

Water Eaton

PR6a : Land East of Oxford Road

Transport Assessment
(Volume 1)

Bellway


**STRATEGIC
LAND**



*Christ Church
Oxford*

WE/TA/P01



Water Eaton, North Oxford (Site PR6a)

Transport Assessment – Volume 1

Client: Bellway Homes and Christ Church

i-Transport Ref: MG/JW/RS/ITB16565-102F

Date: 28 April 2023

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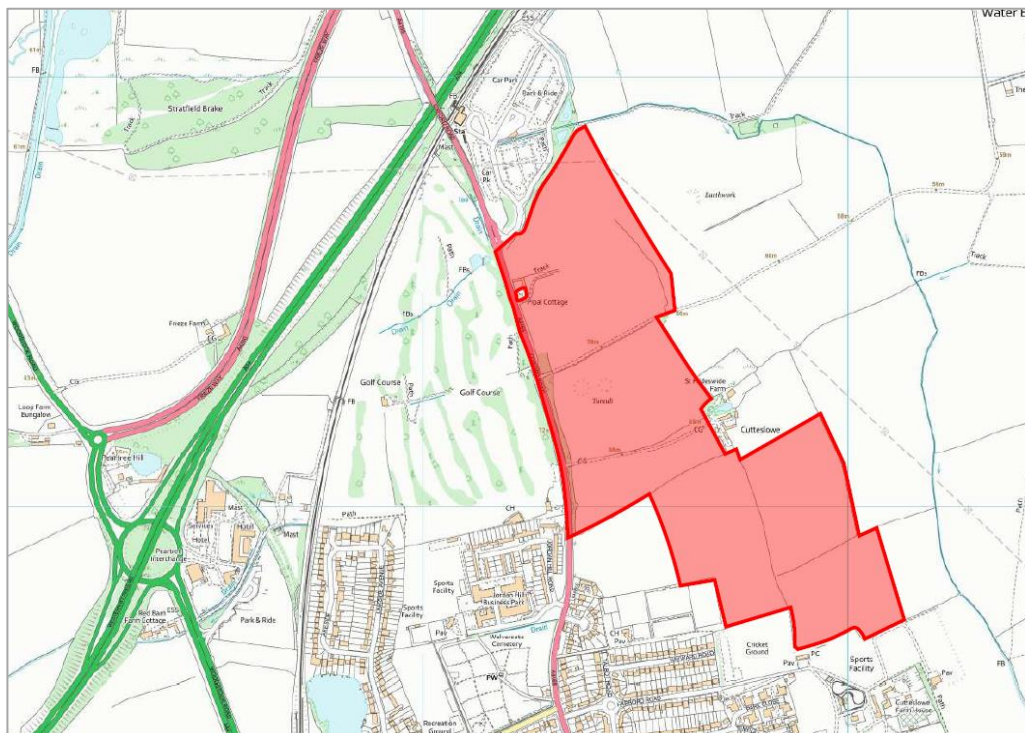
For Transport Assessment Figures, Drawings and Appendices See Volume 2

SECTION 1 Introduction

1.1 Background

- 1.1.1 Christ Church promoted a Site known as PR6a / Land East of Oxford Road into the Cherwell Local Plan 2011-2031 Partial Review – Oxford’s Unmet Housing Need. In September 2020, this Plan was adopted by Cherwell District Council. Policy PR6a allocates the Site for mixed-use development including the construction of 690 dwellings, a two-form entry primary school, a local centre and recreation space.
- 1.1.2 During the initial round of consultation held in October 2021 views were invited on naming the site and 'Water Eaton' was settled as being an appropriate name.
- 1.1.3 In September 2022, Bellway Homes acquired the land comprising the application site from Christ Church to bring it forward for development. In the interests of delivering a scheme of the highest quality, Bellway is committed to building on the approach to engagement and masterplan development adopted by Christ Church.
- 1.1.4 i-Transport has been appointed by Bellway Homes (and previously Christ Church) to provide highways and transport advice in relation to an outline planning application (with means of access determined) for residential led mixed use development on the Water Eaton Site. The Site location plan is provided on **Figure 1.1** and as an extract in **Image 1.1** below.

Image 1.1 Site Location Plan



1.1.5 The Development comprises:

“Outline application (with all matters except access reserved for future consideration) for the demolition of existing buildings and the erection of up to 800 dwellings (Class C3); a two form entry primary school; a local centre comprising: convenience retailing (not less than 350sqm and up to 500sqm (Class E(a))), business uses (Class E(g)(i)) and/or financial and professional uses (Class E(c)) up to 500sqm, café or restaurant use (Class E(b)) up to 200sqm; community building (Class E and F2); car and cycle parking; associated play areas, allotments, public open green space and landscaping; new vehicular, pedestrian and cycle access points; internal roads, paths and communal parking infrastructure; associated works, infrastructure (including Sustainable Urban Drainage, services and utilities) and ancillary development. Works to the Oxford Road in the vicinity of the site to include, pedestrian and cycle infrastructure, drainage, bus stops, landscaping and ancillary development.”

1.1.6 The Development includes the following key land uses:

- Up to 800 homes,
- A primary school (two form entry);
- A local centre, including local convenience retailing, business uses and / or financial and professional uses, café / restaurant and a community building; and
- Formal and informal open space.

1.2 Scoping

1.2.1 This Transport Assessment has been prepared to consider the transport impacts that may arise from the Development, and to consider the proposal against the relevant transport planning policy considerations. The assessment has been produced in accordance with guidance contained in the National Planning Practice Guidance and, where necessary, other national and local transport planning guidance including OXCC’s Implementing ‘Decide & Provide: Requirements for Transport Assessments.

1.2.2 Pre application discussions / correspondence, covering a variety of matters including transport and access, have taken place with the local planning authority, Cherwell District Council (CDC), the local highway authority, Oxfordshire County Council (OXCC), Oxford City Council (OCC - neighbouring planning authority) and National Highways (NH - highway authority for the strategic road network – namely the A34 in the vicinity of the site).

1.2.3 Discussions have taken place with Gosford and Water Eaton Parish Council (GWEPC) to identify and understand local transport issues and concerns. This has informed the transport strategy for the Development.

1.2.4 In addition, emerging Development proposals were reviewed by The Design Review Panel in September 2021 and March 2022.

1.2.5 A separate Framework Travel Plan has been prepared (Water Eaton document reference WE/FTP/01, i-Transport report ref: ITB16565-103 R). The primary purpose of the Framework Travel Plan is to identify opportunities for the effective promotion and delivery of sustainable transport initiatives (e.g., walking, cycling, and public transport to reduce the demand for travel by less sustainable modes) as well as the process for monitoring and managing transport outcomes from the development.

1.2.6 In addition, an Environmental Statement has been collated by Savills with input from i-Transport on the Transport, Access and Movement Chapter as well as the provision of traffic flows for the Noise and Air Quality Chapters.

1.3 **Community Involvement**

1.3.1 The community involvement has included:

- An Enquiry by Design event held in July 2021;
- Initial public consultation exercise held in Autumn 2021;
- Update public consultation (on line) during June / July 2022; and
- Public consultation on the draft planning application during December 2022 / January 2023.

1.3.2 The process has included discussions / communications with the Harbord Road Residents Association and Cyclox.

1.3.3 Comments received from the community engagement process have informed the transport strategy for the Development.

1.4 **Structure**

1.4.1 The remainder of the Transport Assessment is structured as follows:

- Section 2 - Policy Context;
- Section 3 – OXCC’s Local Transport and Connectivity Plan;
- Section 4 - Existing Conditions;
- Section 5 - The Development and Transport / Connectivity Objectives;
- Section 6 – Site Access Arrangements, Site Layout and Parking Strategy;

- Section 7 – Walking and Cycling Connectivity;
- Section 8 – Public Transport Connectivity;
- Section 9 – Framework Travel Plan;
- Section 10 – Development Trip Generation;
- Section 11 – Traffic Modelling Approach;
- Section 12 – 2025 Development Traffic Impacts;
- Section 13 – 2031 Cumulative Traffic Analysis; and
- Section 14 – Summary and Conclusions.

SECTION 2 Policy Context

2.1 Introduction

2.1.1 To provide the context for the Transport Assessment, this section provides an overview of the relevant local and national transport planning policy considerations.

2.2 Cherwell District Council

[The Cherwell Local Plan 2011 - 2031 \(Part1\) \(Adopted July 2015\)](#)

2.2.1 The Cherwell Local Plan sets out the vision and strategy for development throughout Cherwell through to 2031. The document defines and responds to challenges the District faces regarding development, economic growth, and infrastructure needs.

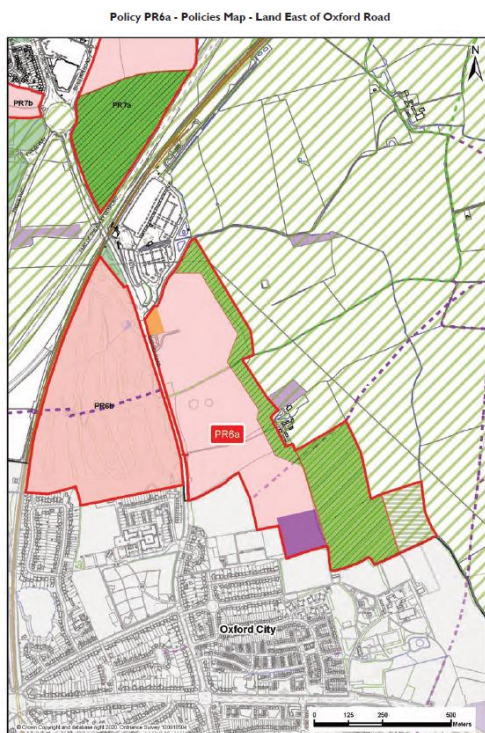
2.2.2 Relevant policies are summarised at **Appendix A**.

[The Cherwell Local Plan 2011 - 2031 \(Part1\) Partial Review - Oxford's Unmet Housing Need \(Adopted September 2020\)](#)

[Policy PR6a](#)

2.2.3 The Site is allocated for strategic residential led mixed use development in Policy PR6a - Land East of Oxford Road.

Image 2.1 Extract from Local Plan Policies Map – Policy PR6a



2.2.4 Policy PR6a includes key delivery, planning application and place shaping requirements. These are set out below for ease of reference:

Key Delivery Requirements include:

- Construction of 690 dwellings (net) on approximately 25 hectares of land ;
- The provision of a primary school with two forms of entry;
- The provision of a local centre to include provision for local convenience retailing (-no more than 500 square metres net floorspace and no less than 350 square metres), ancillary business development and/or financial and professional uses, a café or restaurant, the provision of a community building to required standards providing the opportunity for social and childcare facilities, the opportunity for required health facilities to be provided and provision for required emergency services infrastructure;
- The provision of facilities for formal sports, play areas and allotments;
- The provision of public open green space as an extension to Cutteslowe Park including land set aside for the creation of wildlife habitats and for nature trail/circular walks accessible from the new primary school; and
- The creation of a green infrastructure corridor incorporating a pedestrian, wheelchair and all-weather cycle route along the site's eastern boundary. The route will connect Cutteslowe Park with Oxford Parkway Railway Station/Water Eaton Park and Ride and provide connection with the public rights of way network.

Planning application requirements include:

- A comprehensive Development Brief agreed with Cherwell District Council in advance of the planning application and prepared in consultation with Oxfordshire County Council and Oxford City Council. The Development Brief requirements include a number of items that have a bearing on transport / highway matters, including:
 - Outline site layout which includes the sites for the required school and the local centre;
 - Two points of vehicular access / egress from Oxford Road;

- An outline scheme for public vehicular, cycle, pedestrian, and wheelchair connectivity within the site, to the built environment of Oxford, to Cutteslowe Park, to the allocated site to the west of Oxford Road (policy PR6b) enabling connection to Oxford City Council's allocated 'Northern Gateway' site, to Oxford Parkway and Water Eaton Park and Ride, and to existing or new points of connection off-site and to existing or potential public transport services;
 - Protection and connection of existing public rights of way and an outline scheme for pedestrian and cycle access to the surrounding countryside;
 - Design principles which seek to deliver a connected and integrated urban extension to Oxford and which respond to historic setting of the city; and
 - An outline scheme for vehicular access by the emergency services.
- A Transport Assessment and Travel Plan including measures for maximising sustainable transport connectivity, minimising the impact of motor vehicles on new residents and existing communities, and actions for updating the Travel Plan during construction of the development; and
 - A single comprehensive, outline scheme shall be approved for the entire site. The scheme shall be supported by draft Heads of Terms for developer contributions and a Delivery Plan demonstrating how the implementation and phasing of the development shall be secured comprehensively and how individual development parcels, including the provision of supporting infrastructure will be delivered.

The place shaping principles include:

- A layout, design and appearance for a contemporary urban extension to Oxford City that responds to the 'gateway' location of the site, is fully integrated and connected with the existing built environment, maximises the opportunity for sustainable travel into Oxford, provides a high-quality, publicly accessible and well-connected green infrastructure and ensures a sensitive relationship with the site's Cherwell Valley setting.

Other PR Sites

- 2.2.5 The Local Plan Partial Review also allocates land on the west side of Oxford Road for residential development (Policy PR6b – 670 dwellings). The PR6b site sits opposite the Site. A number of transport related requirements for the PR6b site are listed in the Local Plan Partial Review and these are summarised at **Appendix A**. In addition, the Local Plan Partial Review allocates other sites in the vicinity of Water Eaton, namely:

- Policy PR7a – Land South East of Kidlington - 430 dwellings;
- Policy PR7b – Land at Stratfield Farm - 120 dwellings;
- Policy PR8 – Land East of the A44 (i.e. Begbroke New Urban Neighbourhood) – 1,950 dwellings and the reservation of 14.7 hectares of land for the potential expansion of Begbroke Science Park; and
- Policy PR9 -Land West of Yarnton - 540 dwellings.

2.2.6 Appendix 4 of the Local Plan Partial Review includes an Infrastructure Schedule to support growth and development within Cherwell District, and identifies a number of infrastructure interventions designed to mitigate the impact of the PR sites.

2.3 National

National Planning Policy Framework (NPPF)

2.3.1 The National Planning Policy Framework (NPPF) sets out the Government’s planning policies for England and how these are expected to be applied.

2.3.2 Promoting sustainable transport is covered in Section 9 of the new NPPF (paragraphs 104 – 113). Paragraphs 110 – 113 consider development proposals.

2.3.3 Paragraph 110 states that:

In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;

b) safe and suitable access to the site can be achieved for all users;

c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and

d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

2.3.4 Paragraph 111 states that:

Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

2.3.5 Paragraph 112 states that:

Within this context, applications for development should:

a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;

b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;

c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;

d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and

e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible, and convenient locations.

2.3.6 Paragraph 113 states that:

All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.

SECTION 3 **OXCC's Local Transport and Connectivity Plan**

3.1 **Local Transport and Connectivity Plan**

3.1.1 The Local Transport and Connectivity Plan (LTCP) is OXCC's statutory Local Transport Plan and was adopted by full council on 12 July 2022. It sets out OXCC's vision for developing a world leading, innovative and carbon neutral transport system with a focus on how people move safely and quickly around their communities, Oxford city, and the county.

3.1.2 The LTCP outlines a clear vision to deliver a net-zero Oxfordshire transport and travel system that enables the county to thrive while protecting the environment and making Oxfordshire a better place to live for all residents. In order to track the delivery of the vision, the LTCP includes a set of headline targets. These include the following targets:

- By 2030 the targets are to:
 - Replace or remove 1 out of every 4 current car trips in Oxfordshire;
 - Increase the number of cycle trips in Oxfordshire from 600,000 to 1 million cycle trips per week;
 - Reduce road fatalities or life changing injuries by 50%;
- By 2040 the targets are to:
 - Deliver a net-zero transport network;
 - Replace or remove an additional 1 out of 3 car trips in Oxfordshire;
- By 2050 the targets are to:
 - 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.

3.1.3 OXCC plan to achieve this by:

- Reducing the need to travel;
- Discouraging individual private vehicle journeys; and
- Making walking, cycling, public and shared transport the natural first choice.

3.1.4 OXCC are now working to implement the policies in the LTCP and develop the part 2 supporting strategies.

3.2 Central Oxfordshire Travel Plan

3.2.1 OXCC are proposing a number of actions to help achieve a sustainable and reliable transport system across the Central Oxfordshire area (Oxford, Kidlington, Eynsham, Botley, Cumnor and Wheatley) , including three major transport proposals for Oxford City: traffic filters, a workplace parking levy and zero emission zone. A summary is provided at **Appendix B** and the key actions include:

- Expanding upon the pilot scheme, develop proposals for a Zero Emission Zone for Oxford city centre;
- Develop proposals for a set of strategic traffic filters for locations across Oxford;
- Develop proposals for 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;
- Develop proposals for further Controlled Parking Zones (CPZ) across the city and to review eligibility and quantity of permits in existing CPZ areas;
- Deliver a central Oxfordshire cycle network, consistent with the latest Local Cycling and Walking Infrastructure Plans (including the Oxford LCWIP and the draft Kidlington LCWIP); and
- Deliver bus priority measures along key inter-urban bus routes and on key orbital routes in the Oxford area.

Oxford Traffic Filters

3.2.2 OXCC have decided to prioritise the Oxford city traffic filters at Cabinet in November 2022. Six traffic filters – designed to reduce traffic, make bus journeys faster and make walking and cycling safer – will be trialled in Oxford after improvement works to Oxford railway station are complete – likely to be in 2024.

3.2.3 The traffic filters will be implemented under an experimental traffic regulation order (ETRO) for a minimum period of six months. A long-term decision about the traffic filters will be made towards the end of the trial based on monitoring data collected and feedback from consultation.

Other

3.2.4 In the meantime, OXCC will continue with the assessment and modelling of the likely impact of the traffic filters alongside the workplace parking levy and zero emission zone on the economy, air quality and traffic levels in Oxford. Public consultation on the workplace parking levy and zero emission zone is likely to take place in 2023.

3.2.5 One of the actions is to 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. It endorses the principle that everyday facilities appropriate to a local community can be found within a short 20 minute return walk (10 minute walk to local facilities and a 10 minute walk back which equates to approximately a 800m walking distance when considering average walking speed). Transport interventions that could form part of a local toolkit may include:

- A package of co-ordinated local traffic filters and/or vehicle movement restrictions;
- Timed vehicle restriction measures around schools and on neighbourhood streets to encourage child play and active travel;
- Traffic calming measures (i.e., reduced speed limits to 20mph, speed cushions/ chicanes, raised tables etc);
- Local active travel infrastructure (i.e., crossings, bridges, cycle parking, cycle hangers etc);
- Public realm measures such as parklets where on-street car parking space is repurposed as a social space with seating and planting; and
- Community activation – measures to ensure that those with greatest need benefit from these improvements.

3.3 **Parking Standards**

3.3.1 In January 2023, OXCC adopted new parking standards which cover edge of Oxford city sites such as the Water Eaton site. It provides standards on cycle, powered two wheeler, car, visitor and other types of parking provision. The car parking standards for residential development are set out in Table 3 of the standards and reproduced in **Table 3.1** below.

Table 3.1 Edge of Oxford City Car Parking Standards

Number of Bedrooms per Dwelling	Parking Provision
1 - 2	Up to 1 space per dwelling within the development site
3	Up to 2 spaces per dwelling within the development site
4+	Up to 2 spaces per dwelling within the development site
Wheelchair accessible or adaptable houses and flats	1 space per dwelling to be provided within the curtilage of the dwelling

3.3.2 Notwithstanding Table 3 of the new standards, the supporting text, at paragraph 6.2 sets out that:

‘For phases of a development that will be located within 400m of frequent (15 to 30 minute) public transport services with direct pedestrian and cycle connections, and within 800m walking distance to a range of local amenities and services (i.e. those set out in paragraph 3.2.3 of OCC’s [OXCC] Implementing ‘Decide & Provide’: Requirements for Transport Assessments document), a car free approach is required and, in the case of edge of city developments, is expected as part of the design. A reduced level of on-plot car parking will only be accepted to Oxford City standards subject to a robust justification. Such approaches must be supported by an approved site wide master plan, a robust travel plan (including a fixed monitoring period), high quality pedestrian and cycle infrastructure provided early in the life of the development site, including sufficient and convenient residential and visitor cycle parking to influence travel behaviour away from using the private car. The introduction and implementation of a CPZ, funded by the promoter of the site will also be required.’

3.3.3 Paragraphs 4.12 and 4.12 of the new parking standards provide further details on car free developments:

“4.12 - Car-Free development means that no car parking spaces are provided within the site other than those reserved for disabled people, car clubs or operational uses. The concept of car free developments is fully supported by OCC where any such development proposal satisfies the following criteria:

a) The proposed site is located within, or on the edge of, a city / town with (or will be provided with) parking restrictions imposed within its vicinity.

b) The site has access (or will be provided with) excellent connections to pedestrian & cycle infrastructure and should be within 400m direct walking distance of frequent (15 – 20 minute) public transport services.

c) The site is to be located within 800m walking distance to a range of local amenities and services, i.e. those set out in paragraph 3.2.3 of OCC’s Implementing ‘Decide & Provide’: Requirements for Transport Assessments document.

d) Consideration is to be given to parking provisions for people with impaired mobility.

4.13 - For developments that wish to promote a car free approach or one with reduced on-site parking provisions, OCC will require such sites to incorporate a Controlled Parking Zone (CPZ) into a site's master plan where a CPZ does not already exist. Such development proposals will be required to provide the necessary infrastructure to bring forward such a scheme and the associated costs i.e. Traffic Regulation Order (TRO). These CPZ requirements will be included as part of any legal agreement associated with an appropriate planning permission and when the CPZ is needed to be operational"

3.3.4 Paragraph 3.2.3 of the Decide and Provide document states that the services to be identified as being within a 20-minute walk are: primary school, secondary school, supermarket or local grocery shop (selling fresh food), GP surgery, employment (such as a town centre, science park, business park, industrial estate, or other employment sites of a similar scale, e.g. major hospital, university, etc.).

3.4 **Decide & Provide: Requirements for Transport Assessments**

3.4.1 OXCC adopted the 'Implementing 'Decide & Provide': Requirements for Transport Assessments in September 2022. 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 helps implement the LTCP transport user hierarchy by considering walking, cycling and public transport upfront.

3.4.2 OXCC's document details how the 'decide and provide' approach is to be implemented through the transport assessments and infrastructure delivery mechanisms which accompany planning applications for proposed development.

3.5 **Summary**

3.5.1 This Transport Assessment sets out how the Development accords with local and national transport planning policy along with how it will assist OXCC in achieving its aims set out in the Local Transport and Connectivity Plan.

SECTION 4 Existing Conditions

4.1 Introduction

4.1.1 This section of the Transport Assessment provides a review of the existing transport conditions in the vicinity of the Site and includes an assessment of the recorded personal injury accidents (PIA) in the local area.

4.2 Site Location

4.2.1 The site is located to the east of the A4165, Oxford Road to the north of Oxford. The northern boundary adjoins Oxford Parkway Park and Ride site. To the east, the site boundary crosses an open field, then follows field boundaries around St. Frideswide's Farm to the south, where the southern boundary adjoins Cutteslowe Park, Banbury Road North Sports Ground, and an adjacent field. The land to the south of the site boundary is within the administrative area of Oxford City Council.

4.2.2 Vehicular access to the site is currently available from two points on Oxford Road. The northern point provides access to Water Eaton and the southern point provides access to St. Frideswide's Farm. The northern point of access also forms a bridleway which crosses the site in an east-west direction (Route 229/9/30), continuing eastwards towards the River Cherwell. A second public right of way (footpath) crosses the application site in a northeast-southwest in the southern part of the site, ending at the Oxford City boundary. A permissive footpath also runs along the southern boundary of the application site, located within Cutteslowe Park.

4.2.3 The site is irregular in shape and mainly consists of agricultural land, used as arable fields. Pipal Barns are also located within the site and are accessed from, and with a frontage onto, the A4165 in the north-west of the site. Pipal Cottage is located just outside the site boundary adjacent to Pipal Barns and the A4165, and St Frideswide's Farmhouse and farm buildings are located just outside the eastern site boundary.

4.2.4 The area surrounding the site includes the Oxford Parkway Park & Ride site (including the Oxford Parkway railway station) to the north. Immediately to the south is a parcel of land within Oxford City which is the subject of full planning permission for 134 dwellings (OCC Ref. 21/01449/FUL) and also land which is in sports and recreation use (including land at Oxford Hawks Hockey Club and land at Cutteslowe Park). To the west of the site is land currently occupied by North Oxford Golf Club and which is allocated for residential development in the adopted Local Plan Partial Review (Site PR6b). To the east is open countryside and which is in agricultural use.

4.2.5 The site location plan is provided in **Figure 1.1**.

4.3 **Local Highway Network**

A4165 Oxford Road / Banbury Road

4.3.1 The A4165 Oxford Road borders the site's western boundary and is a single carriageway road (with southbound bus lane), subject to a 40mph speed limit, running in a north-south direction from the Kidlington Roundabout to the North Oxford Golf Club. There are shared footway / cycleways on both sides of the carriageway.

4.3.2 Oxford Parkway Station and Park and Ride is located to the north of the Site and has a signal-controlled access junction from Oxford Road. A controlled crossing with tactile paving is provided to enable safe crossing across the Station / Park and Ride access road. A controlled crossing of Oxford Road is provided to the north of the signals and there is a pedestrian refuge island and tactile paving circa 90m south of the signals to enable users to cross Oxford Road.

4.3.3 Oxford Road turns into the A4165 Banbury Road from the golf club and then leads south to the Cutteslowe roundabout. Banbury Road is a single carriageway road, subject to a 30mph speed limit with the southbound bus lane also continuing for the duration. It features sections of shared footway / cycleway and periodic toucan crossings and pedestrian refuge islands. When the footway is not shared use, the bus lane is signposted to share with cyclists.

4.3.4 There has been a recent TRO consultation on changing the speed limit along Oxford Road and through Kidlington roundabout to 30mph, which has now been approved by OXCC – see **Appendix C**. This means that the Site frontage will be subject to a 30mph and ensure an uninterrupted 30mph speed limit between Oxford and Kidlington.

Kidlington Roundabout

4.3.5 The Kidlington roundabout is a 5-arm roundabout junction between the A4165 Oxford Road (south eastern arm) the A4260 and Bicester Road. It is situated just to the south of Kidlington. The A4260 Oxford Road leads north into Kidlington. OXCC has emerging proposals, funded through the Growth Fund deal, to improve Kidlington roundabout – see Section 7 for further details.

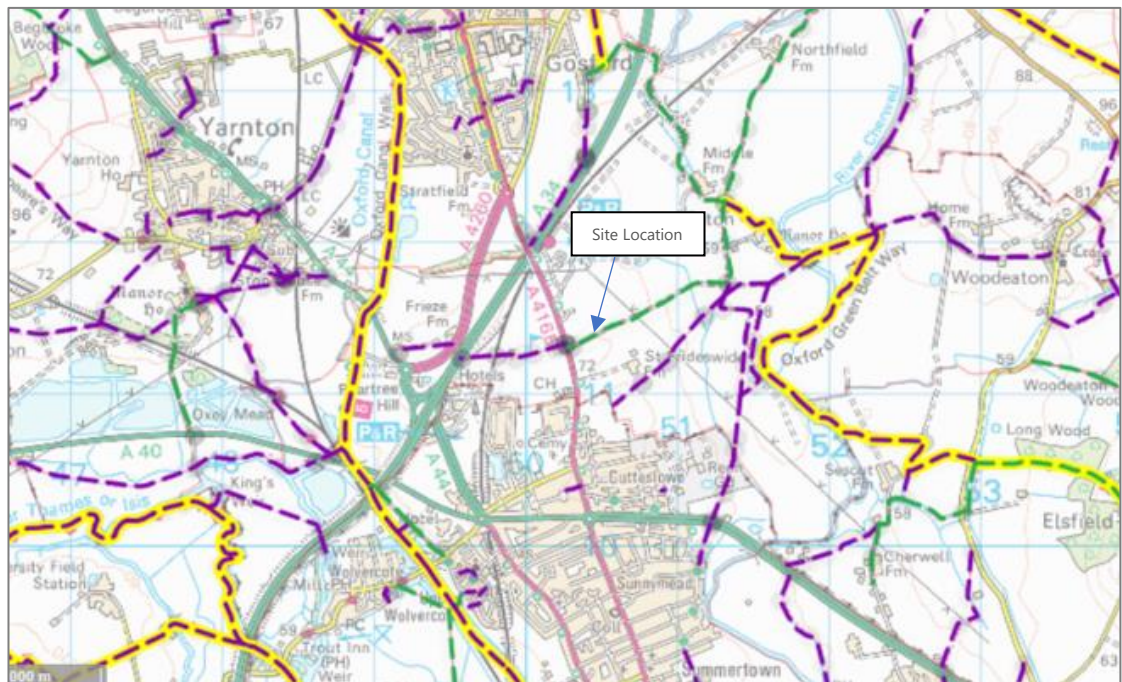
Cotteslowe Roundabout

4.3.6 The Cotteslowe roundabout is a 4-arm roundabout junction between the A4165 Banbury Road (northern arm) the A40 Oxford ring road and the A4165 Banbury Road leading into Oxford city centre via the A4144 St Giles. There are controlled crossings of the A40 western arm and Banbury Road northern arms of the Cotteslowe roundabout.

4.4 Public Rights of Way

4.4.1 A network of footpath and bridleways are located within and around the PR6a site leading to surrounding areas. A plan showing the public right of way network is shown at **Image 4.1** and at **Appendix D**.

Image 4.1: Public Rights of Way in Vicinity of the Site



Source: Oxfordshire County Council

4.4.2 The public rights of way include:

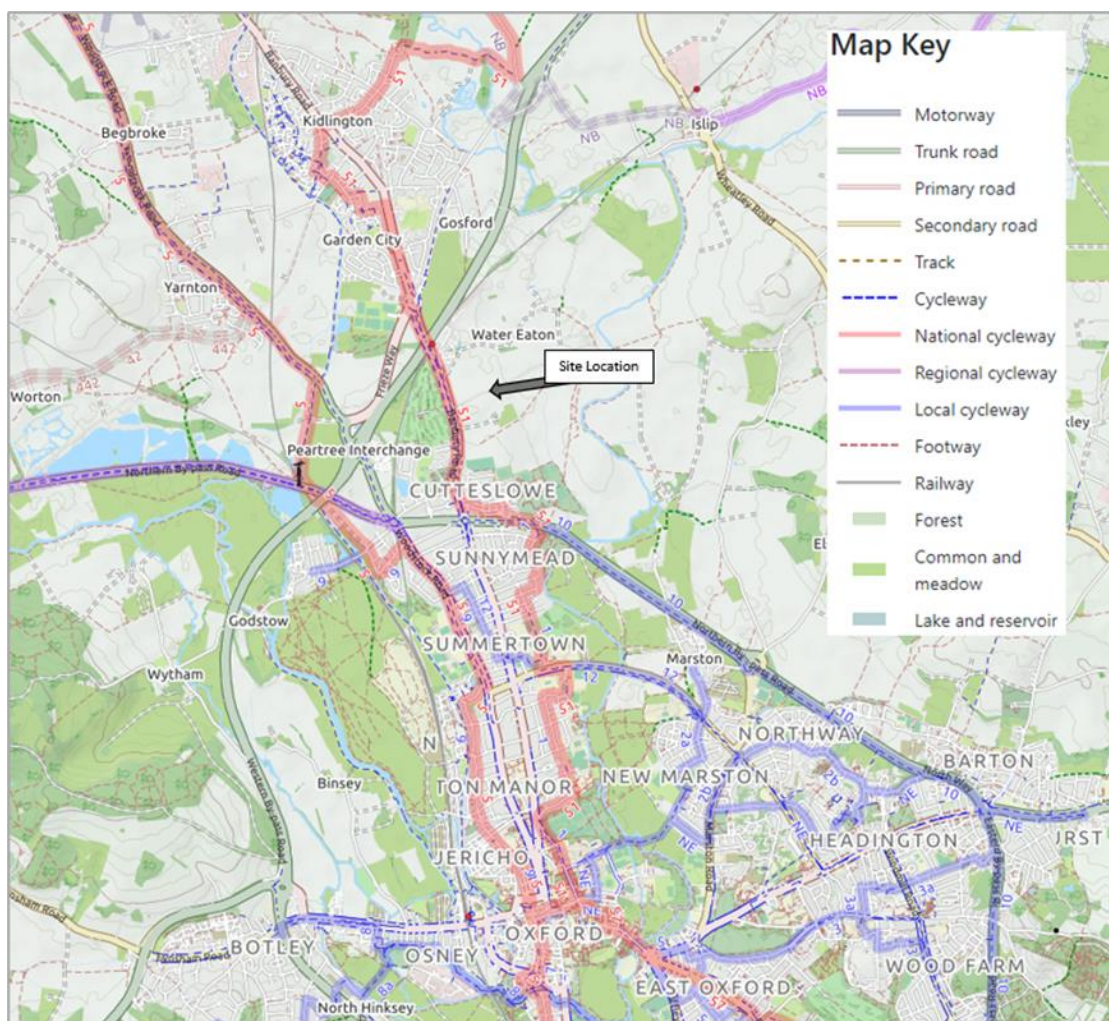
- Bridleway 229/9/30 running east from Oxford Road along the Water Eaton access track; and
- Public Footpath 229/8/10 running to the south of St Frideswide’s Farm.

4.4.3 In addition, Public Footpath 229/10/30 routes west from Oxford Road across the North Oxford golf club (PR6b site) and across the railway line to the west.

4.5 Cycling

4.5.1 As well as the cycle infrastructure on the local highway network set out above, there are a number of National Cycle Networks, regional cycleway, and local cycleway routes in the vicinity of the site – see **Image 4.2** below.

Image 4.2 Cycle Routes



4.5.2 There are two national cycle routes in close proximity to the site (see **Appendix E**):

- Sustrans: Varsity Way - Route 51 Oxford to Cambridge runs across the site's western frontage, along the A4165 Oxford Road/ Banbury Road; and
- Sustrans: Shakespeare Cycleway – Route 5 Stratford-upon-Avon to London runs east of the site, accessible via the A40 or A4165 Banbury Road.

4.5.3 In the vicinity of the site are a number of principal quiet routes (no.1, 9, 10 and 12) and connecting quiet routes. The A40 (Northern Bypass Road), to the west, is currently undergoing improvements to incorporate cycle lanes.

4.5.4 An extract of the Cyclox / Transport Paradise Oxford cycle map is provided at **Appendix F**.

4.6 Public Transport

Bus

4.6.1 The nearest bus stops to the site are located approximately 200m northwest of the site boundary at Oxford Parkway and in the immediate vicinity of the southwestern boundary of the site at the junction of Jordan Hill on Oxford Road. Further bus stops are also located further south on Oxford Road / Banbury Road.

4.6.2 There are two main bus operators in Oxford - Stagecoach and the Oxford Bus Company. Bus services local to the site are mainly operated by Stagecoach. The site falls within the Oxford Smartzone network – see plan provided at **Appendix G**. A number of buses route along Oxford Road including:

- Stagecoach 2 / 2 a - Oxford City Centre to Kidlington Via Oxford Road / Banbury Road, Summertown;
- Stagecoach 700 - Thornhill Park & Ride to Kidlington Via Churchill, JR Hospital, Summertown, Oxford Parkway; and
- Stagecoach S5 - Oxford – Bicester.

4.6.3 A summary of bus services routing along Oxford Road from Oxford Parkway and Jordan Hill are provided at **Appendix G**.

4.6.4 In summary, Oxford Road forms a high frequency bus corridor with bus services throughout the day linking the Site with a number of key destinations including Oxford city centre, Churchill Hospital, John Radcliffe Hospital and Kidlington.

Rail

- 4.6.5 The nearest railway station to the site is Oxford Parkway situated immediately to the north of the site.
- 4.6.6 Oxford Parkway Station is on the line between Oxford and Bicester. The station provides facilities including 150 CCTV monitored cycle parking spaces, with 40 more spaces adjacent to the park and ride, and 830 car parking spaces including 18 accessible spaces. A summary of destinations from Oxford Parkway Station is provided in **Table 4.1**.

Table 4.1: Rail Service Summary

Destination	Frequency of Services		Journey Time (minutes)
	Peak	Off-Peak	
Oxford	2	2	8
London Marylebone	2-3	2	70
Bicester	2-3	2	8
Haddenham & Thame Parkway	2	1	24

Source: National Rail

- 4.6.7 Oxford Railway Station is located approximately 6 miles to the south of the site within the City Centre. As presented in **Table 4.1**, Oxford Parkway Station provides a connection to Oxford Railway Station, and it is also located within a reasonable cycling distance from the site. From Oxford Railway Station there are further opportunities to travel further afield by changing at this station if travelling from Oxford Parkway Railway station. These destinations include London Paddington, Didcot Parkway, Manchester Piccadilly, and Reading.

4.7 Personal Injury Accident Data

- 4.7.1 Personal Injury Accident (PIA) data has been obtained from OXCC for the latest five-year period between 1 January 2017 and 30 June 2022. The data covers a study area consisting of the Oxford Road corridor including both Kidlington Roundabout and Cutteslowe Roundabout. The PIA data is set out at **Appendix H**.
- 4.7.2 Some 12 recorded injury accidents occurred along the Oxford Road / Banbury Road corridor between the Kidlington and Cutteslowe Roundabouts (only two of these were in the vicinity of the Site frontage). These are summarised below:
- A car lost control on a wet road and swerved into oncoming traffic colliding with another car causing slight injuries;

-
- A car failed to see and slow down for upcoming queuing traffic ahead, causing a rear end shunt of two cars in front resulting in slight injuries;
 - A further rear end shunt was caused at the Oxford Parkway signal junction when it appeared a driver pressed the accelerator instead of the brake to slow for a car waiting at a red light causing slight injuries;
 - A collision with a pedestrian was caused at the puffin crossing and involved an ambulance travelling with blue lights striking the pedestrian causing slight injuries;
 - A cyclist intending to turn left into Oxford Parkway fell off their bike into a car that had slowly moved off to turn left, this caused slight injuries to the cyclist;
 - A fatal accident occurred at the Oxford Parkway junction when a HGV was turning left on the slip road but a cyclist entered from the cycle track at the toucan crossing causing the rider to come off their bike;
 - An incident occurred south of the Oxford Parkway junction when a car stopped suddenly causing a bus behind to brake harshly resulting in slight injuries to a bus passenger (in vicinity of the site frontage);
 - A cyclist was travelling within the bus lane but failed to look properly and did not slow in time for a bus that had stopped to let a passenger off, this caused a slight injury to the cyclist (in vicinity of the site frontage);
 - A slight injury was caused to a passenger that was leaving a stationary bus but caught their leg on the step edge causing them to trip;
 - A slight injury accident occurred when a car entered Banbury Road from Five Mile Drive and moved straight into the bus lane but in doing so, collided with a car reversing out of their driveway;
 - A further slight incident was cause when a car reversed out of their driveway; they failed to give way to a cyclist traveling on the shared use cycle track; and
 - A motorcyclist was overtaking moving traffic but failed to see a cyclist ahead moving into the centre of the road to turn right into Harefield Road, causing a collision and slight injuries to the cyclist.

- 4.7.3 Following the cyclist fatality at the Oxford Parkway junction, immediate changes have been made to the configuration of the junction, including the shortening of the left turn filter. It is understood that OXCC has set up a working group, looking at cycle safety across the Oxford area and that as part of the findings from this group, that the temporary measures will be made permanent in due course. Additionally, as 5 of the 12 accidents along the Oxford Road / Banbury Road corridor involve cyclists there is benefit in looking at improvements to cycle safety along the route as part of this application.
- 4.7.4 A cluster of incidents have also occurred at the Kidlington and Cutteslowe roundabouts, albeit the majority of these were minor accidents:
- The primary reason for the accidents at Kidlington Roundabout were due to either rear end shunts by cars slowing down to enter the roundabout or cars failing to give way to cyclists already travelling on the roundabout. Seven accidents involved cyclists, three of which resulted in serious injuries. Five incidents were caused by vehicles failing to give way to cyclists and two were caused by cyclists entering the road into the path of vehicles. OXCC's proposals to improve the junction should assist with safety improvements at the junction; and
 - Some 14 accidents occurred at Cutteslowe Roundabout with one being classed as serious and the rest slight. Four accidents including the serious accident were all caused by intoxicated drivers failing to keep control of their vehicle. Three accidents were rear end shunts Occurring on approach to the roundabout and five accidents involved cyclists, two of which were attempting to use the crossing on the western arm of the roundabout, however cars failed to slow in time.
- 4.7.5 As set out earlier in this section, OXCC has approved a 30mph Traffic Regulation Order covering the Oxford Road (so there will be a 30mph speed limit between Kidlington and Oxford) and an improvement scheme at Kidlington roundabout which will deliver safety benefits.
- 4.7.6 Additionally, the package of improvements that the PR sites (including PR6a) are likely to assist in bringing forward on the Oxford Road / Banbury Road corridor including the Cutteslowe roundabout will deliver safety benefits.

SECTION 5 The Development and Transport / Connectivity Objectives

5.1 Description of Development

5.1.1 The Development comprises:

“Outline application (with all matters except access reserved for future consideration) for the demolition of existing buildings and the erection of up to 800 dwellings (Class C3); a two form entry primary school; a local centre comprising: convenience retailing (not less than 350sqm and up to 500sqm (Class E(a))), business uses (Class E(g)(i)) and/or financial and professional uses (Class E(c)) up to 500sqm, café or restaurant use (Class E(b)) up to 200sqm; community building (Class E and F2); car and cycle parking; associated play areas, allotments, public open green space and landscaping; new vehicular, pedestrian and cycle access points; internal roads, paths and communal parking infrastructure; associated works, infrastructure (including Sustainable Urban Drainage, services and utilities) and ancillary development. Works to the Oxford Road in the vicinity of the site to include, pedestrian and cycle infrastructure, drainage, bus stops, landscaping and ancillary development.”

5.1.2 The Development includes the following key delivery requirements / land uses:

- Up to 800 homes;
- A primary school (two form entry);
- A local centre, including community uses, retail and commercial space; and
- Formal and informal open space.

5.1.3 An indication of the quantum of development which could be delivered at the Site is provided in **Table 5.1** below

Table 5.1 Indicative Land Use Budget

Use	Number	Floorspace (sqm)
Houses (C3)	534	-
Apartments (C3)	266	-
Retail (E(a))	-	500
Business (E(g))	-	500
Services (E(c))	-	500
Café/ restaurant (E(b))	-	200
Community (F.2(b))	-	400
2 FE Primary school	-	2,230sqm

5.2 Illustrative Masterplan and Development Parameter Plans

5.2.1 The illustrative masterplan and development parameter plans are provided at **Appendix I**. An extract from the illustrative masterplan is provided at **Image 5.1** below.

Image 5.1 Illustrative Masterplan (Drawing 42M)



5.3 Development Tested

5.3.1 The Transport Assessment tests:

- 800 dwellings – 50% private and 50% affordable;
- Primary school – 2-form entry;
- Local centre including:
 - Shops / retail (use class E a) – 500sqm;
 - Ancillary business development (use class E g) – 500sqm;
 - Services (use class E c) – 500sqm;

- Café or restaurant (use class E b) – 200sqm; and
- Community building use class F.2 b) - 400 sqm.

5.3.2 Access to the site is proposed from Oxford Road. The site will be assisting in bringing forward OXCC’s North Oxford corridor improvements which includes the Oxford Road cycle super highway (through delivery of infrastructure along the site frontage and proportionate contributions to other infrastructure).

5.4 **Transport / Connectivity Objectives**

Transport User Hierarchy:

5.4.1 The transport / connectivity objectives for the Development are developed in accordance with OXCC’s adopted transport user hierarchy – see **Image 5.2** below.

Image 5.2 Transport User Hierarchy

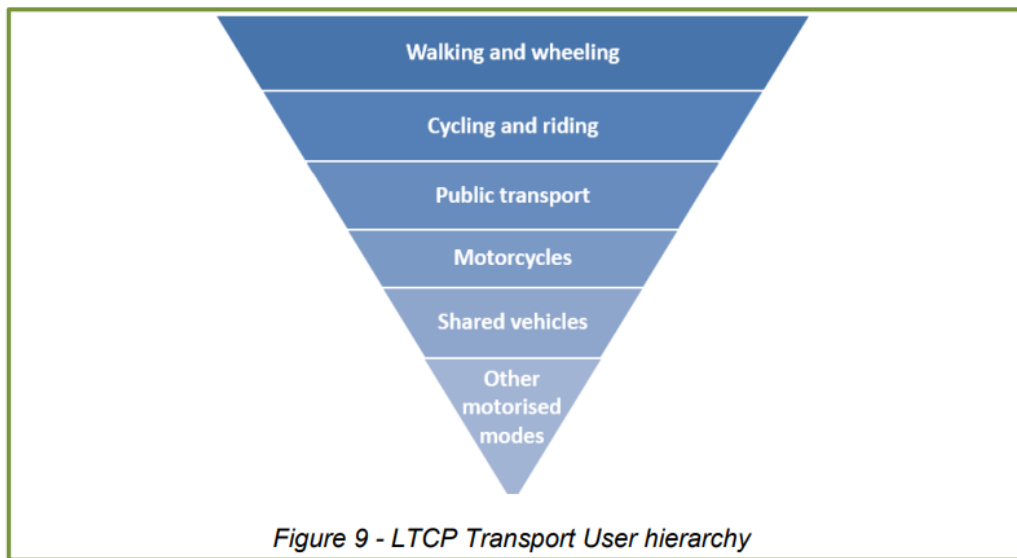


Figure 9 - LTCP Transport User hierarchy

Source: OXCC’s LTCP

Objectives

5.4.2 As set out in Section 3, OXCC are promoting a ‘decide and provide’ approach to transport planning for new developments. The approach decides on the preferred future and then provides the means to work towards that. It offers the opportunity for more positive transport planning and helps implement a transport user hierarchy by considering walking and cycling up-front.

5.4.3 Having regard to the guidance for new developments set out in Appendix 3 of the LTCP, the following transport / connectivity objectives are set for the Development to complement the 'decide and provide' approach:

- 1 Deliver a well-connected, walkable 20-minute neighbourhood with facilities within the development that reduce the need for travel. The 20-minute neighbourhood concept represents a 10-minute walk to access local facilities and services and a 10-minute walk back. This equates to approximately an 800-metre walking distance when considering average walking speed.
- 2 Deliver direct and safe connections which prioritise access on foot, bike or bus to/from neighbouring communities 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 to avoid severance.
- 3 Deliver excellent access to transport interchanges.
- 4 Provide frequent, reliable and easily accessible public transport to local facilities, employment and nearby town centres, including creating a positive bus environment, including real-time information at stops, accessible, safe and well-lit bus shelters which facilitate modal interchange.
- 5 Provide easy access to a network of open and green spaces (within a 10-minute walk) to enhance health and wellbeing. These should provide a mix of formal play spaces and informal open space that promotes biodiversity.
- 6 Roads and junctions connecting to developments need to prioritise walking, cycling and public transport and be futureproofed in line with the Innovation Framework.
- 7 New streets to be designed having regard to DfT's 'Manual for Streets', Oxfordshire County Councils Street Design Guide and Oxfordshire County Councils Walking and Cycling Design Guides, Healthy Streets Approach, LTN 1/20 and the Department for Transport's Inclusive Mobility.
- 8 Provide a comprehensive safe, convenient well landscaped and inclusive network for cycling, walking and public transport which offer direct, continuous and uninterrupted routes to facilities.
- 9 Consider appropriate filtered permeability and low traffic areas, making cycling and walking routes more direct and attractive than using a car.

- 10 Provide mobility hubs to improve interchange opportunities, connectivity and accessibility.
- 11 Provide appropriate parking throughout, including:
 - Cycle parking that has regard to OXCC's best practice requirements and guidance;
 - Parking (car and motorcycle) having regard to OXCC's parking standards including an effective network of EV charging and access to an electric car club;
 - Appropriate visitor parking provision, designed with flexibility through the masterplan; and
 - Parking control measures (such as CPZ's) to avoid overspill parking onto streets and design to discourage any pavement parking from occurring.
- 12 Provide effective digital connectivity to enable home working and include flexible work/office space.

SECTION 6 Site Access Arrangements, Site Layout and Parking Strategy

6.1 Background

6.1.1 This section of the Transport Assessment summarises the proposed site access arrangements, site layout and parking arrangements in the following sub sections:

- Access strategy overview;
- Proposed access arrangements;
- Site layout; and
- Parking strategy.

6.2 Access Strategy Overview

6.2.1 Key aspects of the access strategy for the Water Eaton site are summarised below:

- Accommodate a walking / cycling super highway along the A4165 Oxford Road Site frontage which forms part of OXCC's wider North Oxford Corridor plan to improve cycling connections between Cherwell District / Kidlington and Oxford city - OXCC's proposals are to accommodate where feasible one directional segregated cycle lanes and footways either side of Oxford Road;
- Provide convenient and attractive pedestrian and cycle links into the surrounding highway network and local area;
- Accommodate buses that will remain on Oxford Road but with new bus stops that are within a reasonable walk distance of the new homes;
- Provide vehicular accesses to the Site from Oxford Road that prioritise safe crossing movements for pedestrians and cyclists; and
- Minimise the number of vehicular accesses to the Site from Oxford Road – Policy PR6a suggests the provision of two vehicular accesses from Oxford Road and the access proposals comply with this.

6.2.2 The Site access arrangements have been developed in consultation with OXCC, CDC, and consultants acting for site PR6b on the west side of Oxford Road.

6.3 Proposed Access Arrangements

Access from the A4165 Oxford Road

6.3.1 The site access arrangements are provided in the following i-Transport drawings which are submitted for approval:

- ITB16565-SK-065 - Proposed Water Eaton (PR6a) Access Strategy And Cycle Super Highway along Oxford Road - Including Left In Left Out Priority And Partial Cyclops Signal Junction;
- ITB16565-SK-067 - Proposed Water Eaton (PR6a) Access Strategy And Cycle Super Highway along Oxford Road - Including Left In Left Out Priority And Partial Cyclops Signal Junction – Southern Extent; and
- ITB16565-SK-066 - Proposed Water Eaton (PR6a) Access Strategy And Cycle Super Highway along Oxford Road - Including Left In Left Out Priority And Partial Cyclops Signal Junction – Northern Extent.

6.3.2 In addition, an indicative drawing (submitted for information purposes only) showing the proposed PR6a Access Strategy and Cycle Super Highway along Oxford Road along with the potential PR6b site access arrangements is provided at **Appendix J**. This shows that the Water Eaton access strategy does not prejudice PR6b coming forward. The detail of the PR6b site access arrangements and west side cycle superhighway along Oxford Road will need to come forward with any future planning application on PR6b.

6.3.3 Key aspects of the access design are summarised below:

- As requested by OXCC, the A4165 Oxford Road being subject to a 30mph speed limit along the site frontage (as per the approved TRO);
- A walking / cycling superhighway along the eastern side of A4165 Oxford Road - the proposals accommodate a 2.5m wide segregated cycle lane and a 2.0m footway. A3m verge separating the segregated cycle lane / footway and the Oxford Road carriageway / bus lane, suitable for appropriate street trees and planting is also included;
- The existing Oxford Road west side shared use footway / cycleway to remain available for pedestrians and northbound cyclists – this would eventually be upgraded to the cycle superhighway dimensions as and when the PR6b site comes forward for development;

- This would achieve OXCC's cycle superhighway aspiration of having southbound cyclists one way along the east side of Oxford Road and northbound cyclists one way along the west side of Oxford Road;
- The southern vehicular access to the site as a 3 arm Cycle Optimised Protected Signals (CYCLOPS) junction (capable of accommodating a fourth / western arm for an access into the PR6b site);
- The northern vehicular access to the site as a left in left out priority junction with a full set back for cycle crossing;
- The existing accesses to St Frideswide's Farm and Water Eaton from Oxford Road are to be closed to vehicular traffic and to be turned into pedestrian / cycle accesses (bridleway access for the Water Eaton access). Alternative vehicular access arrangements to the properties, associated buildings and agricultural land served from these accesses will be provided (both during and after construction) from the proposed Oxford Road site accesses and street network within the application site only (which would be set at reserved matters stage and designs will need to allow for the type of agricultural vehicles and manoeuvres expected in a safe manner);
- A toucan crossing of Oxford Road broadly in line with the Water Eaton bridleway;
- Floating bus stops¹ on Oxford Road near the proposed toucan crossing and retention of the southbound bus lane;
- A pedestrian / cycle access into the recently approved Land South West of St Frideswide's Farm, Banbury Road scheme to the south of the Site (OCC ref 21/01449/FUL); and
- Pipal Cottage is currently accessed from Oxford Road – it is understood that the owner is willing to have the access to the property redirected to come from within the development and this can be accommodated in the reserved matters scheme design.

6.3.4 Each of the above aspects of the access are discussed in more detail below.

¹ Also known as a 'bus stop bypass', this is an arrangement that involves a cycleway running behind the passenger boarding area at a bus stop, creating an island between the carriageway and the cycleway / footway.

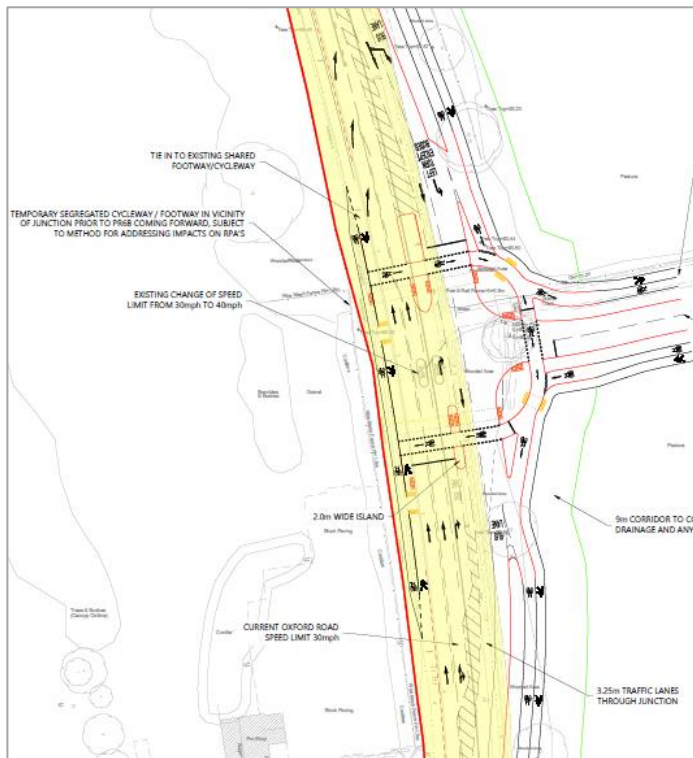
Walking / Cycling Superhighway

- 6.3.5 As set out above, a walking / cycling superhighway along the eastern side of A4165 Oxford Road is proposed - the proposals accommodate a 2.5m wide segregated cycle lane and a 2.0m footway (there is a 3m verge separation between the segregated cycle lane footway and the Oxford Road carriageway / bus lane (suitable for street trees and planting)).
- 6.3.6 The design is LTN1/20 Cycle Infrastructure Design / Manual for Streets compliant as follows:
- 2.5m wide segregated cycle lane – protected space for cycling which can accommodate in excess of 800 cyclists per hour as a one way cycle route (according with OXCC's aspirations for a cycle superhighway between Kidlington and Oxford city);
 - 2m wide footway – enables two wheelchair users to pass each other (as per Manual for Streets); and
 - 3m verge separation to the carriageway – exceeds the 0.5m desirable minimum horizontal separation between carriageway and cycle track for a 30mph road.
- 6.3.7 Around Pipal Cottage the intention is that the cycleway would use the existing shared use footway / cycleway adjacent to the carriageway. The footway would be taken into the scheme on the east side of Pipal Cottage and in this location is shown illustratively at this stage with the detailed alignment to be presented at reserved matters stage.
- 6.3.8 The existing Oxford Road west side shared use footway / cycleway will remain available for pedestrians and northbound cyclists – this would eventually be upgraded to the cycle superhighway dimensions as and when PR6b comes forward for development. The detail of how this is achieved would be for PR6b to agree with CDC and OXCC.
- 6.3.9 This would achieve OXCC's cycle superhighway aspiration having southbound cyclists one way along the east side of Oxford Road and northbound cyclists one way along the west side of Oxford Road.

Southern Vehicular Access - CYCLOPS junction

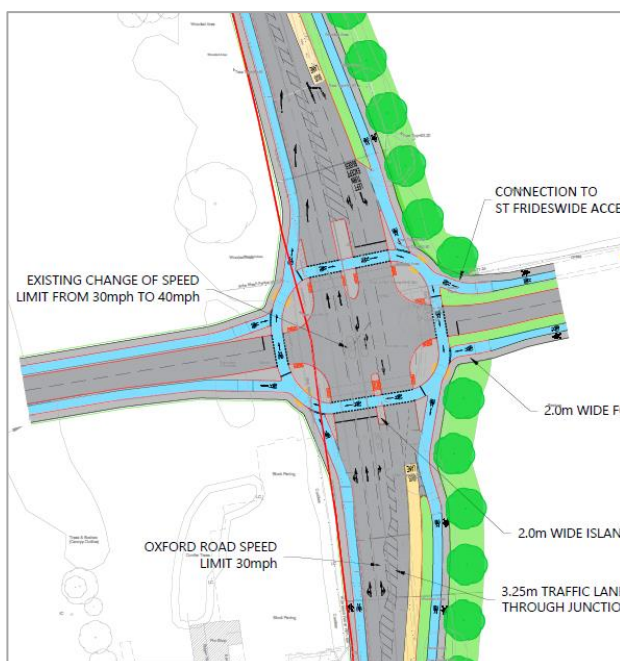
- 6.3.10 The southern vehicular access to the site is a 3 arm Cycle Optimised Protected Signals (CYCLOPS) junction, capable of accommodating a fourth / western arm for an access into PR6b. An extract from drawing ITB16565-SK-067 is shown in **Image 6.1** below.

Image 6.1 Extract from Drawing ITB16565-SK-067 – 3 arm Junction for the Water Eaton Site



6.3.11 **Image 6.2** below shows how the Cyclops junction is capable of accommodating a fourth / western arm for an access into PR6b (from drawing at **Appendix J**).

Image 6.2 Potential Cyclops Junction 4th arm to Accommodate access to PR6b in the future



6.3.12 The principal design benefits of a CYCLOPS style junction are as follows:

- Signal controlled junction design technique;
- Orbital cycle route separating cyclists from vehicular traffic;
- Optimised safety enhancements for all junction users;
- Protecting cycling and walking conflicts with vehicular traffic being safely managed;
- Cyclist and pedestrian phases can run simultaneously; and
- Cyclists have protected right turn, and can filter left without signal control.

6.3.13 Key aspects of the Cyclops junction design for the Water Eaton site are as follows:

- Orbital cycle route separating cyclists from vehicular traffic and accommodating the Oxford Road cycle superhighway;
- Oxford Road northern arm – left turn only / bus lane and straight ahead / right turn lane;
- Oxford Road southern arm – two straight ahead lanes (merge back to one lane north of the junction) and a right turn lane; and
- Site access arm – single carriageway approach (6.75m wide carriageway), segregated 2m cycleway / 2m footway each side of the access road and the cycleway / footway being separated from the carriageway by 2.75m verge each side to facilitate parking, SUDS, landscape verges / trees etc. The north side footway / cycleway routes over the existing track access to the farm.

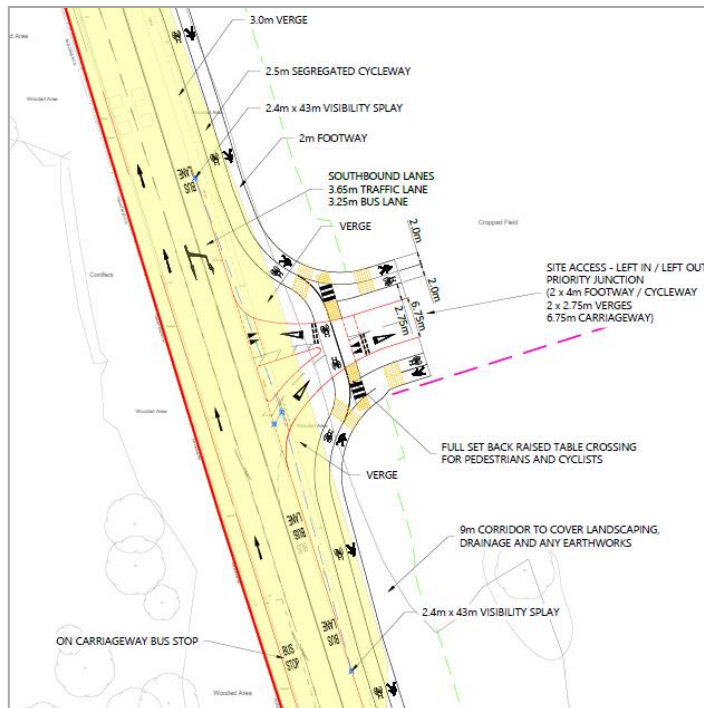
6.3.14 Vehicle swept path analysis of the design vehicles at the southern site access junction are provided at **Appendix K**.

Northern Vehicular Access - Left In Left Out Priority Junction

6.3.15 The northern vehicular access to the site is proposed as a left in left out priority junction with a full set back for cycle crossing.

6.3.16 An extract from drawing ITB16565-SK-066 is shown in **Image 6.3** below.

Image 6.3 Extract from Drawing ITB16565-SK-066



6.3.17 Key aspects of the design are as follows:

- Central island to assist in encouraging left in / left out only movements. Additional signage is also envisaged;
- Tightened radii with ramp on entry to reduce vehicle speeds;
- Site access arm – 6.75m wide carriageway (to accommodate school buses), segregated 2m cycleway / 2m footway each side of the access road and the cycleway / footway being separated from the carriageway by 2.75m verge each side to facilitate parking, SUDS, landscape verges / trees etc;
- Visibility splays of 2.4m x 43m to accord with the 30mph speed limit – greater visibility provision is achievable in practice given the proposed verge along Oxford Road; and

- Full set back marked priority crossing for the southbound cycle superhighway as it crosses the access arm – a circa 5m set back is provided and can accommodate traffic flows of around 2,000 vehicles per day on the minor arm which is less than forecast on this access road arm of the development.

6.3.18 The access design enables a second access to PR6b from Oxford Road to the north – see **Appendix J**.

6.3.19 Vehicle swept path analysis of the design vehicles at the northern site access junction are provided at **Appendix K**.

6.3.20 An all moves form of junction was discussed with OXCC. This was not pursued because:

- OXCC did not want to have an additional signal-controlled junction nor a roundabout on this section of Oxford Road;
- A priority junction may give rise to right turning traffic conflicting with cycle movements;
- An all moves junction may encourage car travel between PR6b and the local centre and primary school whereas the priority has been to encourage and accommodate direct walking and cycling links for these trips; and
- An all moves junction was not necessary in traffic modelling terms.

Pedestrian / Cycle Accesses

6.3.21 Pedestrian / cycle accesses to the development from Oxford Road will be provided as follows:

- South of the Parkway Station Junction and in the vicinity of Pipal Cottage ;
- Northern vehicular access - left in left out priority junction;
- Water Eaton access / bridleway – retained as bridleway access facilitating pedestrian and cycle movements with no vehicular traffic;
- Cyclops junction incorporating the north side footway / cycleway routing over the existing track access to the farm so that is no longer available as a vehicular access; and
- Southern part of the site (just to the north of the recently approved Land South West of St Frideswide's Farm, Banbury Road scheme (OCC ref 21/01449/FUL).

Oxford Road – Toucan Crossing

6.3.22 A toucan signal-controlled crossing on Oxford Road is proposed broadly in line with the Water Eaton bridleway. This would then allow easy access to the public footpath routing west of Oxford Road through the PR6b site (either in its existing alignment or minor diversion of footpath to bring it in line with the toucan crossing).

6.3.23 The consultation process revealed a request for consideration of this crossing as a bridge i.e., grade separated provision.

6.3.24 Table 10.2 of LTN1/20 provides an indication of the suitability of each type of pedestrian / cycle crossing, depending on the speed and volume of traffic and the number of lanes to be crossed in one movement – see **Image 6.4** below.

Image 6.4 – Extract from LTN1/20

Table 10-2: Crossing design suitability

Speed Limit	Total traffic flow to be crossed (pcu)	Maximum number of lanes to be crossed in one movement	Uncontrolled	Cycle Priority	Parallel	Signal	Grade separated
≥ 60mph	Any	Any	Not suitable	Not suitable	Not suitable	Not suitable	Not suitable
40 mph and 50 mph	> 10000	Any	Not suitable	Not suitable	Not suitable	Not suitable	Not suitable
	6000 to 10000	2 or more	Not suitable	Not suitable	Not suitable	Not suitable	Not suitable
	0-6000	2	Not suitable	Not suitable	Not suitable	Not suitable	Not suitable
	0-10000	1	Not suitable	Not suitable	Not suitable	Not suitable	Not suitable
≤ 30mph	> 8000	> 2	Not suitable	Not suitable	Not suitable	Not suitable	Not suitable
	> 8000	2	Not suitable	Not suitable	Not suitable	Not suitable	Not suitable
	4000-8000	2	Not suitable	Not suitable	Not suitable	Not suitable	Not suitable
	0-4000	2	Not suitable	Not suitable	Not suitable	Not suitable	Not suitable
	0-4000	1	Not suitable	Not suitable	Not suitable	Not suitable	Not suitable

- Provision suitable for most people
- Provision not suitable for all people and will exclude some potential users and/or have safety concerns
- Provision suitable for few people and will exclude most potential users and/or have safety concerns

- Notes:
1. If the actual 85th percentile speed is more than 10% above the speed limit the next highest speed limit should be applied
 2. The recommended provision assumes that the peak hour motor traffic flow is no more than 10% of the 24 hour flow

6.3.25 Oxford Road will be subject to a 30mph speed limit (following the approval of the Oxford Road / Banbury Road TRO), daily traffic flows will be in excess of 8,000 vehicles per hour and 2 lanes will be crossed in one movement. Having regard to **Image 6.4** above (extracted from LTN1/20), an at grade signal-controlled crossing is identified as being the appropriate provision for ‘most people’. A bridge crossing across what will be a 30mph single carriageway urban road would introduce unnecessary ramps and steps (which may deter some people from using it) as well as

potentially having negative visual and landscape effects in this setting. As such a bridge crossing is not desirable nor necessary and has not been taken forward in the design proposals.

Oxford Road – Bus Provision

6.3.26 Following discussions with OXCC and the bus operators it is agreed that it is appropriate for the bus services to stay on Oxford Road and not to route into either the Water Eaton site or the PR6b site.

6.3.27 There are existing bus stops on Oxford Road / Banbury Road just to the north of Jordan Hill. New bus stops are also proposed on Oxford Road near the proposed toucan crossing near the Water Eaton bridleway – the southbound bus stop is just to the south of the crossing and the northbound bus stop just to the south of the crossing. The southern parts of the site are closer to the existing bus stops on Oxford Road / Banbury Road. Cycle parking and scooter parking / other forms of micromobility parking is proposed in the vicinity of the proposed new bus stops on Oxford Road, to assist in the transfer of trips to sustainable modes.

6.3.28 This ensures that appropriate access to bus services is provided for future residents through:

- Oxford Road forming a high frequency bus corridor providing direct routes to a number of key destinations including Oxford city centre, Churchill Hospital, John Radcliffe Hospital and Kidlington;
- Bus stops (existing / or new) being within the walkable 20-minute neighbourhood concept (ie within a circa 10-minute / 800m walk distance of residential areas); and
- Cycle parking and scooter parking being provided in the vicinity of the new bus stops on Oxford Road to ensure maximum accessibility to the new bus stops for future residents.

Pipal Cottage Access

6.3.29 Pipal Cottage is currently accessed from Oxford Road. It is understood that the owner is willing to have the access to the property redirected to come from within the development and this can be accommodated in the reserved matters scheme design.

Other Pedestrian and Cycle Accesses

6.3.30 There will be other pedestrian and cycle accesses as follows:

- A pedestrian / cycle access into the eastern part of the approved development to the south (OCC Ref. 21/01449/FUL);

- Bridleway 229/9/30 running east from Oxford Road along the Water Eaton access track through the site provides an alternative pedestrian / cycle access to the north / Kidlington;
- Public Footpath 229/8/10 running to the south of St Frideswide’s Farm provides an alternative pedestrian access to the east / north;
- There will be links to the boundary with Cutteslowe Park to the south for pedestrians and cyclists – to enable a link to a potential future cycleway through Cutteslowe Park (see Section 8 of the Transport Assessment); and
- Potential pedestrian / cycle access into the Oxford Parkway Station / Park and Ride site to the north.

6.4 Site Layout

20-minute neighbourhood

6.4.1 A key transport / connectivity objective for the Development is to provide a well-connected, walkable 20-minute neighbourhood with facilities within the development that reduce the need for travel (a 10 minute walk to access local facilities and services and a 10 minute walk back - equating to approximately an 800 metre walking distance when considering average walking speeds). From a transport and connectivity perspective, the 20-minute neighbourhoods should:

- Be safe, accessible and well connected for people walking and cycling;
- Offer high-quality public realm and open spaces;
- Provide services and destinations that support local living;
- Facilitate access to quality public transport that connects people to jobs and higher order services;
- Deliver housing at densities that make local services and transport viable; and
- Facilitate thriving local economies.

6.4.2 **Figure 6.1** shows the 20-minute walkable neighbourhood concept for Water Eaton. It shows that:

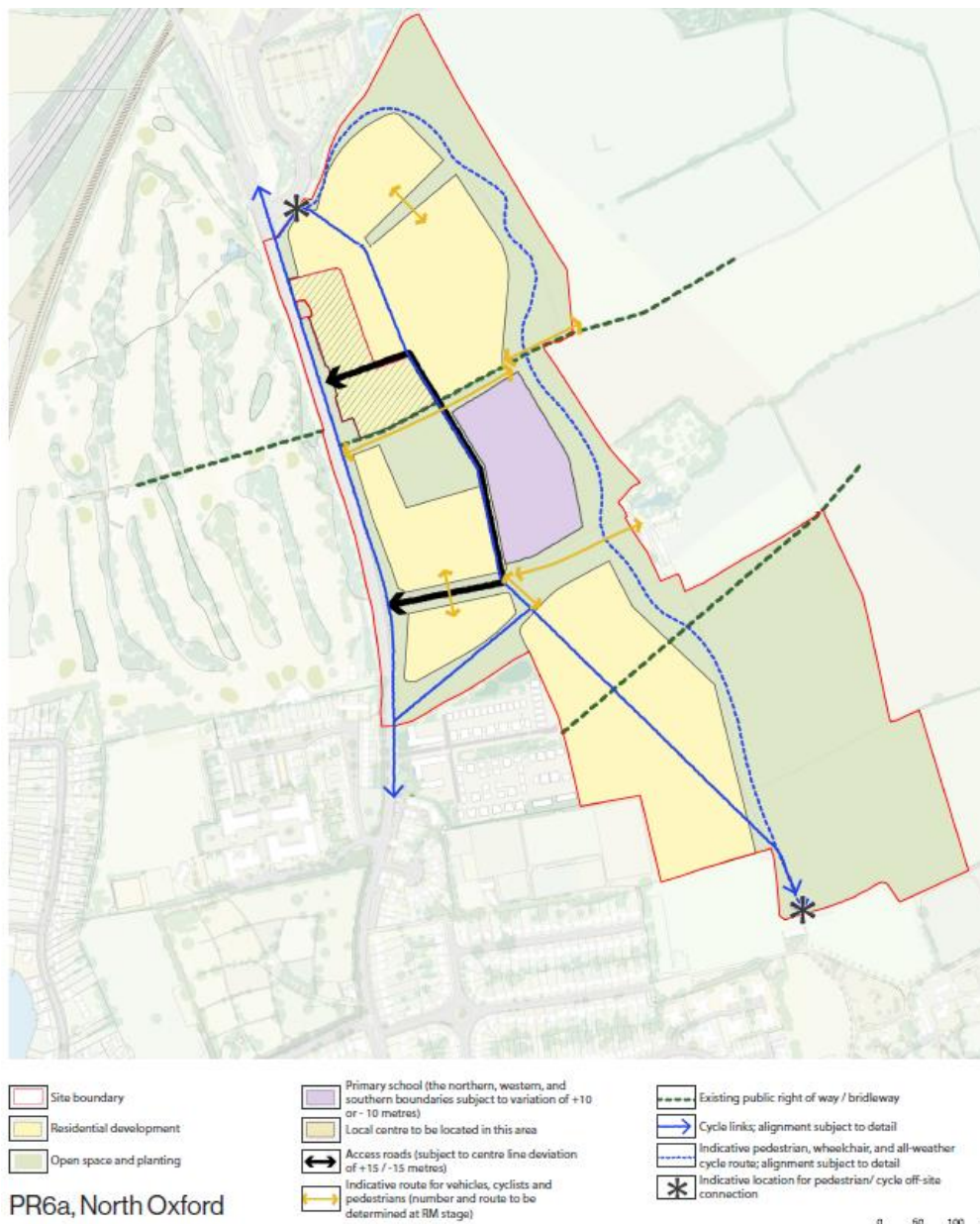
- All of the Water Eaton site / residential areas are within an 800m walk distance of the local centre / primary school;
- All of the PR6b site is within an 800m walk distance of the Water Eaton local centre / primary school;

- The public realm and open spaces are within an easy walking distance of the residential areas; and
- The new bus stops on Oxford Road are centrally located and easily accessed from the Water Eaton site and PR6b.

6.4.3 This provides comfort that the juxtaposition of the key facilities within the site is appropriate for both the Water Eaton site but also the PR6b site when that comes forward.

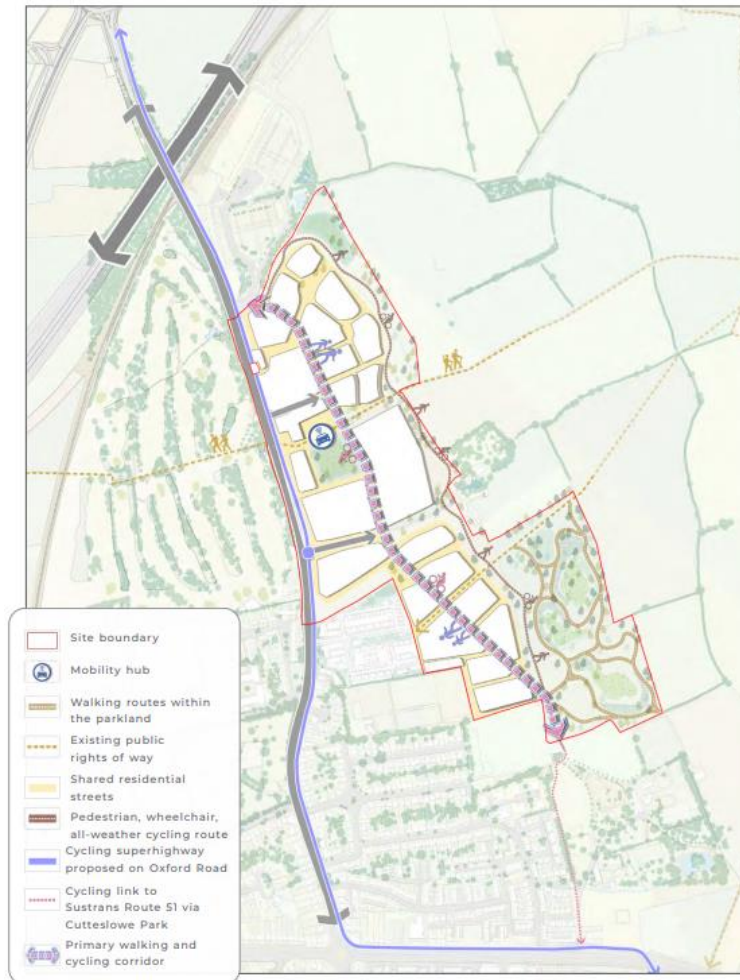
6.4.4 An extract from the Land Use and Access Parameter Plan is provided at **Image 6.5** below.

Image 6.5 Land Use and Access Parameter Plan – Drawing 32M



6.4.5 The Design and Access Statement provides a detailed analysis of the site layout. The proposed movement network is shown at **Image 6.6** below.

Image 6.6 Proposed Movement Network



Source: Design and Access Statement

6.4.6 A summary of the key transport elements is provided below.

Walking

6.4.7 Residents will be encouraged to walk or cycle to the local centre for day-to-day needs such as local shopping, taking children to school (with the school and local centre adjacent to footpaths and cycleways) and access to wider facilities and services in both Kidlington and Oxford.

- 6.4.8 The two east-west public rights of way crossing Water Eaton (to the east of Oxford Road) and PR6b (to the west of Oxford Road) provide an off-road route through both sites, linking them to the local centre and school, and further afield to the North Oxford development (located to the west of the Site) and the countryside to the east. A further east-west public footpath links the site with the footpaths in the adjacent consented scheme in Oxford city to the south of the site.
- 6.4.9 The existing shared footway / cycleway along Oxford Road is improved with segregated footway / cycleway provision.
- 6.4.10 Further north-south and east-west footpaths are provided in the streets within the scheme, many of which will be designed as shared streets for pedestrians and cyclists (rather than cars) in order to allow street play and social interaction.
- 6.4.11 To the east of the site, a route is provided for leisure use that will meander through wildlife zones, ponds and copses, linking to play areas, pocket parks and exercise areas. A more formal, wheelchair accessible route will link through the length of the site, with informal mown footpaths being established in the parkland adjacent to Cutteslowe Park.
- 6.4.12 In order to discourage people to drive their children to school during drop-off and pick-up, a school street is proposed to ensure safety for children who will be walking and cycling to school everyday. This will also mean that children can play in the Barrows Park prior to school, with minimal traffic (if any) to navigate in crossing the school street to the school entrance.

Cycling

- 6.4.13 In addition to the Oxford Road cycle super highway, a 'fast' / commuter cycle route is proposed through the centre of the site along the main spine road. This route will link the Parkway Station / Oxford Road north with Cutteslowe Park. The route would be suitable for commuters and children cycling to school. Section 7 discusses the potential Cutteslowe Park cycle link.
- 6.4.14 The proposals allow for a potential pedestrian / cycle access into the Oxford Parkway Station / Park and Ride site to the north.

Mobility Hubs

- 6.4.15 Mobility Hubs are recognisable places with an offer of different and connected transport modes supplemented with enhanced facilities and information features to both attract and benefit the traveller. They are places where multiple mobility offers are brought together in one place. They can come in many shapes and sizes, but each provide a more convenient, comfortable, and safer environment to access a range of sustainable transport modes. In addition, they support low

car lifestyles and the reallocation of space from car parking to other infrastructure demands. By having alternative transport options, residents can be encouraged to avoid owning a car – freeing up parking spaces and reducing congestion – all while being assured that their own mobility needs can still be catered for. **Image 6.7** shows example components of a Mobility Hub.

Image 6.7: Example Components of a Mobility Hub



Source i-Transport

6.4.16 A Mobility Hub is proposed at / next to the local centre – the detail of which will be determined through the application process, consent / condition and obligations and reserved matters applications. It may include:

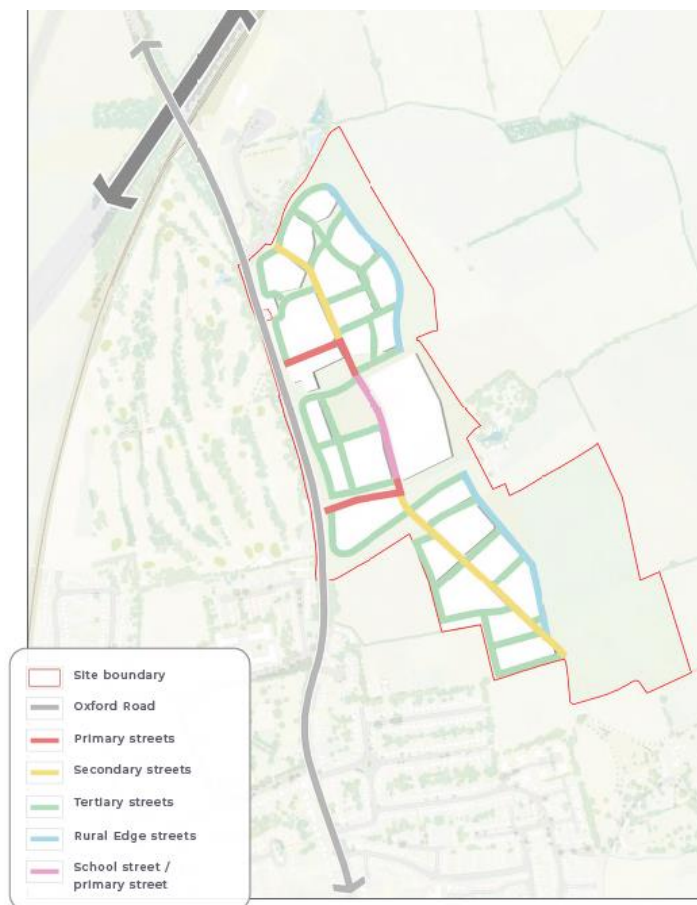
- Digital Pillar – transport information etc;
- Waiting area / covered seating – wi fi, phone charging etc available;
- Electric bike docking stations;
- Potential e scooter / hire
- Bike maintenance facilities;
- Car club spaces / vehicles
- Electric Vehicle Charging Facilities – circa 5 / 10 EV charging spaces;
- Area for taxis;
- Package delivery lockers; and
- Community concierge parcel last mile delivery.

6.4.17 Cycle parking and scooter parking / other forms of micromobility parking is proposed in the vicinity of the new bus stops on Oxford Road, to assist in the transfer of trips to sustainable modes and capturing last mile trips.

Street Hierarchy

6.4.18 Water Eaton is designed to be a walkable neighbourhood which puts pedestrians and cyclists first. The street hierarchy map is shown in **Image 6.8** below

Image 6.8 Street Hierarchy Map



Source: Design and Access Statement

Primary Streets

6.4.19 The primary streets are approximately 20 metres wide in total and form the main access routes from Oxford Road for all forms of transport which will include walking, cycling and cars.

Secondary Streets

6.4.20 The secondary streets are approximately 15 metres wide and will provide north south connectivity across the Site.

6.4.21 These streets are shared surfaces where walking and cycling is prioritised over cars and with the only function of connecting the site to the primary street.

Residential Streets

6.4.22 The residential streets are quiet shared surfaces that make up majority of the streets on site. The only function of these streets is to provide access to residential properties.

Rural Edge Streets

6.4.23 Rural edge streets are located along the eastern periphery of the development area that overlooks the countryside. These streets are quiet residential streets that can also qualify as shared driveways for the houses overlooking the rural edge.

School Street

6.4.24 The street adjacent to the school is proposed as a school street which will be temporarily closed off for traffic during the mornings and afternoons during school days (except emergency vehicles and exempt vehicles). School Street closures typically operate between 8.00 – 9.15 AM and 2.30 – 4.00 PM or longer if necessary and would only normally be enforced on weekdays and during term times. The scheme is introduced to encourage pupils and families to walk and cycle to drop-off and pick-up discouraging people to drive to school.

6.4.25 There is an alternative much less direct route for vehicular traffic for the periods when the school street is in operation.

6.4.26 The Design and Access Statement includes sections of the various streets.

6.5 Parking Strategy

6.5.1 Given that this is an outline scheme and the mix and type of dwellings is unknown, it is not possible to determine the number of spaces which will be provided across the site. Bellway will agree a scheme with OXCC which pays due regard to OXCC's parking standards and the desire to limit parking across the site. Details will be set out within subsequent reserved matters applications, and will seek to provide appropriate parking across the site.

Cycle Parking

6.5.2 In terms of cycle parking, the provision will be provided in accordance with the standards as per **Table 6.1** below.

Table 6.1 Cycle Parking Standards

Type	Dwelling Size	Cycle Parking Provision
House	1 bedroom	2 spaces per bedroom
House	2 bedroom	2 spaces per bedroom
House	3 bedroom	2 spaces per bedroom
House	4+ bedroom	2 spaces per bedroom
House	Multiple Occupancy	1 space per bedroom
Flat		2 spaces per bedroom

Motorcycle Parking / Powered Two Wheeler Parking

- 6.5.3 Motorcycle and powered two wheeler parking will be provided in accordance with the standards at some 1 space per 5 dwellings – so there would be around 160 spaces across the Development.

Car Parking

Residents

- 6.5.4 At the time of a reserved matter application, Bellway will agree the level of car and motorcycle parking provided across the site with OXCC, having due regard to OXCC's parking standards – OXCC's January 2023 car parking standards for residential development at sites such as Water Eaton are summarised in sub section 3.3 of this report. It is clear that, whilst the Water Eaton site is located in a sustainable location, it is not within a 800m walk distance of all the local amenities and services listed through the parking standards guidance such as a secondary school, supermarket and a large employment area. Additionally, whilst acknowledging the recent parking standards, there are people who rely on the use of private cars/vans for work purposes and have no option to use walking, cycling or public transport. The parking proposals must therefore factor in these matters. Indeed, the level of parking provision may differ across the site depending on the location of the dwelling within the site and the phase of the development.
- 6.5.5 It is the intention to provide parking across the site, broadly in accordance with the provision as set out in **Table 6.2** below.

Table 6.2 Proposed Car Parking Provision

Number of Bedrooms per Dwelling	Parking Provision
1 - 2	Up to 1 space per dwelling within the development site
3	Up to 2 spaces per dwelling within the development site
4+	Up to 2 spaces per dwelling within the development site
Wheelchair accessible or adaptable houses and flats	1 space per dwelling to be provided within the curtilage of the dwelling

Visitors

- 6.5.6 Visitor parking will be provided having regard to the standards – Bellway will take an approach that is consistent with national research (DCL, 2007, Residential Car Parking 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”*.

Other Uses

- 6.5.7 Parking for the other uses within the site such as the local centre and the primary school will be provided having regard to the parking standards.
- 6.5.8 With regards to the primary school, only staff and visitors, or those with special requirements will be able to park at or within the immediate vicinity of the school. The provision of a school street and the design of the internal street network will limit opportunities for people to drive or park within the vicinity of the school. Any other parking for the primary school will be dealt with through the provision of parking at the local centre, where parents that need to arrive by car will be encouraged to ‘Park and Stride’ from the local centre.
- 6.5.9 All parking will be provided so as to discourage pavement parking and inappropriate on-street parking.

Controlled Parking Zone

- 6.5.10 It is envisaged that a controlled parking zone will be required to support the parking provision provided on site with the new development as well as to ensure that there is no overspill on-street parking from the nearby Oxford Parkway Station / Park and Ride site.

SECTION 7 Walking and Cycling Connectivity

7.1 Background

7.1.1 One of the main transport / connectivity objectives for the Development is to deliver direct and safe connections which prioritise access on foot, bike or bus to/from neighbouring communities 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 to avoid severance.

7.1.2 Paragraph 4.4.1 of the Manual for Streets states:

“Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes’ (up to about 800m) walking distance of residential areas which resident 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 2km. MfS encourages a reduction in the need to travel by car through the creation of mix-use neighbourhoods with interconnected street patterns, where daily needs are within walking distance for most residents”

7.1.3 OXCC’s LTCP discusses walking and cycle networks and states that walking journeys are typically under 1 mile (20 minute journeys), whereas the equivalent 20 minute journey by bicycle is nearly 5 miles.

7.1.4 The DfT’s Cycling and Walking Investment Strategy (2017) states at Paragraph 1.16 that:

“...there is significant potential for change in travel behaviour. Two out of every three personal trips are within five miles – an achievable distance to cycle for most people, with many shorter journeys also suitable for walking. For school children, the opportunities are ever greater. Three quarters of children live within a 15-minute cycle ride of secondary school while more than 90% live within a 5-minute walk or bus journey from a primary school.”

7.1.5 The DfT’s Gear Change A Bold Vision for Cycling and Walking states (page 11) that:

“In particular, there are many shorter journeys that could be shifted from cars, to walking, or cycling. We want to see a future where half of all journeys in towns and cities are cycled or walked. 58% of car journeys in 2018 were under 5 miles. And in urban areas, more than 40% of journeys were under 2 miles in 2017-1817. For many people, these journeys are perfectly suited to cycling and walking.”

7.1.6 Against this background:

- 1.6km (circa 1mile) is a reasonable walking distance for most people and many journey purposes although some people may walk further (2km is referred to in Manual for Streets); and

- 8km (circa 5 miles) is a reasonable cycle distance for most people and many journey purposes, although some people, especially in Oxford, do cycle in excess of 8km on a regular basis. The use of e-bikes increases the range that cyclists will travel as well as reducing the effects of any gradients on routes and journey times.

7.2 Key Destinations

7.2.1 Key destinations for future residents would typically fall under the following broad headings:

- Local centres;
- Primary schools;
- Secondary schools;
- Convenience stores;
- City / town centre; and
- Employment.

7.2.2 This list is therefore a useful starting point in identifying the key destinations and thus focus for walking and cycling connectivity – see **Figure 7.1** and **Table 7.1** below.

Table 7.1 Key Destinations

Key Destination	Name
On-Site	
Local Centre	Proposed Local Centre / Commercial Uses and Community centre uses
Primary School	Proposed Primary School
Convenience Store	Proposed Convenience Store / Shop
Other	Formal and Informal open space, recreation, play space
Transport Interchange	Oxford Road Bus Stops
	Mobility Hub
Off-Site Location	
Local Centre	Summertown
Secondary School	The Cherwell School, Summertown
	Gosford Hill School, Kidlington
Convenience Store	Sainsbury's, Kidlington
	M&S Simply Food (Woodstock Rd)
City / Town Centre	Oxford city centre
	Kidlington High Street
Employment	Oxford city centre
	North Oxford

Key Destination	Name
	Begbroke / Science Park Expansion
	Headington
	Cowley
Leisure	Cotteslowe Park
Transport Interchange	Oxford Parkway Station / Park and Ride

7.2.3 **Figure 7.2** shows a 1.6km walking catchment from the centre of the site. This shows that the following destinations are within a reasonable walk distance of the Site:

- All of the on-site facilities;
- PR6b, PR7a, PR7b;
- Cotteslowe Park;
- Sainsbury's Kidlington; and
- Northern parts of Summertown (2km).

7.2.4 **Figure 7.3** shows an 8km cycling catchment from the centre of the site. This shows that the following destinations are within a reasonable cycle distance of the site:

- All of the facilities listed above within a reasonable walking distance;
- Kidlington and its facilities / services;
- Summertown and its facilities / services;
- North Oxford employment areas;
- Oxford city centre;
- Begbroke / Science Park Expansion; and
- Headington.

7.2.5 Cowley is just beyond the 8km cycle distance but it is envisaged that some people would still cycle there.

7.2.6 As set out above, the use of e-bikes increases the range that cyclists will travel as well as reducing the effects of any gradients on routes and journey times.

7.3 On-Site Destinations

7.3.1 A range of community facilities are proposed for the Development including a local centre, a primary school, a community hall, commercial / employment uses open space and play areas. Many journeys can therefore be contained on site.

7.3.2 The on-site pedestrian / cycle network will provide for appropriate and safe connectivity between the residential areas and the other land uses listed above.

7.3.3 Section 6 sets out how the Development provides for the 20-minute neighbourhood a comprehensive safe, convenient well landscaped and inclusive network for cycling and walking which offers direct, continuous and uninterrupted routes to the on-site facilities.

7.4 Oxford Road Site Frontage

7.4.1 Section 6 sets out how the Oxford Road access proposals accommodate a walking / cycling superhighway along the A4165 Oxford Road site frontage through:

- A 2.5m wide segregated cycle lane and a 2.0m footway (there is a 3m verge separation between segregated cycle lane footway and the Oxford Road carriageway / bus lane (suitable for appropriate street trees and planting)) on the site / east side of Oxford Road;
- The existing Oxford Road west side shared use footway / cycleway to remain available for pedestrians and northbound cyclists – this would eventually be upgraded to the cycle superhighway dimensions as and when PR6b comes forward for development;
- This will then allow for OXCC's final cycle superhighway aspiration having southbound cyclists one way along the east side of Oxford Road and northbound cyclists one way along the west side of Oxford Road;
- The southern vehicular access to the site as a 3 arm Cycle Optimised Protected Signals (CYCLOPS) junction, capable of accommodating a fourth / western arm for an access into PR6b; and
- The northern vehicular access to the site as a left in left out priority junction with a full set back for cycle crossing.

7.4.2 The Oxford Road super cycle highway forms part of OXCC's wider plan to improve cycling connections between Kidlington and Oxford city. The improvements also offer a significant enhancement to NCN route 51 which runs along the Oxford Road site frontage.

7.5 Routes between the Site and Key Destinations

7.5.1 The following routes are identified:

- Oxford Road / Banbury Road Routes
 - Route 1 - Site to Kidlington via Oxford Road (taking in Oxford Parkway / Park and Ride, Sainsbury's, Kidlington town centre and Gosford Hill School); and
 - Route 2 - Site to Summertown and Oxford city via Oxford Road / Banbury Road (taking in Summertown, The Cherwell School; and Oxford city centre);
- Potential Cutteslowe Park Cycle Link; and
- Other routes to key destinations.

7.5.2 These are discussed in more detail below.

Oxford Road / Banbury Road Routes

7.5.3 Away from the Water Eaton site frontage, the Oxford Road / Banbury Road corridor improvements will be for OXCC as local highway authority to deliver funded through proportionate financial contributions from the Water Eaton site and the other PR sites impacting on the corridor as well as Growth Fund deal funding.

Route 1 - Site to Kidlington via Oxford Road

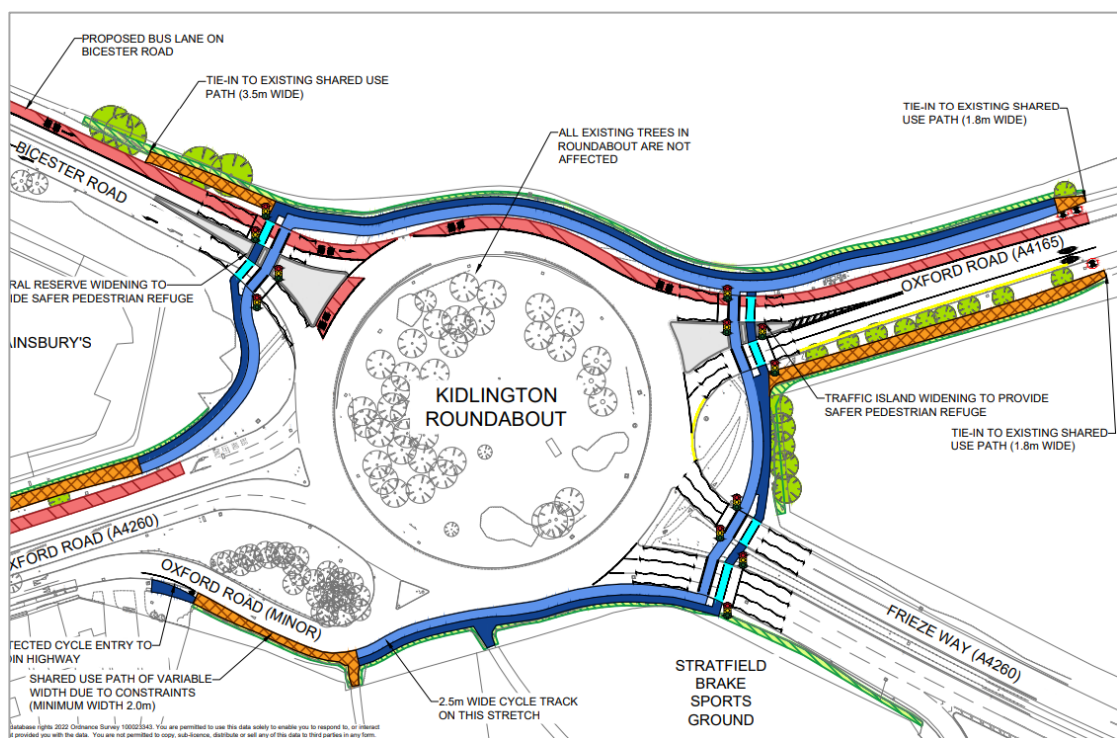
7.5.4 The section of Oxford Road between the site and Kidlington roundabout is being discussed with OXCC. OXCC's emerging improvement proposals for the section of Oxford Road between the site and Kidlington roundabout include:

- Improvements to the Oxford Parkway / Park and Ride junction to facilitate safer pedestrian and crossing movements;
- Improvements to the existing shared use footways / cycleway on either side of Oxford Road as far as Kidlington roundabout to provide directional segregated cycle lanes and footways either side – this may include a bus gate north of the A34 / rail bridges (so that the bus lane can be removed over the bridges) and a 6m carriageway to enable 2m cycleways and 2m footways either side of the carriageway to be provided in the available highway. Concept plans showing how OXCC's aspirations could be delivered are provided at **Appendix L**.

7.5.5 The Development will assist in bringing forward the above improvements through a proportional contribution secured in a S106 agreement (other PR sites impacting on the corridor will also need to make their proportional contribution).

7.5.6 OXCC has emerging proposals, funded through the Growth Fund deal to improve Kidlington roundabout. An extract from the current proposals is included as **Image 7.1**, providing significantly improved facilities for pedestrians and cyclists through the junction to improve connectivity between Kidlington, the Water Eaton site and Oxford.

Image 7.1- OXCC Kidlington Roundabout Improvement scheme



Source: OXCC

7.5.7 The proposed improvements include:

- A proposed bus lane on the Bicester Road entry arm to the roundabout;
- Introduction of new segregated footways and cycle tracks around the circulatory of the roundabout;
- Introduction of new, more direct, signalised crossings on Bicester Road, Oxford Road (A4165) and Frieze Way (A4260). These crossings will consist of single stage crossings for cycle users and two-stage crossings for pedestrians; and
- Introduction of new protected cycle entry / exit on Oxford Road (Minor) for cyclists on NCN route 51 to re-join / exit the carriageway from / to the proposed shared use path.

7.5.8 These improvements link into the NCN Route 51 which routes on the Oxford Road (minor) and the existing shared use cycle facilities on Oxford Road routing into Kidlington.

7.5.9 The route enhancements therefore make an appropriate and safe walking and cycling route between the Water Eaton site and Oxford Parkway / Park and Ride, Sainsbury's, Kidlington town centre and Gosford Hill School.

Route 2 -Site to Summertown and Oxford city via Oxford Road / Banbury Road

7.5.10 The section of Oxford Road / Banbury Road between the site and Cutteslowe roundabout is being discussed with OXCC. OXCC's emerging improvement proposals include upgrading the existing shared use footway / cycleways on either side of Oxford Road / Banbury Road as far as Cutteslowe roundabout to provide directional segregated cycle lanes and footways either side – this is likely to include 2m directional cycleways and 2m footways either side of the carriageway (with any narrowing at pinch points) and a 9m carriageway (including a 3m southbound bus lane) to be provided in the available highway. Concept plans showing how OXCC's aspirations could be delivered are provided at **Appendix L**.

7.5.11 The Cutteslowe roundabout which accommodates the A40 northern ring road only has limited pedestrian and cycling facilities especially for north south movements. The junction is being discussed with OXCC. OXCC is considering a number of options for improvements including:

- An additional controlled crossing on the A40 eastern arm to improve the north south movement;
- Widening of all pedestrian and cycle facilities around the junction and on junction crossings which may require reallocation of some of the carriageway especially on the A40 eastbound approach to the junction; and
- A potential variation on the above where the A40 west side crossing is relocated to the west to near the Blandford Avenue junction.

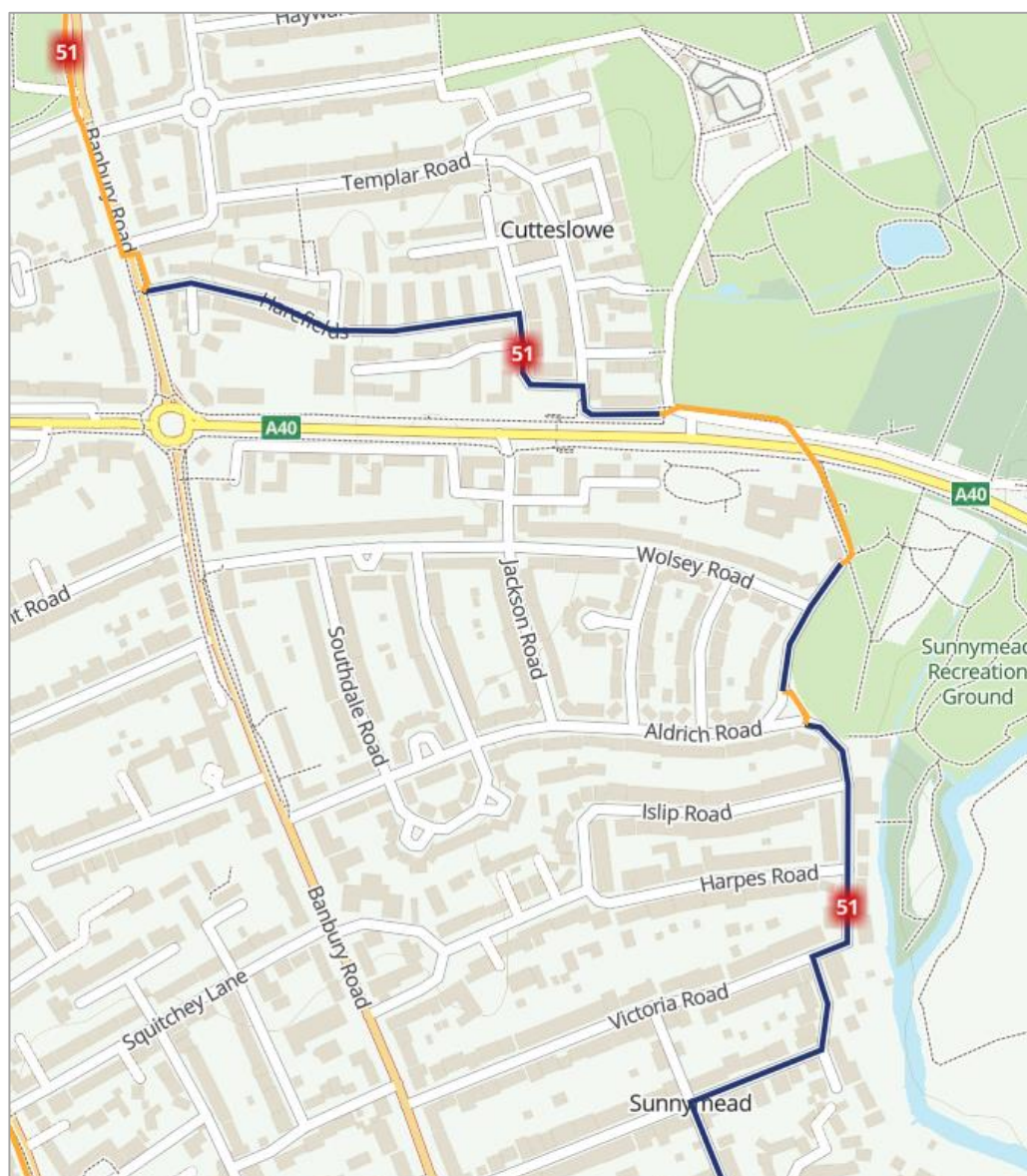
7.5.12 The optioneering exercise may also identify additional options such as full signalisation. OXCC is reviewing all options and once a preferred option is identified OXCC is likely to undertake an element of public consultation.

7.5.13 The Development will assist in bringing forward the above improvements through a proportional contribution secured in a S106 agreement (other PR sites will also need to make their proportional contribution).

7.5.14 To the south of Cutteslowe roundabout there are options for onward travel into Summertown via Banbury Road (or NCN Route 51 which routes through quiet streets to the east) or to the city centre via Banbury Road, NCN Route 51 or even NCN 5 to the west which routes via Woodstock Road and the Jericho area.

7.5.15 As an alternative to routing through Cutteslowe roundabout, NCN 51 routes away from Banbury Road to the east and utilises Harefields (a quiet street) before routing over the A40 on a pedestrian / cycle bridge and using quiet streets to link to Summertown and Oxford city centre. This route will be available for future residents – see **Image 7.2** below.

Image 7.2 NCN Route 51 Avoiding Cutteslowe Roundabout



7.5.16 The route enhancements therefore make an appropriate and safe and walking and cycling route between the Water Eaton site and Summertown, the Cherwell School; and Oxford city centre.

Potential Cutteslowe Cycle Park Link

- 7.5.17 During the Enquiry by Design event in July 2021 and at subsequent public consultation events the desire for a potential cycle link through Cutteslowe Park to connect the Site to the existing pedestrian / cycle bridge over the A40 (east of the Cutteslowe roundabout) was identified. The suggestion for the cycle link was raised by the local residents whilst noting at the moment cycling is prohibited, but people do still cycle and so suggested this was explored further, noting a number of issues including the City's byelaws.
- 7.5.18 The Water Eaton team has undertaken some design work and identified a potential route on the west side of the park – see **Appendix M**. OCC (the landowner of Cutteslowe Park) and OXCC as highway authority have reviewed the plans and are content with the proposed route.
- 7.5.19 The cycle route through on Cutteslowe Park is on land outside of the control of Bellway / Christ Church. As such it would need to come forward as an OCC or OXCC delivered scheme.
- 7.5.20 Should OXCC or OCC wish to take forward the scheme then the Water Eaton site can make a proportional contribution secured in a S106 agreement (other PR sites will also need to make their proportional contribution) for OXCC or OCC to deliver.

Other Routes

- 7.5.21 Pedestrians and cyclists can connect to the North Oxford employment area to the south west via the existing highway network / Five Mile Drive (or via the existing footpath / the PR6b site when that comes forward).
- 7.5.22 Cyclists can connect to Headington (including the John Radcliffe Hospital) via the existing highway network including the cycleway on the A40 ring road.
- 7.5.23 Cyclists can connect to Cowley via the existing highway network including the cycleway on the A40 ring road or through the city centre via NCN 51 and 57.
- 7.5.24 Appropriate and safe walking and cycling routes between the Water Eaton site and the wider north Oxford area, Headington and Cowley are therefore achieved.

SECTION 8 Public Transport Connectivity

8.1 Bus

8.1.1 As set out in Section 4, the nearest bus stops to the site are located approximately 200m northwest of the site boundary at Oxford Parkway and in the immediate vicinity of the southwestern boundary of the site at the junction of Jordan Hill on Oxford Road. Further bus stops are also located further south on Oxford Road / Banbury Road.

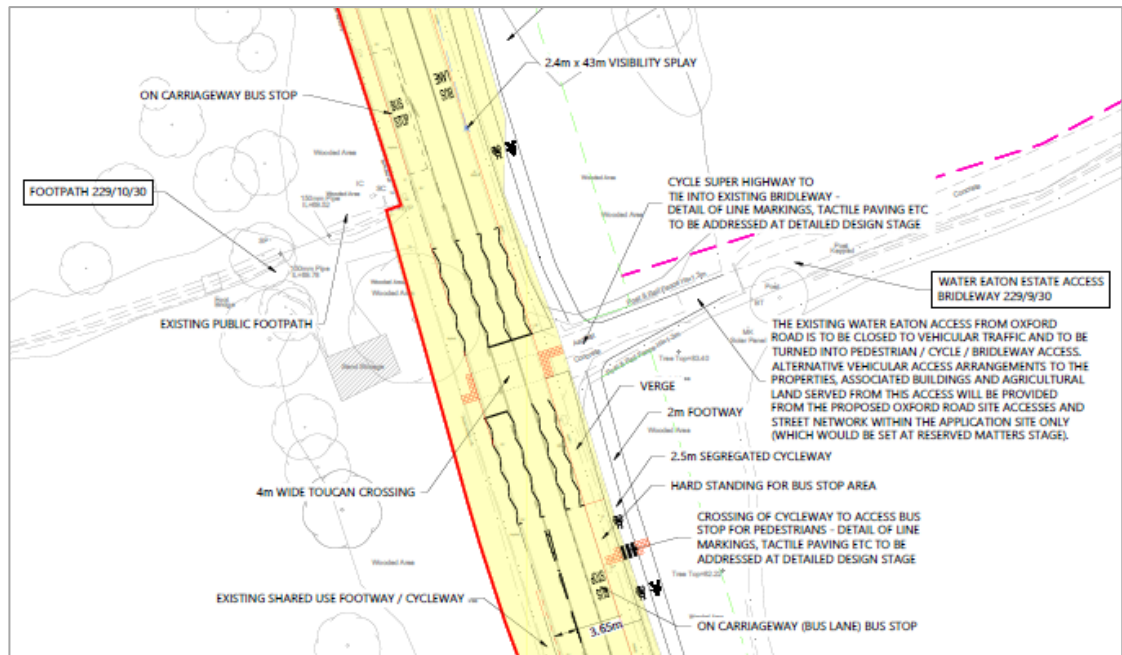
8.1.2 Bus services local to the site are mainly operated by Stagecoach. A number of buses route along Oxford Road including:

- Stagecoach 2 / 2 a - Oxford City Centre to Kidlington Via Oxford Road / Banbury Road, Summertown;
- Stagecoach 700 - Thornhill Park & Ride to Kidlington Via Churchill, JR Hospital, Summertown, Oxford Parkway; and
- Stagecoach S5 - Oxford – Bicester.

8.1.3 Following discussions with OXCC and the bus operators it is agreed that it is appropriate for the bus services to stay on Oxford Road and not to route into either the Water Eaton site or the PR6b site.

8.1.4 There are existing bus stops on Oxford Road / Banbury Road just to the north of Jordan Hill. New bus stops are also proposed on Oxford Road near the proposed toucan crossing near the Water Eaton bridleway – the southbound bus stop is just to the south of the crossing and the northbound bus stop just to the south of the crossing - as shown on drawing ITB16565-SK-066 and in **Image 8.1** below. The southern parts of the site are closer to the existing bus stops on Oxford Road / Banbury Road. Cycle parking and scooter parking / other forms of micromobility parking is proposed in the vicinity of the proposed new bus stops on Oxford Road, to assist in the transfer of trips to sustainable modes.

Image 8.1 Extract from Drawing ITB16565-SK-066



8.1.5 For residents living in the southern part of the site, the nearest bus stops are the existing bus stops on Oxford Road just to the south of the site frontage.

8.1.6 **Figure 8.1** shows that:

- All of the Water Eaton site / residential areas are within an 800m walk distance of the new / existing Oxford Road / Banbury Road bus stops; and
- All of the PR6b site is within a 800m walk distance of the new Oxford Road bus stops.

8.1.7 This ensures that appropriate access to bus services is provided for future residents through:

- Oxford Road forming a high frequency bus corridor providing direct routes to a number of key destinations including Oxford city centre, Churchill Hospital, John Radcliffe Hospital and Kidlington;
- Bus stops (existing / or new) being within the walkable 20-minute neighbourhood concept (ie within a circa 10-minute / 800m walk distance of residential areas); and
- Cycle parking and scooter parking being provided in the vicinity of the new bus stops on Oxford Road to ensure maximum accessibility to the new bus stops for future residents.

8.1.8 A Mobility Hub is proposed at / next to the local centre which is in close proximity to the Oxford Road bus stops.

8.1.9 It is worth noting that OXCC has bus improvement proposals. These include:

- New service connecting North of Oxford to the Oxford “Eastern Arc area”, with a frequency of 4 buses per hour: Oxford Parkway – Summertown – Marston Ferry Road – John Radcliffe hospital (West Wing roundabout only) – Brookes University – Old Road – The Slade – Hollow Way – Cowley Centre – Church Cowley Road – Donnington Bridge Road – Redbridge P&R (see black service in **Image 8.2** below);
- Reduction of the frequency of bus service 3 (Oxford City Centre – Rose Hill) from 6 to 3 buses per hour, due to the overlap with the new service; and
- Merger of two existing services to create a west-north through service, with a frequency of 4 buses per hour (blue service in image 8.2 below).

Image 8.2 OXCC Bus Service Improvement Proposals

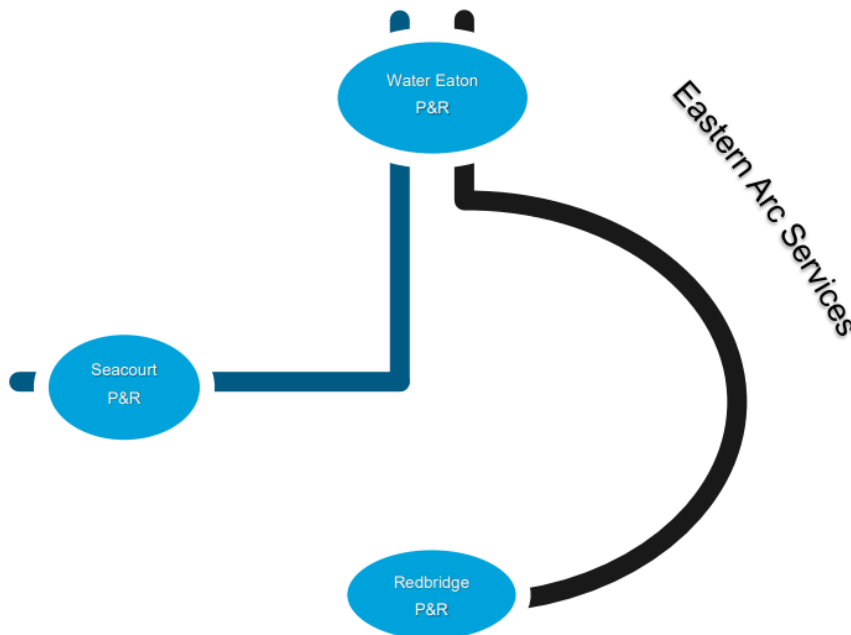


Figure 2-5 - New bus services in TF1 scenario

Source: Oxfordshire County Council

8.1.10 Bus accessibility for the Development would be further enhanced when OXCC delivers the above bus service improvements.

8.1.11 It is understood that bus services associated with the Begbroke development may route along Oxford Road and past the Water Eaton site which would further enhance public transport accessibility.

8.2 Rail

- 8.2.1 The nearest railway station to the site is Oxford Parkway situated immediately to the north of the site. Residents will be able to access Oxford Parkway via the Oxford Road cycle super highway and the Parkway junction with Oxford Road – it is a reasonable walk and cycle distance for residents. This will provide the opportunity for access to a number of destinations including Oxford Station (city centre), London Marylebone and Bicester.
- 8.2.2 Oxford Railway Station is located to the south of the site within Oxford city centre. It is accessible via cycle and / or bus / rail services from the Site. From Oxford Railway Station there are further opportunities to travel further afield by changing at this station if travelling from Oxford Parkway Railway station. These destinations include London Paddington, Didcot Parkway, Manchester Piccadilly, and Reading.
- 8.2.3 In summary, the site is located adjacent to high frequency public transport (Oxford Road high frequency bus corridor and Oxford Parkway rail station) – future residents will have the opportunity to access a range of destinations by public transport.

SECTION 9 Framework Travel Plan

- 9.1.1 A Framework Travel Plan (FTP) has been drafted (Document reference WE/FTP/01, i-Transport report ref: ITB16565-103 R) which outlines the measures to encourage travel by modes other than single occupancy car use for residents of the proposed residential development. The FTP has been developed in accordance with OXCC's Transport Assessments and Travel Plans (2014) guidance document, and OXCC's Local Transport and Connectivity Plan (LTCP) including the Implementing 'Decide & Provide: Requirements for Transport Assessments.
- 9.1.2 The Water Eaton site is well located to the existing pedestrian network within the north Oxford area. There are shared footway / cycleways on either side of the A4165 which provide connections to the wider pedestrian footway network in Cutteslowe to the south and Kidlington to the north. There is also a network of PRow within the vicinity of the site and surrounding areas.
- 9.1.3 The Water Eaton site is readily accessible to a range of facilities and services that residents may use on day to day basis by a range of travel modes, including on-foot and by cycle.
- 9.1.4 Local bus services are accessible a short walk from the site, and Oxford Road forms a high frequency bus corridor providing access to local destinations and further afield to Oxford city centre, John Radcliffe Hospital, Kidlington, and Bicester.
- 9.1.5 Oxford Parkway Station is situated immediately to the north of the site and offers regular rail services. Oxford Rail Station is also located within a reasonable cycling distance from the site and provides further opportunities to travel further afield.
- 9.1.6 Improvements to local walking routes and bus service infrastructure have been identified and the development at the application site will help bring these measures forward.
- 9.1.7 To achieve the aims and objectives of the FTP, a package of 'Soft' measures designed to encourage residents to consider sustainable travel opportunities has been developed. The FTP identifies the following measures:
- Provision of residents 'Resident's Travel Information Pack', to provide information of travel opportunities and to promote travel;
 - Offer of a sustainable travel voucher to be used either on public transport or on cycle equipment;
 - Negotiation of discount for cycle equipment (where possible);

- Creation of a community travel website, to provide travel information to residents;
- Creation of a steering group consisting of local residents to guide and oversee the delivery of the Travel Plan;
- Community noticeboards to identify travel opportunities and incentives;
- Delivery of a car club; and
- Promotion of local car-share groups.

9.1.8 An initial framework for implementation of the measures is set out in **Table 9.1** below.

Table 9.1: Framework for Implementation

Measures		Timescale
Infrastructure Measures as per Section 6		To be phased in line with the development
Travel Plan Co-ordinator		Appointed and announced to OXCC three months prior to 1 st occupation
Information Development and Provision	Training of sales team about the Travel Plan and in personal journey planning	Training as part of induction process
	Production of Travel Plan information for sales packs	To be developed before 1 st occupation
	Production of Travel Information Packs for Residents	To be developed before 1 st occupation
Develop bespoke Travel Plan website		To be developed before 1 st occupation
Walking/cycling/local facilities maps		With Resident's Travel Information Pack and on website/community notice boards
Car Club		To be phased in line with development
Promote Car Share		With Resident's Travel Information Pack

Source: Consultant's Estimates

9.1.9 The progress against the FTP targets will be monitored through the build period plus an additional 2 years (around 8 – 10 years) and will be undertaken using a Monitoring and Evaluation Plan (to be agreed with OXCC) and the Residential Travel Surveys. These surveys will be used to identify resident travel patterns and used to set objectives of the Travel Plan.

9.1.10 The Travel Plan will include a Monitoring and Evaluation Plan (MEP) in line with the Decide and Provide guidance, which can be secured through a condition should planning be approved.

9.1.11 The primary school and other land uses will have their own Travel Plans, relevant to their land use and scale.

SECTION 10 Development Trip Generation

10.1 Background

10.1.1 To understand the likely trip generation of the proposed uses, a first principles exercise has been undertaken, which combines:

- Person trip rate data from TRICS²;
- Mode share data from the Census; and
- Data on when and why people travel from the National Travel Survey.

10.1.2 When combined and considered against the opportunities both now and in the future to travel by various modes, it is possible to define a trip rate per dwelling, for the site based on existing and future characteristics of the area.

10.1.3 This methodology has been used by all of the PR sites when determining trip rates to be used in the cumulative modelling discussed later, whereby each site has amended the assumptions based on the different characteristics of each site. This approach, and the subsequent trip generation rates has been agreed with OXCC through the pre application scoping exercise, embracing the approach set within OXCC's Implementing 'Decide & Provide: Requirements for Transport Assessments.

Development Quantum

10.1.4 The following development quantum is assumed:

- 800 dwellings (assumed as private for robustness – affordable dwellings and flats typically generate fewer trips than private houses);
- Primary school – 2-form entry;
- Local centre including:
 - Shops / retail (use class E a) – 500sqm;
 - Ancillary business development (use class E g) – 500sqm;
 - Services (use class E c) – 500sqm;

² TRICS (Trip Rate Information Computer System) is a database of real world, observed trip rates for developments used in the United Kingdom for transport planning purposes, specifically to quantify the trip generation of new developments, by mode and time of day.

- Café or restaurant (use class E b) – 200sqm; and
- Community building use class F.2 b) - 400 sqm.

10.1.5 Trip rates have been derived for:

- Residential dwellings (these inherently include trips to work, education, retail, and leisure). Where facilities are provided on site, a proportion of these trips will be internalised i.e. not impacting on the external highway network. Private dwelling rates have been used, with no reduction for affordable units;
- Education – The primary school will be a ‘trip attractor’ in its own right, albeit most trips will be internal to PR6a and PR6b. There will however be some trips to the primary school from outside of the site, due to parental choice, as well as staff trips; and
- Local centre – These uses are generally ancillary to the Development and would consist of internal trips, as well as some pass by and diverted trips, which are already accounted for within the network, or the future year flows associated with the PR sites.

10.2 Internalisation

10.2.1 Due to the mix of land uses proposed, there will be a proportion of trips which will be internalised and contained within the site.

10.2.2 For each of the land uses proposed on the site internalisation assumptions have been applied to accurately reflect the likelihood that a component of the residential traffic generation of the site would be internalised and would therefore not impact on the external highway network. The key assumptions made are summarised in **Table 10.1**.

Table 10.1 Key Assumptions

Land Use / User Group	Assumption Applied
Ancillary business development Retail (E(a)) 500sqm, Business (E(g)) 500sqm, and Services (E(c)) 500sqm including café / restaurant (E(b)) 200 sqm	<ul style="list-style-type: none"> - Negligible vehicular trip generation - 100% trips on-site (PR6a and PR6b) residents (or from other PR sites and thus inherent in their residential trip generation calculations) - 28% non-pass-by trips (TRICS Research Report 14/1 which supersedes the 95/2 TRICS Research Report)

Land Use / User Group	Assumption Applied
Community Building (F.2(b)) 400 sqm (providing the opportunity for social and childcare facilities, the opportunity for required health facilities to be provided and provision for required emergency services infrastructure)	<ul style="list-style-type: none"> - 100% trips by on-site (PR6a and PR6b) residents (or from other PR sites and thus inherent in their residential trip generation calculations). - Any residual trips would be 'Pass by' or diverted - This is considered appropriate given the nature of the uses likely to be provided on site.
Primary School Staff	<ul style="list-style-type: none"> - See below
Primary School Pupils (two forms of entry)	<ul style="list-style-type: none"> - Assumes the majority of school places will be internal from PR6a and PR6b; - Where demand exceeds capacity residual pupils will be off site; - 10% of primary school places will leave the site to go to alternative schools - 10% of site school places will be filled from surrounding residential areas

10.3 Residential Trip Rate and Traffic Generation

10.3.1 The assessment uses census data and a review of the proximity to each of the local destinations under each category from the Development, following the approach summarised below:

- Residential trip rates use 'person trips' derived from TRICS as a starting point. This equates to 0.922 two-way person trips per dwelling for the morning peak hour, 0.840 two-way person trips per dwelling for the evening peak hour and 7.402 two-way person trips per dwelling daily (12 hour day – 07:00 – 19:00);
- Number of persons across the development based on Census data;
- Person trips are then broken down into trips by hour and by purpose using the National Travel Survey data (Table NTS50502), i.e. the number of trips during a peak hour to work, education and leisure etc. In looking at residential trips and mode share, it is pertinent to note that not all movements in the traditional weekday peak hours are journeys to work. In terms of all person trips, commuting accounts for some 20% of trips in the morning peak hour (08:00-09:00) and 32% of trips in the evening peak hour (17:00-18:00). Person trips relating to education (including escort) make up 51% of trips in the morning peak hour, but only 5% of the trips in the evening peak. Trips associated with leisure purposes (shopping, visiting friends, sport, and holidays etc make up some 12% and 39% of other trips in the morning and evening peaks respectively;

- An assumption has been made on the trips which would be external to the site, as well as those which would be internalised, i.e. trips from residential dwellings to on site school and local centre, on the basis of the assumptions in Table 10.1 above;
- External trips are then assigned to a destination, based on Census output areas and / or location of facility. Middle Layer Super Output Area (MSOA's) including all of Oxford, Kidlington, Yarnton and Begbroke as well as the rest of Cherwell, West Oxfordshire, South Oxfordshire, Vale of White Horse, and destinations outside of Oxfordshire have been reviewed, i.e. employment trips use Journey to Work data from the census to assign them to a census output area, while external education trips are assigned to individual schools and their associated location;
- In terms of data to understand the current distribution, the Oxford 001 Middle Layer Super Output Area output area has been used as the location which is considered the most representative area for the proposed site which encompasses Cutteslowe and Wolvercote;
- A detailed assessment has been undertaken of the ability to access the identified locations (and census output areas) by all modes, and an assumption made on the percentage of trips which would occur by active modes, public transport, and private car, i.e. employment trips to Banbury would be weighted to car and rail, while a local trip to Summertown would be weighted towards walking and cycling. These assumptions are set out in **Appendix N**;
- On this basis, distribution assumptions have been applied for each destination and mode of transport; and
- Once all of the trips by purpose and mode have been derived, these have been combined, to generate a total number of trips throughout the hour, following which an internal and external trip rate has been derived.

10.3.2 This methodology and the assumptions on person trip rates, reasons for travel and mode share, which has also been used by the other PR sites in relation to the strategic modelling has been agreed with OXCC, through the Transport Assessment scoping exercise. The assumptions and calculations in respect to PR6a along with the specific details of mode share to each land use origin can be found at **Appendix N**.

10.3.3 The trip rate and modal choice calculations, that are based on TRICS data, local Census data, the destination of trips and the ability to access facilities have been calculated in line with Decide and Provide principles. They have been derived by taking account of how the PR sites are being designed to maximise opportunities for non car travel, i.e. internalisation and 20 minute neighbourhoods, as well as the opportunities which will come forward for journeys to be undertaken by active travel and public transport, both now and in the future, as well as future travel habits.

10.3.4 It is acknowledged that not all trips to and from the site can be either internalised, or accounted for via modes other than the private car, as such there will always be an element of vehicular traffic associated with the Site.

10.3.5 The agreed external vehicular trip rates for the morning and evening peak hours are presented in **Table 10.2**.

Table 10.2: External Trip Rates per Dwelling

Time Range	Morning Peak Hour			Evening Peak Hour		
	Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
	0.041	0.164	0.205	0.182	0.076	0.258

10.3.6 Based on the above trip rates, the external vehicular trip generation has been calculated on the basis of 800 dwellings and is presented in **Table 10.3**.

Table 10.3: External Vehicular Trip Generation

Time Range	Morning Peak Hour			Evening Peak Hour		
	Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
800 dwellings	33	131	164	146	61	207

10.4 Primary School Trip Rates and Traffic Generation

Pupils

10.4.1 A first principles assessment for deriving the traffic generation of the proposed on-site primary school has been undertaken.

10.4.2 There are two elements to the primary school trip generation; pupil trips, and staff trips. While the primary school is a trip attractor in its own right, the majority of trips are associated with children from the development and are therefore inherent in the garden gate residential trip rates.

- 10.4.3 Whilst the primary school is designed to cater for the pupils generated by the site, it is accepted that there may be a proportion of pupils who travel to other schools as well a proportion of children who travel from the surrounding area to the proposed school.
- 10.4.4 Using OXCC generated factors for dwelling yields, the proposed dwellings across the two PR6 sites (estimated to be 1470) will generate circa 416 primary school children. A two-form primary school would generally accommodate 420 primary school children. On this basis, all primary school places could be taken by children within PR6a and PR6b, with there being a very small number of free spaces (4). In addition to this, it is accepted that not all residents would send their child to the nearest school on site. To take account of this, it has been assumed that some 10% of primary school children would access schools off site. As such 10% of school spaces on site would be free and filled from children outside of the site.
- 10.4.5 On this basis it is assumed that some 90% of primary school trips would be internalised between PR6a and PR6b, with 10% off site. These off-site primary school trips have then been assigned to local primary schools including West Kidlington County, St Thomas More Catholic School, Edwards Field, Cutteslowe and Wolvercote. All of these schools are within 1.2 - 1.6 miles of the site and are therefore within a reasonable walk or cycle distance or could be accessed by public transport.
- 10.4.6 In a similar approach to the residential trip rates, the mode of travel to each destination has been considered and the mode share percentage attributed to the off-site primary school trips.
- 10.4.7 The 10% of school places that are not utilised by residents of the site, would generate trips into the school site, from the new PR sites and / or the local residential areas.
- 10.4.8 Based on the likely characteristics of the trips from the local areas to the school, the mode of travel from each local origin area has been considered and the mode share percentage attributed to the primary school trips.
- 10.4.9 The arrival and departures times for pupils allows for a small percentage (10%) arriving pre 08:00 for pre-school club and 90% arriving between 08:00 and 09:00. For departures, the analysis assumes that all of those that arrive before 08:00 and 50% of those arriving between 08:00 – 09:00 also depart between 08:00 and 09:00 (55%) and that 45% will depart after 09:00. In reality, by the time parents have seen their children into school, caught up with other parents, walked back to their vehicle, and are leaving many of the departures will actually be after 09:00.
- 10.4.10 On this basis, it is anticipated that the primary school would generate the following car-based trips into and out of the site associated with pupil; drop off and pick up:

- 1 arrival in the 07:00 – 08:00 period
- 8 arrivals and 5 departures in the morning peak hour (08:00 – 09:00);
- 4 departures in the 09:00 – 10:00 period and
- 0 arrivals and 0 departures in the evening peak hour

Staff

10.4.11 A first principles assessment for deriving the traffic generation of the staff associated with the primary school on site has also been undertaken. The arrival following parameters have been assumed:

- A two-form entry school with 420 pupils would have 61 staff members (based on a ratio of one staff member to 6.91 pupils);
- 50% of staff arriving between 07:00 and 08:00;
- 50% of staff arriving between 08:00 and 09:00;
- 50% of staff departing between 16:00 and 17:00; and
- 25% of staff departing between 17:00 and 18:00.
- 25% of staff departing between 18:00 and 19:00.

10.4.12 This equates to 30 arrivals (all modes) in the morning peak hour and 30 departures (all modes) in the evening peak hour.

10.4.13 This is considered appropriate given that in the morning many staff arrive before the school starts, while some other staff, especially part time staff are likely to arrive once the school day has started. In the evening, some staff are likely to leave at the very end of the school day while others will stay on into the evening to complete their duties and / or attend after school clubs, and may leave later than 18:00.

10.4.14 Journey to work data, using the work Origin from the Census data has been used to determine the likely origin location of staff members and then modal split assumptions have been made on the basis of the distance from the school to these areas, and the ability to access the school via walking, cycling and public transport. For robustness a mode share of 50% has been applied.

10.4.15 It is anticipated that the primary school would generate the following number of staff trips by car into the site:

- 15 arrivals in the morning peak hour (08:00 – 09:00); and

- 8 departures in the evening peak hour (17:00 – 18:00).

10.5 Other Land Uses - Trip Rates and Traffic Generation

10.5.1 The community uses contained within the local centre would be primarily for new residents of the proposed development at PR6a and 6b. Trips from 6b are likely to be walking or cycling trips given the proximity of the local centre to all parts of the development parcels. Other trips, and especially those associated with clubs and events which occur in the evening, would be outside of the peak hours assessed.

10.5.2 Retail trips are generally made up of pass by and diverted trips rather than being new trips altogether. Furthermore, a convenience store would primarily be for new residents of the proposed development at PR6a and PR6b. As such, and when considering that the residential trip rates from PR6a, PR6b and the rest of the PR sites already include retail as a trip attraction, it is not considered that the commercial element of the site would generate any significant number of car-based trips in the morning or evening peak periods with origins or destinations that are external to the site(s), in addition to those which are inherent in other trip generation exercises.

10.5.3 As such it is anticipated that all trips to the local centre during the peak hours assessed would be either walking, cycling or public transport trips, or be included within the background traffic flows on Oxford Road, or included within the committed development growth included as part of the modelling assessment.

10.5.4 On this basis, **Table 10.4** summarises the external trip generation from the site.

Table 10.4: External Trip Rates

Time Range	Morning Peak Hour			Evening Peak Hour		
	Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
Residential (800 dwellings)	33	131	164	146	61	207
Primary Education / other	23	5	28	0	8	8
Total	56	136	192	146	69	215

SECTION 11 Traffic Modelling Approach

11.1 Introduction

11.1.1 To assess the impacts of the PR sites, OXCC requested that their North Oxford VISSIM model be used to identify the impacts of the PR sites and test the Infrastructure interventions identified in Appendix 4 of the Local Plan Partial Review IDP.

11.1.2 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, a 11km section of the A40 corridor, a 11km section of the A44-A4144 corridor and a 12km section of the A4260-A4165 corridor. The model extent, in the context of the PR sites is shown in **Image 11.1**.

Image 11.1: North Oxford VISSIM Model area



11.1.3 To understand the more localised impacts arising from the PR sites in Cherwell, it has been agreed with Oxfordshire County Council that the North Oxford VISSIM Model is an appropriate tool to test the impact of the Water Eaton site as well as the cumulative impact of all PR sites on the operation of the local and strategic highway network. This has been used to test a future year of 2031, as well as to provide input into a 2025 year of opening assessment. At this stage,

the assessment is based on the first iteration of the microsimulation model, which tested the residential element of the PR6a Water Eaton site.

Cherwell Local Plan 2011-2031 Partial Review

11.1.4 For the evidence base for the Cherwell Local Plan 2011-2031 Partial Review, the impact of the PR sites was considered by OXCC through the use of their strategic traffic model (the OSM). This considered the cumulative impacts of the Local Plan and was used to inform the infrastructure requirements to support the planned growth in the Local Plan.

11.2 Section Structure

11.2.1 The remainder of this section considers the following:

- Commentary as to how the identified approach is compliant with OXCC requirements in respect to 'Decide and Provide';
- 2025 Opening year modelling methodology; and
- Cumulative 2031 modelling methodology.

11.3 Decide and Provide

11.3.1 Oxfordshire County Council's (OXCC) Local Transport and Connectivity Plan (LTCP), adopted 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.

11.3.2 In order to achieve this, the LTCP sets out the way changes to the county's transport and travel system will be needed. 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, OXCC's new Parking Standards for New Developments (January 2023), the OXCC 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.

11.3.3 The recently approved OXCC guidance on this 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.

11.3.4 The OXCC 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.

Part One - Guiding Principles

11.3.5 The 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.

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.

11.3.6 The LTCP sets the framework for a decide and provide approach, while it and the IDP has assessed the potential to manage and develop the county's road network and assess opportunities for traffic reduction as part of any junction or road route improvement schemes.

11.3.7 The traffic modelling undertaken supports the approach of considering walking, cycling and public transport upfront and ahead of any capacity improvements and has been used to inform the Transport Assessments which supports this individual application, as well as other PR site applications.

Part Two - Transport Modelling, Evidencing Trip Rates, and Document Updates

11.3.8 This part of the 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; and
- How this document should inform the evidence base for local plans and the requirement for periodic updates to the document.

11.3.9 The LTCP includes the following targets for replacing or removing car trips across the County (2022a, p.6): 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%.

By 2040 the targets are to:

- Deliver a net-zero transport network; and
- Replace or remove an additional 1 out of 3 car trips in Oxfordshire.

By 2050 the targets are to:

- 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.

11.3.10 As set out in the modelling notes included within the PR Sites Traffic Modelling Outcomes Summary (**Appendix O**), the North Oxford VISSIM model, has considered a number of scenarios in terms of growth predictions using historical data, trend analysis and emerging data from the Department for Transport (DfT) National Trip End Model (NTEM)(v8.0).

11.3.11 The Forecasting Note and Forecast Capping Note included in PR Sites Traffic Modelling Outcomes Summary sets out the proposed approach to traffic growth for the 2031 future year based on the evidence. The active travel and public transport mode shift assumptions set out in the Mode Shift Note align with the infrastructure set out in Appendix 4 of the Part 1 Partial Review Local Plan and provide a scenario which shows how these PR site interventions are likely to help towards OXCC reaching their LTCP targets.

11.3.12 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 OXCC, then the network will operate significantly better than predicted through the current PR sites modelling.

11.3.13 Trip rates and modal choice are 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.

11.3.14 In terms of car parking, OXCC has recently adopted new guidance and it is anticipated that a parking strategy will be agreed between Bellway and OXCC that pays due regard to these standards at the time of development coming forward / reserved matters applications.

Part Three - Implementing 'Decide and Provide' within Transport Assessments

11.3.15 Part three identifies three stages - *identifying accessibility characteristics; scenario testing; and monitoring and managing outcomes.*

Identifying accessibility characteristics

11.3.16 The PR sites have all been allocated based on their existing and future characteristics and are therefore all well located to existing settlements and facilities. They 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

11.3.17 Through its development, the PR sites traffic modelling has considered multiple scenarios in terms of committed development, background growth, trip generation, distribution and mitigation. The modelling process has effectively run multiple scenarios as it has tested cumulate impacts of modal shift assumptions, i.e. Park and Ride has been added to the model and then a model iteration run and then additional mode shift was applied for walking, cycling etc. This iterative approach to mitigation allows for different scenarios to be tested, resulting in a final mitigated modelling run. The modelling results presented are therefore a result of the iterative scenario testing presented.

11.3.18 Alternative Scenarios, which include the PR sites, have been tested within the following workstreams:

- The strategic modelling work which supported the Part 1 Partial Review Local Plan, and which identified the infrastructure package included within Appendix 4 (Local Plan Partial Review);
- Additional modelling which is currently being undertaken by OXCC to test implications of the LTCP and implementation of the Central Oxfordshire Transport Plan; and

- Additional scenario tests considered in individual Transport Assessments, such as this one, whereby sites have been tested in isolation to identify any development specific impacts.

11.3.19 As such the modelling has considered scenarios around extrapolating trends in traffic growth, trip rates and phasing of active travel and public transport improvements.

Monitoring and managing outcomes

11.3.20 The Development trips will be monitored through the Travel Plan which accompanies this application and will be secured through the planning process. The Travel Plan will include a Monitoring and Evaluation Plan (MEP) which can be secured through a condition should planning be approved. The Monitoring and Evaluation Plan (MEP) will:

- Be agreed with the relevant officers at the Authority;
- Record how the trip generation and mode share of the site evolves over time;
- The survey specification will be agreed with the relevant officers and in line with the Travel Plan requirements, will employ the TRICS Standard Assessment Methodology or similar;
- Surveys will take account of multi-modal trips from all access points, including walking and cycling only accesses in addition to main vehicular accesses. Additional surveys will collect qualitative data around travel behaviours; and
- As identified in the Travel Plan, monitoring surveys will be undertaken on a frequent basis to assist in understanding of whether the expected trip generation rates identified in the various modelled scenarios are occurring in practice.

11.4 Manual Assignment (Transport Assessment) 2025 Model

11.4.1 This model is used to determine the direct development impacts and requirement for any mitigation at development year of opening. An opening year of 2025 has been identified as being the most likely period within which first occupation may occur, however the assessment assumes that the Development is fully occupied at this point. The purpose of the assessment is to understand the true impact of the development proposal, when isolated from other planned development.

11.4.2 To understand the impact of the proposed development and other committed / cumulative development the following modelling scenarios have been undertaken:

1. 2025 Future Year Baseline (2023 from VISSIM model growthed to 2025);

2. 2025 + Committed Development (Committed development from VISSIM model); and
3. 2025 + Committed Development + PR6a Water Eaton Development.

Traffic Growth

11.4.3 For consistency, the 2025 junction modelling utilises the 2023 baseline traffic taken from the VISSIM model, with growth applied. Growth rates for the 2025 future year scenario have been obtained from TEMPRO which removes the future housing and jobs (as this will be accommodated as part of the committed development traffic flows). The growth rates and alternative assumptions are presented at Table 11.1.

Table 11.1: Future Year Growth Rates

Future Year	Base Housing	Future Housing	Base Jobs	Future Jobs	Growth Rate – AM	Growth Rate – PM
2023 - 2025	2861	2861	2098	2098	1.0041	1.0036

Source: Temprow

Committed Development

11.4.4 Committed development included within the 2025 assessment is based on the same assumptions as those which have been fed into the 2031 VISSIM model and agreed with OXCC. These assumptions are set out in the Vectos Microsim notes on forecasting and the capping of growth (VM210467.R001b Forecasting Report and VM210467.DN02a PR VISSIM Capping Discussion Note) included within **Appendix O**.

Development Trip Generation and Distribution

11.4.5 Development trip generation, has been applied to the future year base. As identified, these trip rates reflect the highly accessible location of the site and the mitigation strategy which is being proposed as part of the development proposal and OXCC’s aspirations to promote active travel modes and public transport.

11.4.6 The trips to and from the development site have been manually assigned to the network, utilising the trip distribution extracted from the VISSIM prior to mitigation being considered.

11.4.7 The traffic distribution can be seen on **Figures TF1 to TF8** within **Appendix P**.

Study Area

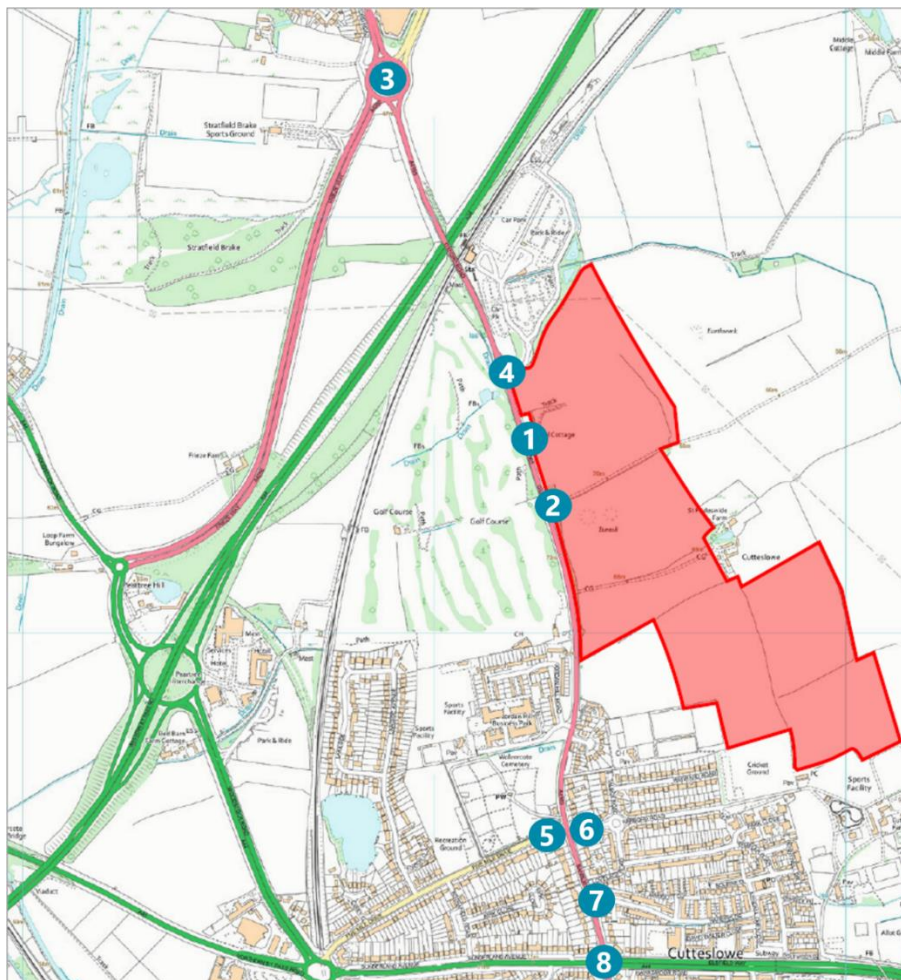
11.4.8 The following junctions are included within the 2025 traffic model:

- 1 Proposed PR6a Northern Access Junction (Left in Left Out);

- 2 Proposed PR6a CYCLOPS Signal Junction;
- 3 Kidlington Roundabout;
- 4 Oxford Parkway Park and Ride / Oxford Road;
- 5 Five Mile Drive / Banbury Road
- 6 Harbord Road / Banbury Road;
- 7 Harefields / Banbury Road; and
- 8 Cutteslowe Roundabout;

11.4.9 The study area is presented on **Image 11.2**.

Image 11.2: Study Area



11.4.10 The results of the 2025 assessment are summarised in Section 12.

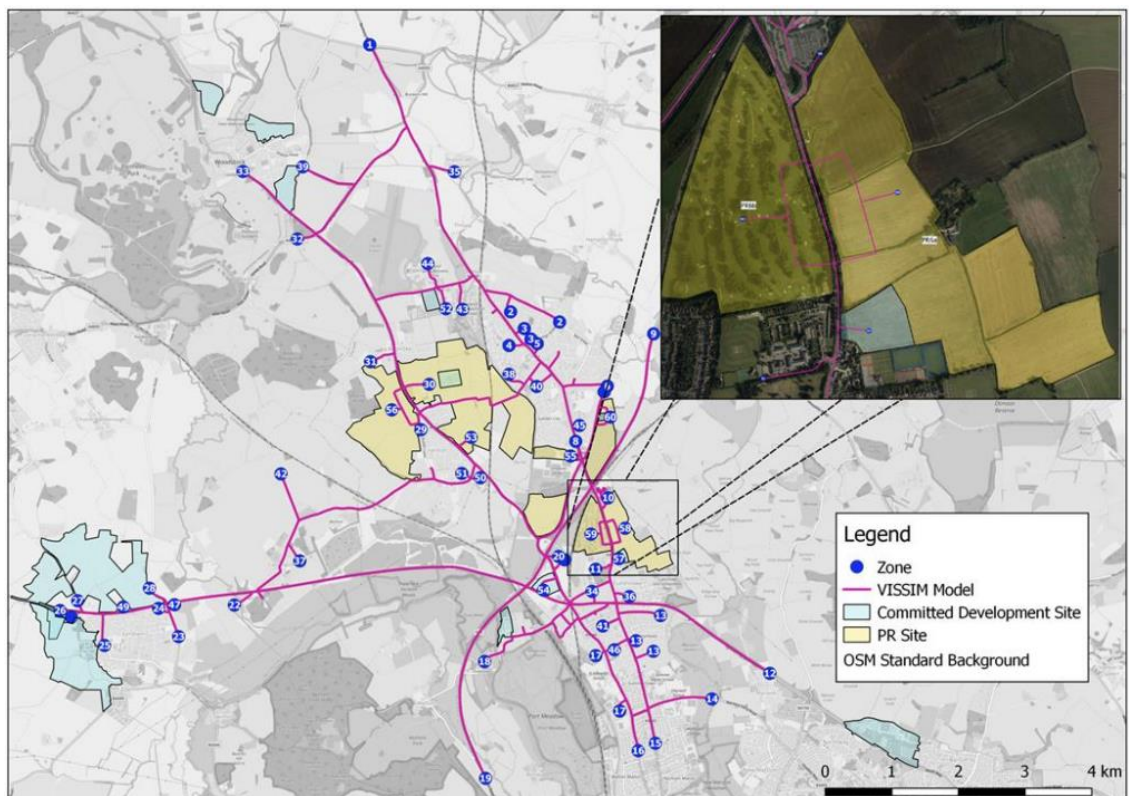
11.5 2031 PR Site Cumulative Analysis VISSIM Model

11.5.1 The modelling has been undertaken collectively between the following PR sites and their consultants:

- i-Transport LLP on behalf of PR6a / Water Eaton;
- Vectos on behalf of PR9;
- KMC on behalf of PR6B and PR8 (Oxford University Development (OUD));
- Glanville on behalf of PR8 (Hallam);
- Brookbanks on behalf of PR7a; and
- Vectos Microsimulation – transport modellers for the above PR sites.

11.5.2 A plan showing the location of the sites is shown at **Image 11.3**.

Image 11.3: Modelling Study Area



11.5.3 The 2031 cumulative traffic model is used to determine whether the transport mitigation set out within the Infrastructure Delivery Plan (IDP), which is included as Appendix 4 of the Local Plan Part 1 Partial Review, is required and / or whether alternative mitigation beyond that currently envisaged is required.

11.5.4 The following paragraphs summarise the modelling parameters which have been included within the 2031 model. A full description of the methodology is included within the PR Sites Strategic Modelling Traffic Modelling Outcomes Summary, included as **Appendix O**. Included within that report are a subsequent set of reports produced by Vectos Microsim on the following topics:

- Forecasting Report (Ref VM210467.R001b);
- Forecast Capping Discussion Note (VM210467.DN02a); and
- Mode Shift Discussion Note (VM210467.DN01a).

VISSIM Model parameters

11.5.5 The VISSIM model has been developed using the specifications shown in **Image 11.4** below.

Image 11.4: 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 <ul style="list-style-type: none"> - 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

Traffic Forecasting Summary

11.5.6 The Forecasting Report summarises the assumptions with regards to traffic growth and committed development, which have informed the 2031 Reference Case model, as well as the approach to trip generation for the PR sites and resultant traffic generation that has been included in the 2031 Reference + PR sites model.

11.5.7 The following modelling scenarios have been considered:

- 2018 Base (as provided by Oxfordshire County Council (OXCC));
- 2023 Reference Case (as provided by OXCC and subsequently amended);
- 2031 Reference Case:
 - a. Includes all committed developments as described in the Forecasting Report, with forecasting methodology as described in the Capping Discussion Note;
- 2031 Do-Minimum:
 - a. As above, with PR site demands and site access arrangements included as per the Forecasting Report; and
- 2031 Do-Something Mode Shift:
 - a. As above, with background demands adjusted in line with mode shift assumptions as set out in the Mode Shift Discussion Note

11.5.8 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.

Trip Generation and Distribution

11.5.9 The trip rates and traffic generation associated with each of the PR sites is summarised in section 4 of the Vectos MicroSim Forecasting report (**Appendix O**). Trip generation rates have 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, which will Occur.

11.5.10 The access and mobility strategies for the PR sites is strongly aligned with the OXCC's LTCP, and the delivery of well located, highly accessible developments which are less reliant on private car trips and bring forward improvements to active travel modes and public transport, will actively help Oxfordshire to deliver its aspirations.

11.5.11 In terms of highway assessment, trip generation/mode share/trip distribution has been considered for the following periods:

- AM Peak 07:00-08:00, 08:00-09:00 and 09:00-10:00
- PM Peak 15:00-16:00, 16:00-17:00 and 17:00-18:00
- 12hr Daily 07:00-19:00

11.5.12 The proposed methodology for trip prediction and mode share is as follows:

Residential Trips (all PR sites)

- i. Predict total Residential Person Trips – using the TRICS database;
- ii. Separate trips by trip purpose by time – using National Travel Survey (NTS);
- iii. Identify likely destinations for trips for each trip purpose using census travel to work data, Local Plan allocations and areas of expected growth, locations of employer linked sites, and location of existing facilities;
- iv. For the above destinations assess where trips which can be made by accessible forms of transport such as walking, cycling and by public transport – assessment based on 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; and
- v. Residual trips which cannot reasonably be made sustainably will then be assumed to be made by car externally to the site.

Employment Trips (applies to PR8 (OUD) only)

- i. Calculate the existing arrival and departure profile from Begbroke Science Park (BSP) surveyed flows;
- ii. Apply the existing BSP mode share from the 2018 BSP travel survey to the number of staff predicted to be employed in relation to the proposed BSP expansion, taking into account linked trips and proportion of university-related staff/students/staff not related to the university; and
- iii. Apply the arrival and departure profile to the number of staff, by mode and staff type.

Secondary School Trips

- i. PR8 (With Secondary School on site) Predict total secondary school person trips – based on demand data suggested by OXCC; and

- ii. Where no secondary school is provided on site, the residential to school trips are inherently included within the residential trip rates.

Primary School Trips

- i. Where primary schools are included on site, the majority of trips are internalised. An allowance of 10% of school trips going off site has been allowed for. The mode share and distribution is based on the location of other local primary schools. The residual school places would be occupied by children from the local area and are treated as a trip into the site with the mode share and distribution based on distance to the site.

11.5.13 These trip rates take account of the changing travel habits of residents at the PR sites, the proposed land uses and facilities associated with the PR sites, which will lead to internalisation, and the on-site and off-site infrastructure that will need to come forward alongside the PR sites in order to achieve the mode share.

11.5.14 The methodology to generate the trip rates and traffic generated by the PR sites has been used to identify the origin and destination of associated trips. The distribution assumptions within the 2023 Do Minimum Forecast model for the PR sites have subsequently been updated based on the PR site trip generation assessment, for assessment within the 2031 model.

Committed Development

11.5.15 Full details of the committed development and growth assumptions are set out in the Section 3 of the Vectos MicroSim Forecasting report (*Ref: VM210467.R001b Forecasting Report and VM210467.DN02a PR VISSIM Capping Discussion Note*), included as **Appendix O**. These were agreed with OXCC as part of the initial scoping exercise.

11.5.16 It was agreed not to include vehicular trips forecast to be generated by other allocated sites in Oxford City or South Oxfordshire within the 2031 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 a live application or 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 2031 Reference Case model without any mitigation is not appropriate.

Traffic Growth

11.5.17 The Forecast Capping Discussion Note (*Ref VM210467.DN02a*) sets out the methodology for assessing traffic growth and its application in the 2031 Forecast Model. In summary:

- Analysis and interpolation of the trends observed within the historic traffic data for the study area revealed that, should the trends be projected forward, traffic levels would fall within the AM and PM peak hours by 2031 relative to 2017 levels; and
- A comparison of the historic traffic trends (between 2000 and 2017) relative to housing delivery over that period revealed that traffic volumes reduced despite an increase in housing provision.

11.5.18 On this basis an adjustment has been made whereby the traffic movements associated with the committed developments have been 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.

11.5.19 Further analysis was undertaken, considering the latest release of NTEM (v8.0) by the Department for Transport (DfT). This version of NTEM now allows for a series of different growth projections to be developed which account for recognised uncertainties which affect how traffic forecasts will materialise in the future.

11.5.20 The application of capping in the manner set out within the Capping Forecast Note is sensible, as it 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 traffic volumes.

11.5.21 The resultant traffic figures assigned within the VISSIM model also align to some extent with the reductions in traffic being targeted through Oxfordshire's adopted Local Transport and Connectivity Plan. Continued application of increases in traffic volumes through the model forecasting would represent a significant failure in OXCC's adopted policy approach.

11.6 Summary

11.6.1 The impacts arising from the proposed development have been considered through the use of two modelling exercises. A 2025 open year assessment which identifies the direct impacts arising from the proposed development and a 2031 cumulative impact assessment. Both use data taken from the updated North Oxford model VISSIM.

11.6.2 The approach undertaken in respect to traffic modelling is in line with OXCC's guidance on Decide and Provide, whereby a number of different scenarios have been considered in terms of trip generation, traffic growth and mitigation.

SECTION 12 2025 Development Traffic Impacts

12.1 Introduction

12.1.1 This section of the Transport Assessment sets out the traffic impact analysis in respect of whether there are any significant impacts arising from the Development on the operation of the transport network in the development opening year of 2025.

12.1.2 A LINSIG model has been created for the Park and Ride, Left In Left Out junction and CYCLOPS junction, which also includes the existing and proposed signal controlled crossings on the Oxford Road / Banbury Road. The Kidlington Junction has been tested through Junctions 10 and the Cutteslowe Junction has been tested through LINSIG.

12.2 Local Highway Network - Development Impacts and Highway Network Operation

12.2.1 The traffic flows inputted to the junction modelling are provided at **Appendix P**, while the modelling outputs for the operation of the local highway network are provided at **Appendix Q**.

Kidlington Roundabout

12.2.2 The Kidlington Roundabout has been assessed and the results are summarised in **Table 12.1**.

Table 12.1: Kidlington Roundabout

	Morning Peak Hour			Evening Peak Hour		
	RFC	Queue	Delay	RFC	Queue	Delay
2025 + Committed Development						
A4260 Oxford Road (N)	0.45	0.9	3.41	0.67	2.1	6.10
Bicester Road	0.24	0.3	2.83	0.17	0.2	2.58
Oxford Road (S)	0.29	0.5	2.87	0.54	1.2	4.03
A420 Frieze Way	0.21	0.3	1.71	0.43	0.7	2.61
Oxford Road (N)	0.30	0.4	5.44	0.34	0.5	7.85
2025 + Committed Development + Development						
A4260 Oxford Road (N)	0.46	0.9	3.46	0.69	2.3	6.60
Bicester Road	0.24	0.3	2.85	0.18	0.2	2.66
Oxford Road (S)	0.32	0.5	2.97	0.56	1.3	4.15
A420 Frieze Way	0.21	0.3	1.73	0.44	0.8	2.70
Oxford Road (N)	0.31	0.4	5.57	0.36	0.5	8.21

Source: Junctions 10

12.2.3 The Kidlington roundabout junction as per its current configuration is predicted to operate well within its theoretical capacity with negligible queuing and delay during both peak hours in both the without and with Development scenarios.

12.2.4 When the OXCC proposed improvements are considered (as summarised in Section 7), the junction continues to operate within capacity with negligible queuing and delay as summarised in **Table 12.2**.

Table 12.2: Kidlington Roundabout (With OXCC improvement)

	Morning Peak Hour			Evening Peak Hour		
	RFC	Queue	Delay	RFC	Queue	Delay
2025 + Committed Development + Development						
A4260 Oxford Road (N)	0.46	0.9	3.46	0.69	2.3	6.60
Bicester Road	0.65	1.9	16.39	0.51	1.0	12.32
Oxford Road (S)	0.32	0.5	2.97	0.56	1.3	4.15
A420 Frieze Way	0.21	0.3	1.73	0.44	0.8	2.70
Oxford Road (N)	0.31	0.4	5.57	0.36	0.5	8.21

Source: Junctions 10

Park and Ride Access

12.2.5 The Park and Ride signalised junction has been assessed and the results are summarised in **Table 12.3**.

Table 12.3: Park and Ride Traffic Signals

	Morning Peak Hour			Evening Peak Hour		
	DoS (%)	Queue	Delay	DoS (%)	Queue	Delay
2025 + Committed Development + Development						
Oxford Road (N) Left Ahead	34.0%	0.5	4.2	10.4%	0.3	4.0
Oxford Road (N) Ahead	45.8%	6.5	12.0	69.6%	15.7	16.3
Park and Ride Access Left	2.8%	0.0	2.6	2.8%	0.0	2.6
Park and Ride Access Right Left	31.6%	1.3	46.9	63.5%	4.9	51.4
Oxford Ahead (S) Ahead Right	67.0%	13.4	6.5	65.4%	23.5	6.6

Source: LinSig

12.2.6 The Park and Ride traffic signal junction is predicted to work within its theoretical capacity, albeit there is some limited queuing on the Oxford Road north and south. The worst queue forms on the northbound ahead arm in the evening peak with a queue of 23 vehicles, however the delay per vehicle is only circa 7 seconds.

PR6a Northern Access – Left In Left Out

12.2.7 The proposed northern site access junction has been assessed and the results are summarised in **Table 12.4**.

Table 12.4: PR6a Northern Access – Left In Left Out

	Morning Peak Hour			Evening Peak Hour		
	DoS (%)	Queue	Delay	DoS (%)	Queue	Delay
2025 + Committed Development + Development						
Oxford Rd (S) Ahead Right	1.9%	0.0	0.1	2.6%	0.0	0.1
East Access Right Left	4.3%	0.0	3.3	2.3%	0.0	3.6

Source: LinSig

12.2.8 The junction works well within its theoretical capacity with no queuing or delay.

PR6a Southern Access - Oxford Road CYCLOPS Junction

12.2.9 The proposed site access CYCLOPS signalised junction has been assessed and the results are summarised in **Table 12.5**.

Table 12.5: PR6a Northern Access - CYCLOPS Signal Junction

	Morning Peak Hour			Evening Peak Hour		
	DoS (%)	Queue	Delay	DoS (%)	Queue	Delay
2025 + Committed Development + Development						
PR6a Site Access (E) Left Ahead Right	66.4%	3.5	72.5	33.0%	1.5	59.5
Oxford Road (S) Left Ahead	59.7%	6.4	20.1	80.9%	11.7	25.3
Oxford Road (S) Right	7.4%	0.3	33.9	59.3%	2.1	86.3
Oxford Road (N) Ahead	4.5%	0.5	12.8	4.2%	0.3	10.8
Oxford Road (N) Left Ahead Right	67.3%	6.0	14.4	84.5%	9.3	19.8
Oxford Road (N) Toucan NB Ahead	43.3%	0.3	0.4	58.3%	9.1	1.9
NB Merge Ahead	22.5%	0.0	0.0	32.1%	0.0	0.0
Oxford Road (N) Toucan SB Ahead	2.6%	0.2	3.3	2.5%	0.3	3.0

	Morning Peak Hour			Evening Peak Hour		
	DoS (%)	Queue	Delay	DoS (%)	Queue	Delay
Oxford Road (N) Toucan SB Ahead	37.8%	7.7	6.8	50.4%	14.5	5.1
Oxford Road (S) Ahead	32.9%	0.0	0.0	50.0%	0.0	0.0

Source: Junctions 10

12.2.10 The CYCLOPS signal junction operates within its theoretical capacity within the morning and evening peak hour. While there is some limited queueing and delay at the junction this is commensurate with the level of flow on the Oxford Road / Banbury Road and is in part due to road space being allocated to pedestrian and cycle infrastructure, as well as ‘green time’ being allocated to cyclists and pedestrians. When these aspects are considered, it is evident that the junction is predicted to work satisfactorily.

Impact of Toucan Crossing

12.2.11 A new toucan crossing is to be located between the northern and southern access in the vicinity of the local centre. The operational assessment, undertaken as part of the LINSIG corridor model identifies that it operates at an acceptable level with very little queueing or delay. The results are summarised in **Table 12.6**.

Table 12.6: Toucan Crossing

	Morning Peak Hour			Evening Peak Hour		
	DoS (%)	Queue	Delay	DoS (%)	Queue	Delay
2025 + Committed Development + Development						
Oxford Rd (N) Ahead	1.3%	0.1	3.1	1.3%	0.1	3.0
Oxford Rd (N) Ahead	49.4%	6.7	5.2	53.7%	8.0	5.4
Oxford Rd (S) Ahead	39.2%	1.9	2.8	64.0%	2.1	3.4

Source: LinSig

Cotteslowe Roundabout

12.2.12 The Cotteslowe signalised Roundabout has been assessed and the results are summarised in **Table 12.7**.

Table 12.7: Cotteslowe Roundabout

	Morning Peak Hour			Evening Peak Hour		
	DoS (%)	Queue	Delay	DoS (%)	Queue	Delay
2025 + Committed Development						
A4165 Banbury Rd (N) Ahead Left	87.8%	14.9	50.5	81.7%	17.1	40.1

	Morning Peak Hour			Evening Peak Hour		
	DoS (%)	Queue	Delay	DoS (%)	Queue	Delay
A40 North Way (E) Ahead Ahead2	72.6%	10.4	52.4	63.8%	11.2	36.3
A40 North Way (E) Ahead	89.8%	15.0	54.1	82.5%	15.8	34.8
A4165 Banbury Rd (S) Ahead Ahead2	49.1%	4.7	8.0	66.3%	8.4	16.8
A40 North Way (W) Ahead Left	84.3%	20.6	42.8	77.5%	16.1	40.0
A40 North Way (W) Ahead	88.2%	21.5	41.9	81.3%	16.7	39.1
2025 + Committed Development + Development						
A4165 Banbury Rd (N) Ahead Left	91.8%	18.5	55.0	80.7%	17.1	39.1
A40 North Way (E) Ahead Ahead2	73.9%	10.7	53.2	66.5%	11.7	38.1
A40 North Way (E) Ahead	90.2%	14.9	53.6	85.2%	16.4	36.4
A4165 Banbury Rd (S) Ahead Ahead2	47.7%	5.0	8.6	69.7%	9.2	17.2
A40 North Way (W) Ahead Left	90.3%	22.9	54.2	81.5%	17.2	43.8
A40 North Way (W) Ahead	93.7%	25.5	56.1	84.9%	18.0	43.2

Source: Junctions 10

12.2.13 As is currently the case, the Cutteslowe signal roundabout junction is operating at or close to its theoretical capacity. With continuous cycle optimisation, while the junction will continue to operate with queueing and delay the level of queueing and delay is not at a level considered to be 'severe'.

12.2.14 Notwithstanding its current and future operation, the increases derived from the development proposal are negligible in terms of increases in queuing and delay during both peak hours and are unlikely to be perceptible during day-to-day operating conditions. As such, the impact of the development on the operation of the junction is not significant.

12.2.15 Furthermore, in line with OXCC's desires as set out in the LTCP and their guidance on Decide and Provide it would not be appropriate to seek to address capacity issues in this location. Alternatively, and as discussed later, it is more appropriate to improve conditions for pedestrians and seek to reduce vehicular traffic through the junction, rather than add vehicular capacity.

12.2.16 When OXCC has more certainty on its preferred improvement option for Cutteslowe roundabout then additional traffic modelling is likely to be undertaken.

12.3 Mitigation

On Site

12.3.1 In line with the PR6a Policy key delivery requirements, the site will bring forward the following measures aimed at reducing the need to travel and encouraging trips to be undertaken via sustainable modes. This includes:

- The provision of a primary school with two forms of entry, thus internalising primary school trips;
- The provision of a local centre, internalising local trips to day-to-day facilities;
- Delivery of a southbound cycle superhighway along the frontage of the site, providing a new facility for residents of PR6a and PR6b as well as improving connectivity between Kidlington and Oxford City Centre, for existing residents and future residents of other PR sites to the north. (*Ref IDP scheme 9 & 9a*);
- Delivery of a central spine road with dedicated pedestrian and cycle facilities and connection to Water Eaton Park and Ride and Oxford Parkway (*Ref IDP scheme 25*);
- In the vicinity of the school, the opportunity for part of the main street to be delivered as a School Street, with limited access during drop off and pick up periods, to encourage trips to the school to be undertaken by active modes;
- The creation of a green infrastructure corridor incorporating a pedestrian, wheelchair and all-weather cycle route along the site's eastern boundary. The route will connect Cutteslowe Park with Oxford Parkway Railway Station/Water Eaton Park and Ride and provide connection with the public rights of way network. (*Ref IDP scheme 25*);
- Limited vehicular access to / from Oxford Road to discourage car use;
- Reduced car parking across the site to discourage car usage;
- Delivery of car club vehicle spaces to reduce car ownership across the site;
- Enhancing the existing public rights of way which cross the site, to encourage pedestrian, cycling and active travel modes. (*Ref IDP scheme 13*);
- An outline scheme for pedestrian and cycle access to the surrounding countryside and onward connections to PRoW to encourage pedestrian, cycling and active travel modes;

- Design principles which seek to deliver a connected and integrated urban extension to Oxford and which respond to historic setting of the city; and
- A Travel Plan including measures for maximising sustainable transport connectivity, minimising the impact of motor vehicles on new residents and existing communities, and actions for updating the Travel Plan during construction of the development.

Off site works and contributions

12.3.2 The following works and or contributions are proposed and will be secured through a Section 106 legal agreement, as part of the PR6a transport mitigation package, in line with the Appendix 4 of the IDP:

- Proportional contribution towards the Park and Ride at London-Oxford airport (*Ref IDP scheme 3*);
- Improved / amended bus lane provision on the A4165 between Kidlington roundabout and past the new development sites (*Ref IDP scheme 4a*);
- Upgrade of outbound bus stop on A4165 opposite Parkway (*Ref IDP scheme 8d*);
- Contribution towards the cycle superhighway along the A4260 and Oxford Road towards Oxford city centre (*Ref IDP scheme 9 & 9a*);
- New public bridleways suitable for pedestrians, all weather cycling, wheelchair use and horse riding and connecting with existing public rights of way network (*Ref IDP scheme 13*);
- Kidlington roundabout provision of ped/cycle crossing at roundabout (*Ref IDP scheme 18*);
- Pedestrian/cycle / wheelchair accessibility from PR6a to Water Eaton Park / Oxford Parkway (*Ref IDP scheme 25*); and
- Ped/cycle/wheelchair accessibility across A4165 from PR6b to PR6a (*Ref IDP scheme 28*)

12.3.3 In addition, a contribution towards a cycle route through the Cutteslowe Park, providing a dedicated cycle link between the site and the A40 overbridge, providing better access to the Park and Ride and Parkway station and Summertown School is proposed.

12.4 Impact on Strategic Road Network

12.4.1 Based on the agreed trip generation figures and the trip distribution derived from the VISSIM model, the following increases in traffic associated with the site on the strategic road network are anticipated, as summarised in **Table 12.8**.

Table 12.8 Impact on Strategic Road Network

Junction	Total PR6a Development Traffic	
	Morning Peak Hour	Evening Peak Hour
A34 Bicester Road Interchange	1	2
A34 Peartree Interchange	29	52
A34 / M40 / A41 Wendlebury Interchange	6	18
Wolvercote Roundabout	33	31

Source: Consultants estimates

12.4.2 In terms of the flows above, these are all two way and as such flows on any one arm would be below the identified figure, for example, the 52 movements during the evening peak hour at the Peartree Interchange are broken down as follows:

- 20 movements on A44 West (two way);
- 20 movements on A44 East (two way);
- 1 movements on Peartree (two way); and
- 11 movements the A34 north (two way).

12.4.3 As an allocated site, the traffic impacts on the SRN will have been previously assessed through the Local Plan modelling and its associated mitigation strategies identified in Appendix 4 of the Local Plan Partial Review IDP. Notwithstanding this, it is evident from the table that the level of traffic arising from the development is negligible and would certainly not be perceivable on a day to day basis and will not lead to any direct increased safety risk on the SRN. The impact of development generated traffic on the operation of the strategic road network is therefore not significant.

12.5 Summary

- 12.5.1 As identified above the impacts arising from the proposed development on the Oxford Road corridor are negligible. Junctions within the study area are anticipated to generally work within capacity, even before any mitigation is applied to the external network. While the Cutteslowe junction operates at / close to capacity the impacts arising from the development is negligible and not significant.
- 12.5.2 Providing a contribution towards the measures identified above will enable OXCC to deliver schemes which generally reduce traffic on the identified Oxford Road corridor thus mitigating the impact of the development in this location.
- 12.5.3 Furthermore, this does not take account of the measures identified earlier in the Local Transport and Connectivity Plan (LTCP) which will further reduce traffic volumes in the area.
- 12.5.4 It is expected that the Kidlington roundabout improvements will start construction in 2023 and that the traffic filters trials will be in place in 2024 / 2025 i.e. at the time of first occupations. As such measures will be in place in advance of development coming forward and these measures will assist with further reducing the number of car trips made across the County and on key corridors into, out of and around Oxford, especially in the vicinity of the site.

SECTION 13 2031 Cumulative Traffic Analysis

13.1 Introduction

13.1.1 The following modelling scenarios have been considered and a full summary of the modelling outputs across the network are included in the PR Sites Strategic Modelling Outcomes Summary Note (**Appendix O**)

- 2018 Baseline (Morning and evening peak period);
- 2023 Reference Case (Morning and evening peak period);
- 2031 Reference Case + Growth Fund schemes (Morning and evening peak period);
- 2031 Do Minimum (DM) (Morning and evening peak period); and
- 2031 Do Something (DS) (Modal shift) (Morning and evening peak period).

13.1.2 This chapter summarises the results of the cumulative modelling in relation to the immediate impacts around the site, in line with the study area identified in Section 11. The results summarised are for the 2031 with all planned and committed development plus modal shift.

13.2 Testing of the Infrastructure Delivery Plan Interventions

13.2.1 In 2015, OXCC 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.

13.2.2 In allocating the PR Sites, CDC and OXCC 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 work-based trips to be completed by this important mode of transport; and
- Access to good local pedestrian infrastructure.

- 13.2.3 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 OXCC having regard to its Strategic Transport Assessment (STA) and have been included in the IDP in Appendix 4 of the Part 1 Partial Review Local Plan.
- 13.2.4 The works set out in the IDP of the 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.
- 13.2.5 The range of mitigation measures included within the IDP have been tested within the model. The Vectos MicroSim Mode Shift Assessment Discussion Note (**Appendix O**) 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.
- 13.2.6 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.
- 13.2.7 **Table 13.1** summarises the infrastructure identified in Appendix 4 of the IDP and has been included within the mode shift mitigation strategy modelled. Schemes that have been omitted from the list are either due them not being necessary to mitigate the impacts of the PR sites, or are no longer being pursued by OXCC, such as the expansion of the Water Eaton Park and Ride. The PR6a site will deliver or provide a proportional contribution towards the infrastructure items highlighted grey.

Table 13.1: Summary of Appendix 4 of IDP mitigation included in the modelling

Ref	Scheme	Comment*
1	Potential for new rail halt at Begbroke	Land reserved in masterplan for PR8
3	P&R at Oxford airport	Mode shift accounted for in model

Ref	Scheme	Comment*
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 junction at Begbroke and Pear Tree Interchange	Included in the model as part of the growth fund scheme
7	4 buses per hour between Oxford and Begbroke	Limited mode shift accounted for in model but did not include all of potential catchment.
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.	Included in site master planning – part of Network Rail / PR8 proposals
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 site master planning – PR8. 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 site master planning – PR9
20	New walk and cycle routes from PR9 through Yarnton	Included in site master planning – PR9
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

Ref	Scheme	Comment*
24	Footpaths / cycleways within proposed development sites that link new development to existing and proposed networks	Included in site master planning
25	Pedestrian/cycle / wheelchair accessibility from PR6a to Water Eaton Park / Oxford Parkway	Included in site master planning
26	Ped/cycle/wheelchair accessibility from PR6b to employment opportunities at Oxford Northern Gateway	Routes through PR6b 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
29	Footway along southbound carriageway of Bicester Road	Included in site master planning PR7a
30	Ped/cycle/wheelchair accessibility to Oxford Parkway across to Bicester Road and to formal sports pitches on site	Included in site master planning PR7a
31	Vehicular spine route through PR8 capable of being used by buses	Included in site master planning PR8
32	Highway works to Kidlington roundabout to enable site access for PR7b	Included in site master planning PR7b
33	Ped/cycle bridges over railway and Oxford Canal	Provided for in site master planning PR8/PR7b but subject to liaison with stakeholders

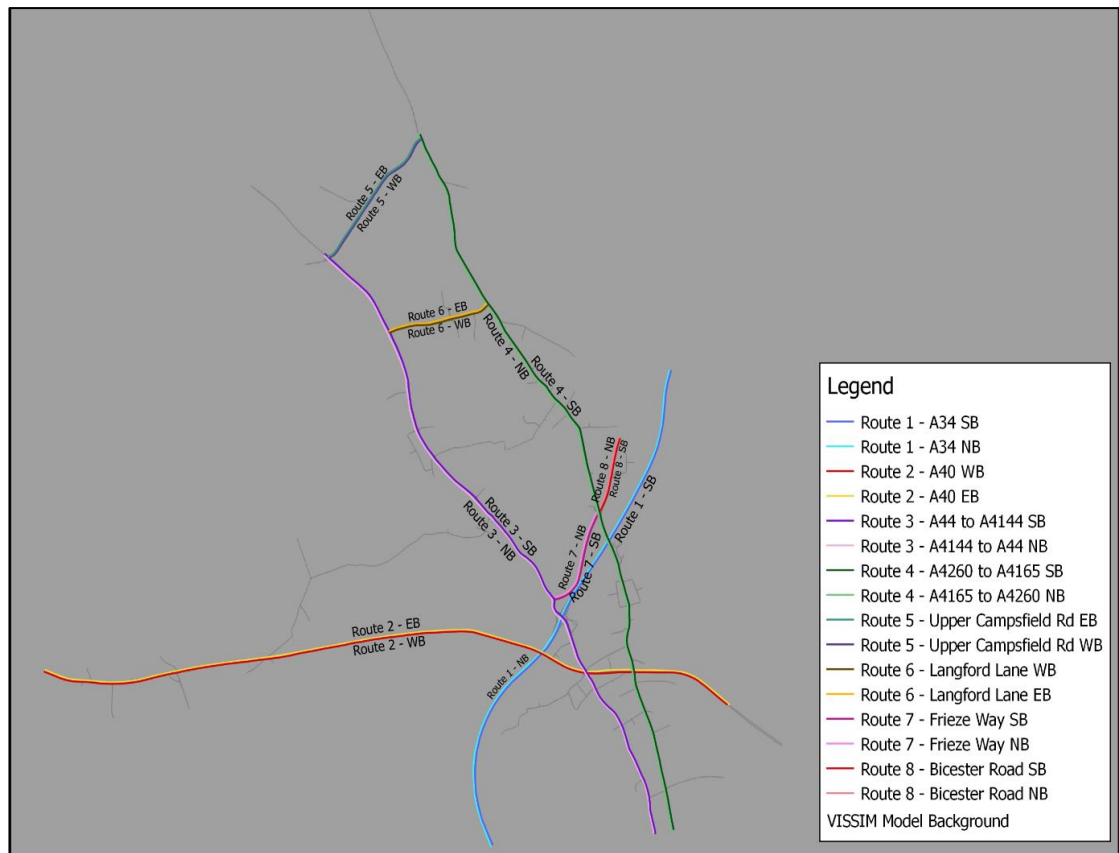
13.3 Traffic Impact Results

13.3.1 The following section summarises how the network is likely to operate in the future year of 2031 when all planned and consented development is considered. Junction output files for the 2031 assessment can be found in **Appendix Q**.

Journey Times

13.3.2 Journey times along key corridors have been extracted from the model, as summarised in **Image 13.1**.

Image 13.1 Journey Time Routes



13.3.3 Route 4 (Oxford Road / Banbury Road), Route 1 (A34) and Route 2 (A40) are most relevant to the PR6a development. **Table 13.2** and **13.3** below summarise the forecast 2031 Reference Case journey times for these two routes in the morning and evening peak period as well as the forecast change in journey times along the routes for the 2031 Do Something scenario (i.e. 2031 Reference + PR sites and mode shift).

Table 13.2 Change in journey times along routes in the AM peak period

Route			07:00-08:00		08:00-09:00		09:00-10:00	
			2031 Reference (sec)	2031 Do Something Change in journey time (sec)	2031 Reference (sec)	2031 Do Something Change in journey time (sec)	2031 Reference (sec)	2031 Do Something Change in journey time (sec)
1	A34	NB	322	+2	318	+4	322	+3
		SB	323	0	318	+4	323	+3
2	A40	EB	1,013	-12	1,303	-122	1,364	-250
		WB	770	+40	1,254	-420	797	+12
4	A4165 A4260	NB	1,178	+11	1,340	-25	1,341	-66
		SB	1,434	-51	2,234	-529	1,730	-161

Table 13.3: Change in journey times along routes in the PM peak period

Route			15:00-16:00		16:00-17:00		17:00-18:00	
			2031 Reference (sec)	2031 Do Something Change in journey time (sec)	2031 Reference (sec)	2031 Do Something Change in journey time (sec)	2031 Reference (sec)	2031 Do Something Change in journey time (sec)
1	A34	NB	319	-1	316	+2	313	+3
		SB	313	+1	313	+4	313	+2
		SB	886	+77	1,148	+304	985	+464
2	A40	EB	999	+45	999	+73	931	+52
		WB	730	+48	746	+40	751	+60
4	A4165 A4260	NB	1,205	-9	1,224	-11	1,257	+28
		SB	1,212	+58	1,296	+96	1,221	+181

13.3.4 These show that the changes in journey times across the routes are generally insignificant and that in some instances, especially the morning peak hour there are improvements in journey times on the A40 and A4260 when considered against the reference case.

Kidlington Roundabout

Table 13.4: Kidlington Roundabout

	Morning Peak Hour			Evening Peak Hour		
	RFC	Queue	Delay	DoS (%)	Queue	Delay
2031 + Committed Development + Development						
A4260 Oxford Road (N)	0.38	0.7	3.14	0.62	1.6	5.27
Bicester Road	0.26	0.4	2.74	0.18	0.2	2.6
Oxford Road (S)	0.29	0.4	2.60	0.41	0.7	3.19
A420 Frieze Way	0.24	0.3	1.76	0.38	0.6	2.25
Oxford Road (N)	0.31	0.4	5.84	0.27	0.4	6.18

Source: Junctions 10

13.3.5 The Kidlington roundabout junction as per its current configuration is predicted to operate well within its capacity with negligible queuing and delay during both peak hours. With the identified modal shifts, the junction works better than the 2025 assessment.

13.3.6 When the OXCC proposed improvements are considered (as summarised in Section 7), the junction continues to operate within capacity with negligible queuing and delay, as summarised in **Table 13.5**. With the identified modal shifts, the junction works better than the 2025 assessment.

Table 13.5: Kidlington Roundabout (With OXCC improvement)

	Morning Peak Hour			Evening Peak Hour		
	RFC	Queue	Delay	RFC	Queue	Delay
2031 + Committed Development + Development						
A4260 Oxford Road (N)	0.38	0.7	3.14	0.62	1.6	5.27
Bicester Road	0.66	2.0	15.59	0.50	1.0	11.68
Oxford Road (S)	0.29	0.4	2.60	0.41	0.7	3.19
A420 Frieze Way	0.24	0.3	1.76	0.38	0.6	2.25
Oxford Road (N)	0.31	0.4	5.84	0.27	0.4	6.18

Source: Junctions 10

Park and Ride

- 13.3.7 The Park and Ride signalised junction has been assessed and the results are summarised in **Table 13.6**.

Table 13.6: Park and Ride Traffic Signals

	Morning Peak Hour			Evening Peak Hour		
	DoS (%)	Queue	Delay	DoS (%)	Queue	Delay
2031 + Committed Development + Development						
Oxford Road (N) Left Ahead	29.2%	0.4	3.9	8.8%	0.3	4.4
Oxford Road (N) Ahead	63.9%	7.4	12.0	63.0%	9.0	16.3
Park and Ride Access Left	2.8%	0.0	2.6	2.8%	0.0	2.6
Park and Ride Access Right Left	21.5%	1.0	46.0	56.4%	4.4	47.2
Oxford Ahead (S) Ahead Right	68.6%	11.9	8.5	53.3%	11.5	6.0

Source: LinSig

- 13.3.8 The Park and Ride traffic signal junction is predicted to work within its theoretical capacity. The overall mitigation package has reduced queueing and delay across the junction. This will allow additional green time to be allocated to pedestrians and cyclists to assist their movement through the junction.

PR6a Northern Access – Left In Left Out

- 13.3.9 The proposed northern site access junction has been assessed and the results are summarised in **Table 13.7**. This shows that the junction works well within its capacity with no queueing or delay.

Table 13.7: PR6a Northern Access – Left In left Out

	Morning Peak Hour			Evening Peak Hour		
	DoS (%)	Queue	Delay	DoS (%)	Queue	Delay
2025 + Committed Development + Development						
Oxford Rd (S) Ahead Right	1.9%	0.0	0.1	2.0%	0.0	0.1
East Access Right Left	4.3%	0.0	3.5	2.2%	0.0	3.5

Source: LinSig

13.3.10 While it does not form part of the application, the potential northern access to the PR6b site has also been assessed and the results are summarised in **Table 13.8**. This shows that the junction works well within its theoretical capacity with no queueing or delay.

Table 13.8: PR6b Northern Access

	Morning Peak Hour			Evening Peak Hour		
	DoS (%)	Queue	Delay	DoS (%)	Queue	Delay
2025 + Committed Development + Development						
Oxford Rd (N) Ahead Right	2.2%	0.0	0.1	8.4%	0.0	0.2
West Access Left Right	6.3%	0.0	3.4	4.0%	0.0	3.4

PR6a Southern Access – Oxford Road CYCLOPS Junction

13.3.11 The proposed site access CYCLOPS signalised junction has been assessed (4 arm junction also accessing the PR6b site) and the results are summarised in **Table 13.9**.

Table 13.9: CYCLOPS Signal Junction

	Morning Peak Hour			Evening Peak Hour		
	DoS (%)	Queue	Delay	DoS (%)	Queue	Delay
2031 + Committed Development + Development						
PR6a Site Access (E) Left Ahead Right	60.7%	3.0	67.8	33.0%	1.5	59.5
Oxford Road (S) Left Ahead	60.2%	6.3	20.0	71.2%	8.5	21.2
Oxford Road (S) Right	11.2%	0.3	62.0	44.6%	1.6	62.8
PR6b Site Access (W) Ahead Right Left	42.7%	1.9	61.6	17.7%	0.8	55.7
Oxford Road (N) Ahead	4.5%	0.3	13.3	4.2%	0.3	10.1
Oxford Road (N) Left Ahead Right	87.0%	9.3	26.0	77.2%	7.3	15.7

	Morning Peak Hour			Evening Peak Hour		
	DoS (%)	Queue	Delay	DoS (%)	Queue	Delay
Oxford Road (N) Toucan NB Ahead	42.6%	0.5	0.5	45.4%	0.7	0.5
NB Merge Ahead	22.3%	0.0	0.0	24.8%	0.0	0.0
Oxford Road (N) Toucan SB Ahead	2.6%	0.3	3.4	2.5%	0.3	3.8

13.3.12 The overall mitigation package has reduced queuing and delay across the junction. This will allow additional green time to be allocated to pedestrians and cyclists to assist their movement through the junction, and or for the overall cycle time to be amended. The assessment allows for the western / PR6b arm to be operating with PR6b traffic.

Impact of Toucan Crossing

13.3.13 A new toucan crossing is to be located between the northern and southern access in the vicinity of the local centre. The operational assessment, undertaken as part of the LINSIG corridor model identifies that it operates at an acceptable level with very little queuing or delay as summarised in **Table 13.10**.

Table 13.10: Toucan Crossing

	Morning Peak Hour			Evening Peak Hour		
	DoS (%)	Queue	Delay	DoS (%)	Queue	Delay
2031 + Committed Development + Development						
Oxford Rd (N) Ahead	1.3%	0.1	3.1	1.3%	0.1	3.0
Oxford Rd (N) Ahead	61.8%	10.2	6.5	46.9%	6.5	4.8
Oxford Rd (S) Ahead	39.8%	1.0	2.2	46.2%	1.9	2.5

Source: LinSig

Cotteslowe Roundabout

13.3.14 The Cotteslowe signalised Roundabout has been assessed and the results are summarised in **Table 13.11**.

Table 13.11: Cotteslowe Roundabout Results

	Morning Peak Hour			Evening Peak Hour		
	DoS (%)	Queue	Delay	DoS (%)	Queue	Delay
2025 + Committed Development + Development						
A4165 Banbury Rd (N) Ahead Left	91.1%	21.1	49.1	71.7%	12.5	30.9
A40 North Way (E) Ahead Ahead2	71.0%	11.0	48.3	66.8%	10.6	42.6
A40 North Way (E) Ahead	89.8%	15.3	46.6	85.5%	14.7	41.5
A4165 Banbury Rd (S) Ahead Ahead2	73.3%	9.7	18.8	87.2%	13.0	25.5
A40 North Way (W) Ahead Left	87.3%	16.7	61.2	80.4%	13.4	52.9
A40 North Way (W) Ahead	91.0%	18.6	64.7	85.0%	14.7	54.2

13.3.15 The overall mitigation package, which has reduced traffic volumes through the junction and caused some traffic to divert, has led to an improvement in the operation with generally less delay and queuing at the junction when considered in isolation.

13.3.16 This will allow additional for any reassignment occurring from the implementation of modal filters, and or pedestrian and cycle improvements, which will all assist with meeting the aims of the LTCP.

13.4 Summary of Development Impacts

13.4.1 The future year assessment of 2031 considers all planned and committed development as well as the PR sites and the anticipated infrastructure which will come forward alongside those sites.

13.4.2 The identified mitigation package has led to traffic reductions and redistribution, which leads to a betterment in terms of the operation of junctions on the Oxford Road corridor, including Kidlington and Cotteslowe Roundabouts. The existing Park and Ride and proposed junctions on the Oxford Road / Banbury Road will all work within their theoretical capacities.

13.4.3 The direct impacts from the Development and the wider PR sites on the transport network have been cost effectively mitigated to an acceptable degree. The residual cumulative impacts are not severe.

SECTION 14 Summary and Conclusions

14.1 Summary

Background

14.1.1 Christ Church promoted a Site known as PR6a / Land East of Oxford Road into the Cherwell Local Plan 2011-2031 Partial Review – Oxford’s Unmet Housing Need. In September 2020, this Plan was adopted by Cherwell District Council. Policy PR6a allocates the Site for mixed-use development including 690 dwellings, a two-form entry primary school, a local centre and recreation space.

14.1.2 During the initial round of consultation held in October 2021 views were invited on naming the site and 'Water Eaton' was settled as being an appropriate name.

14.1.3 In September 2022, Bellway acquired the land comprising the application site from Christ Church to bring it forward for development. In the interests of delivering a scheme of the highest quality, Bellway is committed to building on the approach to engagement and masterplan development adopted by Christ Church.

14.1.4 i-Transport has been appointed by Bellway Homes (and previously Christ Church) to provide highways and transport advice in relation to an outline planning application (with means of access determined) for residential led mixed use development on the Water Eaton Site.

14.1.5 The Development comprises:

“Outline application (with all matters except access reserved for future consideration) for the demolition of existing buildings and the erection of up to 800 dwellings (Class C3); a two form entry primary school; a local centre comprising: convenience retailing (not less than 350sqm and up to 500sqm (Class E(a))), business uses (Class E(g)(i)) and/or financial and professional uses (Class E(c)) up to 500sqm, café or restaurant use (Class E(b)) up to 200sqm; community building (Class E and F2); car and cycle parking); associated play areas, allotments, public open green space and landscaping; new vehicular, pedestrian and cycle access points; internal roads, paths and communal parking infrastructure; associated works, infrastructure (including Sustainable Urban Drainage, services and utilities) and ancillary development. Works to the Oxford Road in the vicinity of the site to include, pedestrian and cycle infrastructure, drainage, bus stops, landscaping and ancillary development.”

14.1.6 The Transport Assessment tests:

- 800 dwellings – 50% private and 50% affordable
- Primary school – 2-form entry;
- Local centre including:

- Shops / retail (use class E a) – 500sqm;
- Ancillary business development (use class E g) – 500sqm;
- Services (use class E c) – 500sqm;
- Café or restaurant (use class E b) – 200sqm; and
- Community building use class F.2 b) - 400 sqm.

Site Access Arrangements, Site Layout and Parking Strategy

14.1.7 Key aspects of the access strategy for the Water Eaton site are summarised below:

- Accommodate a walking / cycling super highway along the A4165 Oxford Road Site frontage which forms part of OXCC's wider North Oxford Corridor plan to improve cycling connections between Cherwell District / Kidlington and Oxford city - OXCC's proposals are to accommodate where feasible one directional segregated cycle lanes and footways either side of Oxford Road;
- Provide convenient and attractive pedestrian and cycle links into the surrounding highway network and local area;
- Accommodate buses that will remain on Oxford Road but with new bus stops that are within a reasonable walk distance of the new homes;
- Provide vehicular accesses to the Site from Oxford Road that prioritise safe crossing movements for pedestrians and cyclists; and
- Minimise the number of vehicular accesses to the Site from Oxford Road.

Site Access Arrangements

14.1.8 Key aspects of the access design are summarised below:

- The A4165 Oxford Road being subject to a 30mph speed limit along the site frontage (as per the approved TRO);
- A walking / cycling super highway along the eastern side of A4165 Oxford Road - the proposals accommodate a 2.5m wide segregated cycle lane and a 2.0m footway (there is a 3m verge separation between segregated cycle lane footway and the Oxford Road carriageway / bus lane (suitable for appropriate street trees and planting));
- The existing Oxford Road west side shared use footway / cycleway to remain available for pedestrians and northbound cyclists – this would eventually be upgraded to the cycle super highway dimensions as and when PR6b comes forward for development;

- This would achieve OXCC's cycle superhighway aspiration of having southbound cyclists one way along the east side of Oxford Road and northbound cyclists one way along the west side of Oxford Road;
- The southern vehicular access to the site as a 3 arm Cycle Optimised Protected Signals (CYCLOPS) junction (capable of accommodating a fourth / western arm for an access into the PR6b site);
- The northern vehicular access to the site as a left in left out priority junction with a full set back for cycle crossing;
- The existing accesses to St Frideswide's Farm and Water Eaton from Oxford Road are to be closed to vehicular traffic and to be turned into pedestrian / cycle accesses (bridleway access for the Water Eaton access). Alternative vehicular access arrangements to the properties, associated buildings and agricultural land served from these accesses will be provided (both during and after construction) from the proposed Oxford Road site accesses and street network within the application site only (which would be set at reserved matters stage and designs will need to allow for the type of agricultural vehicles and manoeuvres expected in a safe manner);
- A toucan crossing of Oxford Road broadly in line with the Water Eaton bridleway;
- Bus stops on Oxford Road near the proposed toucan crossing and retention of the southbound bus lane;
- A pedestrian / cycle access into the recently approved Land South West of St Frideswide's Farm, Banbury Road scheme to the south of the Site (OCC ref 21/01449/FUL); and
- Pipal Cottage is currently accessed from Oxford Road - it is understood that the owner is willing to have the access to the property redirected to come from within the development and this can be accommodated in the reserved matters scheme design.

Site Layout

14.1.9 The scheme delivers a well-connected, walkable 20-minute neighbourhood with facilities within the development that reduce the need for travel. In summary:

- All of the Water Eaton site / residential areas are within an 800m walk distance of the local centre / primary school;

- All of the PR6b site is within an 800m walk distance of the Water Eaton local centre / primary school;
- The public realm and open spaces are within an easy walking distance of the residential areas; and
- The new bus stops on Oxford Road are centrally located and easily accessed from the Water Eaton site and PR6b.

14.1.10 Water Eaton is designed to be a walkable neighbourhood which puts pedestrians and cyclists first. A network of footpaths and cyclepaths are proposed, along with Primary Streets, Secondary Streets, Residential Streets and Rural Edge Streets. The street adjacent to the school is proposed as a School street. A potential pedestrian and cycle access is proposed to the Oxford Parkway Station / Park and Ride site to the north.

Parking Strategy

14.1.11 Bellway will be bringing forward a scheme having regard to OXCC's parking standards with details to be set out within subsequent reserved matters applications.

14.1.12 It is envisaged that a controlled parking zone will be required to support levels of on-site parking associated with the development as well as ensuring that there is no overspill on-street parking from the nearby Oxford Parkway Station / Park and Ride site.

Walking and Cycling Connectivity

14.1.13 The following destinations are within a reasonable walk distance of the Site:

- All of the on-site facilities;
- PR6b, PR7a, PR7b;
- Cutteslowe Park;
- Sainsbury's Kidlington; and
- Northern parts of Summertown (2km).

14.1.14 The following destinations are within a reasonable cycle distance of the site:

- All of the facilities listed above within a reasonable walking distance;
- Kidlington and its facilities / services;
- Summertown and its facilities / services;
- North Oxford employment areas;

- Oxford city centre; and
- Headington.

14.1.15 Cowley is just beyond the 8km cycle distance but some people would still cycle there. The use of e-bikes increases the range that cyclists will travel as well as reducing the effects of any gradients on routes and journey times.

On-Site Destinations

14.1.16 A range of community facilities are proposed for the Development including a local centre, a primary school, a community hall, commercial / employment uses open space and play areas. Many journeys can therefore be contained on site. The on-site pedestrian / cycle network will provide for appropriate and safe connectivity between the residential areas and the other land uses listed above.

Oxford Road Site Frontage

14.1.17 The Oxford Road access proposals accommodate a walking / cycling super highway along the A4165 Oxford Road site frontage. The Oxford Road super cycle highway forms part of OXCC's wider plan to improve cycling connections between Kidlington and Oxford city. The improvements also offer a significant enhancement to NCN route 51 which runs along the Oxford Road site frontage.

Oxford Road / Banbury Road Routes

14.1.18 Away from the site frontage, the Oxford Road / Banbury Road corridor improvements will be for OXCC as local highway authority to deliver funded through proportionate financial contributions from the Water Eaton site and the other PR sites impacting on the corridor as well as Growth Fund deal funding.

Route 1 - Site to Kidlington via Oxford Road

14.1.19 The section of Oxford Road between the site and Kidlington roundabout is being discussed with OXCC. OXCC has emerging improvement proposals including:

- Improvements to the Oxford Parkway / Park and Ride junction to facilitate safer pedestrian and crossing movements; and
- Improvements to the existing shared use footways / cycleway on either side of Oxford Road as far as Kidlington roundabout to provide directional segregated cycle lanes and footways either side.

14.1.20 The Development will assist in bringing forward the above improvements through a proportional contribution secured in a S106 agreement (other PR sites impacting on the corridor will also need to make their proportional contribution).

14.1.21 OXCC has proposals, funded through the Growth Fund deal to improve Kidlington roundabout. Those proposals provide significantly improved facilities for pedestrians and cyclists through the junction to improve connectivity between Kidlington, the Water Eaton site and Oxford. These improvements link into the NCN Route 51 which routes on the Oxford Road (minor) and the existing shared use cycle facilities on Oxford Road routing into Kidlington.

14.1.22 These route enhancements therefore make an appropriate and safe and walking and cycling route between the Water Eaton site and Oxford Parkway / Park and Ride, Sainsbury's, Kidlington town centre and Gosford Hill School.

Route 2 -Site to Summertown and Oxford city via Oxford Road / Banbury Road

14.1.23 The section of Oxford Road / Banbury Road between the site and Cutteslowe roundabout is being discussed with OXCC. OXCC has emerging improvement proposals including upgrading the existing shared use footway / cycleways on either side of Oxford Road / Banbury Road as far as Cutteslowe roundabout to provide directional segregated cycle lanes and footways either side.

14.1.24 The Cutteslowe roundabout which accommodates the A40 northern ring road only has limited pedestrian and cycling facilities especially for north south movements. The junction is being discussed with OXCC. OXCC is considering a number of options for improvements to pedestrian and cycle provision at the junction. OXCC is reviewing the options and once a preferred option is identified OXCC is likely to undertake an element of public consultation.

14.1.25 The Development will assist in bringing forward the above improvements through a proportional contribution secured in a S106 agreement (other PR sites will also need to make their proportional contribution).

14.1.26 To the south of Cutteslowe roundabout there are options for onward travel into Summertown via Banbury Road (or NCN Route 51 which routes through quiet streets to the east) or to the city centre via Banbury Road, NCN Route 51 or NCN 5 to the west.

14.1.27 As an alternative to routing through Cutteslowe roundabout, NCN 51 routes away from Banbury Road to the east and utilises Harefields (a quiet street) before routing over the A40 on a pedestrian / cycle bridge and using quiet streets to link to Summertown and Oxford city centre. This route will be available for future residents.

14.1.28 The route enhancements therefore make an appropriate and safe walking and cycling route between the Water Eaton site and Summertown, The Cherwell School; and Oxford city centre.

Potential Cutteslowe Cycle Park Link

14.1.29 During the Enquiry by Design event in July 2021 a potential cycle link through Cutteslowe Park to connect the Site to the existing pedestrian / cycle bridge over the A40 (east of the Cutteslowe roundabout) was identified.

14.1.30 The Water Eaton team has undertaken some design work and identified a potential route on the west side of the park. OCC (the land owner of Cutteslowe Park) has reviewed the plan is content with the proposed route.

14.1.31 The cycle route through on Cutteslowe Park is on land outside of the control of Bellway / Christ Church. As such it would need to come forward as an OCC or OXCC delivered scheme.

14.1.32 Should OXCC or OCC wish to take forward the scheme then the Water Eaton site can make a proportional contribution secured in a S106 agreement (other PR sites will also need to make their proportional contribution) for OXCC or OCC to deliver.

Other Routes

14.1.33 Pedestrians and cyclists can connect to the North Oxford employment area via the existing highway network / Five Mile Drive (or via the existing footpath / the PR6b site when that comes forward).

14.1.34 Cyclists can connect to Headington (including the John Radcliffe Hospital) via the existing highway network including the cycleway on the A40 ring road.

14.1.35 Cyclists can connect to Cowley via the existing highway network including the cycleway on the A40 ring road or through the city centre via NCN 51 and 57.

14.1.36 Appropriate and safe walking and cycling routes between the Water Eaton site and North Oxford Headington and Cowley are therefore achieved.

Public Transport Connectivity

14.1.37 Bus services local to the site are mainly operated by Stagecoach. Oxford Road is a high frequency bus corridor with a number of bus services including:

- Stagecoach 2 / 2 a - Oxford City Centre to Kidlington Via Oxford Road / Banbury Road, Summertown;

- Stagecoach 700 - Thornhill Park & Ride to Kidlington Via Churchill, JR Hospital, Summertown, Oxford Parkway; and
- Stagecoach S5 - Oxford – Bicester.

14.1.38 Following discussions with OXCC and the bus operators it is agreed that it is appropriate for the bus services to stay on Oxford Road and not to route into either the Water Eaton site or PR6b.

14.1.39 There are existing bus stops on Oxford Road / Banbury Road just to the north of Jordan Hill. New bus stops are also proposed on Oxford Road near the proposed toucan crossing near the Water Eaton bridleway – the southbound bus stop is just to the south of the crossing and the northbound bus stop just to the south of the crossing. The southern parts of the site are closer to the existing bus stops on Oxford Road / Banbury Road. Cycle parking and scooter parking / other forms of micromobility parking is proposed in the vicinity of the new bus stops on Oxford Road, to assist in the transfer of trips to sustainable modes.

14.1.40 This ensures that appropriate access to bus services is provided for future residents through:

- Oxford Road forming a high frequency bus corridor providing direct routes to a number of key destinations including Oxford city centre, Churchill Hospital, John Radcliffe Hospital and Kidlington;
- Bus stops (existing / or new) being within the walkable 20-minute neighbourhood concept (ie within a circa 10-minute / 800m walk distance of residential areas); and
- Cycle parking and scooter parking being provided in the vicinity of the new bus stops on Oxford Road to ensure maximum accessibility to the new bus stops for future residents.

14.1.41 A Mobility Hub is also proposed at / next to the Local Centre which is in close proximity of the proposed Oxford Road bus stops. In addition, there is the ability for cycle parking to be provided near the bus stops.

14.1.42 OXCC has bus improvement proposals including a new service connecting North of Oxford to the Oxford Eastern Arc area, and the merger of two existing services to create a west-north through service. Bus accessibility for the Development would be further enhanced when OXCC delivers these bus service improvements. It is also understood that bus services associated with the Begbroke development may route along Oxford Road and past the Water Eaton site which would further enhance public transport accessibility.

14.1.43 The nearest railway station to the site is Oxford Parkway situated immediately to the north of the site. Residents will be able to access Oxford Parkway via the Oxford Road cycle super highway and the Parkway junction with Oxford Road – it is a reasonable walk and cycle distance for residents. This will provide the opportunity for access to a number of destinations including Oxford Station (city centre), London Marylebone and Bicester. Oxford Railway Station is located to the south of the site within Oxford city centre – it serves destinations include London Paddington, Didcot Parkway, London Marylebone, Manchester Piccadilly, and Reading.

14.1.44 In summary, the site is located adjacent to high frequency public transport (Oxford Road high frequency bus corridor and Oxford Parkway rail station) – future residents will have the opportunity to access a range of destinations by public transport.

Framework Travel Plan

14.1.45 A Framework Travel Plan (FTP) has been drafted which outlines the measures to encourage travel by modes other than single occupancy car use and a Monitoring and Evaluation Plan (MEP) in line with OXCC's Decide and Provide guidance for Transport Assessments.

Traffic Analysis

14.1.46 To assess the impacts of the PR sites, OXCC requested that their North Oxford VISSIM model be used to identify the impacts of the PR sites and test the Infrastructure interventions identified in Appendix 4 of the IDP.

14.1.47 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, a 11km section of the A40 corridor, a 11km section of the A44-A4144 corridor and a 12km section of the A4260-A4165 corridor.

14.1.48 For the evidence base for the Cherwell Local Plan 2011-2031 Partial Review, the impact of the PR sites was considered by OXCC through the use of their strategic traffic model (the OSM). This considered the cumulative impacts of the Local Plan and was used to inform the infrastructure requirements to support the planned growth in the Local Plan.

14.1.49 Traffic modelling of the network to assess the impacts of the development has been undertaken for

- An opening year of 2025, and
- A future year of 2031 which includes all locally planned and committed development

14.1.50 The assessment of development impacts has paid due regard to OXCC's guidance in respect to 'Decide and Provide' with alternative assumptions being considered for trip generation, traffic growth and distribution and an iterative approach to determining a suitable mitigation strategy to address any residual impacts arising from the development.

14.1.51 In addition to the use of the North Oxford VISSIM model, detailed junction assessment have been undertaken on the following junctions, within the immediate vicinity of the site:

- Kidlington Roundabout;
- Oxford Parkway Park and Ride / Oxford Road;
- Proposed PR6a Northern Access Junction (Left in Left Out);
- Proposed PR6a CYCLOPS Signal Junction; and
- Cutteslowe Roundabout.

2025 Assessment

14.1.52 The impacts arising from the proposed development on the Oxford Road corridor are negligible. Junctions within the study area are anticipated to generally work within their theoretical capacity, even before any mitigation is applied to the external network. While the Cutteslowe junction operates at stress / close to capacity the impacts arising from the scheme development is negligible and not significant.

2031 Assessment

14.1.53 The identified mitigation package has led to traffic reductions and traffic redistribution, which leads to a betterment in terms of the operation of junctions on the Oxford Road corridor, including Kidlington and Cutteslowe Roundabouts. The existing Park and Ride and proposed junctions on the Oxford Road / Banbury Road will all operate within their theoretical capacities.

14.1.54 The direct impacts from the Development and the wider PR sites on the transport network have been cost effectively mitigated to an acceptable degree. The residual cumulative impacts are not severe.

14.1.55 In line with the PR6a Policy key delivery requirements, the site will bring forward the following measures aimed at reducing the need to travel and encouraging trips to be undertaken via sustainable modes. This includes:

- The provision of a primary school with two forms of entry, thus internalising primary school trips;

- The provision of a local centre, internalising local trips to day to day facilities;
- Delivery of a southbound cycle superhighway along the frontage of the site, providing a new facility for residents of PR6a and PR6b as well as improving connectivity between Kidlington and Oxford City Centre, for existing residents and future residents of other PR sites to the north. (*Ref IDP scheme 9 & 9a*);
- Delivery of a central spine road with dedicated pedestrian and cycle facilities and connection to Water Eaton Park and Ride and Oxford Parkway (*Ref IDP scheme 25*);
- The opportunity for the spine road to be delivered as a School Street, with limited access during drop off and pick up periods, to encourage trips to the school to be undertaken by active modes;
- The creation of a green infrastructure corridor incorporating a pedestrian, wheelchair and all-weather cycle route along the site's eastern boundary. The route will connect Cutteslowe Park with Oxford Parkway Railway Station/Water Eaton Park and Ride and provide connection with the public rights of way network. (*Ref IDP scheme 25*);
- Limited vehicular access to / from Oxford Road to discourage car use;
- Reduced car parking across the site to discourage car usage;
- Delivery of car club vehicle spaces to reduce car ownership across the site;
- Enhancing the existing public rights of way which cross the site, to encourage pedestrian, cycling and active travel modes. (*Ref IDP scheme 13*);
- An outline scheme for pedestrian and cycle access to the surrounding countryside and onward connections to PRoW to encourage pedestrian, cycling and active travel modes;
- Design principles which seek to deliver a connected and integrated urban extension to Oxford and which respond to historic setting of the city;
- A Travel Plan including measures for maximising sustainable transport connectivity, minimising the impact of motor vehicles on new residents and existing communities, and actions for updating the Travel Plan during construction of the development;
- Proportional contribution towards the Park and Ride at London-Oxford airport (*Ref IDP scheme 3*);
- Proportional contribution towards improved / amended bus lane provision on the A4165 between Kidlington roundabout and past the new housing sites (*Ref IDP scheme 4a*);

- Proportional contribution towards upgrade of outbound bus stop on A4165 opposite Parkway (Ref IDP scheme 8d);
- Proportional contribution towards the cycle superhighway along the A4260 and Oxford Road towards Oxford city centre (Ref IDP scheme 9 & 9a);
- New public bridleways suitable for pedestrians, all weather cycling, wheelchair use and horse riding and connecting with existing public rights of way network (Ref IDP scheme 13);
- Proportional contribution towards Kidlington roundabout provision of ped/cycle crossing at roundabout (Ref IDP scheme 18);
- Pedestrian/cycle / wheelchair accessibility from PR6a to Water Eaton Park / Oxford Parkway (Ref IDP scheme 25) ;
- Pedestrian/cycle / wheelchair accessibility across A4165 from PR6b to PR6a (Ref IDP scheme 28); and
- A proportional contribution towards a cycle route through the Cutteslowe Park, providing a dedicated cycle link between the site and the A40 overbridge, providing better access to the Park and Ride and Parkway station and Summertown School.

14.1.56 Furthermore, it is noted that the modelling results do not take account of the measures identified earlier in the Local Transport and Connectivity Plan (LTCP), such as any traffic filters which will further improve non car travel and reduce traffic volumes in the area.

Strategic Road Network

14.1.57 As an allocated site, the traffic impacts on the SRN will have been previously assessed through the Local Plan modelling and its associated mitigation strategies identified in Appendix 4 of the IDP. Notwithstanding this, it is evident from the table that the level of traffic arising from the development is negligible and would certainly not be perceivable on a day to day basis and will not lead to any direct increased safety risk on the SRN. The impact of development generated traffic on the operation of the strategic road network is therefore not significant.

14.2 Assessment Against Transport Connectivity Objectives

14.2.1 The Local Transport and Connectivity Plan (LTCP) is OXCC's statutory Local Transport Plan and was adopted by full council on 12 July 2022. It sets out OXCC's vision for developing a world leading, innovative and carbon neutral transport system with a focus on how people move safely and quickly around their communities, Oxford city, and the county.

14.2.2 The LTCP includes guidance for new developments and from this 12 transport / connectivity objectives have been set. The objectives and a summary of how each have been met is provided below.

- 1 Deliver a well-connected, walkable 20-minute neighbourhood with facilities within the development that reduce the need for travel:
 - Objective met - the scheme delivers a well-connected, walkable 20-minute neighbourhood with facilities within the development that reduce the need for travel. All of the Water Eaton site / residential areas are within an 800m walk distance of the local centre / primary school.
- 2 Deliver direct and safe connections which prioritise access on foot, bike or bus to/from neighbouring communities and places of employment, retail, education and leisure facilities:
 - Objective met- Water Eaton is designed to be a walkable neighbourhood which puts pedestrians and cyclists first. The development also assist in bringing forward the Oxford Road / Banbury Road cycle superhighway.
- 3 Deliver excellent access to transport interchanges:
 - Objective met – excellent access to the new / existing Oxford Road / Banbury Road bus stops, mobility hubs and Oxford Parkway / Park and Ride achieved.
- 4 Provide frequent, reliable and easily accessible public transport to local facilities, employment and nearby town centres:
 - Objective met – the site is located adjacent to high frequency public transport (Oxford Road high frequency bus corridor and Oxford Parkway rail station) – new bus stops are proposed on Oxford Road and future residents will have the opportunity to access a range of destinations by public transport.
- 5 Provide easy access to a network of open and green spaces (within a 10-minute walk) to enhance health and wellbeing:
 - Objective met – the masterplan and parameter plans ensure that easy access to a network of open and green spaces is provided.
- 6 Roads and junctions connecting to developments need to prioritise walking, cycling and public transport and be futureproofed in line with the Innovation Framework:

- Objective met – provided through the Oxford Road cycle super highway, the southern access Cyclops junction and the northern access left in left our arrangement with full set back.
- 7 New streets to be designed having regard to with DfT’s ‘Manual for Streets’, Oxfordshire County Councils Street Design Guide and Oxfordshire County Councils Walking and Cycling Design Guides, Healthy Streets Approach, LTN 1/20 and the Department for Transport’s Inclusive Mobility:
- Objective met – the access and street design has regard to all of the above guidance.
- 8 Provide a comprehensive safe, convenient well landscaped and inclusive network for cycling, walking and public transport which offer direct, continuous and uninterrupted routes to facilities:
- Objective met – through the Oxford Road cycle superhighway (3m verge between carriageway and footway / cycleway) and 9m planting to the east as well as the footpath / cyclepath and street design overall.
- 9 Consider appropriate filtered permeability and low traffic areas, making cycling and walking routes more direct and attractive than using a car:
- Objective met – through the northern access left in left our arrangement with full set back and the school street concept.
- 10 Provide mobility hubs to improve interchange opportunities, connectivity and accessibility:
- Objective met – Mobility Hub to be provided within the site.
- 11 Provide appropriate parking throughout, including:
- Objective met – Bellway will be bringing forward a scheme that provides appropriate levels of parking with details to be set out within subsequent reserved matters applications. It is envisaged that a controlled parking zone will be required to support on-site parking provision associated with the development and to ensure that there is no overspill on-street parking from the nearby Oxford Parkway Station / Park and Ride site.
 - Cycle parking that has regard to OXCC’s best practice requirements and guidance;

- At the time of a reserve matter application Bellway will agree the level of car and motorcycle parking provided across the site with OXCC, having due regard to OXCC’s parking standards;
 - An effective network of EV charging and access to an electric car club;
 - Appropriate visitor parking provision spaces that can be used flexibly during the master planning stage; and
 - Parking control measures to avoid overspill parking onto streets and design to discourage any pavement parking from occurring;
- 12 Provide effective digital connectivity to enable home working and include flexible work/office space:
- Objective met – through the Framework Travel and Innovation Plans.

14.3 Conclusions

14.3.1 In conclusion:

- Suitable and safe vehicular access is proposed from Oxford Road;
- Safe and suitable pedestrian and cycle accesses are proposed from Oxford Road, the public rights of way and from the Croudace site to the south;
- Along the Site frontage the scheme delivers OXCC’s aspirations for a cycle super highway;
- Within the Site a network of footpaths, cyclepaths and safe streets are proposed – the 20 minute neighbourhood concept is achieved;
- Off site pedestrian and cycle improvements ensure that the site is linked to Kidlington, Oxford city and other key destinations;
- Appropriate and proportional contributions will go towards walking, cycling and public transport schemes in the local area;
- The Site will benefit from good accessibility to public transport – bus (Oxford Road high frequency bus corridor) and rail (Oxford Parkway Station);
- A Framework Travel Plan has also been prepared. A Mobility Hub is proposed within the site;

- The proposals therefore ensure that there are good opportunities to promote sustainable transport modes;
- The impact from the development on the operation of the transport network (in terms of capacity and congestion and on highway safety) is not significant;
- The residual cumulative impacts on the road network are not severe; and
- The main transport / connectivity objectives are met thus the development contributes to OXCC achieving its Local Transport Connectivity Plan.

14.3.2 The proposals therefore meet the transport requirements of the Cherwell Local Plan 2011-2031 including Partial Review, Oxfordshire's Local Transport and Connectivity Plan and the National Planning Policy Framework.

