may be attractive to some keen cyclists | 350m walk to Sandy Lane bus stop south of site, then 24 min bus journey via the S3. Likely to be popular and even more so with the proposed bus route | Between a 9 & 18 minute car journey so highly likely to be a viable option. However, Summertown, Waterways and North Oxford CPZs may discourage car use | As per Car Driver | - | |
| | | | | rwell 017 (2011 Cen | 1.3% | 5.0% | 36.3% | 51.3% | 6.3% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 10.0% | 10.0% | 75.0% | 5.0% | 100.0% | - |
| **Oxford 004 Marston and New Marston** | Co-op Food, Costcutter | 0.1% | 0.0% | - | 1 hr 49 walk- too far to reasonably assume walkers will go to zone via this mode | 8.9km (27 min) cycle. The proposed improvements along A44 may encourage very keen cyclists as route is quite long. | 350m walk to Sandy Lane bus stop south of site, but then bus journey requires a change and takes between 50-60 mins to reach zone. Unlikely to be an appealing choice | Between a 12 & 24 minute car journey so highly likely to be a viable option. CPZs only cover part of this area, so may be attractive for car drivers - residential areas may be used for | As per Car Driver | - | |
| | | | | rwell 017 (2011 Cen | 25.0% | 0.0% | 0.0% | 75.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 15.0% | 0.0% | 75.0% | 10.0% | 100.0% | - |
| **Oxford 005 Barto** | SPAR | 0.1% | 0.0% | - | 1 hr 51 walk- too far to reasonably assume walkers will go to zone via this mode | 9.1km (27 min) cycle ride. New cycle route through PR7b may cut journey time and provide a more attractive route for cyclists | 1 hour 18 bus route including changing services from S3 to 700 so unlikely to be a viable option | Between 9 & 16 min car journey - likely to be most attractive choice to residents. Lack of CPZ in Barton area provides an added incentive, too - residential area may be used for | As per Car Driver | - | |
| | | | | rwell 017 (2011 Cen | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 15.0% | 0.0% | 80.0% | 5.0% | 100.0% | - |
| **Oxford 006 Headington** | Headington Shops inc. Sainsbury's Local | 5.1% | 0.0% | - | 2 hrs 8 to zone - too far to reasonably assume walkers will go to zone via this mode | 10.3km (35min) to zone. Proposed cycle routes may reduce this time, so may only be viable for very keen cyclists | 1 hour bus route including changing services from S3 to 700. Proposed new bus may make this more of a viable option, but time taken is likely to put users off | 16-35 min drive to zone. Restricted parking at Hospitals and CPZs cover most of zone | As per Car Driver | - | |
| | | | | rwell 017 (2011 Cen | 1.4% | 3.4% | 38.1% | 51.0% | 6.1% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 25.0% | 45.0% | 10.0% | 100.0% | - |
| **Oxford 007 Risinghurst and Sandhills** | Heading Superstore, Risinghurst General Store | 0.6% | 0.0% | - | 2 hours 20 - too far to reasonably assume walkers will go to zone via this mode | 11.6KM (38 min) to zone. Proposed cycle routes may reduce this time, so may only be viable for very keen cyclists | 1 hour 19 bus route including changing services from S3 to 8 so unlikely to be a viable option | 12-26 mins to zone. Currently zone mostly not in CPZ area but assume on-street parking will be controlled | As per Car Driver | - | |
| | | | | rwell 017 (2011 Cen | 0.0% | 6.3% | 18.8% | 75.0% | 0.0% | 100.0% | |
| | | | | PR8 Adjusted | 0.0% | 10.0% | 5.0% | 75.0% | 10.0% | 100.0% | |
| **Oxford 008 City C** | City Centre Stores, Westgate Shopping Centre | 14.6% | 35.0% | - | 1 hr 43 to zone - too far to reasonably assume walkers will go to city centre via this mode | 8.3km (28 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into City Centre | 40 mins via S3 which may be cut with extension of S3 up to the site. Potentially attractive option into City Centre directly from the site | 14-26 mins into zone but subject to peak hour congestion plus city centre parking restriant/high parking charges. Likelihood of city centre traffic management reducing car access in favour of public transport | As per Car Driver | - | Walking and cycling reduced to zero, but pub trans slightly increased. As a result, car driver only slightly decreased. This is based on the fact that the city centre is highly accessible for shopping via public transport. |
| | | | | rwell 017 (2011 Cen | 0.7% | 13.2% | 64.6% | 18.2% | 3.3% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 15.0% | 65.0% | 15.0% | 5.0% | 100.0% | - |
| **Oxford 009 Osney, Jericho and Binsey** | Waitrose, ALDI, Botley Road Retail Park | 3.5% | 5.0% | - | 1 hr 52 to zone - too far to reasonably assume walkers will go to train station via this mode | 9.5km (30 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into Botley | 54 min bus journey via S3. As only one service may be viable/attractive for some users but time taken will also discourage | 10-18 mins to Oxford train station but subject to peak hour congestion and high commuter parking charges will discourage this option. | As per Car Driver | - | Walking and cycling reduced to zero, and pub trans slightly decreased. As a result, car driver has slightly increased. This is based on the fact that this zone is highly accessible for shopping via Car via the A34 ring road |
| | | | | rwell 017 (2011 Cen | 0.0% | 8.0% | 42.0% | 47.0% | 3.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 0.0% | 0.0% | 90.0% | 10.0% | 100.0% | - |
| **Oxford 010 Between A4142 and A429** | Oxford Brookes Co-op, WHSmiths | 2.4% | 0.0% | - | 2 hr 21 to zone - too far to reasonably assume walkers will go to zone via this mode | 12.3km (40 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into Headington via A40 cycle route | 1 hour 6 to zone via a bus change from S3 to 15. Unlikely to be an attractive option | 18-40 mins to zone so subject to peak hour congestion. Parking restrictions around Churchill Hosp and CPZs will discoruage users | As per Car Driver | - | |
| | | | | rwell 017 (2011 Cen | 1.5% | 11.8% | 30.9% | 47.1% | 8.8% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 0.0% | 0.0% | 90.0% | 10.0% | 100.0% | - |
| **Oxford 011 East Oxford between A4158 Iffley Road and A420** | Cowley Road shops inc. Boots, Oxfam, etc. | 0.9% | 0.0% | - | 2 hr 11 to zone - too far to reasonably assume walkers will go to zone via this mode | 10.6km (34 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into St Clements | 59 min bus route including changing services from S3 to 1 so unlikely to be a viable option | 18-30 min to zone so likely attractive choice but subject to peak hour congestion. Entire zone in CPZ though so will discourage drivers | As per Car Driver | - | |
| | | | | rwell 017 (2011 Cen | 0.0% | 11.5% | 19.2% | 69.2% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 0.0% | 0.0% | 90.0% | 10.0% | 100.0% | - |
| **Oxford 012 A4144 Abingdon Road** | Londis, Akiport Convenience Store | 0.3% | 0.0% | - | 2 hr 7 to zone - too far to reasonably assume walkers will go to zone via this mode | 10.4km (33 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into New Hinksey | 53 min bus route including changing services from S3 to 35 so unlikely to be a viable option | 14-24 mins to zone so likely attractive choice but subject to peak hour congestion. South Oxford CPZ only covers part of zone so likely to encourage car use | As per Car Driver | - | |
| | | | | rwell 017 (2011 Cen | 10.0% | 10.0% | 0.0% | 80.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 0.0% | 0.0% | 90.0% | 10.0% | 100.0% | - |
| **Oxford 013 Between Cowley Road and The Slade** | Cowley Industrial Estate inc. MBW, Mini, LIDL, etc. | 4.7% | 0.0% | - | 2 hr 38 to zone - too far to reasonably assume walkers will go to zone via this mode | 13.7km (43 min) to zone. Potentially attractive option for very keen cyclists with improvements along A44 and cycle facilities down into Headington via A40 cycle route | 1 hr 16 bus journey via 2 changes via S3 and 10. Unlikely to be attractive option but tie in with LNBB Eastern Arc route may reduce time and make it viable for users | 16-35 mins to zone so subject to peak hour congestion. | As per Car Driver | - | |
| | | | | rwell 017 (2011 Cen | 0.8% | 3.0% | 3.0% | 86.5% | 6.8% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 10.0% | 5.0% | 80.0% | 5.0% | 100.0% | - |
| **Oxford 014 Around Iffley Road from Thames to Cowley Road** | Co-op Food | 0.4% | 0.0% | - | 2 hr 12 to zone - too far to reasonably assume walkers will go to zone via this mode | 10.8km (34 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into New Hinksey | 54 min bus route including changing services from S3 to 35 so unlikely to be a viable option | 14-22 mins to zone but subject to peak hour congestion. | As per Car Driver | - | |
| | | | | rwell 017 (2011 Cen | 0.0% | 0.0% | 16.7% | 75.0% | 8.3% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 0.0% | 0.0% | 90.0% | 10.0% | 100.0% | - |
| **Oxford 015 Cowley and Iffley** | Templars Retail Park inc. Matalan, Poundland, Co-op Food, etc. | 1.7% | 2.0% | - | 2 hr 34 to zone - too far to reasonably assume walkers will go to zone via this mode | 12.5km (40 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into Iffley | 1 hr 10 min bus route including changing services from S3 to 16 so unlikely to be a viable option | 16-24 mins to zone and subject to peak hour congestion. | As per Car Driver | - | |
| | | | | rwell 017 (2011 Cen | 0.0% | 4.2% | 16.7% | 75.0% | 4.2% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 0.0% | 0.0% | 90.0% | 10.0% | 100.0% | - |
| **Oxford 016 Littlemore and Rose Hill** | Sainsbury's Supertstore, Argos Oxford Heyford Hill | 1.1% | 2.0% | - | 2 hr 44 to zone - too far to reasonably assume walkers will go to zone via this mode | 12.5km (40 min) to zone. Potentially attractive option for very keen cyclists with improvements along A44 and cycle facilities down into Iffley | 1 hr 20 bus journey via 2 changes via S3 and 3A. | 14-22 mins to zone and subject to peak hour congestion. | As per Car Driver | - | |
| | | | | rwell 017 (2011 Cen | 9.7% | 3.2% | 6.5% | 80.6% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 0.0% | 0.0% | 90.0% | 10.0% | 100.0% | - |
| **Oxford 017 Blackbird Leys** | Tesco Superstore | 0.9% | 3.0% | - | 3 hr walk - too far to reasonably assume walkers will go to zone via this mode | 16.2km (51 min) to zone. Too far for cyclists, apart from potentially very keen cyclists | 1 hr 23 bus journey via 2 changes via S3 and 5 | 18-28 mins to zone and subject to peak hour congestion. | As per Car Driver | - | |
| | | | | rwell 017 (2011 Cen | 3.8% | 3.8% | 15.4% | 73.1% | 3.8% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 0.0% | 0.0% | 90.0% | 10.0% | 100.0% | - |
| **Oxford 018 Greater Leys** | SPAR Greater Leys | 0.2% | 0.0% | - | 3 hr 6 min walk - too far to reasonably assume walkers will go to zone via this mode | 15.3km (49min) to zone. Too far for cyclists, apart from potentially very keen cyclists | 1 hr 26 bus journey via 2 changes via S3 and 1 | 18-26 mins to zone and subject to peak hour congestion. | As per Car Driver | - | |
| | | | | rwell 017 (2011 Cen | 0.0% | 0.0% | 50.0% | 33.3% | 16.7% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 0.0% | 0.0% | 90.0% | 10.0% | 100.0% | - |
| **Total Cherwell** | | 33.7% | 34.0% | | | | | | | | |
| **Cherwell 017 Kidlington North** | Kidlington High St inc. Iceland Foods, Tesco Metro etc. | 8.4% | 12.0% | - | 27 min walk from Begbrooke Science Park via Sandy Lane. Likely to be an attractive choice with the proposals for Sandy Lane crossing etc | 7/8 min cycle from zone. Highly attractive route with the improvements/new routes being brought forward | Unlikely to need to use bus over walk and cycle | 6 min drive. Long stay car park prices at High St may discourage car use | As per Car Driver | - | Mode shares as per employment assumptions. This is due to Kidlington High St being highly accessible by active modes |
| | | | | rwell 017 (2011 Cen | 56.7% | 11.7% | 2.5% | 25.4% | 3.8% | 100.0% | - |
| | | | | PR8 Adjusted | 45.0% | 25.0% | 5.0% | 20.0% | 5.0% | 100.0% | - |
| **Cherwell 018 Kidlington South** | Co-op Food | 2.2% | 2.0% | - | 30 min walk from Begbrooke Science Park via Sandy Lane. Likely to be an attractive choice with the proposals for Sandy Lane crossing etc | 7 min cycle from zone. Highly attractive route with the improvements/new routes being brought forward | Unlikely to need to use bus over walk and cycle | 7 min drive. Long stay car park prices at High St may discourage car use | As per Car Driver | - | Mode shares as per employment assumptions. This is due to Kidlington being highly accessible by active modes |
| | | | | rwell 017 (2011 Cen | 38.7% | 12.9% | 8.1% | 38.7% | 1.6% | 100.0% | - |
| | | | | PR8 Adjusted | 45.0% | 25.0% | 5.0% | 20.0% | 5.0% | 100.0% | - |
| **Cherwell 019 (PR8) Begbroke and Yarnton** | On-site local centre, Sainsbury's, Fraser's Budgens | 13.3% | 19.0% | - | Site is located here | Site is located here | Site is located here | Site is located here | Site is located here | - | All non-car modes increased here due to proximity to site |
| | | | | rwell 017 (2011 Cen | 17.4% | 14.5% | 7.9% | 51.2% | 9.0% | 100.0% | - |
| | | | | PR8 Adjusted | 15.0% | 15.0% | 5.0% | 60.0% | 5.0% | 100.0% | - |
| **Rest of Cherwell** | - | 9.9% | 1.0% | - | | | | | | | - |
| | | | | rwell 017 (2011 Cen | 6.0% | 3.2% | 11.7% | 71.6% | 7.4% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 2.0% | 12.5% | 74.0% | 11.5% | 100.0% | - |
| **South Oxfordshire** | - | 2.4% | 0.0% | - | | | | | | | - |
| | | | | rwell 017 (2011 Cen | 0.0% | 1.4% | 8.7% | 87.0% | 2.9% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 1.0% | 9.0% | 87.0% | 3.0% | 100.0% | - |
| **Vale of White Hor** | - | 5.6% | 0.0% | - | | | | | | | - |
| | | | | rwell 017 (2011 Cen | 1.3% | 2.5% | 6.9% | 84.4% | 5.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 5.0% | 10.0% | 80.0% | 5.0% | 100.0% | - |
| **West Oxfordshire** | - | 6.5% | 0.0% | - | | | | | | | - |
| | | | | rwell 017 (2011 Cen | 1.6% | 1.6% | 5.3% | 86.6% | 4.8% | 100.0% | - |
| | | | | PR8 Adjusted | 5.0% | 10.0% | 15.0% | 65.0% | 5.0% | 100.0% | - |
| **Out of Oxfordshire** | - | 8.3% | 0.0% | - | | | | | | | - |
| | | | | rwell 017 (2011 Cen | 1.7% | 1.7% | 19.7% | 71.8% | 5.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 1.0% | 20.0% | 72.0% | 7.0% | 100.0% | - |
| **Total** | - | 100.0% | 100.0% | - | - | - | - | - | - | - | - |

| | Walk | Cycle | Pub Trans | Car Driver | Passenger | Total |
|---|---|---|---|---|---|---|
| **Internal Site Trips** | **10.5%** | **4.5%** | **0.0%** | **0.0%** | **0.0%** | **15.0%** |
| **Oxford (Total)** | **0.0%** | **6.1%** | **24.3%** | **17.5%** | **3.2%** | **51.0%** |
| 001 | 0.0% | 0.2% | 0.2% | 0.6% | 0.1% | 1.0% |
| 002 | 0.0% | 0.6% | 1.4% | 0.9% | 0.2% | 3.0% |
| 003 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 004 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 005 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 006 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 007 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 008 | 0.0% | 5.3% | 22.8% | 5.3% | 1.8% | 35.0% |
| 009 | 0.0% | 0.0% | 0.0% | 4.5% | 0.5% | 5.0% |
| 010 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 011 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 012 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 013 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 014 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 015 | 0.0% | 0.0% | 0.0% | 1.8% | 0.2% | 2.0% |
| 016 | 0.0% | 0.0% | 0.0% | 1.8% | 0.2% | 2.0% |
| 017 | 0.0% | 0.0% | 0.0% | 2.7% | 0.3% | 3.0% |
| 018 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **Cherwell (Total)** | **9.2%** | **6.4%** | **1.8%** | **14.9%** | **1.8%** | **34.0%** |
| 017 | 5.4% | 3.0% | 0.6% | 2.4% | 0.6% | 12.0% |
| 018 | 0.9% | 0.5% | 0.1% | 0.4% | 0.1% | 2.0% |
| 019 | 2.9% | 2.9% | 1.0% | 11.4% | 1.0% | 19.0% |
| Rest of Cherwell | 0.0% | 0.0% | 0.1% | 0.7% | 0.1% | 1.0% |
| **South Oxfordshire** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **Vale of White Hor** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **West Oxfordshire** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **Out of Oxfordshire** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **Total** | **19.7%** | **16.9%** | **26.1%** | **32.4%** | **4.9%** | **100.0%** |

| | Destination | Walk | Cycle | Public Transport | Car | Passenger |
|---|---|---|---|---|---|---|
| Internal | 15.0% | 10.5% | 4.5% | 0.0% | 0.0% | 0.0% |
| Oxford | 51.0% | 0.0% | 6.1% | 24.3% | 17.5% | 3.2% |
| Cherwell | 34.0% | 9.2% | 6.4% | 1.8% | 14.9% | 1.8% |
| South Oxfordshire | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Vale of White | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| West Oxfordshire | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Outside of | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Total Off-site | 85.0% | 9.2% | 12.4% | 26.1% | 32.4% | 4.9% |
| Total | 100.0% | 19.7% | 16.9% | 26.1% | 32.4% | 4.9% |

RESI-EDUCATION DESTINATION & MODE

| | Primary School(s) | Secondary School(s) | Higher Education | Census Cherwell 17 Destination Distribution | PR8 Assumed Destination Distribution - | PR8 Assumed Destination Distribution - | PR8 Assumed Destination Distribution - | PR8 Assumed Destination Distribution | Mode Share | Walk | Cycle | Public Transport | Car Driver | Passenger | Total | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Internal Site Trips | On-Site | On-Site | - | - | 59.8% | 22.3% | 0.0% | 82.1% | - | 70.0% | 30.0% | 0.0% | 0.0% | 0.0% | 100.0% | |
| Total Oxford | - | | | 43.4% | 0.0% | 0.5% | 8.8% | 9.2% | - | - | - | - | - | - | - | |
| Oxford 001 Wolvercote & Cutteslowe | - | - | - | 1.5% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 0.0% | 14.0% | 16.3% | 62.8% | 7.0% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 25.4% | 42.3% | 16.7% | 15.5% | 100.0% | |
| Oxford 002 Sunnymead and Summertown | - | St Edwards School, Northern House Academy | - | 2.4% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 1.4% | 5.8% | 55.1% | 30.4% | 7.2% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 9.7% | 58.1% | 16.7% | 15.5% | 100.0% | |
| Oxford 003 North Oxford | - | The Cherwell School | - | 2.8% | 0.0% | 0.3% | 0.0% | 0.3% | Cherwell 017 (2011 Census) | 1.3% | 5.0% | 36.3% | 51.3% | 6.3% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 30.0% | 50.0% | 10.0% | 10.0% | 100.0% | |
| Oxford 004 Marston and New Marston | - | The Swan School | - | 0.1% | 0.0% | 0.2% | 0.0% | 0.2% | Cherwell 017 (2011 Census) | 25.0% | 0.0% | 0.0% | 75.0% | 0.0% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 30.0% | 30.0% | 20.0% | 20.0% | 100.0% | |
| Oxford 005 Barton | - | - | - | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 15.0% | 0.0% | 80.0% | 5.0% | 100.0% | |
| Oxford 006 Headington | - | Headington School | - | 5.1% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 1.4% | 3.4% | 38.1% | 51.0% | 6.1% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 20.0% | 25.0% | 45.0% | 10.0% | 100.0% | |
| Oxford 007 Risinghurst and Sandhills | - | - | - | 0.6% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 0.0% | 6.3% | 18.8% | 75.0% | 0.0% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 10.0% | 5.0% | 75.0% | 10.0% | 100.0% | |
| Oxford 008 City C | - | Magdalen College School | University of Oxford | 14.6% | 0.0% | 0.0% | 6.6% | 6.6% | Cherwell 017 (2011 Census) | 0.7% | 13.2% | 64.6% | 18.2% | 3.3% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 40.0% | 40.0% | 10.0% | 10.0% | 100.0% | |
| Oxford 009 Osney, Jericho and Binsey | - | Matthew Arnold School | - | 3.5% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 0.0% | 8.0% | 42.0% | 47.0% | 3.0% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 20.0% | 35.0% | 40.0% | 5.0% | 100.0% | |
| Oxford 010 Between A4142 and A429 | - | Cheney School | Oxford Brookes | 2.4% | 0.0% | 0.0% | 2.2% | 2.2% | Cherwell 017 (2011 Census) | 1.5% | 11.8% | 30.9% | 47.1% | 8.8% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 20.0% | 40.0% | 25.0% | 15.0% | 100.0% | |
| Oxford 011 East Oxford between A4158 Iffley Road | - | Oxford Spires Academy | - | 0.9% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 0.0% | 11.5% | 19.2% | 69.2% | 0.0% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 25.0% | 40.0% | 25.0% | 10.0% | 100.0% | |
| Oxford 012 A4144 Abingdon Road | - | - | - | 0.3% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 10.0% | 10.0% | 0.0% | 80.0% | 0.0% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 25.0% | 40.0% | 25.0% | 10.0% | 100.0% | |
| Oxford 013 Between Cowley Road and The | - | - | - | 4.7% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 0.8% | 3.0% | 3.0% | 86.5% | 6.8% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 20.0% | 30.0% | 40.0% | 10.0% | 100.0% | Updated to match Education Origin & Mode 'mode shares' |
| Oxford 014 Around Iffley Road from | - | St Gregory the Great Catholic School | - | 0.4% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 0.0% | 0.0% | 16.7% | 75.0% | 8.3% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 20.0% | 20.0% | 50.0% | 10.0% | 100.0% | |
| Oxford 015 Cowley and Iffley | - | Iffley Academy | - | 1.7% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 0.0% | 4.2% | 16.7% | 75.0% | 4.2% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 15.0% | 20.0% | 55.0% | 10.0% | 100.0% | |
| Oxford 016 Littlemore and Rose Hill | - | Mabel Prichard School | - | 1.1% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 9.7% | 3.2% | 6.5% | 80.6% | 0.0% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 15.0% | 20.0% | 55.0% | 10.0% | 100.0% | |
| Oxford 017 Blackbird Leys | - | Wesley Green Middle School | - | 0.9% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 3.8% | 3.8% | 15.4% | 73.1% | 3.8% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 10.0% | 15.0% | 65.0% | 10.0% | 100.0% | |
| Oxford 018 Greater Leys | - | - | - | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 0.0% | 0.0% | 50.0% | 33.3% | 16.7% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 10.0% | 15.0% | 65.0% | 10.0% | 100.0% | |
| Total Cherwell | | | | 33.7% | 6.6% | 0.6% | 0.0% | 7.3% | | | | | | | | |
| Cherwell 017 Kidlington North | - | - | - | 8.4% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 56.7% | 11.7% | 2.5% | 25.4% | 3.8% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 54.2% | 11.2% | 2.4% | 16.7% | 15.5% | 100.0% | |
| Cherwell 018 Kidlington South | St Thomas Moore | - | - | 2.2% | 2.3% | 0.0% | 0.0% | 2.3% | Cherwell 017 (2011 Census) | 38.7% | 12.9% | 8.1% | 38.7% | 1.6% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 44.3% | 10.8% | 12.6% | 16.7% | 15.5% | 100.0% | |
| Cherwell 019 (PR8) Begbroke and Yarnton | William Fletcher & Edward Field | Gosford Hill Secondary School | - | 13.3% | 4.3% | 0.6% | 0.0% | 5.0% | Cherwell 017 (2011 Census) | 17.4% | 14.5% | 7.9% | 51.2% | 9.0% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 43.9% | 16.5% | 7.3% | 16.7% | 15.5% | 100.0% | |
| Rest of Cherwell | - | - | - | 9.9% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 6.0% | 3.2% | 11.7% | 71.6% | 7.4% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 10.0% | 30.0% | 30.0% | 30.0% | 100.0% | |
| South Oxfordshire | - | - | - | 2.4% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 0.0% | 1.4% | 8.7% | 87.0% | 2.9% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 1.0% | 9.0% | 85.0% | 5.0% | 100.0% | |
| Vale of White Hors | - | - | - | 5.6% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 1.3% | 2.5% | 6.9% | 84.4% | 5.0% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 5.0% | 10.0% | 80.0% | 5.0% | 100.0% | |
| West Oxfordshire | - | The Marlborough School, Woodstock | - | 6.5% | 0.0% | 1.3% | 0.0% | 1.3% | Cherwell 017 (2011 Census) | 1.6% | 1.6% | 5.3% | 86.6% | 4.8% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 27.1% | 40.7% | 16.7% | 15.5% | 100.0% | |
| Out of Oxfordshire | - | - | - | 8.3% | 0.0% | 0.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census) | 1.7% | 1.7% | 19.7% | 71.8% | 5.0% | 100.0% | |
| | | | | | | | | | PR8 Adjusted | 0.0% | 0.0% | 5.0% | 90.0% | 5.0% | 100.0% | |
| Total | - | | | 100.0% | 66.5% | 24.8% | 8.8% | 100.0% | - | - | - | - | - | - | - | |

| | Walk | Cycle | Pub Trans | Car Driver | Passenger | Total |
|---|---|---|---|---|---|---|
| **Internal Site Trips** | **57.5%** | **24.6%** | **0.0%** | **0.0%** | **0.0%** | **82.1%** |
| **Oxford (Total)** | **0.0%** | **3.2%** | **3.7%** | **1.3%** | **1.1%** | **9.2%** |
| 001 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 002 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 003 | 0.0% | 0.1% | 0.1% | 0.0% | 0.0% | 0.3% |
| 004 | 0.0% | 0.1% | 0.1% | 0.0% | 0.0% | 0.2% |
| 005 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 006 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 007 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 008 | 0.0% | 2.6% | 2.6% | 0.7% | 0.7% | 6.6% |
| 009 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 010 | 0.0% | 0.4% | 0.9% | 0.5% | 0.3% | 2.2% |
| 011 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 012 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 013 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 014 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 015 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 016 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 017 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 018 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **Cherwell (Total)** | **3.2%** | **1.1%** | **0.7%** | **1.2%** | **1.1%** | **7.3%** |
| 017 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 018 | 1.0% | 0.3% | 0.3% | 0.4% | 0.4% | 2.3% |
| 019 | 2.2% | 0.8% | 0.4% | 0.8% | 0.8% | 5.0% |
| Rest of Cherwell | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **South Oxfordshire** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **Vale of White Hor** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **West Oxfordshire** | **0.0%** | **0.4%** | **0.5%** | **0.2%** | **0.2%** | **1.3%** |
| **Out of Oxfordshir** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **Total** | **60.7%** | **29.3%** | **4.9%** | **2.7%** | **2.4%** | **100.0%** |

| | Destination | Walk | Cycle | Public Transport | Car | Passenger |
|---|---|---|---|---|---|---|
| Internal | 82.1% | 57.5% | 24.6% | 0.0% | 0.0% | 0.0% |
| Oxford | 9.2% | 0.0% | 3.2% | 3.7% | 1.3% | 1.1% |
| Cherwell | 7.3% | 3.2% | 1.1% | 0.7% | 1.2% | 1.1% |
| South Oxfordshire | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Vale of White | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| West Oxfordshire | 1.3% | 0.0% | 0.4% | 0.5% | 0.2% | 0.2% |
| Outside of | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Total Off-site | 17.9% | 3.2% | 4.6% | 4.9% | 2.7% | 2.4% |
| Total | 100.0% | 60.7% | 29.3% | 4.9% | 2.7% | 2.4% |

WORK (BSP) ORIGIN & MODE

| | 2015 BSP Distribution | PR8 Assumed Origin Distribution | Mode Share | Walk | Cycle | Public Transport | Car Driver | Passenger | Total | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| Internal Site Trips | - | 0.0% | - | | | | | | | - |
| Total Oxford | 36.4% | 31.7% | - | - | - | - | - | - | - | - |
| Oxford 001 Wolvercote & Cutteslowe | 1.1% | 1.2% | | Circa 45 minutes to zone - unlikely to be pedestrians walking to work here | 11-min cycle journey time. Proposed improvements to the A44 Cycle facilities will make this an attractive option in addition to end-of-trip facilities. | 19 min bus journey via S3. Likely to be an attractive option with significant improvements to bus services on A44 corridor | 4 minute drive to site but subject to peak hour delays. | - | - | Car Driver mode share has been reduced significantly, based on the assumptions of reduced parking at Oxford North, Wolvercote will be covered by a CPZ & parking restrictions in Yarnton that will reduce car use. Public transport mode share has been increased. Cycle mode share has also increased, due to the good cycle links to be provided plus on-site facilities |
| | | | | 0.0% | 23.1% | 38.5% | 30.8% | 7.7% | 100.0% | - |
| | | | | 10.0% | 25.0% | 50.0% | 10.0% | 5.0% | 100.0% | - |
| Oxford 002 Sunnymead and Summertown | 3.4% | 2.9% | | Outside of reasonable walking distance | 5.8km (18 min) cycle ride. A reasonable cycling distance. With the improvements along the A44 it will be attractive to many cyclsts. | 21 min bus journey via S3. Likely to be an attractive option with significant improvements to bus services on A44 corridor | Between a 7 & 16 minute car journey so highly likely to be a viable option. | - | - | Adjusted in line with Oxford 001. With marginally further walking distance, this mode share has been transferred to cycling. |
| | | | | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | - |
| | | | | 0.0% | 35.0% | 50.0% | 10.0% | 5.0% | 100.0% | - |
| Oxford 003 North Oxford | 4.5% | 3.5% | | Outside of reasonable walking distance | 6.6km (20 min) cycle ride. A reasonable cycling distance. With the improvements along the A44 it will be attractive to many cyclsts. | 24 min bus journey via S3. Likely to be an attractive option with significant improvements to bus services on A44 corridor | Between a 8 & 16 minute car journey so highly likely to be a viable option. | - | - | Adjusted in line with Oxford 001. With marginally further walking distance, this mode share has been transferred to cycling. |
| | | | | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | - |
| | | | | 0.0% | 35.0% | 50.0% | 10.0% | 5.0% | 100.0% | - |
| Oxford 004 Marston and New Marston | 3.4% | 3.0% | | Outside of reasonable walking distance | 8.9km (27 min) cycle ride. A reasonable cycling distance. With the improvements along the A44 it will be attractive to many cyclsts. | Currently a 59 min bus journey. However, new bus routes to east of Oxford will better serve this zone. | Between a 12 & 24 minute car journey so highly likely to be a viable option. | - | - | With increased distance from site, cycling mode share reduced from closer Oxford zones. Bus mode share reflects proposed improvements to services connecting with east Ox. |
| | | | | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | - |
| | | | | 0.0% | 25.0% | 20.0% | 50.0% | 5.0% | 100.0% | - |
| Oxford 005 Barton | 0.0% | 0.0% | | Outside of reasonable walking distance | 9.1km (27 min) cycle ride. New cycle route through PR7b may cut journey time and provide a more attractive route for cyclists | Currently a 1 hour 16 min bus journey. However, new bus routes to east of Oxford will better serve this zone. | Between 10 & 22 min car journey - likely to be most attractive choice to residents. | - | - | Same as Oxford 004 |
| | | | | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | - |
| | | | | 0.0% | 25.0% | 20.0% | 50.0% | 5.0% | 100.0% | - |
| Oxford 006 Headington | 0.0% | 0.0% | | Outside of reasonable walking distance | 10.3km (35min) to zone. New cycle routes via Pr7b and A44 will make this route shorter/easier for cyclists. | Currently a 51 min bus journey. However, new bus routes to east of Oxford will better serve this zone. | 16-28 min drive to site. | - | - | Same as Oxford 004, marginally reduced cycling mode share reallocated to car driver. |
| | | | | 0.0% | 12.5% | 12.5% | 75.0% | 0.0% | 100.0% | - |
| | | | | 0.0% | 20.0% | 20.0% | 55.0% | 5.0% | 100.0% | - |
| Oxford 007 Risinghurst and Sandhills | 0.0% | 0.0% | | Outside of reasonable walking distance | 11.6KM (38 min) to zone. Proposed cycle routes may reduce this time. | Currently a 1 hour 6 min bus journey. However, new bus routes to east of Oxford will better serve this zone. | 14-24 mins to site. | - | - | Same as Oxford 004, marginally reduced cycling mode share reallocated to car driver. |
| | | | | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | |
| | | | | 0.0% | 20.0% | 20.0% | 55.0% | 5.0% | 100.0% | |
| Oxford 008 City Centre | 5.7% | 6.1% | | Outside of reasonable walking distance | 8.3km (28 min) to zone. Attractive option for cyclists with improvements along A44 and cycle facilities down into City Centre | 37 mins via S3. This will reduce with more services creating an attractive option into City Centre directly from the site | 10-20 mins to site but subject to peak hour congestion. Likelihood of city centre traffic management reducing car access in favour of public transport | - | - | Both cycling and PT will form attractive options with new and improved connections between the site and City centre. Parking controls in City centre are likely to reduce vehicle ownership |
| | | | | 0.0% | 33.3% | 0.0% | 66.7% | 0.0% | 100.0% | - |
| | | | | 0.0% | 35.0% | 50.0% | 10.0% | 5.0% | 100.0% | - |
| Oxford 009 Osney, Jericho and Binsey | 1.1% | 1.0% | | Outside of reasonable walking distance | 9.5km (30 min) to zone. Potentially attractive option for cyclists with improvements along A44 and cycle facilities down into Botley | 49 min bus journey via S3. Just west of Oxford Centre, still likely to be attractive to future users. | 10-22 mins to site but subject to peak hour congestion awill discourage this option. | - | - | Cycling increased due to good current + improved links to zone, PT maintained at similar percentage as Ox 008. Car Driver mode share reduced as a result of parking restraint/charging |
| | | | | 0.0% | 33.3% | 0.0% | 66.7% | 0.0% | 100.0% | - |
| | | | | 0.0% | 35.0% | 50.0% | 10.0% | 5.0% | 100.0% | - |
| Oxford 010 Between A4142 and A429 | 0.0% | 0.0% | | Outside of reasonable walking distance | 12.3km (40 min) to zone. Potentially attractive option for cyclists with improvements along A44 and cycle facilities down into Headington via A40 cycle route | 1 hour 6 to site via a bus change to S3. | 18-35 mins to site so subject to peak hour congestion. | - | - | Cycling increased due to good current + improved links to zone, PT uptake expected to be limited with no new services planned direct to zone. Car Driver mode share reduced accordingly. |
| | | | | 0.0% | 25.0% | 0.0% | 75.0% | 0.0% | 100.0% | - |
| | | | | 0.0% | 25.0% | 10.0% | 60.0% | 5.0% | 100.0% | - |
| Oxford 011 East Oxford between A4158 Iffley Road and A420 | 4.5% | 3.6% | | Outside of reasonable walking distance | 10.6km (34 min) to zone. Attractive option for cyclists with improvements along A44 and cycle facilities down into St Clements | 53 min bus route including changing services to S3. Still likely to be attractive to users. | 18-30 min to site so likely attractive choice but subject to peak hour congestion. | - | - | Mode share assumptions broadly align with existing census. |
| | | | | 0.0% | 22.2% | 44.4% | 33.3% | 0.0% | 100.0% | - |
| | | | | 0.0% | 25.0% | 40.0% | 30.0% | 5.0% | 100.0% | - |
| Oxford 012 A4144 Abingdon Road | 2.3% | 1.9% | | Outside of reasonable walking distance | 10.4km (33 min) to zone. Attractive option for cyclists with improvements along A44 and cycle facilities down into New Hinksey | 45 min bus route including changing services to S3. Still likely to be attractive to users. | 14-24 mins to site so likely attractive choice but subject to peak hour congestion. | - | - | Similar to Ox 011 |
| | | | | 0.0% | 0.0% | 50.0% | 50.0% | 0.0% | 100.0% | - |
| | | | | 0.0% | 25.0% | 40.0% | 30.0% | 5.0% | 100.0% | - |
| Oxford 013 Between Cowley Road and The Slade | 8.0% | 6.6% | | Outside of reasonable walking distance | 13.7km (43 min) to zone. Potentially attractive option for cyclists with improvements along A44 and cycle facilities down into Headington via A40 cycle route | 58 min bus journey including changing services to S3. Still likely to be attractive to users. | 18-40 mins to site so subject to peak hour congestion. P | - | - | Mode share for car driver aligns with census. Remaining share divided between cycling and PT based on forecast balance of convenience. |
| | | | | 0.0% | 30.0% | 0.0% | 60.0% | 10.0% | 100.0% | - |
| | | | | 0.0% | 15.0% | 20.0% | 60.0% | 5.0% | 100.0% | - |
| Oxford 014 Around Iffley Road from Thames to Cowley Road | 1.1% | 0.9% | | Outside of reasonable walking distance | 10.8km (34 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into New Hinksey | 50 min bus route including changing services to S3. Still likely to be attractive to users. | 14-26 mins to site but subject to peak hour congestion. | - | - | Both cycling and PT will form attractive options with new and improved connections between the site and City centre. Car driver percentage still considered high based on expectations for Oxford city. |
| | | | | 33.3% | 0.0% | 0.0% | 66.7% | 0.0% | 100.0% | - |
| | | | | 0.0% | 25.0% | 20.0% | 50.0% | 5.0% | 100.0% | - |
| Oxford 015 Cowley and Iffley | 1.1% | 1.0% | | Outside of reasonable walking distance | 12.5km (40 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into Iffley | 55 min bus route including changing services to S3. Still likely to be attractive to users. | 14-24 mins to site and subject to peak hour congestion. | - | - | Both cycling and PT will form attractive options with new and improved connections between the site and City centre. Compared to Ox 014, cycling decreased and PT increased based on increased distance from site. Car driver percentage still considered high based on expectations for Oxford city. |
| | | | | 0.0% | 0.0% | 36.4% | 63.6% | 0.0% | 100.0% | - |
| | | | | 0.0% | 20.0% | 25.0% | 50.0% | 5.0% | 100.0% | - |
| Oxford 016 Littlemore and Rose Hill | 0.0% | 0.0% | | Outside of reasonable walking distance | 12.5km (40 min) to zone. Potentially attractive option for very keen cyclists with improvements along A44 and cycle facilities down into Iffley | 1 hr 5 bus journey including one change to S3. Still likely to be viable. | 14-22 mins to site and subject to peak hour congestion. | - | - | Similar to Ox 015 |
| | | | | 0.0% | 6.3% | 50.0% | 43.8% | 0.0% | 100.0% | - |
| | | | | 0.0% | 20.0% | 25.0% | 50.0% | 5.0% | 100.0% | - |
| Oxford 017 Blackbird Leys | 0.0% | 0.0% | | Outside of reasonable walking distance | 16.2km (51 min) to zone. Too far for cyclists, apart from potentially very keen cyclists | 1 hr 19 bus journey via 2 changes | 16-26 mins to site and subject to peak hour congestion. | - | - | Mode share assumptions broadly align with existing census. Adjusted walking mode share discrepancy. |
| | | | | 8.3% | 8.3% | 0.0% | 75.0% | 8.3% | 100.0% | - |
| | | | | 0.0% | 10.0% | 10.0% | 75.0% | 5.0% | 100.0% | - |
| Oxford 018 Greater Leys | 0.0% | 0.0% | | Outside of reasonable walking distance | 15.3km (49min) to zone. Too far for cyclists, apart from potentially very keen cyclists | 1 hr 14 bus journey via 2 changes | 18-26 mins to site and subject to peak hour congestion. | - | - | Mode share assumptions broadly align with existing census. |
| | | | | 0.0% | 0.0% | 33.3% | 66.7% | 0.0% | 100.0% | - |
| | | | | 0.0% | 5.0% | 30.0% | 60.0% | 5.0% | 100.0% | - |
| Total Cherwell | 20.5% | 25.4% | | | | | | | | |
| Cherwell 017 Kidlington North | 3.4% | 2.7% | | 27 min walk from Begbrooke Science Park via Sandy Lane. Likely to be an attractive choice with the proposals for Sandy Lane crossing etc | 7/8 min cycle from zone. Highly attractive route with the improvements/new routes being brought forward | Improved local bus services | 6 min drive. | - | - | High proportion expected to be making journeys by active modes given the links provided as part of the development. Increase also expected in PT users given proposed shuttle bus/regular bus improvements. Limited car drivers expected. |
| | | | | 56.7% | 11.7% | 2.5% | 25.4% | 3.8% | 100.0% | - |
| | | | | 30.0% | 30.0% | 20.0% | 20.0% | 0.0% | 100.0% | - |
| Cherwell 018 Kidlington South | 2.3% | 1.9% | | 30 min walk from Begbrooke Science Park via Sandy Lane. Likely to be an attractive choice with the proposals for Sandy Lane crossing etc | 7 min cycle from zone. Highly attractive route with the improvements/new routes being brought forward | Improved local bus services | 7 min drive. | - | - | High proportion expected to be making journeys by active modes given the links provided as part of the development. Increase also expected in PT users given proposed shuttle bus/regular bus improvements. Limited car drivers expected. |
| | | | | 36.3% | 8.9% | 10.4% | 41.5% | 3.0% | 100.0% | - |
| | | | | 30.0% | 30.0% | 20.0% | 20.0% | 0.0% | 100.0% | - |
| Cherwell 019 (PR8) Begbroke and Yarnton | 4.5% | 9.4% | | Site is located here | Site is located here | Site is located here | Site is located here | Site is located here | - | All non-car modes increased here due to proximity to site |
| | | | | 25.0% | 9.4% | 4.2% | 53.1% | 8.3% | 100.0% | - |
| | | | | 50.0% | 40.0% | 10.0% | 0.0% | 0.0% | 100.0% | - |
| Rest of Cherwell | 10.2% | 11.5% | | | | | | | | - |
| | | | | 4.7% | 0.9% | 2.1% | 89.7% | 2.6% | 100.0% | - |
| | | | | 0.0% | 35.0% | 20.0% | 40.0% | 5.0% | 100.0% | - |
| South Oxfordshire | 5.7% | 6.3% | | | | | | | | - |
| | | | | 2.1% | 4.3% | 0.0% | 89.4% | 4.3% | 100.0% | - |
| | | | | 0.0% | 10.0% | 15.0% | 70.0% | 5.0% | 100.0% | - |
| Vale of White Horse | 13.6% | 14.8% | | | | | | | | - |
| | | | | 1.2% | 1.2% | 9.4% | 84.7% | 3.5% | 100.0% | - |
| | | | | 0.0% | 10.0% | 15.0% | 70.0% | 5.0% | 100.0% | - |
| West Oxfordshire | 12.5% | 12.9% | | | | | | | | - |
| | | | | 0.0% | 0.9% | 1.4% | 93.8% | 3.8% | 100.0% | - |
| | | | | 5.0% | 10.0% | 10.0% | 70.0% | 5.0% | 100.0% | - |
| Out of Oxfordshire | 11.4% | 8.8% | | | | | | | | - |
| | | | | 0.9% | 0.0% | 5.5% | 89.0% | 4.6% | 100.0% | - |
| | | | | 0.0% | 0.0% | 5.0% | 90.0% | 5.0% | 100.0% | - |
| Total | 100.0% | 100.0% | | | | | | | | |

| | Walk | Cycle | Pub Trans | Car Driver | Passenger | Total |
|---|---|---|---|---|---|---|
| **Internal Site Trips** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **Oxford (Total)** | **0.1%** | **8.6%** | **11.9%** | **9.5%** | **1.6%** | **31.7%** |
| 001 | 0.1% | 0.3% | 0.6% | 0.1% | 0.1% | 1.2% |
| 002 | 0.0% | 1.0% | 1.5% | 0.3% | 0.1% | 2.9% |
| 003 | 0.0% | 1.2% | 1.8% | 0.4% | 0.2% | 3.5% |
| 004 | 0.0% | 0.8% | 0.6% | 1.5% | 0.2% | 3.0% |
| 005 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 006 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 007 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 008 | 0.0% | 2.1% | 3.1% | 0.6% | 0.3% | 6.1% |
| 009 | 0.0% | 0.3% | 0.5% | 0.1% | 0.0% | 1.0% |
| 010 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 011 | 0.0% | 0.9% | 1.4% | 1.1% | 0.2% | 3.6% |
| 012 | 0.0% | 0.5% | 0.8% | 0.6% | 0.1% | 1.9% |
| 013 | 0.0% | 1.0% | 1.3% | 3.9% | 0.3% | 6.6% |
| 014 | 0.0% | 0.2% | 0.2% | 0.4% | 0.0% | 0.9% |
| 015 | 0.0% | 0.2% | 0.2% | 0.5% | 0.0% | 1.0% |
| 016 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 017 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 018 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **Cherwell (Total)** | **6.1%** | **9.1%** | **4.1%** | **5.5%** | **0.6%** | **25.4%** |
| 017 | 0.8% | 0.8% | 0.5% | 0.5% | 0.0% | 2.7% |
| 018 | 0.6% | 0.6% | 0.4% | 0.4% | 0.0% | 1.9% |
| 019 | 4.7% | 3.8% | 0.9% | 0.0% | 0.0% | 9.4% |
| Rest of Cherwell | 0.0% | 4.0% | 2.3% | 4.6% | 0.6% | 11.5% |
| **South Oxfordshire** | **0.0%** | **0.6%** | **0.9%** | **4.4%** | **0.3%** | **6.3%** |
| **Vale of White Horse** | **0.0%** | **1.5%** | **2.2%** | **10.4%** | **0.7%** | **14.8%** |
| **West Oxfordshire** | **0.6%** | **1.3%** | **1.3%** | **9.0%** | **0.6%** | **12.9%** |
| **Out of Oxfordshire** | **0.0%** | **0.0%** | **0.4%** | **8.0%** | **0.4%** | **8.8%** |
| **Total** | **6.8%** | **21.1%** | **21.0%** | **46.8%** | **4.3%** | **100.0%** |

| | Destination | Walk | Cycle | Public Transport | Car | Passenger |
|---|---|---|---|---|---|---|
| Internal | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Oxford | 31.7% | 0.1% | 8.6% | 11.9% | 9.5% | 1.6% |
| Cherwell | 25.4% | 6.1% | 9.1% | 4.1% | 5.5% | 0.6% |
| South Oxfordshire | 6.3% | 0.0% | 0.6% | 0.9% | 4.4% | 0.3% |
| Vale of White Horse | 14.8% | 0.0% | 1.5% | 2.2% | 10.4% | 0.7% |
| West Oxfordshire | 12.9% | 0.6% | 1.3% | 1.3% | 9.0% | 0.6% |
| Outside of Oxfordshire | 8.8% | 0.0% | 0.0% | 0.4% | 8.0% | 0.4% |
| Total Off-site Trips | 100.0% | 6.8% | 21.1% | 21.0% | 46.8% | 4.3% |
| Total | 100.0% | 6.8% | 21.1% | 21.0% | 46.8% | 4.3% |

EDUCATION (PRIMARY) PUPILS & ESCORT - ORIGIN & MODE

| | Census Cherwell 17 Destination Distribution | PR8 Assumed Origin Distribution - Primary | PR8 Assumed Destination Distribution | Mode Share | Walk | Cycle | Public Transport | Car Driver | Passenger | Total | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Internal Site Trips | - | 0.0% | 0.0% | - | 70.0% | 30.0% | 0.0% | 0.0% | 0.0% | 100.0% | Local top-up shopping trips likely to be made by active modes. |
| Total Oxford | 11.1% | 0.0% | 0.0% | - | - | - | - | - | - | - | - |
| | | | | - | | | | | | | |
| Oxford 001 Wolvercote & Cutteslowe | 1.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 23.1% | 38.5% | 30.8% | 7.7% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 25.4% | 42.3% | 16.7% | 15.5% | 100.0% | - |
| Oxford 002 Sunnymead and Summertown | 1.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 7.7% | 46.2% | 46.2% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 9.7% | 58.1% | 16.7% | 15.5% | 100.0% | |
| Oxford 003 North Oxford | 0.2% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 30.0% | 50.0% | 10.0% | 10.0% | 100.0% | - |
| Oxford 004 Marston and New Marston | 0.5% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 30.0% | 30.0% | 20.0% | 20.0% | 100.0% | - |
| Oxford 005 Barton | 0.5% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 15.0% | 0.0% | 80.0% | 5.0% | 100.0% | - |
| Oxford 006 Headington | 0.6% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 12.5% | 12.5% | 75.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 25.0% | 45.0% | 10.0% | 100.0% | - |
| Oxford 007 Risinghurst and Sandhills | 0.8% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | |
| | | | | PR8 Adjusted | 0.0% | 10.0% | 5.0% | 75.0% | 10.0% | 100.0% | |
| Oxford 008 City Centre | 0.2% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 33.3% | 0.0% | 66.7% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 40.0% | 40.0% | 10.0% | 10.0% | 100.0% | - |
| Oxford 009 Osney, Jericho and Binsey | 0.2% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 33.3% | 0.0% | 66.7% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 35.0% | 40.0% | 5.0% | 100.0% | - |
| Oxford 010 Between A4142 and A429 | 0.3% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 25.0% | 0.0% | 75.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 40.0% | 25.0% | 15.0% | 100.0% | - |
| Oxford 011 East Oxford between A4158 Iffley Road and A420 | 0.7% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 22.2% | 44.4% | 33.3% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 25.0% | 40.0% | 25.0% | 10.0% | 100.0% | - |
| Oxford 012 A4144 Abingdon Road | 0.3% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 0.0% | 50.0% | 50.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 25.0% | 40.0% | 25.0% | 10.0% | 100.0% | - |
| Oxford 013 Between Cowley Road and The Slade | 0.8% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 30.0% | 0.0% | 60.0% | 10.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 30.0% | 40.0% | 10.0% | 100.0% | - |
| Oxford 014 Around Iffley Road from Thames to Cowley Road | 0.2% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 33.3% | 0.0% | 0.0% | 66.7% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 20.0% | 50.0% | 10.0% | 100.0% | - |
| Oxford 015 Cowley and Iffley | 0.8% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 0.0% | 36.4% | 63.6% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 15.0% | 20.0% | 55.0% | 10.0% | 100.0% | - |
| Oxford 016 Littlemore and Rose Hill | 1.2% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 6.3% | 50.0% | 43.8% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 15.0% | 20.0% | 55.0% | 10.0% | 100.0% | - |
| Oxford 017 Blackbird Leys | 0.9% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 8.3% | 8.3% | 0.0% | 75.0% | 8.3% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 10.0% | 15.0% | 65.0% | 10.0% | 100.0% | - |
| Oxford 018 Greater Leys | 0.7% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 0.0% | 33.3% | 66.7% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 10.0% | 15.0% | 65.0% | 10.0% | 100.0% | - |
| Total Cherwell | 54.1% | 100.0% | 100.0% | | | | | | | | |
| Cherwell 017 Kidlington North | 18.4% | 33.3% | 33.3% | - | 27 min walk from Begbrooke Science Park via Sandy Lane. Likely to be an attractive choice with the proposals for Sandy Lane crossing etc. | 7/8 min cycle from zone. Highly attractive route with the improvements/new routes being brought forward. | Potential school bus? | 6 min drive. | As per Car Driver. | - | High proportion expected to be making journeys by active modes given the links provided as part of the development. Therefore, people are unlikely to be using pub trans or driving a car so these mode shares significantly reduced |
| | | | | Cherwell 017 (2011 Census | 56.7% | 11.7% | 2.5% | 25.4% | 3.8% | 100.0% | - |
| | | | | PR8 Adjusted | 54.2% | 11.2% | 2.4% | 16.7% | 15.5% | 100.0% | - |
| Cherwell 018 Kidlington South | 10.4% | 33.3% | 33.3% | - | 30 min walk from Begbrooke Science Park via Sandy Lane. Likely to be an attractive choice with the proposals for Sandy Lane crossing etc. | 7 min cycle from zone. Highly attractive route with the improvements/new routes being brought forward. | Potential school bus? | 7 min drive. | As per Car Driver. | - | High proportion expected to be making journeys by active modes given the links provided as part of the development. Therefore, people are unlikely to be using pub trans or driving a car so these mode shares significantly reduced |
| | | | | Cherwell 017 (2011 Census | 36.3% | 8.9% | 10.4% | 41.5% | 3.0% | 100.0% | - |
| | | | | PR8 Adjusted | 44.3% | 10.8% | 12.6% | 16.7% | 15.5% | 100.0% | - |
| Cherwell 019 (PR8) Begbroke and Yarnton | 7.4% | 33.3% | 33.3% | - | Site is located here. Also includes portion of SE Kidlington. | Site is located here. Also includes portion of SE Kidlington. | Site is located here. Also includes portion of SE Kidlington. | Site is located here. Also includes portion of SE Kidlington. | Site is located here. Also includes portion of SE Kidlington. | - | All non-car modes increased here due to proximity to site |
| | | | | Cherwell 017 (2011 Census | 25.0% | 9.4% | 4.2% | 53.1% | 8.3% | 100.0% | - |
| | | | | PR8 Adjusted | 43.9% | 16.5% | 7.3% | 16.7% | 15.5% | 100.0% | - |
| | | | | - | | | | | | | - |
| Rest of Cherwell | 18.0% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 4.7% | 0.9% | 2.1% | 89.7% | 2.6% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 10.0% | 30.0% | 30.0% | 30.0% | 100.0% | - |
| | | | | - | | | | | | | - |
| South Oxfordshire | 3.6% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 2.1% | 4.3% | 0.0% | 89.4% | 4.3% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 1.0% | 9.0% | 85.0% | 5.0% | 100.0% | - |
| | | | | - | | | | | | | - |
| Vale of White Horse | 6.5% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 1.2% | 1.2% | 9.4% | 84.7% | 3.5% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 5.0% | 10.0% | 80.0% | 5.0% | 100.0% | - |
| | | | | - | | | | | | | - |
| West Oxfordshire | 16.2% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 0.9% | 1.4% | 93.8% | 3.8% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 27.1% | 40.7% | 16.7% | 15.5% | 100.0% | - |
| | | | | - | | | | | | | - |
| Out of Oxfordshire | 8.4% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.9% | 0.0% | 5.5% | 89.0% | 4.6% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 0.0% | 5.0% | 90.0% | 5.0% | 100.0% | - |
| Total | 100.0% | 100.0% | 100.0% | - | - | - | - | - | - | - | - |

| | Walk | Cycle | Pub Trans | Car Driver | Passenger | Total |
|---|---|---|---|---|---|---|
| **Internal Site Trips** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **Oxford (Total)** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| 001 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 002 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 003 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 004 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 005 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 006 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 007 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 008 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 009 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 010 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 011 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 012 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 013 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 014 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 015 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 016 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 017 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 018 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **Cherwell (Total)** | **47.5%** | **12.8%** | **7.5%** | **16.7%** | **15.5%** | **100.0%** |
| 017 | 18.1% | 3.7% | 0.8% | 5.6% | 5.2% | 33.3% |
| 018 | 14.8% | 3.6% | 4.2% | 5.6% | 5.2% | 33.3% |
| 019 | 14.6% | 5.5% | 2.4% | 5.6% | 5.2% | 33.3% |
| Rest of Cherwell | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **South Oxfordshire** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **Vale of White Horse** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **West Oxfordshire** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **Out of Oxfordshire** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **Total** | **47.5%** | **12.8%** | **7.5%** | **16.7%** | **15.5%** | **100.0%** |

| | Destination | Walk | Cycle | Public Transport | Car | Passenger |
|---|---|---|---|---|---|---|
| Internal | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Oxford | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Cherwell | 100.0% | 47.5% | 12.8% | 7.5% | 16.7% | 15.5% |
| South Oxfordshire | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Vale of White Horse | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| West Oxfordshire | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Outside of Oxfordshire | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Total Off-site Trips | 100.0% | 47.5% | 12.8% | 7.5% | 16.7% | 15.5% |
| Total | 100.0% | 47.5% | 12.8% | 7.5% | 16.7% | 15.5% |

EDUCATION (SECONDARY) PUPILS & ESCORT - ORIGIN & MODE

| | Census Cherwell 17 Destination Distribution | PR8 Assumed Origin Distribution - Secondary | PR8 Assumed Destination Distribution | Mode Share | Walk | Cycle | Public Transport | Car Driver | Passenger | Total | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Internal Site Trips | - | 17.1% | 17.1% | - | 70.0% | 30.0% | 0.0% | 0.0% | 0.0% | 100.0% | Local top-up shopping trips likely to be made by active modes. |
| Total Oxford | 11.1% | 4.1% | 4.1% | - | - | - | - | - | - | - | - |
| Oxford 001 Wolvercote & Cutteslowe | 1.0% | 2.5% | 2.5% | - | Circa 45 minutes to zone - unlikely to be pedestrians walking to work here | As per walk, but takes only 11 minutes. Proposed improvements to the A44 Cycle facilities may make this an attractive option. | 19 min bus journey via S3. Likely to be an attractive option with the extension of S3 to site. | 4 minute drive to site but subject to peak hour delays. | As per Car Driver. | - | Car Driver mode share has been reduced significantly, based on the assumptions of reduced parking at Oxford North, Wolvercote will be covered by a CPZ & parking restrictions in Yarnton that will reduce car use. Public transport mode share has been increased slightly. Cycle mode share has also increased, due to the good cycle links to be provided to the site |
| | | | | Cherwell 017 (2011 Census | 0.0% | 23.1% | 38.5% | 30.8% | 7.7% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 30.3% | 50.5% | 9.9% | 9.2% | 100.0% | - |
| Oxford 002 Sunnymead and Summertown | 1.0% | 1.7% | 1.7% | | 1 hr 11 to area - too far to reasonably assume walkers will go to zone via this mode | 5.8km (18 min) cycle ride. Quite a long cycle but relatively quick and with the improvements along the A44 it may be attractive to some keen cyclists. | 21 min bus journey via S3. Likely to be an attractive option with the extension of S3 to site. | Between a 7 & 16 minute car journey so highly likely to be a viable option. | As per Car Driver. | - | Mode Shares adjusted in line with Oxford 001 |
| | | | | Cherwell 017 (2011 Census | 0.0% | 7.7% | 46.2% | 46.2% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 11.6% | 69.3% | 9.9% | 9.2% | 100.0% | |
| Oxford 003 North Oxford | 0.2% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 30.0% | 50.0% | 10.0% | 10.0% | 100.0% | - |
| Oxford 004 Marston and New Marston | 0.5% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 30.0% | 30.0% | 20.0% | 20.0% | 100.0% | - |
| Oxford 005 Barton | 0.5% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 15.0% | 0.0% | 80.0% | 5.0% | 100.0% | - |
| Oxford 006 Headington | 0.6% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 12.5% | 12.5% | 75.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 25.0% | 45.0% | 10.0% | 100.0% | - |
| Oxford 007 Risinghurst and Sandhills | 0.8% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | |
| | | | | PR8 Adjusted | 0.0% | 10.0% | 5.0% | 75.0% | 10.0% | 100.0% | |
| Oxford 008 City Centre | 0.2% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 33.3% | 0.0% | 66.7% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 40.0% | 40.0% | 10.0% | 10.0% | 100.0% | - |
| Oxford 009 Osney, Jericho and Binsey | 0.2% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 33.3% | 0.0% | 66.7% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 35.0% | 40.0% | 5.0% | 100.0% | - |
| Oxford 010 Between A4142 and A429 | 0.3% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 25.0% | 0.0% | 75.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 40.0% | 25.0% | 15.0% | 100.0% | - |
| Oxford 011 East Oxford between A4158 Iffley Road and A420 | 0.7% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 22.2% | 44.4% | 33.3% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 25.0% | 40.0% | 25.0% | 10.0% | 100.0% | - |
| Oxford 012 A4144 Abingdon Road | 0.3% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 0.0% | 50.0% | 50.0% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 25.0% | 40.0% | 25.0% | 10.0% | 100.0% | - |
| Oxford 013 Between Cowley Road and The Slade | 0.8% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 30.0% | 0.0% | 60.0% | 10.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 30.0% | 40.0% | 10.0% | 100.0% | - |
| Oxford 014 Around Iffley Road from Thames to Cowley Road | 0.2% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 33.3% | 0.0% | 0.0% | 66.7% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 20.0% | 20.0% | 50.0% | 10.0% | 100.0% | - |
| Oxford 015 Cowley and Iffley | 0.8% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 0.0% | 36.4% | 63.6% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 15.0% | 20.0% | 55.0% | 10.0% | 100.0% | - |
| Oxford 016 Littlemore and Rose Hill | 1.2% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 6.3% | 50.0% | 43.8% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 15.0% | 20.0% | 55.0% | 10.0% | 100.0% | - |
| Oxford 017 Blackbird Leys | 0.9% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 8.3% | 8.3% | 0.0% | 75.0% | 8.3% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 10.0% | 15.0% | 65.0% | 10.0% | 100.0% | - |
| Oxford 018 Greater Leys | 0.7% | 0.0% | 0.0% | Cherwell 017 (2011 Census | 0.0% | 0.0% | 33.3% | 66.7% | 0.0% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 10.0% | 15.0% | 65.0% | 10.0% | 100.0% | - |
| Total Cherwell | 54.1% | 66.3% | 66.3% | | | | | | | | |
| Cherwell 017 Kidlington North | 18.4% | 18.7% | 18.7% | - | 27 min walk from Begbrooke Science Park via Sandy Lane. Likely to be an attractive choice with the proposals for Sandy Lane crossing etc. | 7/8 min cycle from zone. Highly attractive route with the improvements/new routes being brought forward. | Potential school bus? | 6 min drive. | As per Car Driver. | - | High proportion expected to be making journeys by active modes given the links provided as part of the development. Therefore, people are unlikely to be using pub trans or driving a car so these mode shares significantly reduced |
| | | | | Cherwell 017 (2011 Census | 56.7% | 11.7% | 2.5% | 25.4% | 3.8% | 100.0% | - |
| | | | | PR8 Adjusted | 64.7% | 13.3% | 2.9% | 9.9% | 9.2% | 100.0% | - |
| Cherwell 018 Kidlington South | 10.4% | 18.7% | 18.7% | - | 30 min walk from Begbrooke Science Park via Sandy Lane. Likely to be an attractive choice with the proposals for Sandy Lane crossing etc. | 7 min cycle from zone. Highly attractive route with the improvements/new routes being brought forward. | Potential school bus? | 7 min drive. | As per Car Driver. | - | High proportion expected to be making journeys by active modes given the links provided as part of the development. Therefore, people are unlikely to be using pub trans or driving a car so these mode shares significantly reduced |
| | | | | Cherwell 017 (2011 Census | 36.3% | 8.9% | 10.4% | 41.5% | 3.0% | 100.0% | - |
| | | | | PR8 Adjusted | 52.8% | 12.9% | 15.1% | 9.9% | 9.2% | 100.0% | - |
| Cherwell 019 (PR8) Begbroke and Yarnton | 7.4% | 29.0% | 29.0% | - | Site is located here. Also includes portion of SE Kidlington. | Site is located here. Also includes portion of SE Kidlington. | Site is located here. Also includes portion of SE Kidlington. | Site is located here. Also includes portion of SE Kidlington. | Site is located here. Also includes portion of SE Kidlington. | - | All non-car modes increased here due to proximity to site |
| | | | | Cherwell 017 (2011 Census | 25.0% | 9.4% | 4.2% | 53.1% | 8.3% | 100.0% | - |
| | | | | PR8 Adjusted | 52.5% | 19.7% | 8.7% | 9.9% | 9.2% | 100.0% | - |
| Rest of Cherwell | 18.0% | 0.0% | 0.0% | - | | | | | | | - |
| | | | | Cherwell 017 (2011 Census | 4.7% | 0.9% | 2.1% | 89.7% | 2.6% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 10.0% | 30.0% | 30.0% | 30.0% | 100.0% | - |
| South Oxfordshire | 3.6% | 0.0% | 0.0% | - | | | | | | | - |
| | | | | Cherwell 017 (2011 Census | 2.1% | 4.3% | 0.0% | 89.4% | 4.3% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 1.0% | 9.0% | 85.0% | 5.0% | 100.0% | - |
| Vale of White Horse | 6.5% | 0.0% | 0.0% | - | | | | | | | - |
| | | | | Cherwell 017 (2011 Census | 1.2% | 1.2% | 9.4% | 84.7% | 3.5% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 5.0% | 10.0% | 80.0% | 5.0% | 100.0% | - |
| West Oxfordshire | 16.2% | 12.4% | 12.4% | - | | Number of villages within 5 mile cycling distance of the site. | A44 corridor bisects west oxfordshire north of the site so opportunities for pupils to travel via bus, particularly with expected bus improvements. | | | | - |
| | | | | Cherwell 017 (2011 Census | 0.0% | 0.9% | 1.4% | 93.8% | 3.8% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 32.3% | 48.5% | 9.9% | 9.2% | 100.0% | - |
| Out of Oxfordshire | 8.4% | 0.0% | 0.0% | - | | | | | | | - |
| | | | | Cherwell 017 (2011 Census | 0.9% | 0.0% | 5.5% | 89.0% | 4.6% | 100.0% | - |
| | | | | PR8 Adjusted | 0.0% | 0.0% | 5.0% | 90.0% | 5.0% | 100.0% | - |
| Total | 100.0% | 100.0% | 100.0% | - | - | - | - | - | - | - | - |

| | Walk | Cycle | Pub Trans | Car Driver | Passenger | Total |
|---|---|---|---|---|---|---|
| **Internal Site Trips** | **12.0%** | **5.1%** | **0.0%** | **0.0%** | **0.0%** | **17.1%** |
| **Oxford (Total)** | **0.0%** | **0.9%** | **2.4%** | **0.4%** | **0.4%** | **4.1%** |
| 001 | 0.0% | 0.8% | 1.3% | 0.2% | 0.2% | 2.5% |
| 002 | 0.0% | 0.2% | 1.1% | 0.2% | 0.2% | 1.7% |
| 003 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 004 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 005 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 006 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 007 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 008 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 009 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 010 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 011 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 012 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 013 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 014 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 015 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 016 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 017 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 018 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **Cherwell (Total)** | **37.1%** | **10.6%** | **5.9%** | **6.6%** | **6.1%** | **66.3%** |
| 017 | 12.1% | 2.5% | 0.5% | 1.8% | 1.7% | 18.7% |
| 018 | 9.9% | 2.4% | 2.8% | 1.8% | 1.7% | 18.7% |
| 019 | 15.2% | 5.7% | 2.5% | 2.9% | 2.7% | 29.0% |
| Rest of Cherwell | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **South Oxfordshire** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **Vale of White Horse** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **West Oxfordshire** | **0.0%** | **4.0%** | **6.0%** | **1.2%** | **1.1%** | **12.4%** |
| **Out of Oxfordshire** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **Total** | **49.1%** | **20.7%** | **14.3%** | **8.2%** | **7.6%** | **100.0%** |

| | Destination | Walk | Cycle | Public Transport | Car | Passenger |
|---|---|---|---|---|---|---|
| Internal | 17.1% | 12.0% | 5.1% | 0.0% | 0.0% | 0.0% |
| Oxford | 4.1% | 0.0% | 0.9% | 2.4% | 0.4% | 0.4% |
| Cherwell | 66.3% | 37.1% | 10.6% | 5.9% | 6.6% | 6.1% |
| South Oxfordshire | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Vale of White Horse | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| West Oxfordshire | 12.4% | 0.0% | 4.0% | 6.0% | 1.2% | 1.1% |
| Outside of Oxfordshire | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Total Off-site Trips | 82.9% | 37.1% | 15.6% | 14.3% | 8.2% | 7.6% |
| Total | 100.0% | 49.1% | 20.7% | 14.3% | 8.2% | 7.6% |

EMPLOYMENT (EDUCATION STAFF) - ORIGIN & MODE

| | Census Cherwell 17 Origin | PR8 Assumed Origin Distribution | Mode Share | Walk | Cycle | Public Transport | Car Driver | Passenger | Total | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| Internal Site Trips | - | 0.0% | - | | | | | | | - |
| Total Oxford | 11.1% | 9.6% | - | - | - | - | - | - | - | - |
| Oxford 001 Wolvercote & Cutteslowe | 1.0% | 1.0% | - | Circa 45 minutes to zone - unlikely to be pedestrians walking to work here | 11-min cycle journey time. Proposed improvements to the A44 Cycle facilities will make this an attractive option in addition to end-of-trip facilities. | 19 min bus journey via S3. Likely to be an attractive option with significant improvements to bus services on A44 corridor | 4 minute drive to site but subject to peak hour delays. | - | - | Car Driver mode share has been reduced significantly, based on the assumptions of reduced parking at Oxford North, Wolvercote will be covered by a CPZ & parking restrictions in Yarnton that will reduce car use. Public transport mode share has been increased. Cycle mode share has also increased, due to the good cycle links to be provided plus on-site facilities |
| | | | erwell 017 (2011 Cen | 0.0% | 23.1% | 38.5% | 30.8% | 7.7% | 100.0% | - |
| | | | PR8 Adjusted | 10.0% | 25.0% | 50.0% | 10.0% | 5.0% | 100.0% | - |
| Oxford 002 Sunnymead and Summertown | 1.0% | 0.8% | | Outside of reasonable walking distance | 5.8km (18 min) cycle ride. A reasonable cycling distance. With the improvements along the A44 it will be attractive to many cyclsts. | 21 min bus journey via S3. Likely to be an attractive option with significant improvements to bus services on A44 corridor | Between a 7 & 16 minute car journey so highly likely to be a viable option. | - | - | Adjusted in line with Oxford 001. With marginally further walking distance, this mode share has been transferred to cycling. |
| | | | erwell 017 (2011 Cen | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 35.0% | 50.0% | 10.0% | 5.0% | 100.0% | - |
| Oxford 003 North Oxford | 0.2% | 0.2% | - | Outside of reasonable walking distance | 6.6km (20 min) cycle ride. A reasonable cycling distance. With the improvements along the A44 it will be attractive to many cyclsts. | 24 min bus journey via S3. Likely to be an attractive option with significant improvements to bus services on A44 corridor | Between a 8 & 16 minute car journey so highly likely to be a viable option. | - | - | Adjusted in line with Oxford 001. With marginally further walking distance, this mode share has been transferred to cycling. |
| | | | erwell 017 (2011 Cen | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 35.0% | 50.0% | 10.0% | 5.0% | 100.0% | - |
| Oxford 004 Marston and New Marston | 0.5% | 0.5% | - | Outside of reasonable walking distance | 8.9km (27 min) cycle ride. A reasonable cycling distance. With the improvements along the A44 it will be attractive to many cyclsts. | Currently a 59 min bus journey. However, new bus routes to east of Oxford will better serve this zone. | Between a 12 & 24 minute car journey so highly likely to be a viable option. | - | - | With increased distance from site, cycling mode share reduced from closer Oxford zones. Bus mode share reflects proposed improvements to services connecting with east Ox. |
| | | | erwell 017 (2011 Cen | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 25.0% | 20.0% | 50.0% | 5.0% | 100.0% | - |
| Oxford 005 Barton | 0.5% | 0.5% | - | Outside of reasonable walking distance | 9.1km (27 min) cycle ride. New cycle route through PR7b may cut journey time and provide a more attractive route for cyclists | Currently a 1 hour 16 min bus journey. However, new bus routes to east of Oxford will better serve this zone. | Between 10 & 22 min car journey - likely to be most attractive choice to residents. | - | - | Same as Oxford 004 |
| | | | erwell 017 (2011 Cen | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 25.0% | 20.0% | 50.0% | 5.0% | 100.0% | - |
| Oxford 006 Headington | 0.6% | 0.5% | - | Outside of reasonable walking distance | 10.3km (35min) to zone. New cycle routes via Pr7b and A44 will make this route shorter/easier for cyclists. | Currently a 51 min bus journey. However, new bus routes to east of Oxford will better serve this zone. | 16-28 min drive to site. | - | - | Same as Oxford 004, marginally reduced cycling mode share reallocated to car driver. |
| | | | erwell 017 (2011 Cen | 0.0% | 12.5% | 12.5% | 75.0% | 0.0% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 20.0% | 20.0% | 55.0% | 5.0% | 100.0% | - |
| Oxford 007 Risinghurst and Sandhills | 0.8% | 0.7% | - | Outside of reasonable walking distance | 11.6KM (38 min) to zone. Proposed cycle routes may reduce this time. | Currently a 1 hour 6 min bus journey. However, new bus routes to east of Oxford will better serve this zone. | 14-24 mins to site. | - | - | Same as Oxford 004, marginally reduced cycling mode share reallocated to car driver. |
| | | | erwell 017 (2011 Cen | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 100.0% | |
| | | | PR8 Adjusted | 0.0% | 20.0% | 20.0% | 55.0% | 5.0% | 100.0% | |
| Oxford 008 City Ce | 0.2% | 0.2% | - | Outside of reasonable walking distance | 8.3km (28 min) to zone. Attractive option for cyclists with improvements along A44 and cycle facilities down into City Centre | 37 mins via S3. This will reduce with more services creating an attractive option into City Centre directly from the site | 10-20 mins to site but subject to peak hour congestion. Likelihood of city centre traffic management reducing car access in favour of public transport | - | - | Both cycling and PT will form attractive options with new and improved connections between the site and City centre. Parking controls in City centre are likely to reduce vehicle ownership |
| | | | erwell 017 (2011 Cen | 0.0% | 33.3% | 0.0% | 66.7% | 0.0% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 35.0% | 50.0% | 10.0% | 5.0% | 100.0% | - |
| Oxford 009 Osney, Jericho and Binsey | 0.2% | 0.2% | - | Outside of reasonable walking distance | 9.5km (30 min) to zone. Potentially attractive option for cyclists with improvements along A44 and cycle facilities down into Botley | 49 min bus journey via S3. Just west of Oxford Centre, still likely to be attractive to future users. | 10-22 mins to site but subject to peak hour congestion awill discourage this option. | - | - | Cycling increased due to good current + improved links to zone, PT maintained at similar percentage as Ox 008. Car Driver mode share reduced as a result of parking restraint/charging |
| | | | erwell 017 (2011 Cen | 0.0% | 33.3% | 0.0% | 66.7% | 0.0% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 35.0% | 50.0% | 10.0% | 5.0% | 100.0% | - |
| Oxford 010 Between A4142 and A429 | 0.3% | 0.2% | - | Outside of reasonable walking distance | 12.3km (40 min) to zone. Potentially attractive option for cyclists with improvements along A44 and cycle facilities down into Headington via A40 cycle route | 1 hour 6 to site via a bus change to S3. | 18-35 mins to site so subject to peak hour congestion. | - | - | Cycling increased due to good current + improved links to zone, PT uptake expected to be limited with no new services planned direct to zone. Car Driver mode share reduced accordingly. |
| | | | erwell 017 (2011 Cen | 0.0% | 25.0% | 0.0% | 75.0% | 0.0% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 25.0% | 10.0% | 60.0% | 5.0% | 100.0% | - |
| Oxford 011 East Oxford between A4158 Iffley Road and A420 | 0.7% | 0.5% | - | Outside of reasonable walking distance | 10.6km (34 min) to zone. Attractive option for cyclists with improvements along A44 and cycle facilities down into St Clements | 53 min bus route including changing services to S3. Still likely to be attractive to users. | 18-30 min to site so likely attractive choice but subject to peak hour congestion. | - | - | Mode share assumptions broadly align with existing census. |
| | | | erwell 017 (2011 Cen | 0.0% | 22.2% | 44.4% | 33.3% | 0.0% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 25.0% | 40.0% | 30.0% | 5.0% | 100.0% | - |
| Oxford 012 A4144 Abingdon Road | 0.3% | 0.3% | - | Outside of reasonable walking distance | 10.4km (33 min) to zone. Attractive option for cyclists with improvements along A44 and cycle facilities down into New Hinksey | 45 min bus route including changing services to S3. Still likely to be attractive to users. | 14-24 mins to site so likely attractive choice but subject to peak hour congestion. | - | - | Similar to Ox 011 |
| | | | erwell 017 (2011 Cen | 0.0% | 0.0% | 50.0% | 50.0% | 0.0% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 25.0% | 40.0% | 30.0% | 5.0% | 100.0% | - |
| Oxford 013 Between Cowley Road and The Slade | 0.8% | 0.6% | - | Outside of reasonable walking distance | 13.7km (43 min) to zone. Potentially attractive option for cyclists with improvements along A44 and cycle facilities down into Headington via A40 cycle route | 58 min bus journey including changing services to S3. Still likely to be attractive to users. | 18-40 mins to site so subject to peak hour congestion. P | - | - | Mode share for car driver aligns with census. Remaining share divided between cycling and PT based on forecast balance of convenience. |
| | | | erwell 017 (2011 Cen | 0.0% | 30.0% | 0.0% | 60.0% | 10.0% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 15.0% | 20.0% | 60.0% | 5.0% | 100.0% | - |
| Oxford 014 Around Iffley Road from Thames to Cowley Road | 0.2% | 0.2% | - | Outside of reasonable walking distance | 10.8km (34 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into New Hinksey | 50 min bus route including changing services to S3. Still likely to be attractive to users. | 14-26 mins to site but subject to peak hour congestion. | - | - | Both cycling and PT will form attractive options with new and improved connections between the site and City centre. Car driver percentage still considered high based on expectations for Oxford city. |
| | | | erwell 017 (2011 Cen | 33.3% | 0.0% | 0.0% | 66.7% | 0.0% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 25.0% | 20.0% | 50.0% | 5.0% | 100.0% | - |
| Oxford 015 Cowley and Iffley | 0.8% | 0.7% | - | Outside of reasonable walking distance | 12.5km (40 min) to zone. Potentially attractive option for keen cyclists with improvements along A44 and cycle facilities down into Iffley | 55 min bus route including changing services to S3. Still likely to be attractive to users. | 14-24 mins to site and subject to peak hour congestion. | - | - | Both cycling and PT will form attractive options with new and improved connections between the site and City centre. Compared to Ox 014, cycling decreased and PT increased based on increased distance from site. Car driver percentage still considered high based on expectations for Oxford city. |
| | | | erwell 017 (2011 Cen | 0.0% | 0.0% | 36.4% | 63.6% | 0.0% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 20.0% | 25.0% | 50.0% | 5.0% | 100.0% | - |
| Oxford 016 Littlemore and Rose Hill | 1.2% | 1.0% | - | Outside of reasonable walking distance | 12.5km (40 min) to zone. Potentially attractive option for very keen cyclists with improvements along A44 and cycle facilities down into Iffley | 1 hr 5 bus journey including one change to S3. Still likely to be viable. | 14-22 mins to site and subject to peak hour congestion. | - | - | Similar to Ox 015 |
| | | | erwell 017 (2011 Cen | 0.0% | 6.3% | 50.0% | 43.8% | 0.0% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 20.0% | 25.0% | 50.0% | 5.0% | 100.0% | - |
| Oxford 017 Blackbird Leys | 0.9% | 0.8% | - | Outside of reasonable walking distance | 16.2km (51 min) to zone. Too far for cyclists, apart from potentially very keen cyclists | 1 hr 19 bus journey via 2 changes | 16-26 mins to site and subject to peak hour congestion. | - | - | Mode share assumptions broadly align with existing census. Adjusted walking mode share discrepancy. |
| | | | erwell 017 (2011 Cen | 8.3% | 8.3% | 0.0% | 75.0% | 8.3% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 10.0% | 10.0% | 75.0% | 5.0% | 100.0% | - |
| Oxford 018 Greater Leys | 0.7% | 0.5% | - | Outside of reasonable walking distance | 15.3km (49min) to zone. Too far for cyclists, apart from potentially very keen cyclists | 1 hr 14 bus journey via 2 changes | 18-26 mins to site and subject to peak hour congestion. | - | - | Mode share assumptions broadly align with existing census. |
| | | | erwell 017 (2011 Cen | 0.0% | 0.0% | 33.3% | 66.7% | 0.0% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 5.0% | 30.0% | 60.0% | 5.0% | 100.0% | - |
| Total Cherwell | 54.1% | 56.9% | | | | | | | | |
| Cherwell 017 Kidlington North | 18.4% | 14.0% | - | 27 min walk from Begbrooke Science Park via Sandy Lane. Likely to be an attractive choice with the proposals for Sandy Lane crossing etc | 7/8 min cycle from zone. Highly attractive route with the improvements/new routes being brought forward | Improved local bus services | 6 min drive. | - | - | High proportion expected to be making journeys by active modes given the links provided as part of the development. Increase also expected in PT users given proposed shuttle bus/regular bus improvements. Limited car drivers expected. |
| | | | erwell 017 (2011 Cen | 56.7% | 11.7% | 2.5% | 25.4% | 3.8% | 100.0% | - |
| | | | PR8 Adjusted | 30.0% | 30.0% | 20.0% | 20.0% | 0.0% | 100.0% | - |
| Cherwell 018 Kidlington South | 10.4% | 8.3% | - | 30 min walk from Begbrooke Science Park via Sandy Lane. Likely to be an attractive choice with the proposals for Sandy Lane crossing etc | 7 min cycle from zone. Highly attractive route with the improvements/new routes being brought forward | Improved local bus services | 7 min drive. | - | - | High proportion expected to be making journeys by active modes given the links provided as part of the development. Increase also expected in PT users given proposed shuttle bus/regular bus improvements. Limited car drivers expected. |
| | | | erwell 017 (2011 Cen | 36.3% | 8.9% | 10.4% | 41.5% | 3.0% | 100.0% | - |
| | | | PR8 Adjusted | 30.0% | 30.0% | 20.0% | 20.0% | 0.0% | 100.0% | - |
| Cherwell 019 (PR8) Begbroke and Yarnton | 7.4% | 14.9% | - | Site is located here | Site is located here | Site is located here | Site is located here | Site is located here | - | All non-car modes increased here due to proximity to site |
| | | | erwell 017 (2011 Cen | 25.0% | 9.4% | 4.2% | 53.1% | 8.3% | 100.0% | - |
| | | | PR8 Adjusted | 50.0% | 40.0% | 10.0% | 0.0% | 0.0% | 100.0% | - |
| Rest of Cherwell | 18.0% | 19.7% | - | | | | | | | - |
| | | | erwell 017 (2011 Cen | 4.7% | 0.9% | 2.1% | 89.7% | 2.6% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 35.0% | 20.0% | 40.0% | 5.0% | 100.0% | - |
| South Oxfordshire | 3.6% | 3.9% | - | | | | | | | - |
| | | | erwell 017 (2011 Cen | 2.1% | 4.3% | 0.0% | 89.4% | 4.3% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 10.0% | 15.0% | 70.0% | 5.0% | 100.0% | - |
| Vale of White Horse | 6.5% | 6.9% | - | | | | | | | - |
| | | | erwell 017 (2011 Cen | 1.2% | 1.2% | 9.4% | 84.7% | 3.5% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 10.0% | 15.0% | 70.0% | 5.0% | 100.0% | - |
| West Oxfordshire | 16.2% | 16.3% | - | | | | | | | - |
| | | | erwell 017 (2011 Cen | 0.0% | 0.9% | 1.4% | 93.8% | 3.8% | 100.0% | - |
| | | | PR8 Adjusted | 5.0% | 10.0% | 10.0% | 70.0% | 5.0% | 100.0% | - |
| Out of Oxfordshire | 8.4% | 6.4% | - | | | | | | | - |
| | | | erwell 017 (2011 Cen | 0.9% | 0.0% | 5.5% | 89.0% | 4.6% | 100.0% | - |
| | | | PR8 Adjusted | 0.0% | 0.0% | 5.0% | 90.0% | 5.0% | 100.0% | - |
| Total | 100.0% | 100.0% | - | | | | | | | |

| | Walk | Cycle | Pub Trans | Car Driver | Passenger | Total |
|---|---|---|---|---|---|---|
| **Internal Site Trips** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **Oxford (Total)** | **0.1%** | **2.1%** | **2.9%** | **4.1%** | **0.5%** | **9.6%** |
| 001 | 0.1% | 0.3% | 0.5% | 0.1% | 0.1% | 1.0% |
| 002 | 0.0% | 0.3% | 0.4% | 0.1% | 0.0% | 0.8% |
| 003 | 0.0% | 0.1% | 0.1% | 0.0% | 0.0% | 0.2% |
| 004 | 0.0% | 0.1% | 0.1% | 0.2% | 0.0% | 0.5% |
| 005 | 0.0% | 0.1% | 0.1% | 0.3% | 0.0% | 0.5% |
| 006 | 0.0% | 0.1% | 0.1% | 0.3% | 0.0% | 0.5% |
| 007 | 0.0% | 0.1% | 0.1% | 0.4% | 0.0% | 0.7% |
| 008 | 0.0% | 0.1% | 0.1% | 0.0% | 0.0% | 0.2% |
| 009 | 0.0% | 0.1% | 0.1% | 0.0% | 0.0% | 0.2% |
| 010 | 0.0% | 0.1% | 0.0% | 0.1% | 0.0% | 0.2% |
| 011 | 0.0% | 0.1% | 0.2% | 0.2% | 0.0% | 0.5% |
| 012 | 0.0% | 0.1% | 0.1% | 0.1% | 0.0% | 0.3% |
| 013 | 0.0% | 0.1% | 0.1% | 0.4% | 0.0% | 0.6% |
| 014 | 0.0% | 0.0% | 0.0% | 0.1% | 0.0% | 0.2% |
| 015 | 0.0% | 0.1% | 0.2% | 0.4% | 0.0% | 0.7% |
| 016 | 0.0% | 0.2% | 0.3% | 0.5% | 0.1% | 1.0% |
| 017 | 0.0% | 0.1% | 0.1% | 0.6% | 0.0% | 0.8% |
| 018 | 0.0% | 0.0% | 0.2% | 0.3% | 0.0% | 0.5% |
| **Cherwell (Total)** | **14.1%** | **19.5%** | **9.9%** | **12.3%** | **1.0%** | **56.9%** |
| 017 | 4.2% | 4.2% | 2.8% | 2.8% | 0.0% | 14.0% |
| 018 | 2.5% | 2.5% | 1.7% | 1.7% | 0.0% | 8.3% |
| 019 | 7.4% | 6.0% | 1.5% | 0.0% | 0.0% | 14.9% |
| Rest of Cherwell | 0.0% | 6.9% | 3.9% | 7.9% | 1.0% | 19.7% |
| **South Oxfordshire** | **0.0%** | **0.4%** | **0.6%** | **2.7%** | **0.2%** | **3.9%** |
| **Vale of White Horse** | **0.0%** | **0.7%** | **1.0%** | **4.9%** | **0.3%** | **6.9%** |
| **West Oxfordshire** | **0.8%** | **1.6%** | **1.6%** | **11.4%** | **0.8%** | **16.3%** |
| **Out of Oxfordshire** | **0.0%** | **0.0%** | **0.3%** | **5.7%** | **0.3%** | **6.4%** |
| **Total** | **15.1%** | **24.4%** | **16.3%** | **41.1%** | **3.1%** | **100.0%** |

| | Destination | Walk | Cycle | Public Transport | Car | Passenger |
|---|---|---|---|---|---|---|
| Internal | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Oxford | 9.6% | 0.1% | 2.1% | 2.9% | 4.1% | 0.5% |
| Cherwell | 56.9% | 14.1% | 19.5% | 9.9% | 12.3% | 1.0% |
| South Oxfordshire | 3.9% | 0.0% | 0.4% | 0.6% | 2.7% | 0.2% |
| Vale of White Horse | 6.9% | 0.0% | 0.7% | 1.0% | 4.9% | 0.3% |
| West Oxfordshire | 16.3% | 0.8% | 1.6% | 1.6% | 11.4% | 0.8% |
| Outside of | 6.4% | 0.0% | 0.0% | 0.3% | 5.7% | 0.3% |
| Total Off-site Trips | 100.0% | 15.1% | 24.4% | 16.3% | 41.1% | 3.1% |
| Total | 100.0% | 15.1% | 24.4% | 16.3% | 41.1% | 3.1% |

# Appendix J

## Forecasting Report

vectos microsim.

REPORT

# Forecasting Report

## Oxford PR Site Testing VISSIM

May 2023

vectos.co.uk

## Contents

# 1 Introduction

1.1 Vectos Microsim (VM) has been commissioned by a multi-consultancy group working on behalf of a number of Partial Review (PR) Sites that are allocated within the adopted Cherwell Local Plan (Part 1) Partial Review.

1.2 VM is providing VISSIM microsimulation modelling support to all sites with a view to assisting in developing a suitable mitigation strategy for all Sites to come forward within the Local Plan period, working together with the Local Authority to agree an approach for the delivery of any infrastructure requirements and how these may be phased and financed.

1.3 The Partial Review (PR) Sites and their representatives are as follows:

i) PR6a (Land east of Oxford Road) – i-Transport LLP

ii) PR6b (Land west of Oxford Road) – KMC Transport Planning

iii) PR7a (Land South East of Kidlington) – Brookbanks

iv) PR8 (Land East of the A44) within the ownership of Oxford University Development (OUD) – KMC Transport Planning

v) PR8 (Land East of the A44) within the ownership of Hallam Land – Glanville

vi) PR9 (Land West of Yarnton) – Vectos

1.4 There are two other 'PR' Sites within the study area; PR6c (a proposed new Golf Course at Frieze Farm) and PR7b (Land at Stratfield Farm). In the case of PR6c, this is not considered to be a significant generator of peak hour traffic. In addition, the existing North Oxford Golf Club sits on the plot of land proposed for PR6b, currently designated for a residential development, meaning that the net impact of not explicitly including PR6c is negligible as the trips associated to the Golf Course are already included within the Baseline demands. The consultant on behalf of PR7b is not currently engaged with this tranche of work, however assumptions have been made to account for the site to ensure a robust assessment and this will be discussed later in the document.

# 2 Background

2.1 VM has received a series of VISSIM modelling files and documentation to be used as a basis for microsimulation model testing, as per the below:

i) North Oxford VISSIM Base Model – Filename "BaseModel2018_v37"

ii) Local Model Validation Report[1]

iii) North Oxford VISSIM Future Year Model – Filename "NOC PP A44 Sens Test O1D"

iv) Forecasting Report[2]

[1] North Oxford VISSIM LMVR_Issue_v3, Atkins January 2019
[2] North Oxford Corridor Study Mar 2021_v0.14, SKANSKA/CAPITA March 2021

2.2 Both the VISSIM Base and Future Year Models include AM and PM scenarios covering the following time periods:

i) 06:30-10:30 (07:00-10:00 assessment period, with 30 minute warm up and cool down)

ii) 14:30-18:30 (15:00-18:00 assessment period, with 30 minute warm up and cool down)

2.3 VM has re-run the Base models (in VISSIM version 10.00-12, as per the received files) and found that results reported from these runs are identical to those presented within the LMVR. VM has also run the Future Year models (in VISSIM version 10.00-02) and compared them to the results of the 'Preferred Package' (PP) modelling presented within the Forecasting Report and found them to be very similar thereby giving assurances that the models used for the foundation of this testing are accurate.

## Re-Cap – Preferred Package

2.4 SKANKSA and CAPITA Real Estate and Infrastructure were appointed by Oxfordshire County Council (OCC) to carry out microsimulation modelling iteratively testing a series of proposed schemes for four distinct corridors:

i) Corridor 1A: Cassington to Loop Farm (Cassington Roundabout)

ii) Corridor 1B: Kidlington Roundabout

iii) Corridor 1C: Kidlington to Cutteslowe (Oxford Parkway Junction)

iv) Corridor 1D: Loop Farm and Peartree Roundabouts

2.5 These were initially tested within the 2018 VISSIM Base model that underpins this testing, as well as scheme optioneering through local junction modelling including LINSIG and TRANSYT.

2.6 OCC requested that the schemes also be tested through a forecast 2023 model. Details of growth factors used and committed housing and employment development sites included, public transport amendments, and highway schemes and network changes applied to the 2018 Base to forecast the model to 2023, are found within the Forecasting Report[3].

2.7 The results of the 2023 testing put forward the preferred options as follows:

i) Corridor 1A: Staggered pedestrian crossing on the northern side of Cassington Roundabout[4]

ii) Corridor 1B: Option E was chosen, which includes signalisation and enhanced bus facilities at Kidlington Roundabout[5]

iii) Corridor 1C: No scheme proposed, as testing in the Base year scenario showed very little benefit from either of the two schemes selected for testing; and

iv) Corridor 1D: Enhanced pedestrian facilities on northern and eastern arms, and a southbound bus lane[6]

[3] North Oxford Corridor Study Mar 2021_v0.14, SKANSKA/CAPITA March 2021, Chapter 6
[4] North Oxford Corridor Study Mar 2021_v0.14, SKANSKA/CAPITA March 2021, Chapter 7
[5] North Oxford Corridor Study Mar 2021_v0.14, SKANSKA/CAPITA March 2021, Chapter 8
[6] North Oxford Corridor Study Mar 2021_v0.14, SKANSKA/CAPITA March 2021, Chapter 9

2.8 Subsequent review of the approved scheme drawings around Loop Farm show that the pedestrian facilities proposed are no longer part of the scheme delivery. As such these have been removed from the modelling.

2.9 The overarching conclusion of this Preferred Package (PP) model was that it provided a series of measures aimed primarily at sustainable transport users that were not significantly to the detriment of private vehicle users.

# 3 Model Updates || Committed Developments

3.1 VM has undertaken a series of updates to the received 2023 PP model with the task of developing a Future Year Reference Case for the purposes of this PR testing, which moves the forecast year to the full occupation of the PR sites.

3.2 The Local Plan Part 1 Partial Review runs to 2031. The PR sites are expected to be constructed and completed during this period up to 2031, albeit PR8 is expected to be completed shortly after by 2033. Therefore, the future horizon period will establish local highway network conditions, taking into account any appropriate background traffic growth, consented development traffic and PR site traffic upon full completion.

3.3 As the 2023 PP model includes partial build out of some of these sites, as well as partial assumptions for the PR sites, the first step was to set Baseline demands back to the 2018 position. This was carried out simply by replacing the matrices within the 2023 model with those contained within the 2018 Base. The re-forecasting process then included a ‘layering-up’ of specific committed development sites between the 2018 Base year and the 2031 forecast year. The following list provides the committed development sites requested by OCC to be included within the modelling:

Committed Development Sites:

i) Eynsham Garden Village

ii) West Eynsham Strategic Development Area (SDA)

iii) West Thornbury Road Eynsham

iv) Eynsham Nursery and Plant Centre

v) Land East of Woodstock (Policy EW1c)

vi) Barton Park

vii) Wolvercote Papermill Site

viii) St. Frideswide Farm (SP4)

ix) Hill Rise, Woodstock (Policy EW4)

x) Banbury Road, Woodstock (Policy EW5)

xi) Oxford North (CS6)

xii) Park View

xiii) Begbroke Science Park

xiv) Oxford Technology Park

3.4 VM will discuss each committed site in turn, detailing its location, site access arrangements, mitigation, and demand assumptions for including the site within the forecasting process.

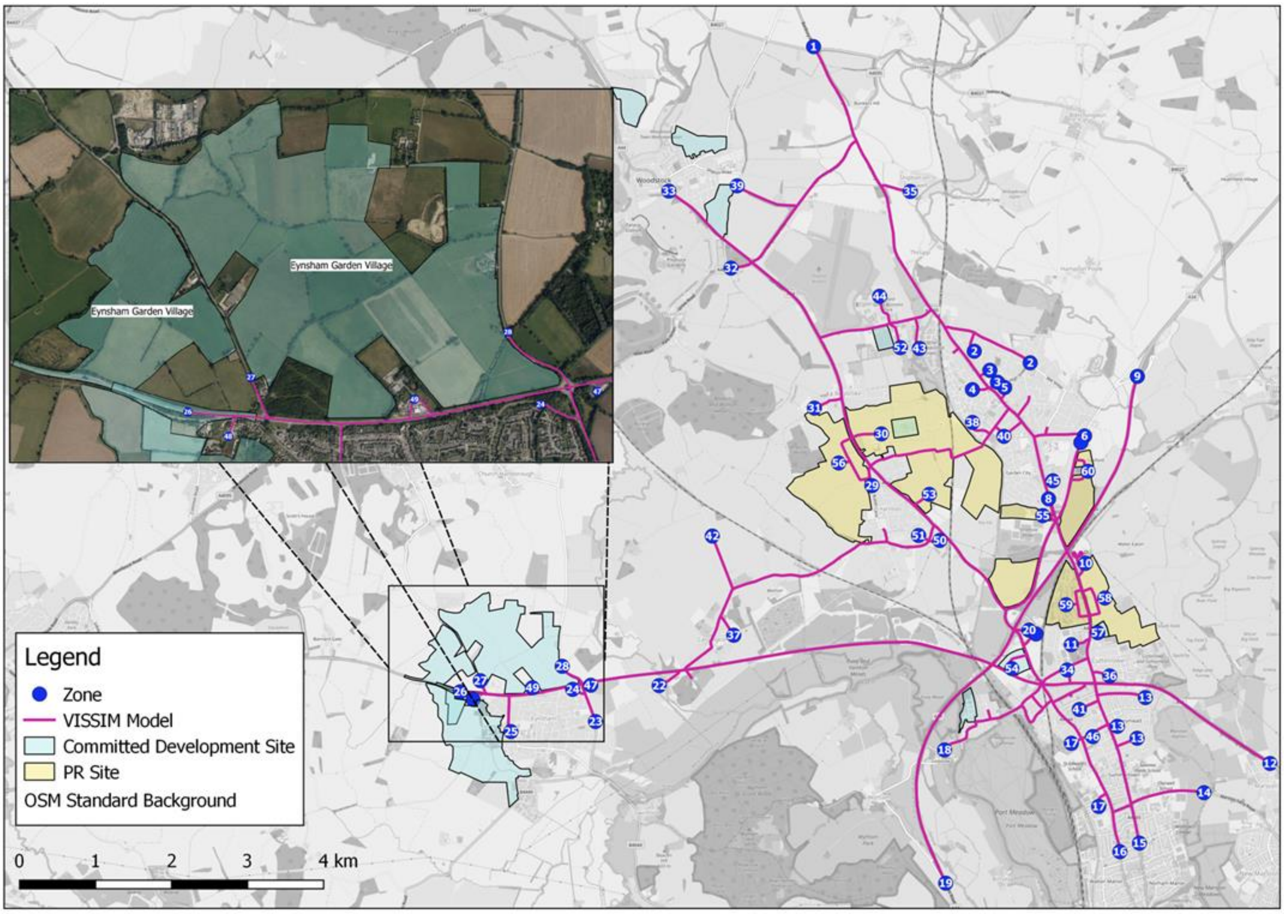
## Eynsham Garden Village (20/01734/OUT)

3.5 Eynsham Garden Village (Land North of A40; A40 Section from Barnard Gate to Eynsham Roundabout, Eynsham, Oxfordshire) is identified in the Local Plan as an area for strategic growth. The site is proposed to be a mixed-use development providing both residential and employment growth, alongside a local centre, education, leisure and community facilities.

3.6 The highway proposals for the Garden Village involve new links between Lower Road and Cuckoo Lane, a new junction onto the A40, and then further connections southwards circumventing Witney Road on the west side before joining the B4449. As this Site is located to the far west of the VISSIM model extent, a simplified approach was taken whereby development trips are loaded onto existing Zone 26, which represents A40 western zone acting as the generator/attractor of all A40 traffic.

3.7 A map showing the location of Eynsham Garden Village within the context of the VISSIM modelling is provided below:

**Figure 1: Eynsham Garden Village Site Location**



3.8 In 2020 Wood, on behalf of OCC, carried out VISSIM modelling to test the highway impact of the Garden Village and West Eynsham SDA development proposals. OCC has identified that trip assumptions for that study should be replicated for this one, therefore trip generation has been taken from Table 1 of the Wood report[7].

3.9 The Wood Report only reports peak hour trip generation (08:00-09:00 and 17:00-18:00). Therefore a TRICS Residential Total Person temporal profile is calculated to estimate the vehicle trips in the shoulder peaks. The TRICS rates used for this, and for other committed development sites where applicable, are as follows:

**Table 1: TRICS Residential Temporal Profile**

| | Total Person Trip Rates | | | Proportions | | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| **AM Peak Period** | | | | | | |
| 07:00-08:00 | 0.109 | 0.494 | 0.603 | 54% | 66% | 63% |
| 08:00-09:00 | 0.202 | 0.749 | 0.951 | 100% | 100% | 100% |
| 09:00-10:00 | 0.198 | 0.263 | 0.461 | 98% | 35% | 48% |
| **PM Peak Period** | | | | | | |
| 15:00-16:00 | 0.518 | 0.276 | 0.794 | 89% | 101% | 93% |
| 16:00-17:00 | 0.520 | 0.269 | 0.789 | 89% | 98% | 92% |
| 17:00-18:00 | 0.584 | 0.274 | 0.858 | 100% | 100% | 100% |

3.10 The Report suggests that distribution was informed by SATURN OSM outputs. A VISUM model was then developed to assign the forecast trips through the VISSIM model extent, and finally outputs were converted back to static routes and run through VISSIM via static assignment. The output distribution is not provided within the report, therefore provided within the TA[8] are illustrations of the direction from/to which development trips are forecast to be travelling. These suggest that 28% of AM peak hour demand, and 35% of PM peak hour demand, travels to/from A40 east. Trips travelling north are expected to travel via Lower Road towards A4095 Bladon and onto the A44. Trips travelling west are expected to join or egress the A40 via the western-most proposed Site access and therefore not interact with the VISSIM model extent. Trips travelling south are expected to travel via B4044 towards Botley and onto the A420 or A34. As a result only eastern trips are considered.

3.11 These total trip generations are multiplied by the percentages of trips travelling to/from the east and assigned to existing Zone 26.

3.12 Distribution present within the existing zone 26 in the VISSIM model is interrogated to provide the wider distribution assumptions across the whole VISSIM network. Some zones are excluded as they a) refer to destinations/origins that would be travelled to/from by routes other than the A40, or b) they refer to sites that could be considered ‘internal’ as they are within the immediate vicinity of the proposed Site. This ensures a robust assessment of trips travelling along the A40 towards (or away from) the primary study area by discounting any short-distance trips within the Eynsham area that may have resulted by including those proximal zones within the distribution calculations.

[7] Garden Village AAP and West Enysham SPD Evidence Base, 2031 Forecast Year Modelling, July 2020.
[8] 20_01734_OUT-TRANSPORT_ASSESSMENT-856882, Figures 6-26 and 6-27.

3.13 Tables showing the derived in/out trip generation totals within the VISSIM model extent related to the Eynsham Garden Village committed site for each hour during the AM and PM peaks are given below.

**Table 2: AM In/Out Totals for Eynsham Garden Village**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Eynsham Garden Village | 163 | 144 | 303 | 218 | 297 | 77 |

**Table 3: PM In/Out Totals for Eynsham Garden Village**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Eynsham Garden Village | 221 | 351 | 222 | 342 | 249 | 349 |

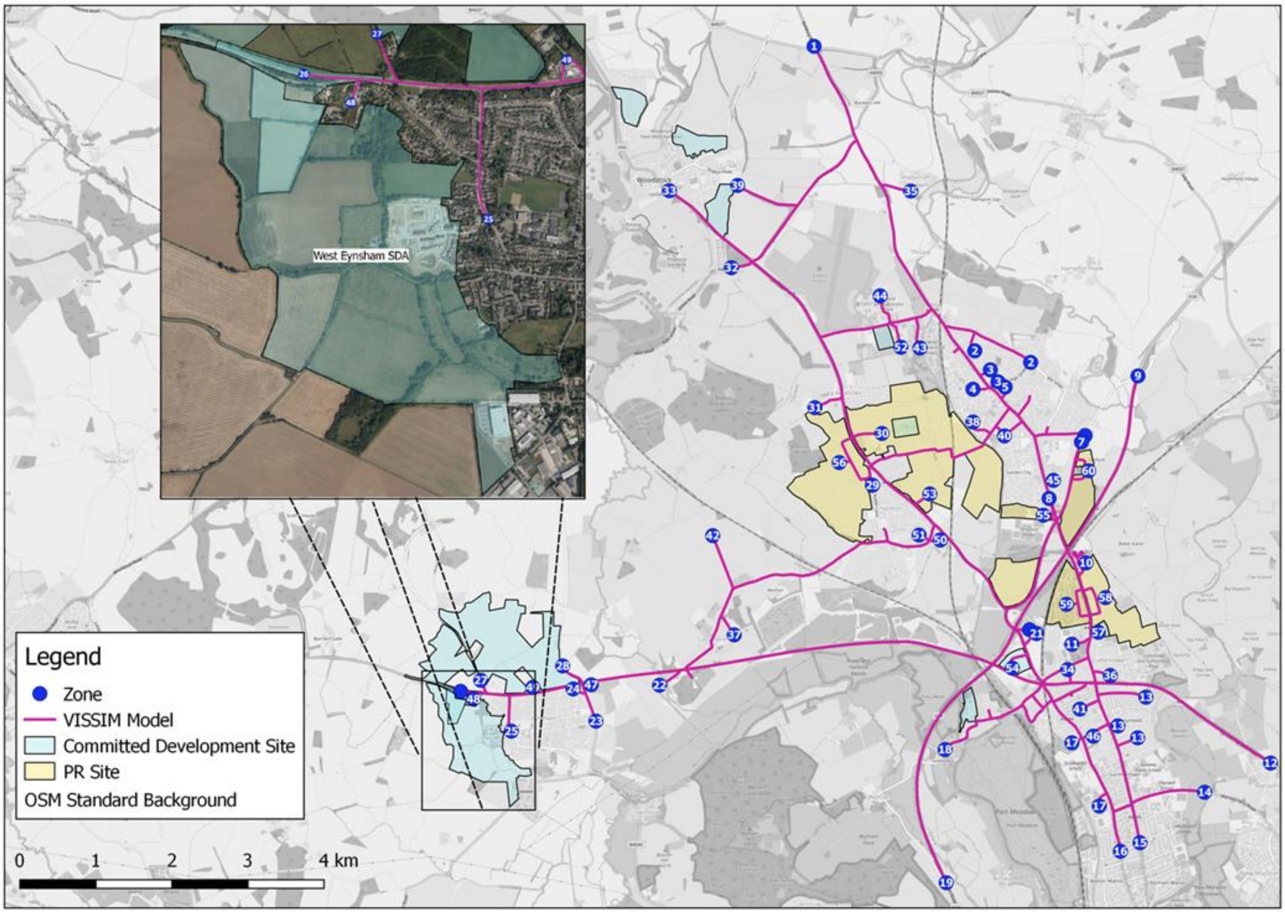
## West Eynsham Strategic Development Area (20/03379/OUT)

3.14 The West Eynsham Strategic Development Area (SDA) is allocated as a site to accommodate a new sustainable and integrated community of approximately 1000 dwellings with supporting services and infrastructure. The total site covers approximately 88 hectares and lies immediately to the west of Eynsham.

3.15 The site is to be accessed via the fourth (southern) arm of a new A40 roundabout to be introduced as part of the Eynsham Park and Ride proposals.

3.16 A Figure showing the location of the West Eynsham Strategic Development Area within the context of the wider VISSIM model is provided below:

**Figure 2: West Eynsham Strategic Area (SDA) Site Location**




3.17 As per the methodology for calculating the Garden Village trip generation, Table 1 of the Wood report is used.

3.18 This site sits adjacent to Eynsham Garden Village, just on the southern side of the A40 rather than the northern side. As a result a similar approach has been taken to distribution across the wider VISSIM model. The same proportions of local distribution (i.e. north/east/south/west movements) has been applied to the total trip generation, and then distributed further based on the baseline distribution for zone 26 in the VISSIM model (which represents A40 West).

**Table 4: AM In/Out Totals for West Eynsham Strategic Development Area (SDA)**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| West Eynsham (SDA) | 20 | 51 | 37 | 77 | 36 | 27 |

**Table 5: PM In/Out Totals for West Eynsham Strategic Development Area (SDA)**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| West Eynsham (SDA) | 88 | 51 | 88 | 49 | 99 | 50 |

## West Thornbury Road Eynsham

3.19 West Thornbury Road Eynsham is a committed development within the boundaries of the West Eynsham SDA and therefore, in/out trip generation has been considered within the calculations for the full West Eynsham Strategic Development Area (SDA) allocation as described above.

## Eynsham Nursery and Plant Centre (15/00761/FUL)

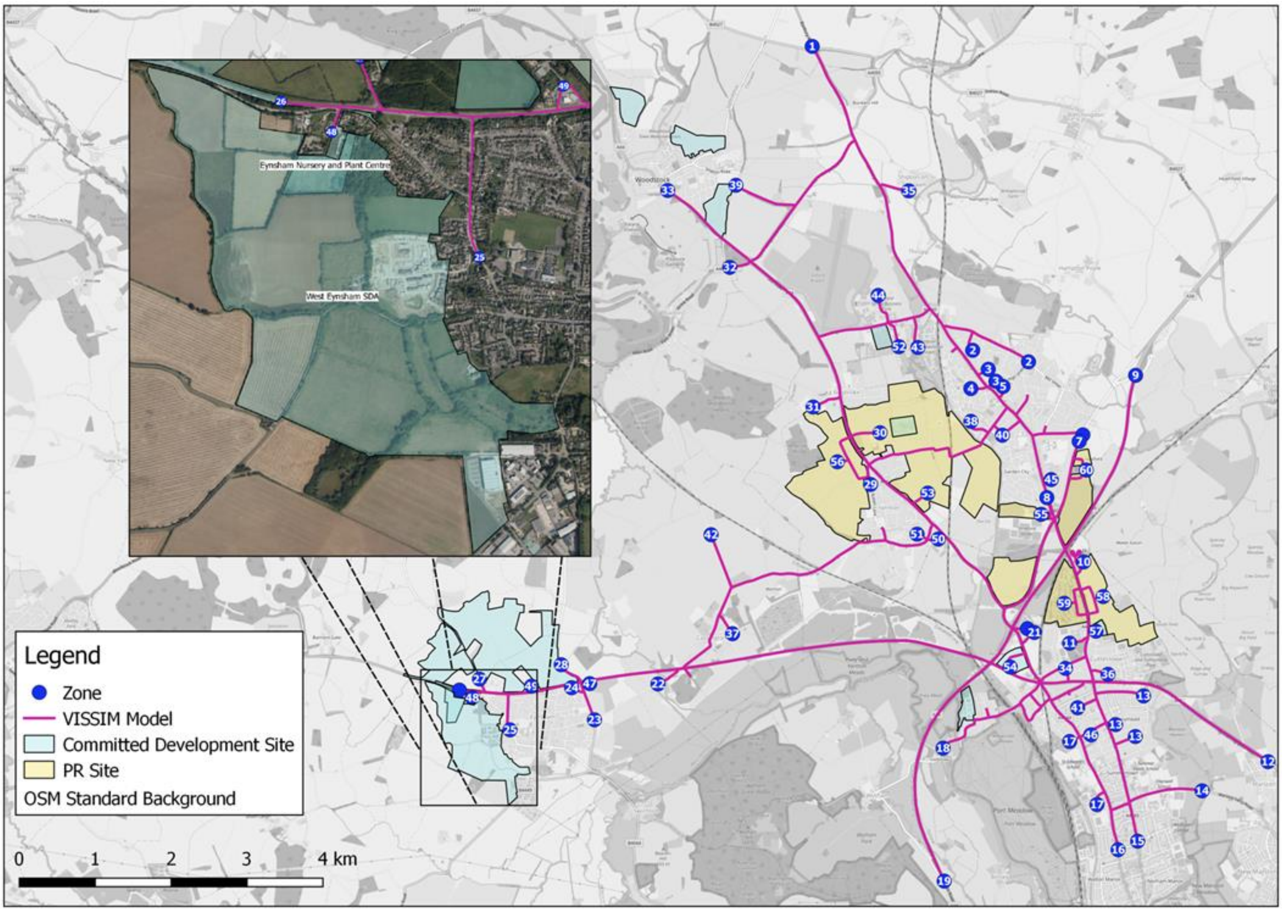
3.20 Eynsham Nursery and Plant Centre is a committed development site for 77 dwellings located west of Eynsham, sitting within the West Eynsham SDA. The site had not been delivered at the time of the VISSIM Base model development but has been since and is therefore included in this forecasting exercise.

3.21 An account for this site had been made during the forecasting process undertaken by SKANSKA/CAPITA as part of their work for the North Oxford Corridor 2023 PP modelling. Trips were assigned to the same zone that previously served the Nursery and Plant Centre. Having now been built, the site is actually accessed by an extension to Old Witney Road and a connection to the old access driveway that served the Nursery and Plant Centre, which has been stopped up at the request of OCC to avoid a direct link onto the A40.

3.22 The starting point for this exercise was to set the baseline demands to the 2018 position before re-forecasting, and so this exercise seeks to re-account for the trips associated with this development. The minor network updates required to formally and fully account for the delivery of this site have not been applied to the model as they would have no material impact on the outcomes of the testing.

3.23 Map showing the location of the Eynsham Nursery and Plant Centre along with the wider model network is provided below.

**Figure 3: Eynsham Nursery and Plant Centre Site Location**




3.24 Similarly to the Eynsham Garden Village and West Eynsham SDA sites, the same distribution assumptions are applied and Zone 26 (A40 West) is considered to be the development zone. This simplifies the process of including all committed development sites, whilst taking a robust approach to corridor flows along the A40 by ensuring vehicles are easily able to access the main route into Oxford.

3.25 Tables showing the in/out trip generation totals of the Eynsham Nursery and Plant Centre for each hour during the AM and PM peaks are provided below.

**Table 6: AM In/Out Totals for Eynsham Nursery and Plant Centre**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Eynsham Nursery and Plant Centre | 2 | 6 | 3 | 9 | 3 | 3 |

**Table 7: PM In/Out Totals for Eynsham Nursery and Plant Centre**

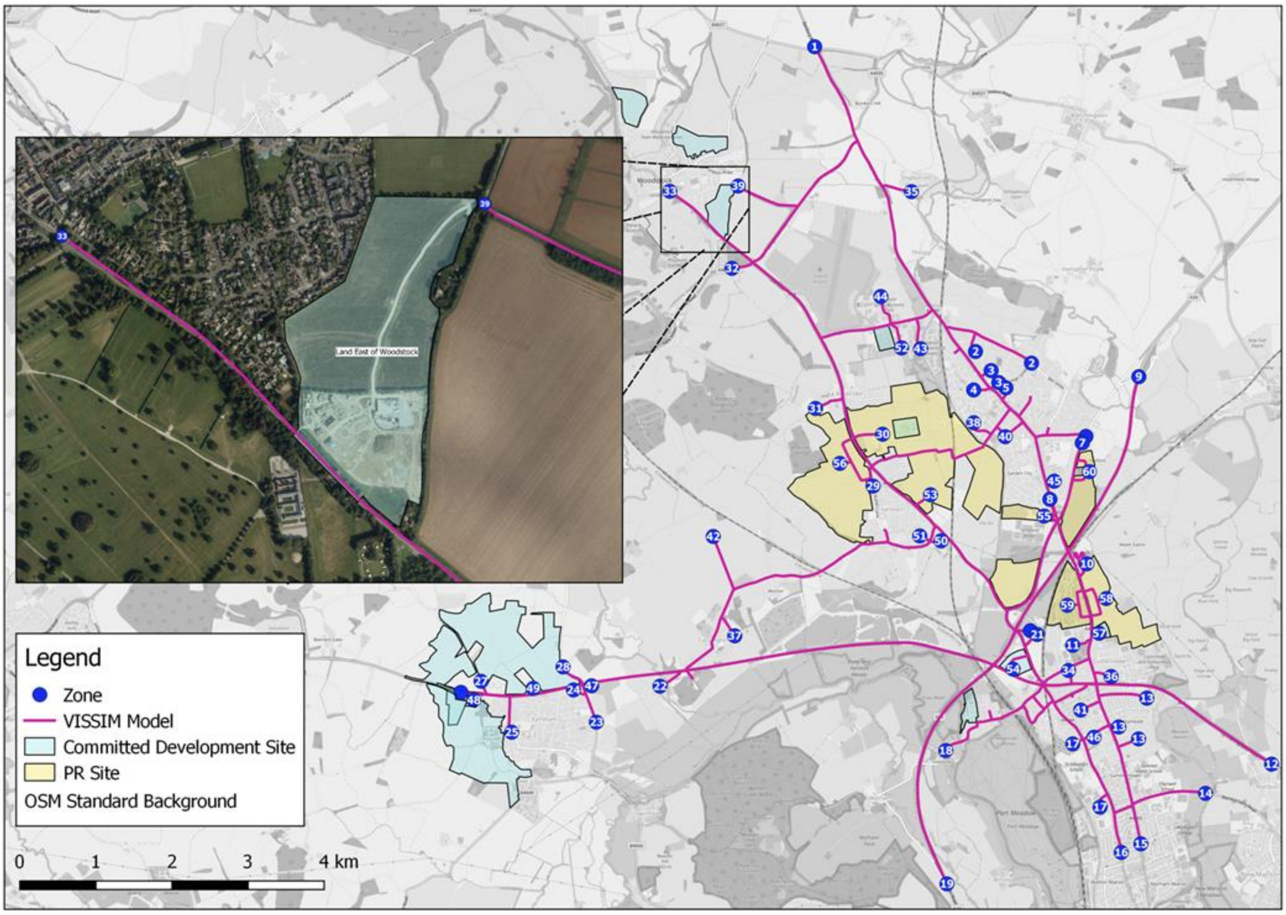
| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Eynsham Nursery and Plant Centre | 9 | 6 | 9 | 6 | 10 | 6 |

## Land East of Woodstock (Policy EW1c) (16/01364/OUT)

3.26 Land East of Woodstock is a committed development site located north of the A44 Oxford Road. The site includes proposals for up to 300 residential dwellings and up to 1,100sqm of A1/A2/B1/D1 floorspace. The Site is served via two accesses; one via A44 Oxford Road and the other via Shipton Road. These are assigned to zones 33 and 39, and these are assumed to be the development zones.

3.27 A Figure showing the location of the Land East of Woodstock within the context of the wider VISSIM model is provided below.

**Figure 4: Land East of Woodstock Site Location**




3.28 The TA[9] outlined trip generation for the peak hours split between residential and office-based employment trip purposes. The TA also provides percentages for trip distribution across the wider Oxford area. These assumptions are used to assign one or more VISSIM zones to the links/locations provided within the trip assignment calculations and VISSIM matrices are then derived therefrom. Trip generation is available within the TA for all model peak hours via the residential and office trip rates present within Appendix C of the TA and Appendix B of the TA Addendum[10], respectively.

[9] 16_01364_OUT-ENVIRONMENTAL_STATEMENT_TECH_APPENDIX_E1-420981
[10] 16_01364_OUT-15291-03B_ADDENDUM_TRANSPORT_ASSESSMENT_13_-449339

3.29 Tables showing the in/out trip generation totals for the Land East of Woodstock site for each hour during the AM and PM peak periods are given below.

**Table 8: AM In/Out Totals for Land East of Woodstock**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Land East of Woodstock | 26 | 63 | 46 | 84 | 44 | 44 |

**Table 9: PM In/Out Totals for Land East of Woodstock**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Land East of Woodstock | 54 | 44 | 66 | 55 | 80 | 65 |

## Barton Park (13/01383/OUT)

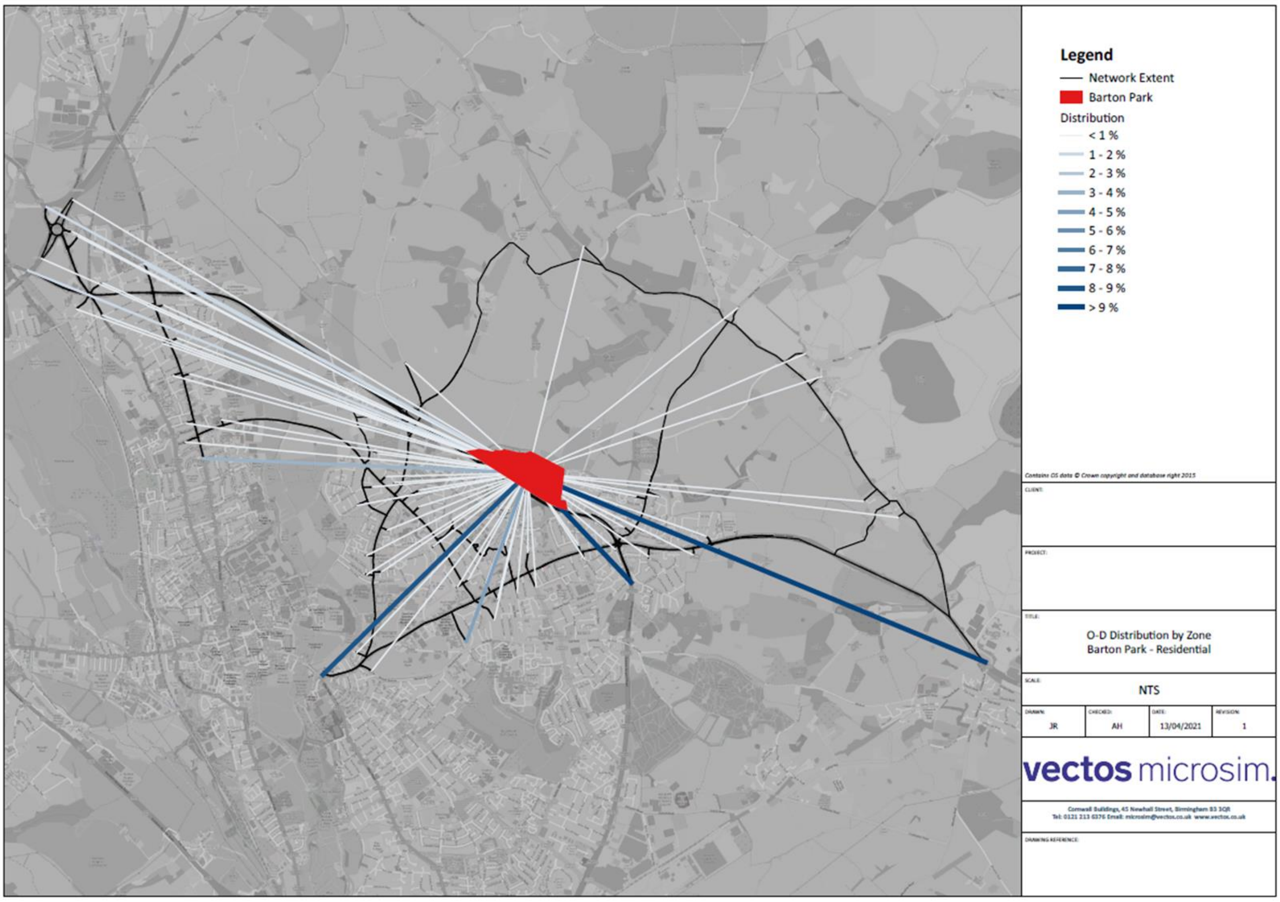
3.30 Barton Park is a committed development site lying just beyond the extent of the VISSIM network, located northwest of Headington Roundabout and east of the A40 Northern Bypass Rd. The outline application is for a maximum of 885 residential units, 2500sqm of employment, Care Home, School and community facilities.

3.31 Trip generation data for the peak hours only were available from the Transport Assessment[11]. Trip generation for the shoulder hours was calculated via the TRICS Residential Total Person temporal profile rates as provided in Table 1.

3.32 In regards to distribution, VM are currently engaged on a separate project within Oxfordshire that required the calculation of Barton Park distribution based on a combination of 2011 Census Travel to Work data and Google maps routing data to derive the most likely route. This resulted in a distribution plot as per the image overleaf:

[11] 13_01383_OUT-EIA_TRANSPORT_ASSESSMENT_PART_1_OF_2-1373941, Table 8.8

**Figure 5: Barton Park Trip Distribution**

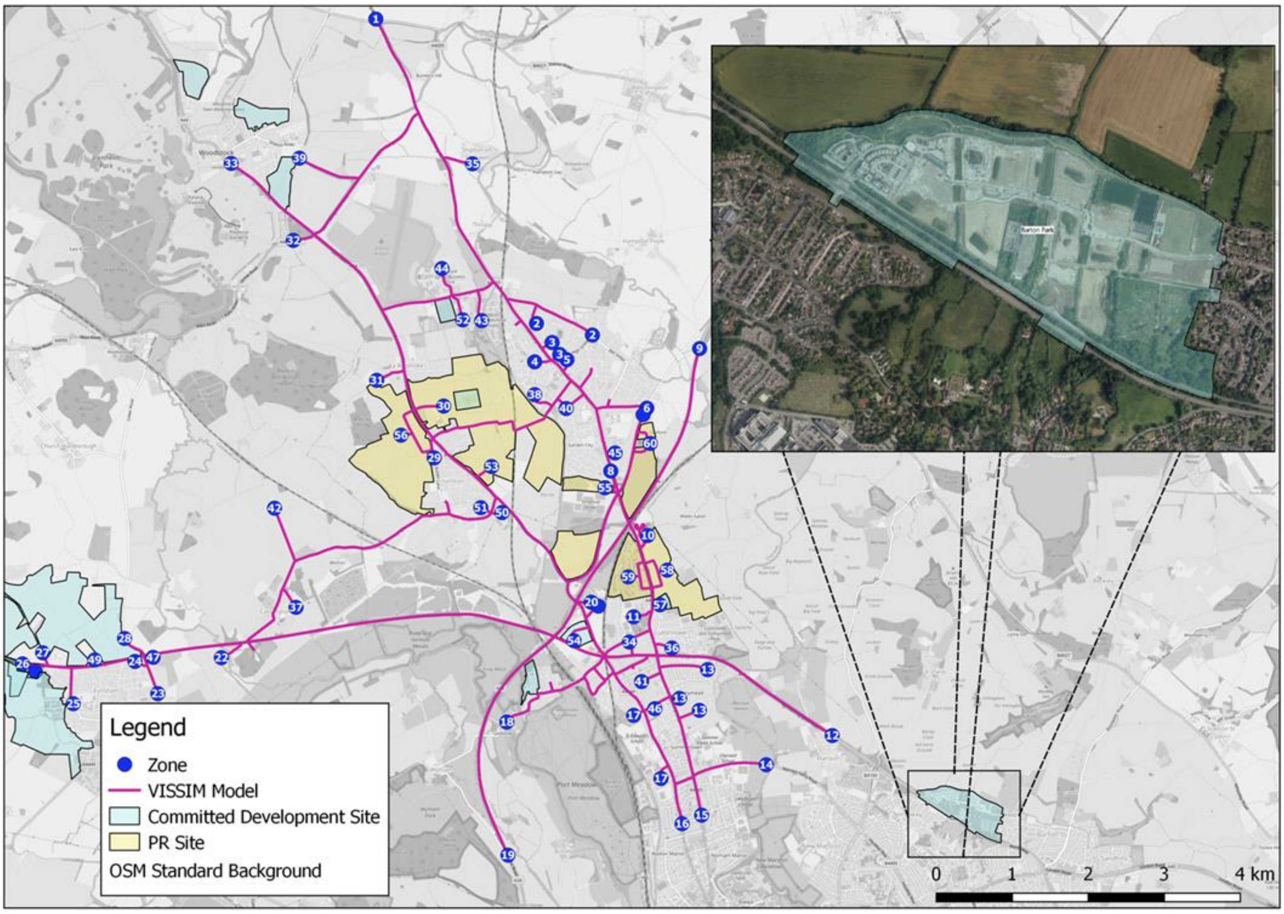



3.33 As the VISSIM network for this testing includes only part of this network, only trips travelling to/from west of Marston Interchange, and to/from west of the B4495 bridge over the River Cherwell, are considered which equates to a total of 10.48% of all trips interacting with the model network. As shown in the distribution plot, many of the site's trips are forecast to travel to/from Central Oxford, A40 Eastern By-Pass Road or A40 London Road towards Wheatley.

3.34 Depending on which origin/destination trips are travelling from/to, the development zone for Barton Park is assumed to be either 12 or 14, which relates to A40 East and B4495 Marston Ferry Way respectively. Trips travelling between Barton Park and A4165 or A4144 are assumed to travel via B4495 and therefore assume zone 14 as their entry/exit point to the VISSIM model, whereas all other trips assumed zone 12.

3.35 A Figure showing the location of Barton Park within the context of the wider VISSIM model is provided below.

**Figure 6: Barton Park Site Location**




3.36 Tables showing the in/out trip generation totals of the Barton Park for each hour during the AM and PM peaks are given below.

**Table 10: AM In/Out Totals for Barton Park**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Barton Park | 9 | 19 | 17 | 29 | 17 | 10 |

**Table 11: PM In/Out Totals for Barton Park**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Barton Park | 38 | 34 | 39 | 32 | 44 | 33 |

## Wolvercote Papermill (13/01861/OUT)

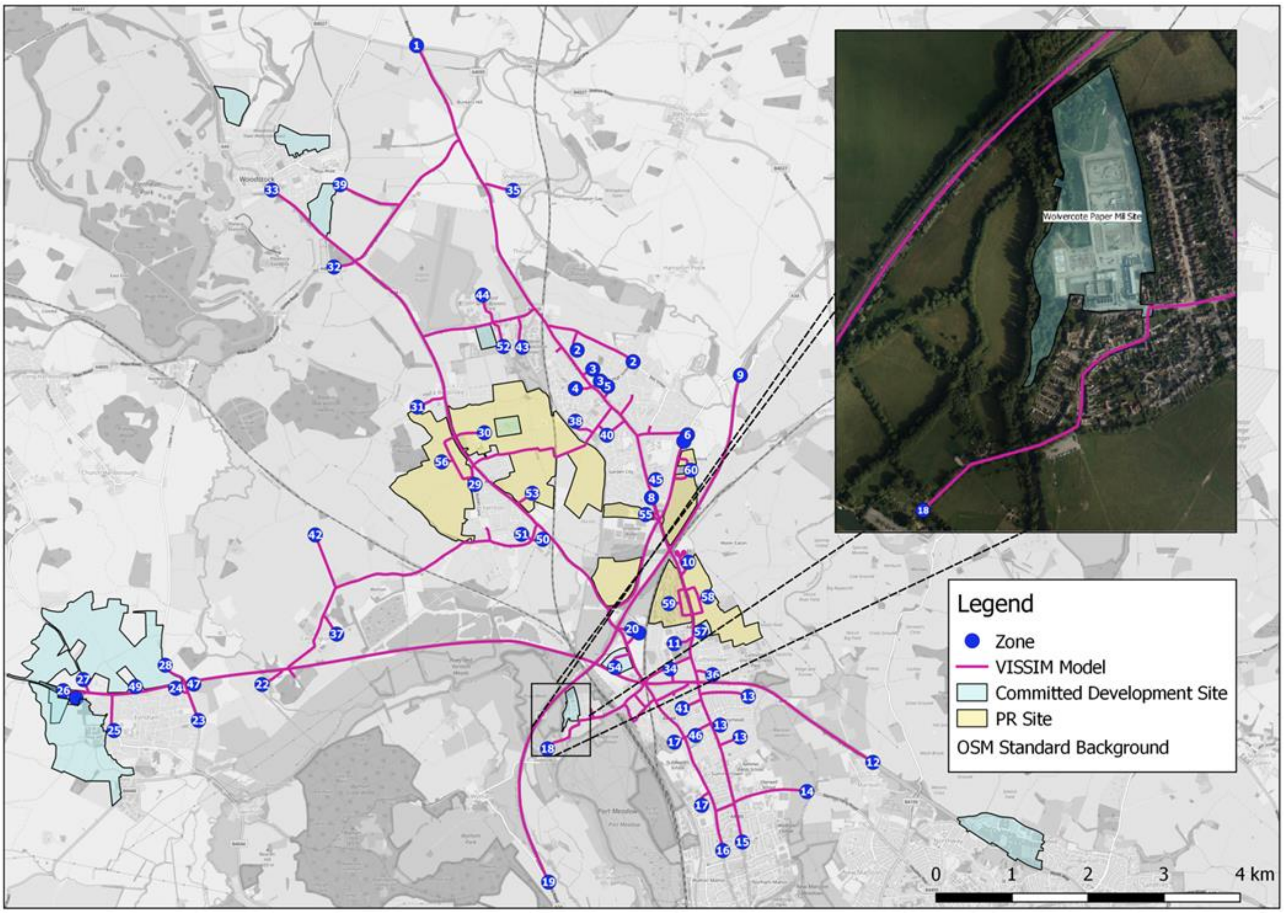
3.37 Wolvercote Papermill is a committed development site located north of Oxford and southwest of Wolvercote Roundabout. The site proposes up to 190 residential units, employment space, community facilities, public open space and ancillary services.

3.38 The VISSIM development zone is assumed to be Zone 18, which represents Godstow Road which will serve the Site. The TA contains the forecast trip generation for the Site[12] and these vehicles have been assigned to this zone. The trip generation for the purposes of the VISSIM model have been adjusted to account only for those trips that will interact with the VISSIM network, i.e. any trips approaching or exiting the site via Godstow Road west towards Wytham have been excluded.

3.39 Distribution across the VISSIM model area is based on the existing distribution present within Zone 18 of the 2018 Base model.

3.40 The Figure below showing the location of the Barton Park within the context of the wider VISSIM model is provided below.

**Figure 7: Wolvercote Paper Mill Site Location**




[12] 13_01861_OUT-TRANSPORT_ASSESSMENT-1386134, Table 7.2

3.41 Tables showing the in/out trip generation totals of the Wolvercote Papermill Site for each hour during the AM and PM peaks are given below.

**Table 12: AM In/Out Totals for Wolvercote Papermill Site**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Wolvercote Papermill Site | 5 | 47 | 8 | 67 | 8 | 34 |

**Table 13: PM In/Out Totals for Wolvercote Papermill Site**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Wolvercote Papermill Site | 35 | 17 | 36 | 17 | 45 | 20 |

## St. Frideswide Farm (SP24) (21/01449/FUL)

3.42 St. Frideswide Farm is a committed development site proposing 134 dwellings and community facilities. The site is located along the northern edge of Oxford City and immediately north of Cutteslowe Roundabout. It is served via a priority T-junction with Oxford Road.

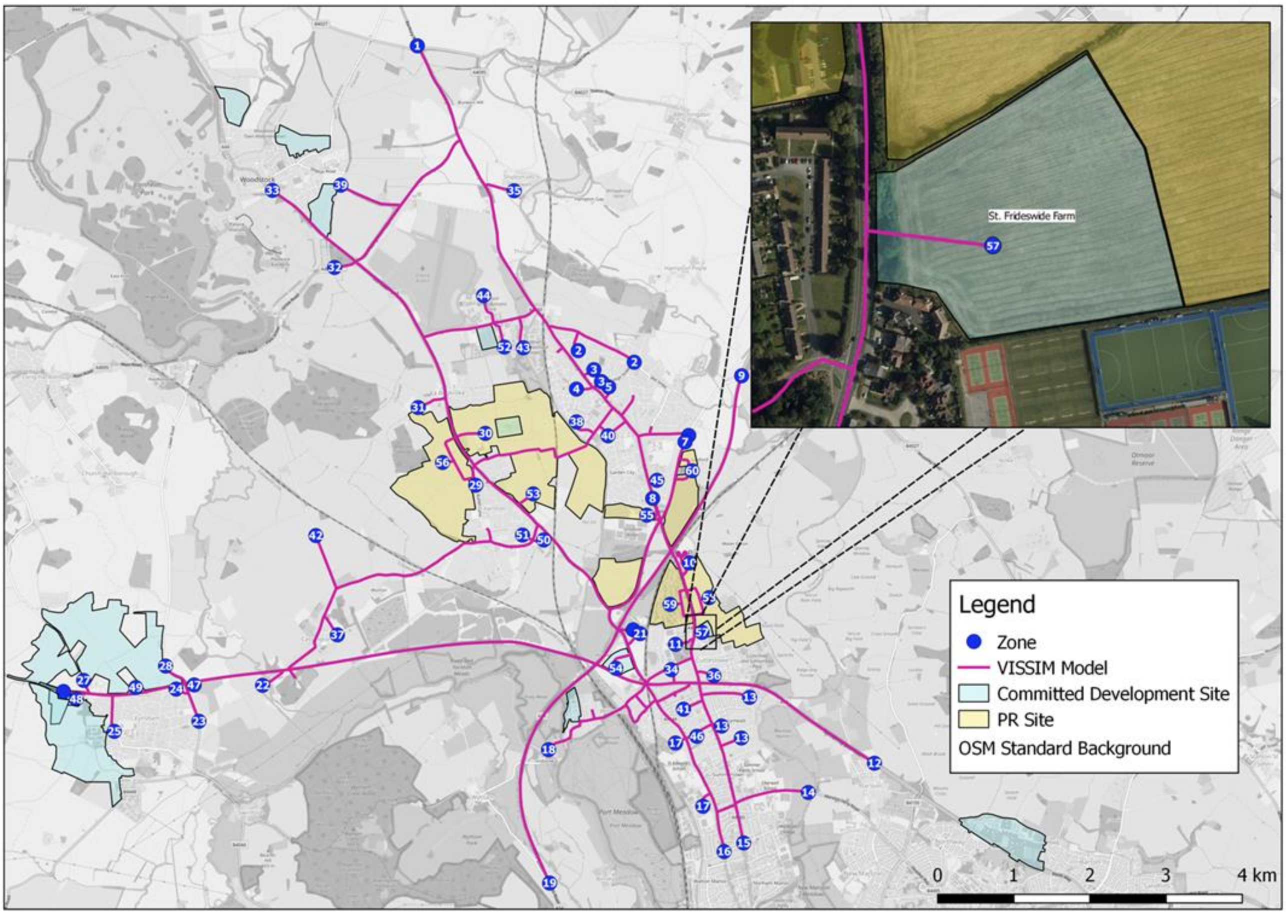
3.43 The site lies within the model extent but with no existing zone to assign the trips to. Therefore, a new zone (zone 57) has been assigned to this site.

3.44 Trip generation for the peak hours is taken directly from the TA[13]. Trip generation for the shoulder hours is calculated via the TRICS Residential Total Person temporal profile, as provided in Table 1. Distribution is informed by the existing distribution to/from Zone 36, which represents a residential zone immediately south of this proposed location (i.e. Harefields).

[13] 21_01449_FUL-TRANSPORT_ASSESSMENT__PART_1_-2552872, Table 6.5

3.45 The Figure below presents the location of St. Frideswide Farm in the context of the wider model network.

**Figure 8: St. Frideswide Farm Site Location**



3.46 The Figure below shows the proposed site access arrangement for St. Frideswide Farm.

**Figure 9: St. Frideswide Farm Site Access Arrangements**


3.47 Tables showing the in/out trip generation totals for St. Frideswide Farm Site for each hour during the AM and PM peaks are provided below.

**Table 14: AM In/Out Totals for St. Frideswide Farm**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| St. Frideswide Farm | 8 | 33 | 14 | 51 | 14 | 18 |

**Table 15: PM In/Out Totals for St. Frideswide Farm**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| St. Frideswide Farm | 34 | 16 | 34 | 16 | 38 | 16 |

## Hill Rise, Woodstock (Policy EW4) (21/00189/FUL)

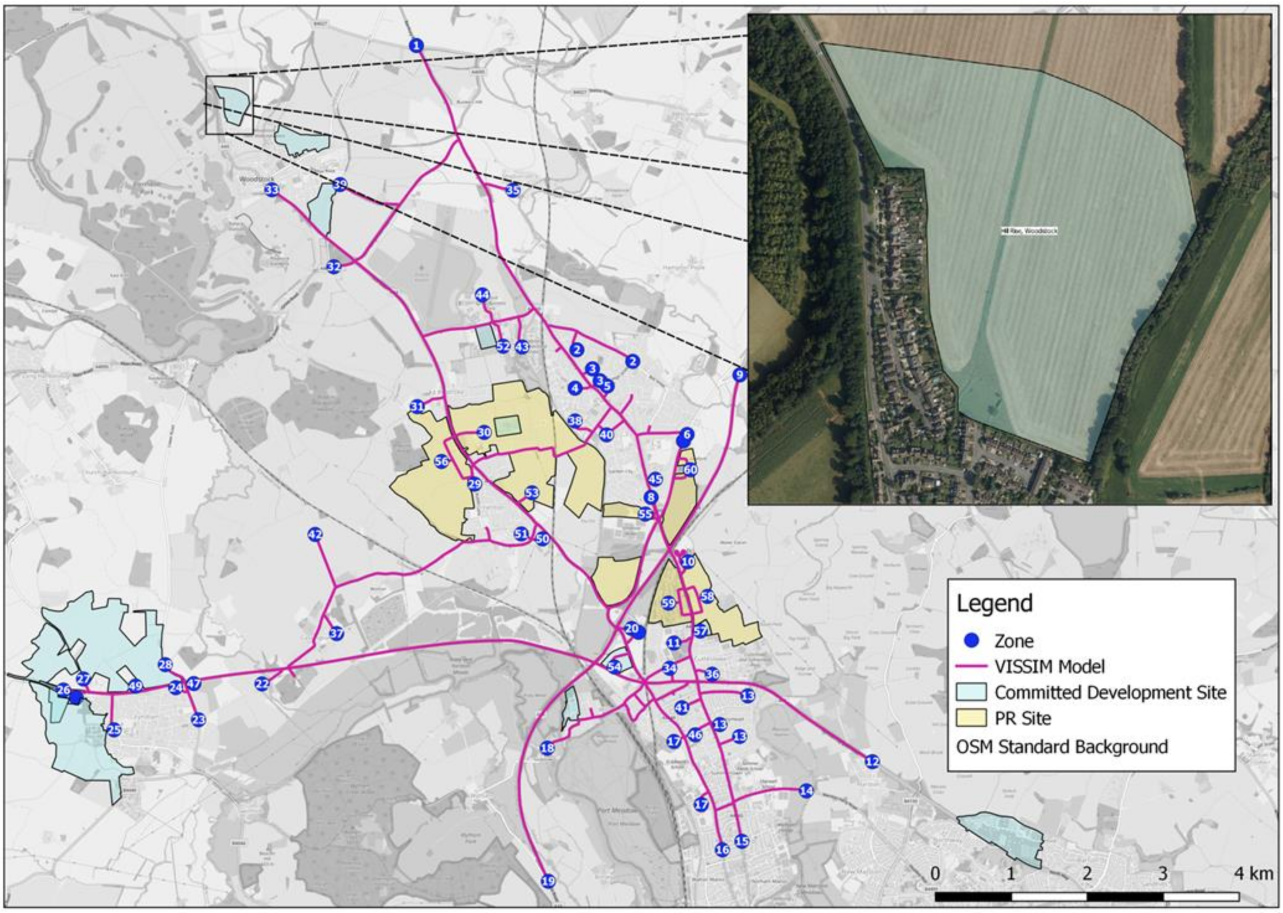
3.48 Hill Rise is a committed development site located North of Hill Rise in Woodstock. The hybrid planning application consists of 74 dwellings, 60sqm of community space and associated facilities and infrastructure.

3.49 Trip generation for the peak hours are taken directly from the TA[14]. Shoulder hours are calculated via the TRICS Residential Total Person temporal profile, as provided in Table 1.

3.50 The Site lies just north of the VISSIM Model network, served by A44 Manor Road in Woodstock. In the VISSIM model this location is represented by Zone 33 and development trips are assigned to this zone.

3.51 The Figure below shows the location of Hill Rise Woodstock in the context of the VISSIM model.

**Figure 10: Hill Rise Woodstock Site Location**




[14] 21_00189_FUL-TRANSPORT_ASSESSMENT-921976, Table 9

3.52 Tables showing the in/out trip generation totals for Hill Rise Woodstock for each hour during the AM and PM peaks are provided below.

**Table 16: AM In/Out Totals for Hill Rise, Woodstock**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Hill Rise, Woodstock | 10 | 27 | 18 | 41 | 18 | 14 |

**Table 17: PM In/Out Totals for Hill Rise, Woodstock**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Hill Rise, Woodstock | 34 | 23 | 34 | 23 | 38 | 23 |

## Banbury Road, Woodstock (Policy EW5) (21/00217/OUT)

3.53 Banbury Road is a committed development site located north of Banbury Road in Woodstock. The site proposes up to 250 dwellings and associated community space.

3.54 Similarly to Land East of Woodstock, the Site is served via two accesses; one via A44 Oxford Road and the other via Shipton Road and therefore two existing zones (zone 33 and 39) are assumed to be the development zones.

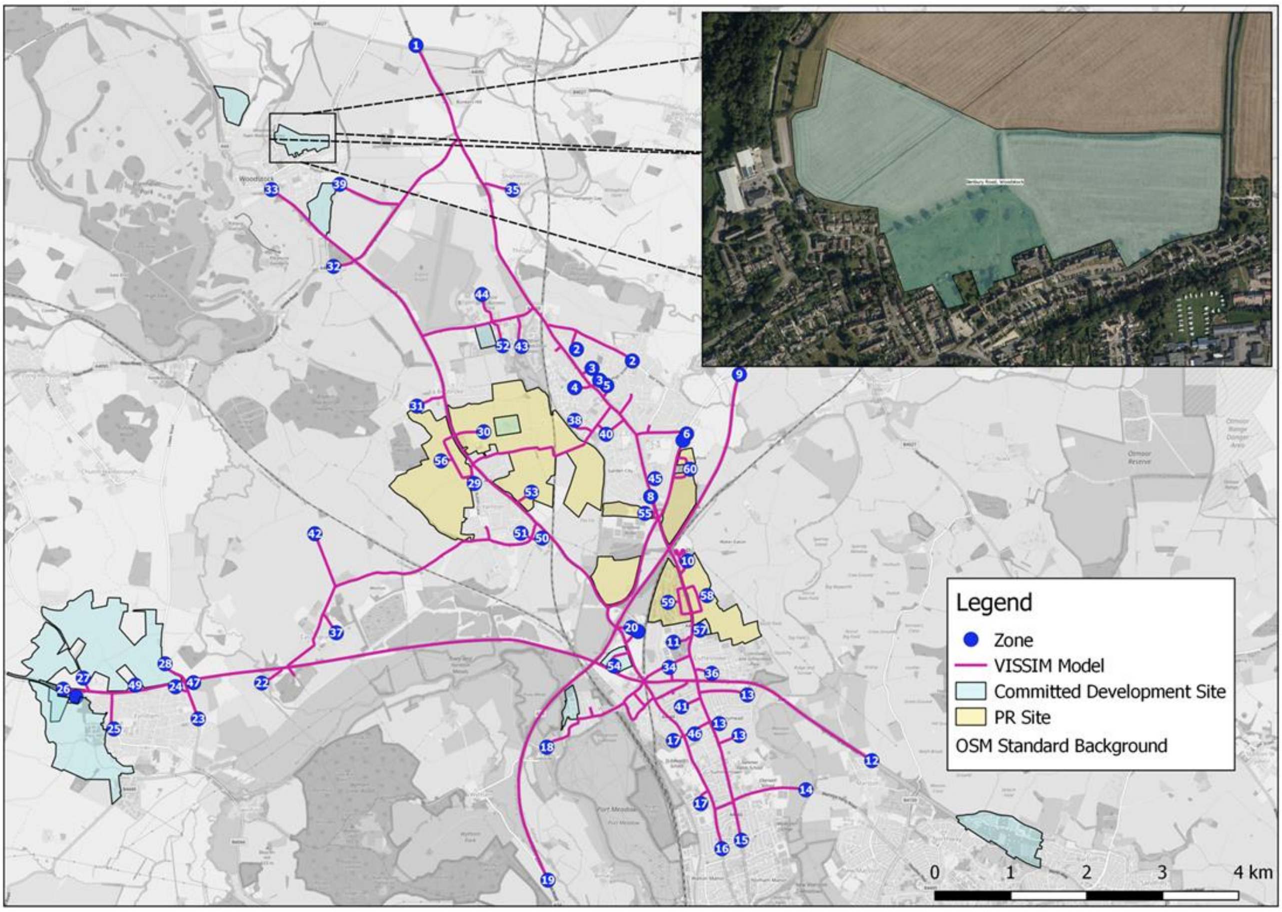
3.55 Trip generation for the peak hours is taken directly from the TA[15]. Trip generation for the shoulder hours is calculated from the TRICS Residential Total Person temporal profile, as provided in Table 1.

3.56 Local distribution is also taken from the TA[16]. Wider distribution beyond the local junctions is also defined within the TA[17], where percentages are assigned to links across Oxford and these locations are assigned a corresponding VISSIM zone.

[15] 21_00217_OUT-TRANSPORT_ASSESSMENT-921845, Table 9
[16] 21_00217_OUT-TRANSPORT_ASSESSMENT-921845, Appendix F
[17] 21_00217_OUT-TRANSPORT_ASSESSMENT-921845, Table 11

3.57 The Figure below provides the location of the Banbury Road site within the wider VISSIM model network.

**Figure 11: Banbury Road Woodstock Site Location**




3.58 Tables showing the in/out trip generation totals for Banbury Road-Woodstock for each hour during the AM and PM peaks are provided below.

**Table 18: AM In/Out Totals for Banbury Road, Woodstock**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Banbury Road, Woodstock | 20 | 53 | 37 | 82 | 32 | 39 |

**Table 19: PM In/Out Totals for Banbury Road, Woodstock**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Banbury Road, Woodstock | 68 | 46 | 68 | 45 | 74 | 47 |

## Oxford North (CS6) (18/02065/OUTFUL)

3.59 Oxford North is a proposed mixed use development site located north-west of Wolvercote roundabout. Proposals include 87,300m² of B1 employment, up to 480 dwellings, a hotel and up to 2,500m² of local retail uses.

3.60 The site is served via an internal link that is connected at either end by two signalised junctions; one on the north side with A44 Woodstock Road and the other one on the south side with A40 Northern Bypass Road. This Site is partially included within the 2023 network that is used for the basis of this testing, but only Phase 1 of the development demands and site access arrangement/mitigation that accompany Phase 1 is applied. For the purposes of developing a 2031 model the full demands and network upgrades have been included, which includes enhancements at Peartree Roundabout and along the A44 corridor to Wolvercote Roundabout. The drawings used to upgrade the VISSIM modelling to the forecast 2031 position are provided in Appendix A.

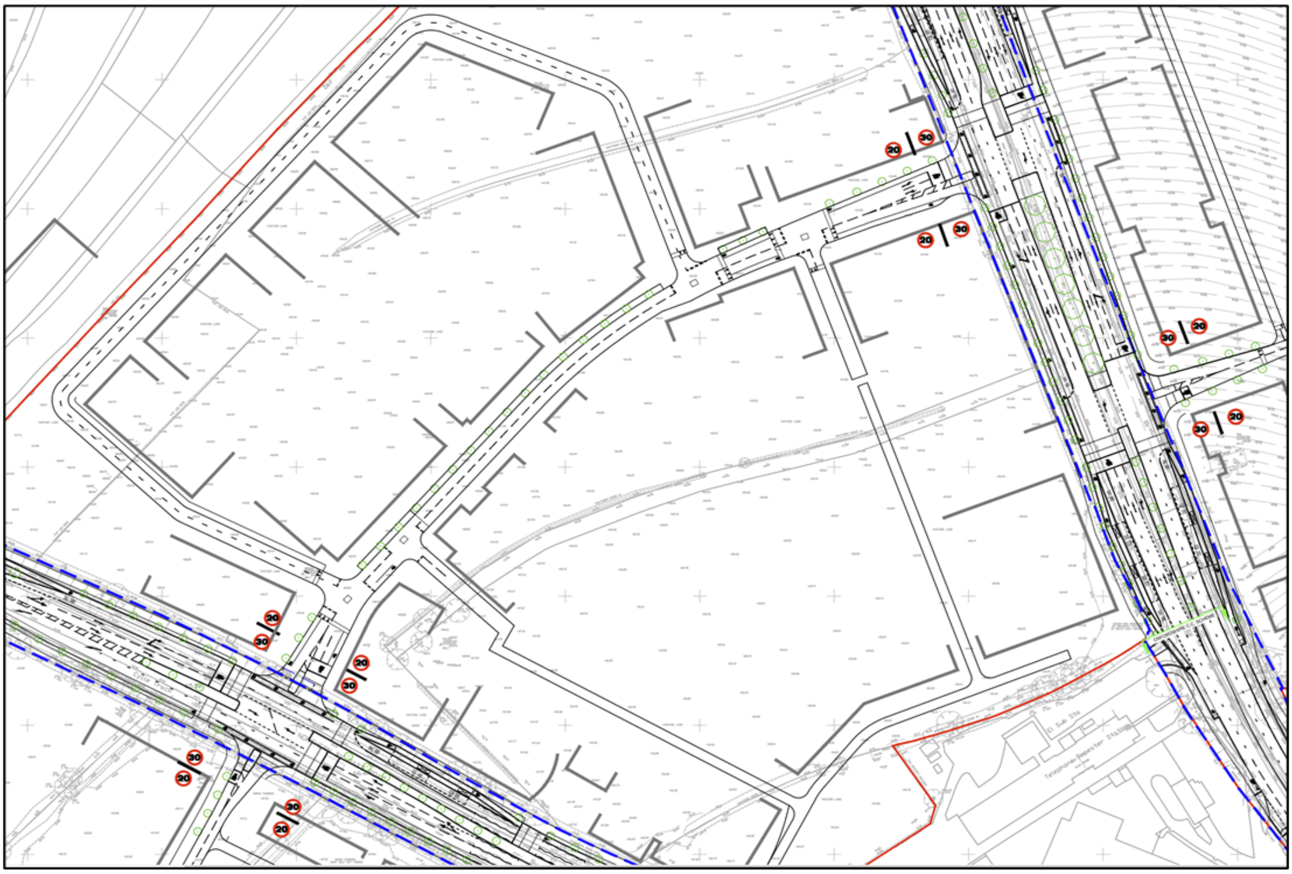
3.61 Regarding the demands, trip rates are taken directly from the TA[18]. These are then disaggregated into hourly rates and multiplied by the B1, Residential and Hotel land uses individually, before combining into hourly trip generation values. Distribution is informed by the existing distribution within the 2023 model.

3.62 Zone 107 in the 2023 model represents the Oxford North Site and this remains the development zone in the 2031 model; note however that zone numbers have been rationalised during the 2031 model build and therefore the zone number becomes Zone 54.

[18] 18_02065_OUTFUL-TRANSPORT_ASSESSMENT__PART_2__-_180731_TA_001-2020183, Table 4.2

3.63 The Figure showing the site access arrangements of Oxford North (CS6) is provided below.

**Figure 12: Oxford North Site Access Arrangements**

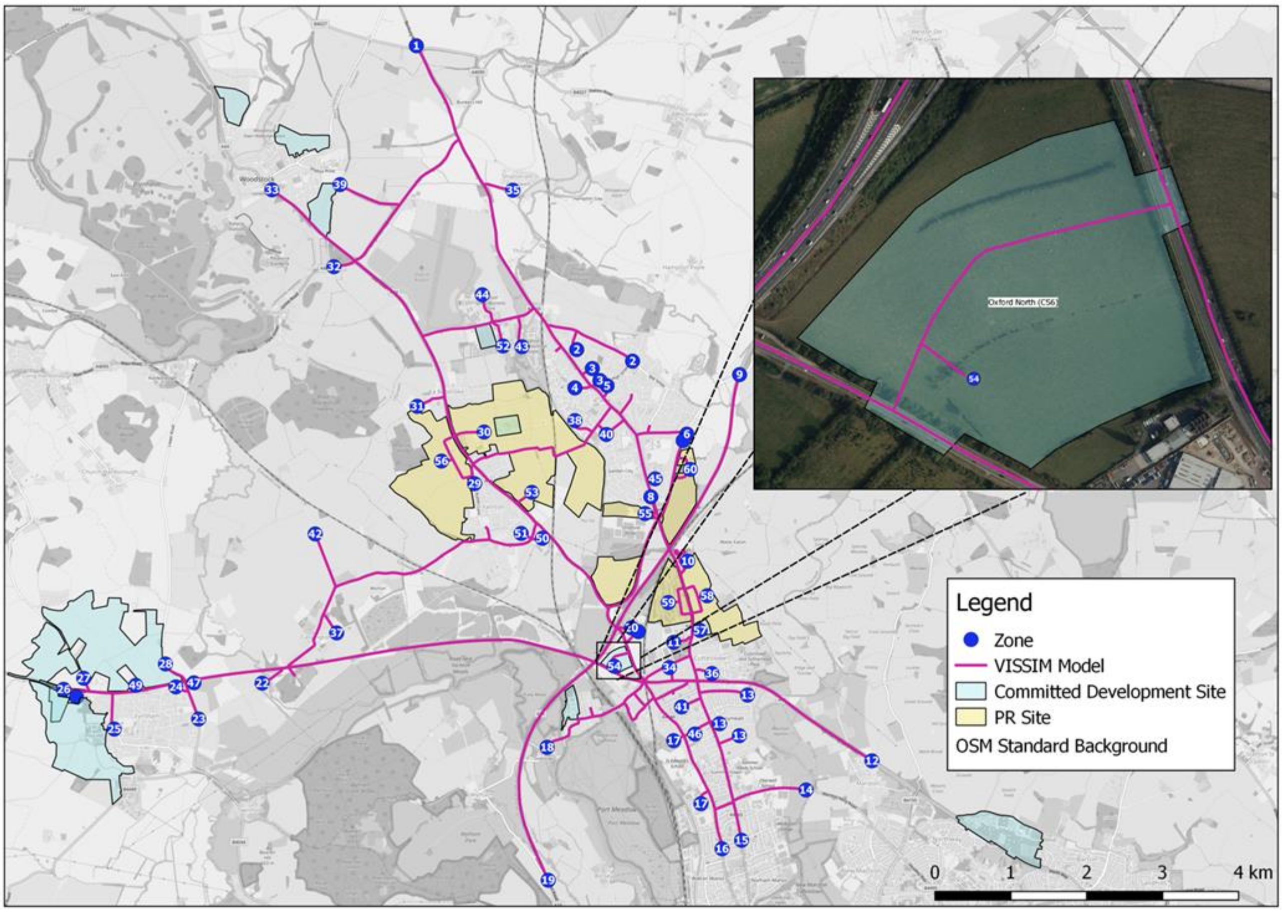


3.64 Although Oxford North includes proposals for land parcels on the eastern side of A44 and southern side of A40, all development demands for simplicity are assumed to travel via the plot of land served by the connector link above.

3.65 The signalised junctions on A44 and A40 corridor are however included, thereby mimicking the effects of demands travel to/from these land parcels.

3.67 A Figure showing the location of the Oxford North within the wider model network is provided below.

**Figure 13: Oxford North Site Location**




3.68 Tables showing the in/out trip generation totals for Oxford North for each hour during the AM and PM peaks are given below.

**Table 20: AM In/Out Totals for Oxford North**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Oxford North | 533 | 181 | 909 | 260 | 597 | 193 |

**Table 21: PM In/Out Totals for Oxford North**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Oxford North | 205 | 374 | 245 | 786 | 210 | 817 |

## Land East of Park View (22/01715/OUT)

3.69 Blenheim Estates Homes is currently seeking planning consent for the development of 500 residential dwellings on land adjacent to the Park View development. It is not committed development but has been requested to be included in the Future Year Reference Case model by the local authorities, given it's proximity to the PR sites and proposed scale of development. The Site is served via an access onto A4095 Upper Campsfield Road which will link to the spine road provided by the adjacent Park View development. Land East of Park View development trips are assigned to zone 39.

3.70 A Figure showing the location of the Land East of Park View Woodstock within the context of the wider VISSIM model is provided below.

**Figure 14: Land East of Park View Site Location**

3.71 Tables showing the in/out trip generation totals for Oxford North for each hour during the AM and PM peaks are given below.

**Table 22: AM In/Out Totals for Oxford North**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Land East of Park View | 44 | 123 | 81 | 187 | 79 | 66 |

**Table 23: PM In/Out Totals for Oxford North**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Land East of Park View | 149 | 106 | 150 | 103 | 168 | 105 |

## Begbroke Science Park (08/00803/OUT)

3.72 Begbroke Science Park is located approximately 5 miles north of Oxford City Centre and east of the A44. The site is connected to the A44 via a three-arm signalised junction with Begbroke Hill Road. The proposals are for an extension to the existing floorspace in the magnitude of an additional 12500sqm of B1 land use.

3.73 The Science Park is located within the boundaries of the PR8 Site but is included in the model via its own distinct zone. Specifically, existing zone 30 of the 2023 Reference Case model has been assigned as the Begbroke Science Park zone.

3.74 Trip generation for the peak hours are taken directly from the TA[19]. The TA only reports peak hour trip generation (08:00-09:00 and 17:00-18:00). Therefore, a TRICS B1b Total Person temporal profile is calculated to estimate the vehicle trips in the shoulder peaks. The TRICS rates used for this are as follows:

**Table 24: B1b TRICS Rates**

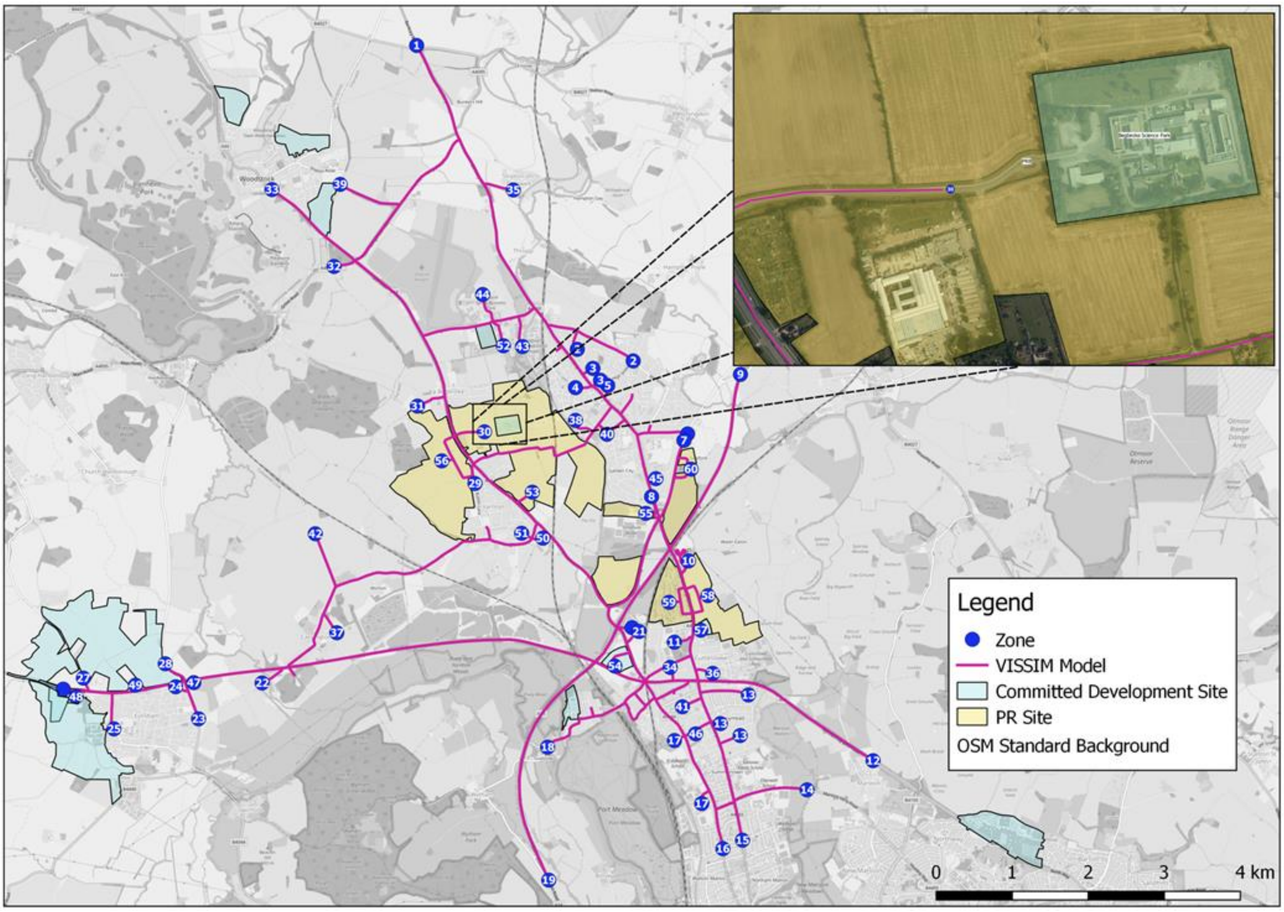
| | Total Person Trip Rates | | | Proportions | | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| AM Peak Period | | | | | | |
| 07:00-08:00 | 1.028 | 0.12 | 1.148 | 57% | 52% | 56% |
| 08:00-09:00 | 1.804 | 0.23 | 2.034 | 100% | 100% | 100% |
| 09:00-10:00 | 0.779 | 0.199 | 0.978 | 43% | 87% | 48% |
| PM Peak Period | | | | | | |
| 15:00-16:00 | 0.176 | 0.551 | 0.727 | 114% | 41% | 48% |
| 16:00-17:00 | 0.195 | 0.97 | 1.165 | 127% | 72% | 77% |
| 17:00-18:00 | 0.154 | 1.35 | 1.504 | 100% | 100% | 100% |

3.75 Trip distribution is informed by the existing distribution assigned to zone 30.

[19] Begbroke Science Park, Transport Assessment, May 2018, Figure 7 and Figure 8

3.76 A Figure showing the location of Begbroke Science Park in the context of the VISSIM model is provided below:

**Figure 15: Begbroke Science Park Site Location**




3.77 Tables showing the in/out trip generation totals for Begbroke Science Park for each hour during the AM and PM peaks are given below.

**Table 25: AM In/Out Totals for Begbroke Science Park**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Begbroke Science Park | 45 | 5 | 79 | 10 | 34 | 9 |

**Table 26: PM In/Out Totals for Begbroke Science Park**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Begbroke Science Park | 10 | 28 | 11 | 49 | 9 | 68 |

## Oxford Technology Park

3.78 Oxford Technology Park is located 6 miles north of Oxford City Centre and just south of Oxford International Airport. The site lies adjacent to Technology Drive on the southern side of Langford Lane.

3.79 The proposals include 128,260sqft of B1a office, 47,960sqft of B1b research and development, and 237,050sqft of B8.

3.80 Development trips are assigned to existing zone 105 (which following rationalisation of the zone numbers through the 2031 model build becomes zone 52).

3.81 Trip generation for the peak hours are taken directly from the TA[20]. The TA reports Office TRICS rates for all required periods, but only reports peak hour trip rates (08:00-09:00 and 17:00-18:00) for B1b and B8 land uses. Therefore a TRICS B1b Total Person temporal profile is calculated as provided in Table 22 to estimate the B1b vehicle trips in the shoulder peaks, and a TRICS B8 Total Person temporal profile is calculated to estimate the B8 trips as per the table below:

**Table 27: B8 TRICS Rates**

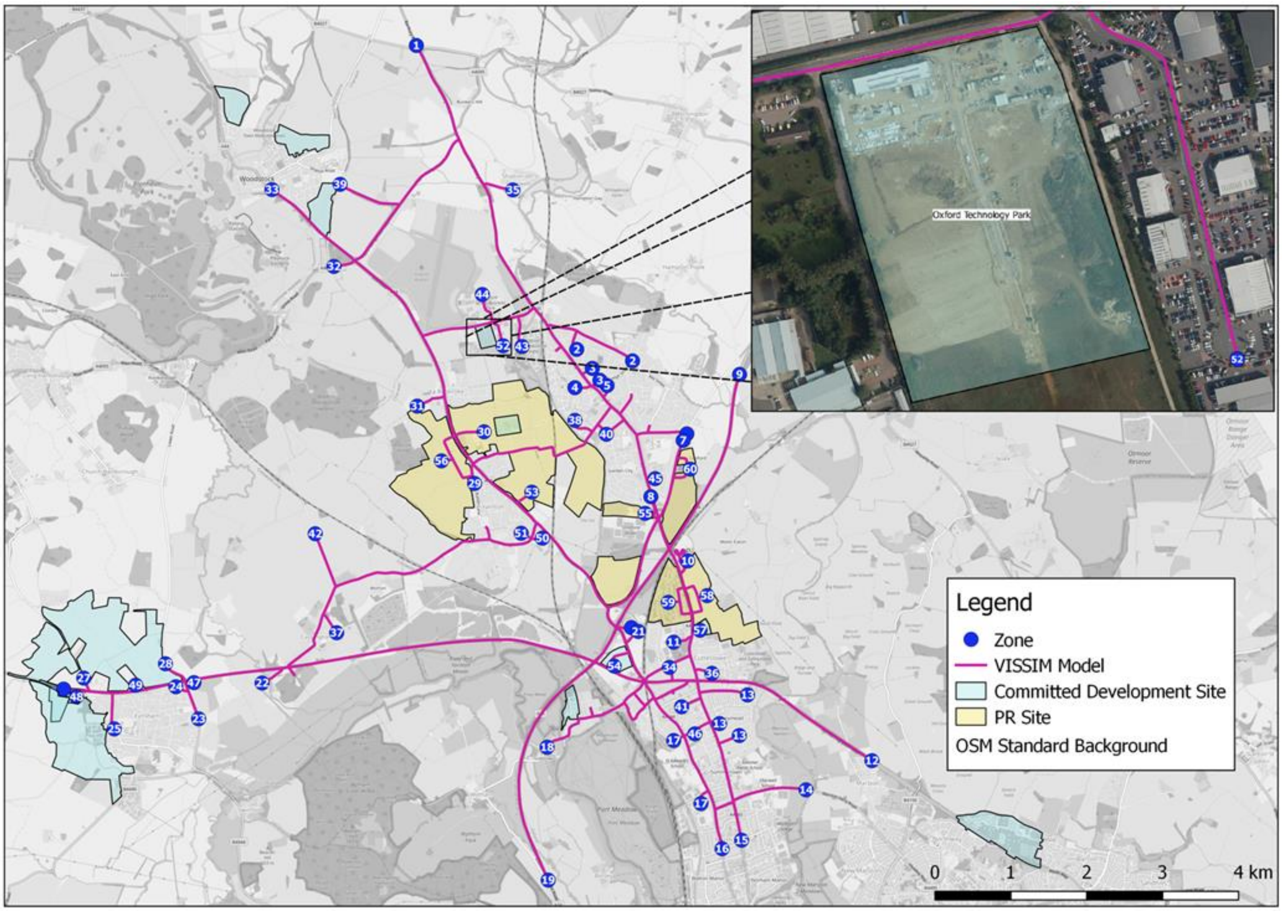
| | Total Person Trip Rates | | | Proportions | | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| **AM Peak Period** | | | | | | |
| 07:00-08:00 | 0.18 | 0.094 | 0.274 | 118% | 85% | 104% |
| 08:00-09:00 | 0.152 | 0.111 | 0.263 | 100% | 100% | 100% |
| 09:00-10:00 | 0.116 | 0.077 | 0.193 | 76% | 69% | 73% |
| **PM Peak Period** | | | | | | |
| 15:00-16:00 | 0.097 | 0.115 | 0.212 | 103% | 66% | 79% |
| 16:00-17:00 | 0.085 | 0.152 | 0.237 | 90% | 87% | 88% |
| 17:00-18:00 | 0.094 | 0.175 | 0.269 | 100% | 100% | 100% |

3.82 Trip distribution is informed by the existing distribution assigned to zone 44, which is the parcel of land on the northern side of Langford Lane. The reason this zone was chosen over the existing zone to which the development has been applied is that the land use on the northern land parcel shares more in common with the Technology Park proposals. Zone 44 represents airport support services and offices, whereas zone 52 represents a series of car dealerships.

[20] Oxford Technology Park Transport Assessment

3.83 A Figure showing the location of Oxford Technology Park in the context of the wider VISSIM network is provided below:

**Figure 16: Oxford Technology Park Site Location**




3.84 Tables showing the in/out trip generation totals for Oxford Technology Park for each hour during the AM and PM peaks are given below.

**Table 28: AM In/Out Totals for Oxford Technology Park**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Oxford Technology Park | 154 | 35 | 283 | 40 | 188 | 48 |

**Table 29: PM In/Out Totals for Oxford Technology Park**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Oxford Technology Park | 54 | 98 | 39 | 201 | 28 | 268 |

# 4 Model Updates || PR Sites

4.1 The specific purpose of this modelling exercise is to determine the capacity constraints on the network following inclusion of a series of PR sites around North Oxfordshire. These sites are:

i) PR6a (Land East of Oxford Road)

ii) PR6b (Land West of Oxford Road)

iii) PR7a (Land South East of Kidlington)

iv) PR8 (Land East of the A44)

v) PR9 (Land West of Yarnton)

4.2 VM continues to work alongside the consultants working on behalf of these sites to firstly use the VISSIM model tool to establish how the cumulative delivery of these sites impacts the network, and secondly to identify any mitigation strategies that may assist in allowing the network to accommodate the trips generated by the sites.

4.3 Each consultant has provided VM with a series of demand and distribution assumptions pertaining to their site, along with the access arrangements that are currently proposed to serve it.

4.4 This Chapter will discuss how the demand assumptions have been converted into matrices for entry into VISSIM, and the associated updates to the VISSIM model required for Site Access arrangements.

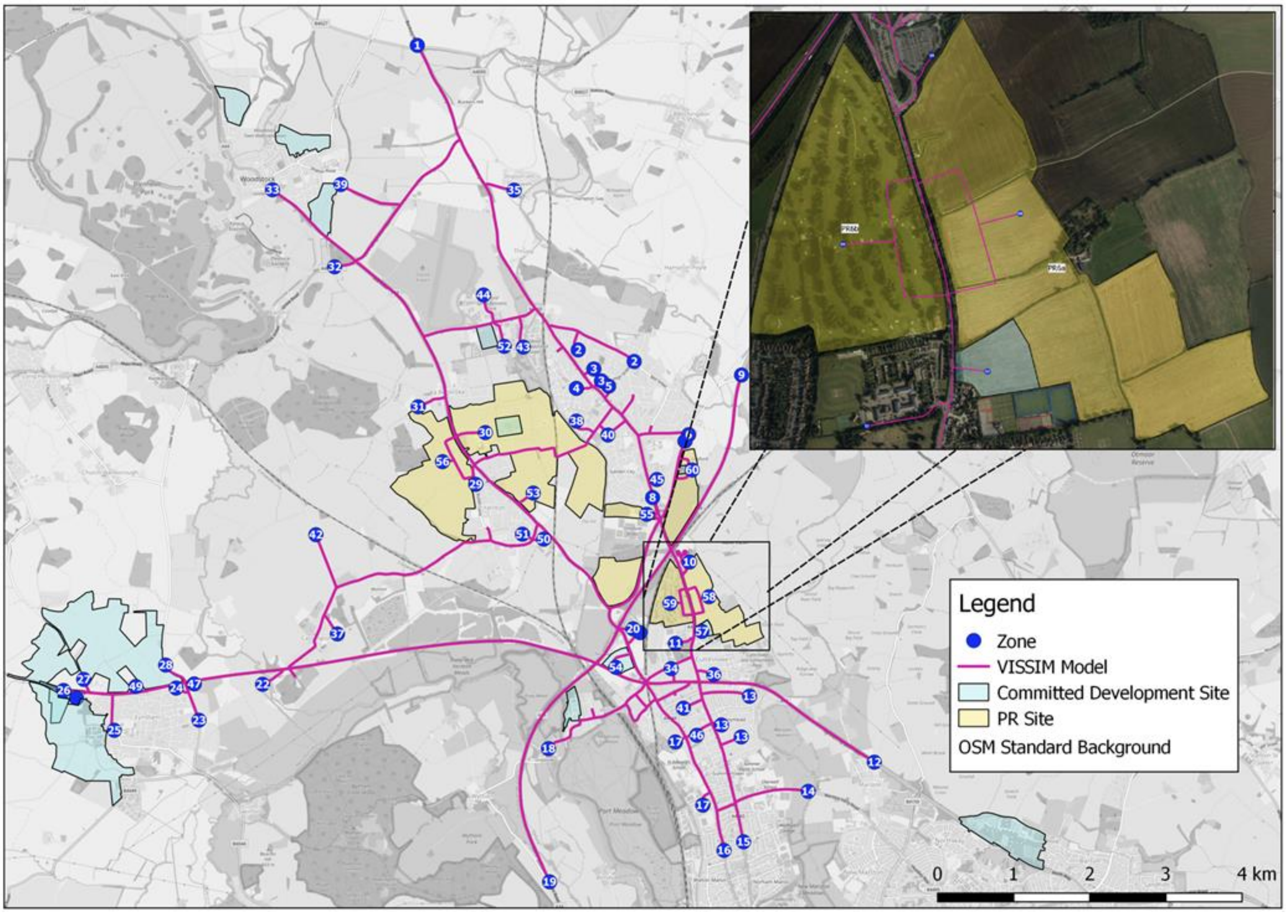
## PR6a and PR6b (Land East and Land West of Oxford Road)

4.5 PR6a (Land East of Oxford Road) is a 48 hectare site located on the eastern side of A4165 Oxford Road. The site is proposed to allow for up to 820 dwellings along with associated infrastructure and supporting facilities. The transport consultant for the site is i-Transport.

4.6 PR6b (Lane West of Oxford Road) is a 32 hectare site located on the western side of A4165 Oxford Road. The site is allocated within the Local Plan for 670 dwellings along with associate infrastructure and supporting facilities. The transport consultant for the site is KMC Transport Planning. A planning application is yet to come forward for PR6b and therefore the allocated number of dwellings has been tested within the modelling at this stage.

4.7 The Figure below shows the location of the PR6a and PR6b sites in the context of the wider VISSIM model:

**Figure 17: PR6a and PR6b Site Location**




4.8 Together the respective consultants have compiled trip rates for their site. The trip rates are then converted to peak hour trip generation to apply to the VISSIM model hours, along with distribution assumptions to feed into the matrix development process.

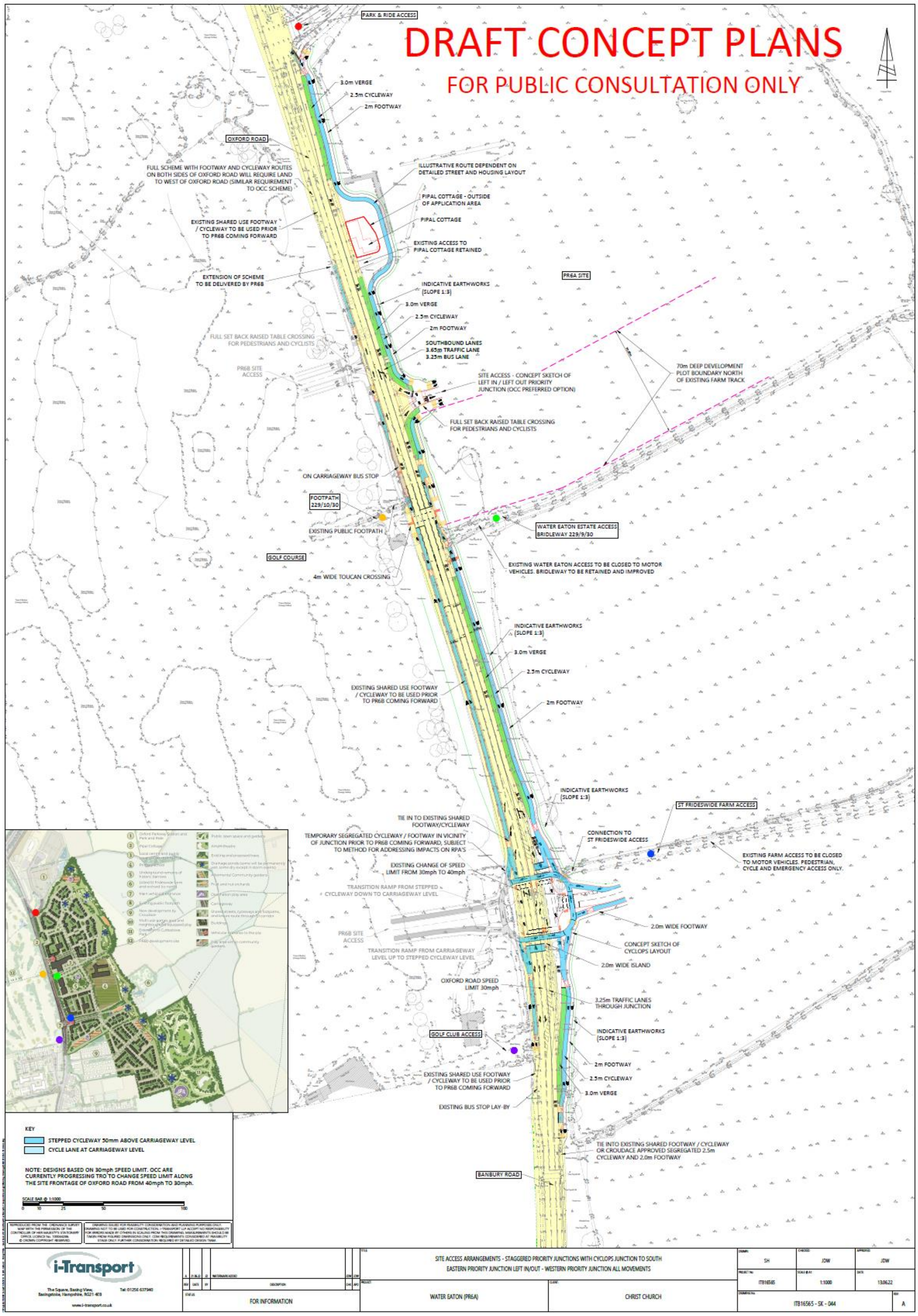
4.9 Both sites are served by two site access arrangements; one south and one north. Drawings of the site access arrangements have been provided by i-Transport. The southern accesses, located 70 meters north of the current Water Eaton Estate Road, comprises of a new four-arm signalised junction serving Oxford Road (north-south), access to PR6b (west) and access to PR6a (east).

4.10 The northern accesses are formed of two priority junctions, one serving each PR site on either side of carriageway. The eastern access for PR6a is a left-in-left-out arrangement while the western access for PR6b is all movements.

4.11 This has been represented in the VISSIM model by a single zone for each site; zone 58 for PR6a and zone 59 for PR6b respectively. Each of the site access points onto the A4165 are connected by an indicative internal connector road with the zone sitting off that connector.

4.12 The Figure below provides the site access arrangements for the PR6 sites.

**Figure 18: PR6a and PR6b Access Arrangements**



4.13 Tables showing the in/out trip generation totals for PR6a and PR6b Sites for each hour during the AM and PM peaks are provided below.

**Table 30: AM In/Out Totals for PR6a Site**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| PR6a Site (Land East of Oxford Rd) | 38 | 122 | 54 | 129 | 34 | 57 |

**Table 31: PM In/Out Totals for PR6a Site**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| PR6a Site (Land East of Oxford Rd) | 113 | 69 | 116 | 74 | 145 | 68 |

**Table 32: AM In/Out Totals for PR6b Site**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| PR6b Site (Land West of Oxford Rd) | 18 | 100 | 26 | 101 | 27 | 43 |

**Table 33: PM In/Out Totals for PR6b Site**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| PR6b Site (Land West of Oxford Rd) | 87 | 51 | 96 | 49 | 120 | 50 |

## PR7a (Land South East of Kidlington)

4.14 PR7a (Land South East of Kidlington) is located South-east of the Kidlington Roundabout and includes proposals for approximately 430 dwellings. An illustrative masterplan document was used to inform the site access arrangements, which form two priority junctions located along Bicester Road.

4.15 For inclusion in VISSIM these accesses are connected by an internal connector road with a new zone assigned halfway along (Zone 60).

4.16 A Figure showing the location of the PR7a Site within the context of the wider VISSIM model is provided below:

**Figure 19: PR7a Site Location**


4.17 Trip generation for the PR7a site assumes the same trip rates as those used for PR6. Local Distribution is taken from the PR7b Transport Assessment (to be discussed in the following section). As PR7a and PR7b are located adjacent to each other, distributions are assumed to be the same.

4.18 Tables showing the in/out trip generation totals for PR7a Site for each hour during the AM and PM peaks are given below.

**Table 34: AM In/Out Totals for PR7a Site**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| PR7a Site (Land SE of Kidlington) | 12 | 66 | 18 | 69 | 19 | 29 |

**Table 35: PM In/Out Totals for PR7a Site**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| PR7a Site (Land SE of Kidlington) | 57 | 33 | 62 | 32 | 78 | 33 |

## PR8 Site (Land East of the A44)

4.19 PR8 (Land East of the A44) is a 190 hectare site located to the east of A44. The transport consultants for the site are KMC Transport Planning for land within PR8 owned by Oxford University Development (OUD) and Glanville Consultants for land within PR8 owned by Hallam Land. OUD is to submit an outline planning application for up to 215,000 sqm of residential floorspace (which has been equated to 1,800 homes for the purposes of this assessment), up to 155,000 sqm of flexible employment uses and supporting social, retail, leisure and community uses, including two primary schools, a secondary school and local centre. Hallam Land is to submit an outline planning application for 300 residential dwellings.

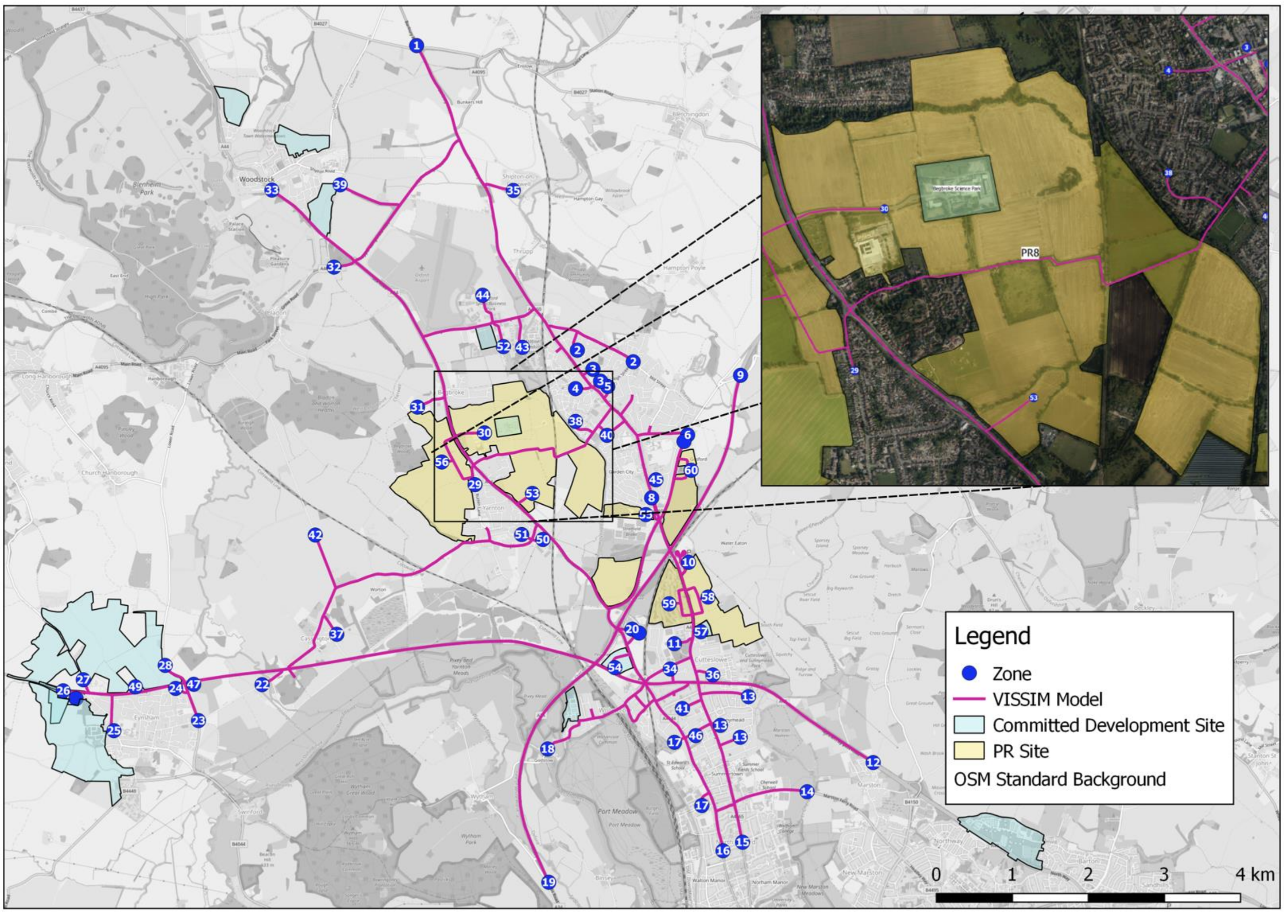
4.20 The northern site access is proposed to be accessed via the existing access to the Science Park (represented in the VISSIM model by zone 30) and is proposed to have a fourth arm and improved pedestrian and cycle crossing facilities provided by PR9 in order to provide access to the allocated site.

4.21 Site access arrangement for the PR8 southern access has been provided by Glanville Consultants, which proposes a three-arm signalised junction serving the A44 (North-south) and access to the site. The signalised junction is located on the northern side of the A44 carriageway approximately 60 meters south of the Shell Petrol Filling Station.

4.22 The 2023 model already contained a zone for PR8 and therefore no additional zone has been provided; calculated demands for PR8 replace the assumptions for PR8 that were entered into the 2023 forecast model.

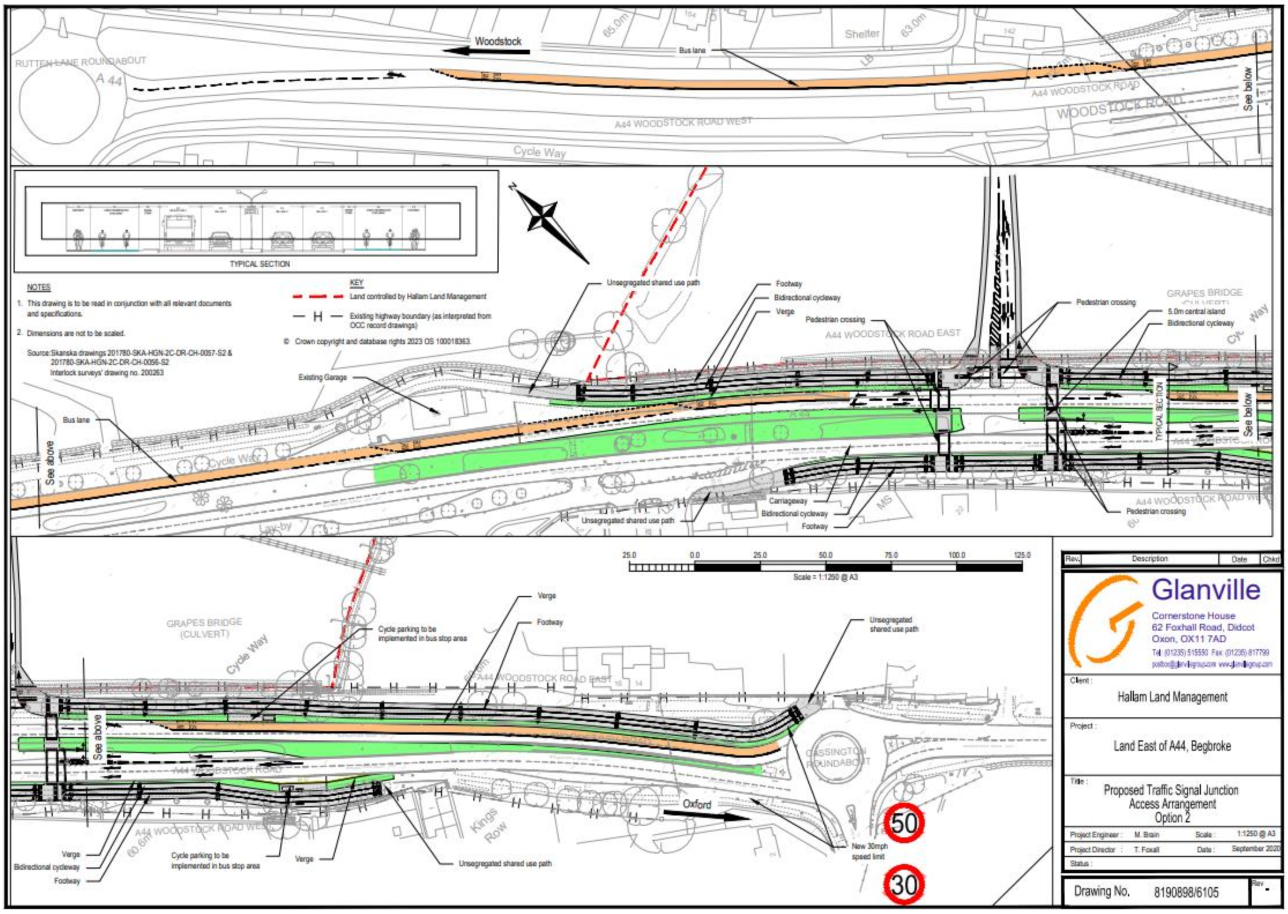
4.23 A Figure showing the location of the PR8 Site within the context of the wider VISSIM model is provided below:

**Figure 20: PR8 Site Location**



4.24 A Figure showing the southern site access arrangement for PR8 is provided below.

**Figure 21: PR8 Southern Site Access Arrangement**




4.25 The proposals above are for the purposes of the VISSIM modelling only and do not represent a commitment to deliver all works shown. PR8 is aware of OCC aspirations to include a bus lane along the A44 southbound between the Rutten Lane roundabout and Cassington Roundabout and the above access therefore ties in with those plans.

4.26 PR8 Site trip generation and distribution assumptions were provided by KMC Transport Planning, and these were converted into a demand matrix by apportioning MSOA areas to the nearest VISSIM zones.

4.27 Tables showing the in/out trip generation totals for PR8 Site for each hour during the AM and PM peaks are provided below.

**Table 36: AM In/Out Totals for PR8 Site**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| PR8 Site (Land East of the A44) | 771 | 282 | 735 | 269 | 644 | 236 |

**Table 37: PM In/Out Totals for PR8 Site**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| PR8 Site (Land East of the A44) | 295 | 603 | 309 | 632 | 288 | 589 |

## PR9 Site (Land West of Yarnton)

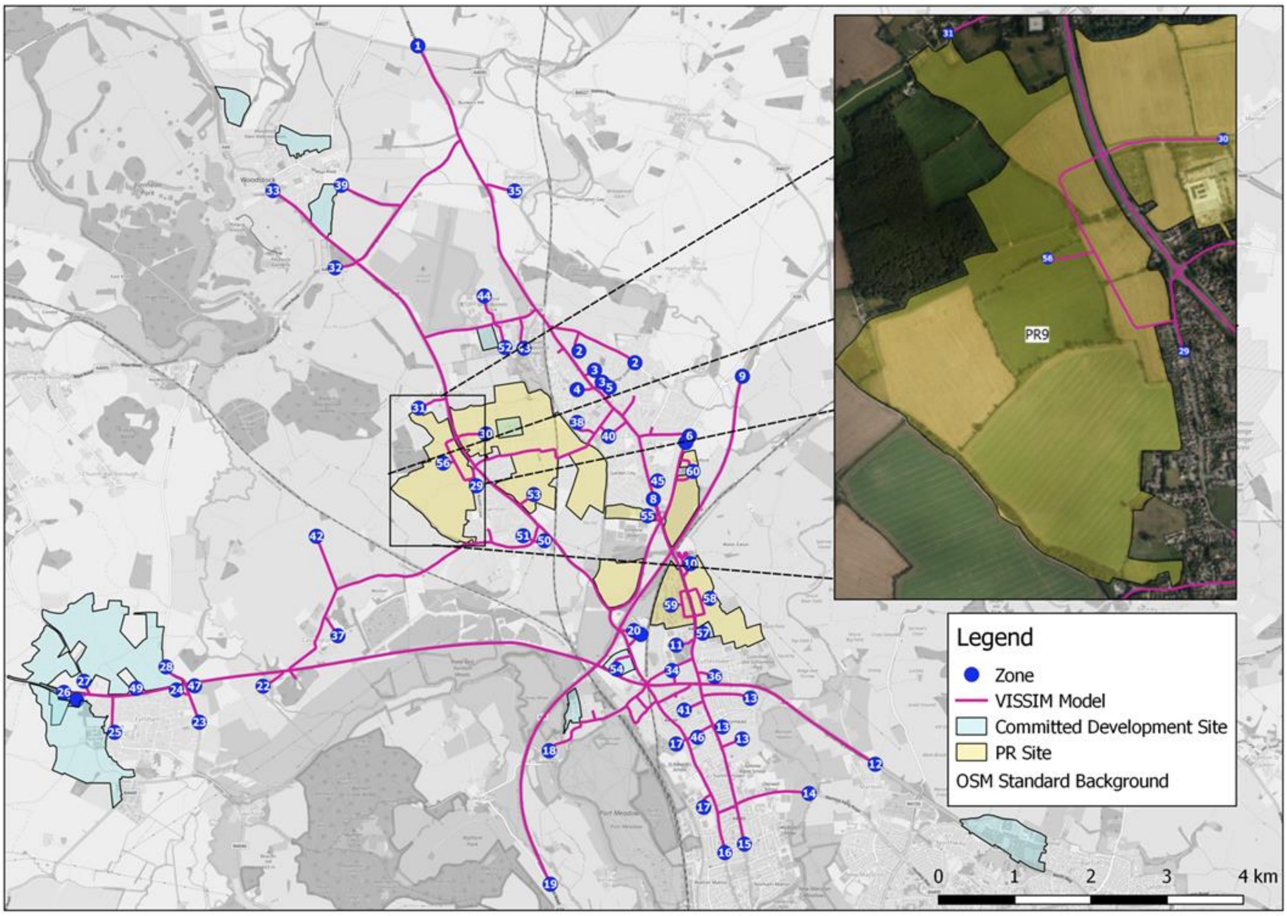
4.28 PR9 (Land West of Yarnton) is a 99 hectare site located to the east of A44. The site is proposed to allow for up to 540 dwellings along with associate infrastructure and supporting facilities. The transport consultant for the site is Vectos.

4.29 Site access arrangement for the PR9 Site have been provided by Vectos, which proposes two access points onto A44. The Northern access involves the addition of a fourth arm onto the existing 3-arm signalised junction serving A44 and Begbroke Hill to allow access into PR8 on the southern side of the carriageway. The Southern access is located off Rutten Lane, adjacent to Yarnton Medical Practice.

4.30 An indicative internal connector link has been included to connect the two access points with a new zone (zone 56) positioned halfway along to represent the development site.

4.31 A Figure showing the location of the PR9 Site along within the context of the wider VISSIM model is provided below:

**Figure 22: PR9 Site Location**



4.32 Figures showing the site access arrangements for the PR9 Site are provided below.

**Figure 23: PR9 Site Access Arrangement (North)**

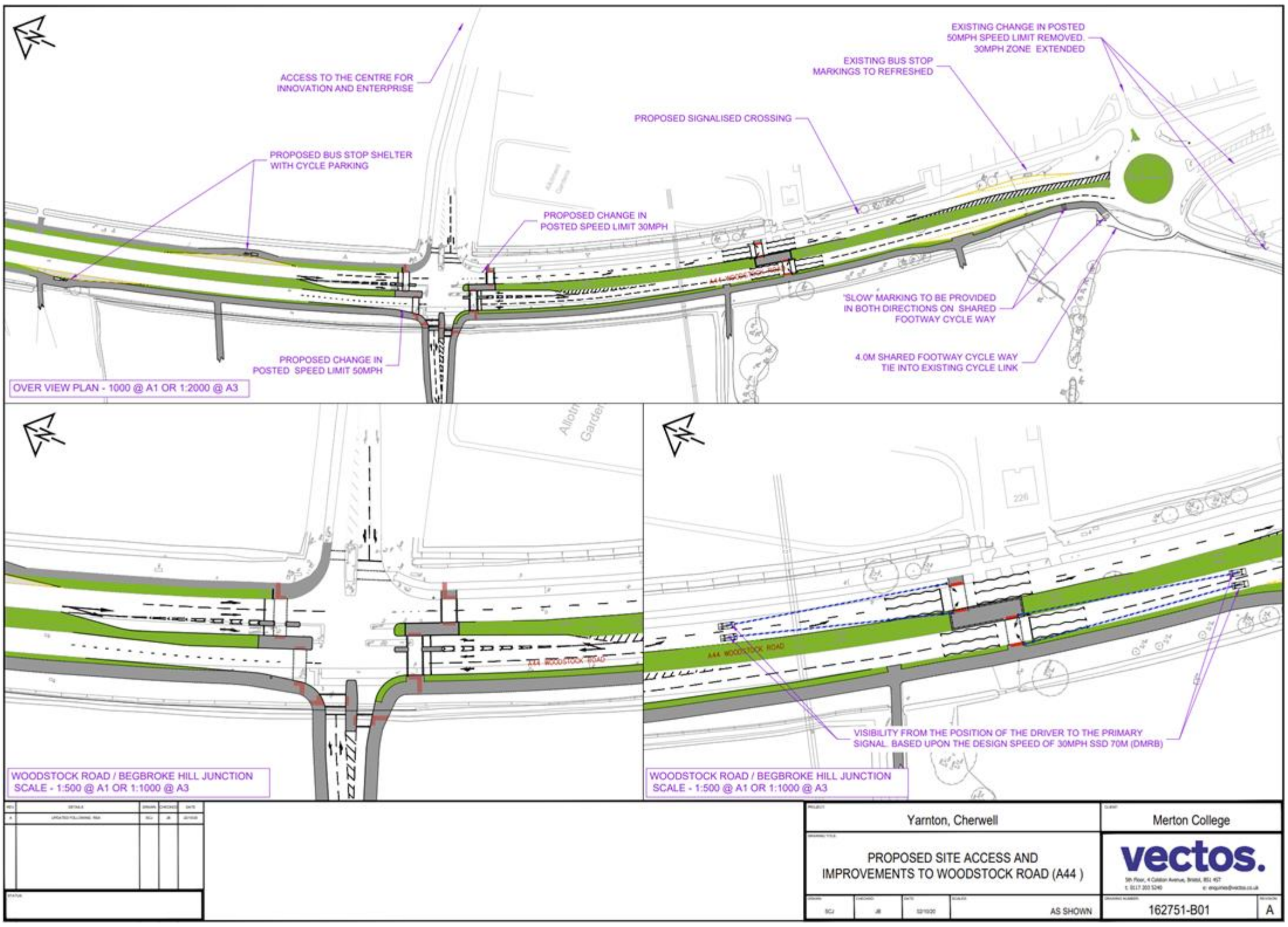
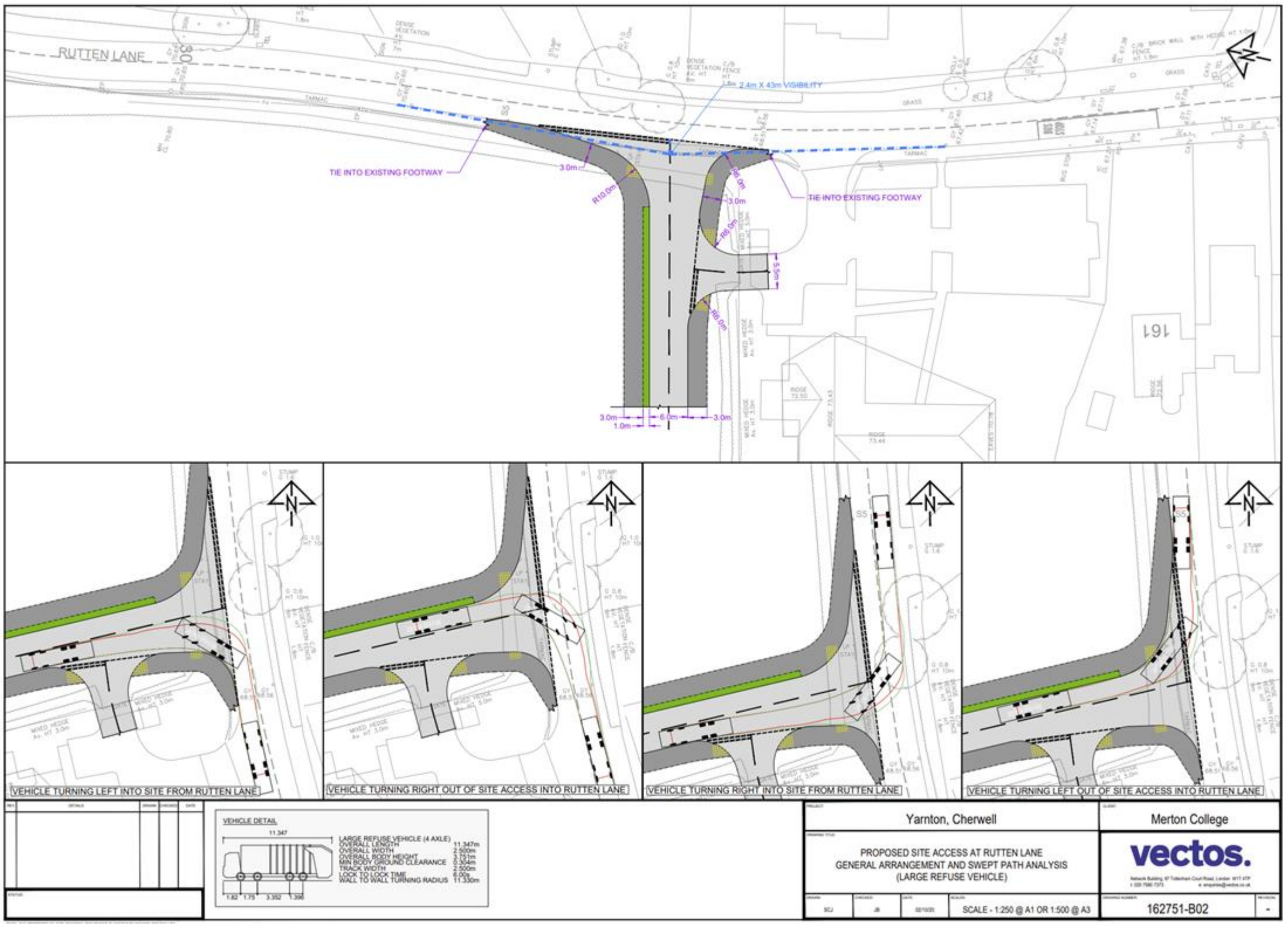


**Figure 24: PR9 Site Access Arrangement (South)**




4.33 Trip generation and localised distribution data for the site was provided by Vectos. In/out totals were provided and applied to two-way MSOA distribution assumptions which were in turn assigned to appropriate VISSIM zones to inform the matrix development process.

4.34 Tables showing the in/out trip generation totals for PR9 Site for each hour during the AM and PM peaks are provided below.

**Table 38: AM In/Out Totals for PR9 Site**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| PR9 Site (Land West of Yarnton) | 26 | 89 | 28 | 84 | 42 | 49 |

**Table 39: PM In/Out Totals for PR9 Site**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| PR9 Site (Land West of Yarnton) | 59 | 42 | 87 | 52 | 105 | 51 |

## Other PR Sites

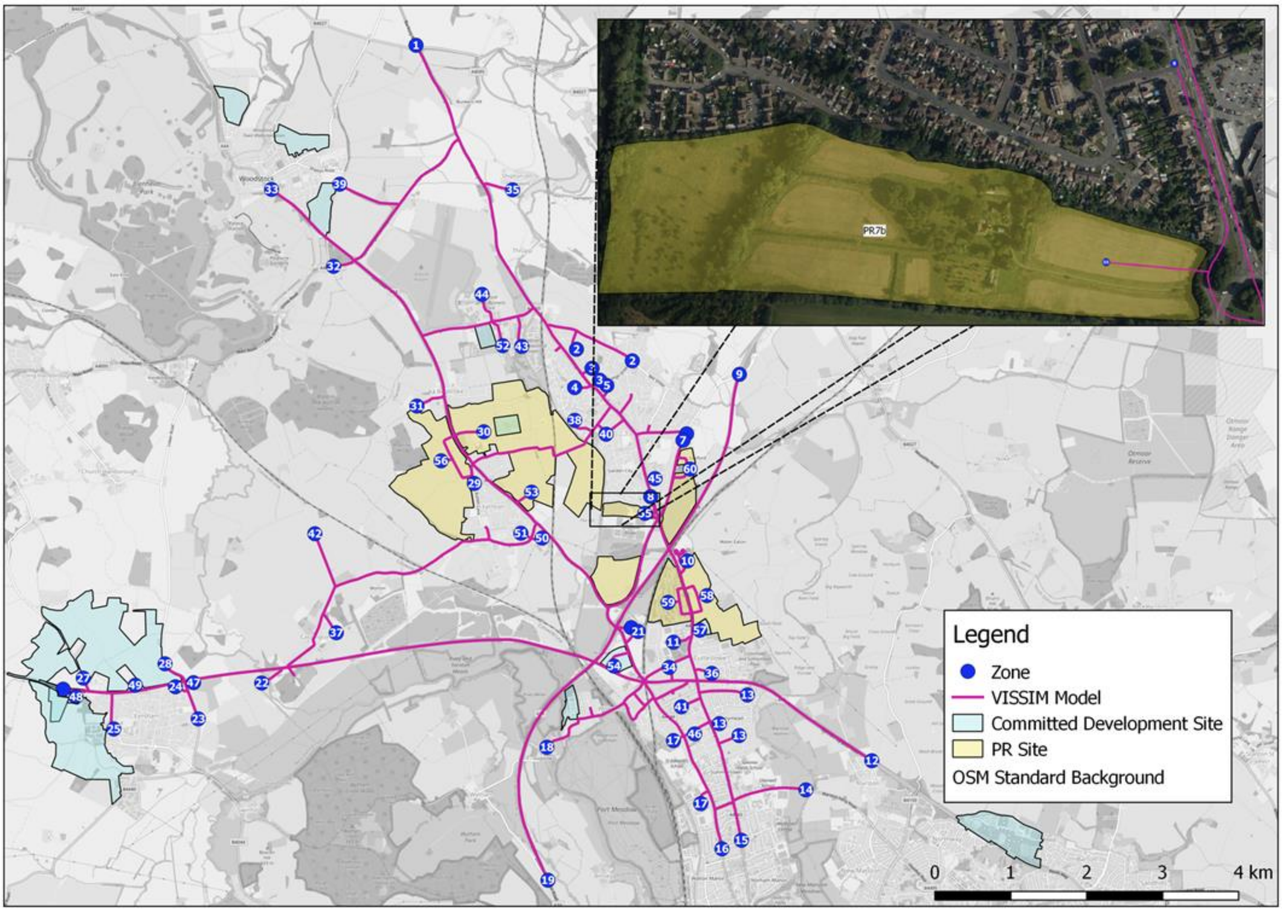
PR7b (Land at Stratfield Farm)

4.35 PR7b (Land at Stratfield Farm) is located off Oxford Road and includes proposals for approximately 120 dwellings and a care home. The site access arrangement involves a priority junction off Oxford Road just north of Kidlington Roundabout. A new zone (Zone 55) has been included to represent PR7b.

4.36 Trip generation for the PR7a site assumes the same trip rates as those used for PR6. Distribution has been taken from the Transport Assessment[21], produced by MAC Ltd in February 2019.

4.37 A Figure showing the location of the PR7b Site within the context of the wider VISSIM model is provided below:

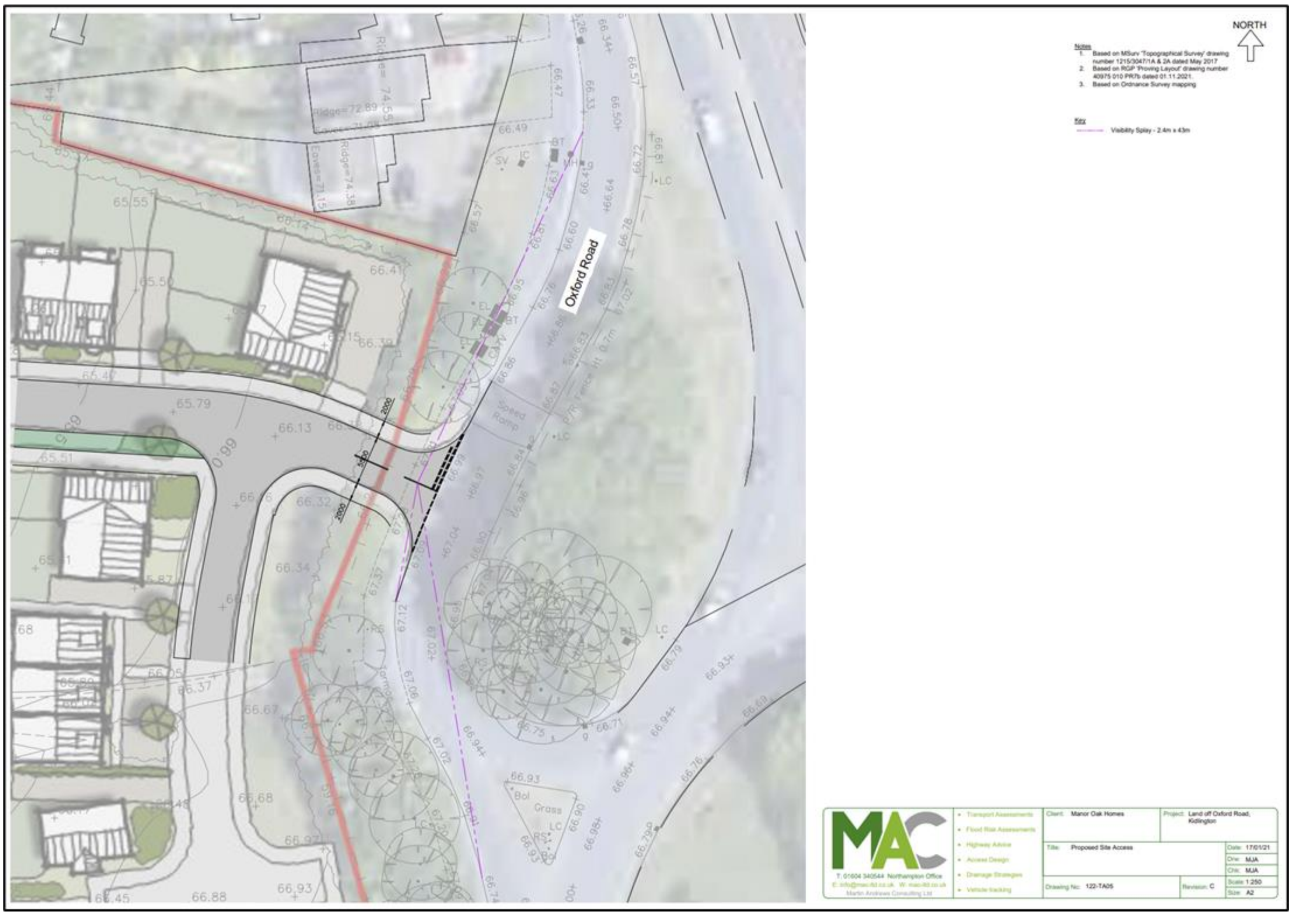
**Figure 25: PR7b Site Location**




[21] Proposed Residential Development, Land off Oxford Road, Report Reference 122-TS-01-B, Appendix L

4.38 Images showing site access arrangement of PR7b Site is given below.

**Figure 26: PR7b Site Access Arrangement**




4.39 Tables showing the in/out trip generation totals for PR7b Site for each hour during the AM and PM peaks are given below.

**Table 40: AM In/Out Totals for PR7b Site**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| PR7b Site (Land at Stratfield Farm) | 6 | 21 | 9 | 24 | 13 | 18 |

**Table 41: PM In/Out Totals for PR7b Site**

| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| PR7b Site (Land at Stratfield Farm) | 24 | 16 | 28 | 17 | 28 | 17 |

# 5 VISSIM Demand Summary

5.1 The Table below presents a summary of the peak hour input demands for the 2031 model.

**Table 42: 2031 VISSIM Model Demand Summary**

| Description | AM | | | PM | | |
|---|---|---|---|---|---|---|
| | 07:00 – 08:00 | 08:00 – 09:00 | 09:00 – 10:00 | 15:00 – 16:00 | 16:00 – 17:00 | 17:00 – 18:00 |
| Eynsham Garden Village | 307 | 520 | 373 | 572 | 564 | 597 |
| West Eynsham (SDA) | 71 | 114 | 63 | 139 | 138 | 150 |
| West Thornbury Rd | 0 | 0 | 0 | 0 | 0 | 0 |
| Eynsham Nursery | 8 | 13 | 7 | 16 | 15 | 17 |
| Land East of Woodstock | 89 | 130 | 88 | 98 | 121 | 145 |
| Barton Park | 28 | 46 | 27 | 72 | 71 | 77 |
| Wolvercote Papermill Site | 52 | 75 | 42 | 52 | 52 | 65 |
| St. Frideswide Farm | 41 | 65 | 32 | 50 | 50 | 54 |
| Hill Rise, Woodstock | 37 | 59 | 32 | 57 | 56 | 61 |
| Banbury Road, Woodstock | 73 | 119 | 71 | 114 | 113 | 121 |
| Oxford North (CS6) | 714 | 1169 | 790 | 579 | 1031 | 1028 |
| Land East of Park View | 167 | 268 | 145 | 255 | 253 | 273 |
| Begbroke Science Park | 50 | 89 | 43 | 38 | 60 | 77 |
| Oxford Technology Park | 189 | 323 | 236 | 152 | 240 | 296 |
| PR6a | 160 | 183 | 91 | 182 | 190 | 213 |
| PR6b | 119 | 126 | 70 | 138 | 145 | 170 |
| PR7a | 78 | 87 | 48 | 90 | 94 | 110 |
| PR7b | 27 | 33 | 31 | 40 | 45 | 45 |
| PR8 | 1054 | 1004 | 880 | 898 | 940 | 877 |
| PR9 | 114 | 112 | 91 | 101 | 139 | 156 |
| **Committed Development Total** | **1826** | **2990** | **1949** | **2191** | **2765** | **2960** |
| **PR Site Total** | **1552** | **1545** | **1211** | **1449** | **1553** | **1571** |

### Assigned Zones

5.2 Most of the proposed Committed Developments and PR Sites are located in areas which do not correspond to any of the existing zones of the base 2023 model. Therefore, new zones have been considered. Table below presents a summary of zones that have been assigned to each of the committed developments and PR Sites.

**Table 43: 2031 Com Dev and PR Site Zone Assignment**

| Zone (1/2) | Site | Zone (2/2) | Site |
|---|---|---|---|
| 12 | Barton Park | 39 | Land East of Woodstock |
| 14 | Barton Park | 39 | Banbury Road, Woodstock |
| 18 | Wolvercote Papermill Site | 52 | Oxford Technology Park |
| 26 | Eynsham Garden Village | 53 | PR8 – Land East of the A44 |
| 26 | West Eynsham (SDA) | 54 | Oxford North (CS6) |
| 26 | West Thornbury Rd Eynsham | 55 | PR7b – Land at Stratfield Farm |
| 26 | Eynsham Nursery and Plant Centre | 56 | PR9 – Land West of Yarnton |
| 30 | Begbroke Science Park | 57 | St. Frideswide Farm (SP24) |
| 33 | Land East of Woodstock | 58 | PR6a – Land East of Oxford Road |
| 33 | Hill Rise, Woodstock | 59 | PR6b – Land West of Oxford Road |
| 33 | Banbury Road, Woodstock | 60 | PR7a – Land Southeast of Kidlington Road |
| 39 | Land East of Park View | | |

# 6 Summary & Conclusion

6.1 Vectos Microsim (VM) has been commissioned by a multi-consultancy group working on behalf of a number of Partial Review (PR) Sites that are allocated within the Cherwell District Council Local Plan.

6.2 VM is providing VISSIM microsimulation modelling support to all sites with a view to assisting in developing a suitable mitigation strategy for all Sites to come forward within the Local Plan period, working together with the Local Authority to agree an approach for the delivery of any infrastructure requirements and how these may be phased and financed.

6.3 This Note sets out the forecasting methodology adopted to include all committed developments, as well as the demands totals and site access arrangements assumed for the PR Sites.

# Contact

**London**
Network Building,
97 Tottenham Court Road,
London W1T 4TP.
Tel: 020 7580 7373

**Bristol**
5th Floor, 4 Colston Avenue,
Bristol BS1 4ST
Tel: 0117 203 5240
www.vectos.co.uk

**Cardiff**
Helmont House, Churchill Way,
Cardiff CF10 2HE
Tel: 029 2072 0860

**Exeter**
6 Victory House,
Dean Clarke Gardens,
Exeter EX2 4AA
Tel: 01392 422 315

**Birmingham**
36 Great Charles Street,
Birmingham B3 3JY
Tel: 0121 2895 624

**Manchester**
Oxford Place, 61 Oxford Street,
Manchester M1 6EQ.
Tel: 0161 228 1008

**Leeds**
7 Park Row, Leeds LS1 5HD
Tel: 0113 512 0293

**Bonn**
Stockenstrasse 5, 53113,
Bonn, Germany
Tel: +49 176 8609 1360
www.vectos.eu

**Registered Office**
**Vectos Microsim Limited**
**Network Building**
**97 Tottenham Court Road**
**London W1T 4TP**
**Company no. 9322829**

# Appendix K

## Capping Discussion Note

# Oxford PR Sites VISSIM Assessment
# Forecast Capping Discussion Note

VM210467.DN02b
May 2023

## Introduction

1. Vectos Microsim (VM) is assisting in the assessment of the impacts of delivering the allocated sites to the North of Oxford city, on the transport network, using the Oxford North VISSIM model.

2. The work is being undertaken on behalf of multiple site promotors and is assessing the effects of the allocated sites references PR6(a&b), PR7(a&b), PR8 and PR9.

3. The cumulative effect of delivering these sites is being considered alongside a series of key consented developments which have been identified for inclusion within the assessment through a separate scoping exercise conducted with Oxfordshire County Council (OCC).

4. The primary objective of this study is to identify the effects on network operation arising from traffic forecasts associated with the allocated and consented developments, inclusive of any consented infrastructure proposals. This will then be used to determine the appropriate extent and location of mitigation and/or sustainable transport measures that will need to be achieved to enable the allocation strategy to be delivered in a sustainable manner which is acceptable to OCC.

5. The VISSIM microsimulation model network extent, as well as the key development locations, is illustrated within **Figure 1** overleaf.

## Purpose of this Note

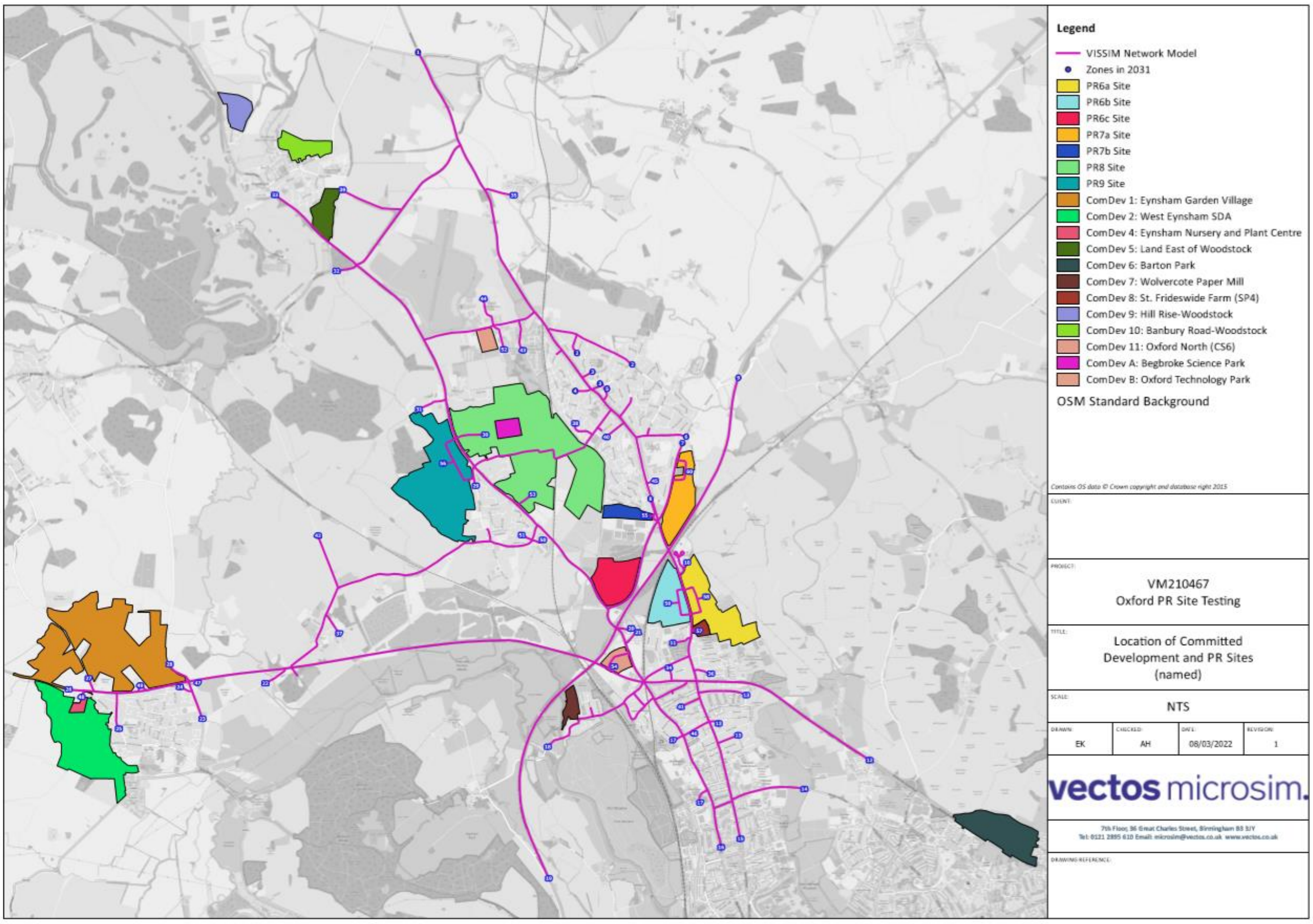
6. The purpose of this Note is to set out the assumptions applied to the demands within the VISSIM model to enable future changes in trip movements associated with the delivery of consented developments to be reflected within the VISSIM model in a realistic manner.

## Background

7. The North Oxford VISSIM model has been provided to VM by OCC and has been adjusted to account for the traffic growth projected to occur through the delivery of an agreed set of committed developments and the allocated developments.

8. The assumptions contained within these model scenarios have been circulated and reported separately and have resulted in the development of a Future Year Reference Case model, which contains all development proposals and associated infrastructure. The Local Plan Part 1 Partial Review runs to 2031. The PR sites are expected to be constructed and completed during this period up to 2031, albeit PR8 is expected to be completed shortly after by 2033. Therefore, the Future Reference Case model will establish local highway network conditions, taking into account any appropriate background traffic growth, consented development traffic and PR site traffic upon full completion.

**Figure 1: Model Extent and Development Locations**




9. The Future Year model network, inclusive of the traffic projections, represents a situation where the network capacity has been exceeded. The network is not able to accommodate the projected traffic levels and so significant increases in congestion levels are observed. In all model runs under these

unadjusted demand conditions whereby the full quantum of committed development is included on top of the baseline, congestion reaches a critical point whereby the model is unable to function and locks up (due to, for example, vehicles conflicting with each other and the modelled environment being unable to 'unlock' these vehicles, leading to exponential increases in delay).

10. In this instance, a functioning network is one which is considered to demonstrate sensible patterns of flow build up and dissipation. Network failure is demonstrable by continued and exponential increases in traffic volumes (and delays), with no discharge patterns being discernible.

11. This is both unrealistic and implausible as, in reality, 'gridlock' is a modelling phenomenon which does not occur on the ground, as there are a very large number of driver responses which can occur (such as retiming, route switching, changing mode, not travelling at all) that are not accounted for within the algorithms of the modelling software, as well as the ability of drivers in reality to manoeuvre/interact/co-operate in ways that the simulation simply cannot replicate.

12. Whilst it is important to note the occurrence of such conditions, presenting results from models which are in effect 'gridlocked' undermines the credibility of any assessment. It should also be recognised that, in reality, drivers will make decisions to avoid the regular occurrence of such extreme situations, drivers will change mode, retime or even cease their trips in response to such adverse conditions.

13. Whilst an approach which accounts for all committed development demands as effectively 'new' trips will result in high traffic volumes being run through the model this is not necessarily the right approach. Partly this is because the model behaviour is manifestly unrealistic as a result and partly because it fails to recognise what is occurring on the road network.

14. In areas such as the road network around Oxford, traffic volumes are not necessarily increasing on an exponential basis as one would expect if traffic forecasts assumed all traffic associated with committed developments is 'new'.

15. In such instances it is appropriate to consider local traffic trends when deriving traffic forecasts to ensure that the outcome can be considered realistic and plausible.

## Objective

16. The objective of this stage of the assessment is to establish the level of traffic growth to be assumed within the VISSIM modelling which reflects a realistic position based on interpretation of local evidence, and the need to ensure that the final model scenario is 'realistic' and can be used to reliably discern the effects of delivering both the allocated sites and the transport strategy required to support them.

17. A modelling assessment based on a network that does not function will only ever result in the prediction that significant additional road capacity will be required to support growth. This is even before the effects of traffic growth associated with any of the allocated sites is considered.

## Forecast Adjustments

18. Having initially developed a model which is informed by a traffic forecasting exercise which assumed all trips are ‘new’ the outcome was a model network which does not function. Capacity has been significantly exceeded and the network operation, and resulting model outputs, cannot be considered either realistic or reliable.

19. The forecasts derived from the manual application of traffic growth, estimated to occur as a result of both the committed developments and the PR allocations, results in increases in traffic volumes over the baseline levels, of as much as 28%.

20. Given the fact that parts of the network are already close to capacity it is unrealistic to expect that the network will continue to be able to sustain such increases in traffic volumes. Furthermore, such growth would be contrary to Oxfordshire County Council’s Cabinet adopted Local Transport and Connectivity Plan (LTCP) which, among its many ambitions, aims to cut car journeys by a quarter by 2030 and reduce them by a third by 2040.

21. Adjustments are therefore required to determine what an appropriate level of growth may be assumed within the modelling in light of the current circumstances, cognisant of historic trends and forthcoming policies.

22. The previous forecasts of up to 28% growth are contrary to forthcoming policies from OCC and also yield unrealistic outcomes when assigned to the existing traffic model. This is not unusual, particularly given the deterministic nature of microsimulation modelling software and the limitations that the software has in terms of considering wider driver responses but it does mean that adjustments to the demands will be essential to engender confidence in the modelling outcomes.

23. This note sets out a method for determining an appropriate adjustment to the model demands to constrain traffic forecasts to levels which are both realistic and conform to forthcoming policy objectives.

24. Two different sets of analysis have been completed. The first simply considers the linear interpolation of existing traffic trends, based on a series of observed traffic surveys collected over an extended period of time, to project forward what will happen to traffic flows by the end of the Local Plan period in 2031. A second method also considers the housing build out patterns within the area to link development delivery with traffic growth.

25. Each of these approaches and the resulting outcome is described further as follows:

## Data Selection and Cleaning

26. The traffic data which has been used in the process has been provided by OCC and processed by Vectos to provide summary totals for each year that the traffic data has been collected for.

27. The site locations for which traffic data was provided are illustrated within the following **Figure 2**.

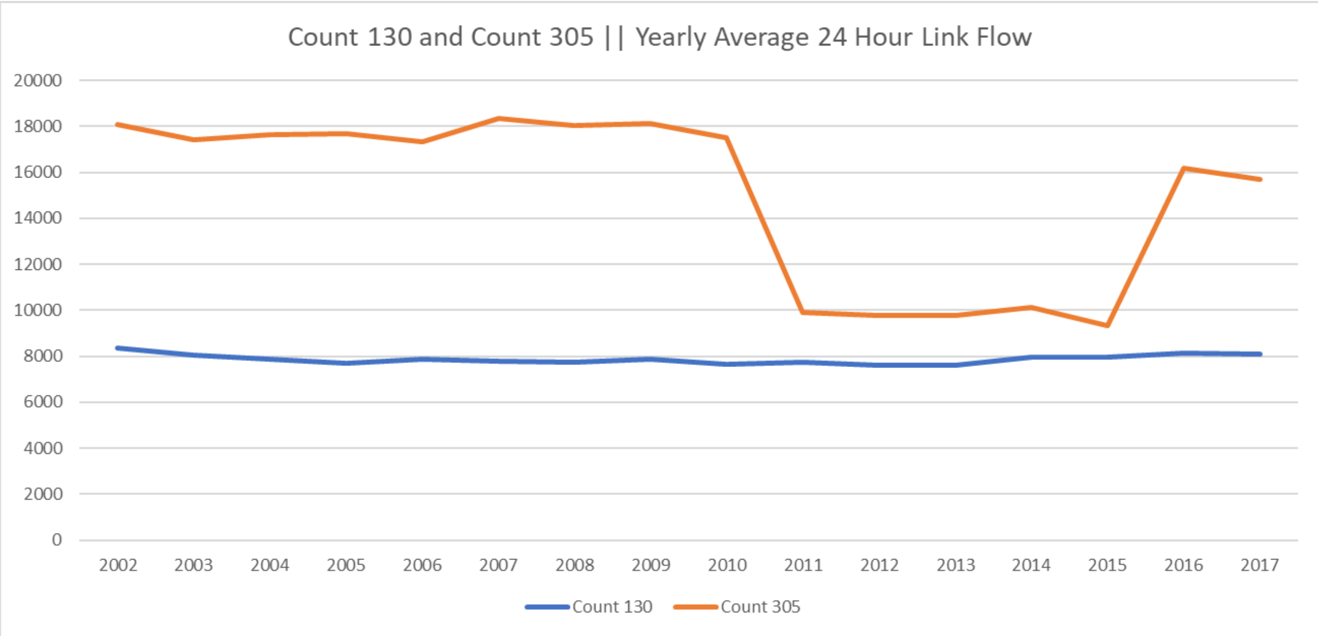
**Figure 2: Traffic Survey Locations**


28. Traffic data for the majority of these sites has been provided for a range of periods between 2000 and 2021 on the following basis. Note that sites 130 and 305 are not included within the analysis as 130 lies at the northern extremity of the model extent and contained a series of anomalies within the

yearly data, as well as the A4260 corridor that it monitors being covered by site 174 further south, and 305 is covered by adjacent count sites both north and south of this location.

29. Despite this these two sites have been analysed independently and results are provided within the graph below:

**Figure 3: Count Sites 130 and 305 Traffic Flows**




30. The graph above demonstrates that while Count Site 305 exhibits erroneous data between the years 2011 and 2015, the trend of traffic levels between 2002 and 2017 is a negative one. This is corroborated by Count Site 130 which shows consistent traffic levels between 2002 and 2017, but with overall growth also exhibiting a negative trend.

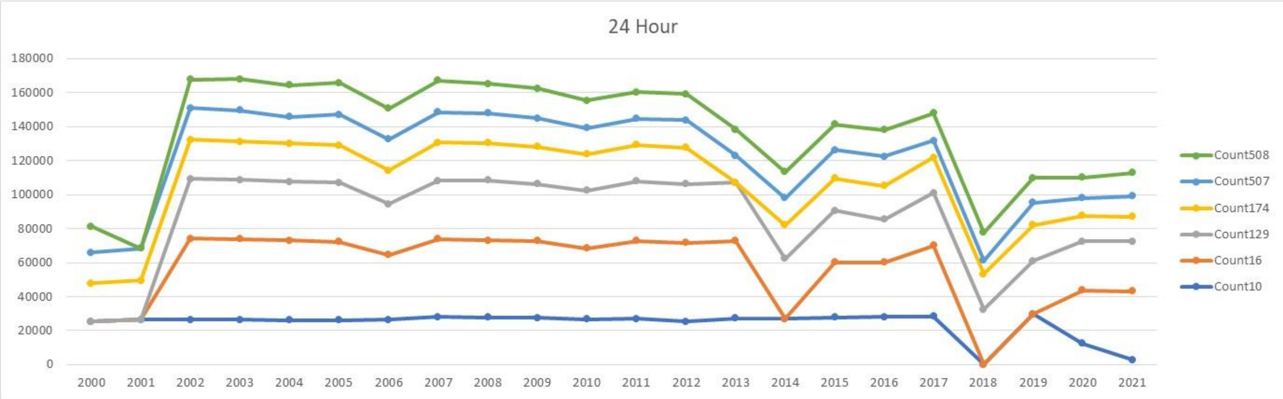
31. The process for analysing the remaining sites is detailed below.

**Table 1: Traffic Survey Period**

| Count Point | From | To |
|---|---|---|
| 010 A44 NORTH-WEST OF PEARTREE ROUNDABOUT | 2000 | 2021 |
| 016 A40 OXFORD NORTHERN BYPASS | 2002 | 2021 |
| 129 A40 SUNDERLAND AVENUE | 2002 | 2021 |
| 174 A4165 South of Kidlington | 2000 | 2021 |
| 507 A4144 Oxford, Woodstock Rd S of Blandford Ave | 2000 | 2021 |
| 508 A4165 Oxford Banbury Rd South of A40 | 2000 | 2021 |

32. As a first stage, the traffic data for each site was revisited to ascertain whether it produced stable flow patterns over the relevant forecast period. Stacked analysis of each site was undertaken and is presented within the following Figure:

**Figure 4: Stacked Count Data (24 Hours) 'Full Range'**

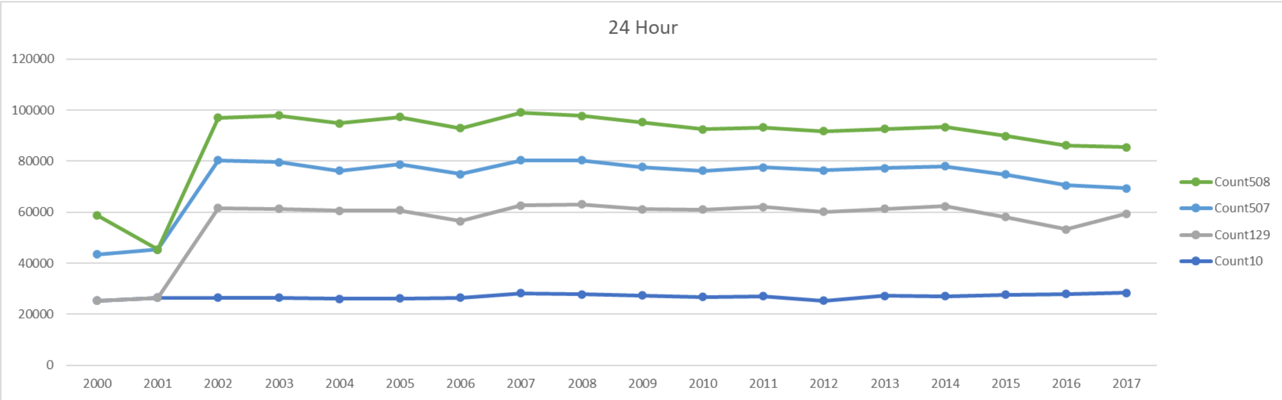



33. The count sites show a clearly discernible drop in traffic volumes in 2018 with modest recovery thereafter. The data has been checked and is not erroneous and therefore it was considered that the best course of action was to omit traffic data processed for 2018 onwards. Adopting this data within the analysis would simply result in a significant reduction in traffic volumes to be assigned in the future year scenarios. Even if this does transpire, there is an expectation that OCC will expect to see some element of traffic flow increases because of the forecasting process and so, for this reason, the cut off was implemented from 2018 onwards.

34. Count site 16 and 174 were identified as having missing data sets within the assessment period (2013 and 2041 respectively) and so both of these sites were also omitted from the interpolation.

35. This resulted in the following traffic patterns being used to interpolate future growth levels based on existing traffic trends:

**Figure 5: Stacked Count Data (24 Hours) 'Selected Range'**




36. Interestingly, even when traffic data has been processed and cleaned, to minimise the rate at which it predicts a reduction in traffic levels, these sites, when assessed over the AM and PM peak hours, would still result in the prediction that future traffic levels will drop by 2031 relative to 2017 (the last year chosen for the analysis).

37. Between 2013 to 2017 there remains a notable drop in the traffic volumes observed at each location. The biggest drop occurs within 2014, followed by a slight recovery in traffic flows but which remains below 2013 levels. The rate at which the traffic volumes recover affects whether the linear interpolation of future trends predicts growth or recession in traffic volumes.

38. Because the recovery in the AM and PM peak hours is much slower than the 24 hour levels, this results in the peak hour analysis predicting a reduction in traffic flows of between 10-11.5%, whilst the 24 hour analysis predicts a more modest reduction in traffic volumes of around 8%.

39. The trend analysis for the AM and PM peak hours is presented separately to the 24 hour period within the following **Figure 6** and **Figure 7** respectively:

**Figure 6: Traffic Trend Analysis and Interpolation (AM and PM Peak Hours)**

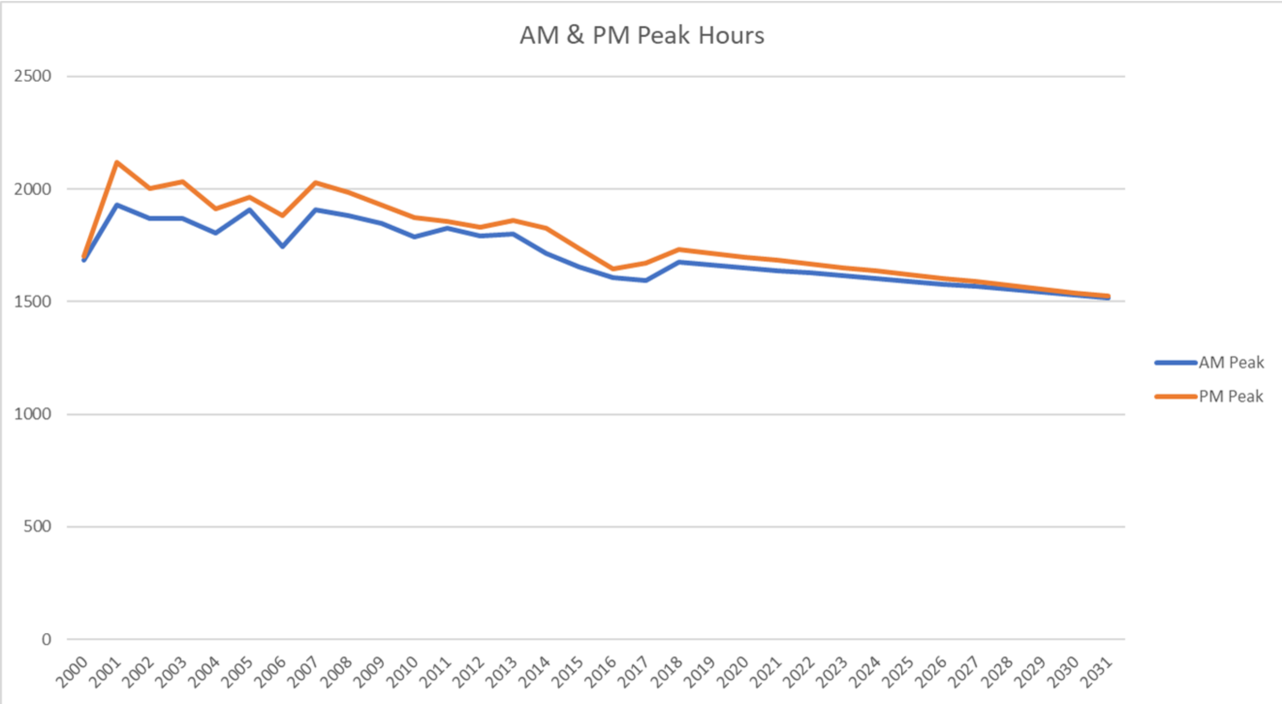
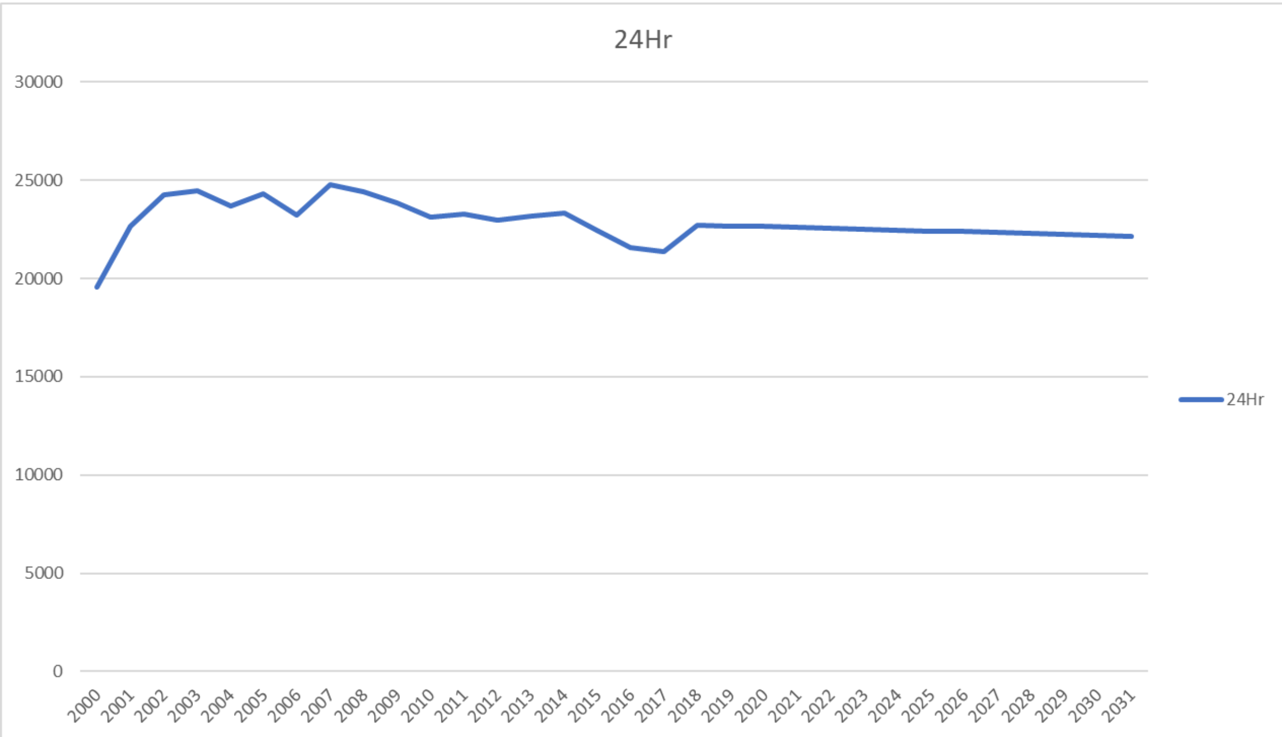



**Figure 7: Traffic Trend Analysis and Interpolation (Daily Volumes)**



### Development Trajectory Analysis

40. Consideration has been given to establish if there is a relationship between changes in traffic volumes and the delivery of new housing within the study area.

41. This was considered particularly pertinent since most of the traffic trend analysis resulted in the prediction that traffic volumes would be lower in 2031 than those observed in 2017/2018.

42. It is possible, for example, that one could contend that traffic growth rates have been constrained due to limited housing delivery and a correction to the rate of housing delivery would, correspondingly increase the rate of traffic growth to be assumed within the modelling.

43. However, the availability of planning data to inform the projections for housing delivery was limited. Vectos has previously provided census data pertaining to housing levels identified within census for the years 2001 and 2011, no data is available beyond this point within the current census data.

44. Within NTEM there is some account of increasing dwelling figures within the planning assumptions. NTEM figures begin at 2011 however and when comparing the 2011 figures within NTEM with those presented within the census data there is a clear discrepancy within the figures.

45. The differences between the two figures for 2011 are presented within **Table 2** alongside the adjustment factor. This adjustment factor was subsequently applied to the 2001 census data to create an equivalent NTEM housing figure for 2001. This then allows NTEM to be interrogated for a 2017/18 housing figure as well which, in turn, allows projected housing delivery to be plotted against the traffic trends to understand if there is a discernible relationship between the two data sets. The outcome of this process is presented within **Table 3** and presented alongside the processed traffic volumes within **Figure 8**.

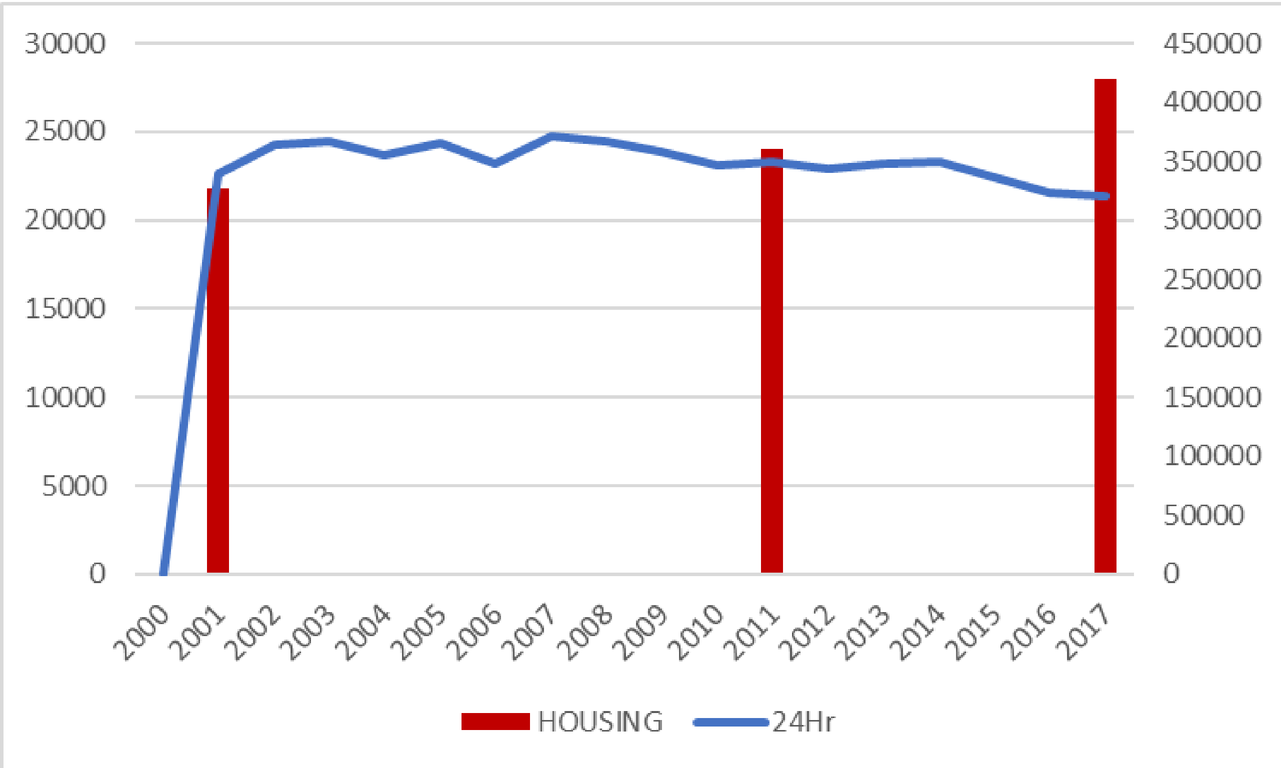
**Table 2: Nomis versus NTEM Housing Projections**

| | NOMIS | | NTEM | |
|---|---|---|---|---|
| **Area** | **2001** | **2011** | **2011** | **Difference** |
| Cherwell | 23,117 | 23,440 | 56,890 | 2.427048 |
| West Ox | 32,051 | 32,620 | 43,512 | 1.333906 |
| Oxford | 134,248 | 151,906 | 259,319 | 1.707102 |
| **Total** | **189,416** | **207,966** | **359,721** | **1.729711** |

**Table 3: Normalised Housing Projections (2001 to 2018)**

| Area | 2001 Adjusted | 2011 NTEM | 2018 NTEM |
|---|---|---|---|
| Cherwell | 56,106 | 56,890 | 85,346 |
| West Ox | 42,753 | 43,512 | 47,200 |
| Oxford | 229,175 | 259,319 | 287,588 |
| **Total** | **327,635** | **359,721** | **420,134** |

**Figure 8: Normalised Housing Projections versus Average Daily Traffic Volumes**




46. The previous figure reveals that the increase in housing projections actually corresponds to a modest reduction in traffic volumes. Whilst housing deliveries are increasing, traffic flows are reducing within the same period.

47. Although this has required a mix of NTEM estimates and observations through census, it clearly demonstrates that increased housing levels will not necessarily mean an increase in traffic volumes.

48. Therefore, in order to reflect this within the traffic modelling, it is proposed that the forecast scenario is derived whereby total growth within the model, following the assignment of the committed development demands, remains at 0%. The mechanics of the application of this methodology are described in the section below

**Capping Application – A40 Adjustment**

49. As a first step, it was considered necessary to apply demand adjustments in response to the inclusion of the A40 bus corridor scheme present within the 2031 VISSIM network. This scheme is to be delivered as part of the Growth Fund and was included within the 2023 VISSIM model received as the starting point for this assessment. However, in revising network demands back to 2018 baseline before reforecasting to include all committed sites (details of which can be found in the Forecasting Report[1]), modelled demands prior to this adjustment do not account for any potential shift from car trips to bus trips following delivery of the A40 bus infrastructure.

50. To account for this element of forecast modal shift, a catchment area was determined along the A40 covering zones located along the A40 corridor to the west which may present opportunities for mode shift, along with zones towards the east that reflect either the continued A40 off-network, or zones located within central Oxford that will be serviced by A40 bus routes.

51. Two determining factors have been established that control whether a trip within the OD matrix is potentially subject to an adjustment:

a. Whether the zone lies within the bus corridor catchment

b. The nature of the zones which make up the trip (i.e. Internal, External Minor, or External Major)

52. The magnitude of trips which are able to shift is based on the type of OD, with trips that a predominantly internal in nature being considered more likely to shift than trips that are largely linked to wider destinations. The relative adjustment potential for each trip type is presented within the following matrix:

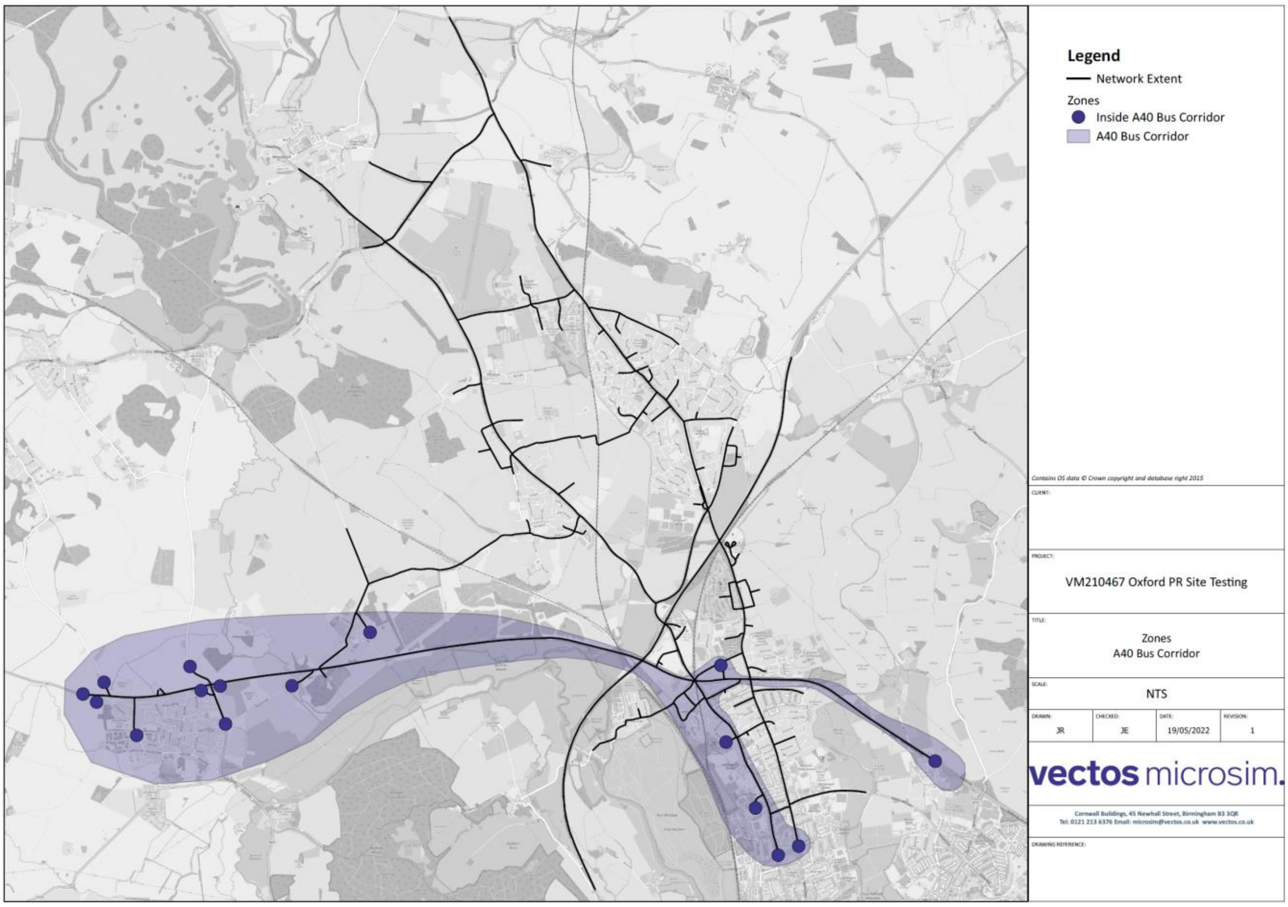
**Table 4: Demand Adjustments for Linear Factors**

| From/To | External Major | External Minor | Internal |
|---|---|---|---|
| External Major | 5.0% | 7.5% | 10.0% |
| External Minor | 7.5% | 5.0% | 15.0% |
| Internal | 10.0% | 15.0% | 25.0% |

[1] VM210467.R001b Forecasting Report

53. The image below provides the catchment, along with the zones included as those which would benefit from improved bus services along the A40. A40 East and West zones are assumed to be External Major, zone 23 (which represents the B4449 south of A40, leading to Eynsham and connecting to A420 and A34 at Botley) is assumed to be classified as External Minor, while all other zones are assumed to be Internal.

**Figure 9: A40 Bus Corridor Catchment**




### Capping Application – Eynsham Park and Ride

54. In addition to the mode shift forecast to be achieved via the introduction of the A40 bus lane, the proposals to bring forward a Park and Ride service at Eynsham is also considered. As these proposals are to be funded by sources outside of the PR sites considered in this assessment, the adjustments are applied to the Reference Case model and carried through into the testing.

55. The methodology identifies zones located near to the proposed location of Eynsham Park and Ride, and pairs these origin zones with destination zones in and around Oxford City Centre. For the AM, this provides a total possible intercept of 634 trips, i.e. 634 trips are identified as travelling from the Eynsham origin zones to the Oxford destination zones. In the PM, a total intercept of 442 trips is

identified, corresponding to the number of trips identified in the matrix travelling from Oxford zones to Eynsham zones.

56. Forecast accumulation for the Park and Ride is taken from the TA[2], which suggests a total 3 hour occupancy rate of 90.2% and a PM occupancy rate of 62.3%. This translates to a total of 767 AM trips and 530 PM trips that would be forecast to use the P&R service, and thus the number of trips that would be removed from the A40 corridor. This means that the number of trips available to be shifted within the VISSIM demands is lower than the forecast utilisation of the Park and Ride in both peak periods.

57. Notwithstanding this, the available OD movements are removed from the VISSIM demands on the basis that these trips are likely to shift to the new Park and Ride Service.

**Capping Application – Remaining Background Cap**

58. Following inclusion of the focussed adjustment on the A40 resulting from the Growth Fund scheme and the Eynsham Park and Ride, further adjustments are applied in line with the analysis undertaken above to cap the overall network demands to a level consistent with the baseline, ensuring an overall 0% growth level can be maintained.

59. To ensure that the distribution of growth reflects known development pressures, as is identified through the analysis of the committed developments, the matrices which have been derived for the committed developments have been retained with the existing trip generation figures fixed for each of these developments. This means that traffic generation figures related to the committed developments, and their associated impact, can be accounted for within the model network but there is a corresponding reduction in baseline trip figures from those zones which are predicted to experience increases in traffic volumes related to the committed developments.

60. Effectively, the committed development demands displace trips within the existing background matrices such that traffic volumes within the future year reference case, prior to the allocated sites being included, remains consistent with the volumes observed within the 2018 base model.

61. This is considered to be the most realistic forecast scenario to enable OCC to understand the outcomes that may occur following the inclusion of the allocated sites and associated sustainable transport interventions.

62. The demands build for the committed developments has resulted in 6764 trips being identified for inclusion within the model network during the AM period and 7916 trips being assigned within the PM period. The baseline figures for the AM and PM periods are 46420 and 49916 respectively.

63. In order for traffic growth within the model to be capped at 0% it is necessary to reduce the total background traffic which is assigned to the model by the same magnitude as the total committed development trips being added.

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[2] A40 Park and Ride and Bus Lane Scheme, Transport Assessment, Oxfordshire County Council, Table 6.2

64. The following steps have been adopted to achieve this level of adjustment within the model demands in a manner which also retains the assignment demands derived for the committed developments, as per the trip generation totals identified during the process of scoping out the future year model assumptions:

- The level of traffic required, per hour, to limit growth to 0% was identified.
- Correspondingly, the amount that traffic volumes needed to reduce by to enable 0% overall to be adopted within the model was identified on an hourly basis.
- This 'reduction' was distributed using the pattern of growth identified as a result of the individual hourly committed development matrices.
- The reduction, once distributed using the pattern of growth per the Com Dev matrices was then applied to the background matrix levels for each hour.
- In certain instances the application of this reduction resulted in negative trips occurring (i.e. Origin/Destination pairs where the volume of trips within the background matrix was lower than the quantum being removed) in such instances, a furnessing procedure was applied on the following basis:
    - Initially, zones which had negatives within the destination column were furnessed such that the negatives were subtracted from the existing positive figures within the respective matrix column.
    - Subsequently, where negative figures still remained within the matrices, the process was repeated using origin figures whereby the negatives were applied proportionally to the remaining positive figures.
    - Finally, in the rare instances were after both column and row adjustment negatives still remained, an adjustment was made whereby the remaining negatives were reduced from the whole matrix proportionally based on the remining positive trip generation totals.
- The resultant 'adjusted' background demand matrix levels were then assigned to the model alongside the full committed development matrices.

65. A summary of the outcome of this process is also provided within the following **Table 5** which sets out the adjustment which has been applied to the background matrix levels, and the resulting demand totals now assigned to the Reference Case as a result:

**Table 5: Demand Adjustment Summary**

| Period | AM 07:00-08:00 | AM 08:00-09:00 | AM 09:00-10:00 | PM 15:00-16:00 | PM 16:00-17:00 | PM 17:00-18:00 |
|---|---|---|---|---|---|---|
| Background Lights | 15668 | 16472 | 14280 | 15156 | 16900 | 17860 |
| Com Dev | 1826 | 2990 | 1949 | 2191 | 2765 | 2960 |
| ***Initial Total*** | ***17494*** | ***19462*** | ***16229*** | ***17347*** | ***19665*** | ***20820*** |
| CD GROWTH | 11.7% | 18.2% | 13.6% | 14.5% | 16.4% | 16.6% |
| Periodic | | 14.6% | | | 15.9% | |
| Target | | 0% | | | 0% | |
| Diff | | -14.6% | | | -15.9% | |
| figure | | -5443 | | | -6404 | |
| Target adjustment | -1826 | -2990 | -1949 | -2191 | -2765 | -2960 |
| A40 Corridor Adjustment | -85 | -76 | -69 | -67 | -78 | -53 |
| Eynsham P&R Adjustment | -242 | -161 | -231 | -88 | -228 | -127 |
| Remaining Background Cap | -1499 | -2753 | -1649 | -2037 | -2460 | -2780 |
| Background Lights | 13842 | 13482 | 12331 | 12965 | 14135 | 14900 |
| Com Dev | 1826 | 2990 | 1949 | 2191 | 2765 | 2960 |
| **Final Total** | **15668** | **16472** | **14280** | **15156** | **16900** | **17860** |

## Summary

66. The modelling working group has developed a Future Year Reference Case VISSIM model which can be used to assess the implications of delivering the proposed PR allocations north of Oxford. As part of this process historic data provided by OCC has been reviewed for a number of sites within the area.

67. The traffic counts and survey periods have been rationalised to enable trend analysis to be completed. This has allowed traffic forecasts to be projected forward to Local Plan year of 2031 based on the trends observed within the historic traffic data collected at the selected locations.

68. This has also been compared with the planning assumptions contained within the NTEM database and the Census data to create a normalised housing delivery level for the years 2001, 2011 and 2018. This has been used to correspond the changes in traffic forecasts to housing delivery rates.

69. Analysis and interpolation of the trends observed within the traffic data reveals that traffic levels are predicted to drop within the AM and PM peak hours by 2031, relative to 2017 levels.

70. Comparison of the traffic trends relative to housing delivery reveals that the drop in traffic volumes is actually accompanied by an increase in housing provision and, as such, an adjustment has been defined whereby the traffic movements associated with the committed developments are contained

within the model traffic demands but trips associated with the same zones in the base model, as are affected by the committed development trip generation figures, are reduced. This is intended to ensure that the total demands within the model do not exceed the total of the trips contained within the base model.

71. This has resulted in adjustments to the traffic figures within the model to ensure that the overall traffic volumes within the model are capped at 0% above the baseline figures inclusive of the additional demands associated with the consented developments. The adjustments to the traffic forecasts have been applied to the background light vehicles; HGVs are fixed at the baseline levels.

72. It is considered that the application of capping in the manner set out within this note is sensible, as it allows for realistic forecasts to be derived for assignment within the model such that the network capacity is not entirely exceeded prior to any development assessment work, as clearly that would not be a realistic position particularly given the findings of the trend analysis which points to a steady decline in peak hour traffic volumes.

73. The resultant traffic figures assigned within the VISSIM model also accord with the reductions being targeted through Oxfordshire’s LTCP. Continued application of increases in traffic volumes through the model forecasting would represent a significant failure in OCCs policy approach.

# Appendix L

## Mode Shift Discussion Note

# Oxford PR Sites VISSIM Assessment
# Mode Shift Assessment Discussion Note

VM210467.DN01b
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## Introduction

1. Vectos Microsim (VM) is assisting in the assessment of the impacts of delivering the allocated sites to the North of Oxford city, on the transport network, using the Oxford north VISSIM model.

2. The work is being undertaken on behalf of multiple site promotors and is assessing the effects of the allocated sites references PR6(a&b), PR7(a&b), PR8 and PR9.

3. The cumulative effect of delivering these sites is being considered alongside a series of key, consented developments which have been identified for inclusion within the assessment through a separate scoping exercise conducted with Oxfordshire County Council (OCC).

4. The primary objective of this study is to identify the effects on network operation arising from traffic forecasts associated with the allocated and consented developments, inclusive of any consented infrastructure proposals, to determine the level of mode shift which will need to be achieved to enable the allocation strategy to be delivered in a manner which is acceptable to OCC.

5. The VISSIM microsimulation model network extent, as well as the key development locations, is illustrated within **Figure 1** overleaf.

## Purpose of this Note

6. The purpose of this note is to set out for discussion and agreement the assumptions to be applied to the demands within the VISSIM model to replicate the expected effects of changes in travel behaviour arising from the delivery of enhancements to the sustainable and active travel networks.

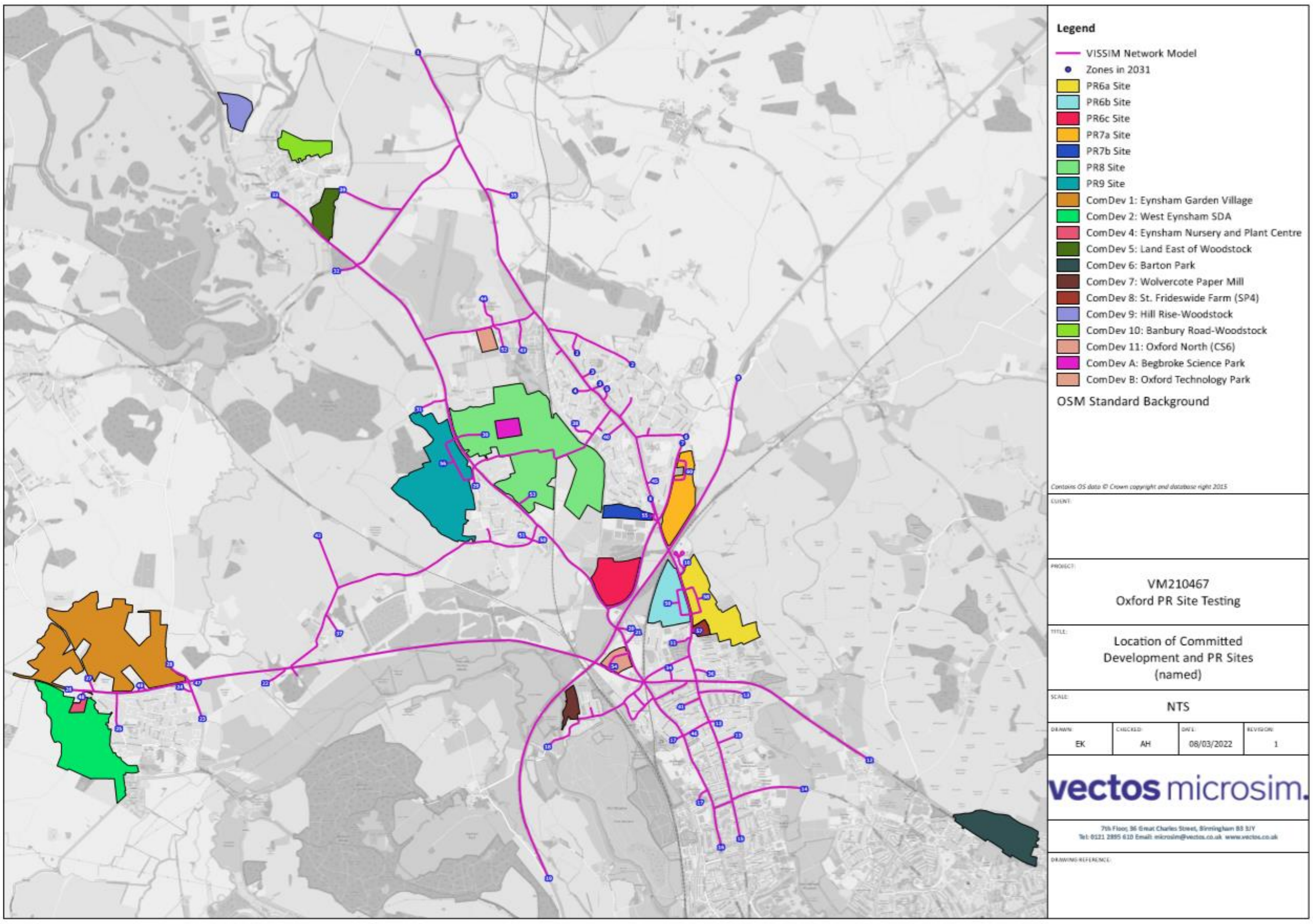
## Background

7. The North Oxford VISSIM model has been provided to VM by OCC and has been adjusted to account for the traffic growth projected to occur because of the delivery of an agreed set of committed developments and the allocated PR sites.

8. The Local Plan Part 1 Partial Review runs to 2031. The PR sites are expected to be constructed and completed during this period up to 2031, albeit PR8 is expected to be completed shortly after by 2033. Therefore, the Future Reference Case model will establish local highway network conditions, taking into account any appropriate background traffic growth, consented development traffic and PR site traffic upon full completion.

9. The assumptions contained within these model scenarios have been circulated and reported separately and have resulted in the development of a Future Year set of models which contain committed development and PR sites and associated infrastructure.

**Figure 1: Model Extent and Development Locations**




## Objective

10. The objective of this stage of the assessment is to test the impact of the cumulative PR site delivery on the road network, and to establish the mitigation and sustainability measures required to ensure the network is capable of accommodating the trips associated with these developments.

11. A package of measures has been identified in Infrastructure Delivery Plan (IDP) in Appendix 4 of the Cherwell Local Plan (Part 1) 2011-2031 Partial Review (referred to as the IDP package) that focus on sustainable transport interventions, to be funded by the PR sites, that are aimed at improving the operation of the network whilst also helping OCC achieve their modal shift targets. This note sets out how these measures have been included within the modelling.

## Demand Responses

12. The deterministic nature of microsimulation modelling techniques means that the forecasts will need to be subject to manual adjustments to account for the expected behavioural responses.

13. Microsimulation modelling does not utilise Variable Demand Modelling (VDM) approaches to reduce traffic flows in the face of increasing journey costs. It should also be noted that traditional VDM approaches are limited with regards the ability to reflect changes induced by enhancements to the active travel network in any event.

14. Thus, it has been agreed that manual adjustments to the model demands are considered an acceptable way of accounting for the behavioural changes which are expected within the study area.

15. The primary behavioural change which is anticipated is that of a change in mode. However, a change in departure time may also occur (i.e. peak spreading) if, following the mode shift assumptions, the network function has not recovered to an acceptable level. Peak spreading has not been included as part of this modelling exercise but it is considered likely that it would occur.

16. There are four behavioural responses which this work seeks to capture:

- Park and Ride Shift: Whereby drivers terminate at the Park & Ride sites and continue their journeys in to the city via the P&R bus services.

- Active Travel Shift: Whereby drivers choose to switch to active travel modes which is informed by the distances being travelled and enhancements to the active travel network.

- Cycle Corridor Shift: Whereby key corridors have been defined to allow for an enhanced mode shift to be achieved, on a corridor basis, in response to the delivery of targeted infrastructure and, thus, is dependant upon the location of the zone relative to the corridor where the enhancements are being proposed.

- Bus Corridor Shift: Whereby the A44 corridor has been identified as a key corridor for enhanced public transport services and associated demand adjustments have been included.

17. These behavioural responses have been defined through a series of assumptions which can then be applied to the model demands to reflect the effect that the shift will have on network operation.

18. A key aspect of this methodology is the initial assumption set. These are the controls which effect how (and which) demands are adjusted to capture the various behavioural responses.

19. It is these assumptions which are to be agreed through this discussion note and are set out in detail towards the end of this note.

20. Whilst these four behavioural responses have been justified through the associated demand adjustments, there are other measures promoted within the Oxfordshire County Council Local Transport and Connectivity Plan (LTCP) that have not been accounted for, including traffic filters, zero emission zones and a workplace parking levy. It is therefore expected that the targeted measures set out in the LTCP will reduce traffic levels further than the cumulative adjustments undertaken for this modelling exercise, and whilst every attempt has been made to ensure the

proposed adjustments are sensible in magnitude and transparent in rationale, in reality demand 'adjustments' (i.e. modal shift and/or trip spreading) are likely to be far more wide-ranging.

## Outline Methodology

21. At each stage of the process the demand responses are added incrementally and in the order stated. Thus, adjustments are first applied to reflect the impacts of the P&R switch before subsequently moving on to the Active Travel effects.

22. An overview of this method is summarised as follows:

- The zone system within the model has been reviewed and zones have been classified based on their location which, in turn, influences which behavioural responses they are susceptible to, and the level of susceptibility thereof.

- Catchment areas have been defined for the Oxford Airport P&R site and trips which travel past the P&R site into the city that may realistically shift to the P&R services have been identified and intercepted. The level of intercept being determined by the car park capacities and expected accumulations for Oxford Airport P&R utilising OCC data contained within the planning application for the Eynsham P&R.

- Using the zone classifications to guide which zones will be affected by Active Travel measures, the distances between different origin / destination pairs has been established. Shifts to walking have been based on journey distances of 1.65km or less whilst cycling intercepts are currently constrained to trip distances of up to 6.6km. Varying percentages have been applied to the trips which fall below these distances to reduce the car-based trips within the model and reflect the increased uptake in these modes.

- Additional analysis has been undertaken to assign zones to key corridors within the model area which may subsequently be subject to a further enhancement (i.e. in addition to that which occurs as a result of intercepts informed by trip distance). These corridor adjustments are informed by the presumption of effect on a corridor basis in response to proposed infrastructure being delivered along a specific corridor which will increase provision for cyclists which is expected to lead to a corresponding increase in cycling as a mode of transport as a result.

- A final adjustment is applied in response to the specific commitment by the PR working group to fund additional bus services along the A44 corridor.

23. Each stage requires a series of assumptions to be applied based on a combination of the origin/destination zone type and pair as well as, in some cases the trip distances. Details as to the initial assumptions applied for each discrete stage are provided within the following section.

24. OCC has provided a 2018 and a 2023 Base VISSIM model. The 2023 model has been derived by applying adjustments to the 2018 demands to account for the delivery of consented developments within the intervening period. Since the updated forecasting procedure being developed by VM includes for each individual development to be accounted for explicitly within the model network, the

2018 demands have been used as the starting point for the adjustments to then be applied as set out for each stage incrementally.

### Initial Model Demands

25. At each stage the demand adjustments are applied to different matrix levels depending upon the nature of the adjustment being applied.

26. Within the VISSIM model, this is controlled by the fact that each of the key demand segments is assigned to the model via its own specific demand assignment matrix. This means that the demand associated with Light Vehicles, Heavy Vehicles, Committed Developments and each individual PR allocation can be identified separately within the model network.

27. Excluding the HGV vehicles as they are not expected to be affected by mode shift and behaviour change, there are 8 demand segments which assign vehicles within the model network. The initial demands which have identified following the review of development inputs, for light vehicles only, are presented within the following table:

**Table 1: 2031 Cumulative Scenario Demands (no Adjustment)**

| Demand | AM 1 | AM 2 | AM 3 | PM 1 | PM 2 | PM 3 |
|---|---|---|---|---|---|---|
| **Background Lights** | 15668 | 16472 | 14280 | 15156 | 16900 | 17860 |
| **Com Dev** | 1826 | 2990 | 1949 | 2191 | 2765 | 2960 |
| **PR6a** | 160 | 183 | 91 | 182 | 190 | 213 |
| **PR6b** | 119 | 126 | 70 | 138 | 145 | 170 |
| **PR7a** | 78 | 87 | 48 | 90 | 94 | 110 |
| **PR7b** | 27 | 33 | 31 | 40 | 45 | 45 |
| **PR8** | 1054 | 1004 | 880 | 898 | 940 | 877 |
| **PR9** | 114 | 112 | 91 | 101 | 139 | 156 |
| **Total** | **19046** | **21007** | **17440** | **18796** | **21218** | **22391** |

28. This table reveals that, across the entire AM and PM period the traffic growth which is forecast to occur, in light vehicle movements within the study area, currently stands at around 22 to 28% which is made up of 12 to 18% increase derived from the inclusion of the consented development traffic growth and 8 to 10% growth derived from the PR allocations.

29. These demands were reviewed and considered to be unrealistic in light of the OCC LTCP mode shift targets as well as the outcome of local trend analysis which considered the rate at which traffic volumes had changed within the model alongside the rate at which housing levels had increased. As a result of this additional analysis it was deemed appropriate to adjust the demands to accommodate the traffic forecasts associated with the committed developments whilst constraining the overall traffic volumes within the model.

30. As a result of this process, the demands used as the basis for the mode shift analysis have been adjusted such that, when committed developments are included, the overall traffic volumes remain consistent with the base figures (i.e. growth is at 0%) and then the PR site demands are included in addition to these.

**Table 2: 2031 Cumulative Scenario Demands (post trend Adjustment)**

| Demand | AM 1 | AM 2 | AM 3 | PM 1 | PM 2 | PM 3 |
|---|---|---|---|---|---|---|
| **Background Lights** | 13842 | 13482 | 12331 | 12965 | 14135 | 14900 |
| **Com Dev** | 1826 | 2990 | 1949 | 2191 | 2765 | 2960 |
| **PR6a** | 160 | 183 | 91 | 182 | 190 | 213 |
| **PR6b** | 119 | 126 | 70 | 138 | 145 | 170 |
| **PR7a** | 78 | 87 | 48 | 90 | 94 | 110 |
| **PR7b** | 27 | 33 | 31 | 40 | 45 | 45 |
| **PR8** | 1054 | 1004 | 880 | 898 | 940 | 877 |
| **PR9** | 114 | 112 | 91 | 101 | 139 | 156 |
| **Total** | **17220** | **18017** | **15491** | **16605** | **18453** | **19431** |

31. This table reveals that inclusion of the PR site demands alone, in addition to the committed developments which have already been supplanted within the baseline matrices, represents an increase in traffic volumes of between 8% to 10% per period.

32. These demand matrices have then been subject to the adjustments to account for changes in travel behaviour in response to increased uptake in different modes of transport. This has been set out in more details as follows.

## Zone Classifications

33. The first stage of the methodology requires the model zones to be categorised into different types based upon the location of the zone and the type of loading point it represents.

34. Three classifications have been identified at this stage:

- **Internal Zones**: zones which represent loading points for local trips which are likely to have been generated close to the zone location.

- **External Major Zones**: zones which represent trips loading in via major roads such as the strategic road network, where the origin and destination are unknown but trip length distribution will likely be biased towards longer distance trips.

- **External Minor Zones**: Zones which represent loading points that link on to the local road network, A-Roads and B-Roads which will carry a lot of traffic but are not skewed towards SRN style long distance trips (such as those zones which represent the points of access in to the City).

35. The classification of zones that has been applied is illustrated within Figure 2 overleaf. These classifications inform the application of certain demand adjustments, specifically concerning the accounting for Active Travel within the model network.

## Park and Ride Adjustments

36. The first demand adjustment which has been applied is intended to reflect the delivery of P&R proposals at Oxford Airport.

37. Car park accumulation data has been translated into an intercept level which extracts demands from the model network proportionally based on a select number of origin destination pairs until the car park accumulation has been equalled by a reduction in car trips on the model network.

38. An adjustment to the accumulation was then applied based on the demand profile within the model attributable to the OD pairs that fall within the intercept region. The accumulation profile was adjusted to reflect the proportions of trips within each hour that could be intercepted.

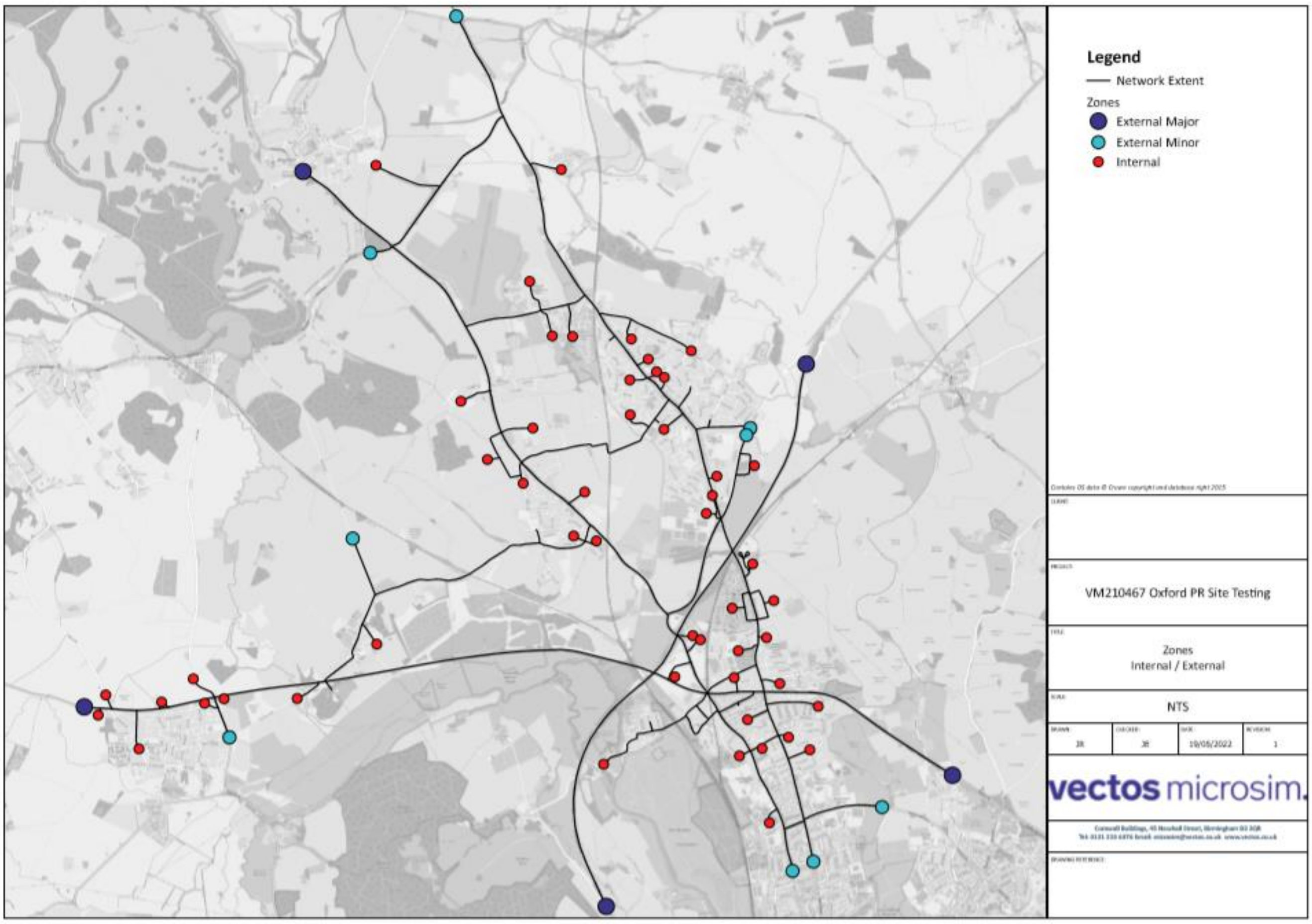
39. This means that if the car park was projected to fill 37% of the spaces but the model demands only exist for 35% of the spaces then the 35% target is used and the remaining 2% of spaces are filled in other hours where the demand is observed to exist. This ensured that the car park accumulation targets could be met, over the three hours, provided there was sufficient demand within the model over that period.

40. With Oxford Airport P&R the occupancy and accumulation percentages have been adjusted based on likely intercept levels and this has ensured that the car park accumulation targets are fully matched over the 3-hour model periods.

41. Trips are intercepted travelling between the Origin Zones to the Destination Zones during the AM. Instead of trips between the Origin and Destination zones the trips travel between the Origin zones to

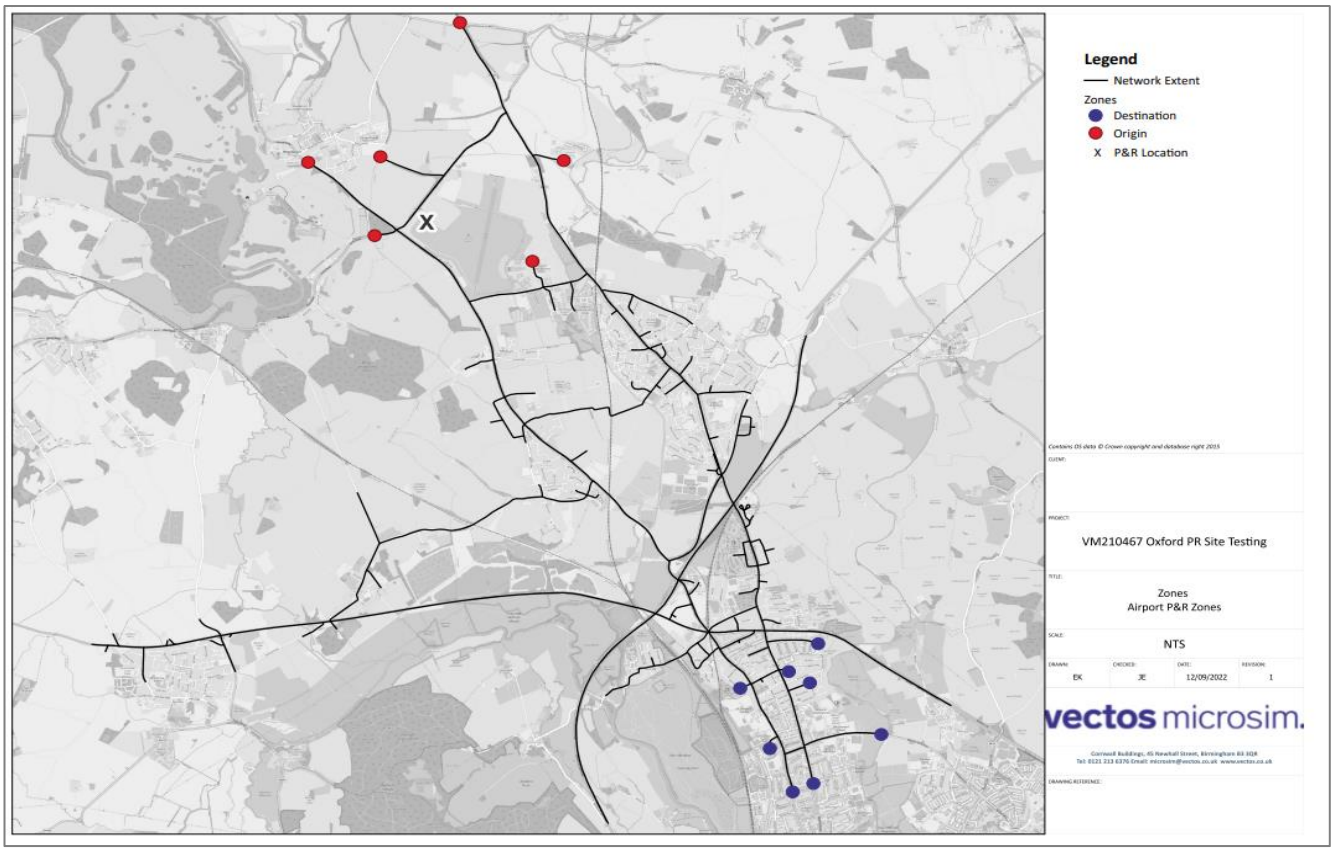
the P&R and then, during the PM they travel from the P&R to the Origin zones. The trips from the P&R to and from the destination zones in the AM/PM periods are assumed to be supplanted by the P&R services.

**Figure 2: Zone Classifications**




42. The catchment assumptions for the Airport Park and Ride is illustrated within **Figure 3.**

**Figure 3: Airport P&R Catchment**




43. As has been stated previously, the P&R intercepts work by identifying origin destination pairs that could realistically divert to use the P&R. They depart the Origin Zone and then travel to the P&R where the P&R service facilitates the remainder of the trip. During the PM the trips from the destination are removed and instead trips are implemented from the P&R zone to the original destination.

44. Trips are assumed to be intercepted from both Background and Committed Development matrices. The reductions are applied proportionally dependent upon the level of demand in each segment (i.e. as demands are typically higher within the background matrix level compared to the committed development matrices).

45. The total intercept for the Airport P&R, based on the car park occupancy, is 992 trips in the AM and 685 trips in the PM. Based on the analysis of the trips which are contained within the demand matrices there are a possible 892 AM and 966 PM trips which could divert in response to the delivery of the P&R leaving around 0 car trips in the AM and 281 trips in the PM which remain as car trips within the model. The remaining trips are now assumed to use the Airport P&R service.

46. A summary of the resultant impact on the model demands, arising from these changes, is provided within **Table 3** below.

47. **Table 3** illustrates that the net reduction in traffic volumes, arising from the application of the P&R induced demand adjustments, is around a 2% to 3% reduction in car trips across each individual hour. This effect would be reduced if the Airport P&R trips were reinstated at the P&R site but for

simplicity this stage has not been undertaken due to the limited impact upon the road network (as trips would be originating at northern zones and ending their trip at the new P&R zone located only a short distance away).

**Table 3: 2031 P&R Demand Adjustment Summary**

| Demand | AM 1 | AM 2 | AM 3 | PM 1 | PM 2 | PM 3 |
|---|---|---|---|---|---|---|
| **Input Demands** | 15668 | 16472 | 14280 | 15156 | 16900 | 17860 |
| **Airport Subtracted** | -376 | -287 | -230 | -240 | -232 | -214 |
| **% Diff** | -2.40% | -1.74% | -1.61% | -1.58% | -1.37% | -1.20% |

48. These reductions are applied wholly to the Background Light and Committed Development matrices. The adjusted P&R demands have then been taken forward to the next step where adjustments have been made to account for walking and cycling.

### Active Travel Adjustments

49. The application of Active Travel adjustments is intended to reflect the shift in trips from car to active modes in response to the provision of enhancements to the transport networks to encourage active travel uptake.

50. The adjustments to the demands have been applied to reflect two different shifts:

   — Mode shift based on the intercepting of trips under a certain threshold.

   — Mode shift due to proximity of trips to corridors where further enhancements may be proposed.

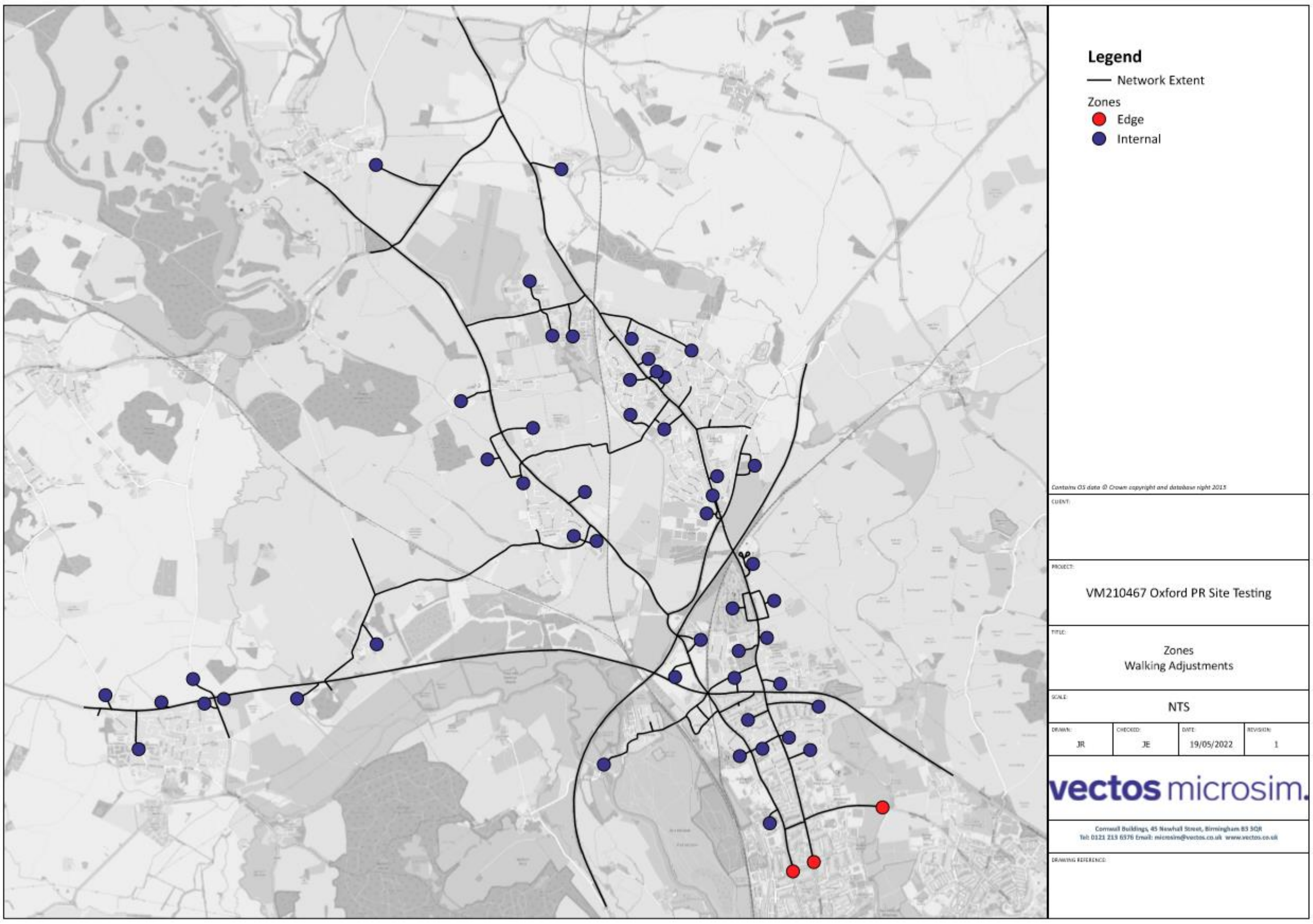
51. Adjustments to OD pairs to reflect a shift to Active modes needs to also be restricted to the zones where the shift can realistically be achieved. This means that trips where at least one trip end is associated with an External Major zone are omitted from this exercise. This is because those trip ends are generally expected to be significantly further away than the point of entry/exit represented by the zones within the model.

52. Similarly, several External Minor zones were excluded on the grounds that they also represent loading points for trips where the vast majority would be expected to travel further than the point represented by the External Minor zone. Not all External Minor zones were excluded from this process however as the zones to the north of the city are considered to be representative of a number of short distance trips as well as longer distance trips due to proximity to the city centre.

53. Those External Minor zones retained in this process have been classified as ‘Edge’ zones and a percentage of the trip interactions with these zones is affected by the adjustments whilst 100% of trips between the internal zones, which meet the distance criteria, can be adjusted to reflect the shift in mode.

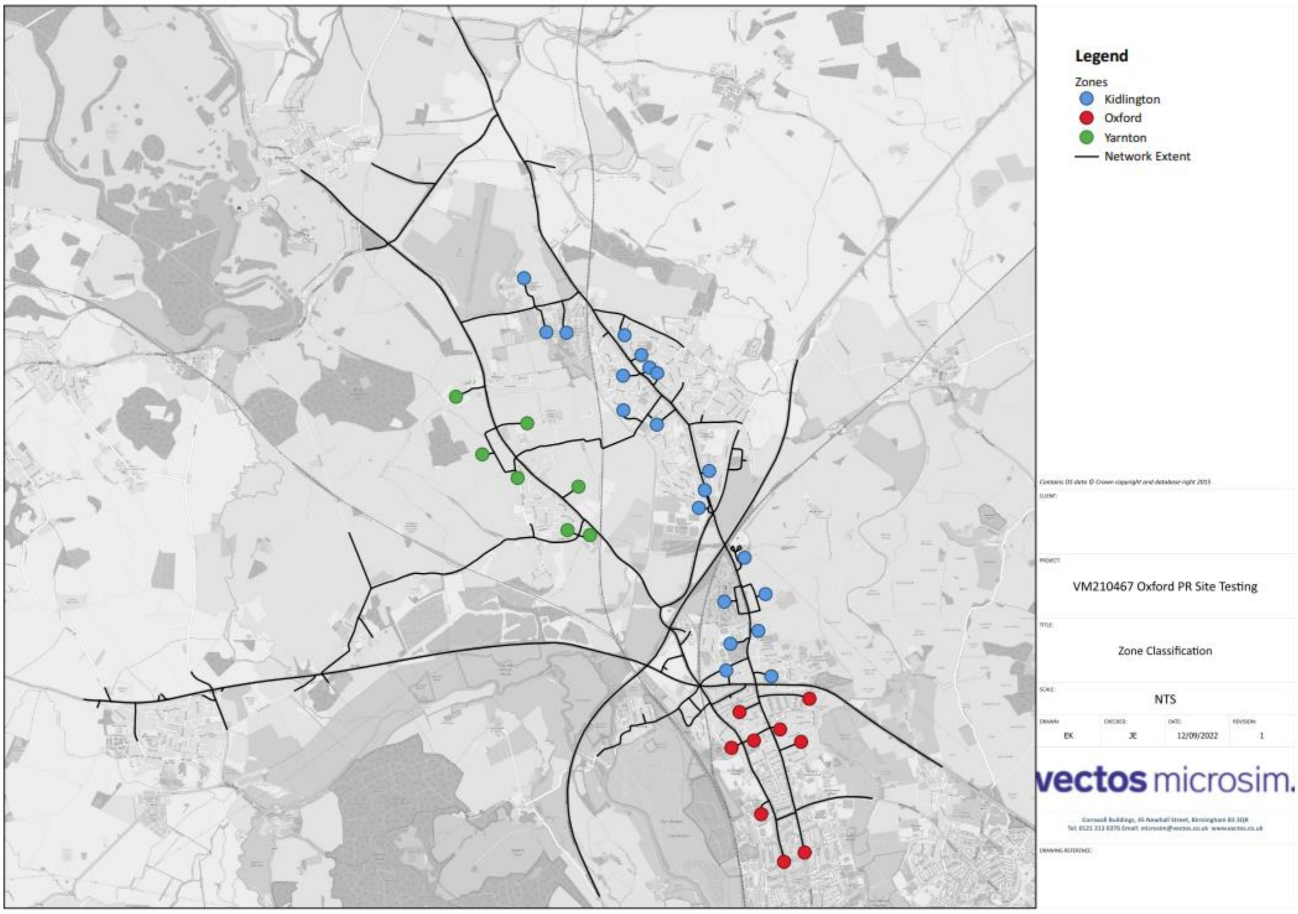
54. The Internal and Edge zones are therefore susceptible to demand reductions in response to Active travel uptake and the location of these zones is illustrated within **Figure 4**.

**Figure 4: Active Travel Uptake Zones**




55. Where the adjustments have been made on a corridor basis, zones have been subject to a further categorisation to reflect the location of the zone relative to the corridor being enhanced. The zone classifications adopted are illustrated within **Figure 5** overleaf and include Yarnton, Kidlington and Oxford with Yarnton and Kidlington being the areas for proposed enhancements but Oxford is also included on the basis that it is likely to be the case that a significant amount of the trips intercepted during the AM and PM peaks will have at least one trip end associated with Oxford City.

**Figure 5: Bike Corridor Regions**




56. Before any adjustments for trip distances or corridor enhancements are applied (but with the Edge adjustment set at 40%, described later within this Note) analysis of the trips between these zones, within the Background and Committed Development matrices accounts for between 10% and 12% of the total demand within the model. Thus, the potential effects of any changes at this stage are limited by the fact that these zones do not create many trips relative to the wider model demands.

57. Trips between the Edge zones are limited in magnitude in any event due to the location of these zones, however, they are also not subject to any adjustment at this stage meaning trips must have at least one trip end which commences at an internal zone for it to be considered as a candidate for adjustment.

58. The application of the adjustments was first applied based on trip distances and then, subsequently, on a corridor basis. Each of these adjustments is described in more detail as follows:

Active Travel Based On Journey Distance

59. When using the DfTs Active Travel Appraisal Toolkit to calculate the benefits of active travel uptake the current assumptions are for walking trips to be around 1.1km on average and cycling trips to be 4.4km which is, in turn, informed by National Travel Survey Data.

60. A buffer of 50% has been added to these distances to identify the distance between ODs which will be affected by these adjustments.

61. Having set the journey distances at 1.6km for walking and 6.6km for cycling, the DfT propensity to cycle tool was interrogated to provide an indication of the cycle intercept/driver reduction figures that may be reasonable to target within the modelling.

62. The 'Go Dutch' model was used for this purpose which indicated an uplift in cycling from around 6% to 24% of commuter trips. Therefore 18% of the commuter trips within the model area were identified as appropriately switching to cycling.

63. No similar data exists for walking and so, given that the expectation is that these trips are easier to intercept, a 50% shift was adopted although, as is noted later within this section, the small number of short distance trips means the effect of this adjustment is limited in any event.

64. The absolute figures, in terms of driver reductions, was also assessed to determine the level of trip intercept the PCT tool currently products with the Go Dutch model at key wards around the study area.

65. The wards selected included:

- Cherwell 017
- Cherwell 018
- Cherwell 019
- Oxford 001
- Oxford 002

66. The PCT tool predicted 1097 daily trips would be intercepted across all these wards. Using this as a target (and recognising that the City is the major draw for commuter trips) the edge factor was then adjusted until a value comparable to the 1097 was observed. Although this is a cycling-based analysis exercise, the same edge adjustment was applied to walking as no other information was available in a similar format to inform that estimate.

67. An edge zone adjustment of 40% was identified meaning that 40% of trips between the Edge zones and the internal zones, within 1.5km for walking and within 6.6km for cycling, would be subject to the same adjustment for switching to active modes as the internal-to-internal zones (i.e. 50% for walking and 18% for cycling).

68. Application of this factor resulted in 912 cycling trips being removed from the model area, which is considered comparable to the 1097 daily trips observed through the analysis of the PCT tool data when taking into account the model represents the 6 busiest hours and therefore the vast majority of forecast cycling trips (with the remaining shift occurring in the hours outside the 3-hour AM and PM peaks).

69. In summary, trip ends must comprise at least one internal zone to be considered as appropriate to adjust. Edge zones are adjusted by a fixed percentage and, again, only when the alternate trip end is an internal zone. The distance between ODs controls whether it can be adjusted and the walking adjustment has been applied first meaning that the cycling adjustment for any trips which lie between qualifying OD pairs is applied after the walking adjustment. It is possible to set a minimum Cycle distance if there is a wish to minimise the potential overlap between the two adjustments.

70. The critical assumptions applied during this process therefore are:

- Adjustments are constrained, at this stage, to just the background and committed development matrices.
- Trips must have at least one trip end associated with an internal zone.
- Trips associated with most External zones are excluded.
- For the External zones which are included, 40% of trips between the External zones (termed Edge) and other internal zones may be affected provided the fall within the following distance criteria:
- Trip lengths of 1.6km or less may shift to walking.
- Trip lengths of 6.6km or less may shift to cycling.
- 50% of trips which meet the walking criteria are assumed to shift.
- 18% of trips which meet the cycling criteria are assumed to shift.

71. An illustration of the effect that these adjustments has on the overall model demands is provided within **Table 4** overleaf.

**Table 4: 2031 Active Mode Trip Distance Demand Adjustment Summary**

| Demand | AM 1 | AM 2 | AM 3 | PM 1 | PM 2 | PM 3 |
|---|---|---|---|---|---|---|
| **Input Demands** | 15668 | 16472 | 14280 | 15156 | 16900 | 17860 |
| **Post P&R** | 15292 | 16185 | 14050 | 14916 | 16668 | 17646 |
| **Post Active Mode Adjustment** | 15015 | 15709 | 13756 | 14704 | 16406 | 17390 |
| **Walking Adjustment** | -108 | -274 | -164 | -72 | -141 | -108 |
| **Cycling Adjustment** | -170 | -202 | -131 | -140 | -121 | -148 |
| **Net** | -277 | -476 | -294 | -212 | -262 | -256 |
| **Shift from initial** | **-1.77%** | **-2.89%** | **-2.06%** | **-1.40%** | **-1.55%** | **-1.44%** |

72. The data within **Table 4** reveals that the active travel adjustments induces a reduction of around 1.4 to 2.89% of car-based trips within the model area based on the application of the aforementioned criteria.

73. These demands have then been taken forward to the next stage where demands are subject to a further adjustment to account for increased cycle use.

<u>Cycle Corridor Adjustments</u>

74. Following the initial adjustment based on trip distances, a subsequent adjustment has been applied based on the proximity of the zone to proposed infrastructure.

75. Both the A44 and Kidlington corridors are proposed to be enhanced. Origin/destination pairs were identified whereby at least one trip end lies in the regions identified. Trips within each cycle corridor region (Yarnton or Kidlington) and trips between these regions the Oxford central region were identified and a further 20% adjustment applied to those OD pairs to reflect an increase in cycle uptake.

76. Trips within each region and between each region and Oxford, as well as trips internal to the Oxford region, were all subject to an adjustment of 20% to reflect increases in cycle trips and a corresponding reduction in car-based trips.

77. The effect that these adjustments have had on the demands is summarised within **Table 5** below. This illustrates that the additional reductions as a result of the corridor enhancements is lower than 1% per hour.

**Table 5: Cycle Corridor Demand Adjustments**

| Demand | AM 1 | AM 2 | AM 3 | PM 1 | PM 2 | PM 3 |
|---|---|---|---|---|---|---|
| **Input Demands** | 15668 | 16472 | 14280 | 15156 | 16900 | 17860 |
| **Post P&R & Active Modes** | 15015 | 15709 | 13756 | 14704 | 16406 | 17390 |
| **Post Cycle Corridors** | 14892 | 15563 | 13625 | 14625 | 16298 | 17266 |
| **Corridor adjustments** | -123 | -146 | -130 | -79 | -109 | -124 |
| **Shift from initial** | **-0.79%** | **-0.89%** | **-0.91%** | **-0.52%** | **-0.64%** | **-0.70%** |

78. These demands have then been taken forward to the final stage where demands are subject to a further adjustment to account for increased bus service provision between Oxford and Begbroke.

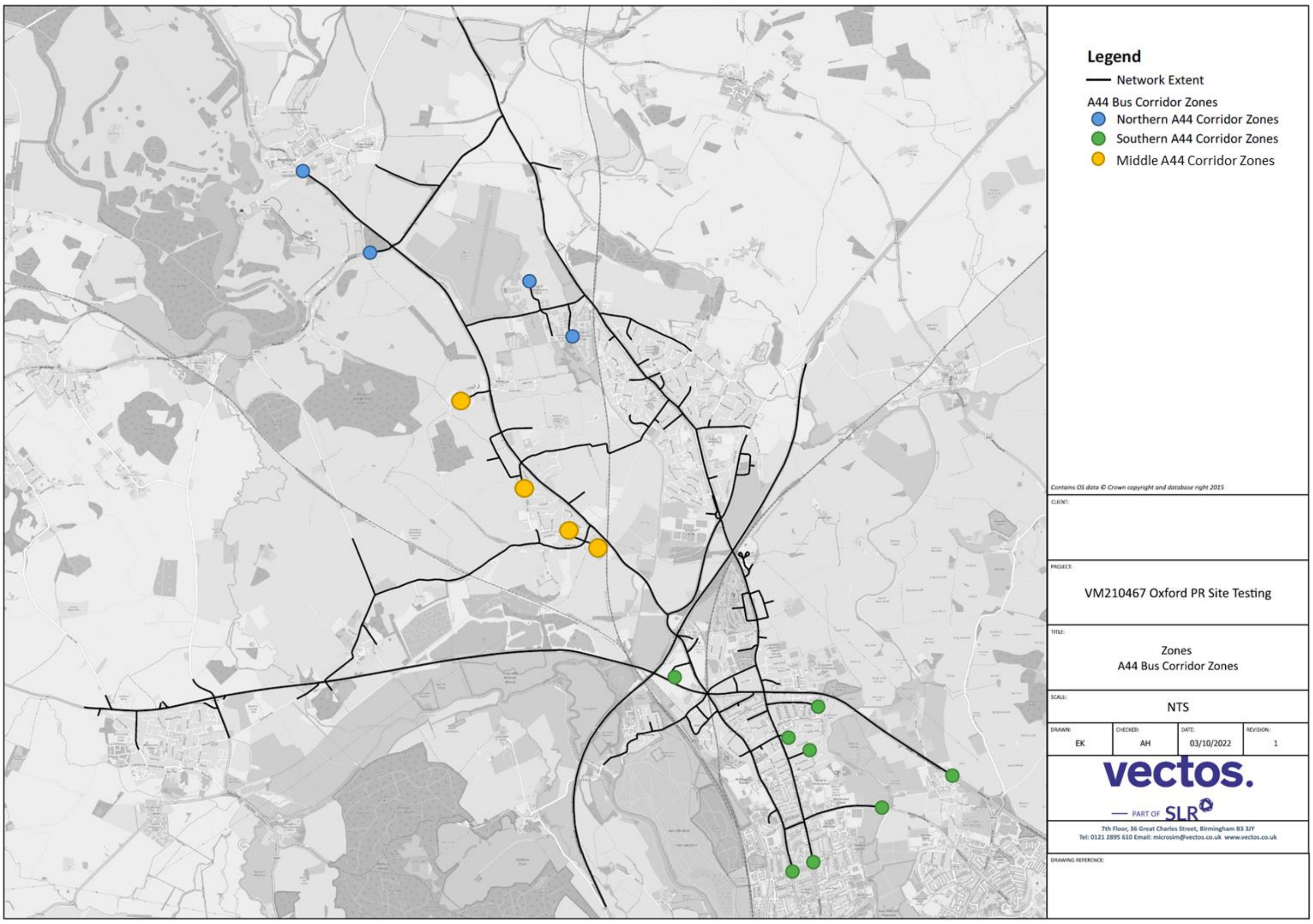
### A44 Bus Corridor Adjustments

79. As part of the mitigation strategy proposed by the Modelling Working Group, and in line with one of the items contained within the Oxfordshire Infrastructure Delivery Plan (IDP), it is proposed to fund an additional four services per hour along the A44 corridor between Oxford and Begbroke.

80. To account for the potential effect on private car demand along the corridor, the matrices for background and committed development trips were interrogated to identify OD movements that may benefit from the provision of these additional services.

81. The zones identified, and thus the north-to-south and south-to-north movements that would be included within the catchment of movements that are subject to adjustment, are illustrated in the Figure overleaf:

**Figure 6: A44 Bus Corridor Zones**




82. Of all the movements captured within these ODs, a value of 20% has been assumed as the rate of shift to utilise the new services, equating to a reduction in vehicle movements of 95-173 trips per hour, in turn equating to an average patronage on each service of between 25-45 passengers.

83. In addition, PR8 is proposing to fund a 20-seat ‘hopper-style’ community bus service between Yarnton and Kidlington. To account for the potential take up of this service, zones within the catchments of Yarnton and Kidlington were identified and as per the above methodology, 20% of the ODs within the catchment are assumed to shift to this service. The resulting shift is equal to ~15 trips per hour.

84. A breakdown of the adjustments applied can be found in **Table 6** below.

**Table 6: A44 Bus Corridor Demand Adjustments**

| Demand | AM 1 | AM 2 | AM 3 | PM 1 | PM 2 | PM 3 |
|---|---|---|---|---|---|---|
| **Input Demands** | 15668 | 16472 | 14280 | 15156 | 16900 | 17860 |
| **Post P&R & Active Modes & Cycle Corridor** | 14892 | 15563 | 13625 | 14625 | 16298 | 17266 |
| **Post A44 Bus Corridor** | 14796 | 15434 | 13528 | 14527 | 16156 | 17093 |
| **A44 Bus Adjustments** | -83 | -104 | -84 | -83 | -132 | -159 |
| **'Hopper-Bus' Adjustment** | -13 | -25 | -13 | -14 | -10 | -14 |
| **Shift from initial** | **-0.61%** | **-0.78%** | **-0.68%** | **-0.64%** | **-0.84%** | **-0.97%** |

85. Following this final stage, the demands are taken forward and included within the Do-Something VISSIM modelling scenarios to provide an overview of network performance inclusive of the PR sites and the associated mitigation/sustainability measures.

## Demand Adjustment Summary

86. A detailed breakdown of the effect of each adjustment on the overall demands is presented within **Table 7**.

**Table 7: Incremental Adjustments By Stage**

| Corridor | AM 1 | AM 2 | AM 3 | PM 1 | PM 2 | PM 3 |
|---|---|---|---|---|---|---|
| **P&R Adjustment** | -376 | -287 | -230 | -240 | -232 | -214 |
| **Active Mode Adjustment** | -277 | -476 | -294 | -212 | -262 | -256 |
| **Bike Corridor Adjustment** | -123 | -146 | -130 | -79 | -109 | -124 |
| **Bus Corridor Adjustment** | -95 | -129 | -97 | -97 | -141 | -173 |
| **Total** | -872 | -1038 | -752 | -629 | -744 | -767 |

87. This reveals that the largest shift in mode is realised by the P&R adjustment. The effect that these adjustments have on the overall model growth projects are summarised within **Table 8** which reveals that an overall reduction of between 4.2% and 6.3% of the vehicle movements within the VISSIM model network is achieved as a result of the application of the assumptions set out within this note.

**Table 8: Revised Demand projections (pre assignment of PR sites)**

| Demand | AM 1 | AM 2 | AM 3 | PM 1 | PM 2 | PM 3 |
|---|---|---|---|---|---|---|
| **Input Demands** | 15668 | 16472 | 14280 | 15156 | 16900 | 17860 |
| **Output Demands** | 14796 | 15434 | 13528 | 14527 | 16156 | 17093 |
| **Difference** | -872 | -1038 | -752 | -629 | -744 | -767 |
| **Shift from initial** | **-5.56%** | **-6.30%** | **-5.27%** | **-4.15%** | **-4.40%** | **-4.29%** |

## Sensitivity Testing

88. Following an initial review by Pell Frischmann (PF) on behalf of Oxfordshire County Council (OCC), whilst the methodology was broadly agreeable PF requested that sensitivity testing be carried out that creates upper and lower limits against the core assumptions detailed above, in accordance with the OCC 'Decide and Provide' guidance.

89. At each stage of the mode shift adjustments, a series of assumptions are set to determine which demands are included as part of the adjustment process, and to what extent movements are reduced in line with the anticipated level of mode shift that might occur.

90. In Table 5.1 of their Review, PF advised a set of alternative criteria to be applied; an extract is provided below:

**Figure 7: Pell Frischmann Alternative Assumptions for Sensitivity Testing**

**Table 5.1: Adjustable Parameters and Selected Values for Low and High Sensitivity Tests**

| Spreadsheet | Sheet | alues that can be altere | Cells | VM Value | Low value | High value |
|---|---|---|---|---|---|---|
| VM210467.SP009 Demand Adjustment A40 Growth Scheme - Audit | Demand Summary | Corridor A40 | N2 | Yes | N/A | N/A |
| | | External Major | N5 to P5 | 5%, 7.5%, 10% | 2.5%,5%,7.5% | 7.5%,10%,12.5% |
| | | External Minor | N6 to P6 | 7.5%, 5%, 15% | 5%, 2.5%, 12.5% | 10%, 7.5%, 17.5% |
| | | Internal | N7 to P7 | 10%, 15%, 25% | 7.5%, 12.5%,22.5% | 12.5%,17.5%, 27.5% |
| VM210467.SP013 Demand Adjustment 1 - P&R - Audit | Demand Summary | Airport P&R | N2 | Yes | N/A | N/A |
| | | Eynsham | N3 | Yes | N/A | N/A |
| | | Airport P&R spaces | C42 | 1100 | OCC to check | OCC to check |
| VM210467.SP015 Demand Adjustment 1 - Active Modes - Audit | Demand Summary | WALKING LIMIT (m) | X2 | 1650 | | |
| | | SHIFT INTERNAL | X3 | 50% | 20% | 30% |
| | | EDGE ADJUSTMENT | X4 | 40% | 20% | 30% |
| | | CYCLE MINIMUM (m) | X17 | 0 | 800 | 1650 |
| | | CYCLE MAXIMUM (m) | X18 | 6600 | 4000 | 8250 |
| | | SHIFT INTERNAL | X19 | 18% | 10% | 25% |
| | | EDGE ADJUSTMENT | X20 | 40% | 20% | 30% |
| VM210467.SP016 Demand Adjustment 1 - Bike Corridors - Audit | Demand Summary | Corridor Yarnton | N3 and O3 | 20% | 10% | 30% |
| | | Corridor Kidlington | N4 and O4 | 20% | 10% | 30% |
| | | Oxford internal | N5 and O5 | 20% | 10% | 30% |
| VM210467.SP017 Demand Adjustment - Additional A44 Bus Services - Audit | Total Catchment Base | Assumed % Shift | D32 | 20% | 10% | 30% |
| | Total Catchment Com Dev | Assumed % Shift | N32 | 20% | 10% | 30% |

91. These have been calculated and run for the purposes of this revised assessment using the same methodology as detailed within this Note (just with the revised criteria as per the Table above). The adjustments by stage for the Low Sensitivity and High Sensitivity are provided below:

**Table 9: Incremental Adjustments By Stage, Low Sensitivity**

| Corridor | AM 1 | AM 2 | AM 3 | PM 1 | PM 2 | PM 3 |
|---|---|---|---|---|---|---|
| **P&R Adjustment** | -376 | -287 | -230 | -240 | -232 | -214 |
| **Active Mode Adjustment** | -101 | -181 | -105 | -85 | -94 | -90 |
| **Bike Corridor Adjustment** | -66 | -85 | -75 | -43 | -62 | -65 |
| **Bus Corridor Adjustment** | -50 | -67 | -50 | -50 | -75 | -91 |
| **Total** | -593 | -619 | -459 | -418 | -463 | -460 |
| **Shift from Initial** | -3.78% | -3.76% | -3.21% | -2.76% | -2.74% | -2.57% |

**Table 10: Incremental Adjustments By Stage, High Sensitivity**

| Corridor | AM 1 | AM 2 | AM 3 | PM 1 | PM 2 | PM 3 |
|---|---|---|---|---|---|---|
| **P&R Adjustment** | -376 | -287 | -230 | -240 | -232 | -214 |
| **Active Mode Adjustment** | -304 | -439 | -288 | -231 | -240 | -252 |
| **Bike Corridor Adjustment** | -175 | -225 | -201 | -116 | -170 | -183 |
| **Bus Corridor Adjustment** | -133 | -189 | -140 | -142 | -205 | -248 |
| **Total** | -987 | -1140 | -859 | -730 | -846 | -897 |
| **Shift from Initial** | -6.30% | -6.92% | -6.02% | -4.82% | -5.00% | -5.02% |

# Appendix M

## Response to OCC Model Audit

# Oxford PR Sites VISSIM Assessment
# Audit Response and Amendments to V9 Assessment

VM210467.DN03
May 2023

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## Introduction

1. Vectos Microsim (VM) has been commissioned by a multi-consultancy group working on behalf of a number of Partial Review (PR) Sites that are allocated within the adopted Cherwell Local Plan (Part 1) Partial Review.

2. VM has been working with all parties to deliver microsimulation modelling support with a view to identifying the necessary mitigation strategies required to all PR sites to come forward within the Local Plan period.

3. VM submitted the first package of models, supporting spreadsheets and reports in November 2022; this was known as v9. This was subsequently reviewed by Pell Frischmann (PF) in their capacity as highway consultants for Oxfordshire County Council (OCC). VM received the Pell Frischmann Audit on 31st January 2023.

4. VM reviewed the comments raised and a meeting between VM, the PR working group, PF and OCC was held in early February 2023. It was agreed that some revisions were necessary to the modelling and this Note serves as a document of the changes that have been made between the v9 submission and this latest submission, which is known as v13.

## Responses to v9 Audit Comments

5. The section below will identify the paragraph number referred to within the PF review, followed by text to confirm the VM response to the issue(s) raised:

   <u>Paragraph 3.1</u>

6. PF queried why the Base, 2031 Reference Case and 2031 DM/DS modelling was contained within three separate model folders. The reason is that the Base and 2023 model provided to VM were in separate model folders and therefore, as the 2023 was the starting point for the exercise this separation was maintained. However due to the requirement to update the modelling in other areas, the future year tests are now all contained within the same folder under Scenario Management. Note however that the Base remains a separate file due to the need to build the future year models from the received 2023.

Paragraph 3.2

7. PF raised a number of bullet points:

   i. A full review of layby usage has been undertaken and corrected (bus layby usage was present within the received model and is therefore a legacy issue)

   ii. Pedestrian crossings have been reinstated – some were erroneously missing from v9

   iii. The pedestrian crossing north of Hermes Road, and those on the exit crossings at Wolvercote and Cutteslowe Roundabouts were not present within the Base model and are therefore omitted from the future year to ensure the baseline is not invalidated

   iv. The issue on Link 31210 was in the received 2023 and corrected from the 2031 Reference Case onwards

   v. Operation of Cassington Roundabout is optimised as best as possible within the bounds of what can be reasonably achieved

   vi. Some trips were included in the demand matrix wishing to travel from Witney Road to the East of the model, which is an impossible movement. These have been removed from the demand matrices (the values were <1 trip and so their omission is of no consequence to the modelling)

Paragraph 3.3

8. PF raised four bullet points:

   i. Behaviour on Link 30322 is optimised as best as possible

   ii. The error message refers to an issue within the received signal configuration, but only occurs on start up and does not affect the model

   iii. Detector 11 missing at SC1021

   iv. Trips present within the matrix from Witney Road have been removed, as per the comment in paragraph 7 above

9. Furthermore, PF identified that bus services were identical between AM and PM peak periods. This error was present within the received 2023 model, but has now been corrected whereby the future year services match the respective baseline, with some exceptions as noted within Chapter 6.4 of the North Oxford Corridor Study[1] that details the development of the 2023 VISSIM model.

10. PF also queried whether new bus services proposed, and/or increased pedestrian frequencies should be included within the modelling in response to the anticipated increase in modal shift to non-

[1] North Oxford Corridor Study Mar 2021_v0.14

car-based travel. For this revised modelling bus services have been added into the Do-Something scenario where a specific bus service is proposed (such as the S3 service running a schedule of 4 per hour). Also, the percentage modal shift resulting from walking and cycling that has been calculated for each of the mode shift scenarios (Core, Lower Sensitivity and Higher Sensitivity) is applied to the crossing frequencies of all crossings across the model extent. For example, the core scenario identifies that active modes, under the assumptions calculated for modelling purposes, can achieve a reduction in car use of 3.7%, therefore all movements at pedestrian crossings have been uplifted by 3.7%. For the Lower Sensitivity, the uplift is 1.6% and for the Higher Sensitivity, the uplift is 4.2%.

Paragraph 5.1

11. PF identified a series of adjustments to the input parameters that would allow for sensitivity testing to be undertaken. These have been created as per PF's recommendations and are reported in the revised v13 results.

12. Note that due to some revisions to the mode shift calculations (to be described later in this Note), the output numbers from the exercise differ slightly to the numbers reported in the PF Audit. Inputs into the methodology however remain as per PF's recommendations.

## Other Amendments

13. The sub-sections below detail further changes that have been made to the modelling since the v9 submission.

### PR6a Trip Generation and Distribution

14. Following the v9 submission, VM were advised of a revision to the quantum and make-up of development proposed for PR6a. Whilst the trip generation figures remain the same, the forecast total number of dwellings has been reduced from 820 to 800, and a school is now proposed for the site.

15. Spreadsheet VM210467.So002a PR6a Trip Gen and Distribution is now included within the suite of spreadsheets submitted. This calculates the proposed dwelling and school trip generation and distributions separately before combining them at the end for entry into VISSIM.

16. PR6b demand matrices remain as per the v9 submission.

17. The Table below provides the updated PR6a development trip numbers for v13.

**Table 1: Revised PR8 Trip Generation**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| V13 Submission | 38 | 122 | 54 | 129 | 34 | 57 |
| | | | | | | |
| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
| | In | Out | In | Out | In | Out |
| V13 Submission | 113 | 69 | 116 | 74 | 145 | 68 |

## PR8 Trip Generation

18. The v9 submission assumed that all PR8 trips entered and exited the site via zone number 53. This was an error and has been corrected for this v13 submission; PR8 is to be accessed via a northern access (zone 30), and a southern access (zone 53).

19. VM also received revised trip numbers for PR8 which has increased the number of in and out trips associated with the proposed development. The changes are summarised below, and the spreadsheet VM210467.Sp005 PR8 Trip Gen and Distribution has been updated with the latest numbers.

20. The Table below provides the updated PR8 development trip numbers for v13.

**Table 2: Revised PR8 Trip Generation**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| V13 Submission | 771 | 282 | 735 | 269 | 644 | 236 |
| | | | | | | |
| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
| | In | Out | In | Out | In | Out |
| V13 Submission | 295 | 603 | 309 | 632 | 288 | 589 |

## Committed Development Demands

21. An error was highlighted in the demand calculations for the PM peak period whereby the total vehicle trips for the PM period were slightly higher than they should have been in the v9 submission. This was noted in paragraph 2.2 of the Pell Frischmann Audit. This has been corrected for v13.

22. In addition, the assumptions that underpinned the demand calculations for Eynsham Garden Village and West Eynsham SDA have been revised following queries raised by OCC.

23. The Table below provides the comparable Eynsham Garden Village trip numbers for v9 and v13.

**Table 3: Revised Eynsham Garden Village Trip Generation**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| V9 Submission | 61 | 78 | 113 | 118 | 111 | 41 |
| V13 Submission | 163 | 144 | 303 | 218 | 297 | 77 |
| | | | | | | |
| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
| | In | Out | In | Out | In | Out |
| V9 Submission | 163 | 137 | 163 | 134 | 183 | 136 |
| V13 Submission | 221 | 351 | 222 | 342 | 249 | 349 |

24. The Table below provides the comparable West Eynsham SDA trip numbers for v9 and v13.

**Table 4: Revised West Eynsham SDA Trip Generation**

| | 07:00-08:00 | | 08:00-09:00 | | 09:00-10:00 | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| V9 Submission | 9 | 47 | 17 | 71 | 16 | 25 |
| V13 Submission | 20 | 51 | 37 | 77 | 36 | 27 |
| | | | | | | |
| | 15:00-16:00 | | 16:00-17:00 | | 17:00-18:00 | |
| | In | Out | In | Out | In | Out |
| V9 Submission | 105 | 59 | 105 | 57 | 118 | 58 |
| V13 Submission | 88 | 51 | 88 | 49 | 99 | 50 |

25. Note that the trip numbers in the Tables above refer to the number of trips included within the demand matrices entered into VISSIM, and not the total site trip generation. Under the methodology described within the forecasting report[2] a proportion of total trips are included within the VISSIM demands based on their direction of travel to or from the site.

[2] VM210467.R001c Forecasting Report

26. An additional committed development has been included at the request of OCC; Land East of Park View (planning ref. 22/01715/OUT). Trip generation and distribution is informed by the Transport Assessment[3].

### Reference Case Demands

27. The methodology of capping the Reference Case demands to a zero growth position remains as per the v9 submission. However the mechanism by which this is achieved has been revised slightly for the purposes of developing v13.

28. Firstly, the initial step remains to revise demands along the A40 corridor in response to the proposed A40 bus lane allocated for growth funding. This is set out in spreadsheet VM210467.Sp009 Demand Adjustment A40 Growth Scheme. However on review the method applied in v9 was erroneous as it affected movements from the northern side of the A40 to the southern side of the A40, and vice versa, where the provision of an east-to-west bus corridor would be unlikely to impact these movements.

29. Therefore, the spreadsheet was revised to include only movements between a catchment of zones to the east and a catchment of zones to the west (both directions). The outcome is that fewer trips are removed from the demand matrices.

30. A further error was noted in the v9 submission whereby demand adjustments resulting from the proposed Park & Ride scheme at Eynsham were included as part of the mode shift assumptions applied post-inclusion of the PR development sites. As Eynsham P&R is a committed development that is not proposed to be funded by the PR working group, this should have been entered into the assumptions that underpin the Reference Case.

31. This is now the case in this revised v13 submission. Spreadsheet VM210467.Sp009a Eynsham P&R Adjustment has been included which identifies the OD movements that would be susceptible to using the new Park and Ride service. In accordance with the utilisation data present within AECOM's Transport Assessment, baseline demands are removed from the matrices as part of the assumed shift on to the Park and Ride.

32. Both the A40 mode shift attached to the Growth Fund Scheme, and the mode shift attached to the delivery of Eynsham Park and Ride, are applied to the demand matrices before the cap to 0%. As a result the total number of trips present within the v13 Reference Case is identical to the total number of trips present within the v9 Reference Case.

[3] Land East of Park View Woodstock, Environmental Statement Technical Appendix F: Transport Assessment, Tables 7 and 9

### Mode Shift Assumptions

33. The methodology adopted to layer mode shift assumptions into the VISSIM demands remains as per the v9 submission. There are however three key adjustments/enhancements:

a. The v9 submission included Eynsham Park and Ride adjustments into post-development mode shift and as identified above, this was erroneous and has instead been included in the Reference Case demand build for this v13 submission;

b. The process of adjusting A44 corridor demands as part of the shift due to bus provision has been adjusted; and

c. Sensitivity testing has been carried out for Lower and Higher criteria as identified by Pell Frischmann during their review of v9.

34. These updates are detailed within the revised Mode Shift Note[4].

### Kidlington Roundabout

35. Where the v9 submission maintained the network arrangement present within the received 2023 Growth Fund model, the network arrangement at Kidlington Roundabout has been revised in line with the latest proposals. The latest scheme drawing is provided within Appendix A of this Note.

36. The signals are included via VISVAP and are a duplication of signal controller 1020, as this is a nearby existing pedestrian crossing of a similar size to those proposed at Kidlington Roundabout. The number of pedestrians assumed to use the crossings is 80 per hour, which is also in line with the assumptions used for a nearby existing crossing.

## Summary

37. This Note has been compiled to highlight the differences between the v9 submission from November 2022, and the latest v13 submission. The Note serves as a response to Pell Frischmann's Audit, detailing the steps VM has taken to address the issues raised during review. Other issues not highlighted by Pell Frischmann but that are considered to be errors within the original v9 modelling have also been corrected and are identified in this Note to assist Pell Frischmann in their updated review. Finally some assumptions which underpin the PR site trip generation have also been revised, and are also documented within this Note and the other Reports that accompany the v13 submission.

[4] VM210467.DN01b PR VISSIM Mode Shift Discussion Note

# Appendix N

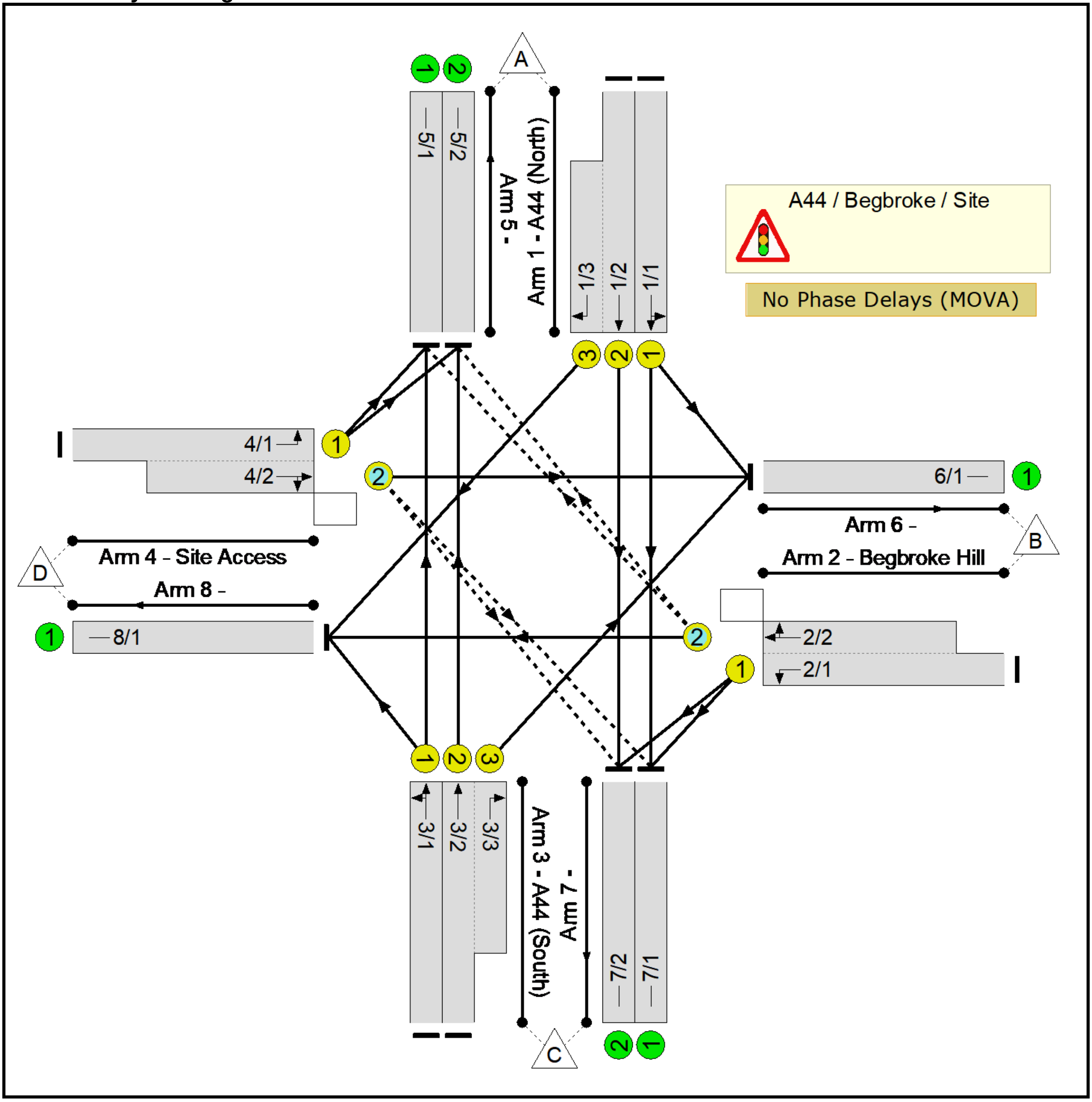
## LinSig Output Report

# Yarnton, Cherwell

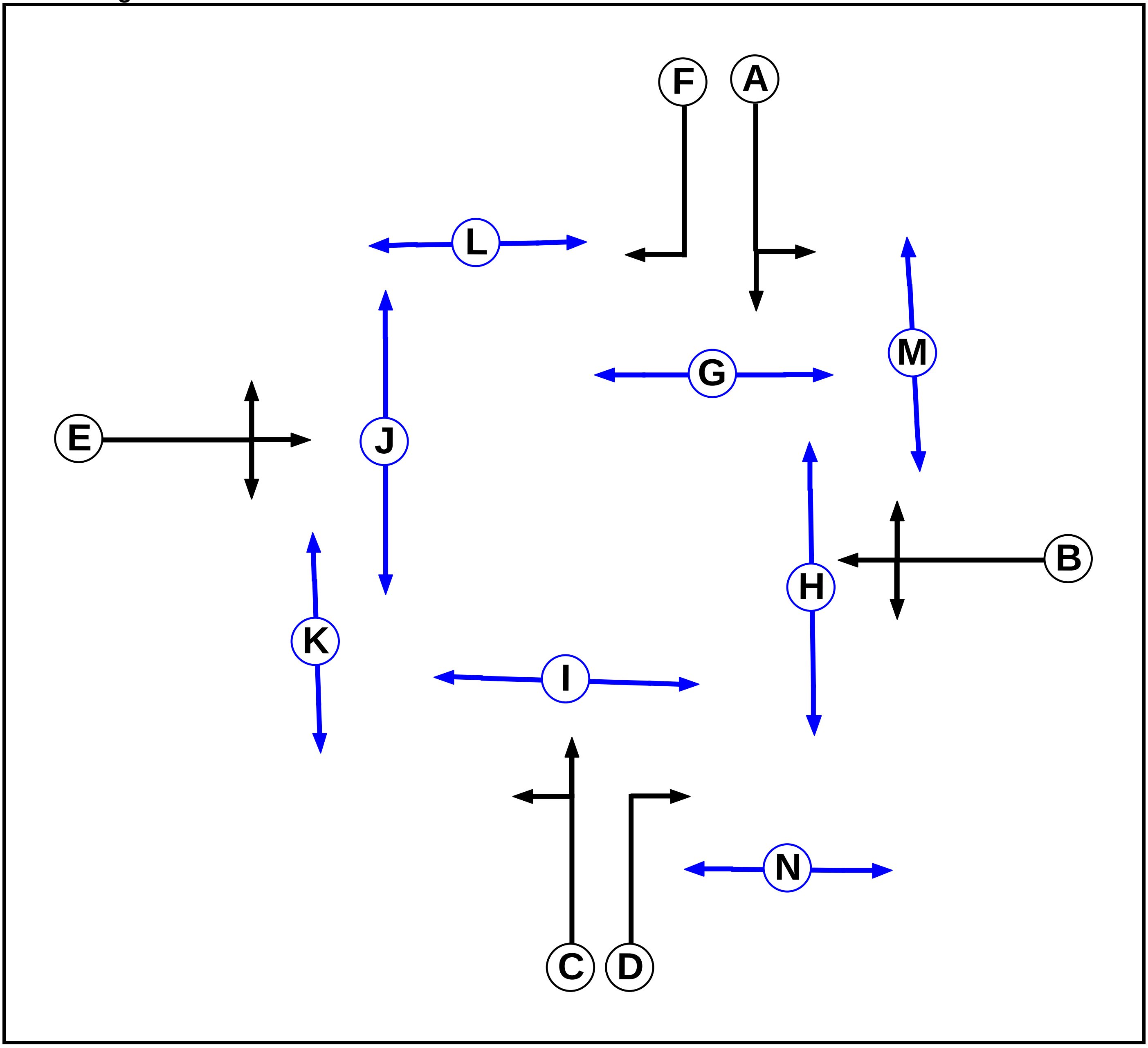
## User and Project Details

| | |
|---|---|
| **Project:** | **Begbroke Innovation District** |
| **Title:** | **A44 / Begbroke Hill / Site Access - Signalised Junction** |
| **Location:** | |
| **Design Layout Ref:** | Proposed Junction Layout |
| **Additional detail:** | |
| **File name:** | KMC 4-arm straight crossings in two phases - Modelled flows.lsg3x |
| **Author:** | Stuart Morse |
| **Company:** | KMC |
| **Address:** | |

## Junction Layout Diagram



**Phase Diagram**



**Phase Input Data**

| Phase Name | Phase Type | Assoc. Phase | Street Min | Cont Min |
|---|---|---|---|---|
| A | Traffic | | -9999 | 7 |
| B | Traffic | | -9999 | 7 |
| C | Traffic | | -9999 | 7 |
| D | Traffic | | -9999 | 7 |
| E | Traffic | | -9999 | 7 |
| F | Traffic | | -9999 | 7 |
| G | Pedestrian | | -9999 | 6 |
| H | Pedestrian | | -9999 | 6 |
| I | Pedestrian | | -9999 | 6 |
| J | Pedestrian | | -9999 | 6 |
| K | Pedestrian | | -9999 | 6 |
| L | Pedestrian | | -9999 | 6 |
| M | Pedestrian | | -9999 | 6 |
| N | Pedestrian | | -9999 | 6 |

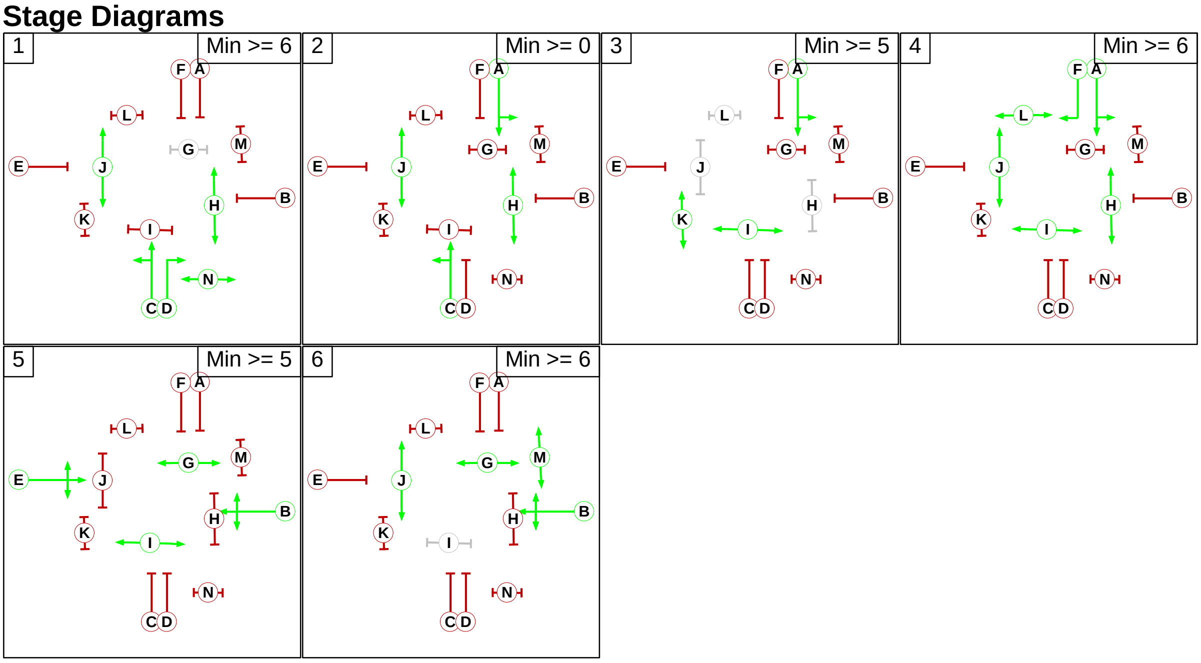
## Intergreens

| | | Starting Phase | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
| Terminating Phase | A | | 8 | - | 6 | 6 | - | 5 | - | - | - | - | - | 8 | 10 |
| | B | 6 | | 8 | 8 | - | 7 | - | 5 | - | - | 10 | 10 | - | 8 |
| | C | - | 5 | | - | 8 | 7 | - | - | 5 | - | 8 | 10 | - | - |
| | D | 9 | 9 | - | | 7 | 8 | - | - | 5 | - | - | - | 10 | - |
| | E | 9 | - | 6 | 6 | | 8 | - | - | - | 5 | - | 8 | 10 | 10 |
| | F | - | 7 | 8 | 8 | 8 | | 5 | - | - | - | 10 | - | - | - |
| | G | 9 | - | - | - | - | 9 | | - | - | - | - | - | - | - |
| | H | - | 8 | - | - | - | - | - | | - | - | - | - | - | - |
| | I | - | - | 9 | 9 | - | - | - | - | | - | - | - | - | - |
| | J | - | - | - | - | 8 | - | - | - | - | | - | - | - | - |
| | K | - | 7 | 7 | - | - | 7 | - | - | - | - | | - | - | - |
| | L | - | 8 | 8 | - | 8 | - | - | - | - | - | - | | - | - |
| | M | 7 | - | - | 7 | 7 | - | - | - | - | - | - | - | | - |
| | N | 8 | 8 | - | - | 8 | - | - | - | - | - | - | - | - | |

## Stage Data

| Stage No. | Phases in Stage |
|---|---|
| 1 | C D H J N |
| 2 | A C H J |
| 3 | A I K |
| 4 | A F H I J L |
| 5 | B E G I |
| 6 | B G J M |

## Stage Diagrams



## Phase Delays

| Term. Stage | Start Stage | Phase | Type | Value | Cont value |
|---|---|---|---|---|---|
| There are no Phase Delays defined | | | | | |

## Lane Input Data

| Junction: A44 / Begbroke / Site | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lane** | **Lane Type** | **Phases** | **Start Disp.** | **End Disp.** | **Physical Length (PCU)** | **Sat Flow Type** | **Def User Saturation Flow (PCU/Hr)** | **Lane Width (m)** | **Gradient** | **Nearside Lane** | **Turns** | **Turning Radius (m)** |
| 1/1 (A44 (North)) | U | A | 2 | 3 | 87.0 | Geom | - | 3.65 | 0.00 | Y | Arm 6 Left | 16.50 |
| | | | | | | | | | | | Arm 7 Ahead | Inf |
| 1/2 (A44 (North)) | U | A | 2 | 3 | 87.0 | Geom | - | 3.65 | 0.00 | N | Arm 7 Ahead | Inf |
| 1/3 (A44 (North)) | U | F | 2 | 3 | 8.0 | Geom | - | 3.50 | 0.00 | Y | Arm 8 Right | 18.00 |
| 2/1 (Begbroke Hill) | U | B | 2 | 3 | 60.0 | Geom | - | 3.65 | 0.00 | Y | Arm 7 Left | 16.50 |
| 2/2 (Begbroke Hill) | O | B | 2 | 3 | 9.0 | Geom | - | 3.65 | 0.00 | N | Arm 5 Right | 20.00 |
| | | | | | | | | | | | Arm 8 Ahead | Inf |
| 3/1 (A44 (South)) | U | C | 2 | 3 | 69.6 | Geom | - | 3.65 | 0.00 | Y | Arm 5 Ahead | Inf |
| | | | | | | | | | | | Arm 8 Left | 16.50 |
| 3/2 (A44 (South)) | U | C | 2 | 3 | 69.6 | Geom | - | 3.65 | 0.00 | N | Arm 5 Ahead | Inf |
| 3/3 (A44 (South)) | U | D | 2 | 3 | 8.0 | Geom | - | 3.50 | 0.00 | N | Arm 6 Right | 12.00 |
| 4/1 (Site Access) | U | E | 2 | 3 | 60.0 | Geom | - | 3.00 | 0.00 | Y | Arm 5 Left | 11.50 |
| 4/2 (Site Access) | O | E | 2 | 3 | 7.8 | Geom | - | 3.00 | 0.00 | N | Arm 6 Ahead | Inf |
| | | | | | | | | | | | Arm 7 Right | 20.00 |

## Give-Way Lane Input Data

| Junction: A44 / Begbroke / Site | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lane** | **Movement** | **Max Flow when Giving Way (PCU/Hr)** | **Min Flow when Giving Way (PCU/Hr)** | **Opposing Lane** | **Opp. Lane Coeff.** | **Opp. Mvmnts.** | **Right Turn Storage (PCU)** | **Non-Blocking Storage (PCU)** | **RTF** | **Right Turn Move up (s)** | **Max Turns in Intergreen (PCU)** |
| 2/2 (Begbroke Hill) | 5/1 (Right) | 1440 | 0 | 4/1 | 1.09 | All | 2.00 | 2.00 | 0.50 | 2 | 2.00 |
| | | | | 4/2 | 1.09 | To 6/1 (Ahead) | | | | | |
| | 5/2 (Right) | 1440 | 0 | 4/1 | 1.09 | All | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 4/2 | 1.09 | To 6/1 (Ahead) | | | | | |
| 4/2 (Site Access) | 7/1 (Right) | 1440 | 0 | 2/1 | 1.09 | All | 2.00 | 2.00 | 0.50 | 2 | 2.00 |
| | | | | 2/2 | 1.09 | To 8/1 (Ahead) | | | | | |
| | 7/2 (Right) | 1440 | 0 | 2/1 | 1.09 | All | | | | | |
| | | | | 2/2 | 1.09 | To 8/1 (Ahead) | | | | | |

**Scenario 1: 'AM peak'** (FG1: 'AM 2031 DS OUD Only Mode Shift', Plan 1: 'KMC')

## Traffic Flows, Desired

### Desired Flow :

| | | Destination | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | Tot. |
| Origin | A | 0 | 262 | 1131 | 8 | 1401 |
| | B | 63 | 0 | 133 | 0 | 196 |
| | C | 761 | 418 | 0 | 0 | 1179 |
| | D | 20 | 0 | 8 | 0 | 28 |
| | Tot. | 844 | 680 | 1272 | 8 | 2804 |

## Stage Timings

| Stage | 1 | 2 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|---|---|
| Duration | 20 | 19 | 6 | 7 | 19 | 0 | 6 | 7 | 7 | 6 |
| Change Point | 0 | 28 | 56 | 72 | 87 | 116 | 125 | 139 | 153 | 168 |

## Link Results

| Item | Lane Description | Full Phase | Total Green (s) | Start Green (s) | End Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) | Av. Delay Per PCU (s/pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network: A44 / Begbroke Hill / Site Access - Signalised Junction** | - | - | - | - | - | - | - | - | **99.1%** | - | - |
| **A44 / Begbroke / Site** | - | - | - | - | - | - | - | - | **99.1%** | - | - |
| 1/1 | A44 (North) Left Ahead | A | 63 | 37(125) | 72(153) | 666 | 1912 | 675 | 98.6% | 88.2 | 29.6 |
| 1/2+1/3 | A44 (North) Ahead Right | A F | 63:16 | 37(125):63(146) | 72(153) | 735 | 2120:1814 | 734+8 | 99.1 : 99.1% | 88.6 | 32.9 |
| 2/1+2/2 | Begbroke Hill Right Left Ahead | B | 30 | 80(161) | 87(0) | 196 | 1815:1972 | 296+140 | 44.9 : 44.9% | 41.4 | 3.5 |
| 3/1 | A44 (South) Ahead Left | C | 77 | 8(96) | 56(125) | 761 | 1980 | 850 | 89.5% | 44.5 | 26.5 |
| 3/2+3/3 | A44 (South) Ahead Right | C D | 77:40 | 8(96) | 56(125):28(116) | 418 | 2120:1871 | 0+427 | 0.0 : 97.9% | 107.0 | 19.3 |
| 4/1+4/2 | Site Access Left Ahead Right | E | 14 | 80(161) | 87(168) | 28 | 1694:1912 | 147+59 | 13.6 : 13.6% | 51.2 | 0.6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| C1 - F380 | PRC for Signalled Lanes (%): | -10.1 | Total Delay for Signalled Lanes (pcuHr): | 58.87 | Cycle Time (s): | 184 |
| | PRC Over All Lanes (%): | -10.1 | Total Delay Over All Lanes(pcuHr): | 58.87 | | |

**Scenario 2: 'PM peak'** (FG2: 'PM 2031 DS OUD Only Mode Shift', Plan 1: 'KMC')

## Traffic Flows, Desired

### Desired Flow :

| | | Destination | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | Tot. |
| Origin | A | 0 | 62 | 1217 | 20 | 1299 |
| | B | 197 | 0 | 325 | 0 | 522 |
| | C | 1120 | 139 | 0 | 0 | 1259 |
| | D | 12 | 0 | 0 | 0 | 12 |
| | Tot. | 1329 | 201 | 1542 | 20 | 3092 |

## Stage Timings

| **Stage** | **1** | **2** | **4** | **5** | **1** | **2** | **3** | **4** | **5** | **6** |
|---|---|---|---|---|---|---|---|---|---|---|
| **Duration** | 7 | 19 | 6 | 17 | 7 | 11 | 6 | 7 | 7 | 6 |
| **Change Point** | 0 | 15 | 43 | 59 | 84 | 101 | 121 | 135 | 149 | 164 |

## Link Results

| Item | Lane Description | Full Phase | Total Green (s) | Start Green (s) | End Green (s) | Demand Flow (pcu) | Sat Flow (pcu/Hr) | Capacity (pcu) | Deg Sat (%) | Av. Delay Per PCU (s/pcu) | Mean Max Queue (pcu) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network: A44 / Begbroke Hill / Site Access - Signalised Junction** | - | - | - | - | - | - | - | - | **82.4%** | - | - |
| **A44 / Begbroke / Site** | - | - | - | - | - | - | - | - | **82.4%** | - | - |
| 1/1 | A44 (North) Left Ahead | A | 74 | 24(110) | 59(149) | 620 | 1962 | 828 | 74.8% | 30.5 | 14.9 |
| 1/2+1/3 | A44 (North) Ahead Right | A F | 74:16 | 24(110):50(142) | 59(149) | 679 | 2120:1814 | 866+26 | 76.1 : 76.1% | 30.8 | 16.2 |
| 2/1+2/2 | Begbroke Hill Right Left Ahead | B | 40 | 67(157) | 84(0) | 522 | 1815:1972 | 399+242 | 81.5 : 81.5% | 46.6 | 10.0 |
| 3/1 | A44 (South) Ahead Left | C | 63 | 8(93) | 43(121) | 589 | 1980 | 715 | 82.4% | 40.5 | 17.5 |
| 3/2+3/3 | A44 (South) Ahead Right | C D | 63:15 | 8(93) | 43(121):15(101) | 670 | 2120:1871 | 656+177 | 80.9 : 78.7% | 41.4 | 17.0 |
| 4/1+4/2 | Site Access Left Ahead Right | E | 24 | 67(157) | 84(164) | 12 | 1694:2055 | 245+0 | 4.9 : 0.0% | 41.2 | 0.3 |

C1 - F380 PRC for Signalled Lanes (%): 9.3 Total Delay for Signalled Lanes (pcuHr): 32.29 Cycle Time (s): 180
PRC Over All Lanes (%): 9.3 Total Delay Over All Lanes(pcuHr): 32.29

Contact
Tom Clarke
Hello@oud.co.uk
Oxford University Development Ltd, Suite B, 6
Worcester Street, Oxford OX1 2BX
+44 (0) 1865 346995

OXFORD UNIVERSITY DEVELOPMENT