A40 Smart Corridor Scheme

Transport Assessment

Oxfordshire County Council

November 2021

Delivering a better world

Quality information

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1 Introduction

1.1 Description of Scheme

1.1.1 This Transport Assessment (TA) has been prepared on behalf of Oxfordshire County Council (OCC) as part of the planning application for the 'A40 Smart Corridor Scheme', also referred to as 'the Scheme' within this TA. The Scheme comprises a mix of walking, cycling, public transport and highway infrastructure improvements along the A40 between Hill Farm and Duke's Cut.

1.1.2 The planning application seeks full planning permission for:

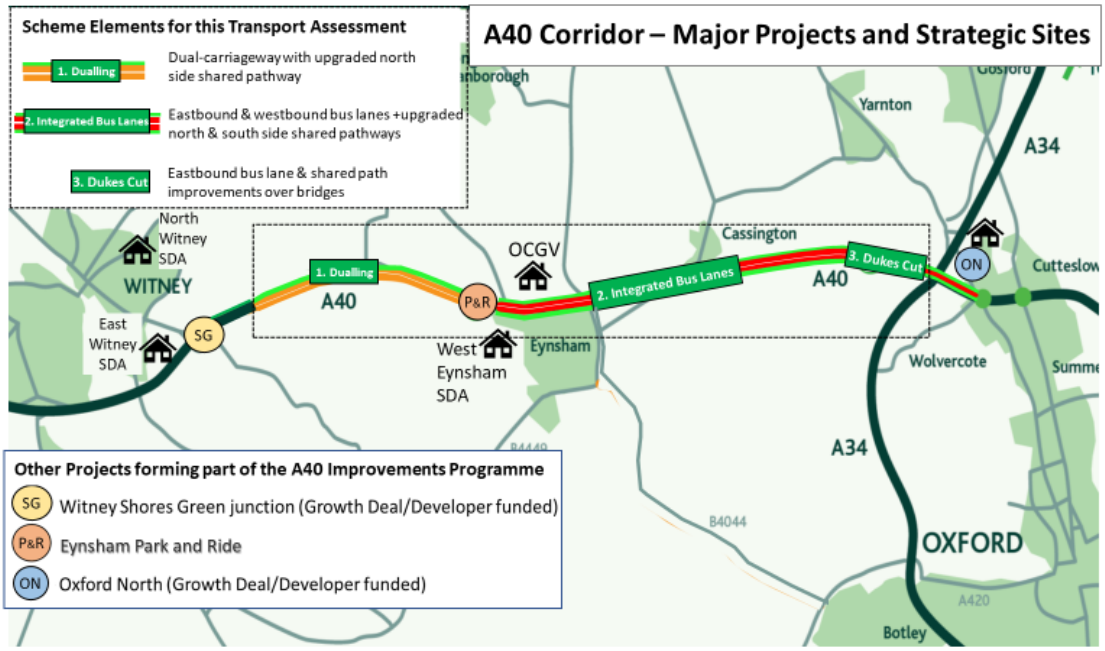
- *The dualling of approximately 3.2km of the A40 carriageway from the existing Hill Farm junction at Witney to the Eynsham Park and Ride site (R3.0057/19) including the construction of two new roundabouts;*
- *An eastbound and westbound bus lane approximately 6.5km in length from the Eynsham Park and Ride site to existing structures at Duke's Cut waterway (Duke's Cut Canal Bridge, Earl's Culvert, Wolvercote Railway Bridge and Wolvercote Canal Bridge);*
- *Capacity and connectivity improvements over the existing structures at Duke's Cut waterway to enable the proposed eastbound bus lane to extend over existing structures into the A34 flyover in the east, forming a connection into Oxford North (Northern Gateway) strategic development site;*
- *Construction of a new signalised junction to the Eynsham Park and Ride site;*
- *New pedestrian/cyclist underpass at Cuckoo Lane ('the Eynsham Underpass'). Two new pedestrian/cycle bridges at Cassington Halt (Cassington Halt Footbridge North and Cassington Halt Footbridge South);*
- *Widening of Cassington New Bridge;*
- *Demolition and replacement/extension of existing White House Culvert;*
- *Demolition and replacement/extension of Barnard Gate New Culvert;*
- *New and improved shared use pathways including new shared use links to National Cycle Network (NCN) Route 5 at Duke's Cut waterway;*
- *Alterations to existing junctions and property accesses along the A40;*
- *Controlled crossings, external lighting, noise barriers, sustainable drainage systems, landscaping, habitat creation including ecology ponds and associated hibernacula; and*
- *All associated engineering and temporary construction works, site compound and storage areas*.

1.2 Overview of the Scheme

1.2.1 The Scheme is made up of three key elements which are the focus of this TA:

- **Element 1**: dualling of an approximately 3.2km long section of the A40 between Hill Farm Junction at Witney and the proposed Park and Ride at Eynsham, with associated junctions and property accesses, as well as an upgrade to the shared path on the northern verge of the carriageway (also referred to as 'the A40 Dualling');.
- **Element 2**: installation of an approximately 6.5km long section of joint eastbound and westbound bus lane between the proposed Park and Ride at Eynsham and Duke's Cut with associated junction alterations and improvements, as well as improvements to the shared paths alongside the carriageway (also referred to as 'the A40 Integrated Bus Lanes' (IBL)); and
- **Element 3**: capacity and connectivity improvements over the four structures at Duke's Cut (Earl's Culvert, Duke's Cut Canal Bridge, Wolvercote Canal Bridge and Wolvercote Railway Bridge) to enable the bus lane(s) to be extended over the bridges, as well as a shared path link to the National Cycle Network (NCN) 5 at Duke's Cut Cottages (also referred to as 'the A40 Duke's Cut').

Figure 1-1: A40 Corridor Improvements



1.2.2 This TA assesses the components in aggregate, although qualitative descriptions of the impacts of each individual element are also included as far as is reasonably practical.

1.2.3 Funding for Element 1, Element 3 and components of Element 2[1] has been secured from Homes England's Housing Infrastructure Fund (HIF). The aim of HIF is to enable the forward delivery of the key infrastructure required to bring forward the early provision of new homes. The Scheme will specifically facilitate the delivery of four 'HIF-dependent' housing sites providing an additional 4,813 new homes in West Oxfordshire. These are all allocated sites in the adopted West Oxfordshire Local Plan (2018-31) and include:

- **Salt Cross Garden Village** - identified as a 'Strategic Location for Growth' comprising 2,200 homes and 40 hectares of employment land.
- **West Eynsham Strategic Development Area (SDA)** providing1,000 new homes of which 763 are dependent on the Scheme.
- **East Witney SDA** delivering 450 homes.
- **North Witney SDA** delivering 1,400 homes.

1.2.4 Further detail about these dependent housing sites is provided in Section 5.1.

1.3 The A40 Improvements Programme

1.3.1 The Scheme forms a part of OCC's wider **A40 Improvements Programme** which includes the following three additional elements:

- **Eynsham Park & Ride** (Planning Application Reference R3.0057/19), a new 850-space Park and Ride (P&R) located on the A40 at Eynsham. Planning permission was granted for the P&R in March 2021 with construction due to commence in Summer 2022 and with anticipated opening in late 2024. The planning application also included the eastbound bus lanes between the P&R and Duke's Cut, and sections of westbound bus lane and walk/cycle routes, which are now incorporated into Element 2 of the Scheme. The reason for their inclusion in the P&R planning application was that these elements in conjunction with the P&R, had secured Local Growth Fund (LGF) funding from the Department for Transport (DfT) as a package of improvements prior to OCC securing HIF funding for the additional infrastructure measures along the A40. The eastbound bus lanes, westbound bus priority measures, improved cycle lanes and the P&R access junction approved as

[1] Homes England Infrastructure Fund incorporates the residual elements of the westbound bus lane that the ST2 scheme does not include along with junction improvements through the section and the improvements to shared pathway on the north and south side of the A40. The Integrated Bus Lanes Scheme incorporates already funded and approved A40 bus lane elements of the ST2 Scheme which secured planning permission in R3.0057/19.

part of the March 2021 planning application will therefore be superseded by the planning application for the Scheme which incorporates the HIF Elements.

- **A40 Oxford North improvements** comprising completion of the eastbound bus lanes between Duke's Cut and Wolvercote Roundabout and walking and cycling improvements. This is a committed scheme with funding secure from developers of Oxford North and Oxfordshire Growth Deal funding.
- **Access to Witney West Facing Slip Roads at Shores Green** (the A40/B4022 intersection). A planning application is due to be submitted in Autumn 2021 with funding secured for the scheme from developers of the East Witney Strategic Development Area allocated Local Plan site, and Oxfordshire Growth Deal funding.

1.3.2 Whilst the three aforementioned elements of the A40 Improvements Programme are not included within the planning application for the Scheme or assessed within this TA, for the purpose of this TA and the supporting transport modelling it has been assumed that they will be delivered by 2024/25. Further detail about these elements is provided in Section 6.

1.3.3 The components of the A40 Improvements Programme are shown in **Error! Reference source not found.** above. The extent of the A40 Smart Corridor Scheme that is the subject of this planning application is highlighted.

1.4 Objectives of the Scheme

1.4.1 The key objectives of the Scheme are to:

- Support major new housing and employment site allocations in the West Oxfordshire Local Plan and unlock growth in line with Housing Infrastructure Fund (HIF) through the provision of enhanced active travel and bus travel facilities;
- Provide greater travel choice for people walking, cycling and travelling by public transport along the A40 corridor to encourage greater use of sustainable transport options;
- Improve public transport accessibility and connectivity to employment sites, services and other facilities;
- Facilitate faster and more reliable journeys for people travelling by bus along the A40.
- Ensure that the Proposed Development does not increase journey times for private vehicles (i.e. non-bus users) using the A40;
- Reduce carbon emissions and other harmful pollutants associated with travel; and
- To facilitate safer travel for all A40 users.

1.4.2 Detailed quantification of the Scheme impacts is provided in Section 8.

1.5 Planning Approach and Scope of this TA

1.5.1 This TA is a supporting document for the full planning application being submitted for the Scheme, which also includes an Environmental Statement (ES) amongst other documents. The application constitutes a 'Regulation 3' planning application meaning that OCC will be both the Applicant and Determining Authority; OCC is required to determine some of its own planning applications by virtue of the Town and Country Planning General Regulations 1992. Regulation 3 enables OCC to make planning applications itself as long as the development is to be carried out by (or on behalf of) the Council and the interest on the development by the Council is significant. The development may be on land within or not within the Council's ownership.

1.5.2 The 'National Planning Policy Framework' (NPPF) states that development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe. NPPF goes on to say that all developments that will generate significant amounts of movement should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.

1.5.3 The A40 Smart Corridor Scheme is not a 'development' in its own right but is instead an infrastructure scheme that will support movement and connectivity associated with new and existing development sites. It is nonetheless important to set out the impacts of the Scheme as per this TA, so that

starts with a base assumption that all of the Local Plan development sites will be delivered by 2031 and considers the cumulative impacts with and without the A40 Smart Corridor Scheme in place. The TA does not however seek to assess the impacts of individual development sites as these will be considered when applications for those sites come forward, with planning applications determined by West Oxfordshire District Council. Further detail regarding the TA approach is provided in Section 3.

1.5.4 OCC has also been mindful that additional development-related infrastructure will be required to bring forward the allocated sites, including provision of access into the sites for pedestrians, cyclists and vehicles directly from the A40. This planning application therefore considers how this infrastructure could be integrated with the Scheme, both in terms of design and construction as it is acknowledged that integration would bring efficiencies and minimise disruption along the A40. Specifically, the additional development-related infrastructure considered includes:

- **A roundabout west of the proposed P&R (WRAB)** providing the key point of access for Salt Cross Garden Village to the north of the A40, and a potential secondary access point to a limited number of dwellings to West Eynsham SDA to the south of the A40. Within the TA modelling, this has however been modelled as a 3-arm roundabout providing access to Salt Cross, with all West Eynsham SDA traffic accessing the development via the P&R junction. It is considered that this represents a worse-case scenario.
- An **additional southern arm to the new P&R signalised junction**, providing the main point of access to West Eynsham SDA.
- A **grade-separated crossing (underpass)** of the A40 between Old Witney Road and Cuckoo Lane. A signalised pedestrian crossing near the location of the underpass will be provided in the event that the underpass is not delivered. For modelling purposes, the underpass is assumed to be in place.

1.5.5 Delivery of the above elements as an integrated scheme with the A40 improvements construction works, is however dependent on forward funding being secured. Therefore, the planning application considers a situation with and without these infrastructure items included.

1.6 Report Structure

1.6.1 Following this introduction, the report is set out as follows:

- **Section 2: Policy Context** – A review of the relevant national, regional and local policy documents and guidance notes. Summary of the key local development proposals which are considered pertinent to this application.
- **Section 3: Approach to Transport Assessment**
- **Section 4: Baseline Conditions** – This provides an overview of the accessibility of the site by all modes of transport (walking, cycling, public transport and vehicular) and current network conditions. Reference is made to the existing WCHAR report and Collision Report for the scheme.
- **Section 5: Changes to Future Baseline** – This provides a review of changes to infrastructure and bus services along the A40 corridor that are being delivered as part of other schemes and have been taken into consideration in this assessment.
- **Section 6: A40 Smart Corridor Proposals** – This sets out details of the A40 Smart Corridor proposals. This includes information on the design evolution and how it addresses issues which have been identified through the design and stakeholder consultation processes.
- **Section 7: Impact Assessment Methodology** – This section sets out the methodology used to assess the impact of the proposed Scheme.
- **Section 8: Scheme Impacts** – Presentation of the impact of the Scheme on pedestrians, cyclists, public transport and the highway network.
- **Section 9: Construction Phase Impacts** – This section summarises the proposed phasing of the construction, potential impacts and a draft Construction Logistics Plan.
- **Section 10: Summary and Conclusions** – A broad summary of the results, and reference to key Local Plan and Local Transport Plan policies.

2 Policy Context

2.1 Introduction

2.1.1 There are a number of pertinent national, regional/county and local policy documents that demonstrate support for delivery of transport infrastructure along the West Oxfordshire A40 Corridor. The relevant policy documents in relation to transport and planning for the Scheme are summarised in Table 2-1 below, with a more thorough discussion following.

Table 2-1: Relevant National, Regional and Local Policy

Scheme Objectives	National	Regional	Local
Transport Policy/ Strategy	• Future of Mobility: Urban Strategy: Moving Britain Ahead (DfT, March 2019) • Transport Investment Strategy: Moving Britain Ahead (DfT, July 2017) • Inclusive Transport Strategy: Achieving equal access for disabled people (DfT, July 2018) • Cycling and Walking Investment Strategy (DfT, 2017) • Gear Change: A Bold Vision for Cycling and Walking (DfT, 2020) • Bus Back Better – National Bus Strategy for England (DfT, 2021) • Road Investment Strategy 2: 2020-2025 (DfT, March 2020)	• 'Connecting People, Transforming Journeys', England's Economic Heartland (EEH, Feb 2021) • Local Transport Plan 4 2015-2031 (OCC, 2016) – A40 Bus Corridor Strategy – Bus and Rapid Transit Strategy – Active & Healthy Travel Strategy – Oxford Transport Strategy • Local Transport & Connectivity Plan (OCC, emerging) • Oxfordshire Walking Design Standards (OCC, 2017) • Oxfordshire Cycling Design Standards (OCC, 2017) • Transport for New Developments: Transport Assessments and Travel Plans (OCC, 2014)	
Planning Policy/ Strategy	• National Planning Policy Framework (MHCLG, 2021) • Planning Policy Guidance: Travel Plans, Transport Assessments and Statements (MHCLG, 2014) • Planning for the Future – White Paper (MHCLG, 2020) • Fixing our Broken Housing Market (2017)	• Oxfordshire Plan 2050 (OCC, emerging)	• West Oxfordshire Local Plan 2031 (West Oxfordshire District Council 2018) • Eynsham Neighbourhood Plan 2031 (Eynsham Parish Council, 2020) • Oxford Local Plan (Oxford City Council, 2020) • Climate Emergency (Oxford City Council, 2019) • West Oxfordshire District Council Infrastructure Delivery Plan (WODC, 2016) • Eynsham Area Infrastructure Delivery Plan Updated Draft Report (WODC, July 2020) • Salt Cross Garden Village Area Action Plan Pre-Submission Draft (WODC, 2020)
Environment/ Sustainable Development Policy/ Strategy	• Decarbonising Transport: A Better, Greener Britain (DfT, 2021) • A Green Future: Our 25 Year Plan to Improve the Environment (HM Government, 2018) • Clean Air Strategy (DEFRA, 2019)	• Oxfordshire Infrastructure Strategy (OCC, 2017) • Strategic Economic Plan for Oxfordshire (OCC, 2016) • Climate Action Framework (OCC, 2020) • Strategic Vision for Long term Sustainable Development	
Other Policy/ Strategy		• Oxfordshire Local Industrial Strategy (OxLEP, 2019) • Investment Plan: Oxfordshire Local Industrial Strategy (OxLEP, 2020)	

Scheme Objectives	National	Regional	Local
Transport Guidance	• Design Manual for Roads and Bridges (2020) • Cycle Infrastructure Design: Local Transport Note 1/20 (DfT, 2020) • Uncertainty Toolkit: TAG Supplementary Guidance (DfT, 2021)		• West Eynsham Strategic Development Area Access Strategy (WYG on behalf of OCC/WODC, 2020)

2.2 National Policy

2.2.1 Table 2-2 provides an overview of how the Scheme specifically supports national policy.

Table 2-2: National Policy

Summary and selected references	How the Scheme supports policy/guidance
TRANSPORT POLICY / STRATEGY	
Future of Mobility: Urban Strategy – Moving Britain Ahead (2019)	
In March 2019, the DfT published the Future of Mobility: Urban Strategy. Recognising the potential of transport in delivering high quality jobs, increased productivity and new trade deals, the Future of Mobility sits at the centre of the Industrial Strategy. The Strategy sets out the approach Government will take to seize the opportunities from the changes happening in urban transport. In facilitating innovation in urban mobility for freight, passengers and services, the Government's approach will be underpinned (as far as possible) by nine principles including. • New modes of transport and new mobility services must be safe and secure by design. • Walking, cycling and active travel must remain the best options for short urban journeys. • Mass transit must remain fundamental to an efficient transport system. • New mobility services must lead the transition to zero emissions. • Mobility innovation must help to reduce congestion through more efficient use of limited road space, for example through sharing rides, increasing occupancy or consolidating freight. • New mobility services must be designed to operate as part of an integrated transport system combining public, private and multiple modes for transport users.	The Scheme supports several of these principles, particularly regarding mass transit remaining fundamental to an efficient transport system.
Transport Investment Strategy: Moving Britain Ahead (2017)	
The Transport Investment Strategy sets out the DfT's priorities and approach for future transport investment decisions. The strategy is a vital part of the Government's industrial strategy and plan for Britain, and it builds on the progress made in recent years to upgrade the national road and rail network.	The Scheme supports the Investment Strategy's objectives including to: • Create a more reliable, less congested, and better-connected transport network that works for the users who rely on it; and • Support the creation of new housing
Inclusive Transport Strategy: Achieving equal access for disabled people (2018)	
The Inclusive Transport Strategy sets out Government's actions for achieving equal access to transport for disabled people, including a clear programme of monitoring and evaluation and a new governance framework for accountability. Whilst it is focused on the inclusion of disabled	The A40 Scheme has been designed to ensure am accessible and inclusive network for all users.

Summary and selected references	How the Scheme supports policy/guidance
people, many of the improvements will also benefit other travellers. The Government's vision for inclusion transport is for disabled people to have the same access to transport as everyone else, travelling confidently, easily and without extra cost.	
Cycling and Walking Investment Strategy (2017)	
The DfT published the Cycling and Walking Investment Strategy in 2017, which outlines Government's ambition to make cycling and walking a natural choice for shorter journeys, or as part of longer journeys by 2040. It sets out a long-term ambition to deliver better safety, better mobility and better streets by 2040.	The Scheme supports the Strategy by investment in both cycle and walking infrastructure.
Gear Change: A Bold Vision for Cycling and Walking (2020)	
This plan describes the vision for England to increase walking and cycling across the country. It sets out the actions required at all levels of government to make this a reality, grouped under four themes: • Better streets for cycling and people. • Putting cycling and walking at the heart of transport, place-making, and health policy. • Empowering and encouraging local authorities. • Enabling people to cycle and protecting them when they do.	The Scheme directly supports the Government's vision to prioritise and increase walking and cycling.
Bus Back Better – National Bus Strategy for England, Department for Transport (2020)	
The national 'Bus Back Better' strategy sets out the vision and opportunity to deliver better bus services for passengers across England, through ambitious and far-reaching reform of how services are planned and delivered. The strategy aims to deliver more frequent, cheaper, faster and more reliable services, with a more comprehensive network that is easier to understand and has better integration with other modes, using buses that are easier to use, better to ride in, greener, accessible, inclusive by design, innovative and safe.	The Scheme will support realisation of key elements of the bus strategy by providing infrastructure that will enable improved bus provision along the A40 corridor, which in turn will: • connect more areas; • with greater frequency; • with faster and more reliable journey times; • using higher quality vehicles; and • offering better integration of trips.
PLANNING POLICY / STRATEGY	
National Planning Policy Framework	
The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England, providing a framework within which local people and councils can encourage development which reflects the needs and priorities of their communities. A key principle of the NPPF is the presumption in favour of sustainable development that contributes to the economic, social, and environmental aspects of a community. The use of sustainable transport modes for the movement of goods and people is widely encouraged.	The Scheme will deliver sustainable transport infrastructure to support sustainable development.
Paragraph 106 states that planning policies should 'be prepared with the active involvement of local highways authorities, other transport infrastructure providers and operators and neighbouring councils, so that strategies and investments for supporting sustainable transport and development patterns are aligned'.	The Scheme has been developed with extensive involvement of stakeholders including OCC, WODC and others, to ensure the A40 proposals are future-proofed and integrated with development-related infrastructure along the Corridor in terms of design and if possible, delivery.

Summary and selected references	How the Scheme supports policy/guidance
	The planning application for the Scheme considers construction of the Western Roundabout (WRAB) and underpass at the same time as the Scheme. It also considers their delivery AFTER Scheme construction, appreciating that integrated delivery is dependent on funding (still being pursued) for the WRAB and underpass coming forwards early.
Policies on assessing the transport impact of development proposals are identified in paragraphs 110 to 112. These refer to highway safety as well as capacity and congestion, and make clear that pedestrian and cycle movements should be prioritised, followed by access to high quality public transport.	The Scheme provides walking, cycling and public transport infrastructure improvements. The dualling, whilst a highway scheme, also providing capacity improvements for public transport and facilitates access to Eynsham P&R.
Paragraph 113 states that a development that generates a significant amount of movement should be supported by a Transport Statement or Transport Assessment.	This TA has been prepared to accompany the planning application, in line with NPPF.
Planning Practice Guidance: Travel Plans, Transport Assessments and Statements (2014)	
The Department for Communities and Local Government (DCLG) launched a website containing national planning practice guidance. The website provides guidance on a range of planning topics such as design, Local Plans, Neighbourhood Plans and Travel Plans / Transport Assessment, and outlines key issues to be considered and information to be provided in the TA.	PPG advice is focussed on development sites rather than infrastructure schemes, but this TA includes reference to all pertinent issues and information in line with the PPG including: • Existing transport provision. • A qualitative and quantitative description of the Scheme. • An assessment of trips from all directly relevant committed development (the Scheme assessment includes all Local Plan development although constrained to NTEM). • Data about current traffic flows on links and at junctions (all modes). • An analysis of injury accidents. The likely associated environmental impacts of transport related to the development, particularly in relation to proximity to environmentally sensitive areas (such as air quality management areas and noise sensitive areas), including the Oxford Meadows Special Area of Conservation (SAC), is assessed in the Environmental Statement.
Planning for the Future	
Planning for the future is a policy paper that outlines the Government's plans for housing and planning following the announcements in the 2020 Budget, including the delivery of an ambitious Planning White Paper to modernise the planning system. The document reinforces the Government's commitment to deliver infrastructure for housing, outlining an additional investment of £1.1 billion in local infrastructure to unlock new homes, and a new £10 billion Single Housing Infrastructure Fund.	The Scheme is funded through the Housing Infrastructure Fund.
Fixing our Broken Housing Market (2017)	
Published in 2017, this document sets out the Government's plans to reform the housing market and boost the supply of new homes in England. The proposals are intended to create a more efficient housing market whose outcomes more closely match the needs and aspirations of all households and which supports wider economic prosperity. A key proposal from this document was "*ensuring infrastructure is provided in the right place at the right time by coordinating Government investment*" through an initial targeting of £2.3 billion through the Housing Infrastructure Fund (HIF).	As of November 2020, nearly £4 billion had been allocated from this fund to local authorities for infrastructure to unlock housing, including to Oxfordshire County Council for the Scheme

Summary and selected references	How the Scheme supports policy/guidance
ENVIRONMENT/SUSTAINABLE DEVELOPMENT POLICY/STRATEGY	
Decarbonising Transport: A Better, Greener Britain (2021)	
This plan sets out the government's commitments and the actions needed to decarbonise the entire transport system in the UK. It sets out the: • Government's pathway to net zero transport in the UK; • Wider benefits net zero transport can deliver; and • The principles that underpin the government's approach to delivering net zero transport. The plan follows on from 'Decarbonising transport: setting the challenge' published in March 2020 which laid out the scale of additional reductions needed to deliver transport's contribution to legally binding carbon budgets and delivering net zero by 2050.	The Scheme will encourage modal shift to public transport and active travel and reduce reliance on private cars. Specifically, commitments within the Decarbonising Transport Strategy that are supported by the Scheme include: • The aim that half of all journeys in towns and cities will be cycled or walked by 2030. • A world class cycling and walking network by 2040. • The National Bus Strategy Vision.
A Green Future: Our 25 Year Plan to Improve the Environment (2018)	
The Government's 25 Year Environment Plan sets out actions to "*help the natural world regain and retain good health… within a generation*." The Plan identifies ten 25-year goals, and a series of actions that Government will take to ensure achievement of those goals.	The most relevant aspects of the plan in the context of the Scheme are the goals and actions which relate to clean air.
Clean Air Strategy (2019)	
The Clean Air Strategy outlines how the Government will tackle all sources of air pollution, making air healthier to breathe, protecting nature and boosting the economy. The strategy highlights that transport is a significant source of emissions of air pollution and reinforced the Government's commitment to cutting air pollution from all forms of transport.	The sustainable transport focus of the Scheme supports the Clean Air Strategy.

2.3 Regional/ County Policy

2.3.1 Table 2-3 provides an overview of how the Scheme specifically supports regional/ county policy.

Table 2-3: Regional/ County Policy

Summary and selected references	How the Scheme supports policy/guidance
TRANSPORT POLICY / STRATEGY	
'Connecting People, Transforming Journeys' (submitted to Secretary of State in Feb 2021)	
Connecting People, Transforming Journeys sets out England's Economic Heartland (EEH's) strategy for achieving a net zero carbon transport system by 2040. The strategy includes a five-point plan of action including decarbonisation of the transport system, promoting and investing in active travel and shared transport solutions, and improving emissions from freight and logistics. **Policy 4** of the strategy states that proposals brought forward for the development of the transport system should reduce reliance on car modes and prioritise active travel modes, and that all future proposals will be considered based on their contribution towards achieving net zero carbon targets.	The Scheme supports the objectives of the EEH Strategy through improvements to infrastructure to support and prioritise sustainable transport rather than simply increasing highway capacity for private vehicles.

Summary and selected references	How the Scheme supports policy/guidance
Policy 24 of the strategy supports investment in the Strategy Road Network and Major Road network only when it enables delivery of sustainable transport linkages such as public transport or active travel improvements.	
Local Transport Plan 4 2015-2031 (2016) (LTP4)	
LTP4 outlines the policy and strategy for developing the transport network in Oxfordshire up until 2031. LTP4 was adopted in September 2015 following public consultation and was updated in 2016, with emphasis on improving air quality and making better provision for walking and cycling. Included as part of LTP4 are several strategy documents including the A40 Corridor Strategy, Bus and Rapid Transport Strategy, Active & Healthy Travel Strategy and Oxford Transport Strategy. The LTP4 has identified three overarching Goals:	
Goal 1: Support jobs and housing growth and economic vitality.	The Scheme supports the following LTP4 objectives identified for Goal 1: • Maintain and improve transport connections to support economic growth. • Increase journey time reliability and minimise end-to-end public transport journey times on main routes. • Develop a high-quality integrated transport system
Goal 2: Reduce emissions, enhance air quality and support transition to a low carbon economy.	The Scheme supports the following LTP4 objectives identified for Goal 2: • Make public transport, walking and cycling more attractive. • Maximise the use of existing and planned sustainable transport investments through influencing the location and layout of developments. • Reduce carbon emissions from transport in line with the UK government targets.
Goal 3: Protect, and where possible enhance Oxfordshire's environment and improve the quality of life, including public health, air quality, safety and individual wellbeing.	• Mitigate and where possible enhance the impacts of transport. • Encourage increased levels of walking and cycling to improve public health, reduce transport emissions, reduce casualties and enable inclusive access to jobs, education, training and services.
LTP4 also identifies several key policies that are particularly relevant to the Scheme including: **Policy 01**: Ensure the transport network supports sustainable economic and housing growth, while protecting and where possible enhancing the environment and supporting health and wellbeing of residents.	The Scheme is providing public transport and active mode infrastructure that will help to facilitate delivery of 4,813 homes in West Oxfordshire.
Policy 02: Manage and where appropriate develop the road network to reduce congestion and minimise disruption and delays.	The Scheme will encourage a shift from use of the private car to public transport, walking and cycling.
Policy 03: Support measures and innovation that makes more efficient use of the transport network capacity by reducing the proportion of single occupancy car journeys and encouraging walking, cycling and public transport.	As above.
Policy 07: Work with operators and partners to enhance the network of high quality, integrated public transport services, interchanges and supporting infrastructure.	The Scheme and wider A40 Improvements Programme has been developed with close liaison between OCC and bus operators and other stakeholders.

Summary and selected references	How the Scheme supports policy/guidance
Policy 17: Seek that the location of developments make the best use of existing and planned infrastructure and provides new or improved infrastructure and supports walking, cycling and public transport.	The Scheme directly supports new housing and employment sites in West Oxfordshire, with the Scheme integrated with proposals for Salt Cross and West Eynsham SDA to deliver walking, cycling and public transport opportunities.
Policy 24: Seek to avoid negative environmental impacts of transport and where possible provide environmental improvements.	The Scheme components comprise improvements for sustainable transport in preference to providing additional capacity for private car users.
Policy 28: Consult from an early stage in the development of schemes.	Development of the A40 Improvements Programme has included extensive consultation including: • 2015: Public consultation on Scheme Options • June 2021: Public consultation on the emerging Scheme.
Policy 33: Seek external funding to support the delivery of transport infrastructure priorities as outlined in the Strategic Economic Plan and Oxfordshire Infrastructure Strategy.	The Scheme is funded by two Central Government funding programmes; HIF and LGF. External funding opportunities continue to be explored by OCC.
LTP4 highlights that as part of the Oxfordshire Cycle Premium Route network, the cycle route between Witney and Oxford will be retained.	The Scheme supports this policy directly by improving rather than simply 'retaining' the Witney-Oxford cycle route.
The A40 Corridor Strategy (component of LTP4)	
The A40 Corridor Strategy identifies a series of improvements to the A40 including the new Park & Ride (P&R) site at Eynsham; eastbound and westbound bus lanes from the P&R; junction improvements; extension of the A40 dual carriageway from Witney to Eynsham P&R; and the provision of high-quality cycleways along the length of the route.	The A40 Strategy within LTP4 sets out the Policy requirement and justification for the Scheme.
The Bus and Rapid Transit Strategy (component of LTP4)	
The Bus and Rapid Transit (RT) Strategy sets out the key aims for bus and RT in Oxfordshire which include to: • Integrate bus network with accessible, high quality infrastructure; • Tackle congestion and delays; • Develop a mass rapid transit system and routes between Oxford and proposed Park & Ride (P&R) sites; • Develop or upgrade of new high quality premium urban and inter urban services; • Enable good onward access on foot to major destinations; and • Integrate with Science Transit.	The Scheme directly aligns with OCC's Bus Strategy, providing much-needed infrastructure to support faster, more frequent and reliable services along the A40 Corridor directly to a range of destinations within Oxford.
Active & Healthy Travel Strategy (component of LTP4)	
The Active & Healthy Travel Strategy acknowledges that cycling alone cannot replace the car for long journeys but highlights that the combination of cycling and public transport can enable an increased number of door-to-door sustainable trips. The vision is to '*make cycling a safe, simple and accessible option for people of all ages*' by delivering six scheme design outcomes of safety; directness; comfort; coherence; attractiveness; and adaptability. Walking is also strongly supported and promoted through the Strategy. The Strategy also seeks to: '*create an environment where more Oxfordshire residents will consider Door-to-Door sustainable integrated journeys within and beyond the county, rather*	The Scheme includes improved cycling and walking routes and improves active travel connectivity to transport hubs including the Eynsham Park & Ride.

Summary and selected references	How the Scheme supports policy/guidance
than using a private vehicle for longer trips', and improve cycle facilities and cycle and pedestrian routes including at stations and main bus stops.	
Oxford Transport Strategy (OTS, 2016) (component of LTP4)	
The Oxford Transport Strategy sets out OCC's transport vision and strategy up to 2035. There are three main components to the OTS: i) mass transit; ii) walking and cycling; and iii) managing traffic and travel demand. The strategy considers that there is no single solution to tackling Oxford's long-term challenges and that all three components are needed in combination to deliver the objectives of the OTS. The OTS vision for mass transit, rail, Rapid Transit and buses and coaches is to provide 'residents and visitors with a connected, modern mass transit network which provides a cheaper, faster and more reliable travel option than the private car for the majority of journeys to and between destinations in the city'. OTS also proposed a major expansion and reconfiguration of the Park & Ride system in Oxford, to intercept more car trips earlier in their journeys and further away from the city. OCC then commissioned Atkins to prepare a P&R strategy to build on the OTS, which identified the Eynsham site on the A40 as a preferred location for a new P&R facility.	The Scheme directly supports the OTS to provide modern mass transit connections into the city, as well as active travel options.
It is proposed in the OTS to introduce a city-wide Workplace Parking Levy (WPL) to encourage employers to reduce their supply of parking spaces which could provide opportunities to redevelop land.	The Scheme will provide a realistic travel alternative to the car for trips into Oxford and for trips displaced as a result of Oxford's travel demand management proposals such as the WPL and Low Emission Zone proposals.
Local Transport & Connectivity Plan (emerging)	
OCC is currently updating LTP4; the updated 'Local Transport and Connectivity Plan' (LTCP) will better reflect the county's strategy both for digital infrastructure and for connecting the whole county. A vision document was consulted on publicly in February 2021 with consultation on the full LTCP document anticipated in Autumn 2021, prior to approval and adoption in Winter 2021/22. The Vision consultation proposed the following key themes: • **Environment**: Sustainable communities that are resilient to Climate Change, enhance the natural environment, improve biodiversity and are supported by our zero-carbon transport network. • **Health**: Improved health and wellbeing and reduced health inequalities enabled through active and healthy lifestyles and inclusive, safe and resilient communities. • **Place shaping**: Sustainable and resilient communities which provide healthy places for people and a high-quality environment capitalising upon the exceptional quality of life, vibrant economy and dynamic communities of our county. • **Productivity**: A world leading business base that is sustainable, has created new jobs, products and careers for all communities and is supported by an effective, zero-carbon transport network. • **Connectivity**: Communities are digitally connected, innovative technologies are supported and there is improved connectivity and mobility, across the county, enabling greater choice and seamless interchange between sustainable modes.	With its focus on sustainable travel modes, The Scheme aligns to the emerging Vision outcomes for all five key themes of the LTCP.

Summary and selected references	How the Scheme supports policy/guidance
Transport for New Developments: Transport Assessments and Travel Plans (March 2014)	
OCC requirements for Transport Assessments are set out in '*Transport for New Developments: Transport Assessments and Travel Plans'* (March 2014). Whilst the document is aimed at planning applications for new developments (rather than infrastructure schemes) the guidance requires consideration of the following '***assessment years'***: Existing; Year of opening; Design Year; and other sensitivity tests as required, e.g. to reflect phasing. The OCC guidance refers to the methodology set out in the DfT publication '*Guidance on Transport Assessments*' (March 2007). The latter document has now been superseded by MHCLG guidance '*Travel Plans, Transport Assessments and Statements'*. With regard to assessment years, the MHCLG guidance states that '*the timeframe that the assessment covers should be agreed with the local planning authority in consultation with the relevant transport network operators and service providers.*'	This TA considers scheme assessment years, as agreed with OCC's Transport Development Control team of: • 2020: Existing • 2024: Year of opening • 2031: Design year
PLANNING POLICY/STRATEGY	
Oxfordshire Plan 2050 (emerging)	
The emerging Oxfordshire Plan is a joint statutory spatial plan for the county which sets out a vision up until 2050, a scope which stretches far beyond any Local Plan. Although the Plan is currently being developed, a 2019 consultation document was released which shared the 10 draft objectives for discussion. Two of these related to transport: • **Draft Objective 9**: To reduce the need for travel and ensuring that active travel is convenient and attractive. To also ensure that public transport is preferred by residents to private car ownership and use. • **Draft Objective 10**: To connect less sustainable employment and development locations through improved public transport and digital networks.	The Scheme supports the emerging objectives for the Oxfordshire Plan by encouraging sustainable travel.
Oxfordshire Infrastructure Strategy (2017)	
The 2017 Oxfordshire Infrastructure Study (OxIS), identifies and prioritises infrastructure to support Local Plan housing and employment opportunities and outlines associated funding opportunities to support growth from 2016 to 2031 and beyond.	The A40 Corridor Improvements are included within OxIS.
Strategic Economic Plan for Oxfordshire 2016	
The SEP is designed to be an 'economic route map' for Oxfordshire, with a focus on the economic performance of the county. The SEP proposes four programmes for delivering their ambitions: 1. People; 2. Place; 3. Enterprise; and 4. Connectivity. Under the 'Connectivity' programme, traffic congestion (including on the A40) is identified as a threat and its impact upon bus speeds and reliability is highlighted.	The priorities within the SEP that are supported by the Scheme include: • *To overcome bottle necks on road…networks within the county both by network improvements and by getting better use out of existing road capacity through…encouraging change to more sustainable travel modes*. • *To develop a programme for strategic infrastructure improvements linking and supporting the planned growth of housing and employment.*

Summary and selected references	How the Scheme supports policy/guidance
ENVIRONMENT/SUSTAINABLE DEVELOPMENT POLICY/STRATEGY	
Climate Action Framework (2020)	
The Climate Action Framework (CAF) sets out how OCC will tackle the climate crisis through internal transformation and enabling a zero carbon Oxfordshire. The objectives set out within the Climate Action Framework support those of the Energy Strategy by aiming to make electric and active travel the new normal and to reduce emissions by 50% by 2030 and achieve zero emissions by 2050. The CAF sets out that through their local transport planning role OCC will: • Increase walking and cycling - it will be accessible and normal; • Enable safe, convenient electric public transport across and between towns; and • Increasingly deprioritise journeys by single occupancy private car; The CAF goes on to set out OCC's plans for transport and connectivity which include to: • Plan supporting a zero-carbon ambition; • Implement post-COVID schemes to support active travel; • Deliver Connecting Oxford schemes including the Zero Emissions Zone; • Develop and implement local cycling and walking infrastructure plans; • Pilot low traffic neighbourhoods; and • Support electrification of the bus fleet in Oxford.	The Scheme directly supports the CAF proposals, with the Connecting Oxford proposals supporting the transfer of journeys from private car to cycle and public transport along the A40.
Strategic Vision for Long-term Sustainable Development	
The aims of the Strategic Vision include to have transformed movement and connectivity within the County and beyond by 2050. There will be greater digital connectivity and physical mobility in and between places in ways that enhance environmental, social and economic wellbeing, with an emphasis on sustainable travel, including walking and cycling.	The Scheme aligns with the guiding principle of the vision which is to provide better access to sustainable, inclusive and resilient active and low carbon transport stimulating improvements in air quality.
OTHER POLICY/STRATEGY	
Oxfordshire Local Industrial Strategy (OxLep, July 2019) and The Investment Plan: Oxfordshire's Local Industrial Strategy (OxLep, August 2020)	
This Local Industrial Strategy sets out an ambitious plan to deliver transformative growth which is clean and sustainable and delivers prosperity for all communities across Oxfordshire. It seeks to deliver the aims of the national Industrial Strategy, government's long-term plan to boost productivity, by backing businesses and investing in skills, industries and infrastructure.	The Scheme represents one of the strategic infrastructure packages required to realise Oxfordshire LEP's industrial strategy and is included in The Investment Plan.

2.4 Local Policy

2.4.1 Table 2-4 provides an overview of how the Scheme specifically supports local policy.

Table 2-4: Local Policy

Summary and selected references	How the Scheme supports policy/guidance
PLANNING POLICY / STRATEGY	
West Oxfordshire Local Plan 2031 (Adopted September 2018)	
The Local Plan sets out how West Oxfordshire will move forward to 2031 and address issues such as housing, economic growth and climate change. Housing provision in the Local Plan includes 15,950 homes to be delivered by 2031 which comprises 13,200 to meet West Oxfordshire's own housing needs and 2,750 homes to assist with the unmet housing needs of Oxford City. The Local Plan includes reference to the A40 Corridor Improvements including Eynsham Park & Ride, east and westbound bus lanes and dualling between Witney and Eynsham, and includes a commitment for West Oxfordshire District Council to work with OCC to deliver the improvements.	The Local Plan reinforces the Policy justification for the A40 improvements, highlighting the important role that the schemes will play in supporting new housing in the District.
The housing allocations within the Local Plan include: **Policy EW1 Oxfordshire Cotswolds Garden Village (OCGV)**, a Strategic Location for Growth of approximately 2,200 houses, 40 hectares of business land and up to two primary schools, located to the north of the A40 at Eynsham. **Policy EW2 West Eynsham Strategic Development Area (SDA)** including 1,000 houses and a new primary school, located to the south of the A40. **Policy WIT1 East Witney SDA** comprising 450 homes. **Policy WIT2 North Witney SDA** comprising 1,400 homes and a new primary school.	The four allocated sites of Oxfordshire Cotswolds Garden Village (now referred to as Salt Cross Garden Village), West Eynsham, North Witney and East Witney have been considered in the modelling undertaken in the assessment of the Scheme.
The vision in the adopted West Oxfordshire Local Plan includes reducing the reliance on private vehicles by encouraging walking, cycling and the use of public transport to help alleviate traffic congestion on key routes, which will also improve air quality and journey times. The transport-related core Local Plan objectives include: **CO1**: 'Enable new development, services and facilities of an appropriate scale and type in locations which will help improve the quality of life of local communities and where the need to travel, particularly by car, can be minimised. **CO7**: To support sustainable economic growth which adds value to the local economy. **CO11**:Maximise the opportunity for walking, cycling and use of public transport. **CO15**: Contribute to reducing the causes and adverse impacts of climate change. **CO16**: Enable improvements in water and air quality.	The Scheme directly supports the Local Plan vision and supports new development as per CO1 and CO7 by facilitating walking, cycling and public transport use, which is itself in line with CO11. The increased take-up of sustainable alternatives to the car that will be facilitated by the Scheme will support climate change and air quality objectives, in line with CO15 and CO16.
The overall strategy of the Local Plan has five key strands and 'cross-cutting' policies for the District including: **Policy OS1**: Presumption in favour of sustainable development – tackling congestion on key routes including the A40 and improving air quality. **Policy OS2**: Locating development in the right places. **Policy OS5**: Supporting infrastructure – facilities and services that are needed to support future growth, including public transport.	The Scheme will directly support Local Plan allocated housing sites, ensuring sustainable transport options are available.

Summary and selected references	How the Scheme supports policy/guidance
The transport and movement related objectives stated in the Local Plan include: **Policy T1 Sustainable Transport**: priority will be given to new developments in areas with convenient access where the need to travel by private car can be minimised due to opportunities for walking, cycling and the use of public transport, where this would help to reduce traffic congestion on the routes around Oxford; **Policy T2 Highway Improvement Schemes**: identifies that new developments will be required to 'demonstrate safe access and an acceptable degree of impact on the local highway network'; and **Policy T3 Public Transport, Walking and Cycling:** identifies all new developments will be located and designed to maximise opportunities for walking, cycling and public transport and help reduce car use as appropriate. The Local Plan highlights the need to provide access to high quality public transport facilities and focus new developments in areas that have good access to sustainable modes of transport such as walking, cycling and public transport. Indeed, the Local Plan Inspector recognised the location of OCGV as "the **best location in West Oxfordshire** [for access] by means other than the private car".	The Scheme will ensure that the OCGV, West Eynsham SDA, East Witney SDA and North Witney SDA sites have excellent sustainable transport options available, directly supporting these Policy objectives.
Eynsham Neighbourhood Plan 2031 (Adopted February 2020)	
The ENP vision for transport and parking is to 'ensure that all residents have ready access to local transport networks by private car, bicycle or public transport and that excellent paths are created for pedestrians, cyclists and mobility vehicles.' It states that new developments should not exacerbate existing parking problems within the village centre. Policy ENP7 indicates that new developments should have safe access to local transport networks by private car and public transport and there should be access for motor vehicles from existing main roads (A40, B4044, B4449) and not through existing village roads, which applies to both construction and residential traffic.	The Scheme supports the vision for good access to cycling and public transport, with the Scheme also seeking to ensure no detriment for travel by private car.
Oxford Local Plan (2020)	
Oxford City Council adopted the Oxford Local Plan 2036 in June 2020. The Plan sets out a new framework underpinning all planning applications in Oxford over the next 16 years, including action to build new homes, tackle the climate emergency, create stronger communities and support Oxford's economy through new jobs. A key policy of the Plan is prioritising walking, cycling and public transport (Policy M1), noting that the Council will work with its partners to improve the ease and quality of access into and around Oxford by public transport	The Scheme supports Policy M1 by providing infrastructure required to promote walking, cycling and public transport trips into Oxford.
Climate Emergency (2019)	
In January 2019, Oxford City Council unanimously declared a climate emergency in Oxford and agreed to create a Citizens' Assembly to consider new carbon targets and additional measures to reduce emissions. In April 2019, the Council then set a vision to reduce its own emissions to net zero by 2030 at the latest – sooner than the Government's deadline of 2050. Following the Citizens' Assembly on Climate Change in September/October 2019, the Council revealed its £19 million plan in response to the recommendations, including new electric vehicle charging points, supporting electric buses and taxes and investment in cycling. A key policy of the Plan is prioritising walking, cycling and public transport (Policy M1), noting that the Council	The Scheme supports Policy M1 by providing infrastructure required to promote walking, cycling and public transport trips into Oxford.

Summary and selected references	How the Scheme supports policy/guidance
will work with its partners to improve the ease and quality of access into and around Oxford by public transport	
West Oxfordshire District Council Infrastructure Delivery Plan (2016) and Eynsham Area Infrastructure Delivery Plan Updated Draft Report (July 2020)	
The Infrastructure Delivery Plan (IDP) was produced in support of the Main Modifications to the West Oxfordshire Local Plan, identifying the infrastructure needed to support growth in West Oxfordshire until 2031. The IDP also formed part of the evidence base for the 2020 consultation on the Community Infrastructure Levy (CIL). Infrastructure refers to a broad range of services and facilities and each scheme has a 'priority' categorisation: critical, necessary and preferred. The categories used are: • **Critical**: Without the infrastructure the development cannot commence; • **Necessary:** The infrastructure is needed to support a new development, but the precise timing and phasing are less critical, and the development can commence ahead of its provision; and • **Preferred**: The infrastructure is needed to build a sustainable community, but timing and phasing are not critical over the plan period. The IDP will be regularly updated and monitored as new schemes are completed or new infrastructure requirements are identified. Indeed, as part of the evidence base for the Garden Village Examination in Public, an Eynsham Area specific IDP was produced in 2020.	The Scheme elements are all identified in Appendix I of the 2016 IDP as being **Critical**, referenced as follows: • **A40 Science Transit** (Eynsham P&R and eastbound bus lane) improvements – Phase 1 • **A40 Longer Term Strategy** - Wolvercote to Eynsham P&R westbound bus lane and dual carriageway between Witney Shores Green interchange and Eynsham P&R improvements – Phase 2 In addition, the IDP identifies the need to enhance the frequency of the S1/S2/S7 bus service between Witney, Carterton, Eynsham and Oxford; these service improvements will be directly facilitated by the Scheme.
Salt Cross Garden Village Area Action Plan Pre-Submission Draft (2020)	
The Salt Cross Area Action Plan (AAP) has been prepared to guide development of the Garden Village. The AAP was prepared following public engagement to address issues surrounding 'climate emergency, transport, biodiversity, housing affordability, infrastructure and the potential impact of development on the surrounding area'. The Examination in Public of the AAP took place during Summer 2021 with the Examination paused to enable additional information to be submitted to the Inspector. The core transport objectives include provision of an integrated, high quality and convenient public transport choices centred on the Sustainable Transport Hub, which includes the P&R, associated improvements to the A40 and enhanced train services on the North Cotswold Line.	The Scheme (and the associated Park & Ride) are identified as essential mitigation for managing the impact of Salt Cross, with the AAP highlighting the essential role that the improvements will play. Contributions will be sought towards the Scheme, and the pre-submission draft AAP (not yet adopted) includes a requirement that first occupation of Salt Cross (unless car-free) will not be permitted until completion of the A40 bus lanes. This highlights the importance of the Scheme in bringing the Salt Cross site forwards.
PLANNING GUIDANCE	
West Eynsham Strategic Development Area Access Strategy (2020)	
WODC and OCC commissioned WYG to carry out an impartial review of the access strategy options for the West Eynsham SDA. The recommended access strategy for the SDA included: • a northern junction onto the A40 being in the form of a fourth, southern arm, connecting to the proposed junction serving the Eynsham P&R site; and • an alternate layby location for the southern side of the A40.	The Scheme future-proofs provision of a southern arm into West Eynsham SDA from the Park & Ride junction (as well as a potential arm from the WRAB if required).The eastbound and westbound laybys near the Park & Ride junction have also been re-provided.

2.5 Policy Summary

2.5.1 Recent, rapid shifts in policy now place sustainable transport, and the provision of inclusive, cost efficient access within a low carbon future as pivotal and fundamental to national, regional and local objectives. Transport specific changes to policy are aimed at achieving solutions which:

- Facilitate walking, cycling and other forms of active travel as the best options for short journeys;
- Enable an increasing shift to travel by public transport;
- Ensure that limited road space is managed efficiently to support public transport and active travel through initiatives including bus priority and park-and-ride infrastructure along with comprehensive travel demand management programmes; and
- Provide safe, low emission overall outcomes.

2.5.2 These policy aims are fully aligned with, and are an endorsement of, the Scheme's focus to promote sustainable travel as the means to accommodate future access needs.

3 Approach to Transport Assessment

3.1 Objectives of Scheme Components

3.1.1 The issues and challenges that different components of the Scheme seek to address are as follows:

- **Increase capacity between Witney and Eynsham for all modes of transport including public transport** with dualling facilitating easier access to Eynsham Park & Ride for buses and private cars, and improved infrastructure provided for cycling and walking.
- **Prioritise public transport trips between Eynsham/Salt Cross and Wolvercote** by providing congestion-free routes for bus users and enabling people to switch to public transport at Eynsham Park & Ride from private cars (the Salt Cross AAP highlights that the 'Park & Ride' will be a more holistic 'Sustainable Transport Hub', for interchange between cycle, e-bike, bus and walking – rather than simply a car-based Park & Ride site).
- **Ensure that public transport services run efficiently without unnecessary delays and are able to adhere to published timetables**. Although not being delivered by the Scheme, the frequency of public transport services and the range of destinations served will also be increased to ensure public transport becomes an attractive alternative to the private car for a significant number of journeys along the A40 Corridor.
- **Ensure that cycling is a safe and attractive option for trips along the A40** between Witney and Wolvercote (and beyond). The A40 cycle route will also be integrated with the National Cycle Network Route 5 to provide even greater route choice for cyclists.
- **Ensure pedestrians and cyclists can safely cross the A40** to reduce the barrier of road for north-south routes.
- **Positively influence the character of this changing section of the A40** such that people feel a sense of arrival at Eynsham and Salt Cross.
- **Ensure that long distance freight journeys use the A40 and not other, less appropriate routes**, acknowledging that the A40 is an important inter-urban freight route.

3.1.2 The A40 Corridor Strategy Objectives form the basis for the overarching objectives against which the Scheme will be assessed. This approach is aligned to the A40 ST2 Full Business Case, which itself notes that the A40 Corridor Objectives have been modified slightly from their original formation. This was to reflect the specific objectives related to HIF dependent development and to include an additional objective around safety, as this was the only LGF specific objective that did not 'map' across to the A40 Corridor Strategy Objectives. However, in order to define the supporting assessment criteria, the Scheme Objectives have been further refined and clarified for this TA, as explained in Table 3-1.

Table 3-1: How will achievement of objectives be assessed

A40 Strategy Objectives	Objectives against which Scheme is assessed in this TA	Reason for Refinement in this TA
Support major new housing and employment sites proposed in West Oxfordshire's Local Plan and unlock growth in line with HIF	Support major new housing and employment site allocations in the West Oxfordshire Local Plan and unlock growth in line with HIF through the provision of enhanced active and bus travel facilities	Clarification that the sites are allocated within the Local Plan.
Promote economic growth in Oxfordshire and creation of new jobs		
Provide greater travel choice and encourage more use of bus, cycling and walking	Provide greater travel choice for people walking, cycling and travelling by public transport along the A40 corridor to encourage greater use of sustainable transport options.	Greater clarification to inform assessment criteria.
Improve public transport accessibility and connectivity to employment and public services	Improve public transport accessibility and connectivity to employment sites, services and other facilities	Greater clarification of 'public services' to inform assessment criteria.
Deliver faster and more reliable bus journey times	Facilitate faster and more reliable journeys for people travelling by bus along the A40. Ensure that the Scheme does not reduce journey times for private vehicles (i.e. non-bus users) using the A40.	Greater clarification to inform assessment criteria; the Scheme is not delivering the bus services themselves but the facilitating infrastructure. The Scheme aims to bring bus journey time benefits but NOT at the detriment to other A40 users. This objective has been added for the purpose of the TA to acknowledge the original A40 Corridor Strategy objectives included within LTP4 which stated that the scheme aims to: '*Improve travel times and journey reliability along the A40 corridor, particularly between Witney and Oxford*.' However, nil detriment is considered appropriate given the shifting policy focus on sustainable transport modes.
Reduce carbon emissions and other harmful pollutants associated with travel	Reduce carbon emissions and other harmful pollutants associated with travel.	Impacts on air quality are set out in the Environmental Statement which forms part of the planning application
Encourage safer travel between Witney/Carterton and Oxford	To facilitate safer travel for all A40 users.	Clarification that the Scheme aims to provide the infrastructure to enable safer travel for all users – with the Scheme also addressing trips across the A40. Supporting walking and cycling movements across the A40 is in line with national, regional and local policy.

3.1.3 The success of the Scheme in helping to achieve the stated objectives will be assessed as shown in Table 3-2 below.

Table 3-2: Assessment Criteria

A40 Strategy Objectives	Assessment Criteria
Support major new housing and employment sites proposed in West Oxfordshire's Local Plan and unlock growth in line with HIF	• Does the Scheme generate additional transport capacity to support the new housing and employment planned in West Oxfordshire?
Promote economic growth in Oxfordshire and creation of new jobs	
Provide greater travel choice and encourage more use of bus, cycling and walking	• Bus patronage data • Accessibility to bus routes • Pedestrian/cycle connectivity • Pedestrian/cycle safety
Improve public transport accessibility and connectivity to employment and public services	• Bus journey times (by corridor and Scheme sections) • Accessibility to public transport
Facilitate quicker, more efficient and reliable journeys for people travelling by bus along the A40	• Bus journey times • Bus journey time variance
Ensure that the Scheme does not increase journey times for private vehicles (i.e. non-bus users) using the A40.	• General traffic journey times • Highway network operation
Reduce carbon emissions and other harmful pollutants associated with travel	Refer to Environmental Statement for the assessment of impacts on air quality
To facilitate safer travel along and across the A40 corridor.	• Cycle/walking route improvements along and across the A40 • Ensuring safe travel by freight – reprovision of displaced laybys, and scheme design to DMRB standards
Other	• Impact on Wolvercote Roundabout and Pear Tree Interchange (the Scheme does not itself change the design of these intersections but the traffic modelling for the Scheme has included these key junctions, and a high level narrative about their operation is provided in this TA)

3.2 Scenario Planning Approach for the Future A40 corridor

3.2.1 The impact of the Scheme has been assessed by examining scenarios without and with the Scheme proposals against future conditions expected along the A40 corridor. The assessments have been carried out for the years 2024 and 2031, as agreed in pre-application discussions with OCC Transport Development Control. The former represents Scheme opening and the latter takes into consideration all residential and employment growth in WODC's Local Plan 2031.

3.2.2 The prediction of future conditions takes into consideration WODC and OCC vision and policy requirements for future travel choices as well as the growth in homes and jobs planned along the A40 corridor in the Local Plan. The traditional approach to assessing future travel demand is to review recent trends and extrapolate these to the future year, referred to as the 'Predict and Provide' approach to transport planning. This approach does not align with OCC policy to encourage mode shift away from the private car and is therefore not considered to be appropriate.

3.2.3 The intention of the Scheme is not to create additional highway capacity to accommodate the growth, but to provide the infrastructure needed to encourage a step change in the mode share of sustainable transport options for local journeys, for both existing and future residents and employees. This approach recognises that society is experiencing rapid changes in mobility and working patterns, and is consistent with national policy towards Net Zero emissions, decarbonisation of the transport sector and promoting health and wellbeing through active travel.

3.2.4 In order to capture the impact of the improved public transport, walking and cycling infrastructure, the assessment of the proposed Scheme has been based on output from the Oxfordshire Strategic Model (OSM). This is a multi-modal strategic transport model developed for Oxfordshire to support assessments for funding bids and scheme prioritisation. OSM includes a public transport model and takes into consideration mode change due to improvements in public transport infrastructure and service levels.

3.2.5 To reflect the approach to the future conditions outlined above, and having considered DfT guidance on planning for uncertainty and business case scheme assessment, OCC considered that use of OSM constrained to the National Trip End Model (NTEM) at a County level but with demand matrices updated to reflect the 2018 Local Plan growth in West Oxfordshire, was the most appropriate modelling approach to use for the purpose of this TA.

3.2.6 A corridor model (A40 Corridor Assignment Model) was cordoned from OSM and updated in more detail to provide a robust evidence base for the A40 corridor projects. Output from the cordoned model has been fed into a Vissim microsimulation model of the A40 corridor to inform the design and appraisal of the A40 Smart Corridor proposals. Further details on the modelling used in the assessment is provided in Section 7 of this report.

4 Baseline Conditions

4.1 Introduction

4.1.1 This section provides details of the existing baseline transport conditions relevant to the development proposals, including the following:

- Highway Network;
- Traffic Flow Data;
- Journey Time Data
- Active Travel (Walking, Cycling and Horse Riding);
- Public Transport; and
- Road Safety.

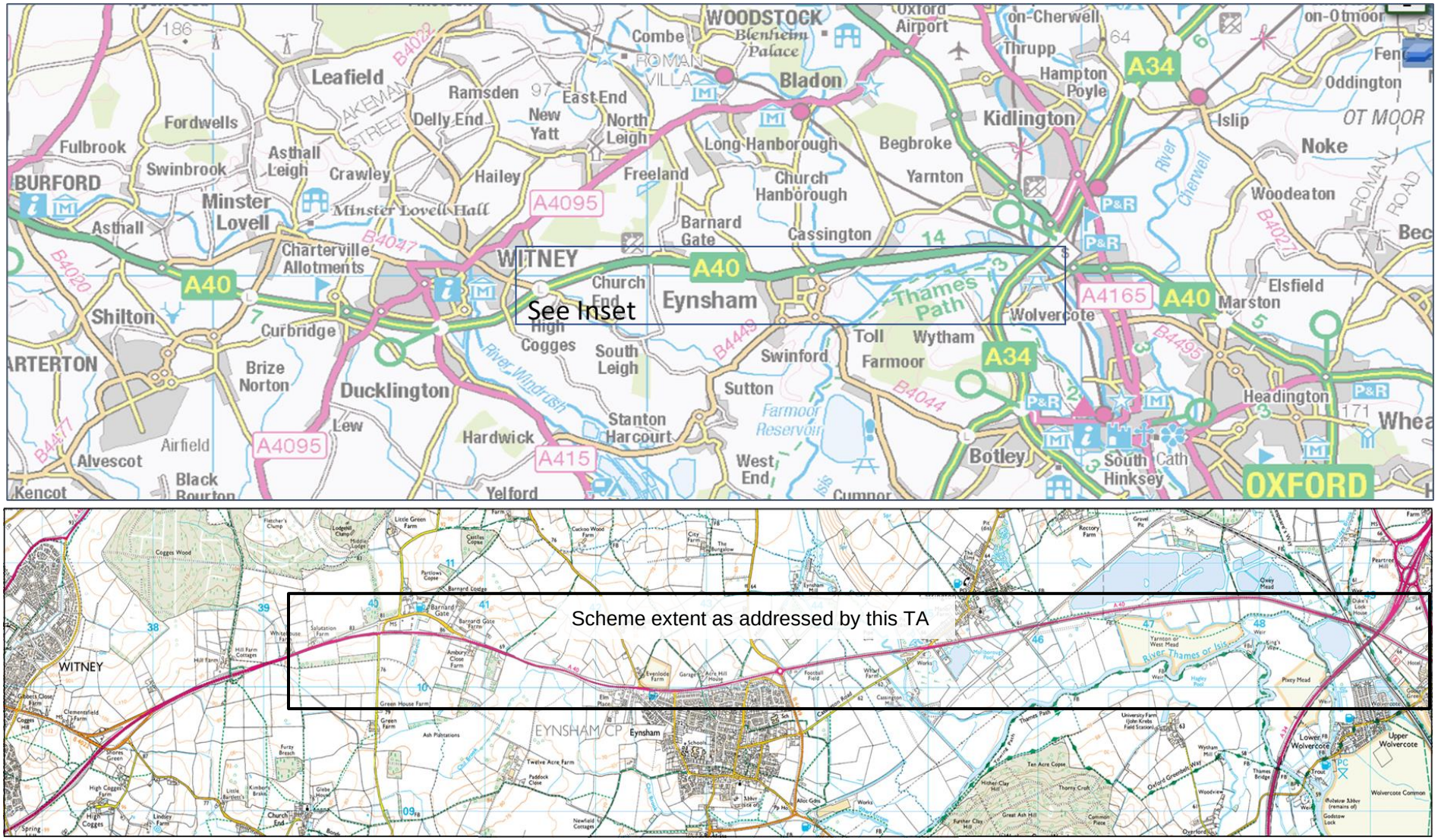
4.2 Highway Network

4.2.1 The A40 forms the major east-west route across the south of the West Oxfordshire district. It forms the primary route between Oxford and Cheltenham as well as being part of the long-distance route between London and south-west Wales. The road passes close to Witney - the district's largest settlement, Carterton (including RAF Brize Norton) and the smaller settlements of Eynsham and Burford, although it does not directly pass through any of these. The A40 is also signed as the advisory route for lorry traffic between Oxford and Evesham to encourage these vehicles to avoid the Air Quality Management Area in Chipping Norton.

4.2.2 The A40 forms the most direct transport link between Oxford and Witney although there are less direct alternatives using the A4095/A44 and B4449/B4044. The A4095/A44 also forms a shorter route between Witney and the A34 to the north of Oxford. From Carterton there is an alternative route to Oxford via Bampton (B4449/A415) to the A420. Other local routes into Oxford are available, e.g. through Cassington, Yarnton, Freeland and South Leigh.

4.2.3 The section of the A40 under consideration is shown in Figure 4-1 below.

Figure 4-1: A40 Corridor and West Oxfordshire Area



4.2.4 The A40, between Wolvercote Roundabout and Hill Farm is single carriageway and is dual carriageway to the west of Hill Farm. The A40 is subject to the national speed limit.

4.2.5 The key junctions within the Scheme extents are (from west to east):

- **A40/Barnard Gate** a priority staggered T-junction providing access to South Leigh and other villages to the south of the A40 as well as Barnard Gate to the north of the A40. There is a priority junction on the northern side of the A40 around 750m to the east which also provides access to Barnard Gate.
- **A40/Cuckoo Lane** is a priority T-junction with right-turn ghost island. Cuckoo Lane is the minor arm at this junction, providing access towards several villages located to the north of the A40.
- **A40/Witney Road** is a signalised T-junction. The A40 eastbound flares to two lanes on approach to the junction to provide dedicated ahead and right turn lanes. Vehicles are permitted to turn left from Witney Road on to the A40 westbound but may not turn right towards Oxford. Vehicles are permitted to turn into Witney Road from the A40 in either direction. Witney Road provides access to the western areas of Eynsham, with onward connections towards western and southern Oxford via B4044.
- **A40/B4449 Eynsham Roundabout** has two circulatory lanes with each approach arm flaring to two lanes on entry. The B4449 provides access to the eastern areas of Eynsham, with onward connections towards western and southern Oxford via B4044. Lower Road provides access to villages to the north of the A40 and access via the A4095 to Hanborough Railway Station.
- **Cassington Signals** is a right-left staggered signalised crossroads, in the form of A40/Eynsham Road T-junction and A40/Cassington Road T-junction respectively. The A40 widens to two lanes eastbound on approach to the A40/Cassington T-junction to provide dedicated ahead and right turn lanes (towards Cassington Road). A priority-controlled slip is provided to access Eynsham Road from the west, with dedicated ahead lane and right turn lanes at the eastbound internal stop line (to a private, signalised access road). Travelling westbound on the A40 there are dedicated ahead and right turn lanes on approach to the A40/Eynsham Road T-junction, with a single lane continuing along the A40 westbound through the junction.
- **A40/A44 Wolvercote Roundabout** is signalised roundabout experiencing high volumes of traffic due to its location at the intersection between the strategically important A40, A44 and A4144 as well as Five Mile Drive and Godstow Road.
- **A34 / A44 Pear Tree Interchange** is a grade separated roundabout with slip roads providing access onto and off the A34 which crosses over the A44. The roundabout has two circulatory lanes between the A44 east entry arm and the A34 northbound on-slip where it then widens to three lanes. The A44 entry arms widen to three lanes on approach to the roundabout. The A34 southbound off-slip widens to four lanes at the approach to the roundabout with a lane dedicated to the services and Pear Tree Park and Ride. The A34 northbound off-slip widens to two lanes at the approach to the roundabout with a segregated left-hand turning slip lane.

4.3 Traffic Flow Data

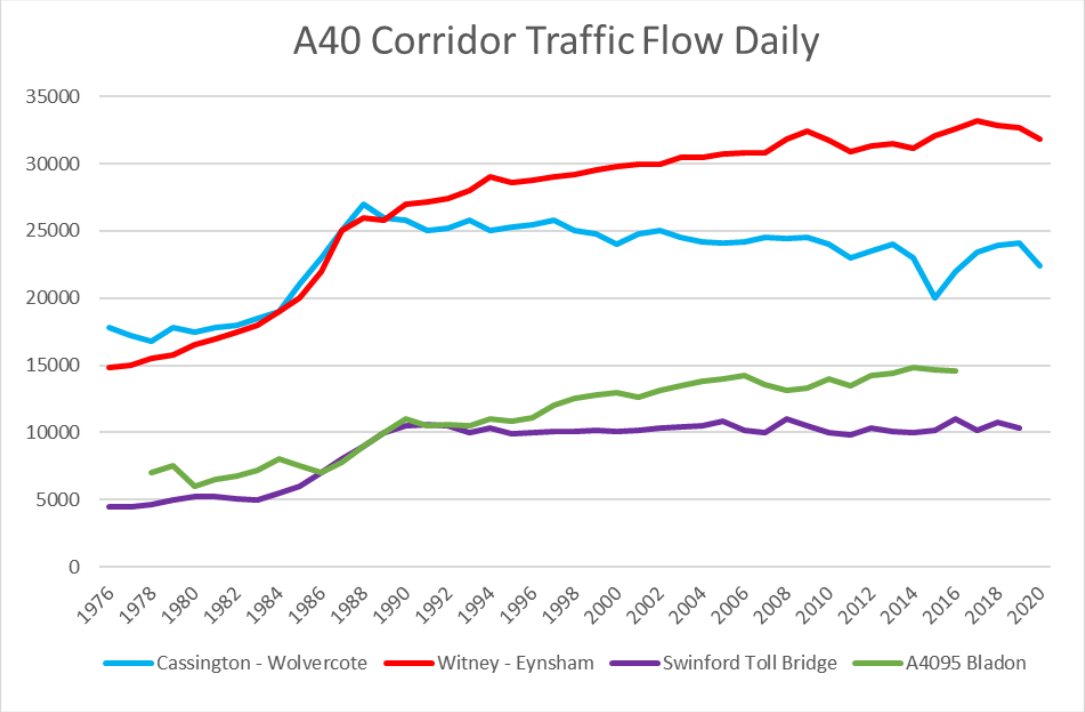
Long Term Historic Pattern of Daily Traffic Flows along the A40 Corridor

4.3.1 The A40 between Witney and Oxford is characterised by heavy traffic flows during peak periods, often extending throughout the day, and congestion along this section is a common occurrence.

4.3.2 Figure 4-2 below shows daily weekday traffic flows along the A40 and other relevant routes in West Oxfordshire between 1976 and 2019/20. Traffic flows on the A40 between Cassington and Wolvercote (blue line in the Figure) are shown to have increased rapidly through the 1980s but from around 1990 having plateaued and remained relatively constant as the road's single lane capacity was reached. Comparing this to national trends, traffic levels across the UK for all Rural A roads in aggregate have increased approximately 40% between 1995 and 2019 (ref. *A40 Baseline Report*, OCC, January 2021). Across Oxfordshire a similar pattern is seen, with road traffic increasing by approximately 28% between 1993 and 2019 (ref. *A40 Baseline Report*, OCC, January 2021). Therefore, in contrast to expected traffic growth, the A40 approaching Oxford has experienced significant capacity constraints for over 30 years limiting general vehicle traffic flows.

4.3.3 Traffic levels on the A40 between Witney and Eynsham (red line in Figure 4-1), which is dualled as far as Hill Farm, maintained steady growth up until around 2010 when this link too also reached peak period operating capacity. The alternative route from Witney and Eynsham into west and central Oxford via the B4449 using Swinford Toll Bridge (purple line) also has been operating at capacity for extended periods since around 1990. The increasing levels of traffic on the A4095 via Long Hanborough and Bladon (green line) from 1990 to 2015 are representative of countywide traffic growth and also indicates the likelihood of some road users displacing onto this route from the A40 due to the levels of traffic congestion on the A40 east of Witney.

Figure 4-2: Historic Pattern of Weekday Daily Traffic Flows on A40 and Other Selected Routes

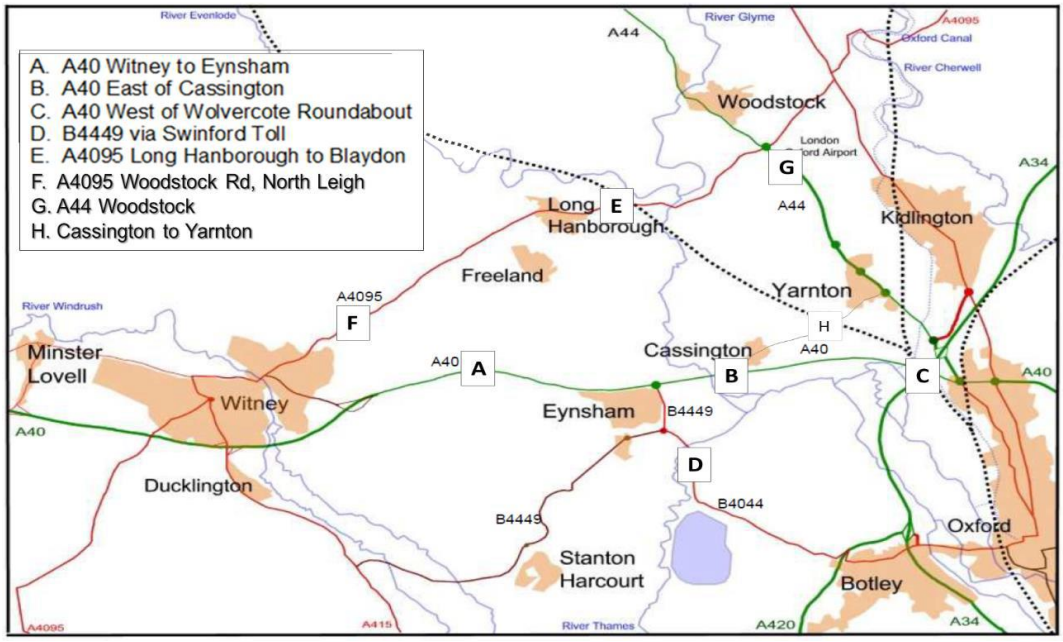


Source: A40 Science Transit Phase 2 Strategic Case, OCC, May 2021

Recent Trends in Traffic Flows along the A40 Corridor

4.3.4 OCC has a network of permanent Automatic Traffic Counts (ATCs) that provide more detail on traffic patterns on and around the A40 Corridor between 2008 and 2019/20. The traffic count locations are shown in Figure 4-3 below.

Figure 4-3: Traffic Count Locations



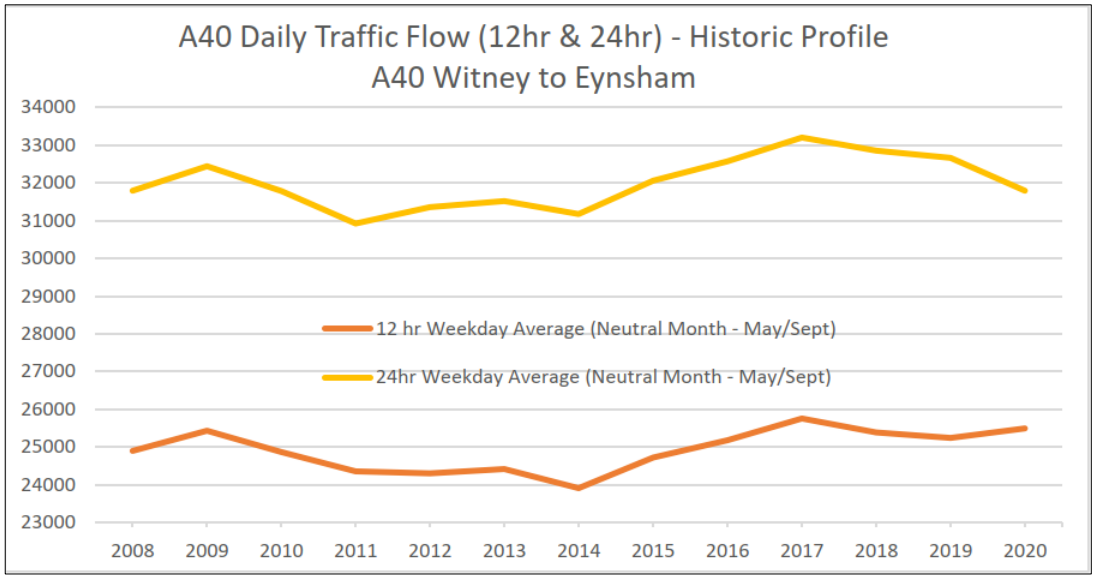
Source: A40 Baseline Report, OCC, January 2021

4.3.5 A review of traffic count totals on selected links (A, B, D, F, G and H) is shown in the sections below.

A40 Witney to Eynsham (Point A)

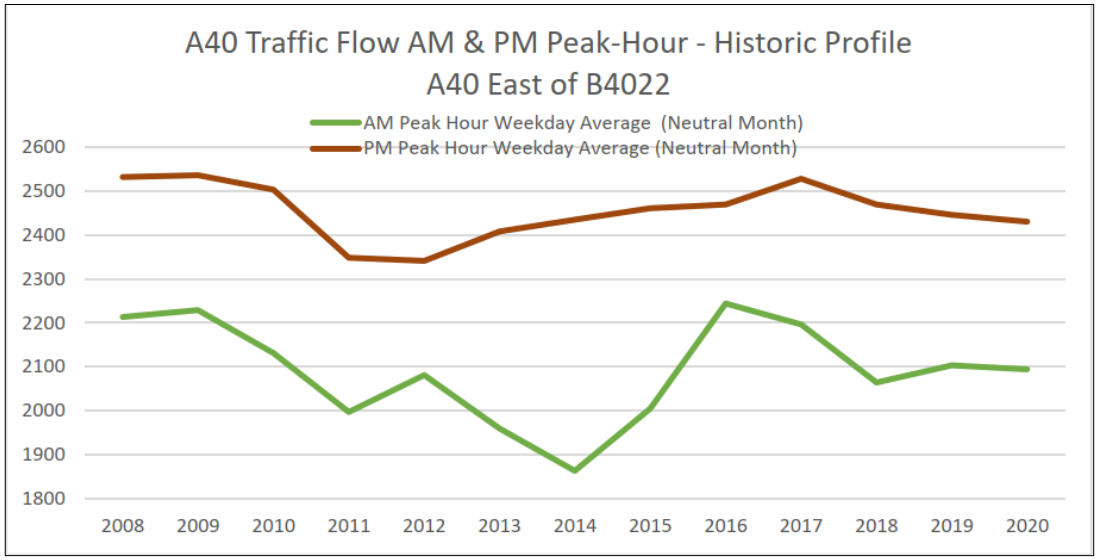
4.3.6 Figure 4-4 and Figure 4-5 show weekday daily (12 hour and 24 hour) and peak hour traffic flows on the A40 between Witney and Eynsham.

Figure 4-4: A40 Witney to Eynsham – Daily Traffic Flows



Source: A40 Baseline Report, OCC, January 2021

Figure 4-5: A40 Witney to Eynsham – Peak Hour Traffic Flows



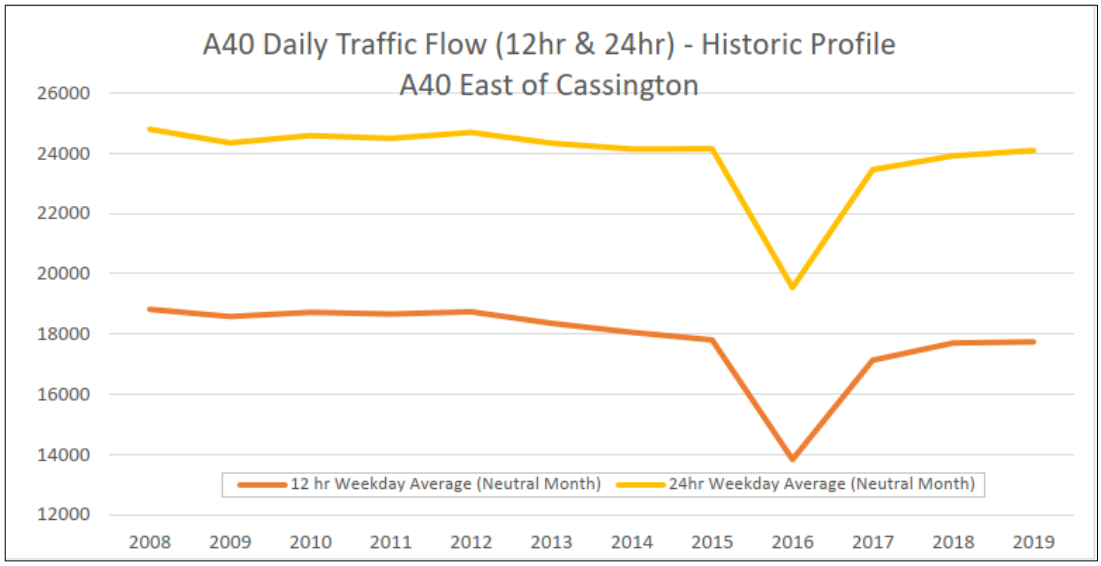
Source: A40 Baseline Report, OCC, January 2021

4.3.7 Between 2008 and 2020 there are some fluctuations in daily volumes, but daily and peak hour flows have remained fairly constant. The data does not demonstrate a strong trend in growth in the peak hours or over the day, suggesting that capacity constraints on the network are limiting growth at capacity.

A40 Cassington to Wolvercote (Point B)

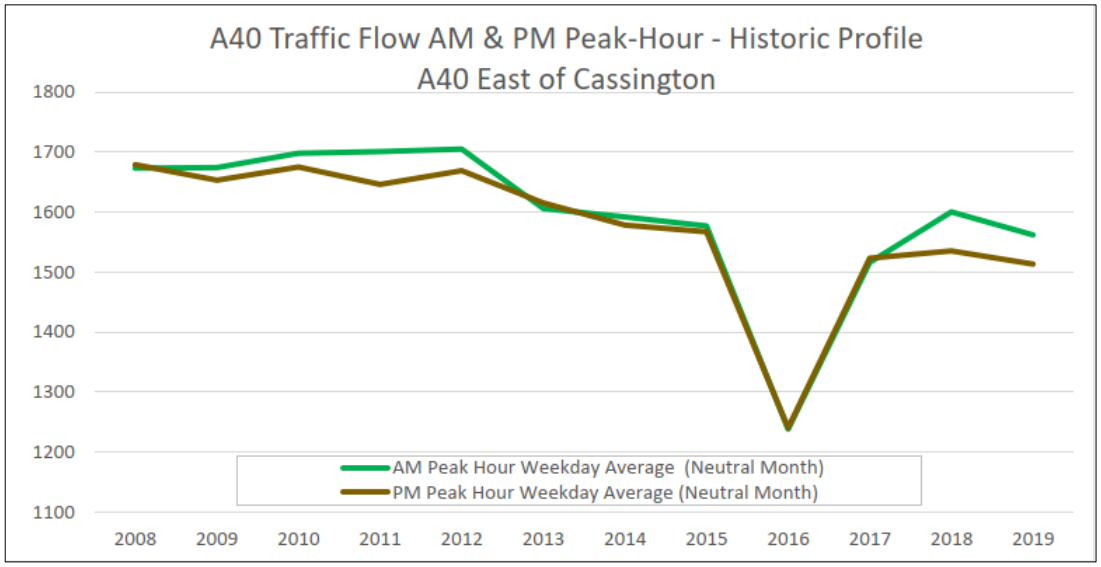
4.3.8 Figure 4-6 and Figure 4-7 show weekday daily (12 hour and 24 hour) and peak hour traffic flows on the A40 between Cassington and Wolvercote.

Figure 4-6: A40 Cassington to Wolvercote – Daily Traffic Flows



Source: A40 Baseline Report, OCC, January 2021

Figure 4-7: A40 Cassington to Wolvercote – Peak Hour Traffic Flows



Source: A40 Baseline Report, OCC, January 2021

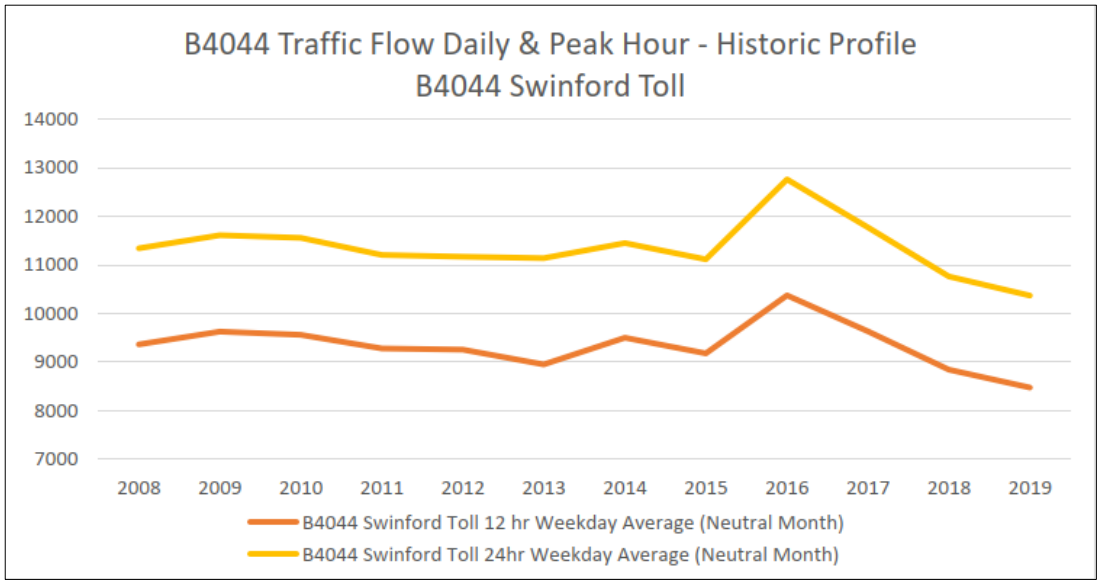
4.3.9 Between 2008 and 2019 there has been a trend of slightly decreasing daily traffic volumes, reflecting the increasingly congested conditions this section of the A40 experiences for extended periods of the day. The drop seen in 2016 was caused by infrastructure works at Wolvercote Roundabout that had an impact on A40 route capacity.

4.3.10 A similar pattern is seen in the peak hour flow data, with a general decrease between 2008 and 2019, and a large dip in 2016 due to the works at Wolvercote Roundabout.

B4044 Eynsham to Botley via Swinford Toll (Point D)

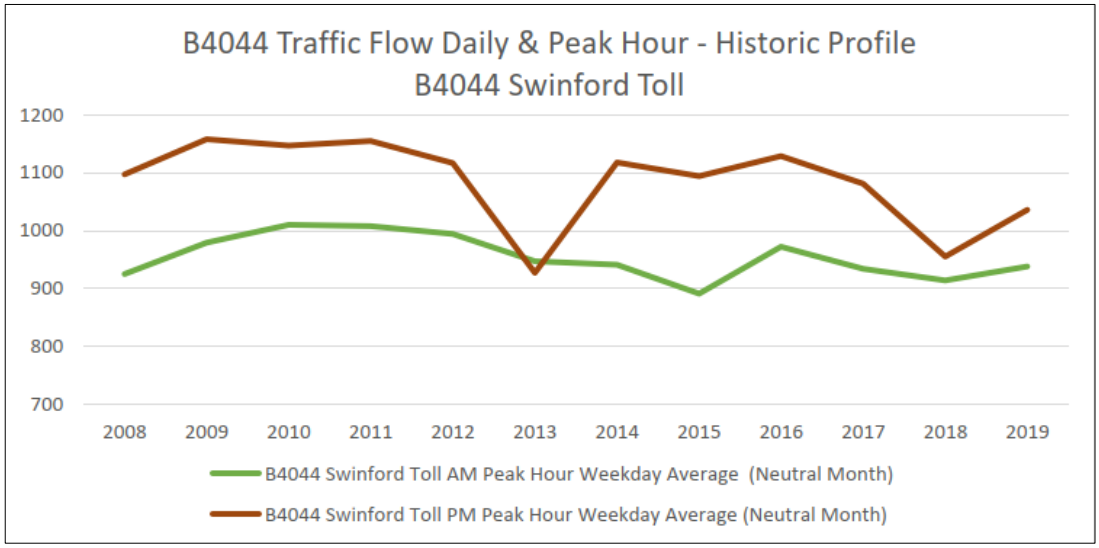
4.3.11 Figure 4-8 and Figure 4-9 show weekday daily (12 hour and 24 hour) and peak hour traffic flows on the B4044 between Eynsham and Botley via the Swinford Toll.

Figure 4-8: B4044 via Swinford Toll – Daily Traffic Flows



Source: A40 Baseline Report, OCC, January 2021

Figure 4-9: B4044 via Swinford Toll – Peak Hour Traffic Flows



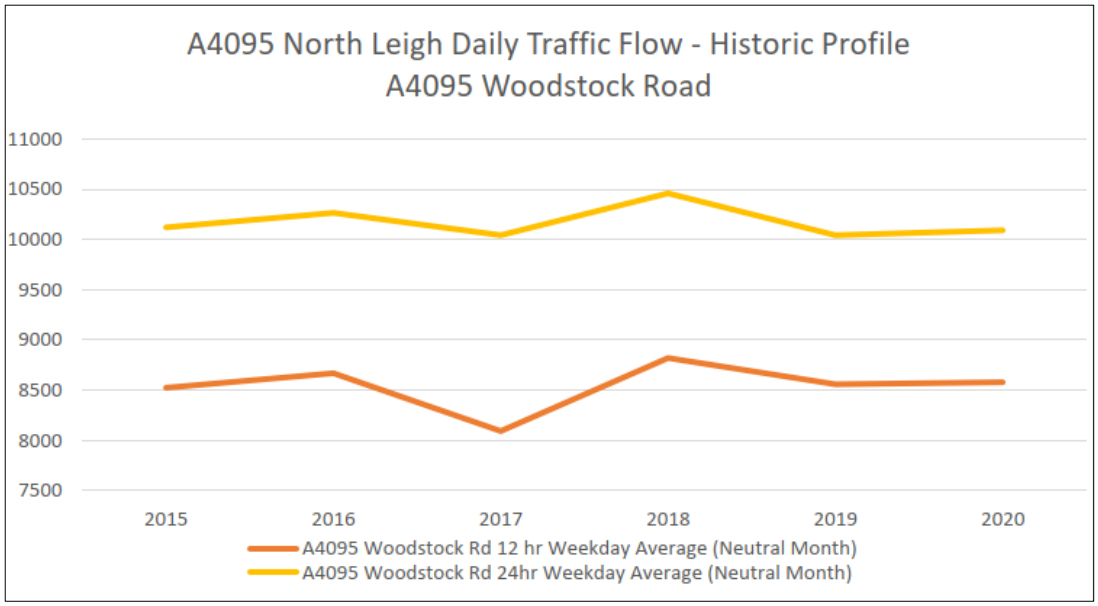
Source: A40 Baseline Report, OCC, January 2021

4.3.12 Daily traffic flows have remained fairly constant along this route between 2008 and 2020, indicating capacity constraints on the network for significant periods of the day. There is a peak in 2016 daily flows which is likely to be due to traffic diverting off the A40 during the works at Wolvercote Roundabout. This increase is not evident in the peak hour flows, however, and it is likely that the Swinford Bridge toll capacity constraint limited the extent to which traffic used this alternative route during peak hours despite the reduced capacity on the A40 during the works.

A4095 North Leigh (Point F)

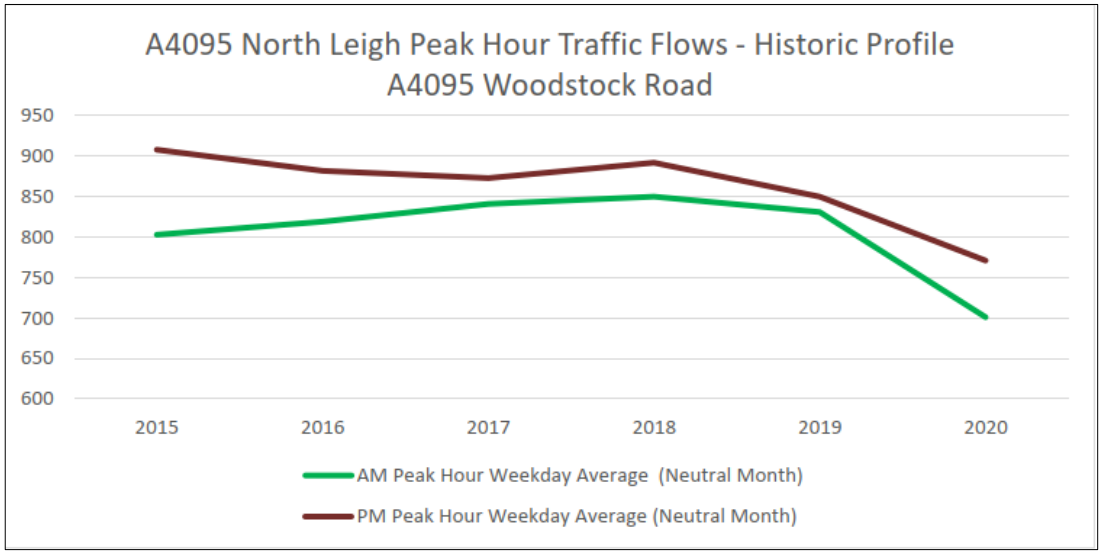
4.3.13 Figure 4-10 and Figure 4-11 show weekday daily (12 hour and 24 hour) and peak hour traffic flows on the A4095 at North Leigh, between Witney and Long Hanborough.

Figure 4-10: A4095 North Leigh – Daily Traffic Flows



Source: A40 Baseline Report, OCC, January 2021

Figure 4-11: A4095 North Leigh – Peak Hour Traffic Flows



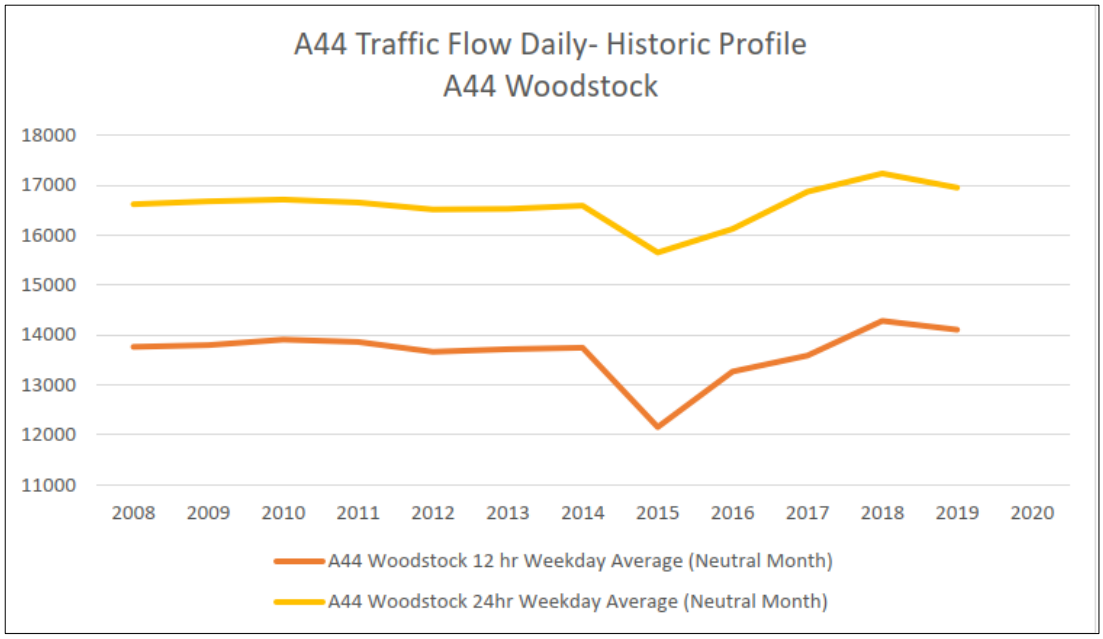
Source: A40 Baseline Report, OCC, January 2021

4.3.14 Between 2015 and 2020 daily traffic volumes have remained fairly constant. Peak hour flows remained steady between 2015 and 2019, and then a significant reduction occurred in 2020, though daily flows do not show similar dip. There is no evidence of traffic diverting to this route during the works at Wolvercote Roundabout in 2016.

A44 Woodstock (Point G)

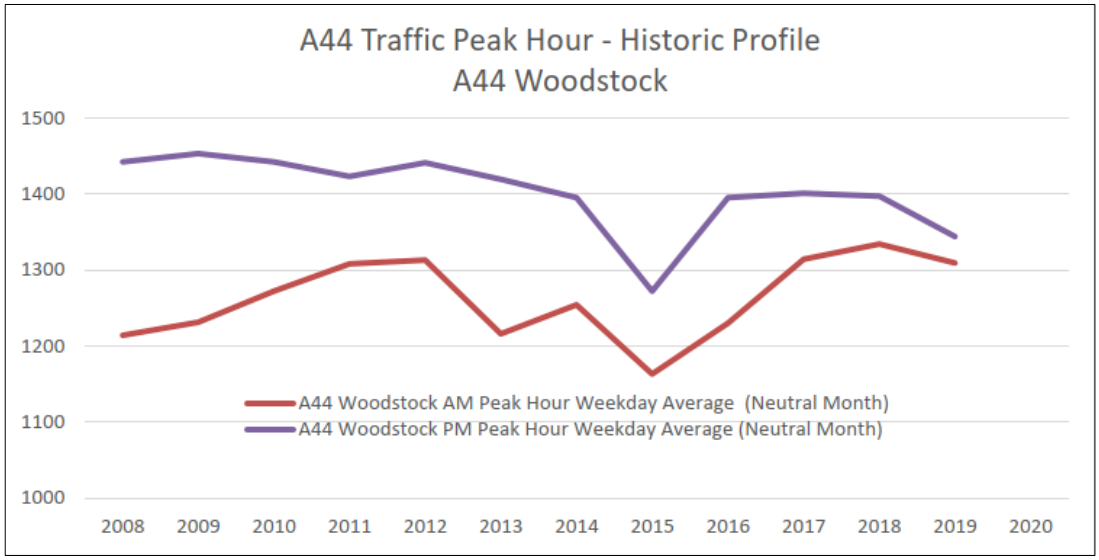
4.3.15 Figure 4-12 and Figure 4-13 show weekday daily (12 hour and 24 hour) and peak hour traffic flows on the A44 to the south of Woodstock.

Figure 4-12: A44 Woodstock – Daily Traffic Flows



Source: A40 Baseline Report, OCC, January 2021

Figure 4-13: A44 Woodstock – Peak Hour Traffic Flows



Source: A40 Baseline Report, OCC, January 2021

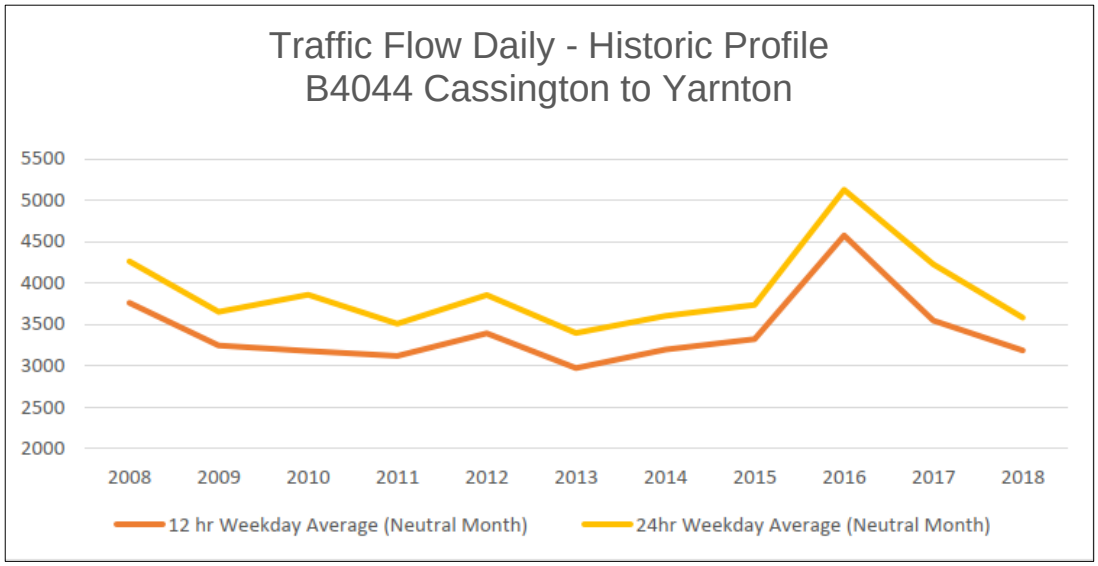
4.3.16 Daily traffic volumes remained fairly constant between 2008 and 2014. There was then a drop of approximately 6% in 2015, after which traffic flows increased steadily to 2019, where they appear to have levelled off.

4.3.17 For peak hour traffic the overall trend since 2008 is a slight increase in AM peak and decrease in PM peak traffic flows, with the traffic reduction in 2015 also reflected in the peak hour flows.

B4044 Cassington to Yarnton (Point H)

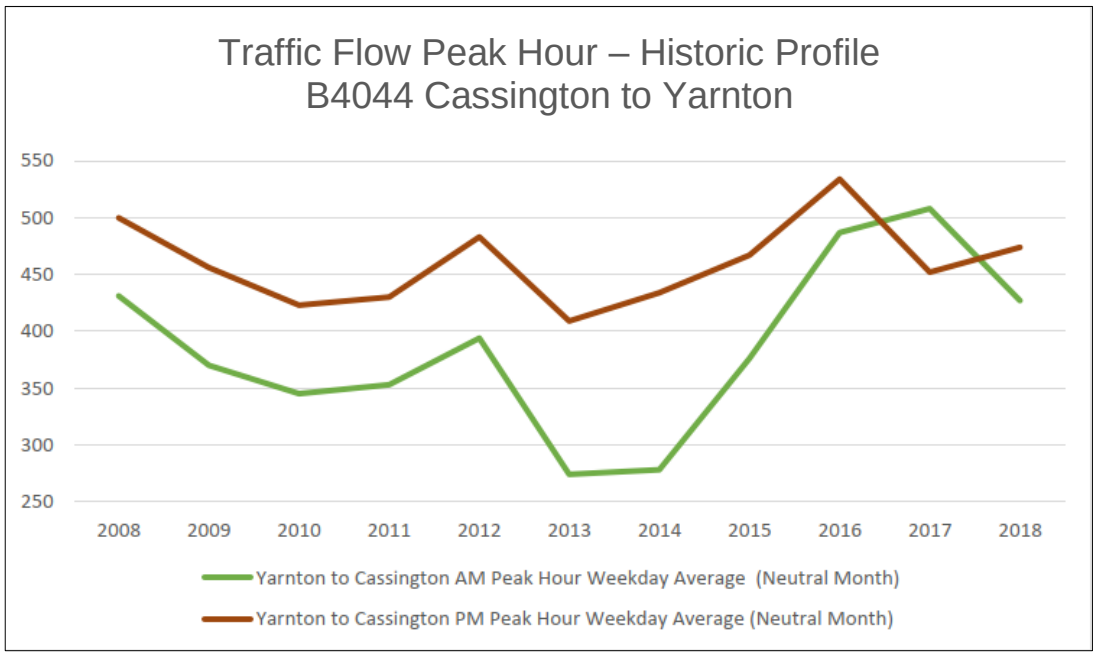
4.3.18 Figure 4-14 and Figure 4-15 show weekday daily (12 hour and 24 hour) and peak hour traffic flows on the route between Cassington and Yarnton (Yarnton Road / Cassington Road).

Figure 4-14: B4044 Cassington to Yarnton – Daily Traffic Flows



Source: A40 Baseline Report, OCC, January 2021

Figure 4-15: B4044 Cassington to Yarnton – Peak Hour Traffic Flows



Source: A40 Baseline Report, OCC, January 2021

4.3.19 Between 2008 and 2020 daily and peak hour volumes have remained fairly constant. There is a peak in 2016 which is likely to be due to traffic diverting off the A40 during the works at Wolvercote Roundabout.

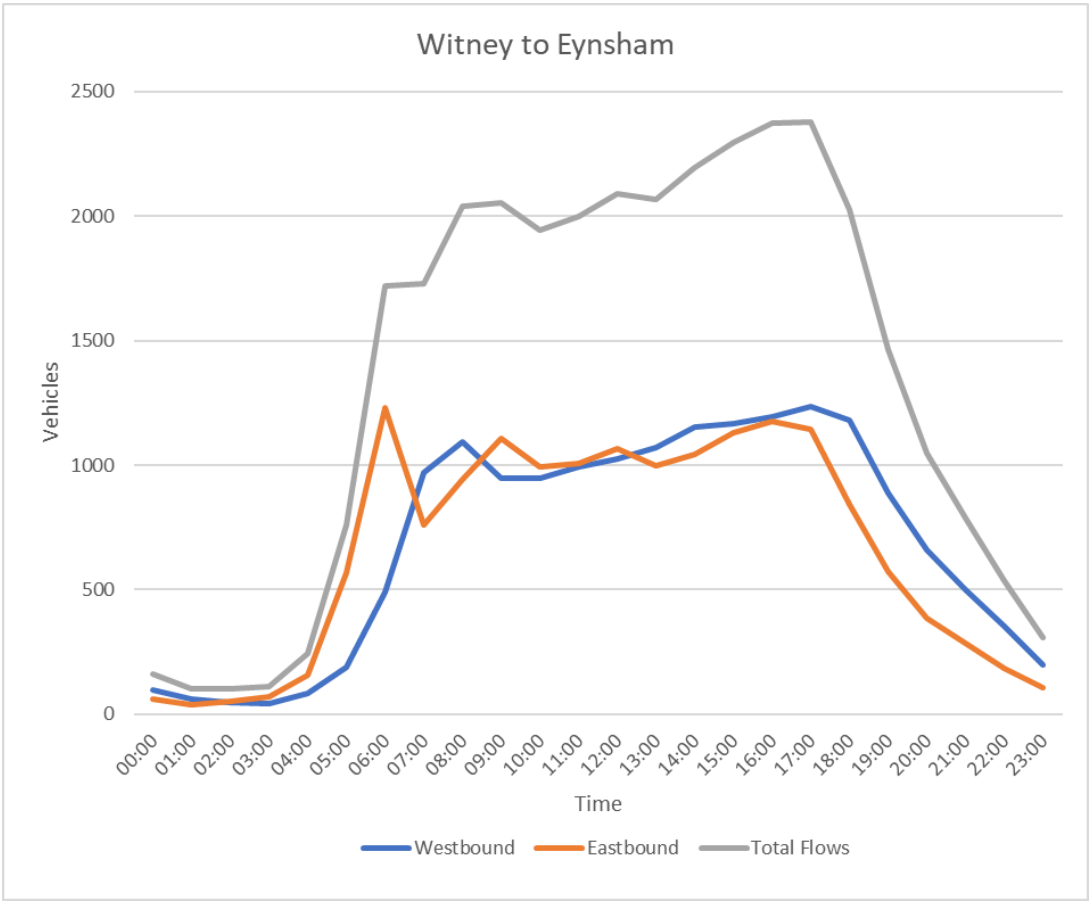
Weekday Traffic Flow Profiles on the A40 Corridor (February 2020)

4.3.20 The results of traffic surveys undertaken along the A40 Corridor in February 2020 (prior to restrictions on travel being put in place due to Covid-19) are presented below.

A40 Witney to Eynsham (Point A)

4.3.21 Figure 4-16 shows average weekday westbound, eastbound and two-way traffic flows on the A40 between Witney and Eynsham, recorded at a point just east of Barnard Gate.

Figure 4-16: Average Weekday Hourly Traffic Flows (February 2020) – A40 Witney to Eynsham



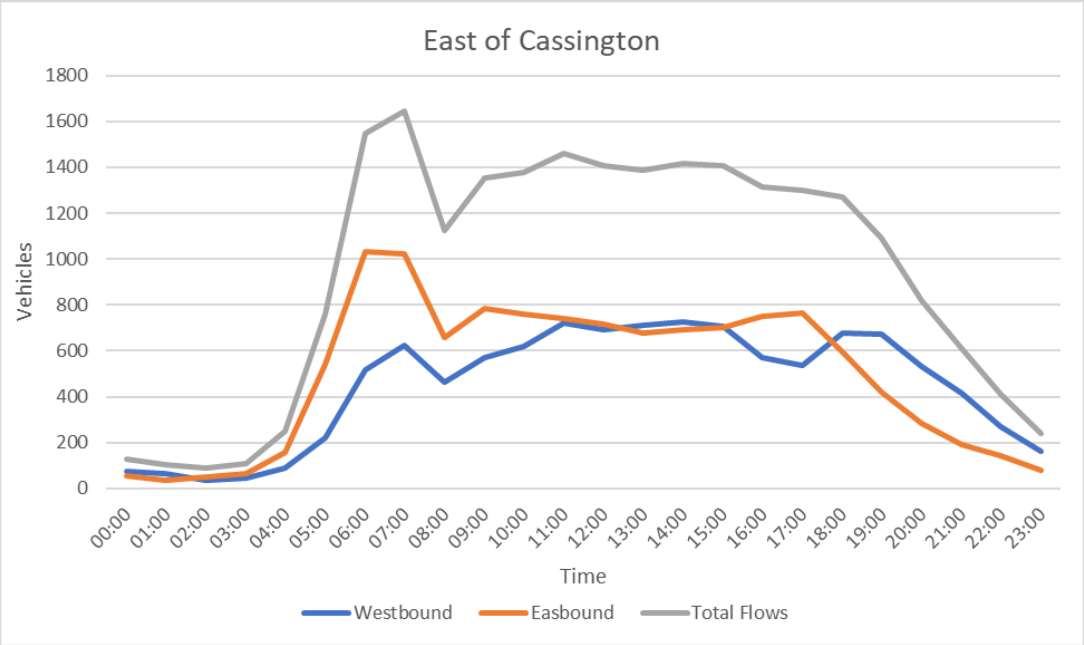
Source: A40 Science Transit Phase 2 Strategic Case, OCC, May 2021

4.3.22 Eastbound flows reach a peak between 06:00-07:00. After 07:00 traffic levels on the network have built up through Eynsham with queues forming eastbound back from Wolvercote Junction, at Cassington Junction and through Eynsham. Consequently, although demand on the network is still increasing, flows reduce due to the congestion on the network before recovering after 09:00 as queuing reduces. Throughout the day the traffic flows both eastbound and westbound remain at or close to the peak flow, before falling again after 18:00.

A40 East of Cassington

4.3.23 Figure 4-17 shows average weekday westbound, eastbound and two-way traffic flows on the A40 to the east of Cassington.

Figure 4-17: Average Weekday Hourly Traffic Flows (February 2020) – A40 East of Cassington



Source: A40 Science Transit Phase 2 Strategic Case, OCC, April 2020

4.3.24 The A40 east of Eynsham through to Wolvercote roundabout experiences regular congestion during peak and interpeak periods. Eastbound traffic increases to approximately 1,000 vehicles/hour by 07:00. After this, flows reduce as queuing along the eastbound carriageway occurs due to capacity constraints at Wolvercote roundabout, constraining A40 eastbound flows down to approximately 700 vehicles/hour.

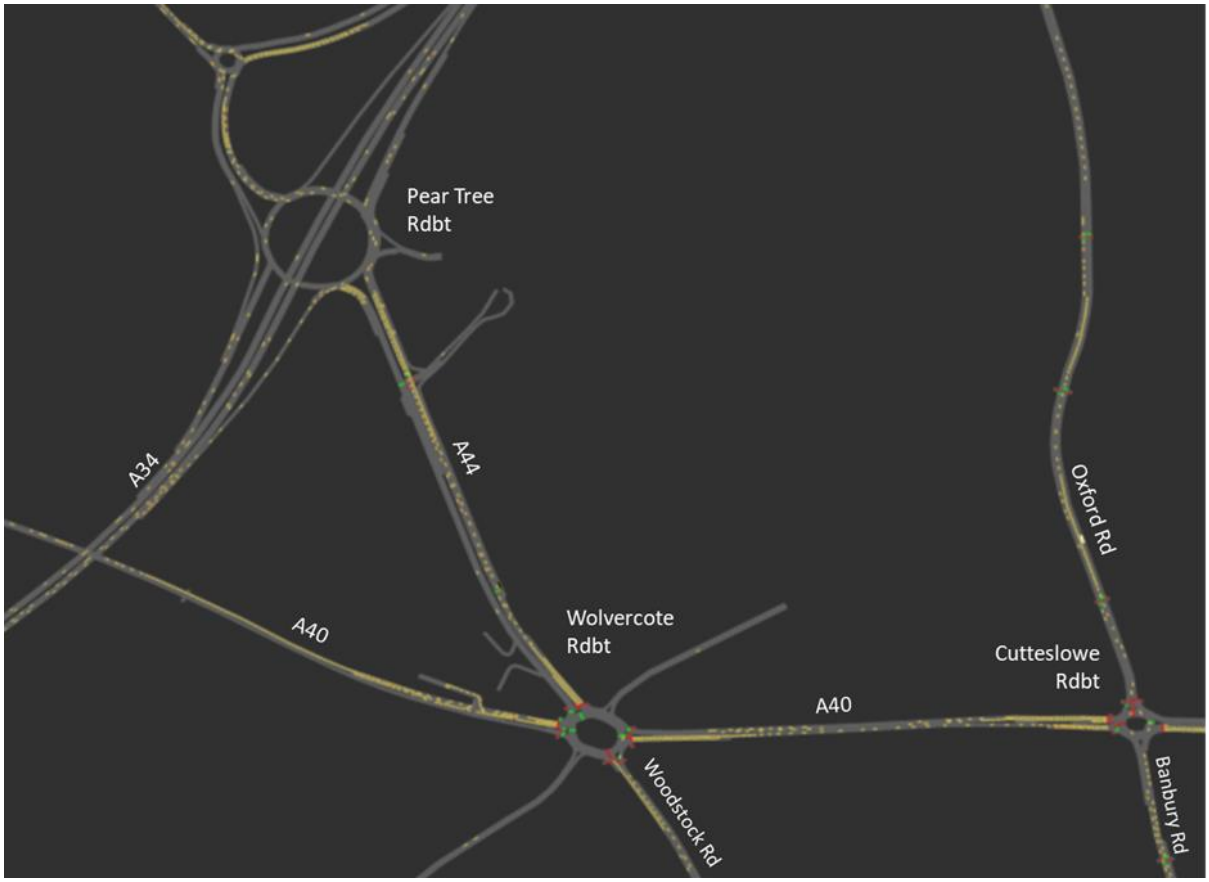
4.3.25 Westbound traffic flows increase throughout the day to over 700 vehicles/hour. This reduces to approximately 550 vehicles/hour after 16:00, during the afternoon peak period, as a result of westbound queues extending.

4.3.26 For both eastbound and westbound flows, the high levels of interpeak traffic flows indicate that there is little opportunity for any significant further peak spreading to accommodate more traffic on the A40.

A40 Wolvercote Roundabout

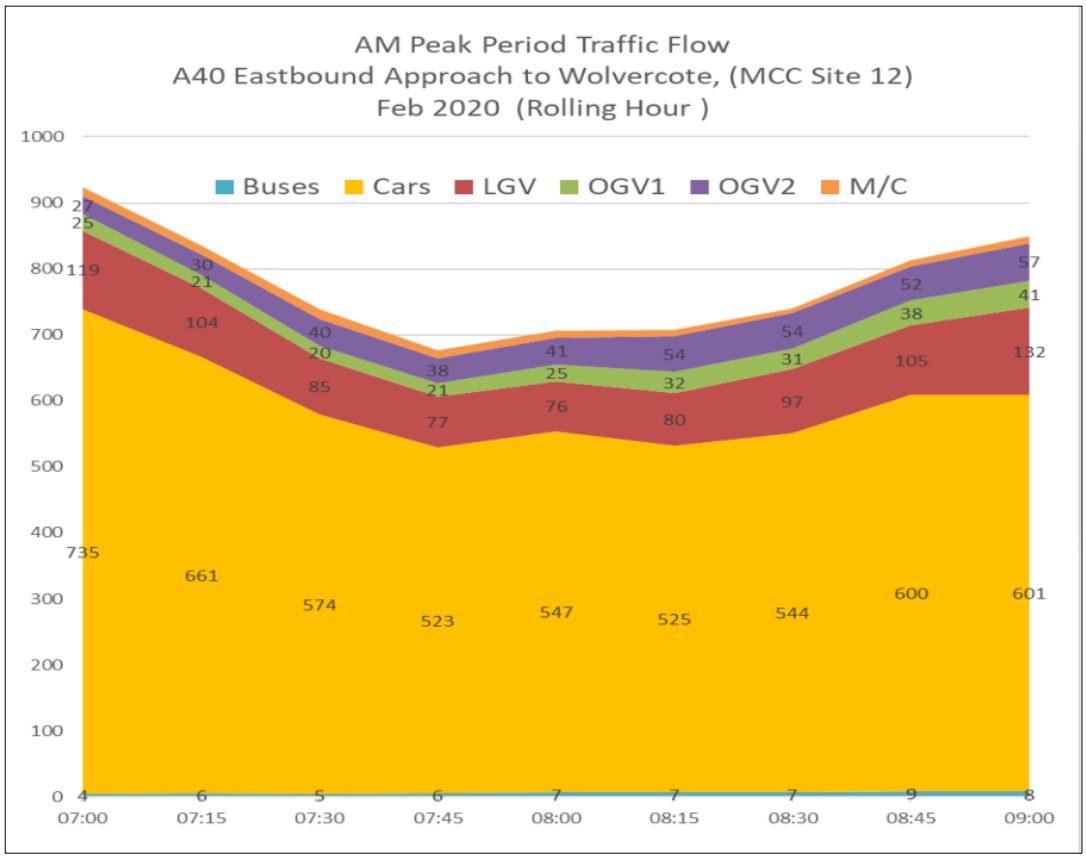
4.3.27 Wolvercote Roundabout is a 6-arm signalised junction and operates at capacity throughout weekday peak and interpeak periods. Figure 4-18 is an image from the Vissim model showing 2020 queues at the junction in the AM peak.

Figure 4-18: Vissim model simulation - Wolvercote roundabout (2020 AM peak)



4.3.28 Figure 4-19 shows the morning peak eastbound A40 vehicle throughput at Wolvercote Roundabout.

Figure 4-19: A40 Wolvercote Roundabout - Weekday eastbound approach traffic flows



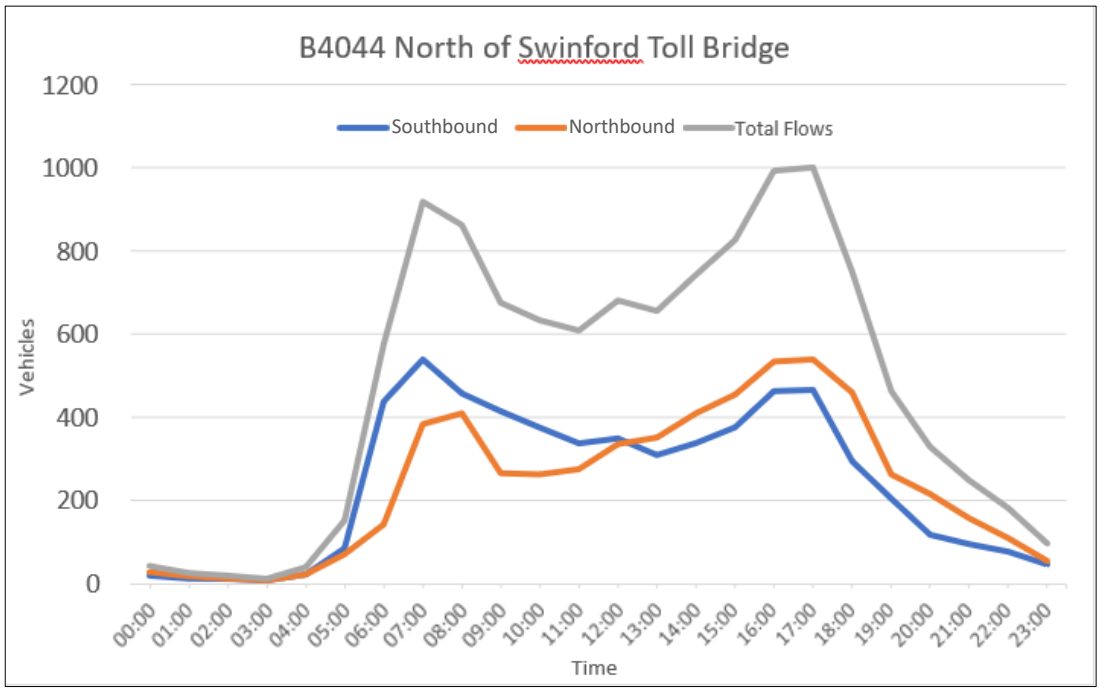
Source: A40 Baseline Report, OCC, January 2021

4.3.29 Figure 4-19 shows a similar pattern to the A40 eastbound traffic flows east of Cassington (shown in Figure 4-17). After 07:00 flows reduce from approximately 900 to 700 vehicles/hour before returning to 850 vehicles/hour by 09:00. As this period covers the peak hour on the network, it indicates congestion at Wolvercote roundabout is reducing the volume of eastbound traffic that can get through the junction.

B4044 North of Swinford Toll Bridge

4.3.30 Figure 4-20 shows the average weekday westbound, eastbound and total traffic flows for the B4044 north of Swinford Toll Bridge in February 2020.

Figure 4-20: B4044 Traffic Flows North of Swinford Toll Bridge



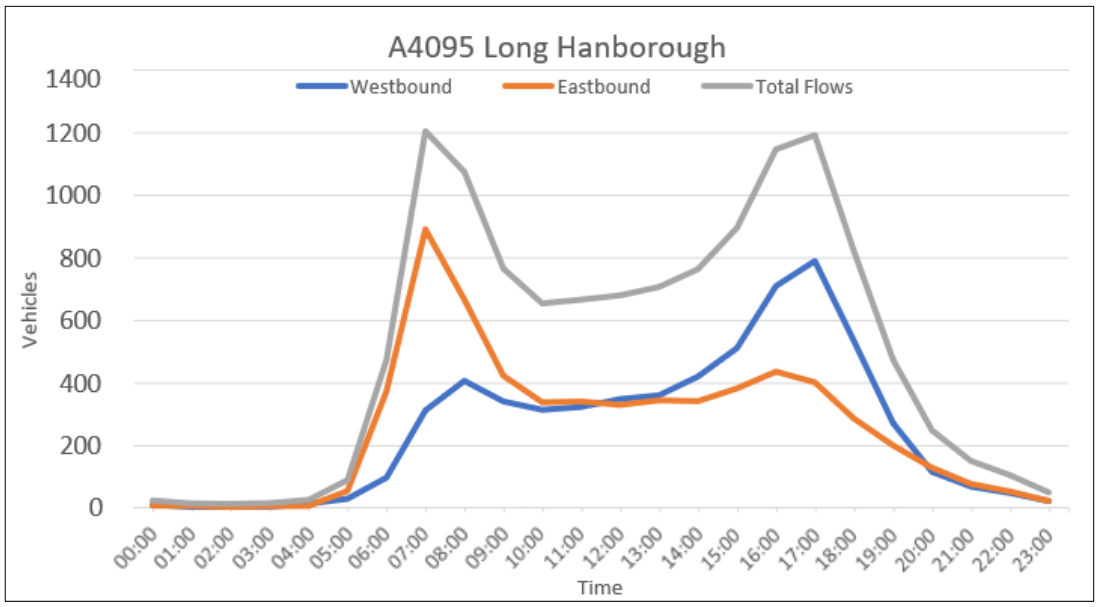
Source: A40 Baseline Report, OCC, January 2021

4.3.31 The profile shows the peak direction being towards Oxford in the morning peak period and towards Eynsham in the evening peak. The level of flow carried by this route is relatively low due to the capacity constraint of the narrow Swinford Bridge and the need to stop at the toll booth.

A4095 Long Harborough

4.3.32 Figure 4-21 shows average weekday westbound, eastbound and two-way traffic flows on the A4095 Long Harborough in 2019.

Figure 4-21: Weekday Hourly Traffic Flows – A4095 Long Harborough



Source: OCC A40 Baseline Report

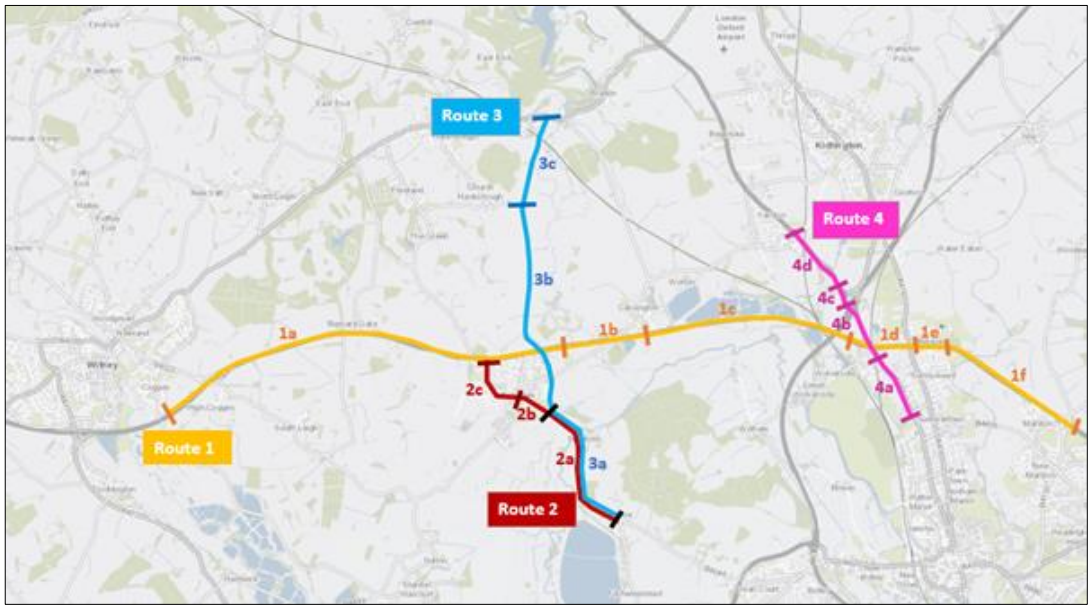
4.3.33 The traffic data indicates a strong tidality with the peak direction being eastbound in the morning peak and westbound in the evening peak. There is also a well-defined interpeak period when the flows are considerably lower than during peak hours.

4.4 Journey Time Data

4.4.1 Automatic Number Plate Recognition (ANPR) surveys were undertaken in February 2020 and from this information journey time data was extracted for sections of the A40. This data was used to validate the Vissim model (further details of the Vissim model are provided in Section 7 of this report).

4.4.2 Average journey time data for 2020 obtained from the VISSIM model is presented for Routes 1-4 shown in Figure 4-22.

Figure 4-22: Journey Time Sections



Route 1: A40 Corridor

4.4.3 The 2020 base journey times for general traffic travelling along the A40 between Shores Green and Wolvercote roundabout (Sections a-c of Route 1) in the AM and PM peak hours are shown in Figure 4-23 and Figure 4-24 respectively.

Figure 4-23: 2020 Journey Times along the A40 Corridor (08:00-09:00)

4.4.4 Figure 4-23 indicates that the average journey time in 2020 to travel between Shores Green and Wolvercote roundabout in the AM peak hour is:

- Eastbound 26 minutes (19mph average)
- Westbound 14 minutes (25mph average)

Figure 4-24: 2020 Journey Times along the A40 Corridor (17:00-18:00)

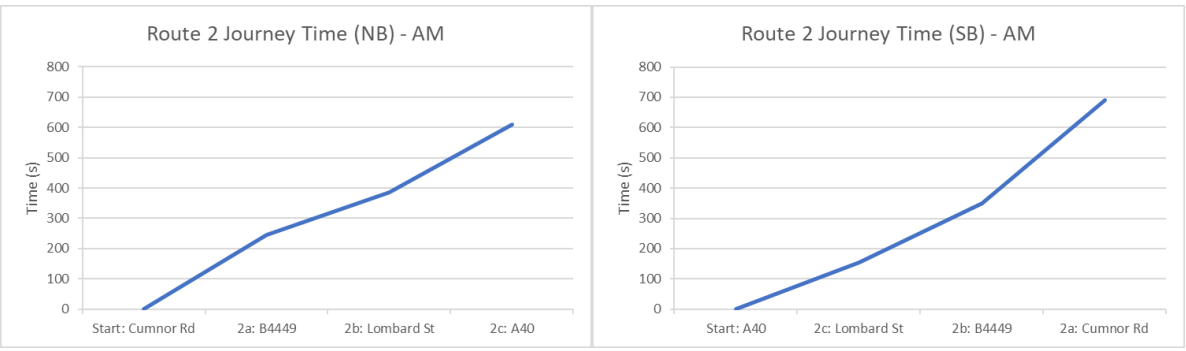
4.4.5 Figure 4-24 indicates that the average journey time in 2020 between Shores Green and Wolvercote roundabout in the PM peak hour is:

- Eastbound 12 minutes (35mph average)
- Westbound 26 minutes (18mph average)

Route 2: B4044 - Oxford Road - High Street - Acre End Street -Witney Road

4.4.6 The 2020 base journey times for general traffic travelling along the B4044 - Oxford Road - High Street - Acre End Street -Witney Road route in the AM and PM peak hours are shown in Figure 4-25 and Figure 4-26 respectively.

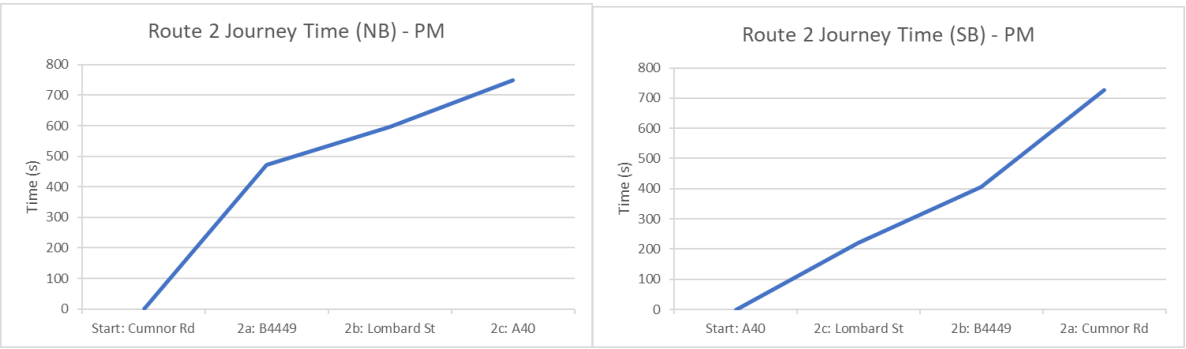
Figure 4-25: 2020 Journey Times along the Route 2 (08:00-09:00)



4.4.7 Figure 4-25 indicates that the average journey time in 2020 between Cumnor Road and the A40 in the AM peak hour is:

- Northbound Just over 10 minutes (16mph average)
- Southbound 12 minutes (14mph average)

Figure 4-26: 2020 Journey Times along Route 2 (17:00-18:00)



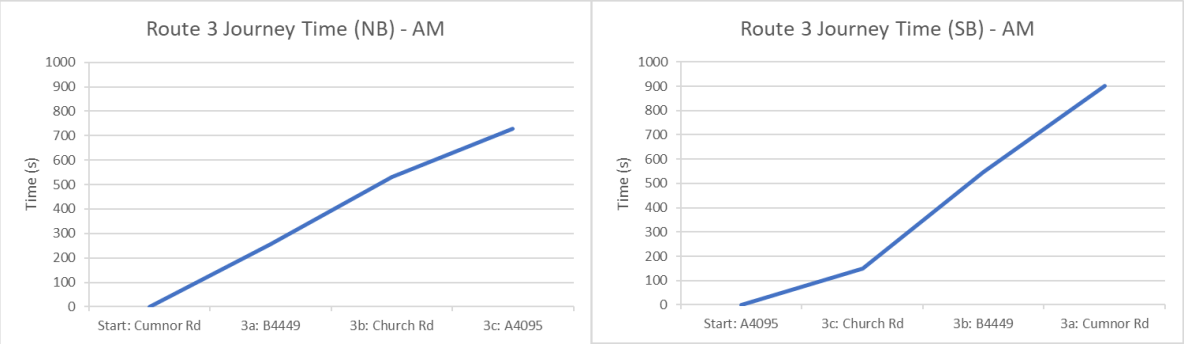
4.4.8 Figure 4-26 indicates that the average journey time in 2020 between Cumnor Road and the A40 in the PM peak hour is:

- Northbound 12 and a half minutes (13mph average)
- Southbound 12 minutes (13mph average)

Route 3: B4044 - B4449 - Lower Road

4.4.9 The 2020 base journey times for general traffic travelling along the B4044 - B4449 - Lower Road route in the AM and PM peak hours are shown in Figure 4-27 and Figure 4-28 respectively.

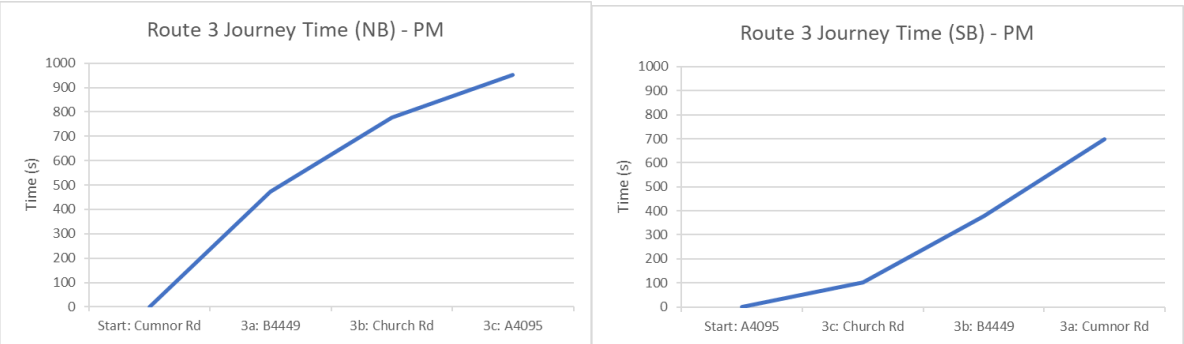
Figure 4-27: 2020 Journey Times along the Route 3 (08:00-09:00)



4.4.10 Figure 4-27 indicates that the average journey time in 2020 between Cumnor Road and the A4095 in the AM peak hour is:

- Northbound Just over 12 minutes (26mph average)
- Southbound 15 minutes (21mph average)

Figure 4-28: 2020 Journey Times along Route 3 (17:00-18:00)



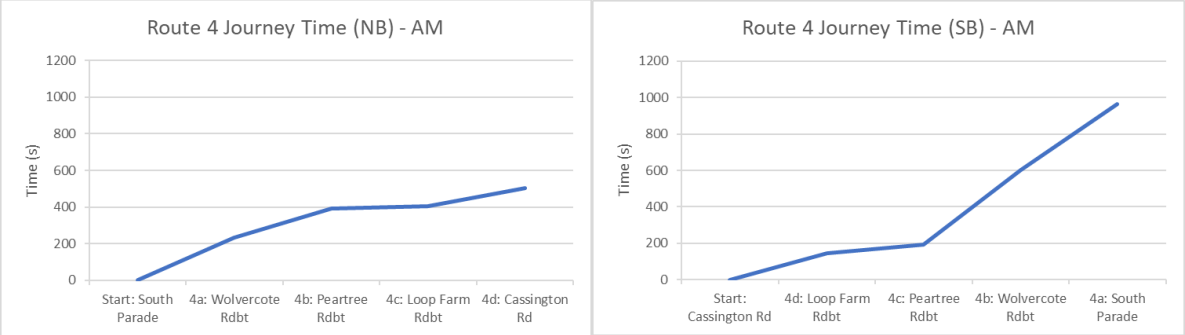
4.4.11 Figure 4-28 indicates that the average journey time in 2020 between Cumnor Road and the A4095 in the PM peak hour is:

- Northbound 16 minutes (20mph average)
- Southbound 12 minutes (27mph average)

Route 4: A4144 – A44

4.4.12 The 2020 base journey times for general traffic travelling along the A4144- A44 route in the AM and PM peak hours are shown in Figure 4-29 and Figure 4-30 respectively.

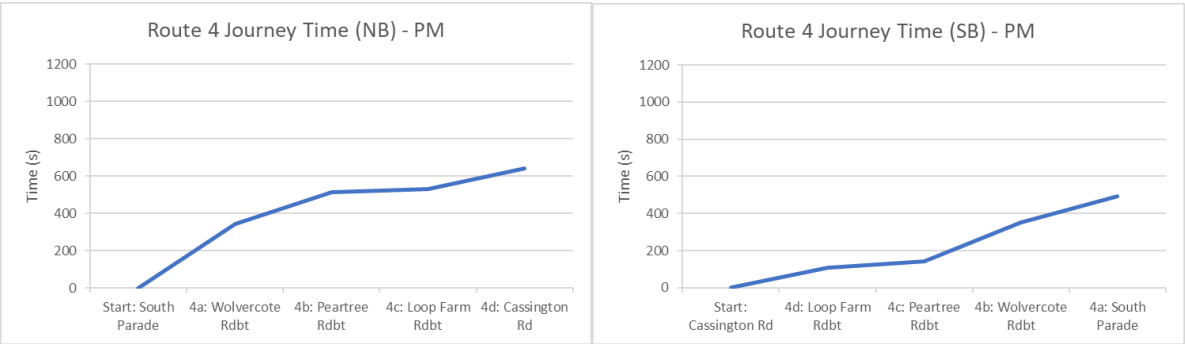
Figure 4-29: 2020 Journey Times along Route 4 (08:00-09:00)



4.4.13 Figure 4-29 indicates that the average journey time in 2020 between South Parade and Cassington Road along the A4144 and A44 in the AM peak hour is:

- Northbound Just over 7 minutes (17mph average)
- Southbound 10 minutes (9mph average)

Figure 4-30: 2020 Journey Times along Route 4 (17:00-18:00)



4.4.14 Figure 4-30 indicates that the average journey time between South Parade and Cassington Road along the A4144 and A44 in the PM peak is:

- Northbound 9 minutes (14mph average)
- Southbound 6 minutes (18mph average)

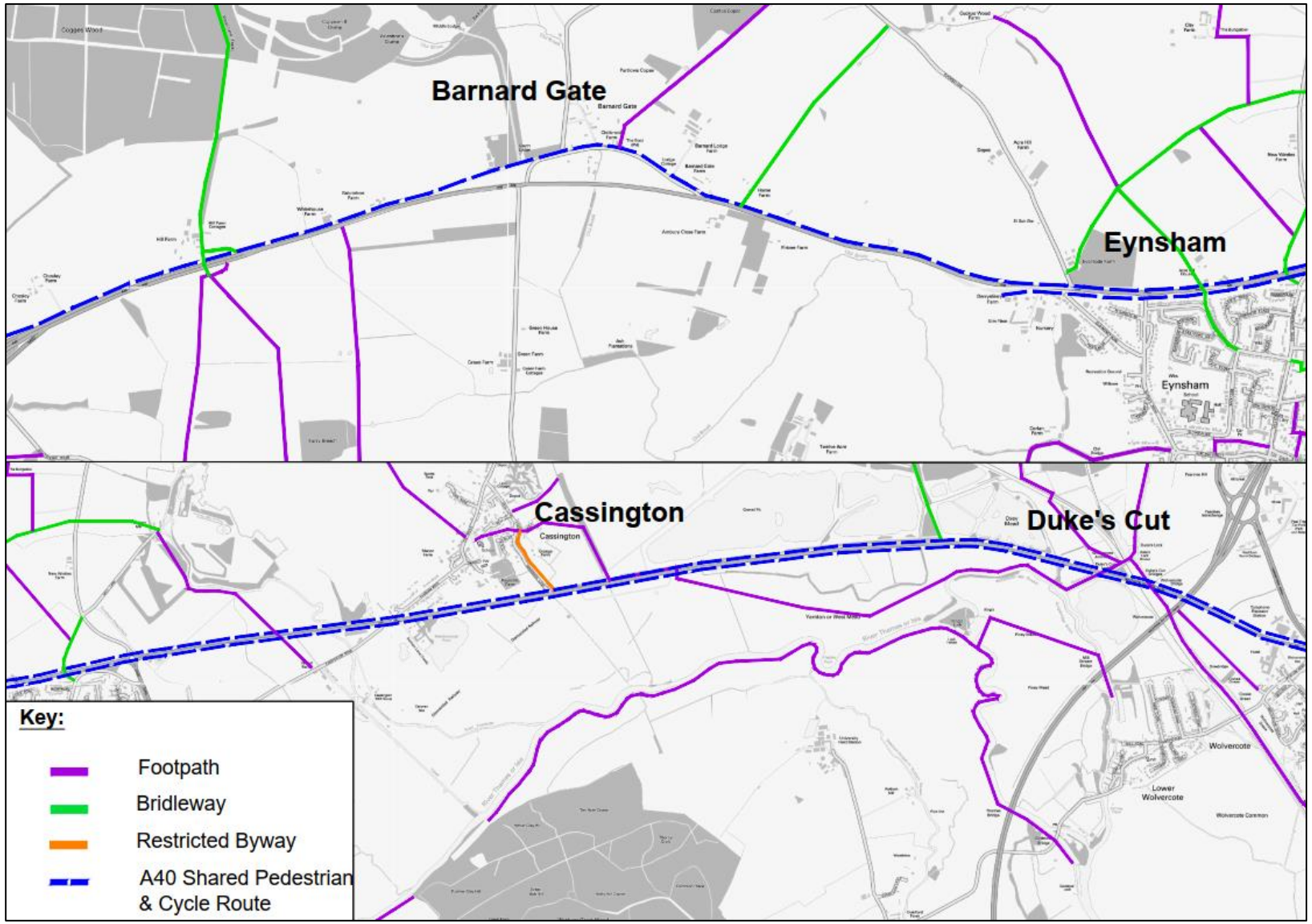
4.5 Active Travel

4.5.1 There is a range of infrastructure in place along the extent of the Scheme to facilitate active travel, this is summarised in the sections below.

Walking, Cycling and Horse-Riding Facilities

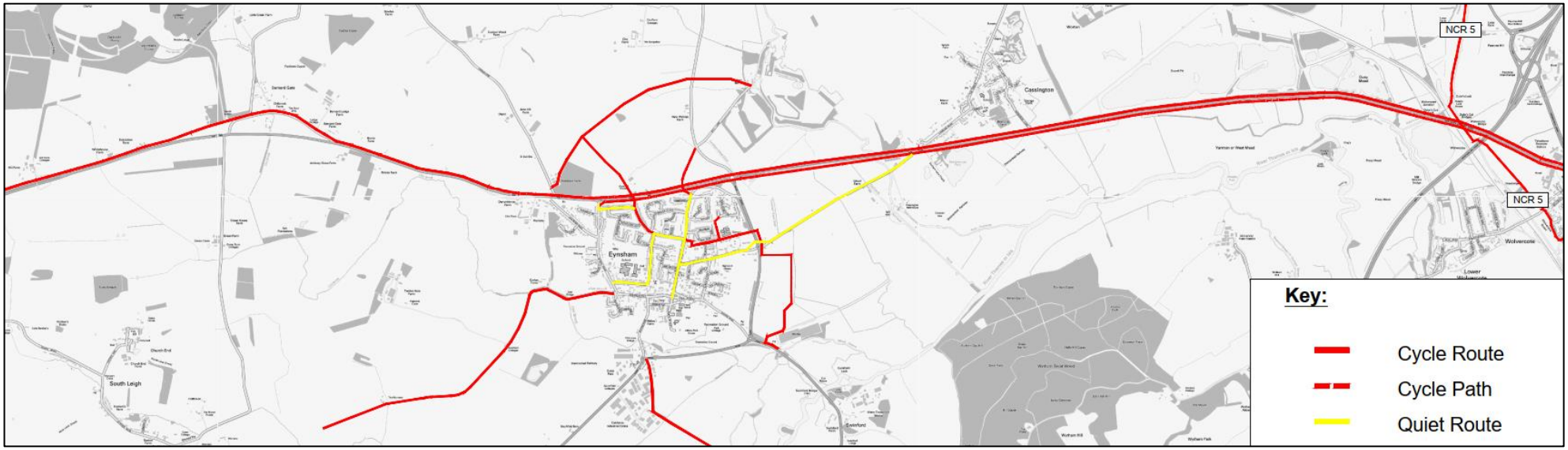
4.5.2 The existing pedestrian routes within the local area are illustrated in Figure 4-31 below. The Public Rights of Way (PRoW) and shared pedestrian and cycle routes are discussed in more detail below.

Figure 4-31: Existing NMU Routes along A40



4.5.3 The existing cycle infrastructure is shown in Figure 4-32 and discussed in more detail below.

Figure 4-32: Existing Cycle Infrastructure



Shores Green to Eynsham

4.5.4 Existing NMU routes between Shores Green and Eynsham are shown in Figure 4-33. The routeing is described below moving from west to east. In addition, the limitations in the current NMU infrastructure provision between Shores Green and Eynsham are shown in Figure 4-34.

Figure 4-33: Existing NMU Routes - Shores Green to Eynsham Section

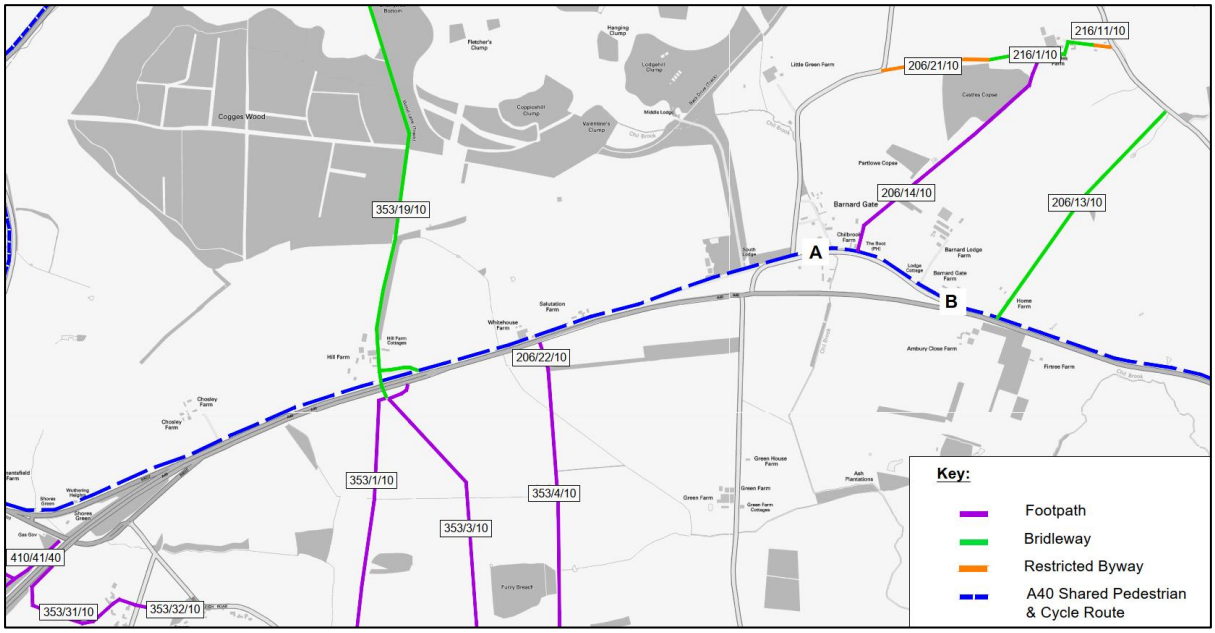
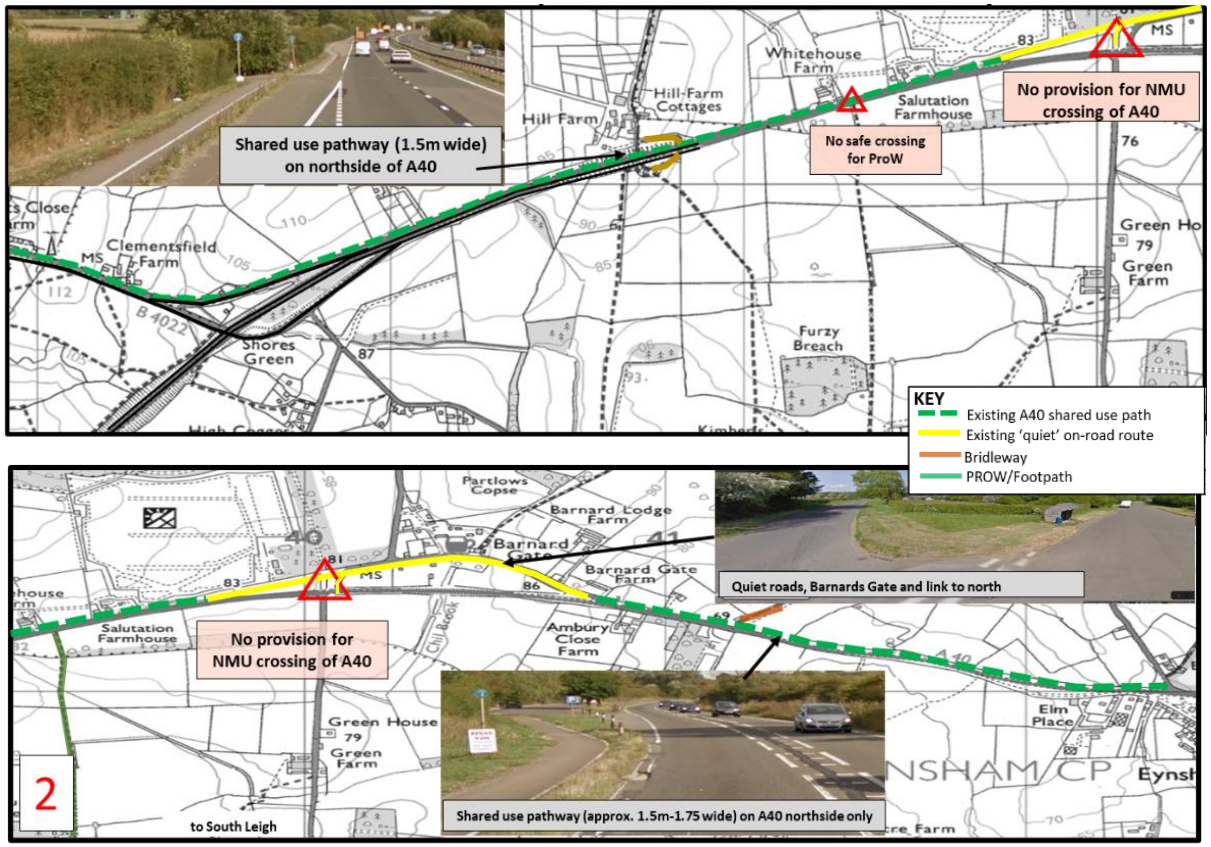


Figure 4-34: Limitations in Current NMU Infrastructure Provision - Shores Green to Eynsham Section



4.5.5 An existing shared use pathway (dashed blue in Figure 4-33) runs from the Shores Green junction alongside the eastbound carriageway of the A40 dual carriageway. It passes Chosely Farm, passing the rear of a lay-by and then under Hill Farm Bridge.

4.5.6 Bridleway 353/19/10 starts at the A4095 to the south of North Leigh, opposite the junction with Common Road. It runs southwards between Cogges Wood and Eynsham Hall Park for approximately 2km before reaching the A40 at the Hill Farm bridge.

4.5.7 PRoW 206/22/10 joins the A40 to the west of White Cottages on the westbound carriageway of the A40. There is no footpath sign present but there is a dropped kerb. No formal crossing is present and no warning signs have been erected on the A40.

4.5.8 The combined route continues east to a point approximately 430m west of the junction with Barnard Gate. From here the route pulls away from the A40 verge and follows the old road alignment to the north. No NMU facilities are present on this section of the A40 as shown in Figure 4-34.

4.5.9 The old alignment (point A in Figure 4-33) is a 6m wide carriageway with no footways.

4.5.10 The old alignment then forms a priority T-junction with the main trafficked route from the A40 (point B in Figure 4-33). There are no signs warning drivers of cyclist on this route. Cycle direction signs are present at the junction but are obscured by overgrown vegetation. There are no footways along this old alignment section, therefore any pedestrians would be required to walk on the carriageway. The area in not illuminated. No traffic signs warning of pedestrians in the carriageway are present. There is an opportunity to designate this area a quiet lane. The old alignment continues east where there is an intermittent footway on the northern of the carriageway, fronting some cottages and the Boot Inn Public House. At this point PRoW 206/14/10 joins the old alignment.

4.5.11 The old alignment then meets the A40 again with a priority junction where the formal NMU facility recommences along the northern verge of the A40.

4.5.12 The westbound route for NMUs from this facility (point B in Figure 4-33) is poorly defined as NMUs are deposited onto the wrong side of the road at the junction mouth with no clear indication of how to proceed from here. The signage is ambiguous. The shared pedestrian and cycle route leave the alignment of the main carriageway near South Lodge on the old alignment and connects to the access road of Salutation Farm where the route re-joins the A40.

4.5.13 From this point east the shared use pathway continues much as before but with a wider separation verge until it reaches the junction with Cuckoo Lane. Prior to Cuckoo Lane, just opposite Fir Tree Farm, PRoW 206/13/10 meets the A40 from the north where it terminates.

4.5.14 An equestrian route runs from Cuckoo Lane to Barnard Gate in an east to west direction for approximately 1km in length. This comprises of two sections of restricted bridleway, either end of a bridleway. Restricted byway 216/11/10 is 60m long and connects to Cuckoo Lane. This restricted byway connects to bridleway 216/1/10 at Willow Dene, where it passes through the farmyard of Bowles Farm. Restricted byway 206/21/10 starts at the bend on the road from Cuckoo Lane to Barnard Gate and is 195m long traveling east-west.

Eynsham

4.5.15 Existing NMU routes on this section are shown in Figure 4-35. In addition, the limitations in the current NMU infrastructure provision at Eynsham are shown in Figure 4-35.

Figure 4-35: Existing NMU Routes- Eynsham

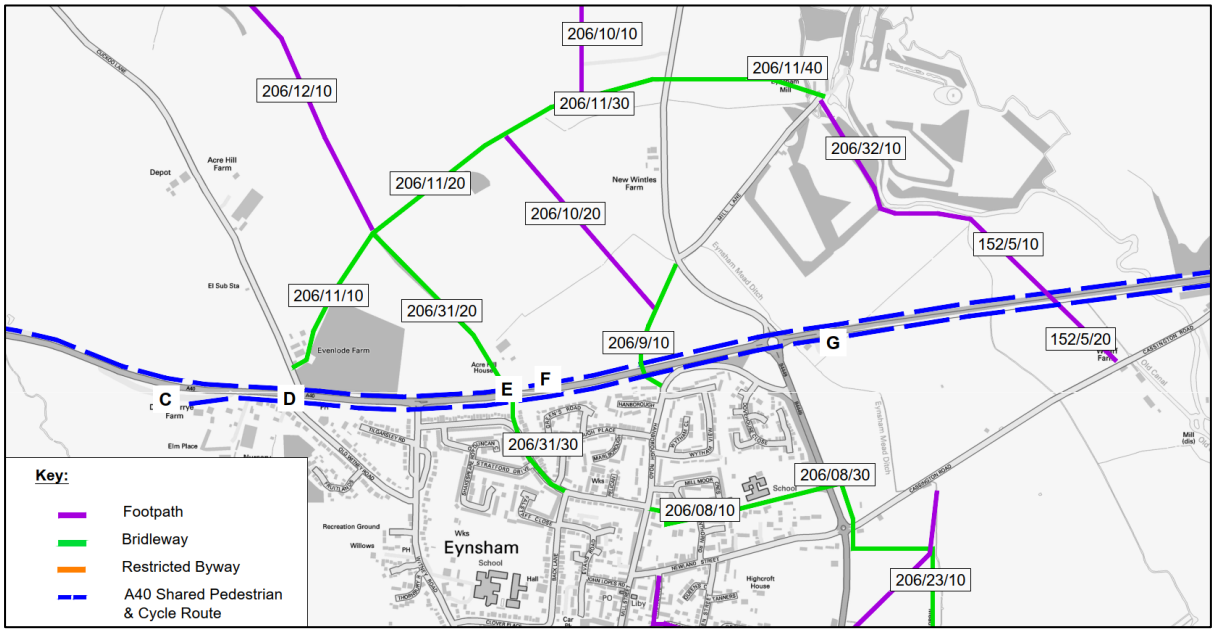
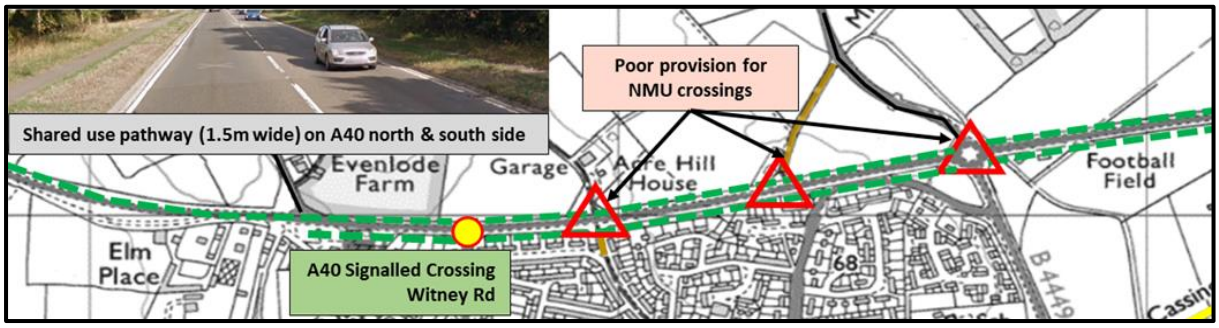


Figure 4-36: Limitations in Current NMU Infrastructure Provision - Eynsham



4.5.16 Along the A40 opposite Eynsham there is a hardened footway on both sides of the carriageway, with the northern side designated as a shared use pathway.

4.5.17 From Cuckoo Lane eastwards there is a shared use pathway on both the north and south side of the A40 as far as Wolvercote Roundabout in Oxford. This A40 facility varies in width over the length of the Scheme between 1.0 to 2.0m. From the survey data it is evident that cycle volumes are significantly higher than pedestrians with few pedestrians walking long sections along the A40 but are using the A40 pathway to access public rights of way and to cross between houses / shops.

4.5.18 On the south side of the A40 the footway extends west to the layby to serve Derrymerrye Barn (Point C in Figure 4-35). This then runs east along the A40 to Elm Place and onto Old Witney Road.

4.5.19 There is a footway linking Eynsham via the north sided of Old Witney Road to the A40 with a hardened verge (concrete) that provides pedestrian access to two properties fronting the A40, one of which has direct access to the A40 at this point (point D in Figure 4-35). There is a hardened footway (tarmac) that leads to a bus stop with a shelter located on the A40.

4.5.20 There are no traffic islands or formal crossing points at the Cuckoo Lane priority T-junction on the north side of the A40 (at point D in Figure 4-35).

4.5.21 An uncontrolled crossing, with an island facilitating a staggered crossing, is used by pedestrians to cross the A40, west of the Esso petrol station (point E in Figure 4-35). Bridleway 206/31/20 runs north of the A40 and is located west of the Esso petrol station forecourt. It is a wide path, approximately 3m at its junction with the A40. It continues north to connect with a Bridleway which runs from Cuckoo lane (alongside Evenlode Farm) north-east across Lower Road and on to Eynsham Mill.

4.5.22 There are toucan crossings present at the A40/Witney Road and A40/Cassington Road junctions, allowing pedestrians and cyclists to cross the A40. No further controlled crossing facilities are provided east of Cassington up until the Wolvercote roundabout. No controlled crossing facilities are provided west of Witney Road.

4.5.23 The main access into the centre of Eynsham from the A40 is Witney Road. Witney Road has footway on both sides, separated from the carriageway by grass verge. The junction is traffic signal controlled, incorporating a pedestrian crossing. Pedestrian direction signing is present indicating the preferred route into Eynsham (800m / 1/2 mile). No cycle facilities have been provided within Eynsham.

4.5.24 Between Witney Road and the roundabout junction with the B4449 there are two PRoWs intercepting the A40. The first is a bridleway (reference 206/31/20 or the northern side of the A40 and 206/31/30 on the southern side). This crosses the A40 via an at grade staggered crossing. A traffic island is situated in the ghost island hatching of the right turn lane to a petrol filing station (Esso). The traffic island and approaches to the crossing are treated with pedestrian guard railing. The pedestrian guard railing on the island enforces a stagger on the crossing point.

4.5.25 The shared pedestrian and cycle route on the Eynsham side of the A40 is very narrow and enclosed by 2m high panel fencing. It joins Shakespeare Lane (a residential area) before terminating 220m from the junction with Mill Street. A new bridleway 206/8/10 commences on the eastern side of Mill Lane. It is considered that, in practice, this PRoW is utilised as a footpath rather than a bridleway.

4.5.26 The shared use pathway changes to a segregated facility to the west of the petrol filling station at a point 100m from the entrance just before the beginning of the diverge lane for the access (point F). This is indicated by a sign facing eastbound traffic mounted back to back with a sign facing westbound traffic. Further signing is present, with the next sign being located just prior to the 206/31/20 crossing. These signs should be mounted back to back and face the oncoming traffic. However, this sign is mounted parallel to the cycle track direction of travel and shows the cycle symbol on the left and the pedestrian symbol on the right. The final sign mounted at the eastern end of the segregated facility is identical, albeit facing westbound traffic. The sign is intended to be directional, such that the order of the symbols indicate the delineation between pedestrians and cyclists. Unfortunately, all the signs show the cycle symbol on the left and the pedestrian symbol on the right regardless of the direction of travel. This is incorrect and potentially dangerous.

4.5.27 Cyclists and pedestrians must cross the petrol filing station access and egress and are compelled to give way to vehicular traffic. There is no indication provided to people using 206/31/20 that they are crossing a segregated cycle track and there is no indication of priority. This has the potential to be dangerous, particularly in poor visibility. The crossing is not illuminated.

4.5.28 The second PRoW to intercept the A40 between Witney Road and the B4449 junction is bridleway 206/9/10. Bridleway 206/9/10 runs north of the A40, west of the Lower Road Roundabout. It continues north to the Lower Road. At the junction with the A40, it is a narrow asphalt path of approximately 1.5m width. A widened footway runs east along the north verge of the A40 to an uncontrolled crossing point connecting to the Bridleway 206/9/20 on the south side of A40.

4.5.29 Bridleway 206/9/20 runs south of the A40, east of the Lower Road Roundabout. It is approximately 50m east of Bridleway 206/9/10. At the junction with the A40 it is a narrow asphalt path of approximately 1m width. It terminates immediately after this as it meets Hanborough Road.

4.5.30 There are no NMU facilities along the northern section of the B4449 Eynsham Bypass.

4.5.31 The A40 shared use pathway passes east-west through the roundabout, crossing at grade via the traffic splitter islands on the B4449 to the south and, Lower Road to the north. Eynsham Mead Ditch passes to the east of the roundabout under the eastern entry and exit lanes by means of a culvert. Open box beam safety barrier is in place to protect the parapet. The NMU facility passes behind the barrier.

4.5.32 Bridleway 206/8/30 crosses the B4449, 95m to the north of the roundabout junction with Newland Road/Cassington Road before turning south to cross Cassington Road east of the roundabout.

4.5.33 The BP petrol filling station (point G) operates a separate in/out access with both the entry and egress crossing the shared use pathway in the southern verge. Unlike the Esso petrol filling station, there is no temporary segregation of the facility across the frontage. The westbound diverge lane at the entrance requires cyclists to give way to traffic on the diverge. It is positioned in such a manner as to require cyclists to look almost 180° behind them for oncoming traffic. The end of the diverge lane has a give way marking, requiring westbound traffic to give way to eastbound traffic turning right into the petrol filling station.

Cassington to Duke's Cut

4.5.34 Existing NMU routes around Cassington are shown in Figure 4-37. In addition, the limitations in the current NMU infrastructure provision at Cassington are shown in Figure 4-38.

Figure 4-37: Existing NMU Routes - Cassington

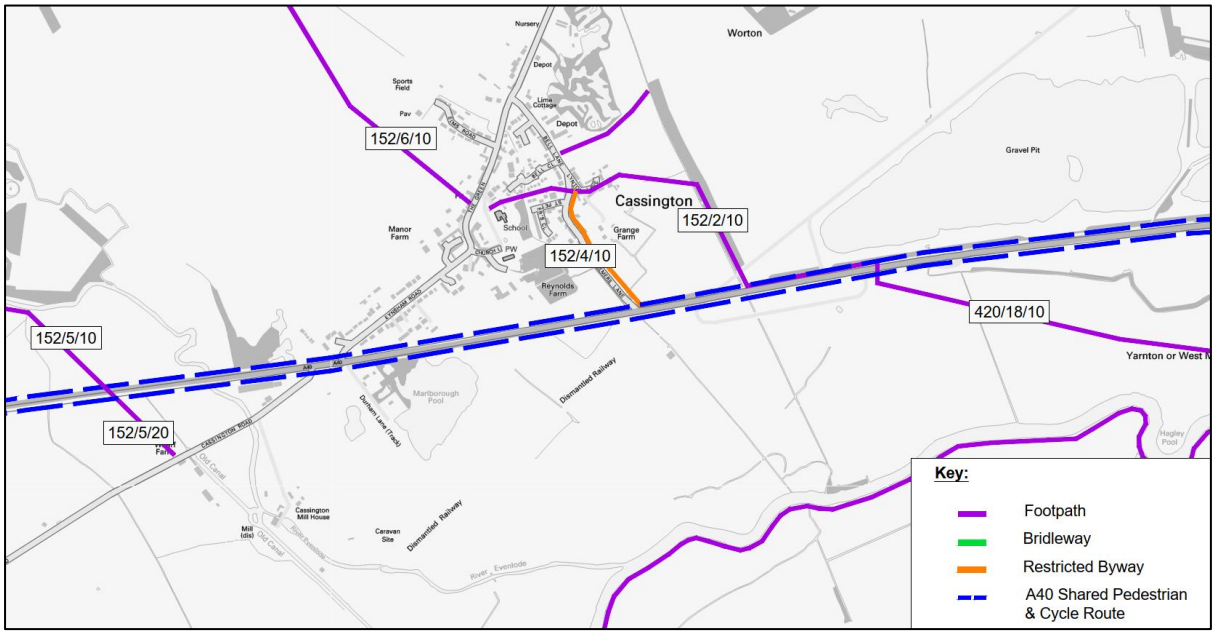
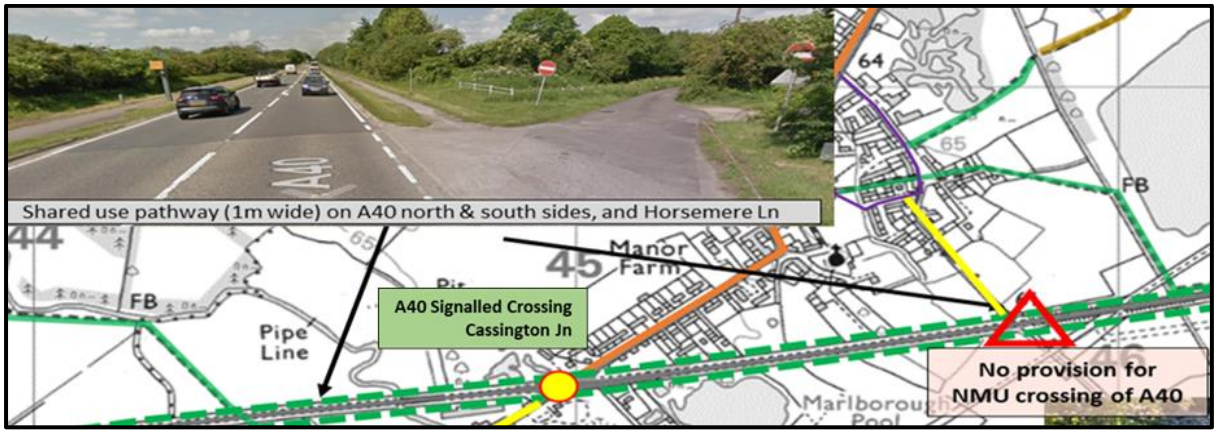


Figure 4-38: Limitations in Current NMU Infrastructure Provision - Cassington



4.5.35 Footpath 152/5/10 runs north of the A40, along the River Evenlode. It intersects with the A40 approximately 600m east of Eynsham roundabout. Footpath 152/5/20 runs south of the A40, across from Footpath 152/5/10. This section of the footpath terminates on Cassington Road.

4.5.36 Footpath 152/2/10 intersects with the A40 immediately east of the Oxford Charcoal company access road on the south side. This footpath runs from Cassington, parallel to the A40 and then continues south in the fields south of the A40 to join with Wolvercote Mill Stream and Dukes Cut.

4.5.37 Two bridleways and a restricted byway are also present along the Scheme, which may also be used by pedestrians.

4.5.38 Horsemere Lane is a restricted byway (152/4/10) which allows a right of way on foot, on horseback, leading a horse and cycling. Horsemere Lane allows access for vehicles travelling in a southbound direction. Horsemere Lane connects the A40 with Cassington and is located approximately 700m east of the junction of the A40 and Eynsham Road. There is no public right of way present opposite Horsemere Lane on the south side of A40.

4.5.39 The section of A40 from Cassington, through to Dukes Cut and beyond into the Wolvercote area of north Oxford is fairly consistent in its cross section. A wide verge with a wide separation and narrow shared use pathway. The separation reduces in width approaching Horsemere Lane before disappearing altogether leaving a wider shared use pathway with no separation from the main carriageway. The route is kerbed throughout providing vertical separation from the vehicular traffic.

Oxford Meadows – Dukes Cut – Wolvercote

4.5.40 Existing NMU routes around Wolvercote are shown in Figure 4-39. In addition, the limitations in the current NMU infrastructure provision around Wolvercote are shown in Figure 4-40.

Figure 4-39: Existing NMU Routes– Oxford Meadows – Dukes Cut – Wolvercote

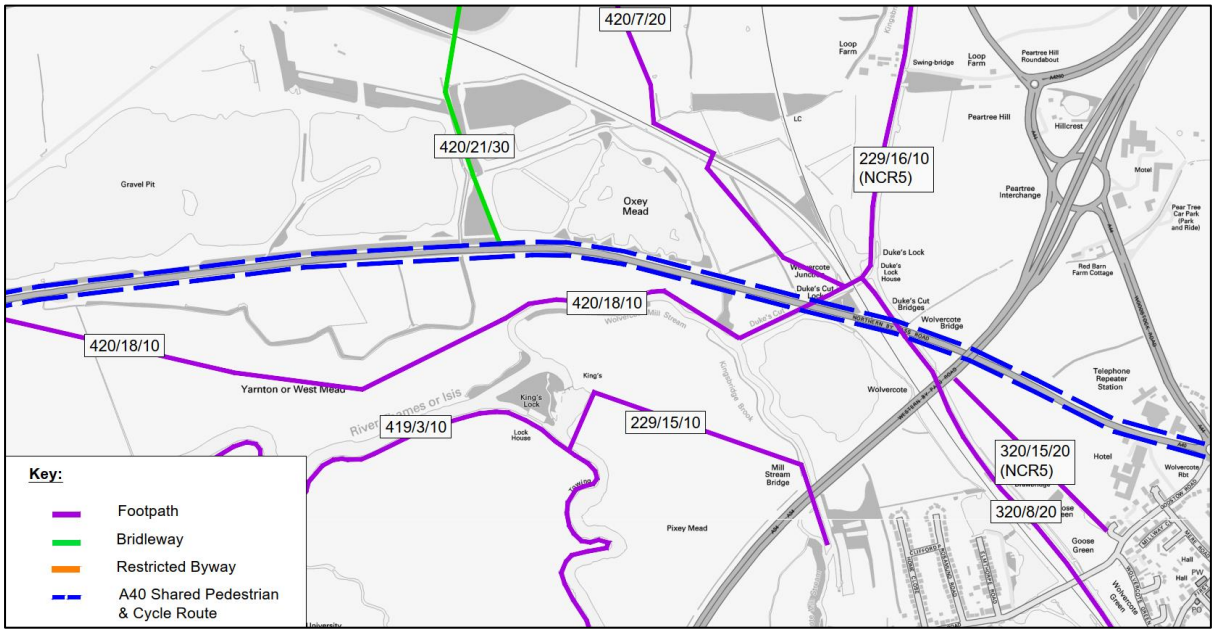
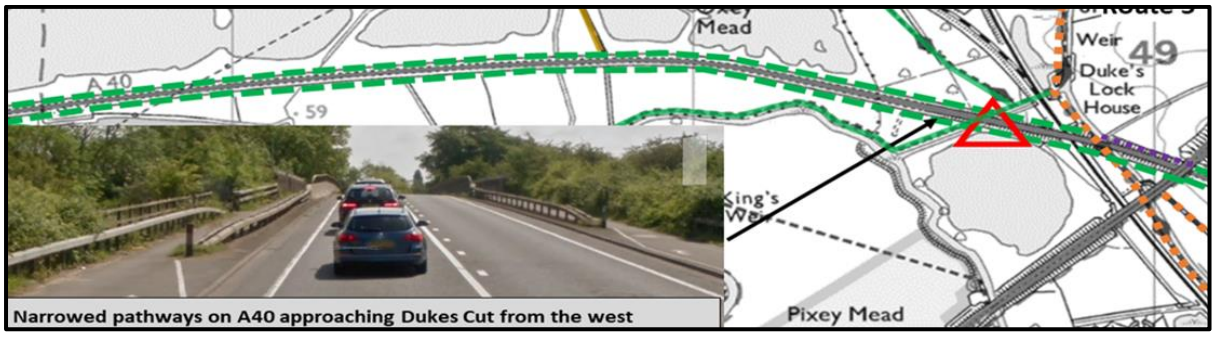


Figure 4-40: Limitations in Current NMU Infrastructure Provision - Oxford Meadows – Dukes Cut – Wolvercote



4.5.41 Footpath 152/5/10 passes through West Mead, becoming footpath 420/18/10, before following the northern bank of Wolvercote Mill Stream. It then turns east-north-east along the northern bank of Dukes Cut, becoming footpath 229/12/10. Dukes Cut is a canal cut that joins the River Thames with the Oxford Canal. Dukes Cut passes under the A40. Here the footpath joins footpath 229/11/10 (also known as Shakespeare's Way a waymarked long-distance footpath).

4.5.42 Bridleway 420/21/30 links Mead Farm to the A40 runs through the area by the lakes. The bridleway passes under the Railway. The access from the A40 is very overgrown and the bridleway sees little usage.

4.5.43 Bridleway 420/21/10 starts on Church Lane in Yarnton, approximately 1km north of the A40. It passes under the Cotswold Line via an underpass where it enters Oxey Mead and becomes Bridleway 420/21/30.

4.5.44 Shakespeare's Way then passes under the Worcester and Wolverhampton railway line (Great Western Railway; Cotswold Line). The Dukes Cut meets the Oxford Canal at a T-junction where the footpath continues northwards as 229/16/10. A small footbridge crosses over Dukes Cut to form route south (footpath 229/11/30). This is also part of Shakespeare's Way. The Oxford Canal tow path (western bank), also serves as National Cycle Network Route 5 (NCN-R5).

4.5.45 NCN Route 5 is the only National Cycling Network route in the immediate vicinity of the Scheme extents. Route 5 is a long-distance route connecting Reading and Holyhead via Oxford, Stratford-upon-Avon, Birmingham, Stoke-on-Trent, Chester, Colwyn Bay and Bangor. It runs along the outskirts of the Scheme east of Duke's Cut Bridge, running alongside the Oxford Canal. There could be an opportunity to tie this route into the A40 cycle track by coming off-line and reducing the level down under the A40.

4.5.46 NCN Route 57 is a continuation of Route 48 from Cirencester in Gloucestershire. It runs from Farmington to Witney and into the village of Cogges. From here cycling on carriageway along the Stanton Harcourt Road cyclists can cross over the A40 Witney Bypass to the south. Route 57 is joined by Route 577 in Witney which passes under the A40 just east of the junction with the A415. These two routes provide suitable grade separated crossings of the A40 from the urban area surrounding Witney. On carriageway cycling from Route 57 along Cogges Hill Road can provide access to Cogges Hill and on to the A40 cycle tracks running alongside the A40.

4.5.47 NCN Route 442 is a route of two parts: the first follows part of the disused Cotswold Line railway from Worcester to Evesham via Pershore; the second links Honeybourne (Worcestershire) and Long Hanborough in Oxfordshire. The route joins the A4095 shared-use cycle path through Long Hanborough village, to Hanborough train station. A connection between Route 442 and A40 can be made via Lower Road. This section of route is located approximately 3km from the A40 and can be reached via Cuckoo Lane. Due to the nature of Cuckoo Lane, it is not considered likely that many people would use it as a cycle route. An alternative route would be east from Long Hanborough to join with NCN Route 5.

Walking, Cycling and Horse-Riding Assessment

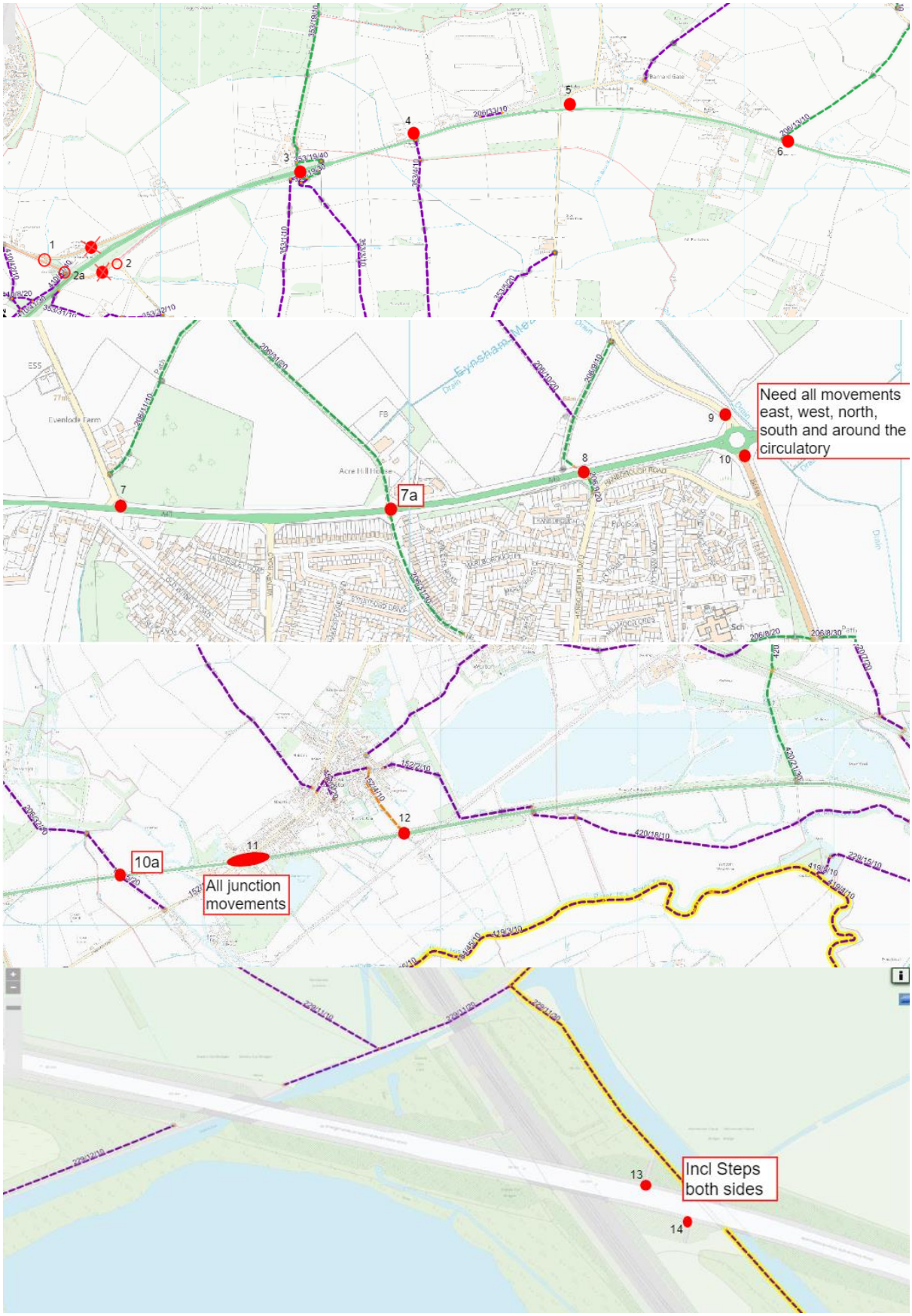
4.5.48 AECOM has produced a Walking, Cycling and Horse-Riding Assessment Report (WCHAR) for Oxfordshire County Council in support of the Scheme, in line with DMRB GG142. The purpose of the WCHAR is to facilitate the inclusion of all walking, cycling and horse-riding modes in the highway scheme design process from the earliest stage, enabling the design team to identify opportunities for improved facilities and integration with the local and national networks throughout the design process.

4.5.49 The study area has been defined in accordance with GG142 Walking, Cycling and Horse-Riding Assessment and Review as 5km around the Scheme extents. It covers the B4022 between Cogges Lane, Cogges and the junction with the A40 main carriageway at Shores Green, at the western end of the Scheme and the tie in with Dukes Cut to the west of Goose Green, north west of Oxford, at the eastern end of the Scheme.

4.5.50 The WCHAR includes details of walking, cycling and horse-riding counts that were undertaken during the Sunday 15th, Monday 16th and Tuesday 17th August 2021 between the hours of 5am to 9pm. There were 14 counts in total, with no recorded horse movements throughout the survey. The survey locations are outline below and illustrated in Figure 4-41. Below is a summary of the findings of the WCHAR.

- **Location 1**: B4022 / A40 EB Slip, Witney
- **Location 2**: A40 WB off slip / South Leigh Road / B4022 junction, Witney
- **Location 2a**: B4022 and PRoW 410/41/40
- **Location 3**: PRoW in the vicinity of the bridge leading to Hill Farm Livery
- **Location 4**: A40 junction with PRoW 206/22/10
- **Location 5**: Barnard Gate Junction
- **Location 6:** A40 Junction with PRoW 206/13/10
- **Location 7:** A40 Junction with Cuckoo Lane
- **Location 7a**: A40, PRoW 206/31/20 & PRoW 206/31/30
- **Location 8**: A40, PRoW 206/9/10 & PRoW 206/9/20
- **Location 9 & 10**: Eynsham Roundabout North
- **Location 10a**: A40, PRoW 152/5/20
- **Location 11**: A40 Cassington Road / Eynsham Road
- **Location 12**: A40 Junction with Horsemere Lane
- **Location 13**: A40, PRoW 229/11/30
- **Location 14**: A40, PRoW 229/11a/10

Figure 4-41: NMU Survey Locations 2021



4.5.51 **Location 1:** The NMU counts suggest that there is a stronger cycling influence over pedestrian movements due to cyclists using facilities shared with pedestrians, rather than using the carriageway. There was no equestrian movements during the counts.

4.5.52 **Location 2:** A strong cycle presence is recorded on this location, although there are no cycle facilities within the vicinity.

4.5.53 **Location 3:** There are no recorded equestrian movements during the survey.

4.5.54 **Location 4:** Counts suggest that this location is used by cyclists for commute and leisure purposes.

4.5.55 **Location 5:** NMU counts show that the predominant movement for NMUs at this location is to / from the shared pathway that connects to Salutation Farm are movement recorded. The movements at this location were mainly (84.5%) cyclists.

4.5.56 **Location 6:** NMU counts show that the main movement for NMUs at this location is along the shards use pathway alongside the A40. During the survey period 93.6%of the NMUs using the shared use pathway were cyclists.

4.5.57 **Location 7:** It was observed that there was an increase in cycle movements along Cuckoo Lane, the counts showed that cyclists generally remain on the same side of the A40 they started on and travel through this location.

4.5.58 **Location 8:** Although there is bridleway, no equestrians were recorded during the survey period, and as on previous locations cyclists are predominant.

4.5.59 **Location 9 & 10:** The predominant movement recorded at these locations during the survey period was NMUs travelling eastbound and westbound along the A40 on either the north or south side of the carriageway. The lack of crossing facilities at this location make it difficult for NMUs to cross the A40 carriageway. The movements at this location were mainly (74.5%) cyclists.

4.5.60 **Location 11:** Counts recorded indicate that during the survey period the most frequent movements were between Eynsham Road and Cassington Road and along the A40. The movements at this location were mainly (69.2%) cyclists.

4.5.61 **Location 12:** NMU counts show that along A40 corridor at Horsemere Lane, the main movement of NMUs is along the A40 corridor with cyclists encompassing the majority of users.

4.5.62 **Location 13:** This location consists of metal steps connecting PRoW to the shared use pathway on the northern side of the A40. The main movement is along the A40, and it is mainly used by cyclists.

4.5.63 **Location 14:** This location consists of metal steps connecting PRoW to the shared use pathway on the southern side of A40. The main movement is along the A40, and it is used by cyclists predominately.

4.5.64 The WCHAR outlines the user opportunities identified by the Lead Assessor as part of the assessment:

- Pedestrian and cyclist access to the Park and Ride site, which has been addressed as part of the consented Park and Ride scheme;
- Provision of cycle parking at the Park and Ride site, which has been addressed as part of the consented Park and Ride planning application;
- Future proofing the design of the Park and Ride site junction to allow for walking and cycling access, which has been addressed as part of the consented Park and Ride planning application;
- There is an opportunity to provide increased pedestrian and cycling provision at Cassington Halt Bridge and Cassington New Bridge with widening and footbridge options; and
- Review the proposed lighting design for the Scheme to ensure maximum benefits to walking, cycling and horse-riding users.

4.6 Public Transport

Bus

4.6.1 Due to the COVID-19 pandemic the bus routes along the A40 are running on a reduced or varied timetable. As these timetables are expected to be a temporary measure, a summary of the available bus routes along the A40 pre COVID-19 pandemic are summarised below.

4.6.2 There are four bus stops (two pairs) located on the A40 between Cuckoo Lane and Duke's Cut. One pair (referred to as The Evenlode PH bus stops) is located near the Cuckoo Lane junction, with the eastbound stop located to the east of the junction and the westbound stop to the west. The other pair is located to the east near the Cassington Signals. The eastbound bus stop is located to the west of the Cassington Signals and the westbound stop is located within the stagger between Cassington Road and Eynsham Road.

4.6.3 Table 4-1 identifies the bus routes that serve each of these four bus stops.

Table 4-1: Local Bus Stops and Bus Routes

Bus Stop Name	Direction	Bus Routes
The Evenlode PH	Westbound	S1, S2, 853, H2
	Eastbound	S1, S2, 853, H2
Cassington Turn	Westbound	S2, 853, H2
	Eastbound	

4.6.4 Table 4-2 identifies the route and frequency of these services.

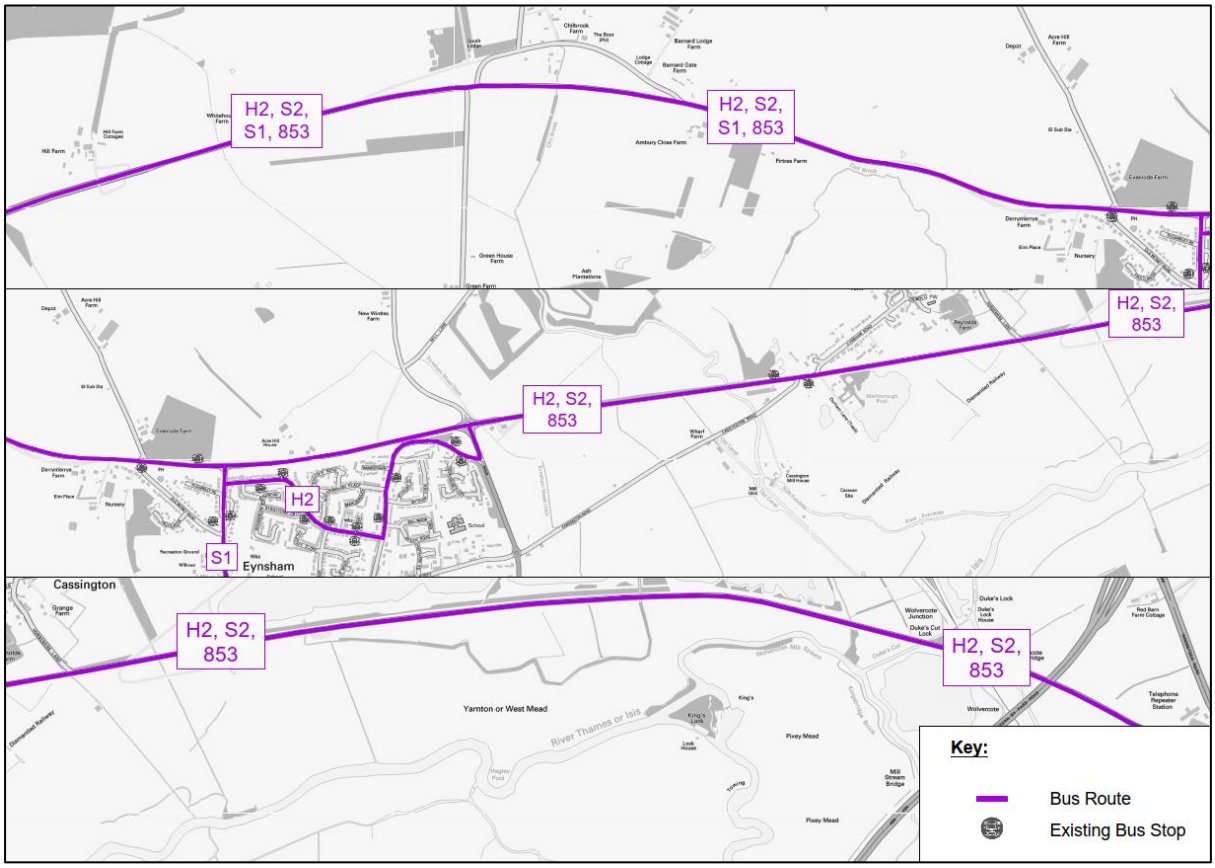
Table 4-2: Frequency of Local Bus Routes (Single Direction)

Service	Route	AM 0800-0900	Off-Peak[2]	PM 1700-1800
S1	Oxford - Farmoor - Eynsham - Witney - Carterton	5	4	5
S2	Oxford - Cassington Turn - Witney - Carterton	1	1	1
H2	JR Hospital - Eynsham - Witney - Carterton	1	1	1
853	Gloucester/Cheltenham - Burford - Witney - Oxford	1	0	1

4.6.5 Figure 4-42 identifies the bus stops that can be accessed on the A40 and the local bus routes.

[2] Average number of buses per hour taken between 0900-1700

Figure 4-42: Bus Routes along the A40



Rail

4.6.6 The nearest rail station is located in Long Hanborough, which is over 4km to the north of the A40. Hanborough Station is served by Great Western Railway (GWR) and operates between Paddington and Hereford.

4.6.7 The rail journey between Hanborough Station and Oxford Station typically takes between 9 and 14 minutes. The latest information regarding timetables at Hanborough Station are available from the GWR website (www.gwr.com/).

4.6.8 Hanborough Station has 1-2 trains per hour in each direction on a typical weekday.

4.6.9 In support of the Salt Cross AAP, the District Council commissioned an Infrastructure Study for Hanborough Station which identifies a series of potential short and longer-term improvements to station facilities and surrounding infrastructure. The vision for Hanborough Station is that by the end of the Local Plan period in 2031, it will be a modern and efficient transport and mobility hub for West Oxfordshire that is safe and accessible for all with early delivery of dedicated walking and cycling connections and frequent, integrated and reliable bus services.

4.6.10 *'The North Cotswold Line Task Force, supported by Network Rail, are proposing a significant increase in the train service at Hanborough to meet the anticipated increase in demand for travel from developments such as Salt Cross and the West Eynsham Strategic Development Area. With direct links to other employment sites in Oxfordshire, such as Culham and Science Vale, the extra train services will give people another viable alternative to using their cars.'*

4.6.11 *'The proposal being developed includes up to four trains per hour, including a train every 30 minutes to London and Worcester, as well as the introduction of two trains per hour between Hanborough, Oxford and Didcot, and will be supported by infrastructure improvements including reinstatement of double track, a second platform at Hanborough and associated station enhancements.'*

4.7 Road Safety

4.7.1 AECOM undertook a separate Collision Investigation Study in October 2020. Two collision analysis reports were produced which focus on the Integrated Bus Lanes and Duke's Cut sections and the other report focuses on the dualling section of the Scheme. Both collision analysis reports are provided in Appendix A1.

4.7.2 The collision investigation analysis contained within the two collision analysis reports use the latest available personal injury collision (PIC) data provided by OCC for the 5-year period from 1st January 2015 to 31st December 2019. The two reports provide an update on collision investigation studies previously undertaken by AECOM in November 2017 (report ref: 60551821-REP-R0-A40) and February 2019 (60551821-REP-R1-A40) for which the collision data has since been superseded by more recently available data.

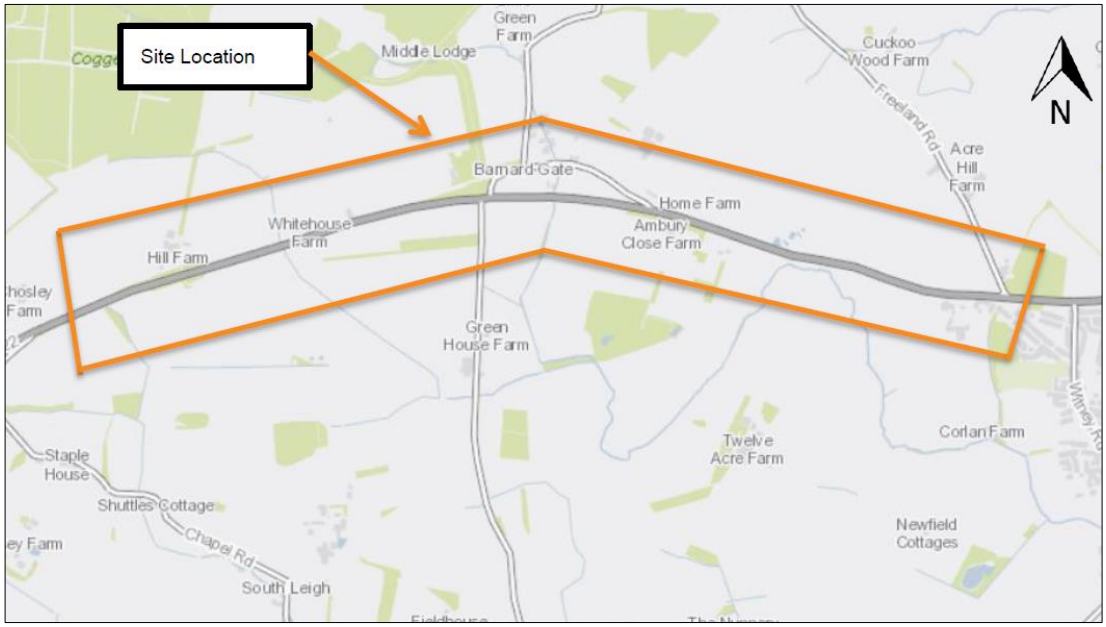
4.7.3 In addition to the summary of the two collision analysis reports, the available Personal Injury Collision (PIC) data available for 2020 has been analysed. A comparison has then been made between the pre COVID-19 pandemic data contained within the two collision analysis reports and the 2020 data as generally reduce traffic flows were seen not only across Oxfordshire but the country from the beginning of the first national lockdown in March 2020.

4.7.4 A summary of the two collision analysis reports and the available 2020 data is provided below.

Dualling Section

4.7.5 The extent of this investigation is shown on the site location plan in Figure 4-43, covering the section of the A40 from approximately 800m east of Shores Green (western Scheme extents) to the junction of Cuckoo Lane (eastern Scheme extents).

Figure 4-43: Site Location Plan - Dualling



4.7.6 Between 1st January 2015 and 31st December 2019, there were a total of 35 collisions recorded within the study area, of which nine resulted in serious injury and 26 in slight injury severity.

4.7.7 Table 4-3 provides an annualised breakdown of the collision severity for each calendar year.

Table 4-3: Analysis by Number of Collisions and Severity

Year	Fatal	Serious	Slight	Total
2015	0	2	5	7
2016	0	1	6	7
2017	0	3	9	12

2018	0	1	3	4
2019	0	2	3	5
Total	**0**	**9**	**26**	**35**
Total (%)	**0%**	**26%**	**74%**	**100%**

4.7.8 Table 4-4 provides an annualised breakdown of the collision by mode of travel for each calendar year.

Table 4-4: Analysis of Collisions by Mode of Travel Each Year

Mode of Travel	2015	2016	2017	2018	2019	Total
Pedestrian	0	0	0	0	0	**0**
Pedal Cycle	1	0	0	0	0	**1**
Powered two- wheeler (PTW)	2	3	3	0	1	**9**
Car	5	5	11	4	5	**30**
Goods	2	1	1	1	3	**8**
Agriculture	1	0	0	0	0	**1**
Other/Unknown	0	0	1	0	0	**1**

4.7.9 Upon completion of the collision analysis, the following conclusions have been made:

- A total of 35 personal injury collisions occurred during the 5-year study period from 1st January 2015 to 31st December 2019.
- Of the total 35 collisions recorded, no collisions resulted in a fatality, nine collisions (26%) resulted in serious injuries and 26 collisions (74%) resulted in slight injury severity.
- “Failed to look properly”, “Failed to judge person's path/speed”, “Poor turn or manoeuvre” and “Following too close” were the most commonly recorded causation factors for collisions on the route.
- Rear-end shunt collisions accounted for 15 (43%) of the total 35 collisions recorded.
- Commuting or travelling as part of work together accounted for most trips taken by those involved in a collision.
- The manoeuvres of “Going ahead other”, “Going ahead but held up” and “stopping” were attributed to 73% of all vehicles involved in a collision.
- A total of 13 collisions resulted in a vehicle leaving the confines of the carriageway following the collision, of which three also resulted in a vehicle overturning.
- A total of 19 collisions (54%) occurred at a junction, of which 15 (43%) occurred at a T-junction or staggered junction.
- No collisions involved conflict with a pedestrian.
- A single collision involved conflict with a pedal cyclist, which resulted in slight injury. The collision occurred after a driver of a foreign HGV opened their vehicle door into the path of a cyclist on the shared use pathway.
- Of the total 80 vehicles involved in a collision, a total of nine (11%) involved a PTW (motorcyclist). The majority of these were attributed to behavioural causation factors such as filtering past slow moving/queuing traffic and conflicting with turning traffic.
- Of the total 80 vehicles involved in a collision, cars (73%) accounted for the highest mode of travel, with large goods vehicles (13%) second and motorcyclists (11%) being third highest.
- Out of the total 54 casualties recorded, the highest number were male and between the ages of 18 and 59 years. Comparison to the national percentages shows the numbers are slightly lower for the A40.

- A high number of collisions were recorded during a Friday (34.3%), with collisions being generally higher during the weekdays compared with the weekend.
- Collision numbers were generally higher during the morning, inter and evening peak traffic hours.
- All the analysis undertaken in comparison to the national data show no significant differences for the A40. The A40 Smart Corridor collision data was broadly similar when compared with the national data.
- A total of two cluster sites were identified along the route, located at the A40 junctions with Hill Farm Access Road and Barnard Gate/South Leigh Turn.

2020 Collision Data Analysis

4.7.10 The data for 2020 has been assessed separately from the previous years due to the change in traffic flows as a result of the COVID-19 pandemic. The extent of this 2020 collision data investigation includes all the areas covered in Figures 3.5 and 3.6 shown above. This is the section of the A40 between Shores Green (western Scheme extents) to Dukes Cut (eastern Scheme extents).

4.7.11 Between 1st January 2020 and 31st December 2020, there were a total of 14 collisions recorded within the study area, of which one resulted in fatalities, three resulted in serious injury and 10 in slight injury severity.

4.7.12 The table below provides a breakdown of the collision severity for 2020.

Table 4-5: Analysis by Number of Collisions and Severity in 2020

Year	Fatal	Serious	Slight	Total
2020	1	3	10	14
2020 (%)	7.1%	21.4%	71.5%	100%

4.7.13 The table below provides a breakdown of the collisions by mode of travel for 2020.

Table 4-6: Analysis of Collisions by Mode of Travel in 2020

Mode of Travel	2020
Pedestrian	0
Pedal Cycle	2
PTW	2
Car	6
Goods	4
Agriculture	0
Other/Unknown	0

4.7.14 The two figures below show the locations and severity of these collisions:

Figure 4-44: Location and Severity of 2020 Collisions 1 of 2

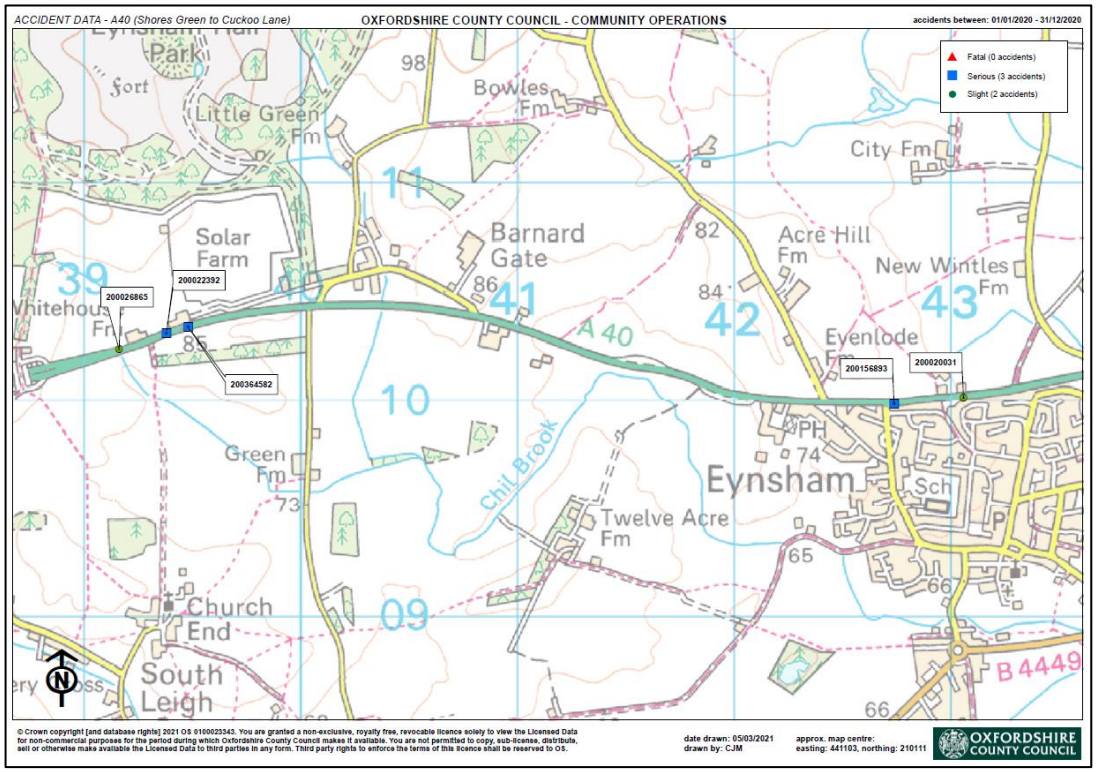
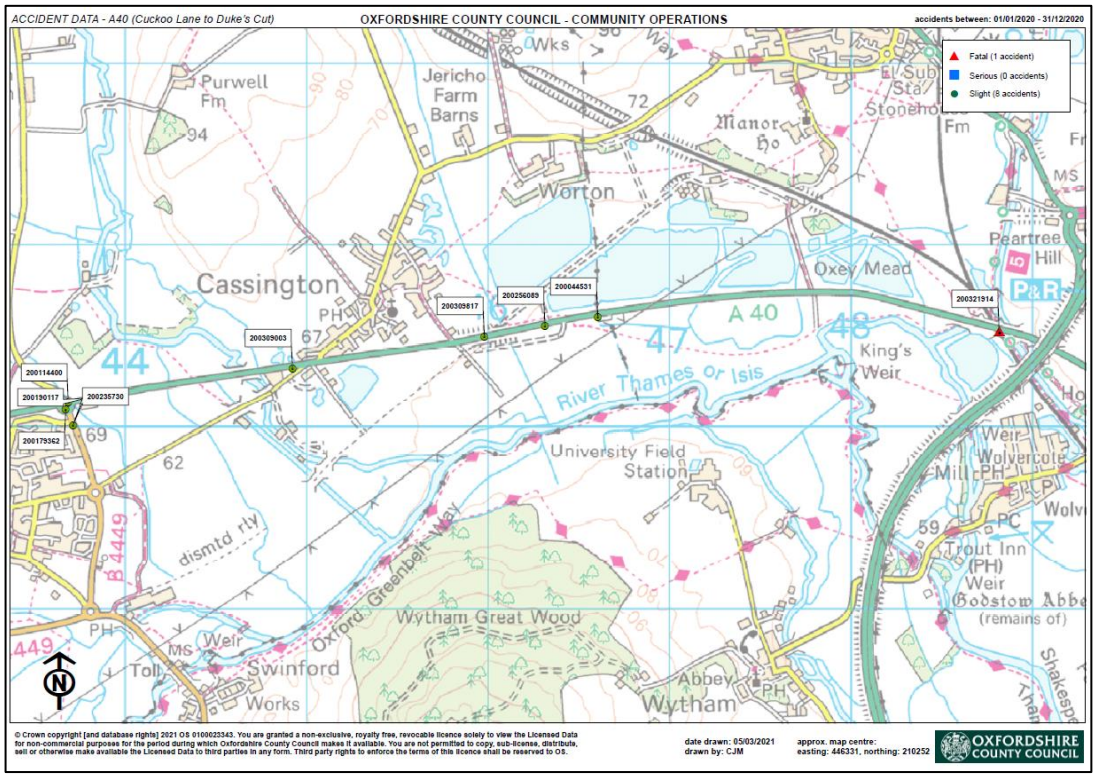


Figure 4-45: Location and Severity of 2020 Collisions 2 of 2



4.7.15 Upon completion of the collision analysis, the following conclusions have been made:

- A total of 14 personal injury collisions occurred during the 1-year study period from 1st January 2020 to 31st December 2020.
- Of the total 14 collisions recorded, one collision (7%) resulted in a fatality, three collisions (21%) resulted in serious injuries and 10 collisions (72%) resulted in slight injury severity.
- “Failed to look properly”, “Failed to judge person's path/speed”, “Poor turn or manoeuvre” and “Following too close” were the most commonly recorded causation factors for collisions on the route.
- Rear-end shunt collisions accounted for six (43%) of the total 14 collisions recorded.
- No collisions involved conflict with a pedestrian.
- Two collisions involved conflict with a pedal cyclist, of which one was serious, and one was slight in severity. The serious injury occurred when a cyclist entered the A40 from a footpath without looking and was hit by a car. The slight collision occurred when a car pulled onto a roundabout into the path of a pedal cyclist.
- Of the total 31 vehicles involved in a collision, a total of two (6%) involved a PTW (motorcyclist). Both occurred when a vehicle turned across the path of a motorcyclist.
- Of the total 31 vehicles involved in a collision, cars and vans (75%) accounted for the highest mode of travel, with heavy goods vehicles (13%) second and motorcyclists/pedal cyclists (6% each) being joint third highest.
- The only minor cluster site identified along the route was located at the A40 junction with Lower Road and the B4449 (Eynsham Roundabout). There were three collisions on or approaching this junction. Two of these were rear end shunts on the approach to the junction and the third was when a vehicle pulled into the path of a motorcycle on the roundabout.

Integrated Bus Lanes and Duke’s Cut Section

4.7.16 The extent of this investigation is shown on the site location plan in Figure 4-46, covering the section of the A40 from west of Cuckoo Lane (western Scheme extents) to where the A40 passes over the railway line to the east of Duke’s Cut (eastern Scheme extents).

Figure 4-46: Site Location Plan - Integrated Bus Lanes and Duke’s Cut

4.7.17 Between 1st January 2015 and 31st December 2019, there were a total of 53 collisions recorded within the study area, of which one was fatal, 14 resulted in serious injury and 38 in slight injury severity.

4.7.18 Table 4-7 below provides an annualised breakdown of the collision severity for each calendar year.

Table 4-7:Analysis by Number of Collisions and Severity

Year	Fatal	Serious	Slight	Total
2015	1	4	8	13
2016	0	4	7	11
2017	0	2	11	13
2018	0	2	8	10
2019	0	2	4	6
Total	**1**	**14**	**38**	**53**
Total (%)	**2%**	**26%**	**72%**	**100%**

4.7.19 Table 4-8 provides an annualised breakdown of the collision by mode of travel for each calendar year (note multiple modal types can be involved in the same collision).

Table 4-8: Analysis of Collisions by Mode of Travel Each Year

Mode of Travel	2015	2016	2017	2018	2019	Total
Pedestrian	1	0	0	0	0	**1**
Pedal Cycle	1	1	0	0	0	**2**
PTW	6	4	2	3	2	**17**
Car	11	10	13	10	6	**50**
Goods	4	3	2	3	1	**13**
Agriculture	1	0	0	0	0	**1**
Other/Unknown	0	0	0	0	1	**1**

4.7.20 Upon completion of the collision analysis, the following conclusions have been made:

- A total of 53 PICs occurred during the 5-year study period from 1st January 2015 to 31st December 2019.
- Of the total 53 collisions recorded, one collision resulted in a fatality (2%), 14 collisions (26%) resulted in serious injuries and 38 collisions (72%) resulted in slight injury severity. This results in a KSI index of 0.28.
- “Failed to look properly”, “Careless/Reckless”, “Following too close” and “Loss of Control” were the most commonly recorded causation factors for collisions on the route.
- Rear-end shunt collisions accounted for 23 (43%) of the total 53 collisions recorded, whilst 28 (53%) collisions referred to slow moving or queuing traffic as being a contributory factor.
- Road users undertaking a “journey as part of work” or “commuting to/from work” respectively accounted for 25% and 14% of all collisions.
- The manoeuvres of “Going ahead other”, “Going ahead but held up” and “stopping” were attributed to 68% of all vehicles involved in a collision.
- A total of 18 (34%) collisions occurred at a junction, of which 11 (21%) occurred at a T-junction or staggered junction.
- Six collisions resulted in a vehicle leaving the confines of the carriageway following the collision.
- Vulnerable Road Users (VRUs) accounted for 21 (or 29%) of the total 73 casualties, of which one was a pedestrian (which resulted in fatal injuries), two were cyclists (one serious and one slight injury) and 18 were motorcycle riders/passengers (11 serious and seven slight injury severity). No casualties involved an equestrian.
- Of the total 125 vehicles involved in a collision, cars (66%) accounted for the highest mode of travel, with powered two wheelers (15%) second and goods vehicles (14%) being third highest.

- The highest number of collisions occurred during the months of February and June, during a Saturday, and during the hour commencing 16:00.
- The A40 junction with B4449 (Eynsham Roundabout) recorded the highest cluster of collisions along the route, with a total of 11 collisions recorded at the roundabout (or on the immediate approaches).

2020 Comparison with Earlier Data

4.7.21 The data for 2020 was assessed separately to see if there is any difference in the collision statistics when the change in traffic associated with the COVID-19 pandemic is considered. The table below provides a breakdown of the average annual collisions by severity for the period of 2015 to 2019. The table then shows how this compares to the collision severity for 2020. The 2015 to 2019 data combines the two collision data reports summarised above.

Table 4-9: Analysis by Number of Collisions and Severity - Data Comparison

Year	Fatal	Serious	Slight	Total
2015 – 2019 Annual Average	1	23	64	88
2015 – 2019 Annual Average (%)	1.1%	26.1%	72.8%	100%
2020	1	3	10	14
2020 (%)	7.1%	21.4%	71.5%	100%

4.7.22 The table above shows that there is a broadly similar pattern of severity during 2020 when compared with previous years. The only difference is when the one fatality is considered in 2020. This incident occurred when a car driver crossed into the opposite carriageway for unknown reasons and hit an oncoming HGV. This appears to be a one-off incident, with the speed of the vehicle not given as a causation factor. This suggests that the change in traffic flows would not have been a factor in this collision.

4.7.23 The only cluster identified along the route in 2020 was at the Eynsham Roundabout, where three collisions occurred that year. Between 2015 and 2019 there were a total of 11 collisions recorded at the roundabout (or on the immediate approaches). This equates to an average of two collisions per year, indicating a slight increase during 2020.

A40 Road Safety Summary

4.7.24 Collision data recorded for the periods 2014-2018 and January-November 2019 on the A40 between Hill Farm (Witney) and Wolvercote Roundabout in Oxford, shows that 141 collisions occurred during that time. This equates to an annual accident rate per bn/veh-kms of 71 which is much below the national average for A-Roads (Department for Transport Statistics Accidents and accident rates by road class and severity. Nationally there is a general downward accident trend between 2010 and 2020 (from 319 to 217 accidents per bn/veh-kms respectively), and the A40 falls well below average in this category.

4.7.25 Available data shows that the highest number of collisions and casualties occurred during the months of February and June, with January and December being those with the lowest incident count.

4.7.26 The majority of collisions recorded involved motor vehicles only, with almost no accidents involving pedestrians (1 in each of 2014 and 2015 and none since), and a small percentage involving bikes (17 in total between 2014 and 2019). Of the total 141 collisions recorded, 2 (1%) resulted in fatal casualties, 35 (25%) were categorised as serious and the remaining 104 (74%) were categorised as slight.

4.7.27 The locations of the recorded collisions on this section of the A40 are spread across most of its length, although there is some pattern of concentration of collisions nearby junctions such as Wolvercote Roundabout, Eynsham Road junction at Cassington, Eynsham Roundabout and Hill Farm junction.

5 Future Changes to the Baseline Conditions

5.1 Introduction

5.1.1 This section provides a summary of potential changes to the highway network, including pedestrian and cycle facilities, and bus service provision that are not to be delivered as part of the A40 Smart Corridor Scheme but have been taken into consideration in the future year assessments.

5.2 Developments coming forward

5.2.1 Infrastructure to be delivered as part of developments that are anticipated to be built by 2031 in line with the Local Plan have been considered as the proposed Scheme will be complete by this time. The main developments in the area surrounding the Scheme have been summarised below.

Oxford North

5.2.2 Oxford North is a development located to the north of Oxford. It is bounded by A40 on the south, A44 on the east and A34 on the west. The planning application (18/02065/OUT) has been granted permission for a mixed-use development compromising up to 480 new dwellings, 87,300 sqm (GIA) of employment uses, 2,500 sqm of retail use, a hotel of up to 180 bedrooms and 550 sqm of community space. Construction began in August 2021.

5.2.3 The main accesses will be from the A44 and A40 corridors, with the main mitigation measures concentrated around the A40 corridor and included a comprehensive design review.

5.2.4 As part of the Oxford North development a pair of new bus stops and an eastbound bus lane are proposed between Duke's Cut and Wolvercote roundabout.

5.2.5 Sustainable transport improvements are proposed to increase capacity and safe movement by bus, walking and cycling.

Salt Cross Garden Village

5.2.6 The Salt Cross Garden Village (previously referred to as in the West Oxfordshire Local Plan as 'Oxfordshire Cotswolds Garden Village') is a development located north of Eynsham, bounded by the A40 to the south, Lower Road to the east and extends west of Cuckoo Lane. The development is mixed-use and compromises proposals for 2,200 houses, retail, food and drink, health and community facilities, hotel, 57,000m^2 employment space, education provision and public open spaces.

5.2.7 Given the complexity of the Scheme, the application has been submitted as an outline application (20/01734/OUT),with a decision awaiting determination at the time of writing. Access is proposed from the A40, Cuckoo Lane and Lower Road. A roundabout serving the site (WRAB) is included in the Scheme proposals. For the purposes of this assessment, it has been assumed that there will be a roundabout on the A40 to serve the Salt Cross Garden Village development in the Do Minimum scenarios. The additional access points are proposed as priority junctions.

5.2.8 As identified in the Salt Cross Area Action Plan (AAP), it is assumed that Cuckoo Lane will be closed by 2031 to become a sustainable transport corridor to prioritise active and healthy travel.

5.2.9 A package of mitigation measures is proposed to improve the accessibility of the development by all modes of travel, specifically to reduce the need to travel by car. These include financial contributions to:

- B4044 cycle route to Botley via Swinford Toll Bridge; and
- Funding for and part delivery of a cycle route on Lower Road to Long Hanborough.

West Eynsham SDA

5.2.10 The West Eynsham SDA is situated to the south of the A40 and to the west of Eynsham. The West Oxfordshire Local Plan has identified this area for the location of 1,000 new homes of which 763 are dependent on the Scheme. An outline planning application (20/03379/OUT) has been submitted for the first phase (Chilbrook Meadows) of the development. The outline planning application for Chilbrook Meadows proposes that the number, type and mix of dwellings will be determined at the Reserved Matters stage.

5.2.11 The Scheme includes proposed access to the West Eynsham SDA from the Western Roundabout and from the Park & Ride access signalised junction.

North Witney SDA

5.2.12 The West Oxfordshire Local Plan identifies the North Witney SDA as a location for development, including the provision of 1,400 homes. This will include approximately 180-200 homes on land between New Yatt Road and Woodstock Road and approximately 800 - 820 homes on land between Hailey Road and New Yatt Road.

5.2.13 An outline planning application (14/01671/OUT) has been submitted to seek permission for 200 homes on the land between New Yatt Road and Woodstock Road.

East Witney SDA

5.2.14 The East Witney SDA has been identified in the West Oxfordshire Local Plan as an area for future growth including approximately 450 new homes. The East Witney SDA is split across two pieces of land, a small portion is located on Stanton Harcourt Road and the main portion is called Cogges Triangle.

5.2.15 An outline planning application (20/02654/OUT) has been submitted to seek permission for 495 homes, a community hub and associated green infrastructure and open space.

5.3 Highway Network

5.3.1 The proposals for the Salt Cross Garden Village development include access via a roundabout on the A40 known as the 'Western Roundabout' or WRAB. The scheme design includes a 3-arm roundabout located to the west of the Eynsham Park and Ride Site, two arms tying into the existing A40 with the Salt Cross Garden Village site access as the northern arm. There is potential for a fourth arm to be added to the south to provide access to the West Eynsham SDA, the Scheme's design has been future-proofed to enable delivery of a fourth arm if required.

5.3.2 The permitted Oxford North development includes a corridor scheme which ties into the existing A40 highway (to the west of where the A34 passes over the A40). The improvements to the A40 which will be implemented include reducing the speed limit from 60mph to 30mph, providing single traffic lanes in both directions, widening to 2/3 lanes on the approach to junctions to increase capacity and accommodate right turn facilities and an eastbound bus lane.

5.3.3 The Access to Witney (Shores Green) scheme, if permitted, will include the construction of two new west-facing slip roads at the Shores Green interchange; an on-slip to allow westbound traffic to join the A40 and an off-slip to allow eastbound traffic to leave the A40. As per the existing east facing slips arrangement, the new junction will be grade separated, with the A40 passing over the junction.

5.3.4 As identified in the North Corridor Study prepared by SKANSKA and CAPITA Real Estate, Pear Tree interchange is anticipated to become a fully signalised junction with four circulatory lanes in the future. In addition, it is anticipated that the A34 South approach is to be signalised and the dedicated left turn slip removed.

5.4 Active Travel

5.4.1 The Salt Cross Garden Village and Oxford North schemes propose a number of pedestrian/cycling improvements in the proximity of the sites on the A40. These are summarised below.

Walking

5.4.2 To support the Salt Cross Garden Village development three new signal-controlled crossings on the A40 are proposed in addition to the existing crossing at Witney Road.

5.4.3 There will be a HIF contribution towards the A40 crossings together with a contribution towards vegetation clearance, surface and signage improvements for pedestrians.

5.4.4 The improvements at the west end of the A40 in the proximity of the Oxford North development include a speed reduction from 60mph to 30mph in order to change the high-speed setting and create a more pleasant environment for pedestrians. Furthermore, two new toucan crossings and improved footway facilities along the A40 are proposed.

Cycling

5.4.5 Both the Salt Cross Garden Village and Oxford North developments include commitments to financial contributions towards cycle infrastructure improvements on the A40.

5.4.6 The proposed Scheme ties into improvements proposed as part of the Oxford North development as shown in Figure 5-1, which include:

- Cycle lanes in both directions on the carriageway running up to the access to the BP petrol station;
- Cycle bypass facilities at the proposed bus stops;
- Improved shared pedestrian/cycle facilities on both sides of the A40; and
- Two toucan crossing (on the access junction and a standalone crossing).

Figure 5-1: Oxford North - A40 improvements

Source: Oxford North Transport Assessment- Fletcher Priest Architects (18/07/2018)

5.5 Public Transport

Infrastructure

5.5.1 The permitted Oxford North development includes bus improvements on the A40. An eastbound only bus lane is proposed to the west of where the A34 passes over the A40 to Wolvercote Roundabout to prioritise bus movements towards the city centre. In addition, a new pair of bus stops (one in each direction) with modern bus shelters and real time information systems will be provided to the west of Wolvercote Roundabout.

Bus service frequency

5.5.2 Following discussions with Stagecoach, a proposal for the future West Oxfordshire network in 2031 has been drafted. This is based on assumptions contained in the submitted Business Case for the County

Council's Science Transit 2 A40 bus lane scheme, coupled with the operator's assessment of future likely demand.

5.5.3 The anticipated 2024 and 2031 hourly bus services are outlined in Table 5-1. These frequencies are taken from the OCC West Oxfordshire Bus Strategy (Sept 2020). It is anticipated that the bus travelling to the Eynsham Park and Ride will be Euro VI compliant.

Table 5-1: Bus Service Assumptions

Service	Daytime buses per hour			
	2024 Base		2031 Base	
	Do Minimum	Do Something	Do Minimum	Do Something
S1 / S0	6	4	6	6
S2	2	6	3	8
S7	1	4	2	4
Total	**9**	**14**	**11**	**18**

5.5.4 The service levels identified above will provide bus frequencies per hour as shown in Table 5-2 below.

Table 5-2: Bus Service Frequencies

Origin	Destination	2031 Services	Current Frequency	2031 Frequency
Eynsham Park & Ride	Oxford	S0, S1, S2	6	13
	Eastern Arc	S7	<1	4
Witney	Oxford	S1, S2	6	10
	Eastern Arc	S7	<1	2
Carterton	Witney	S2, S7	4	5
	Oxford	S2	4	3
	Eastern Arc	S7	0	2

5.5.5 Double decker buses are currently used along these bus routes which have 79 seats[3]. On the assumption that the same model of bus is used in 2024 and 2031 along these routes, there will be capacity for 711 passengers per hour in 2024 and 869 passengers in 2031.

[3] https://www.oxfordbus.co.uk/track-your-bus/
https://assets.goaheadbus.com/media/cms_page_media/72/OBC_Fleet_List_09062021.pdf

6 A40 Smart Corridor Proposals

6.1 Scheme Development

6.1.1 Following the selection of the preferred option, the A40 Smart Corridor Scheme was developed further by assessing alternative designs for elements of the Scheme through consultation between the design team and key statutory and non-statutory consultees and stakeholders. The design evolution process is set out in detail in Chapter 3 of the Environmental Statement, and below is a summary of the main alternatives considered.

A40 Dualling

- Alignment – a fully off-line option was considered, but was rejected due to environmental impacts, land take and associated costs. Further optioneering then considered options that closely followed the existing A40 alignment.

6.1.2 **Integrated Bus Lanes**

- Park & Ride junction – a range of junction types was considered, including roundabouts and signal-controlled options. The signalised option selected includes a bus gate allowing buses to merge from the Park & Ride site into general traffic in the offside lane. This option can also accommodate a fourth arm to serve the future West Eynsham SDA, although this arm does not form part of the A40 Smart Corridor Scheme proposals. This option also allows enhanced NMU facilities to be provided without a significant impact on junction operation, whereas the NMU provision for the other options considered would not be as effective.
- Underpass at Cuckoo Lane - It is anticipated that the Scheme will include a grade separated crossing of the A40, subject to successfully securing funding, and would be delivered separately to the other elements of the Scheme. If secured, it will comprise a ramp from Old Witney Road leading to a new pedestrian/cycle subway underneath the A40 and re-emerging west of Cuckoo Lane. Several options were considered that looked at changes to the A40 levels to reduce the ramp length and gradient. Flooding issues were also considered in deciding the final scheme.
- Cassington New Bridge – this carries the A40 over the River Evenlode. A number of options were considered for widening the bridge to accommodate the bus lanes.
- Cassington Halt Bridge – this carries the A40 over a disused railway line, now used as a private access to a quarry, and a number of options were considered. The preferred option comprises no bridge widening and assumes a structural assessment would deem the bridge to be able to take loading across all lanes. This option also includes localised narrowing of bus lanes and construction of north and south shared use facilities running parallel to the existing bridge.

Duke's Cut

- Bridge structures – several options were considered, including the use of an eastbound bus gate to the west of Duke's Cut, which would require no modifications to the existing bridge structure, and other options which require strengthening of the existing bridge structure to accommodate the required traffic lanes and pedestrian and cycle facilities. The preferred option improves the Wolvercote Railway Bridge and limits the speed to 40mph. The improvement includes strengthening of weak verges, replacement of edge beams, and removal of inboard vehicle restraint barrier of the bridge. Three traffic lanes can be accommodated with a single combined cycle/footway on the southern side, and a footway on the northern verges.
- National Cycle Network Link – this connects the A40 to the existing NCN5 with a shared use path. A range of options was considered, including routes to the north and south of the A40. The preferred option runs to the north, with a width of up to 2.5m from the A40 into the public footpath along the edge of the canal, where the path would reduce to accommodate the canal infrastructure.

6.1.3 Other factors considered in the evolution of the design include the following:

- Selection of flood compensation areas
- Measures to mitigate tree loss

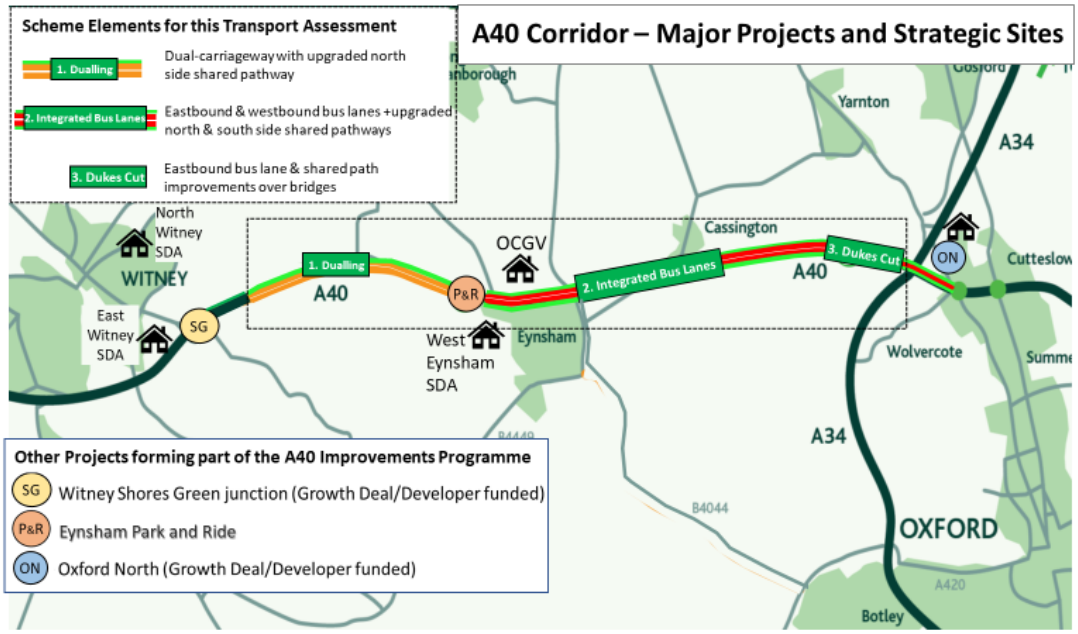
- Speed limit reductions
- Measures for noise mitigation
- Waste minimisation opportunities
- Provision of landscaping and biodiversity net gain
- Ecology design mitigation
- Water quality input into drainage design.

6.1.4 These are also discussed in more detail in Chapter 3 of the Environmental Statement.

6.2 Proposed Scheme

6.2.1 The A40 Smart Corridor Scheme is shown in Figure 6-1 below (D, E and F).

Figure 6-1: A40 Corridor Improvements



6.2.2 The infrastructure proposals to be delivered by OCC will be complemented by significantly faster, more frequent, more reliable bus services along the A40 Corridor providing improved connectivity to Oxford.

6.2.3 The proposed A40 Smart Corridor Scheme stretches from Shores Green, just east of Witney, on the west and Wolvercote roundabout to the east, and comprises three broad elements. Details of the Scheme are shown on the following General Arrangement drawings which form part of the planning application submission:

- A40 Dualling
  - DUAL-ACM-HGA-E1_ZZ_ZZ_ZZ-DR-CH-0100 to 0106
- A40 Integrated Bus Lane Scheme
  - BUS-ACM-HGA-E2_EW_ZZ_ZZ-DR-CH-0101 to 0123
- A40 Duke's Cut Bridge's Scheme
  - DUKE-ACM-HGA-E3_EW_ZZ_ZZ-DR-CH-0101 to 0103

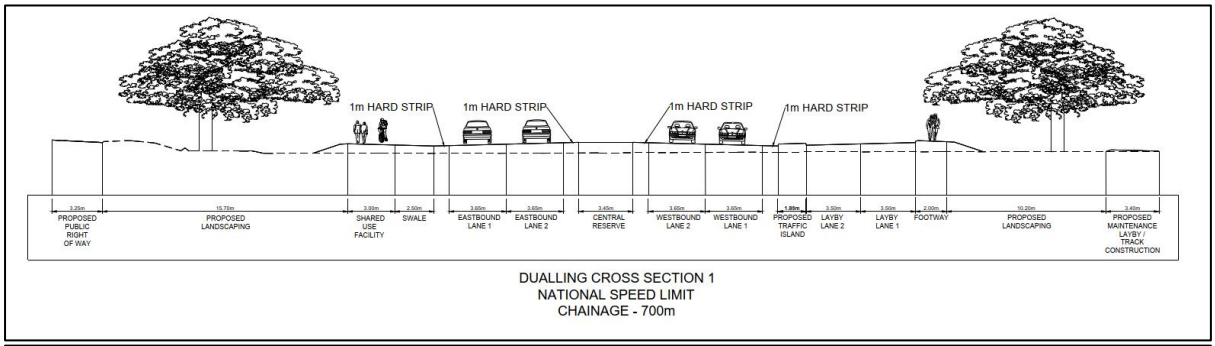
6.2.4 Below is a description of each of the Scheme elements.

A40 Dualling (from Witney to Eynsham Park & Ride Site)

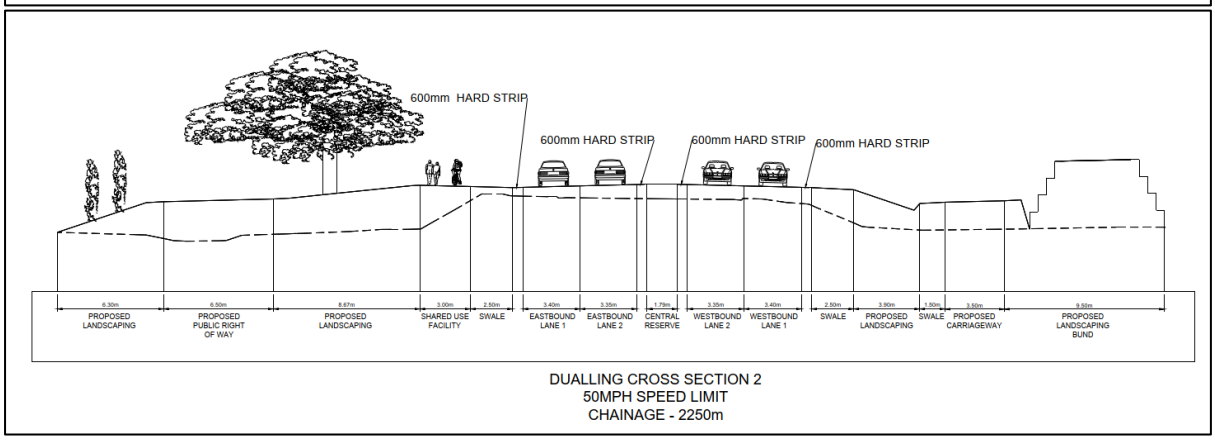
- Widening of the existing single carriageway to dual carriageway along the A40 is proposed from Hill Farm, east of Witney, to the proposed Park & Ride Site at Eynsham. This will include an improved junction at Barnard Gate, and provision of access roads to properties. The widening will also include improvements to the existing shared use pedestrian and cycle path on the north side of the carriageway, which will be a widened 3m facility. This element of the proposals will overcome capacity constraints, increase accessibility and improve journey times between Witney and the Park & Ride Site.
- A shared footway and cycleway are proposed on the northern verge of the A40 for the extent of the Scheme. In addition, a footway is proposed on the southern verge of the A40 between Hill Farm and Salutation Farm to connect Public Rights of Way.
- A footway is proposed on the eastern verge of the northern arm of the proposed Barnard Gate roundabout.
- The improved junction proposed at Barnard Gate will be a four arm roundabout with an uncontrolled crossing proposed on the northern arm and toucan crossings proposed on the southern arm and eastern A40 arm to connect proposed footways and shared use pathways to increase connectivity for NMUs.
- There will be a 50mph speed limit between the Barnard Gate junction and the proposed WRAB, and a 40mph between the WRAB and the Park and Ride junction. The remainder of the dualling (west of Barnard Gate) will be 70mph national speed limit.
- A new westbound lay-by will be provided, opposite Salutation Farm.
- A new eastbound lay-by will be provided, opposite Fir Tree Farm.

6.2.5 An indicative cross section for the dual carriageway section is presented in Figure 6-2 below (extract from drawing no. DUAL-ACM-HGN-E1-ZZ_ZZ_ZZ-DR-CH-2009 ‘Highways – DLG Typical Cross Section).

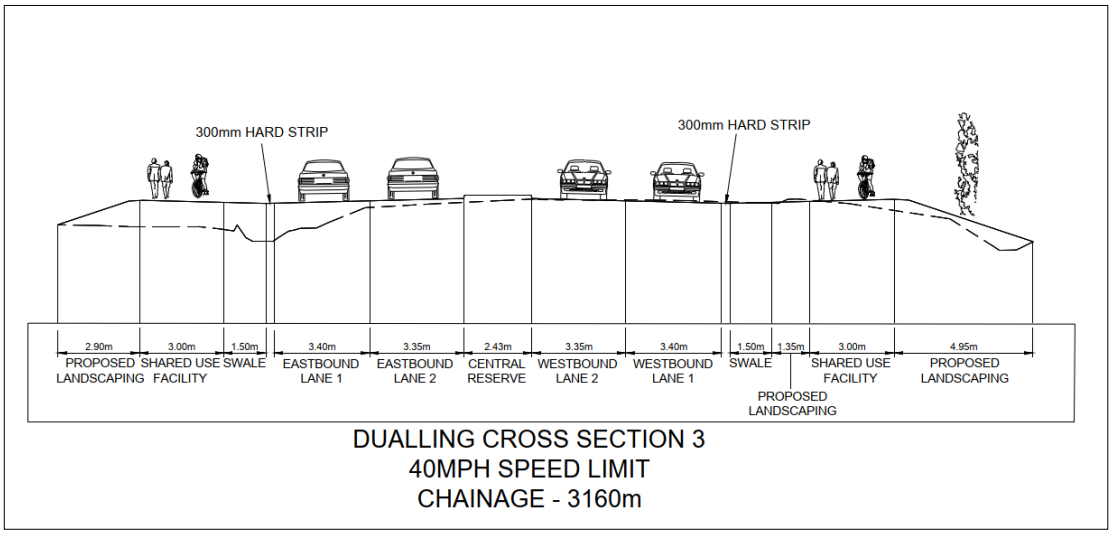
Figure 6-2: A40 Dualling Cross Sections



DUALLING CROSS SECTION 1
NATIONAL SPEED LIMIT
CHAINAGE - 700m



DUALLING CROSS SECTION 2
50MPH SPEED LIMIT
CHAINAGE - 2250m

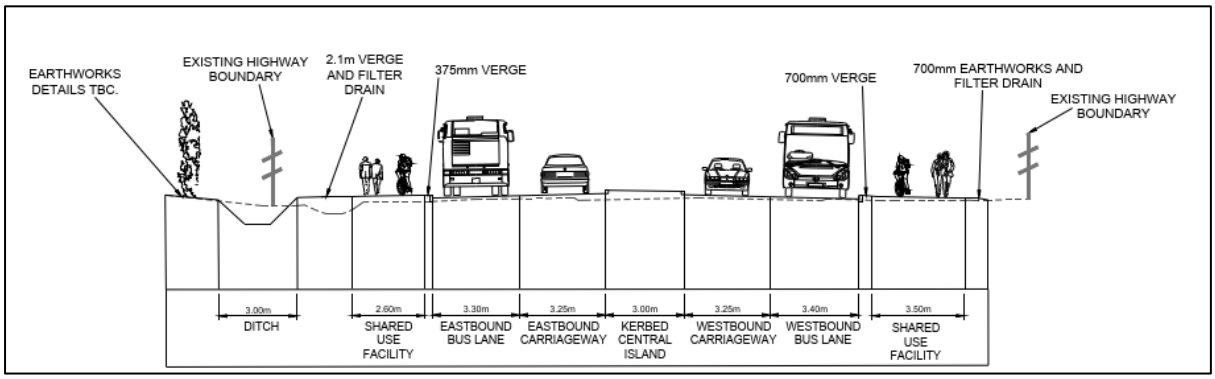


DUALLING CROSS SECTION 3
40MPH SPEED LIMIT
CHAINAGE - 3160m

A40 Integrated Bus Lane Scheme (between Eynsham Park & Ride Site and Duke's Cut Bridges)

- The proposed P&R site is located to the west of Eynsham bounded by the A40 to the south and Cuckoo Lane to the east. The proposed eastbound bus lane starts at the P&R access junction and runs east as the A40 bridge over the Duke's Cut canal. The eastbound bus lane is continuous for most of this length except for key junctions where it is discontinued to allow vehicles to turn left. The westbound bus lane is divided into two sections.
- The access to the P&R site is proposed to be a signalised junction. The A40 west arm is proposed to have two lanes, one left and ahead and an ahead only lane. The P&R egress is proposed to be two lanes (one left and one right turning lanes). The A40 east arm is proposed to be three lanes with two ahead only lanes and a right turn lane for the P&R.
- Along this length of the Scheme a 3m wide upgraded shared use pathway is proposed on the southern verge of the A40 carriageway. This will complement the upgraded shared use pathway proposed on the northern verge included as part of the A40 Science Transit scheme. This will improve pedestrian and cycle connectivity and accessibility along this corridor.
- An indicative cross section for the bus lane scheme is presented in Figure 6-3 below (extract from drawing no. BUS-ACM-HGN-E2-ZZ_ZZ_ZZ-DR-CH-0067 '*Highways – IBL Typical Cross Section Sheet 2 of 3*').

Figure 6-3: A40 Integrated Bus Lane Cross Sections



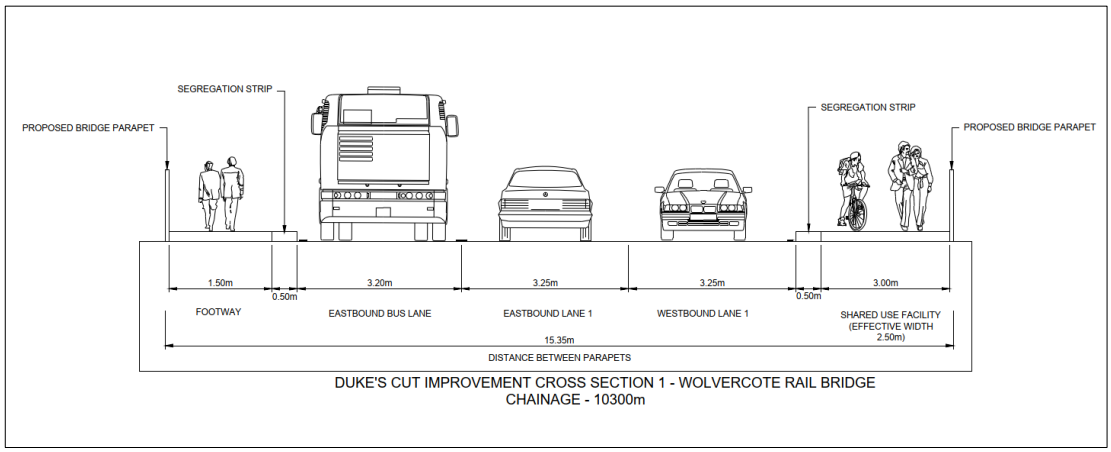
- Across the A40 to the west of the P&R access and across the P&R access arm signalised crossings are proposed to facilitate pedestrian and cyclist access to the P&R site.
- Improvements will be made to existing junctions along the route and enhanced shared-use pedestrian and cycle crossings and paths will be provided.
- Provision of a new footbridges at Cassington Halt Bridge.
- Widening of Cassington New Bridge to preserve the quality and width of the shared use pathway facility.
- A staggered toucan crossing is proposed across the A40 to the west of Cuckoo Lane. However, this crossing will only be utilized if the proposed underpass between Old Witney Road in Eynsham and the shared footway and cycleway on the northern side of the A40 is not brought forward.
- A staggered toucan crossing is proposed across the Witney Road arm connecting the proposed shared footway and cycleway. To the east of Witney Road, inline signalised crossing is proposed across the A40.
- Staggered toucan crossings are proposed on both sides of the ESSO petrol station to cross the A40 carriageway.
- Toucan crossings are proposed across Eynsham Road and Cassington Road connecting the proposed shared pedestrian and cycleway.
- Uncontrolled crossings are proposed at the following locations:
  - Across the layby entry and exit points to the south of the A40 carriageway
  - Bus only P&R exit

  - Elm Place
  - Cuckoo Lane
  - The Evenlode entry/exit
  - ESSO petrol station entry/exit.
  - A40 west arm of Eynsham Roundabout
  - BP petrol station entry/exit
  - Across the A40 connecting PRoW 152/5/10 to 152/5/20.
- All pedestrian and cyclist crossing points include tactile paving and dropped kerbs.
- Along this section of the A40, five westbound and four eastbound bus stops are proposed, excluding the P&R site.
- A reduction in the speed limit from 60 mph to 50 mph between Lower Road Roundabout and Duke's Cut and from 60 to 40mph between the park and ride Junction and Lower Road Roundabout.
- This element of the Scheme is intended to improve public transport provision along the route and provide attractive facilities for pedestrians and cyclists.

A40 Duke's Cut Bridge's Scheme

- Works to the existing A40 bridges over the railway and canals to provide fast and reliable bus movements and improved shared use pedestrian and cycle paths along this section of the A40. A new shared use pedestrian and cycle path from the A40 to the Oxford Canal tow path (National Cycle Route 5) is also proposed on the southern verge of the A40, providing a direct, off-road cycling route between Oxford city centre and Witney.
- An indicative cross section for the Duke's Cut bridge scheme is presented in Figure 6-4 below (extract from drawing no. DUKE-ACM-HGN-E3-ZZ_ZZ_ZZ-DR-CH-0057 '*Highways – DLG Typical Cross Section Sheet 2 of 2*').

Figure 6-4: A40 Duke's Cut Cross Section



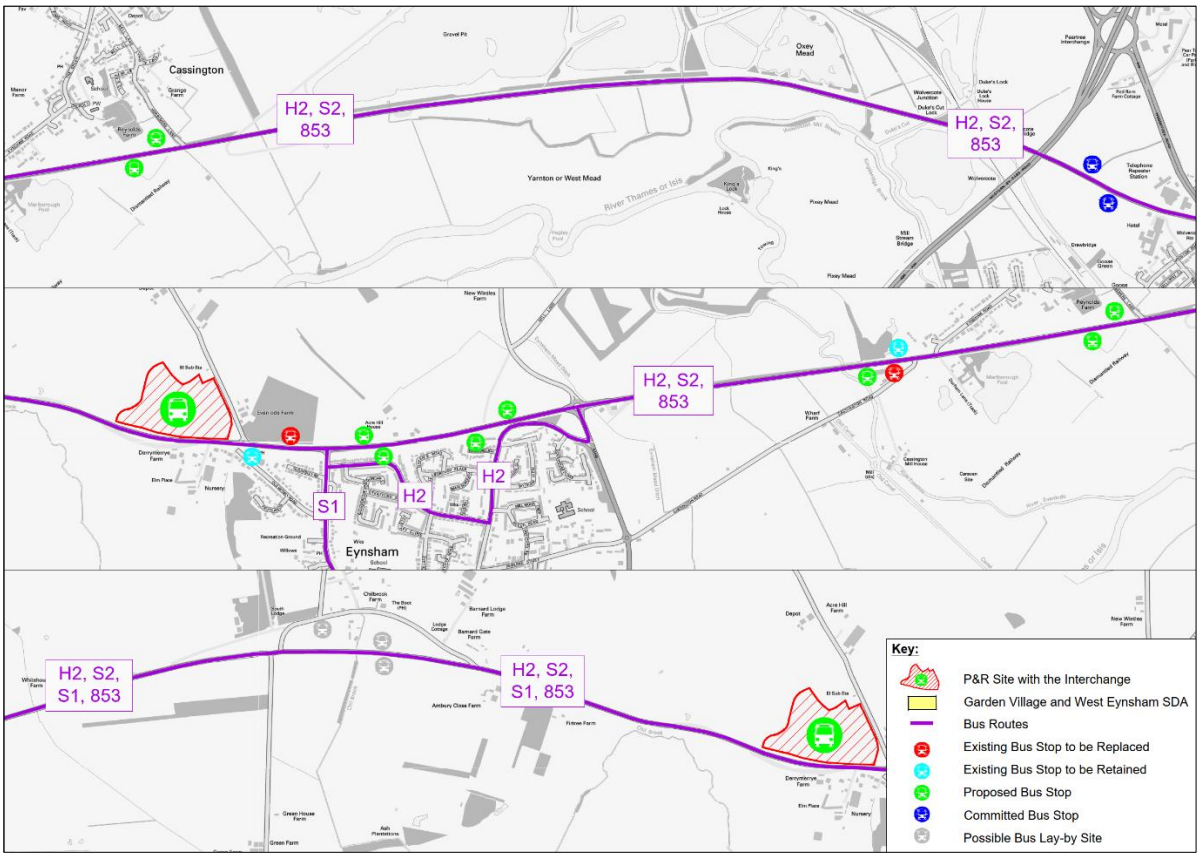
Bus Stops

6.2.6 Proposed bus stops along the corridor are shown on Figure 6-5. Two existing bus stops will be relocated, two will be retained and 5 new bus stops will be introduced, in addition to the Park & Ride facility. In Eynsham the existing A40 eastbound bus stop to the east of Cuckoo Lane will be relocated further to the east, with a new westbound stop opposite. A pair of new bus stops will also be provided to the west of Eynsham roundabout.

6.2.7 In Cassington it is proposed that the existing eastbound bus stop to the west of Eynsham Road will be retained, and the westbound bus stop opposite this will be relocated further west to accommodate a new pedestrian crossing. A pair of new bus stops is also proposed near Horsemere Lane.

6.2.8 As part of the Oxford North development a pair of new bus stops are proposed between Duke's Cut and Wolvercote roundabout.

Figure 6-5: Proposed Bus Stop Locations



6.3 Provision for Active Travel

6.3.1 As indicated in the sections above there will be enhancements to active travel provision along the full Scheme extent. Infrastructure for active travel provided as part of the scheme will align with Local Transport Note LTN 1/20 'Cycle Infrastructure Design Guidelines' in terms of pathway width, surface type, separation from the carriageway, path gradients, crossing points, signage, lighting and wayfinding. The only exceptions will be where there are physical constraints, such as at Dukes Cut bridges where separation from the carriageway is not possible within the existing structures.

6.4 Other A40 Corridor Projects

6.4.1 The A40 Corridor Programme includes a number of other complementary projects, also shown in Figure 6-1 above, including:

A40 Oxford North Scheme (Duke's Cut Bridges to Wolvercote roundabout)

- As part of the Oxford North Development a scheme of improvements has been proposed, including an eastbound bus lane, shared use pedestrian and cycle path improvements and other highway improvements along the A40 from the Duke's Cut Bridges to Wolvercote roundabout.

A40 Access to Witney (Shores Green) Scheme

- A junction improvement scheme to provide access for traffic from North and East Witney to/from A40 (West) – currently only east facing slips are provided.

Eynsham Park & Ride scheme

- A new Park & Ride facility and transport interchange for 850 cars to the north of the A40, located to the west of the A40/Cuckoo Lane junction at Eynsham

6.4.2 The Eynsham Park & Ride facility formed part of the STP2 project, which now has planning permission. Below is a summary of the STP2 scheme. The A40 Corridor Improvement proposals build upon and complete the A40 Strategy that STP2 starts, to enable integration of extended westbound bus lanes and bus priority measures and allow improved provision for pedestrians and cyclists along and across the corridor.

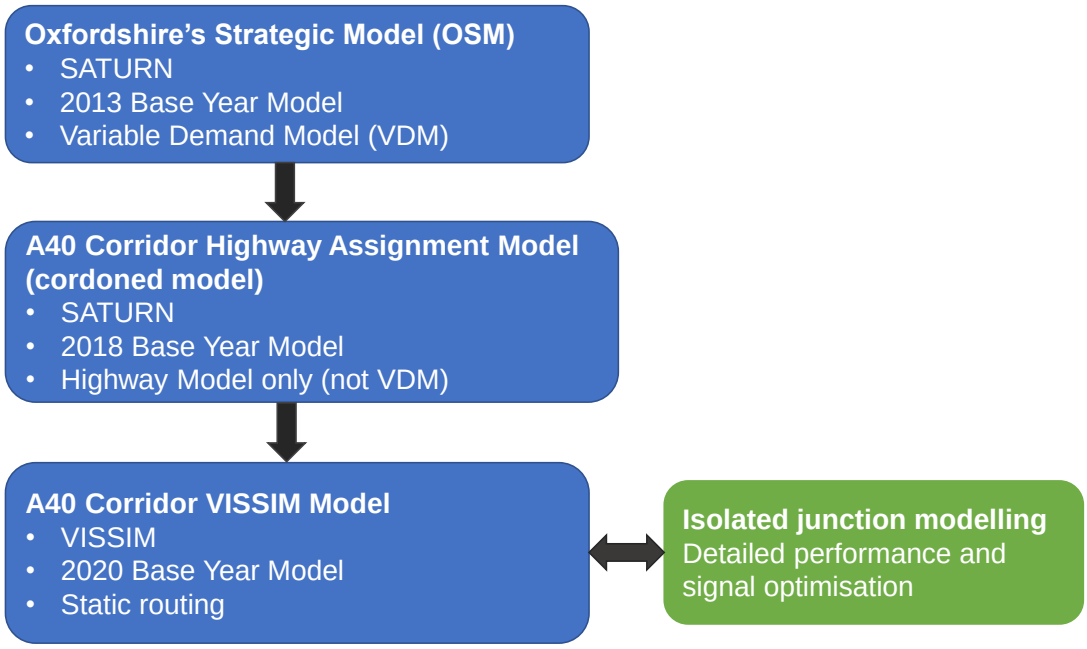
- Eynsham Park & Ride - located to the north of the A40 and west of Cuckoo Lane junction. The car park will be accessed by a new roundabout on the A40 (now superseded by the signalised junction), served by bus services already running along the A40 corridor. A secondary access only junction will be provided from Cuckoo Lane until the proposed WRAB (serving Salt Cross Garden Village) and the Salt Cross spine road are in place, when the Cuckoo Lane access will be closed. The Park & Ride Site will be delivered under the STP2 permission. The main Park & Ride Site access junction from the A40 proposed in STP2 will be updated by the A40 Corridor Improvement proposals.
- A40 Integrated Bus Lanes - a 4m wide eastbound dedicated bus lane on the A40 from the Eynsham Park & Ride site to just before the Duke's Cut Bridge over the A40. The eastbound bus lane is continuous for most of this length except for key junctions where buses will merge with the general traffic. The scheme stops just short of the Duke's Cut Bridge. Westbound bus journeys will also be improved via shorter sections of bus lane on the approaches to the Cassington and Eynsham junctions. This element is replaced by the A40 Corridor Improvement bus lane scheme described in 2.1 above.
- Other features - Within the extents of the STP2 bus lanes, several other key upgrades of the highway are proposed, as follows:
  - An upgraded 3m wide unsegregated cyclist and pedestrian shared path, over the same extents as the bus lane to the north of the carriageway;
  - New bus stops on the A40 adjacent to Eynsham village;
  - New controlled NMU crossing facilities to the west of Cuckoo Lane and at existing bridleways where they cross the A40, therefore providing improved access to the Park & Ride site and the new bus stops;
  - Proposed widening of Cassington New Bridge (over the River Evenlode) and a new footbridge at Cassington Halt Bridge (over the private quarry access road) to maintain width of the new shared path on the north side;
  - Cuckoo Lane junction safety improvements (as noted above, Cuckoo Lane access will be closed once the proposed A40 WRAB and the Salt Cross spine road are in place);
  - Eynsham roundabout (A40/B4449/Lower Road intersection), Witney Road and Cassington signalised junctions are retained largely in their existing form (but optimised where possible);
  - Footway on the southern side of the A40 is retained largely in its existing form.
  - Reduction in the speed limit along the extent of the scheme to 50mph.

7 Impact Assessment Methodology

7.1 Traffic Modelling Overview

7.1.1 The key objective of the transport modelling was to assess the impacts of the A40 Corridor Improvements using a proportionate methodology, an approach that accords with the most recent Department for Transport (DfT) guidance (Uncertainty Toolkit: TAG Supplementary Guidance; Department for Transport, May 2021). A summary of the approach to the modelling is provided below.

Figure 7-1: Overview of modelling approach



7.1.2 Oxfordshire's Strategic Model (OSM) is a county-wide transport 'SATURN' model. It is a Variable Demand Model which means that when forecasting how trips will be made, switching between car, bus and rail (as well as retiming of trips) is possible. It was initially developed by Atkins in 2013 and has been updated at various points over several years as new growth forecasts, datasets and local planning data have been published.

7.1.3 OSM was used as the starting point for the A40 Corridor modelling. However, to better reflect up-to-date traffic conditions in the A40 area, it was acknowledged that there was a need to update OSM. Due to the size, nature and complexity of OSM it was not considered a proportionate approach to update the entire model but rather, a 'cordon model' (the 'A40 Corridor Highway Assignment Model') was extracted from OSM which focussed on the 'area of interest' and required only the most pertinent parts of the highway network along the A40 and surrounding area to be updated in order to provide a robust evidence base. The cordon model is a highway model i.e. when forecasting how trips will be made, the model does not allow for switching between car, bus and rail - but rerouting and retiming of trips is possible.

7.1.4 The traffic flows from the A40 Highway Assignment Model were then input into a more detailed 'Vissim' model for the A40 Corridor ('the A40 Corridor Vissim model'). Vissim is a 'micro-simulation' model that provides finer-grained modelling of links and junctions within a network, enabling interactions between vehicles, pedestrian/cycle crossings and junctions to be better understood, including visual representation of these interactions. VISSIM uses static routing i.e. the routing of vehicles, cycles and pedestrians does not change unless undertaken manually.

7.1.5 The Vissim model was itself supported by local junction 'LinSig' modelling of specific junctions which provided further detail of junction performance and enabled optimal timings for signals to be determined. Unlike Vissim, isolated junction models do not capture interactions between junctions such as queues blocking back through preceding junctions. Therefore, an iterative approach was taken between the Vissim model and the local junction models to understand (from the LinSig models), the best signal timings to use within Vissim to achieve optimal performance along the corridor and across the wider network.

7.1.6 As noted in Section 7.9 below, the results from the Vissim model are reported in this TA.

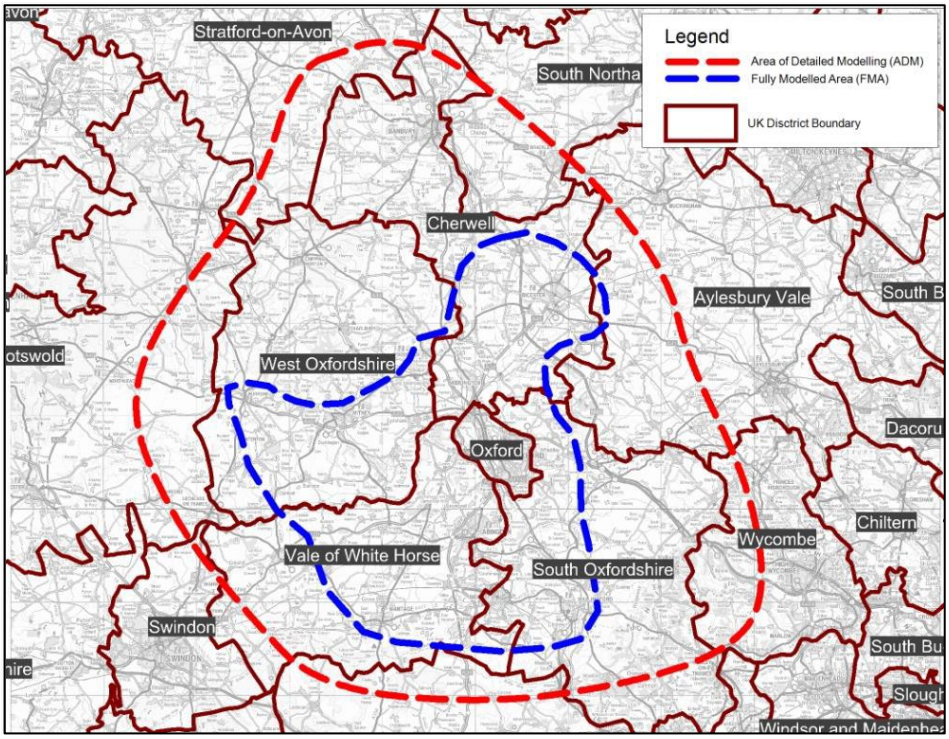
7.2 Oxfordshire Strategic Model

7.2.1 In the OSM, the 'Area of Detailed Modelling' (ADM) covers the area bounded by:

- Bicester to the north;
- Wallingford to the east;
- Burford and Witney to the west (including the extents of the A40 Corridor improvements); and
- Wantage and Didcot to the south.

7.2.2 The Fully Modelled Area (FMA) covers the rest of Oxfordshire plus some hinterland areas. Figure 7-2 shows the extent of the ADM and FMA areas. The External Area covers the rest of Great Britain in a skeletal form.

Figure 7-2: Area of Detailed Modelling and Fully Modelled Area for OSM

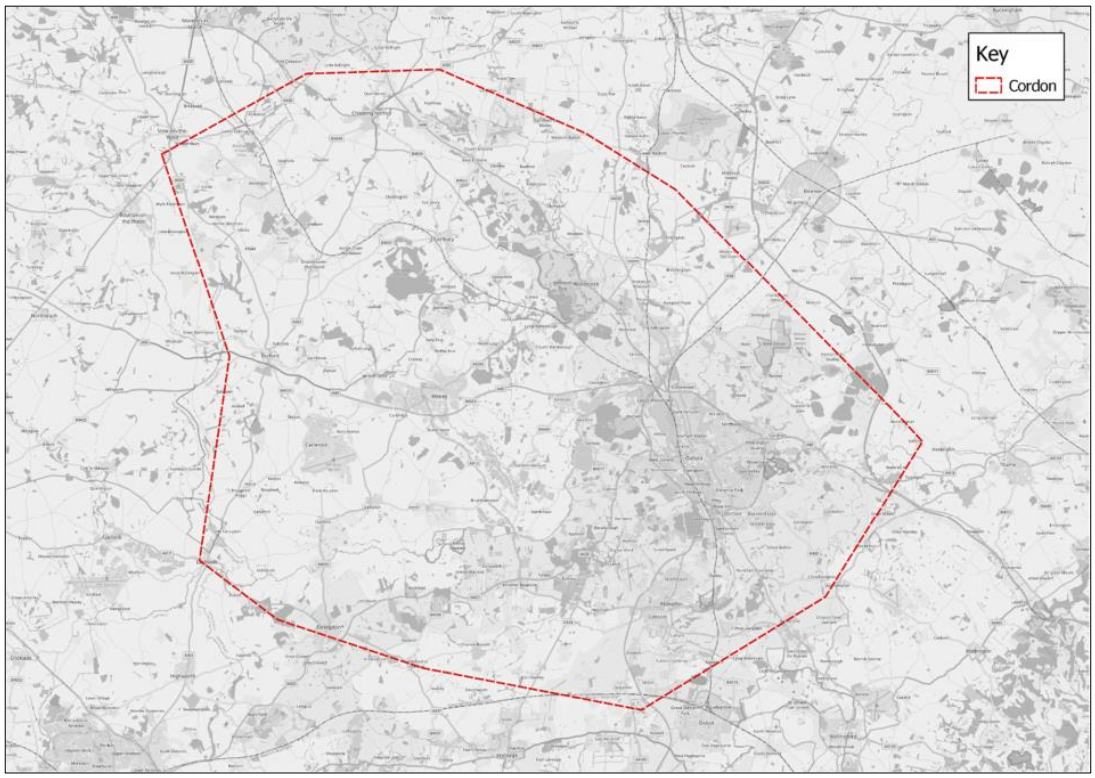


7.2.3 Model data from the OSM has been provided by Atkins. As noted in Section 3.2.5, traffic growth in OSM has been constrained to NTEM (at a County level) with demand matrices updated to reflect the 2031 Local Plan growth in West Oxfordshire, which OCC considered was the most appropriate modelling approach to use for the purpose of this TA.

7.3 A40 Corridor Highway Assignment Model (Cordon Model)

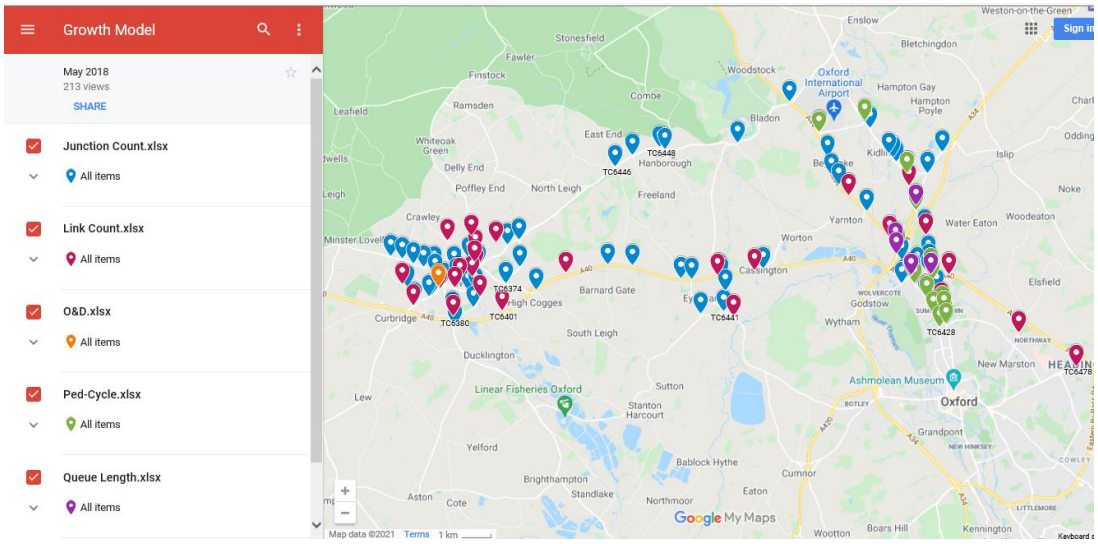
7.3.1 The area covered by the cordon model is shown in Figure 7-3. It comprises the extents of the highway network required to provide alternative routes for vehicles which might change their routing as a result of the A40 Corridor Improvements. The model includes sections of the A40 from west of Carterton to Oxford; the Oxford outer ring road; and the A4095, A44, B4022 and the A420. Key junctions include Wolvercote Roundabout and the A44/A34 Peartree interchange.

Figure 7-3: Cordon Model Extents



7.3.2 The original OSM model had a 2013 base year. The highway cordon model was therefore updated to a 2018 base year model that was calibrated and validated against Department for Transport (DfT) Transport Appraisal Guidance (TAG) criteria using extensive count and journey time data collected during 2017/18. An overview of the extent of the surveys undertaken is provided in Figure 7-4. The model also included all new infrastructure (and housing/ employment sites) that had been completed between 2013 and 2018.

Figure 7-4: 2018 Survey Locations



7.3.3 With good validation shown against TAG criteria, the cordoned 2018 Base Year model was considered a good representation of the existing traffic and land use conditions as in 2018, providing an appropriate basis upon which to develop 'Forecast Year' modelling scenarios.

7.3.4 A copy of the *Future Year Forecasting Update Report – Further Data for A40 Smart Corridor Transport Assessment* prepared by Pell Frischmann for the cordoned model, that sets out the creation and update of the modelled scenarios used in this assessment, is provided in Appendix A2.

7.3.5 The cordon modelling has been undertaken by Pell Frischmann.

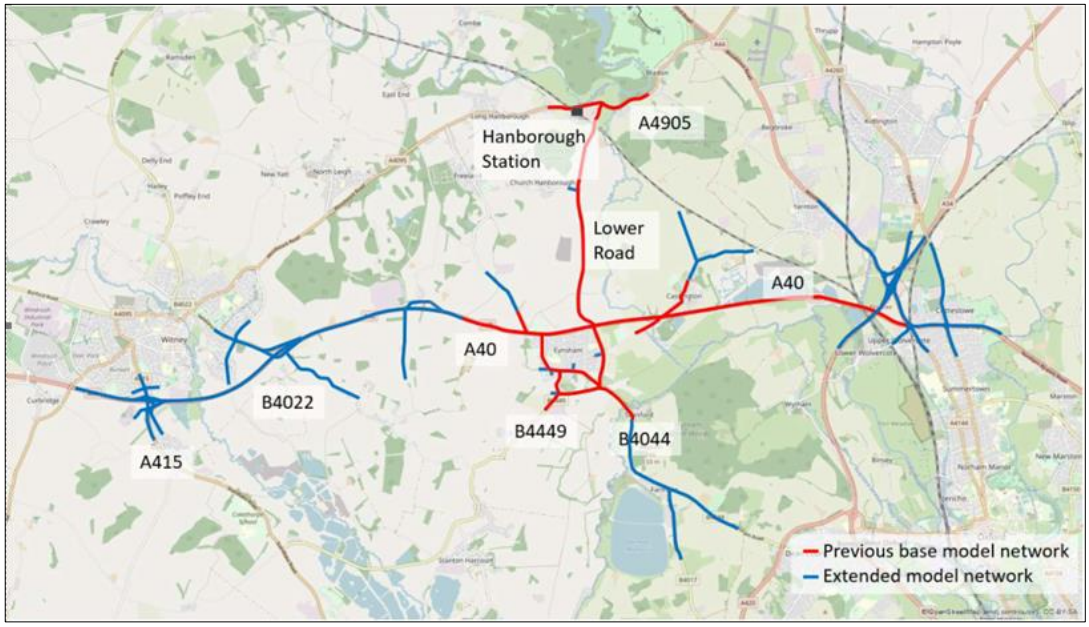
7.4 Vissim model

7.4.1 A Vissim model of the A40 corridor has been produced to inform the design and appraisal of the A40 Smart Corridor proposals. The previous base model (2018 Eynsham Vissim Base Model), used as the starting point for model development, covered the A40 from just west of Eynsham to Wolvercote roundabout, and also included roads around Eynsham and Lower Road up to Hanborough. However, to fully capture the impact of the A40 schemes that require testing, it was agreed that an extended model was needed; the model was therefore extended both west and east to include other roads potentially impacted by the A40 schemes.

7.4.2 The model has been extended to include the junctions that connect the A40 with Witney (A415), Eynsham (Witney Road, Eynsham Road, and Cassington Road), the A34 / A44 Pear Tree junction, Wolvercote Roundabout, and Cutteslowe Roundabout. In addition, the Pear Tree Park & Ride, and the Oxford Parkway Park & Ride are also included.

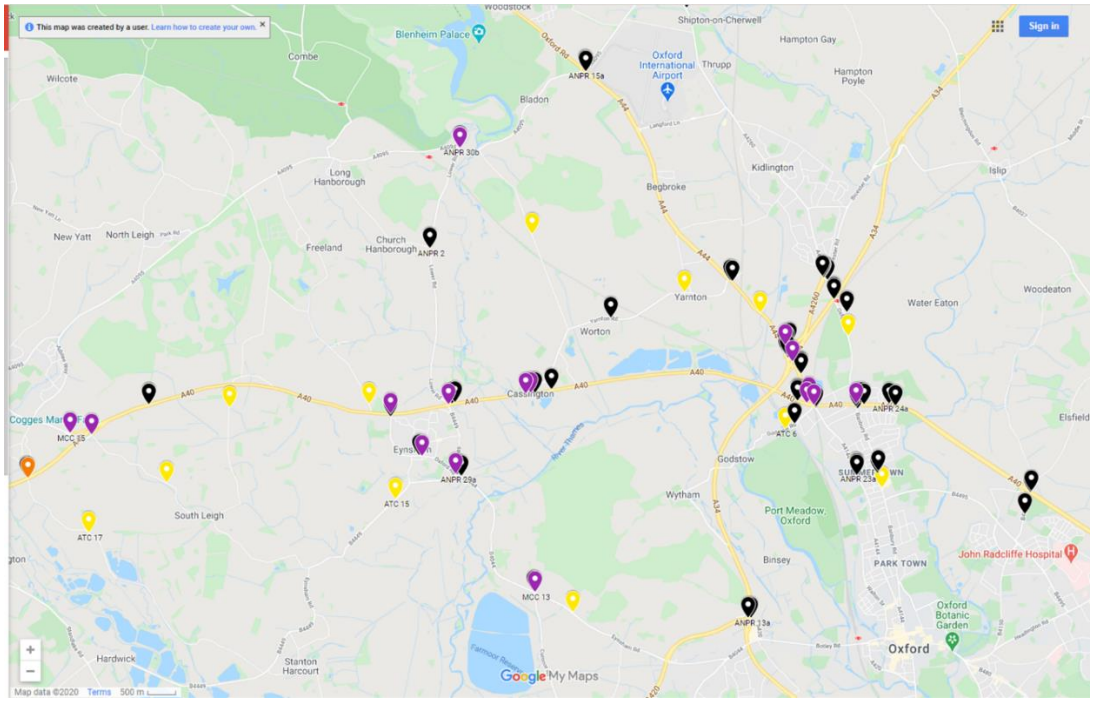
7.4.3 The extent of the Vissim model being employed in the assessment of the A40 Corridor Improvements scheme is shown in Figure 7-5.

Figure 7-5: Vissim model



7.4.4 The extended model has been revalidated against survey data collected in February 2020, prior to the impact of Covid-19 restrictions, producing a 2020 Base year model. The survey locations are shown in Figure 7-6 below.

Figure 7-6: February 2020 Survey Locations



7.4.5 A copy of the *Forecast Modelling Report* prepared by Aecom for the A40 Vissim model is provided in Appendix A3.

7.5 Assessment Years and Scenarios

7.5.1 In pre-application scoping discussions with the highway authority, OCC, it was agreed that the TA would include an assessment of the following scenarios:

- 2020 Base Year
- 2024 Scenario S2 (Do Minimum) - Without the Scheme; with A40 AtW scheme
- 2024 Scenario S4 (Do Something 2a) - Do Minimum + the Scheme
- 2031 Scenario S2 (Do Minimum) - Without the Scheme; with A40 AtW scheme
- 2031 Scenario S4 (Do Something 2a) - Do Minimum + the Scheme

7.5.2 The 2024 and 2031 S2 scenarios exclude all ST2 scheme proposals, such as the Eynsham Park & Ride site as well as the eastbound bus lane and short sections of westbound bus lane. The Oxford North and Shores Green schemes are included in the S2 scenarios.

7.5.3 The 2024 and 2031 S4 scenarios include the combined ST2 and Smart Corridor proposals, including the Eynsham Park & Ride site, eastbound and westbound bus lanes, Duke's Cut widening and extension of the dual carriageway from east of Witney to Eynsham.

7.5.4 Whilst planning consent for the Eynsham P&R site has been obtained in a separate application, the delivery of the P&R site and the efficient and reliable operation of buses serving the site is fundamentally linked to The Scheme and particularly the revised A40 access junction and bus lanes scheme on the A40. As a result, it is felt important to demonstrate and assess the cumulative benefits and impact of the P&R site and the proposed application schemes in the S4 scenarios. Delivery of the P&R site only in the S2 scenario is not considered a realistic future year reference case or delivery scenario and would not allow that cumulative assessment to be provided. This principle has been agreed with OCC.

7.5.5 Shores Green is a specific commitment in the adopted Local Plan. Para 9.2.32 of the Local Plan states:

'Land to the east of Witney is allocated for the delivery of 450 new homes. The site has no significant environmental or heritage constraints, is well-located in relation to the Town Centre and provided the extent, scale and design of development is sensitively controlled, will not have a significant landscape

impact. Importantly, the west facing slip roads at the Shores Green junction onto the A40 will need to be delivered alongside the development in order to help manage the impact of the development.'

7.5.6 Shores Green is also a funded scheme (via Housing and Growth Deal and s106). As both the Do Minimum and Do Something scenarios include full Local Plan development (including East Witney) it is therefore felt to be appropriate to include this scheme in both. A planning application for the Shores Green scheme is due to be submitted later in 2021 with work completed by 2024.

7.5.7 The scenarios are summarised below, including transport infrastructure and development assumptions.

Table 7-1: Assessment Scenarios

Description		A40 Transport infrastructure				A40 Development					Assessment Year	
		ST2 LGF schemes	SC (HIF2) schemes	Oxford North	Shores Green	Salt Cross Garden Village	West Eynsham SDA	North Witney SDA	East Witney SDA	Wider WODC Local Plan sites	2024	2031
S2	Do Minimum (Without the Scheme)	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
S4	Do Something 2a (With the Scheme)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes:

Science Transit 2 (ST2)	• Eynsham Park & Ride • Eastbound Bus Lane • Short sections of Westbound Bus Lane
A40 Corridor Improvements	• Dual Carriageway Extension (Witney to Eynsham) • Eastbound and Westbound Bus Lane • Duke's Cut Widening (Bus Priority)
HIF2 Dependent Development Sites	• Salt Cross Garden Village (2,200 homes; 40,000 sqm science & technology park (by 2031)) • West Eynsham SDA (763 homes*) • East Witney SDA (450 homes) • North Witney SDA (1,400 homes)
Growth assumptions	Constrained by NTEM for all scenarios

** Note - This excludes sites that already have planning permission; including these brings the total up the Local Plan allocation of 1,000 homes.*

7.6 Infrastructure Assumptions

7.6.1 Infrastructure that forms part of the A40 Corridor Improvements Scheme is summarised in Section 6.2 and is assumed to be complete for the 2024 and 2031 DS scenarios:

A40 Dualling

- Widening of the existing single carriageway to dual carriageway from Shores Green to the proposed Park & Ride Site at Eynsham;
- Improved junction at Barnard Gate;
- Provision of access roads to properties; and
- Improvements to the existing shared use pedestrian and cycle path on the north side of the carriageway.

A40 Integrated Bus Lane Scheme

- New eastbound and westbound bus lanes;
- Park and ride access junction; and
- Improvements to existing junctions along the route and enhanced shared-use pedestrian and cycle crossings and paths;

A40 Duke's Cut Bridge's Scheme

- Works to the existing A40 bridges over the railway and canals to provide fast and reliable eastbound bus movements and improved shared use pedestrian and cycle paths; and
- New shared use pedestrian and cycle path from the A40 to the Oxford Canal tow path.

7.6.2 Other infrastructure assumptions, including those associated with the strategic development sites, are as follows:

- Horsemere Lane is assumed to be closed as part of Scheme delivery in all the 2024 and 2031 scenarios;
- A secondary access only junction to the Eynsham P&R site will be provided from Cuckoo Lane in the 2024 DS scenario; Cuckoo Lane is assumed to be closed at its junction with the A40 in the 2031 scenarios in line with the Salt Cross AAP proposals;
- A Western development roundabout on the A40 (serving the Salt Cross Garden Village) is included in the 2024 and 2031 RC and DS scenarios;
- A Salt Cross development Spine Road from the Western development roundabout on the A40 to a new Lower Road junction are included in the 2024 and 2031 RC and DS scenarios. It has been assumed that this road will be designed to discourage significant through movements by general traffic;
- An access to the West Eynsham development from the A40 is provided from the proposed A40 junction at the Park and Ride site and is included in the 2024 and 2031 RC and DS scenarios; and
- A West Eynsham development Spine Road from the A40 Park and Ride junction to a new junction with the B4449 is included in the 2024 and 2031 RC and DS scenarios. It has been assumed that this road will be designed to discourage significant through movements by general traffic.

7.7 Bus Service Assumptions

7.7.1 Future year bus service assumptions for the modelling are shown in the following table. These are taken from the OCC West Oxfordshire Bus Strategy (Sept 2020).

Table 7-2: Bus Service Assumptions

Service	Daytime buses per hour (One-Way)			
	2024		2031	
	Do Minimum	Do Something	Do Minimum	Do Something
S1 / S0	6	4	6	6
S2	2	6	3	8
S7	1	4	2	4
Total	**9**	**14**	**11**	**18**

7.7.2 The bus services and routing in 2031 are shown in the following table.

Table 7-3: 2031 Bus Services and Routing

Service	Variant	Route
S0		Oxford > Salt Cross Garden Village > Eynsham P&R > West Eynsham
S1		Oxford > Botley > Eynsham > Eynsham P&R > Witney
S2	(a)	Oxford > Eynsham P&R > Witney > West Witney > Carterton *Some peak extras bypass Witney*
	(b)	Oxford > Eynsham P&R > North Witney > Witney
S7		Eastern Arc > Eynsham P&R Extension to Witney > Curbridge > Brize Norton > Carterton

7.7.3 Eynsham P&R demand forecasts (parking and bus passenger) have been taken from the OSM.

7.8 Peak Hours

7.8.1 The peak hour is defined in the OSM and A40 Corridor strategic highway model (developed for OCC by Atkins/Pell Frischmann respectively). Assessments have been carried out for the AM peak (0800-0900) and PM peak (1700-1800) hours.

7.9 Junction Capacity

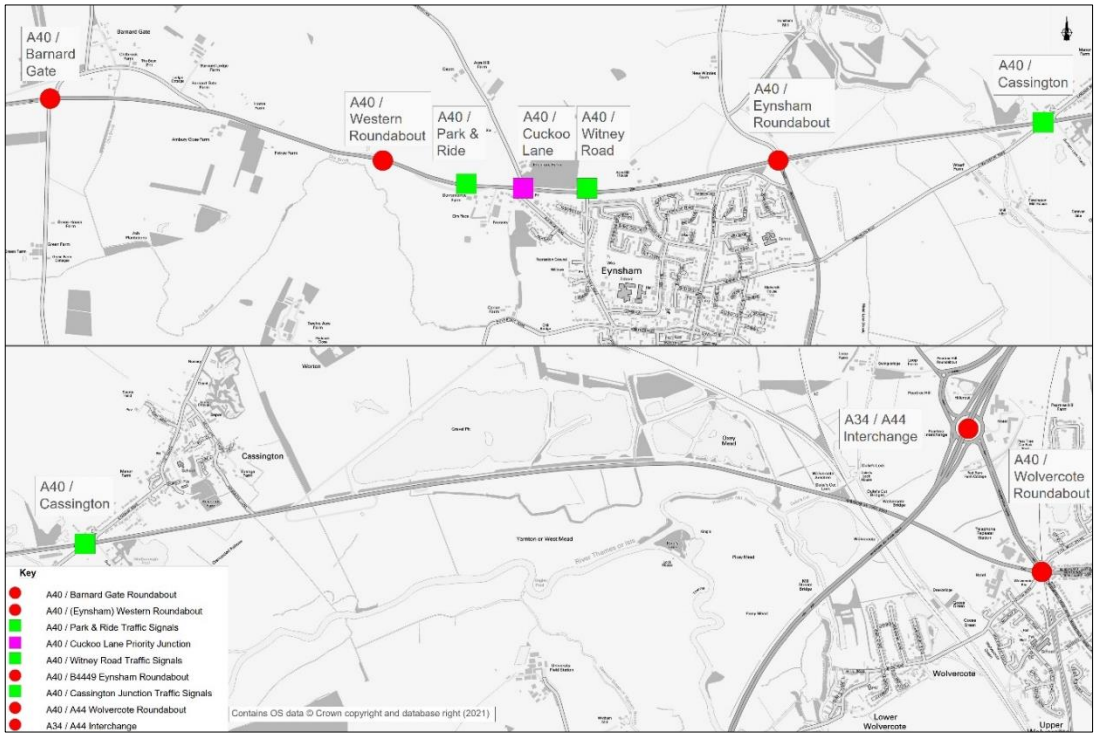
7.9.1 Assessments of the impacts at the following junctions have been undertaken. Impacts for the 2031 S2 and S4 scenarios are presented based on output from the Vissim model.

7.9.2 The junction locations are listed in the following table and shown in Figure 7-7.

Table 7-4: A40 Junctions

A40 Junction	Type
A40 / Barnard Gate	Roundabout
A40 / Western roundabout (WRAB)	Roundabout
A40 / Park & Ride / West Eynsham	Traffic signals
A40 / B4449 Eynsham roundabout	Roundabout
A40 / Cassington junction	Traffic signals
A40 / Witney Road	Traffic signals
A40 / A44 Wolvercote roundabout	Roundabout
A34 / A44 Pear Tree Interchange	Grade separated interchange

Figure 7-7: Junction Locations



7.9.3 The impact of the proposed Scheme on Cuckoo Lane has not been assessed as it is anticipated that Cuckoo Lane will be closed by 2031.

7.9.4 Reporting of results for the 2024 DS1 and DS2 sensitivity test focus on the overall A40 Corridor operation. Results for the 2031 DS1 scenario are reported more fully for the corridor and each individual junction.

7.9.5 Impacts at the above junctions in the 2031 DS1 scenario are reported based on the following Vissim outputs:

- Level of Service (LoS)
- Delays on each approach
- Queue lengths (average queue, mean max queue).

7.9.6 To determine LoS for the arms of each junction, the thresholds based on average delay that are defined in the Highway Capacity Manual (Transport Research Board, 2000) have been used. The LoS thresholds are set out in Table 7-5.

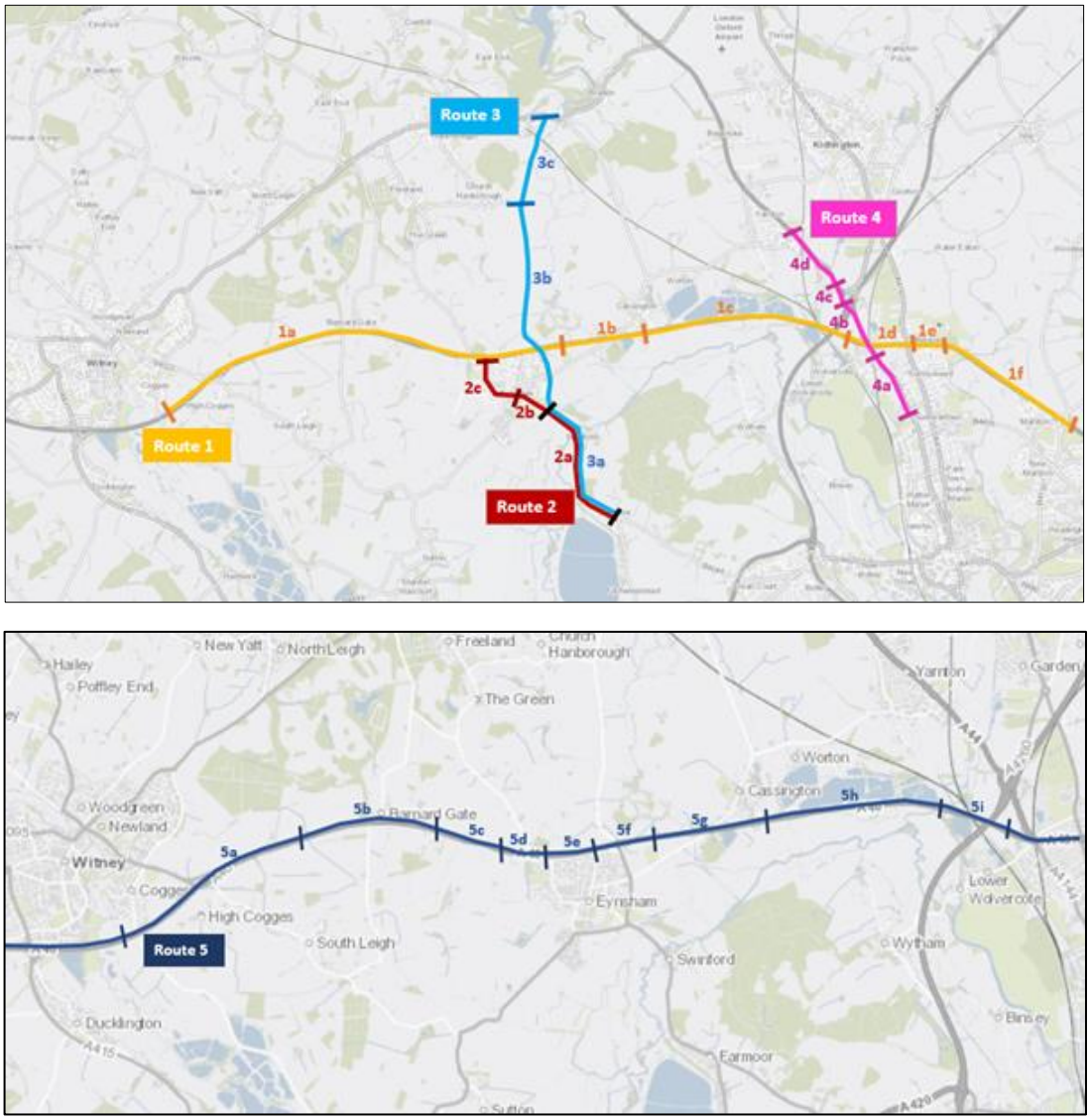
Table 7-5: Level of Service Delay Thresholds

LoS	Definition	Signalised Junction	Unsignalised Junction
A	Free flow	≤10 sec	≤10 sec
B	Reasonably free flow	10–20 sec	10–15 sec
C	Stable flow	20–35 sec	15–25 sec
D	Approaching unstable flow	35–55 sec	25–35 sec
E	Unstable flow	55–80 sec	35–50 sec
F	Forced or breakdown flow	>80 sec	>50 sec

7.10 Journey Times

7.10.1 Journey time data is presented for the A40 Corridor, divided into sections as shown in Figure 7-8 below (extract from A40 Vissim Local Model Validation Report; Aecom, October 2020). Journey time data is presented for Routes 1-4 shown in the Figure.

Figure 7-8: Journey Time Sections



7.10.2 Journey time data for Route 1/ Route 5 is presented for the following vehicle types:

- General traffic
- Buses only

7.10.3 Journey time data for Routes 2-4 is presented for general traffic only.

7.10.4 Journey time changes are expressed per person, based on average vehicle occupancy data and a range of bus occupancy assumptions.

7.11 Pedestrian, Cycle and Equestrian Impacts

7.11.1 A qualitative assessment of the impacts of the Scheme on pedestrians, cyclists and equestrians has also been made, including highlighting the enhancements to the connectivity across the A40 between the existing built-up areas and those being developed as part of Local Plan allocations as well as the enhanced provision along the A40, including the new provision at Duke's Cut and additional crossing facilities.

7.11.2 A review has been included to consider a situation such that the underpass serving Salt Cross Garden Village is not deliverable in conjunction with the Scheme.

7.12 Public Transport Impacts

7.12.1 Planned bus infrastructure improvements are highlighted, and bus journey time impacts are identified based on Vissim outputs, as set out in section 7.8 above.

8 Scheme Impacts

8.1 Future Year Traffic Flows

8.1.1 Table 8-1 summarises forecast vehicle flows at the junctions within the Scheme extent in the 2024 Do Minimum and Do Something scenarios.

Table 8-1: Summary of Arriving Vehicle Flows at Key Junctions in 2024

Junction	Approach	2024 DM		2024 DS		Difference	
		AM	PM	AM	PM	AM	PM
A40 / Barnard Gate Roundabout	A40 (West)	1205	1673	1713	1669	508	-4
	Barnard Gate	9	15	60	78	51	63
	A40 (East)	1192	1532	1059	1602	-133	70
	South Leigh Access	0	0	2	0	2	0
A40 / Western Roundabout (WRAB)	A40 (West)	1205	1492	1679	1577	474	85
	Salt Cross GV Access	9	420	14	49	5	-371
	A40 (East)	1192	1271	1070	1598	-122	327
A40 / Park & Ride Signalised Junction	A40 (West)	1330	1238	1674	1545	344	307
	Park & Ride Access	0	0	29	252	29	252
	A40 (East)	1189	1118	1086	1437	-103	319
	West Eynsham SDA Access	52	394	65	31	13	-363
A40 / Witney Road Signalised Junction	A40 (West)	968	945	1218	1284	250	339
	A40 (East)	1155	999	1066	1223	-89	224
	Witney Road	155	128	206	267	51	139
A40 / B4449 Eynsham Roundabout	A40 (West)	894	883	1217	1291	323	408
	Lower Road	406	574	421	556	15	-18
	A40 (East)	828	1101	818	1159	-10	58
	B4449	761	622	686	608	-75	-14
A40 / Cassington Signalised Junction	A40 (West)	1021	1065	1056	1195	35	130
	Cassington Road	269	297	266	295	-3	-2
	A40 (East)	622	897	623	1078	1	181
	Eynsham Rd Right	9	2	9	2	0	0

8.1.2 Table 8-2 identifies the summary of forecast vehicle flows arriving at the junctions within the Scheme extent for the 2031 Do Minimum and Do Something scenarios.

Table 8-2: Summary of Arriving Vehicle Flows at Key Junctions in 2031

Junction	Approach	2031 DM		2031 DS		Difference	
		AM	PM	AM	PM	AM	PM
A40 / Barnard Gate Roundabout	A40 (West)	1373	1673	1731	1801	358	128
	Barnard Gate	20	15	26	15	6	0
	A40 (East)	1042	1532	1224	1811	182	279
	South Leigh Access	2	0	2	0	0	0
A40 / Eynsham Western Roundabout (WRAB)	A40 (West)	1158	1492	1660	1701	502	209
	Salt Cross GV Access	248	420	512	467	264	47
	A40 (East)	1003	1271	1164	1636	161	365
A40 / Park & Ride Signalised Junction	A40 (West)	951	1238	1694	1408	743	170
	Park & Ride Access	0	0	29	349	29	349
	A40 (East)	900	1118	1016	1230	116	112
	West Eynsham SDA Access	305	394	363	303	58	-91
A40 / Witney Road Signalised Junction	A40 (West)	662	945	957	1121	295	176
	A40 (East)	879	999	1008	1092	129	93
	Witney Road	117	128	125	235	8	107
A40 / B4449 Eynsham Roundabout	A40 (West)	654	883	891	1032	237	149
	Lower Road	523	574	562	600	39	26
	A40 (East)	849	1101	903	1274	54	173
	B4449	539	622	536	568	-3	-54
A40 / Cassington Signalised Junction	A40 (West)	976	1065	1009	1171	33	106
	Cassington Road	299	297	292	285	-7	-12
	A40 (East)	667	897	704	1186	37	289
	Eynsham Road Right	5	2	5	2	0	0

8.1.3 Overall, there is a general increase in flows in the 2031 Do Something scenario on the eastbound A40 carriageway compared to the 2031 Do Minimum scenario, in both AM and PM peak periods. The increase is predominately in the eastbound direction in the AM, especially on the section west of Eynsham, where the additional capacity provided by the dualling scheme and the car parking associated with the Park & Ride generate a significant increase in demand flows.

8.1.4 There is a significant increase in westbound flows along the A40 in the 2031 Do Something, relative to the 2031 Do Minimum. There is also an increase in eastbound flows in the PM peak.

8.2 Highway Network Operation

8.2.1 The impacts of the Scheme at individual junctions in 2031 are assessed below for the following junctions:

- A40 / Barnard Gate
- A40 / Western roundabout (WRAB)
- A40 / Park & Ride / West Eynsham
- A40 / Witney Road
- A40 / B4449 Eynsham roundabout
- A40 / Cassington junction
- A40 / A44 Wolvercote Roundabout

- A34 / A44 Pear Tree Interchange

8.2.2 It should be noted that queueing through the junction is not included in the results discussed below.

A40 / Barnard Gate Roundabout

8.2.3 The following tables summarise the operation of A40 / Barnard Gate junction for the AM and PM peak hours in the Do Minimum and Do Something scenarios.

Table 8-3: Operation of A40 / Barnard Gate Junction – Do Minimum

Arm	AM Peak			PM Peak		
	LoS	Ave. Delay	Ave. Queue	LoS	Ave. Delay	Ave. Queue
A40 (West)	A	5s	0m	E	41s	1m
Barnard Gate	C	19s	0m	E	45s	1m
A40 (East)	A	4s	0m	A	6s	0m
South Leigh Access	A	5s	0m	A	0s	0m

Table 8-4: Operation of A40 / Barnard Gate Roundabout – Do Something

Arm	AM Peak			PM Peak		
	LoS	Ave. Delay	Ave. Queue	LoS	Ave. Delay	Ave. Queue
A40 (West)	A	10s	0m	D	29s	0m
Barnard Gate	B	11s	0m	B	11s	0m
A40 (East)	A	7s	0m	A	6s	0m
South Leigh Access	A	5s	0m	A	0s	0m

8.2.4 The results above indicate that in the AM peak hour without the implementation of the Scheme, the A40 / Barnard Gate junction is forecast to operate with an LoS C or better. In the PM peak hour, the A40 (West) and Barnard Gate arms are forecast to experience delays of 41 and 45 seconds respectively, with LoS E (as defined in Table 7-5). Delays on the A40 eastbound would be caused by right turning traffic.

8.2.5 With the implementation of the Scheme the existing staggered priority junction arrangement is replaced with a roundabout. The results indicate that the A40 would operate with minimal delays in the AM peak, and a maximum delay of 29s in the PM peak. Delays on Barnard Gate would reduce as a result of the Scheme.

A40 / Western Roundabout (WRAB)

8.2.6 The following tables summarise the operation of A40 / Western roundabout (WRAB) for the AM and PM peak hours in the Do Minimum and Do Something scenarios.

Table 8-5: Operation of A40 / Western Roundabout (WRAB) – Do Minimum

Arm	AM Peak			PM Peak		
	LoS	Ave. Delay	Ave. Queue	LoS	Ave. Delay	Ave. Queue
A40 (West)	E	45s	18m	F	72s	176m
Garden Village Access	F	59s	25m	F	221s	183m
A40 (East)	F	97s	11m	B	13s	10m

Table 8-6: Operation of A40 / Western Roundabout (WRAB) – Do Something

Arm	AM Peak			PM Peak		
	LoS	Ave. Delay	Ave. Queue	LoS	Ave. Delay	Ave. Queue
A40 (West)	A	8s	5m	A	9s	6m
Garden Village Access	D	26s	4m	D	27s	4m
A40 (East)	A	9s	4m	B	13s	9m

8.2.7 In the Do Minimum scenario, significant delays are predicted on all arms, up to 97s on the A40 and 221s (3m 41s) on the Salt Cross Garden Village access. There is a high volume of vehicles on the A40 eastbound that reduce the gap availability of the northern arm. Right-turning vehicles from the A40 westbound into the development and the single eastbound lane on the A40 creates significant queue and delay on the eastbound approach.

8.2.8 In the Do Something scenario delays on the A40 are low and the A40 is predicted to operate with a LoS A or B. Delays of up to 27s are predicted for the Salt Cross Garden Village access, although average queues are only 4m (approximately 1 vehicle).

8.2.9 The implementation of the dualling section in the Do Something scenario provides more capacity along the A40, reducing queues/ delays on the A40 eastbound and westbound. The additional capacity provides more gaps, reducing congestion and delays on all the arms. It should be noted that the dualling scheme also results in a significant increase in demand at this junction which is accommodated by the proposed layout.

A40 / Park & Ride Signalised Junction

8.2.10 The following tables summarise the operation of A40 / Park & Ride signalised junction for the AM and PM peak hours in the Do Minimum and Do Something scenarios. The junction layout modelled in the Do Minimum scenario is considered an interim design that has been included in the models to provide a connection between the West Eynsham development and the A40 Corridor. The results are therefore considered theoretical and indicative as a benchmark for the proposed layout.

Table 8-7: Operation of A40 / West Eynsham Signalised Junction – Do Minimum

Arm	AM Peak			PM Peak		
	LoS	Ave. Delay	Ave. Queue	LoS	Ave. Delay	Ave. Queue
A40 (West)	C	25s	48m	C	25s	55m
Park & Ride Access	-	-	-	-	-	-
A40 (East)	D	40s	53m	D	45s	82m
West Eynsham SDA Access	F	81s	32m	F	149s	59m

Table 8-8: Operation of A40 / Park & Ride / West Eynsham Signalised Junction – Do Something

Arm	AM Peak			PM Peak		
	LoS	Ave. Delay	Ave. Queue	LoS	Ave. Delay	Ave. Queue
A40 (West)	C	29s	36m	E	59s	68m
Park & Ride Access	D	52s	3m	F	126s	74m
A40 (East)	D	51s	52m	E	71s	137m
West Eynsham SDA Access	F	86s	29m	F	145s	43m

8.2.11 The results indicate that in the AM peak the proposed junction layout would operate without excessive queues or delays. In the PM peak delays are generally higher, with the highest levels of delay on the Park & Ride and West Eynsham SDA accesses and less delay on the A40.

8.2.12 The predicted traffic flows are high at this location and bus priority is provided. This results in some westbound queues building at times, although the delay results indicate that vehicles can generally pass through the junction in a single cycle of the signals.

A40 / Witney Road Signalised Junction

8.2.13 The following tables identify the operation of the A40 / Witney Road signalised junction for the AM and PM peak hours in the Do Minimum and Do Something scenarios.

Table 8-9: Operation of A40 / Witney Road Signalised Junction – Do Minimum

Movement	AM Peak			PM Peak		
	LoS	Ave. Delay	Ave. Queue	LoS	Ave. Delay	Ave. Queue
A40 (West)	E	62s	5m	A	6s	1m
A40 (East)	F	138s	15m	B	17s	20m
Witney Road	E	60s	13m	D	43s	6m

Table 8-10: Operation of A40 / Witney Road Signalised Junction – Do Something

Movement	AM Peak			PM Peak		
	LoS	Ave. Delay	Ave. Queue	LoS	Ave. Delay	Ave. Queue
A40 (West)	C	30s	20m	C	21s	32m
A40 (East)	D	42s	41m	D	49s	56m
Witney Road	E	62s	16m	E	69s	18m

8.2.14 The results for the Witney Road junction show that the proposed layout included in the Do Something scenario provides improvements in delays on the A40 corridor in the AM peak, while providing similar queues and delays on Witney Road, mitigating the additional delays generated by the new pedestrian

crossing across Witney Road. In the PM peak there are modest increases in delay on the A40 in the Do Something scenario, of up to 30 seconds.

8.2.15 The additional delay is created by the pedestrian/ cycle crossings provided on the southern arm, and the higher number of activations of this crossing included in the Do Something scenario. Although queues are longer in the Do Something scenario, vehicles are generally able to clear the junction in a single cycle of the signals. It should be noted that the existing pedestrian/ cycle facilities are considered inadequate, given that the Salt Cross Garden Village and West Eynsham SDA developments are expected to generate a significant increase in pedestrian and cycle flows along and across the A40 in this location. Therefore, even though the additional crossing points cause additional delay for vehicles, the facilities for pedestrians and cyclists will be improved and increase safety.

A40 / B4449 Eynsham Roundabout

8.2.16 The following tables identify the operation of the A40 / B4449 Eynsham roundabout for the AM and PM peak hours in the Do Minimum and Do Something scenarios.

Table 8-11: Operation of A40 / B4449 Eynsham Roundabout – Do Minimum

Arm	AM Peak			PM Peak		
	LoS	Ave. Delay	Ave. Queue	LoS	Ave. Delay	Ave. Queue
A40 (West)	F	141s	286m	F	279s	665m
Lower Road	F	213s	376m	D	28s	20m
A40 (East)	C	19s	8m	D	35s	38m
B4449	C	25s	20m	C	23s	13m

Table 8-12: Operation of A40 / B4449 Eynsham Roundabout – Do Something

Arm	AM Peak			PM Peak		
	LoS	Ave. Delay	Ave. Queue	LoS	Ave. Delay	Ave. Queue
A40 (West)	E	37s	14m	F	205s	392m
Lower Road	F	51s	47m	E	50s	48m
A40 (East)	D	30s	10m	E	38s	25m
B4449	C	25s	13m	E	45s	34m

8.2.17 The results indicate that there will be a significant reduction in the average queue length and delay on the western and northern arms in the AM peak, and on the western arm in the PM peak. This improvement results from the longer flares on the A40 approaches, which increases the discharge of eastbound flows. The smoother movement across the junction reduces congestion levels within the roundabout and increases the gaps available for vehicles on the southbound approach. The rest of the arms show relatively small changes in queues and delays, mainly on the northern and southern arms where the proposed signalised pedestrian and cycle crossings result in a slight increase in queuing.

8.2.18 Overall, the operation of the A40 / B4449 Eynsham Roundabout is forecast to improve in both the AM and PM peak hours with implementation of the Scheme.

A40 / Cassington Road Signalised Junction

8.2.19 The following tables identify the operation of the Cassington Road signalised junction for the AM and PM peak hours in the Do Minimum and Do Something scenarios.

Table 8-13: Operation of A40 / Cassington Signalised Junction – Do Minimum

Arm	AM Peak			PM Peak		
	LoS	Ave. Delay	Ave. Queue	LoS	Ave. Delay	Ave. Queue
A40 (West)	F	237s	3945m	C	21s	18m
Cassington Road	E	70s	25m	F	113s	46m
A40 (East)	C	32s	21m	F	102s	39m
Eynsham Road Right	E	73s	1m	F	82s	0m

Table 8-14: Operation of A40 / Cassington Signalised Junction – Do Something

Arm	AM Peak			PM Peak		
	LoS	Ave. Delay	Ave. Queue	LoS	Ave. Delay	Ave. Queue
A40 (West)	C	31s	3m	D	43s	35m
Cassington Road	F	86s	26m	F	135s	52m
A40 (East)	F	81s	17m	F	102s	39m
Eynsham Road Right	E	58s	1m	F	82s	1m

8.2.20 The results show that in the 2031 Do Something scenario there is a significant reduction in the average queue length and delay on the western arm of the A40 / Cassington Road Junction in the AM peak, compared to the 2031 Do Minimum. The difference in average delay and queue length between the Do Minimum and Do Something scenarios is minimal on other arms in the AM peak, and on all arms in the PM peak.

8.2.21 The significant improvement provided by the Scheme results from additional capacity provided by the two-lane eastbound approach, compared to the single eastbound lane in the existing layout.

8.2.22 It should be noted that the signal timings in the Do Minimum scenario have been optimised, so the operation improves relative to the 2020 Base model where some capacity issues are seen due to unoptimized signal timings.

A40 / A44 Wolvercote Roundabout

8.2.23 The following tables identify the operation of the A40 / A44 Wolvercote roundabout for the AM and PM peak hours in the Do Minimum and Do Something scenarios.

Table 8-15: Operation of A40 / A44 Wolvercote Roundabout – Do Minimum

Arm	AM Peak			PM Peak		
	LoS	Ave. Delay	Ave. Queue	LoS	Ave. Delay	Ave. Queue
A40 (West)	F	91s	52m	F	81s	36m
A44 (North)	F	270s	1598m	F	204s	772m
Five Mile Drive	C	31s	1m	E	60s	1m
A40 (East)	F	203s	903m	E	79s	1976m
A4144	F	617s	1266m	F	362s	1489m
Godstow Road	F	492s	596m	D	40s	5m

Table 8-16: Operation of A40 / A44 Wolvercote Roundabout – Do Something

Arm	AM Peak			PM Peak		
	LoS	Ave. Delay	Ave. Queue	LoS	Ave. Delay	Ave. Queue
A40 (West)	F	89s	47m	F	102s	78m
A44 (North)	F	237s	1913m	F	203s	498m
Five Mile Drive	C	29s	1m	E	67s	2m
A40 (East)	F	204s	1113m	F	133s	1981m
A4144	F	615s	1258m	F	382s	1490m
Godstow Road	F	466s	560m	E	71s	14m

8.2.24 The results show that Wolvercote roundabout cannot accommodate the demand predicted in the 2031 Do Minimum and Do Something scenarios. The Wolvercote roundabout has a LoS F for all arms except the Five Mile Drive arm in the AM peak hour for both the Do Minimum and Do Something scenarios. In addition, in the PM peak hour all arms have an LoS F except the Five Mile Drive arm and A40 East arm in both the Do Minimum and Do Something scenarios.

8.2.25 The model results show some differences in queues and delays in the A44 North and the A40 East arms which are caused by the changes in flow patterns and high levels of congestion at the junction which results in highly variable results. The differences between the Do Minimum and Do Something scenarios result from flow changes predicted by the strategic model, since the junction coding is identical in both scenarios.

8.2.26 The junction analysis results for Wolvercote roundabout are impacted by the Oxford North junction, which is a capacity constraint that suppresses the traffic flows along the A40 West which can reach the Wolvercote roundabout. However, if the capacity constraint from the Oxford North junction is released, the Wolvercote roundabout would not be able accommodate the traffic.

8.2.27 Overall, the results indicate that the Scheme will not have a significant impact on the operation of the junction.

A34 / A44 Pear Tree Interchange

8.2.28 The following tables identify the operation of the A34 / A44 Pear Tree Interchange for the AM and PM peak hours in the Do Minimum and Do Something scenarios.

Table 8-17: Operation of A34 / A44 Pear Tree Interchange– Do Minimum

Arm	AM Peak			PM Peak		
	LoS	Ave. Delay	Ave. Queue	LoS	Ave. Delay	Ave. Queue
A44 Loop Farm	F	58s	26m	E	50s	23m
A34 SB Off-Slip	C	25s	13m	F	51s	17m
A34 SB	A	1s	0m	A	2s	0m
A44 Woodstock Road (Left Turn)	F	127s	35m	F	129s	20m
A44 Woodstock Road (Ahead and Right)	F	91s	27m	F	94s	16m
A34 NB Off-Slip (Left Turn)	F	86s	10m	F	63s	6m
A34 NB Off-Slip (Ahead and Right)	E	42s	22m	D	35s	12m
A34 NB	A	1s	0m	A	1s	0m

Table 8-18: Operation of A34 / A44 Pear Tree Interchange – Do Something

Arm	AM Peak			PM Peak		
	LoS	Ave. Delay	Ave. Queue	LoS	Ave. Delay	Ave. Queue
A44 Loop Farm	F	58s	28m	E	46s	22m
A34 SB Off-Slip	D	26s	13m	E	46s	16m
A34 SB	A	1s	0m	A	2s	0m
A44 Woodstock Road (Left Turn)	F	125s	28m	F	104s	19m
A44 Woodstock Road (Ahead and Right)	F	90s	21m	F	68s	15m
A34 NB Off-Slip (Left Turn)	F	84s	10m	F	57s	5m
A34 NB Off-Slip (Ahead and Right)	E	44s	24m	D	34s	14m
A34 NB	A	1s	0m	A	1s	0m

8.2.29 The results above indicate that the signalisation of the Pear Tree interchange in the future will provide enough capacity to accommodate the flows predicted by 2031 in the Do Minimum and Do Something scenarios, for both the AM and PM peak hours.

8.2.30 It should be noted that these results do not include any blocking back effects from nearby junctions, such as Wolvercote roundabout, that are likely to result in significant queues that affect the operation of this interchange.

8.2.31 Overall, the implementation of the Scheme is not shown to have any significant impact on the operation of the Pear Tree Interchange. Also, the proposed improvements to this junction will allow National Highways to protect the A34 from queuing on the slip roads (ref section 5.3.4).

8.3 General Traffic Journey Time Impact

8.3.1 General traffic journey times have been extracted from the Vissim model for the AM and PM peak hours for all scenarios to assess the impact of the Scheme on journey times along key routes in the area.

8.3.2 Journey time data has been extracted for the following routes which are also illustrated in Figure 7-8:

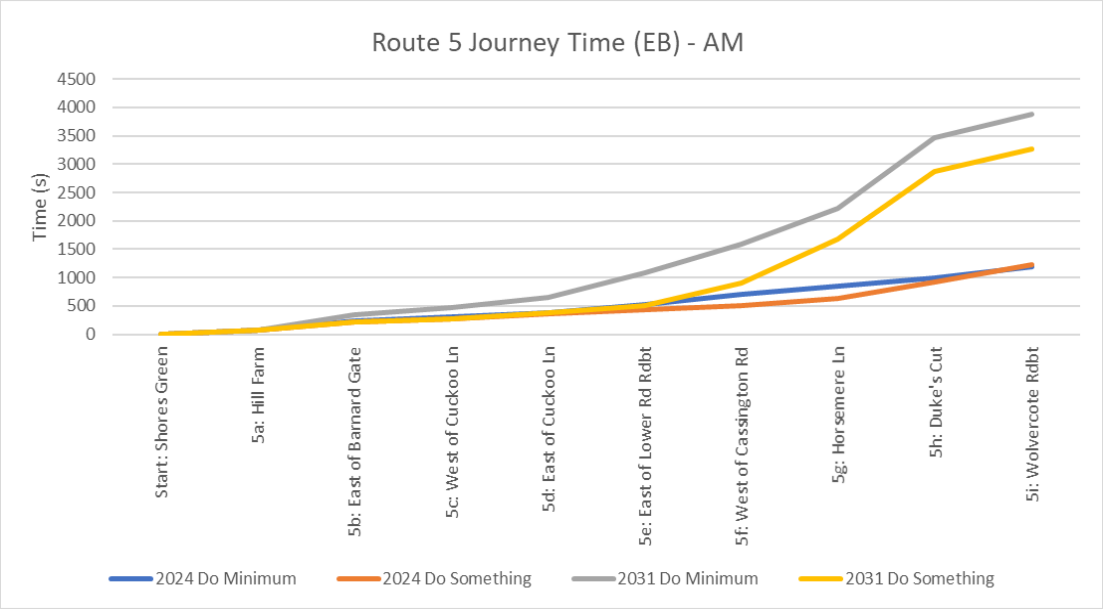
- Route 2: B4044 Oxford Road – High Street – Acre End Street – Witney Road
- Route 3: B4044 Oxford Road – B4449 – Lower Road
- Route 4: A4144 Woodstock Road – A44
- Route 5: A40 between Witney and Wolvercote Roundabout

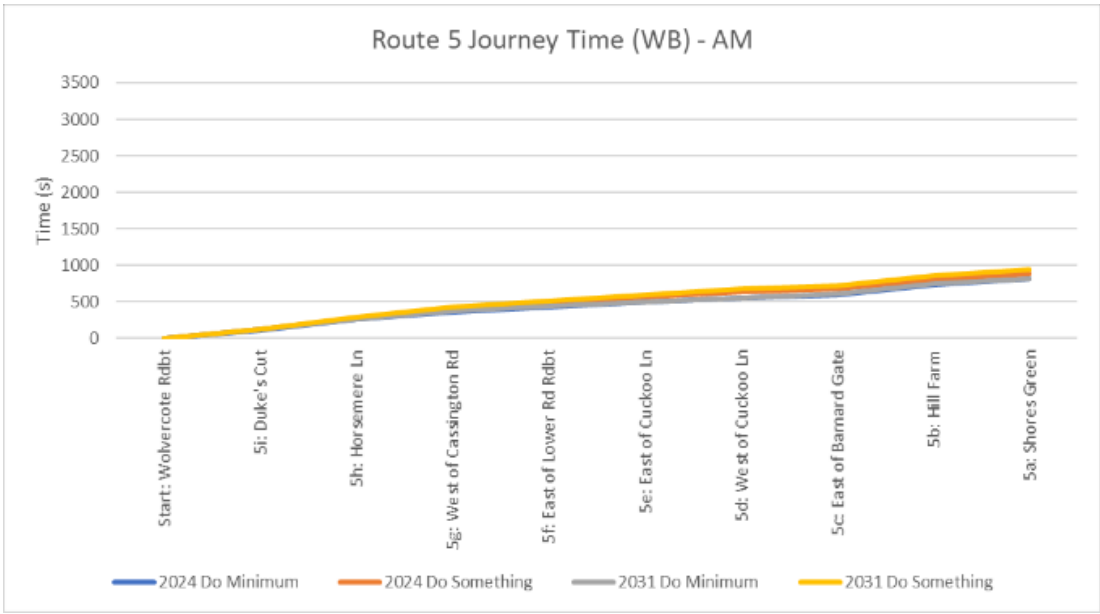
Route 5 (A40 between Shores Green and Wolvercote Roundabout)

8.3.3 The journey times for general traffic using Route 5 along the A40 in the AM peak hour are presented in Figure 8-1 below.

AM Peak Hour

Figure 8-1: Route 5 - Journey Times for General Traffic - AM Peak Hour (0800-0900) for all Scenarios





8.3.4 The journey time results for the AM peak are summarised below.

Table 8-19: Route 5 Journey Time Summary – AM Peak (seconds)

Arm	2024			2031		
	DM	DS	Difference	DM	DS	Difference
Eastbound	1,193	1,225	33	3,874	3,260	-614
Westbound	814	880	67	820	934	114

8.3.5 In 2024, there are small increases in journey time of 33 seconds and 67 seconds in the eastbound and westbound directions respectively.

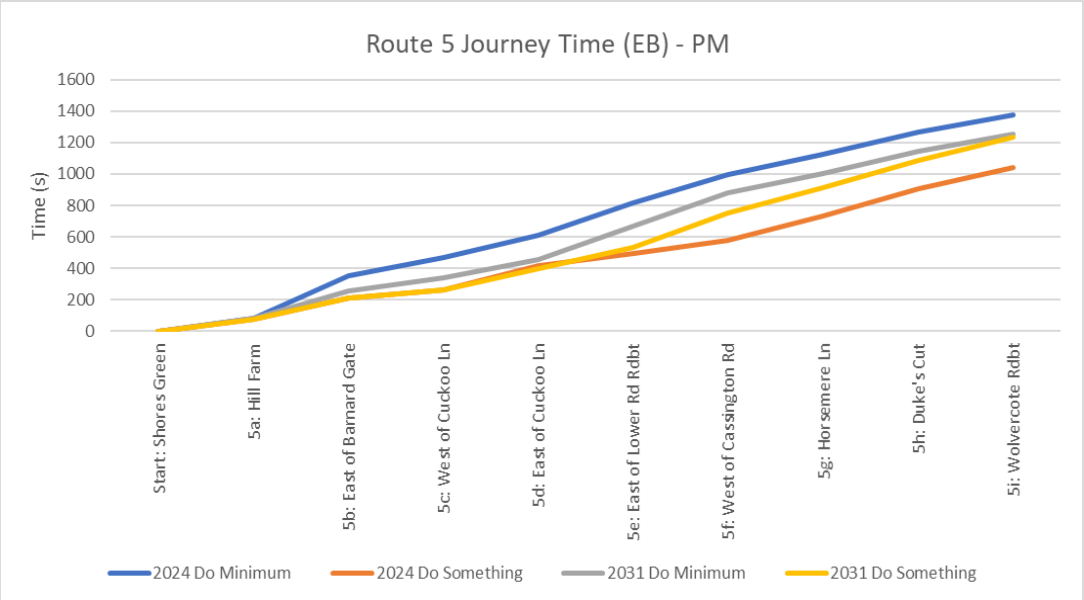
8.3.6 In 2031, there is a reduction in journey time of 614 seconds (over 10 minutes) in the eastbound direction (16%), and an increase of 114 seconds (2 minutes) in the westbound direction (14%).

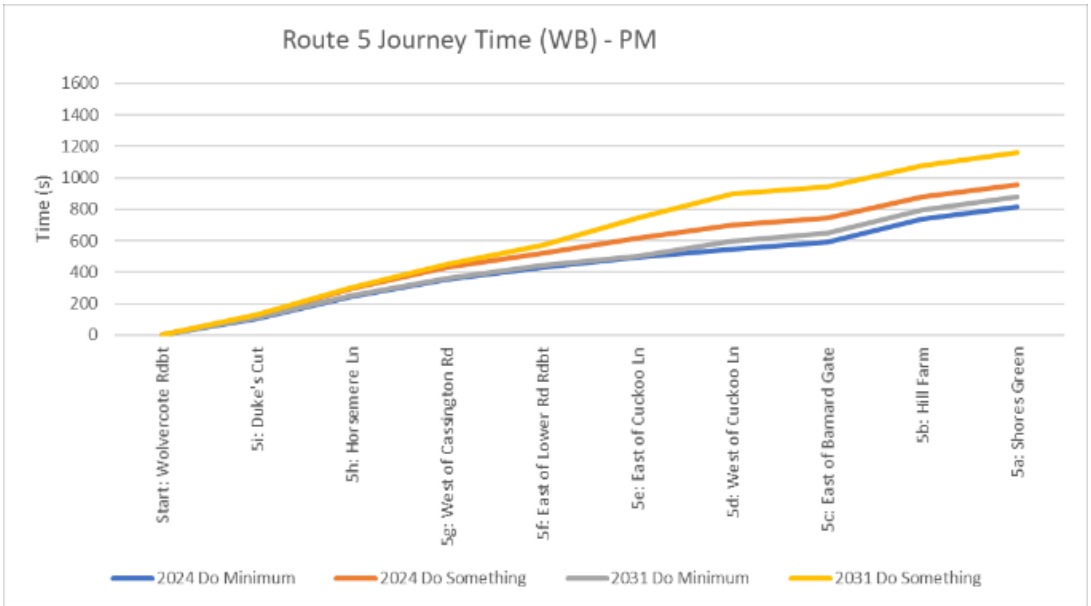
8.3.7 The reduction in eastbound journey time is due to the proposed changes to junction layouts and associated improvements in junction operation. The increase in westbound journey time is a direct consequence of the lower speed limits and additional pedestrian crossings included in the corridor in the Do Something scenarios. The delay generated by the speed limit reduction and the additional pedestrian crossings has been calculated as approximately 130 seconds, assuming vehicles stop at one of the pedestrian/ cycle crossings. This is anticipated to be the worst case as the Vissim model has been coded to activate crossings on every cycle and have long clearance times which is not what would happen in reality as the crossings would only be called when pedestrians are waiting to cross.

PM Peak Hour

8.3.8 The journey times for general traffic using Route 5 along the A40 in the PM peak hour are presented in Figure 8-2 below.

Figure 8-2: Route 5 - Journey Times for General Traffic - PM Peak Hour (1700-1800) for all Scenarios





8.3.9 The journey time results for the PM peak are summarised below.

Table 8-20: Route 5 Journey Time Summary – PM Peak (seconds)

Arm	2024			2031		
	DM	DS	Difference	DM	DS	Difference
Eastbound	1375	1040	-335	1252	1237	-15
Westbound	814	958	144	876	1159	284

8.3.10 In 2024, there is a significant reduction in eastbound journey time (5½ minutes) and a modest increase in the westbound direction (2½ minutes).

8.3.11 In 2031, eastbound journey times remain almost unchanged, and westbound journey times increase by 4½ minutes.

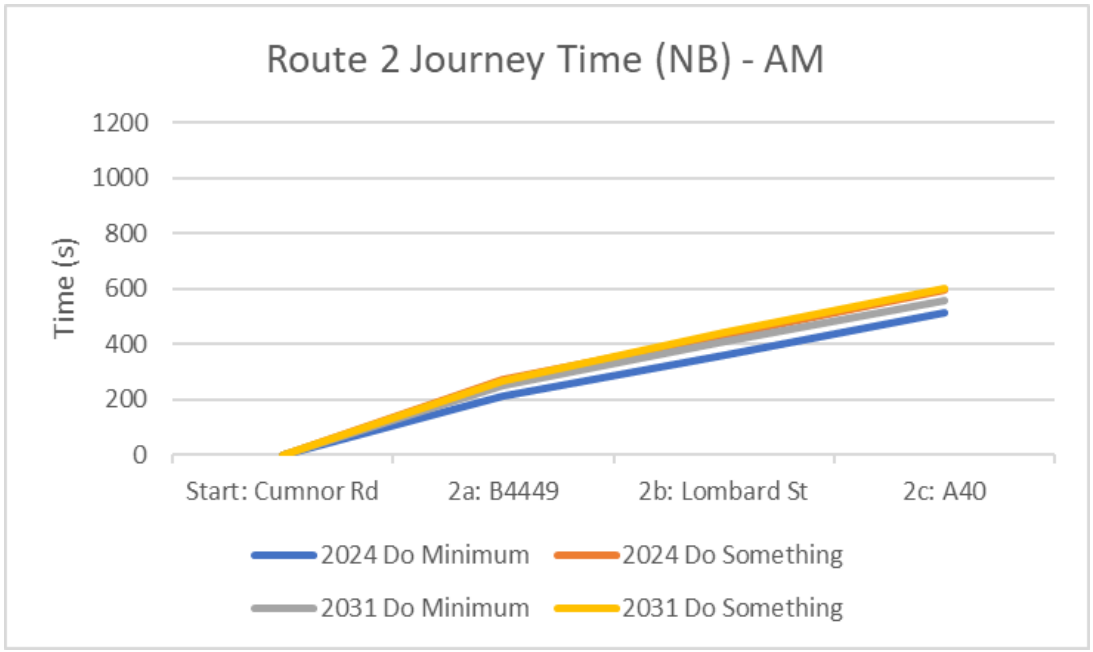
8.3.12 As noted above, the Scheme introduces several pedestrian crossings and a speed limit reduction which are not present in the Do Minimum scenario. It should also be noted that there are higher pedestrian volumes modelled in 2031, which increases the demand for pedestrian/ cycle crossings, which in turn increases journey times along the route.

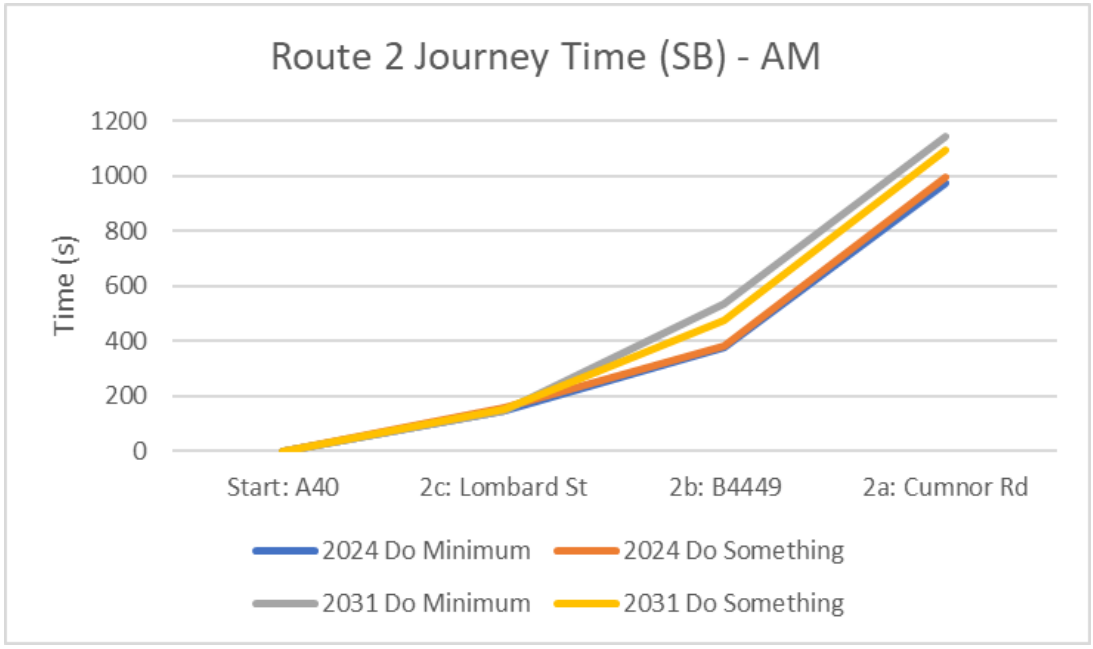
Route 2 (B4044 Oxford Road – High Street – Acre End Street – Witney Road)

AM Peak Hour

8.3.13 The journey times for general traffic along Route 2 in the AM peak hour are presented in Figure 8-3 below.

Figure 8-3: Route 2 - Journey Times for General Traffic - AM Peak Hour (0800-0900) for all Scenarios





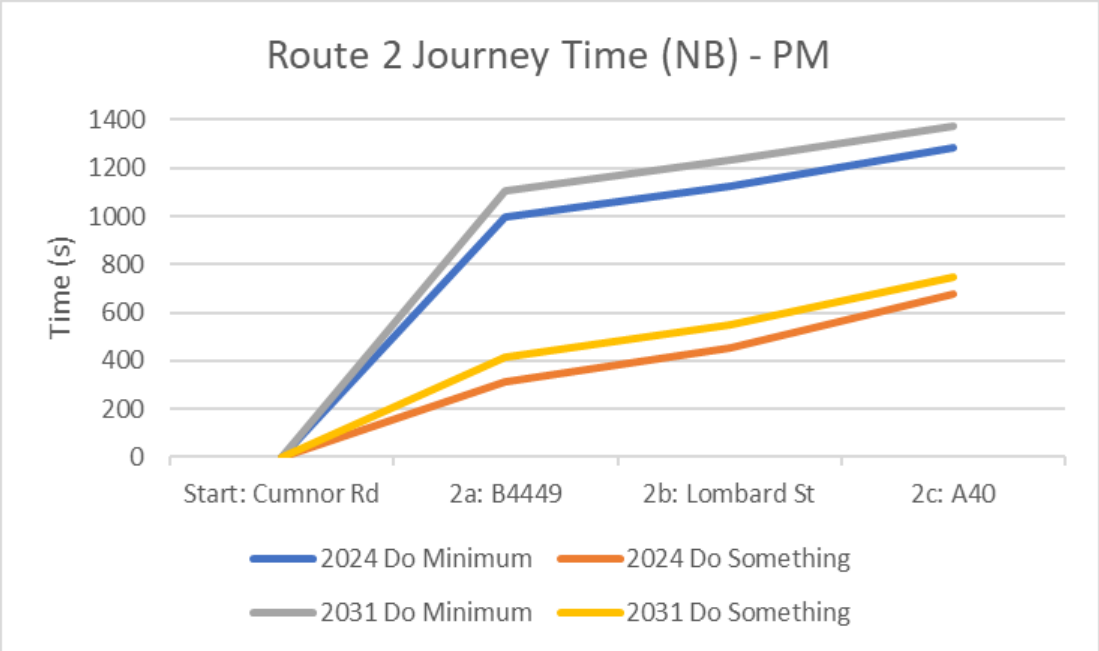
8.3.14 Figure 8-3 indicates that journey times for general traffic travelling northbound along the B4044 Oxford Road and Witney Road to the A40 in the 2024 AM peak hour are forecast to increase from approximately 512 seconds (9 minutes) to 599 seconds (10 minutes) with the implementation of the Scheme. This equates to approximately a 17% increase. In 2031, journey times are forecast to increase from approximately 559 seconds (9 minutes) to approximately 602 seconds (10 minutes) with the implementation of the Scheme. This equates to approximately an 8% increase. This increase in journey time is due to changes in routing patterns between the Do Minimum and Do Something scenarios in the Eynsham area and some additional delay created by the pedestrian crossings at the Witney Road junction.

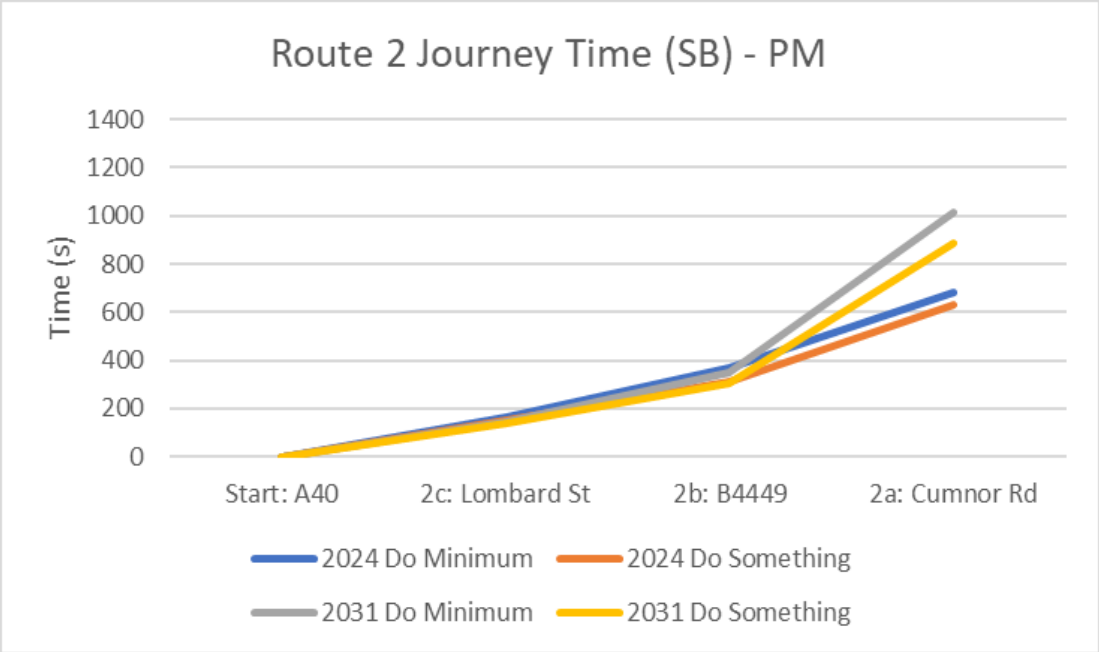
8.3.15 In the southbound direction, journey times from the A40 to Cumnor Road are forecast to increase from 973 seconds (16 minutes) to 993 seconds (17 minutes) in the AM peak hour in 2024 with the implementation of the Scheme. This equates to approximately a 2% increase. In 2031, southbound journey times for general traffic are forecast to decrease from approximately 1145 seconds (19 minutes) to 1092 seconds (18 minutes) with the implementation of the Scheme. This equates to a decrease in journey time of approximately 5%.

PM Peak

8.3.16 The journey times for general traffic along Route 2 in the PM peak hour are presented in Figure 8-4 below.

Figure 8-4: Route 2 - Journey Times for General Traffic - PM Peak Hour (1700-1800) for all Scenarios





8.3.17 Figure 8-4 indicates that journey times for general traffic travelling northbound along the B4044 Oxford Road and Witney Road to the A40 in the 2024 PM peak hour are forecast to decrease from approximately 1285 seconds (21 minutes) to 678 seconds (11 minutes) with the implementation of the Scheme. This equates to approximately a 47% decrease in journey time. The reduction in journey times originates at the Swinford Toll Bridge, where the strategic model predicts a significant reduction in northbound flows in the 2024 PM Do Something scenario. In 2031, journey times are forecast to decrease from approximately 1373 seconds (23 minutes) to approximately 746 seconds (12 minutes) with the implementation of the Scheme. This equates to approximately a 46% decrease in general traffic journey time.

8.3.18 In the southbound direction, journey times from the A40 to Cumnor Road are forecast to decrease from 682 seconds (11 minutes) to 633 seconds (11 minutes) in the PM peak hour in 2024 with the

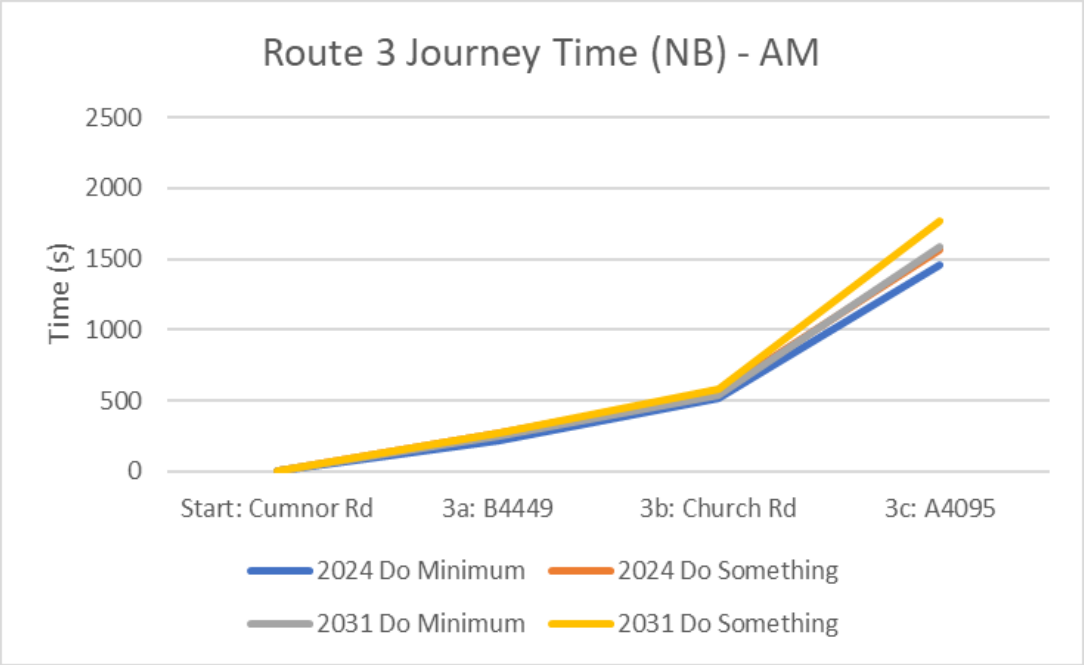
implementation of the Scheme. This equates to approximately a 7% decrease. In 2031, southbound journey times for general traffic are forecast to decrease from approximately 1014 seconds (17 minutes) to 888 seconds (15 minutes) with the implementation of the Scheme. This equates to a decrease in journey time of approximately 12%.

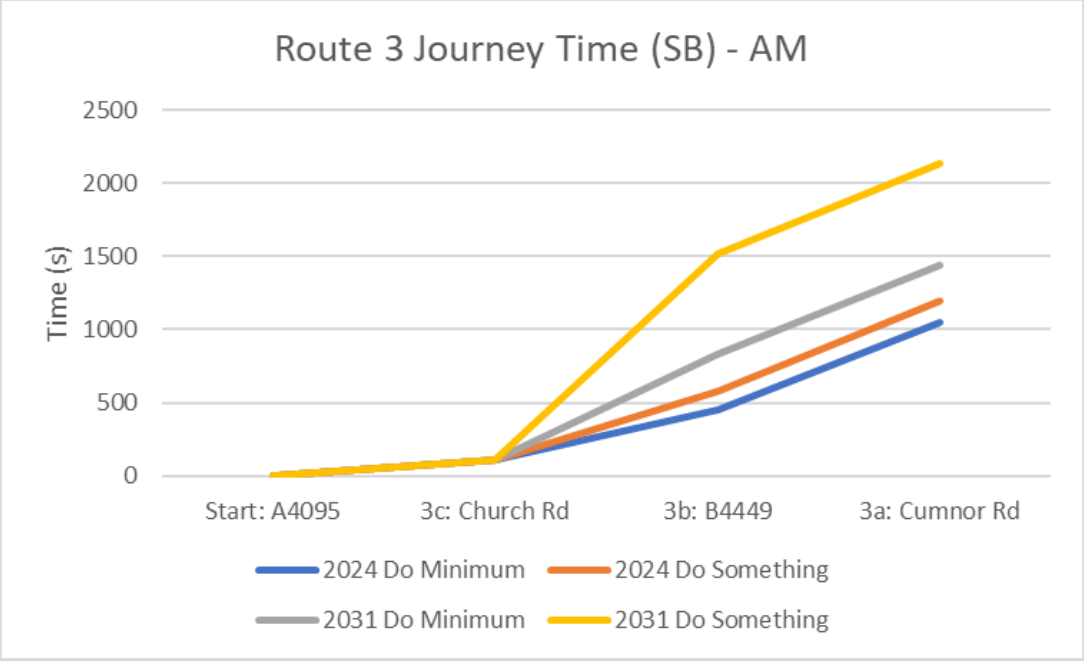
Route 3 (B4044 Oxford Road – B4449 – Lower Road)

AM Peak Hour

8.3.19 The journey times for general traffic along Route 3 in the AM peak hour are presented in Figure 8-5 below.

Figure 8-5: Route 3 - Journey Times for General Traffic - AM Peak Hour (0800-0900) for all Scenarios





8.3.20 Figure 8-5 indicates that journey times for general traffic travelling northbound along the B4044 Oxford Road and B4449 to Lower Road in the 2024 AM peak hour are forecast to increase from approximately 1458 seconds (24 minutes) to 1568 seconds (26 minutes) with the implementation of the Scheme. This equates to approximately an 8% increase in journey time. In 2031, journey times are forecast to

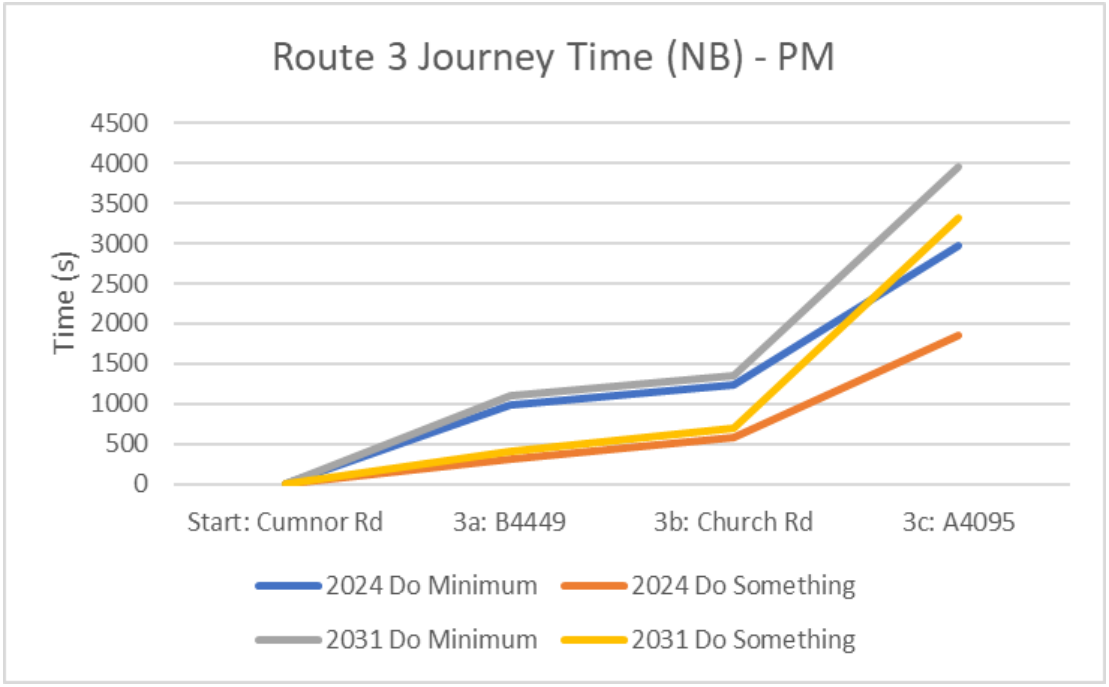
increase from approximately 1583 seconds (26 minutes) to approximately 1770 seconds (30 minutes), a 12% increase. This is caused by the proposed layout at Lower Road roundabout that improved the eastbound-westbound capacity along the A40 and includes signalised pedestrian crossings on the southern and northern arms.

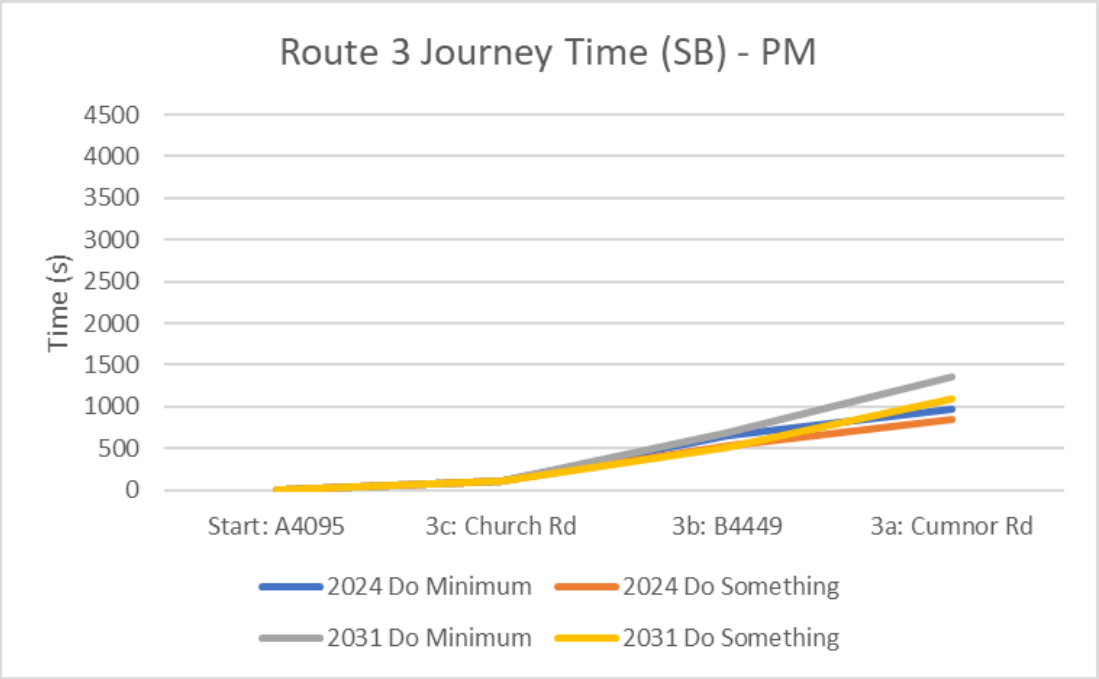
8.3.21 In the southbound direction, journey times from Lower Road to Cunmor Road are forecast to increase from 1050 seconds (18 minutes) to 1196 seconds (20 minutes) in the AM peak hour in 2024 with the implementation of the Scheme. This equates to approximately a 14% increase. In 2031, southbound journey times for general traffic are forecast to increase from approximately 1442 seconds (24 minutes) to 2134 seconds (36 minutes), an increase of approximately 48%. This increase is mainly at the approach to the Swinford Toll Bridge, since the capacity improvement on the A40 releases additional flows, which lengthen queues approaching the Toll Bridge. There is also some additional southbound delay at the Lower Road junction, since the proposed layout changes benefit the eastbound movements along the A40, reducing the gap availability for the southbound vehicles.

PM Peak Hour

8.3.22 The journey times for general traffic along Route 3 in the PM peak hour are presented in Figure 8-6 below.

Figure 8-6: Route 3 - Journey Times for General Traffic - PM Peak Hour (1700-1800) for all Scenarios





8.3.23 Figure 8-6 indicates that journey times for general traffic travelling northbound along the B4044 Oxford Road and B4449 to Lower Road in the 2024 PM peak hour are forecast to decrease from approximately 2973 seconds (50 minutes) to 1863 seconds (31 minutes) with the implementation of the Scheme. This equates to approximately a 37% reduction. The journey time reduction is caused by a flow reduction at the Swinford Toll Bridge in the Do Something scenario. In 2031, journey times are forecast to decrease from approximately 3942 seconds (66 minutes) to approximately 3320 seconds (55 minutes) with the implementation of the Scheme, a 16% reduction.

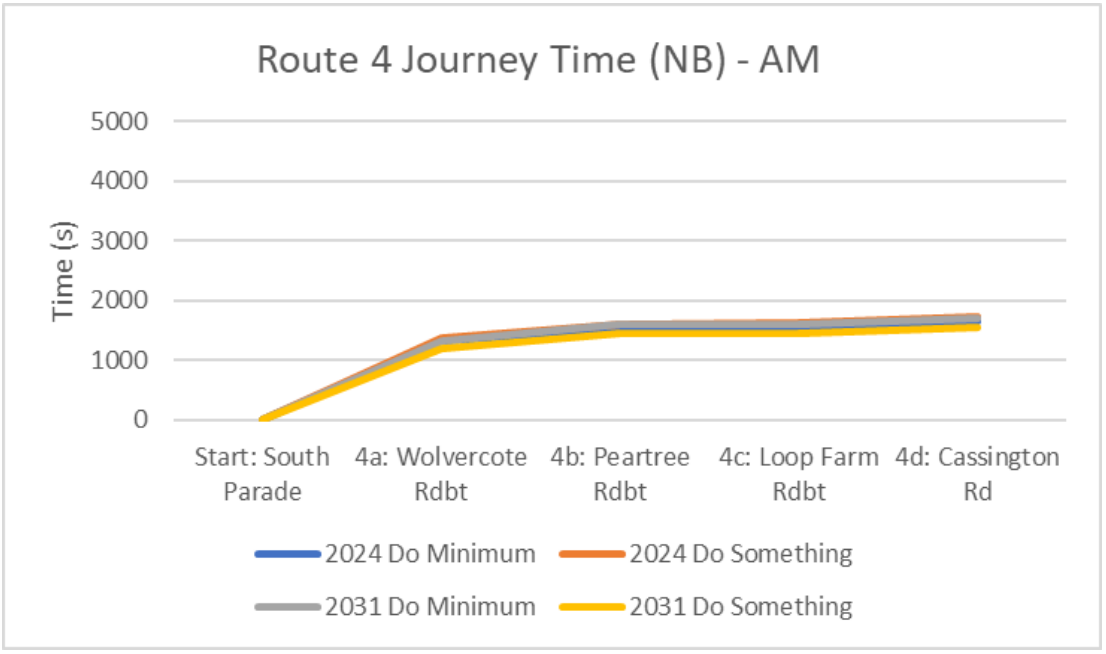
8.3.24 In the southbound direction, journey times from the Lower Road to Cunmor Road are forecast to increase from 966 seconds (16 minutes) to 844 seconds (14 minutes) in the PM peak hour in 2024 with the implementation of the Scheme. This equates to approximately a 13%. The reduction in delay originates at Lower Road roundabout, where the proposed layout results in a better junction operation and journey time saving on all arms. In 2031, southbound journey times for general traffic are forecast to decrease from approximately 1361 seconds (23 minutes) to 1097 seconds (18 minutes) with the implementation of the Scheme, a 19% reduction.

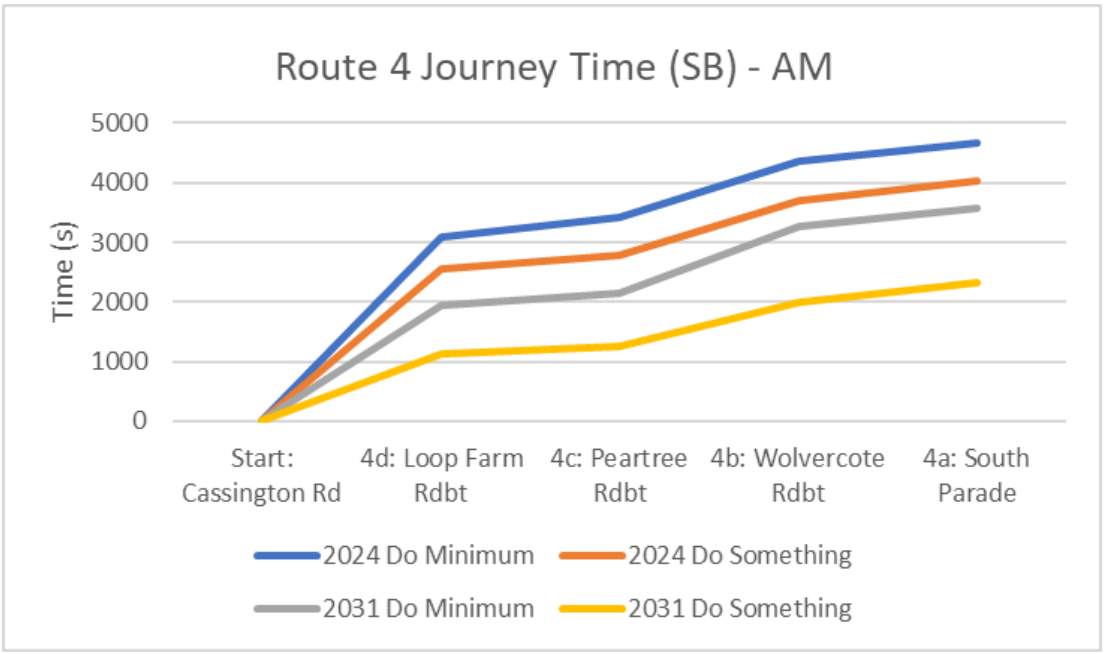
Route 4 (A4144 Woodstock Road – A44)

AM Peak Hour

8.3.25 The journey times for general traffic along Route 4 along the A40 in the AM peak hour are presented in Figure 8-7 below.

Figure 8-7: Route 4 - Journey Times for General Traffic - AM Peak (0800-0900) for all Scenarios





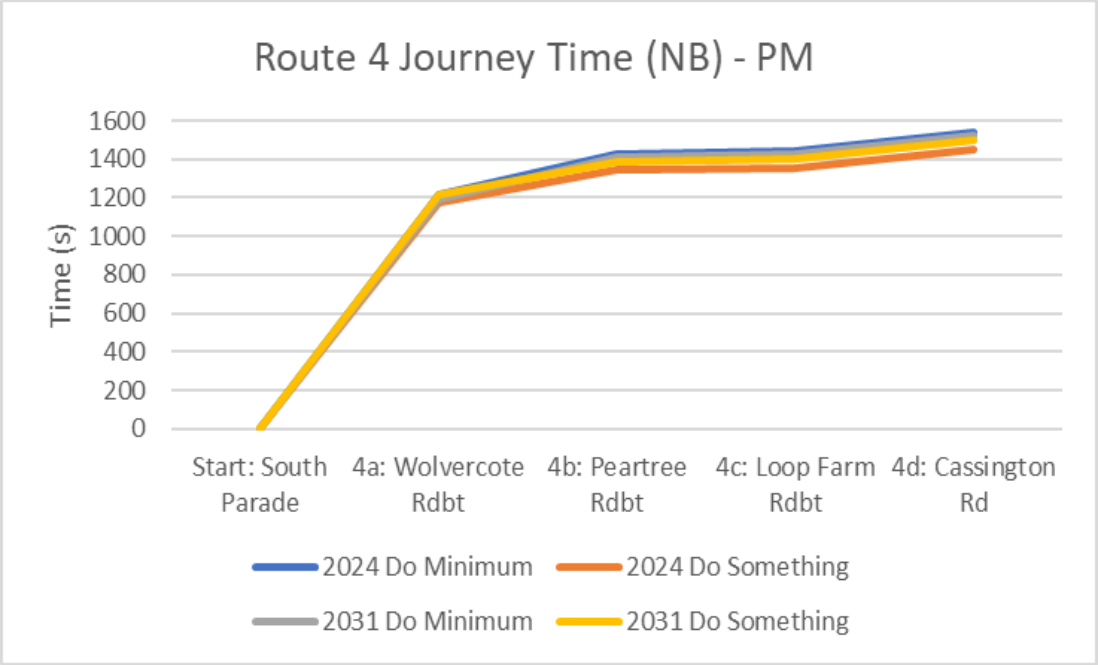
8.3.26 Figure 8-7 indicates that journey times for general traffic travelling northbound along the A4044 Woodstock Road to the A44/ Cassington Road in the 2024 AM peak hour are forecast to increase from approximately 1641 seconds (27 minutes) to 1718 seconds (29 minutes) with the implementation of the Scheme, a 5% increase. In 2031, journey times are forecast to decrease from approximately 1701 seconds (28 minutes) to approximately 1554 seconds (26 minutes) with the implementation of the Scheme, a 9% decrease.

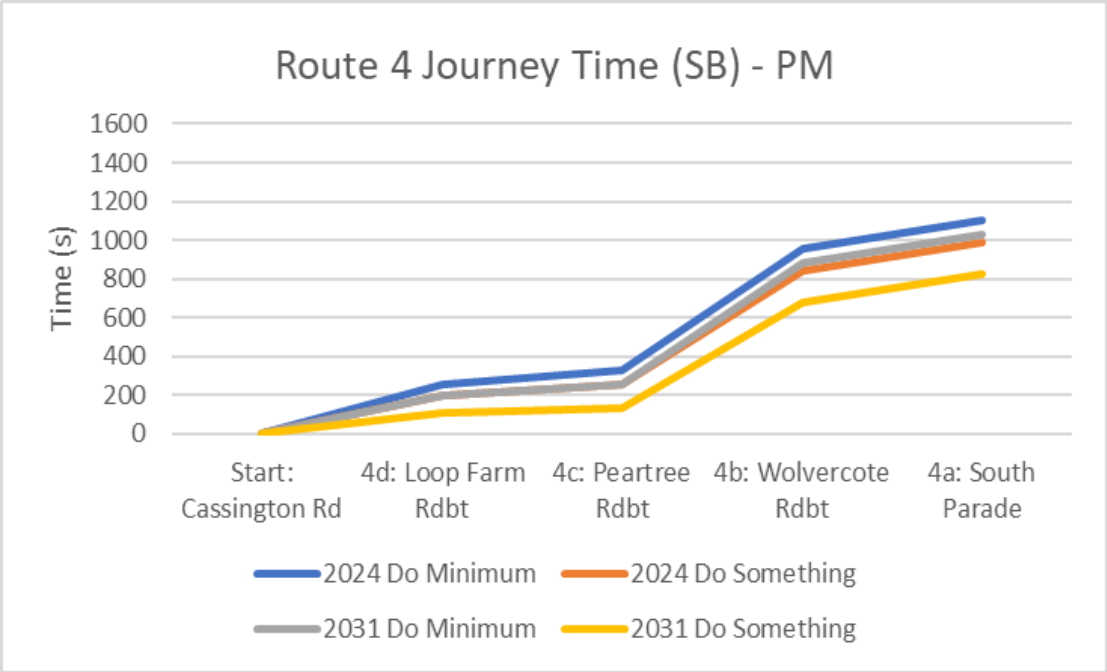
8.3.27 In the southbound direction, journey times along the A44 and A4044 between Cassington Road and South Parade are forecast to decrease from 4674 seconds (78 minutes) to 4023 seconds (67 minutes) in the AM peak hour in 2024 with the implementation of the Scheme. This equates to approximately a 14% decrease. In 2031, southbound journey times for general traffic are forecast to decrease from approximately 3575 seconds (60 minutes) to 2314 seconds (39 minutes), a 35% reduction.

PM Peak Hour

8.3.28 The journey times for general traffic along Route 4 in the PM peak hour are presented in Figure 8-8 below.

Figure 8-8: Route 4 - Journey Times for General Traffic - PM Peak Hour (1700-1800) for all Scenarios





8.3.29 Figure 8-8 indicates that journey times for general traffic travelling northbound along the A4044 Woodstock Road to the A44/ Cassington Road in the 2024 PM peak hour are forecast to decrease from approximately 1540 seconds (26 minutes) to 1454 seconds (24 minutes) with the implementation of the Scheme, a 6% decrease. In 2031, journey times are forecast to decrease from approximately 1526 seconds (25 minutes) to approximately 1501 seconds (25 minutes), a 2% reduction.

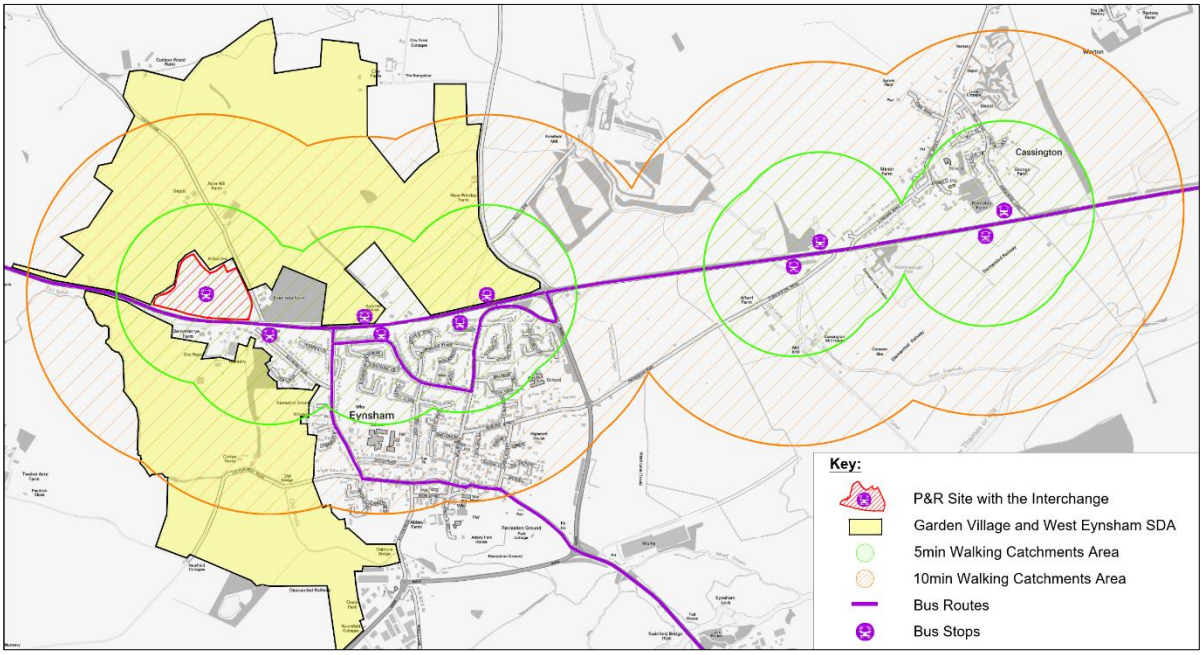
8.3.30 In the southbound direction, journey times along the A44 and A4044 between Cassington Road and South Parade are forecast to decrease from 1102 seconds (18 minutes) to 990 seconds (16 minutes) in the PM peak hour in 2024 with the implementation of the Scheme. This equates to approximately a 10% decrease. In 2031, southbound journey times for general traffic are forecast to decrease from approximately 1029 seconds (17 minutes) to 825 seconds (14 minutes), a 20% reduction.

8.4 Public Transport Impacts

2024 Bus Patronage

8.4.1 The scheme proposes five new bus stops, relocation of two bus stops along the corridor, increasing accessibility for passengers traveling from Eynsham and Cassington. These bus stops will provide access to frequent bus services within a 10 minute walk for the majority of residents in the Salt Cross Garden Village and West Eynsham developments, as well as existing residents in Eynsham, as shown in Figure 8-9. Outside of the scope of this TA, new services operating through Salt Cross and West Eynsham SDA should bring the whole of the new development areas within at most a 10-minute walk of a good bus service.

Figure 8-9: Bus Stop Isochrones



8.4.2 In 2024, the frequency of buses along the A40 is anticipated to increase from nine per hour to 14 per hour in each direction. Assuming the bus type remains a double decker with a seat theoretical capacity of 79 passengers, the bus capacity along the A40 will increase from 711 passengers per hour to 1,106 passengers per hour in 2024. This equates to a 56% increase in bus capacity.

8.4.3 The OSM is a multi-modal strategic transport model and includes a public transport model that takes into consideration mode change due to improvements in public transport infrastructure and service levels. The forecast patronage for bus services along the A40 in 2024 in the Do Minimum and Do Something scenarios has been taken from the OSM directly and are summarised in Table 8-21 and Table 8-22 below. The figures show the number of passengers on each bus service per hour travelling onward from the stated bus stop. Changes in patronage take into account passengers alighting and boarding at each stop. Where the route diverts away from the A40, the patronage data has not been reported (indicated with a '-').

Table 8-21: 2024 Bus Patronage (AM Peak Hour)

Bus Stop	2024 Do Minimum					2024 Do Something					
	S1A	S1B	S2	S7	Total	S1	S2A	S2B	S7A	S7B	Total
Eastbound											
Witney A40 EB on-slip	70	64	37	11	**182**	37	90	27	22	46	**222**
Eynsham P&R	70	64	37	11	**182**	51	192	129	98	121	**591**
Eynsham	70	64	37	11	**182**	51	192	129	98	121	**591**
A40/B4449 Junction	-	-	37	11	**48**	-	202	145	99	122	**568**
Cassington Junction	-	-	38	12	**50**	-	205	149	98	122	**574**
Duke's Cut	-	-	38	12	**50**	-	205	149	98	122	**574**

Bus Stop	2024 Do Minimum					2024 Do Something					
	S1A	S1B	S2	S7	Total	S1	S2A	S2B	S7A	S7B	Total
Wolvercote Roundabout	-	-	37	11	**48**	-	198	148	117	140	**603**
Westbound											
Wolvercote Roundabout	-	-	24	4	**28**	-	44	23	13	13	**93**
Duke's Cut	-	-	16	3	**19**	-	37	16	8	9	**70**
Cassington Junction	-	-	16	3	**19**	-	37	15	9	9	**70**
A40/B4449 Junction	-	-	19	3	**22**	-	37	15	9	9	**70**
Eynsham	33	24	19	3	**79**	29	38	15	9	9	**100**
Eynsham P&R	33	24	19	3	**79**	30	31	10	6	7	**84**
Witney A40 WB off-slip	33	24	19	3	**79**	30	31	10	6	7	**84**

Note: The "-" in the table indicate that the bus service has diverted from the A40 corridor.

8.4.4 In the 2024 AM peak, bus patronage from Eynsham is predicted to increase from 182 to 591 passengers per hour with the Scheme, an increase of 225%. Beyond Eynsham a like-for-like comparison cannot be made due to service route changes, but patronage through Wolvercote roundabout is forecast to be 603 passengers/hour in the DS scenario.

8.4.5 For the westbound bus services, 100 passengers/hour are forecast to use the bus services from Eynsham with the implementation of the Scheme, compared to 79 without the Scheme, equating to a 27% increase.

Table 8-22: 2024 DS Bus Patronage (PM Peak Hour)

Bus Stop	2024 Do Minimum					2024 Do Something					
	S1A	S1B	S2	S7	Total	S1	S2A	S2B	S7A	S7B	Total
Eastbound											
Witney A40 EB on-slip	22	18	20	3	**63**	16	25	7	8	12	**68**
Eynsham P&R	22	18	20	3	**63**	16	31	13	10	14	**84**
Eynsham	22	18	20	3	**63**	16	31	13	10	14	**84**
A40/B4449 Junction	-	-	21	3	**24**	-	34	17	9	14	**74**
Cassington Junction	-	-	21	3	**24**	-	34	17	9	14	**74**
Duke's Cut	-	-	21	3	**24**	-	34	17	9	14	**74**
Wolvercote Roundabout	-	-	23	4	**27**	-	40	24	13	18	**95**
Westbound											
Wolvercote Roundabout	-	-	50	3	**53**	-	224	158	55	55	**492**
Duke's Cut	-	-	50	3	**53**	-	224	158	55	55	**492**
Cassington Junction	-	-	46	2	**48**	-	219	152	55	56	**482**
A40/B4449 Junction	-	-	42	2	**44**	-	209	141	55	56	**461**
Eynsham	78	61	42	2	**183**	22	210	140	55	56	**483**
Eynsham P&R	78	61	42	2	**183**	22	109	47	15	19	**212**
Witney A40 WB off-slip	78	61	42	2	**183**	22	109	47	15	19	**212**

Note: The "-" in the table indicate that the bus service has diverted from the A40 corridor.

8.4.6 In the PM peak hour, 483 passengers are forecast to use the westbound bus services from Eynsham with the Scheme, compared to 183 without the Scheme, an increase of 164%.

8.4.7 For eastbound bus services there is predicted to be an increase from 63 to 84 passengers at Eynsham, equating to a 33% increase in bus patronage with implementation of the Scheme.

2031 Bus Patronage

8.4.8 In 2031 with the implementation of the Scheme, the number of different bus services going along the A40 is anticipated to increase from four to seven. This will improve accessibility to locations such as Oxford, Carterton, Witney and Eynsham as well as areas of employment in the Eastern Arc.

Table 8-23: 2031 DS Bus Routes

Service	Variant	Route
S0		Oxford > Salt Cross Garden Village > Eynsham P&R > West Eynsham
S1	(a)	Oxford > Botley > Eynsham > Eynsham P&R > Witney
	(b)	
S2	(a)	Oxford > Eynsham P&R > Witney > West Witney > Carterton *Some peak extras bypass Witney*
	(b)	Oxford > Eynsham P&R > North Witney > Witney
S7	(a)	Eastern Arc > Eynsham P&R
	(b)	Extension to Witney > Curbridge > Brize Norton > Carterton

8.4.9 In addition, in 2031 the bus frequency along the A40 is anticipated to increase from 11 per hour to 18 per hour in each direction, based on the anticipated increase in demand. If the bus type remains a double decker with a theoretical capacity of 79 passengers, the bus capacity along the A40 will increase from 869 passengers per hour to 1,501 passengers per hour in 2031. This equates to a 73% increase.

8.4.10 The forecast bus patronage for future bus services along the A40 in 2031 in the Do Minimum and Do Something scenarios is summarised in Table 8-24 and Table 8-25 below.

Table 8-24: 2031 Bus Patronage (AM Peak Hour)

Bus Stop	2031 Do Minimum					2031 Do Something						
	S1A	S1B	S2	S7	Total	S0	S1	S2A	S2B	S7A	S7B	Total
Eastbound												
Witney A40 EB on-slip	83	72	45	23	**223**	-	39	117	31	42	50	**279**
Eynsham P&R	103	85	61	38	**287**	-	58	216	135	184	147	**740**
Eynsham	103	85	61	38	**287**	-	58	216	135	184	147	**740**
A40/B4449 Junction	-	-	66	39	**105**	88	-	244	169	186	149	**836**
Cassington Junction	-	-	68	40	**108**	95	-	252	177	185	148	**857**
Duke's Cut	-	-	0	0	**108**	95	-	252	177	185	148	**857**
Wolvercote Roundabout	-	-	50	27	**77**	83	-	219	158	205	163	**828**
Westbound												
Wolvercote Roundabout	-	-	34	9	**43**	16	-	50	28	20	15	**129**
Duke's Cut	-	-	18	4	**22**	6	-	39	17	13	10	**85**
Cassington Junction	-	-	18	4	**22**	6	-	39	16	13	10	**84**
A40/B4449 Junction	-	-	25	4	**29**	6	-	38	15	13	10	**76**
Eynsham	32	25	20	4	**81**	-	19	39	15	13	10	**96**
Eynsham P&R	32	36	24	6	**98**	-	22	46	9	12	18	**107**
Witney A40 WB off-slip	32	36	24	6	**98**	-	22	46	9	12	18	**107**

Note: The "-" in the table indicate that the bus service has diverted from the A40 corridor.

8.4.11 Table 8-24 indicates that in the 2031 AM peak hour, 740 passengers are forecast to use eastbound services from Eynsham if the Scheme is implemented, compared to 287 without the Scheme, an increase of 158%. Bas patronage through Wolvercote roundabout is forecast to be 828 passengers/hour

in the DS scenario. At the Park & Ride site, 461 passengers/hour board (assuming no passengers eastbound passengers alight here).

8.4.12 For the westbound bus services, 96 passengers are forecast to use the bus services from Eynsham with the implementation of the Scheme, compared to 81 without the Scheme, an increase of 19%.

Table 8-25: 2031 Bus Patronage (PM Peak Hour)

Bus Stop	2031 Do Minimum					2031 Do Something						
	S1A	S1B	S2	S7	Total	S0	S1	S2A	S2B	S7A	S7B	Total
Eastbound												
Witney A40 EB on-slip	20	23	23	4	**70**	-	11	37	6	12	13	**79**
Eynsham P&R	19	17	20	3	**59**	-	14	28	11	12	13	**78**
Eynsham	19	17	20	3	**59**	-	14	28	11	12	13	**78**
A40/B4449 Junction	-	-	22	3	**25**	10	-	31	14	12	13	**80**
Cassington Junction	-	-	21	3	**24**	10	-	31	14	12	13	**80**
Duke's Cut	-	-	21	3	**24**	10	-	31	14	12	13	**80**
Wolvercote Roundabout	-	-	24	6	**30**	18	-	38	23	19	17	**115**
Westbound												
Wolvercote Roundabout	-	-	76	7	**83**	95	-	262	182	104	73	**716**
Duke's Cut	-	-	100	8	**108**	98	-	271	187	114	82	**752**
Cassington Junction	-	-	96	6	**102**	96	-	268	183	114	82	**743**
A40/B4449 Junction	-	-	57	6	**63**	96	-	229	145	114	82	**570**
Eynsham	111	87	56	6	**260**	-	30	229	144	114	82	**599**
Eynsham P&R	87	73	57	6	**223**	-	27	134	50	24	24	**259**
Witney A40 WB off-slip	87	73	57	6	**223**	-	27	134	50	24	24	**259**

Note: The "-" in the table indicate that the bus service has diverted from the A40 corridor.

8.4.13 Table 8-25 indicates that in 2031 PM peak hour, if the Scheme is implemented 78 passengers are forecast to use eastbound bus services from Eynsham, compared to 59 without the Scheme, an increase of 32%.

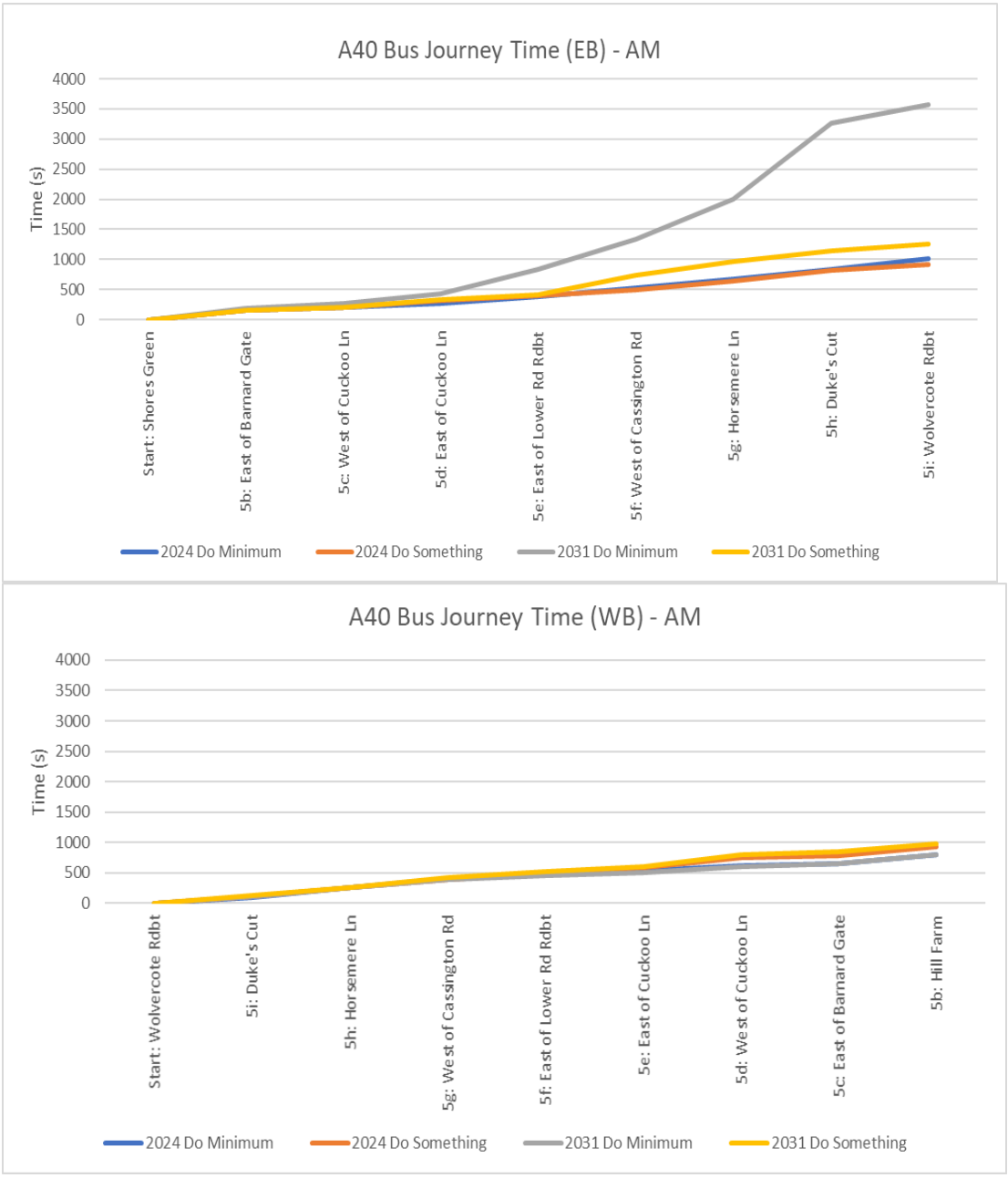
8.4.14 For the westbound bus services, 599 passengers are forecast to use the bus services from Eynsham with the Scheme, compared to 260 passengers in the DM scenario. This equates to a 130% increase in bus patronage. At the Park & Ride site, 340 passengers/hour alight (assuming no passengers board here to travel westbound).

8.4.15 Overall, the OSM is predicting significant increases in bus patronage as a result of the implementation of the scheme and so the scheme is consistent with the objectives of encouraging modal shift and increased use of buses. Also, the proposed level of bus provision with the scheme is anticipated to be able to accommodate the predicted demand the area.

Bus Journey Times

8.4.16 Journey times for buses travelling along the A40 for the extent of the Scheme in the AM peak hour in Figure 8-10.

Figure 8-10: Bus Journey Times along the A40 Corridor in the AM Peak Hour

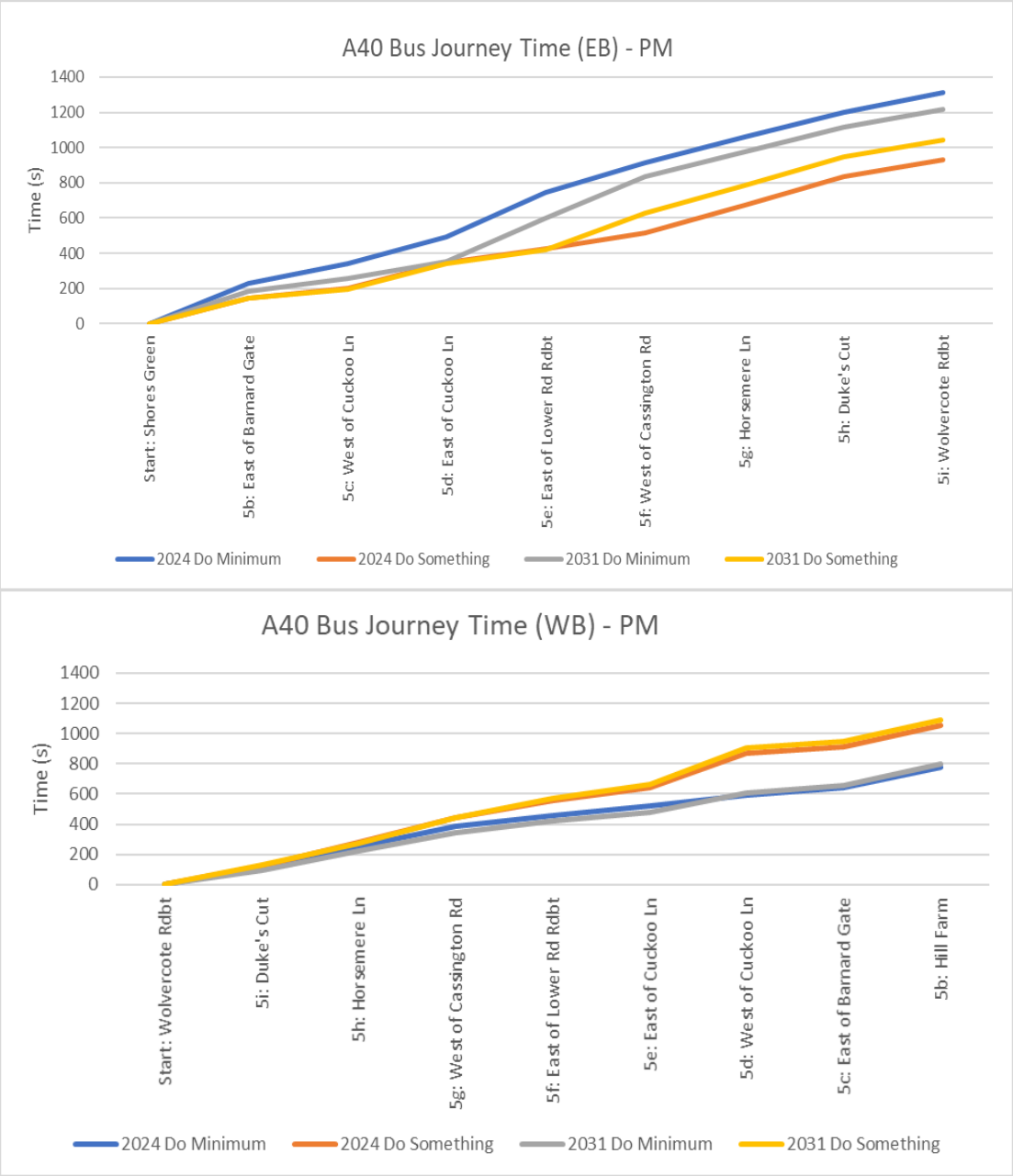


8.4.17 Figure 8-10 indicates that for buses travelling eastbound along the A40 in the AM peak hour, the journey time will improve slightly in 2024 with the implementation of the Scheme, from 1015 seconds (17 minutes) to 918 seconds (15 minutes). This equates to a 10% reduction in journey time. Journey times are forecast to improve significantly in 2031 with the implementation of the Scheme, from 3564 seconds (59 minutes) without the Scheme to 1258 seconds (21 minutes) with the implementation of the Scheme. This equates to a 65% reduction in journey times.

8.4.18 For buses travelling westbound along the A40, the journey time is forecast to increase slightly in 2024 and 2031 with the implementation of the Scheme due to the reduction in speed limit along this section and the delay of stopping at additional bus stops and pedestrian crossings. This has been calculated as introducing approximately 160 seconds to trip times. These measures will improve safety, improve accessibility to buses and improve amenity for pedestrians and cyclists. Journey times are forecast to increase from 796 seconds (13 minutes) to 923 seconds (15 minutes) in 2024 with the implementation of the Scheme, this equates to a 16% increase. In 2031, journey times are forecast to increase from 795 seconds (13 minutes) to 987 seconds (16 minutes) in the AM peak hour with the implementation of the Scheme. This equates to a 24% increase in bus journey times. It should be noted that although Do Minimum scenario modelling does not include the additional signal controlled crossings, the planned development in the area would not be able to come forward without additional crossing points on the A40, but the comparison does not take this into account.

8.4.19 Journey times for buses travelling along the A40 for the extent of the Scheme in the PM peak hour in Figure 8-11 below.

Figure 8-11: Bus Journey Times along the A40 Corridor in the PM Peak Hour



8.4.20 In the PM peak hour journey times for buses travelling eastbound along the A40 are forecast to improve in 2024 with the implementation of the Scheme, with a reduction in journey time from 1310 seconds (22 minutes) to 933 seconds (16 minutes). This equates to a 29% reduction. In 2031, it is forecast that the journey time for buses will decrease from 1217 seconds (20 minutes) to 1043 seconds (17 minutes) with the implementation of the Scheme, equating to a 14% decrease. The proposed bus lane is predicted to improve eastbound bus journey times along the A40, especially in the Eynsham area, where the operation of the Lower Road roundabout generates significant queues and delays in the Do Minimum scenario.

8.4.21 Buses travelling in the westbound direction along the A40 in the PM peak hour in 2024 and 2031 are forecast to experience a 274 second (5 minutes) and 287 second (5 minutes) increase respectively in journey times with the implementation of the Scheme. This equates to a 35% increase in bus journey times in 2024 and a 36% increase in 2031. The increase in bus journey time is spread equally in all sections, and results from the speed limit reduction, additional crossing facilities and the additional bus stops which results in approximately 160 seconds of delay. As noted above, the comparison does not take into account the fact that additional crossing points on the A40 would be required for the planned

development to be able to come forward, and this would increase the DM bus journey times, but these are not modelled in the DM scenario.

8.4.22 Bus and general traffic journey times forecast along the A40 between Shores Green and Wolvercote Roundabout in 2024 and 2031 for the AM and PM peak hours are shown in Figure 8-12 and Figure 8-13 respectively.

Figure 8-12: AM comparison of car and bus journey times on A40

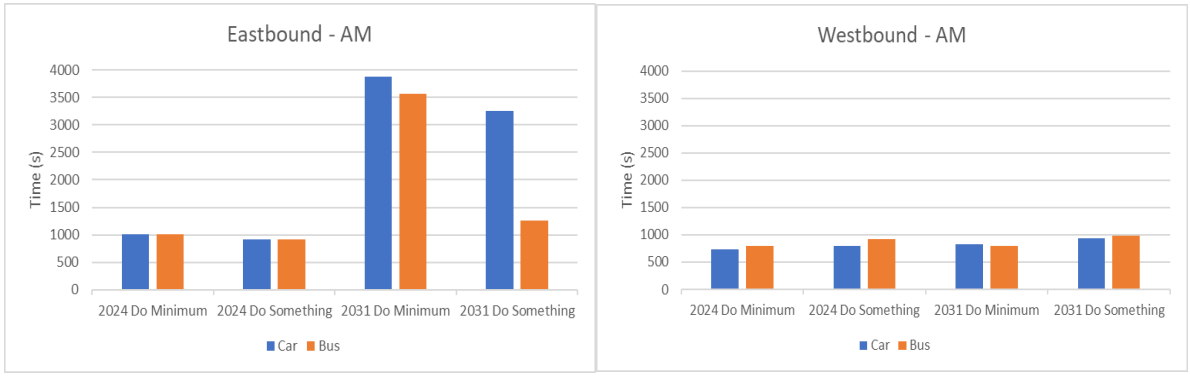
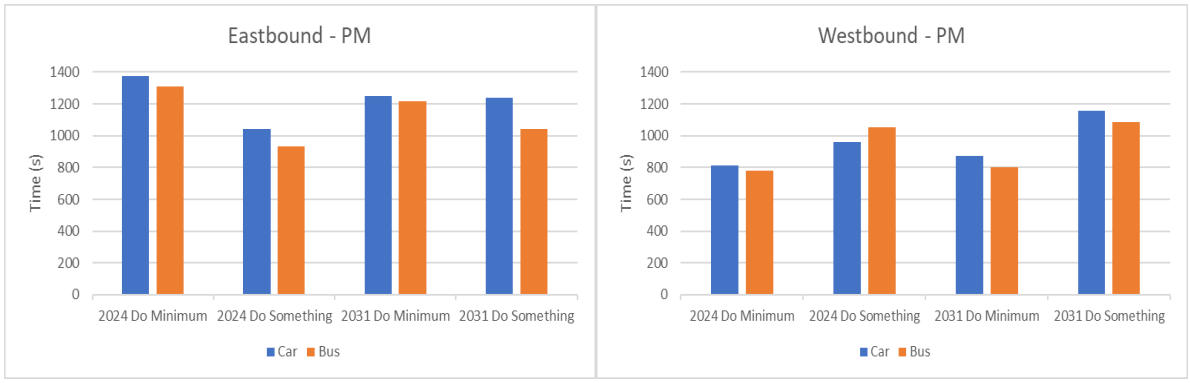


Figure 8-13: PM comparison of car and bus journey times on A40



8.4.23 Figure 8-12 indicates that in the 2031 AM peak, the journey time for individuals using the bus to travel eastbound along the A40 will be considerably shorter due to the bus lanes than travelling by private vehicles which are significantly affected by general congestion.

Bus Journey Time Reliability

8.4.24 Bus journey time reliability has been assessed by calculating the standard deviation from the mean bus journey time obtained from the Vissim model runs. More information on the methodology used to obtain the standard deviation is provided in the '*Forecast Modelling Report'* in Appendix A3.

8.4.25 Figure 8-14 and Figure 8-15 below show the average journey times and the standard deviation of journey times for the 2024 and 2031 scenarios in the AM and PM peaks respectively.

Figure 8-14: Journey Time Reliability - AM Peak

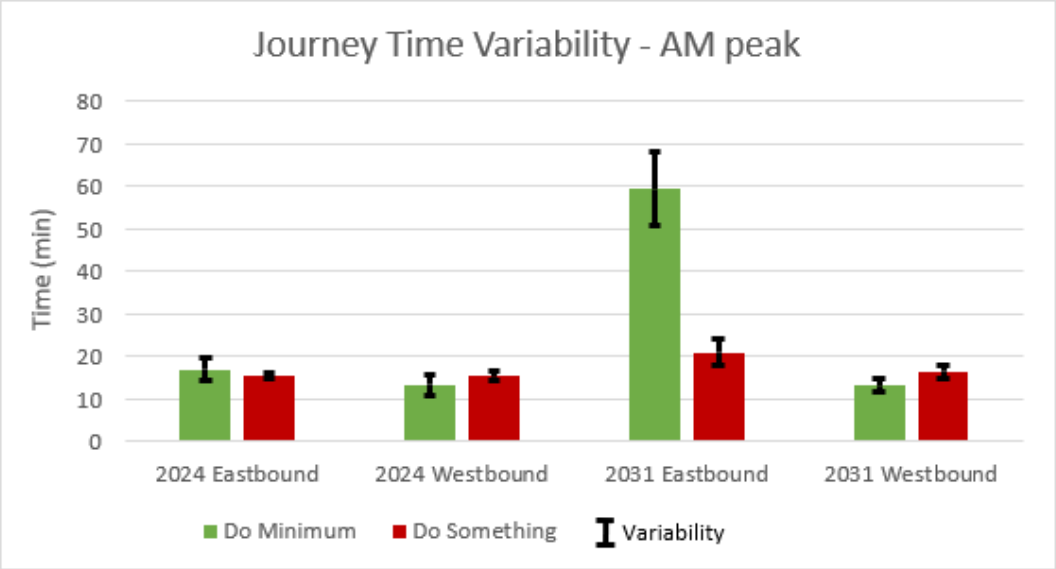
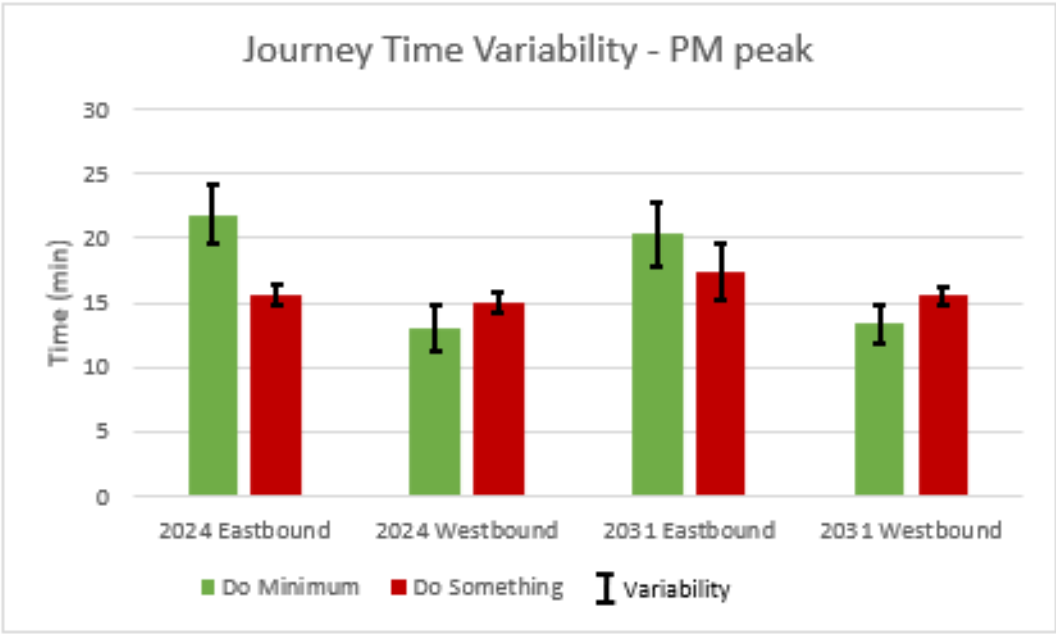


Figure 8-15: Journey Time Reliability - PM Peak



8.4.26 The AM peak results show that the proposed bus lane reduces the variability of bus journey times significantly in both directions in the 2024 and 2031 forecast years. This reduction in variability is especially significant in 2031 eastbound direction.

8.4.27 It should be noted that the bus journey time results in the Do Minimum scenarios are significantly impacted by the operation and delays at Wolvercote roundabout and the Oxford North junction. The results show that the proposed bus lane protects the bus journey times from the variable delays generated at these junctions.

8.4.28 The PM peak results also show that the proposed bus lane reduces the variability of bus journey times in both directions in both forecast years. This reduction in variability is significant in both directions in 2024 and in the westbound direction in 2031. The reduction in variability is less pronounced in 2031 in the eastbound direction, although there is still an improvement.

8.4.29 It is noted that there is a significant improvement in westbound bus journey time reliability which illustrates the benefit of the bus lane in protecting bus journey times, even though the average bus journey time increases due to speed limit changes, pedestrian crossings and additional bus stops.

8.5 Pedestrian, Cycle and Equestrian Impacts

Infrastructure Improvements

8.5.1 This section of the report discusses the impact and benefits of the Scheme to NMU users.

8.5.2 The development proposals will have a significantly positive impact on active travel. This includes pedestrians, cyclists and equestrian users across the Scheme, through the provision of new and improved NMU facilities along the A40 corridor.

8.5.3 Wherever possible within physical constraints, new pedestrian and cycle infrastructure is aligned with the latest Cycle infrastructure Design Guidelines (LTN 1/20) and is aimed at ensuring strong promotion of active travel use and the provision of good quality and safe facilities. Pathways are being designed to ensure:

- safe separation from the vehicle carriageway;
- widths are sufficient to accommodate the future levels of growth predicted;
- pathway gradients and horizontal alignment are within recommended guidelines to enable access for all;
- adequate, safe, priority main road crossings of the A40 to support local connectivity by active travel;
- priority to A40 active travel is afforded where possible to do so safely and within current highway design requirements, for side road crossings; and
- Safeguard future design changes to enable further priority for active travel.

8.5.4 The decision for active travel to be provided via a shared pathway (as at present) has been taken based on the planned volumes of 2-way flows and the modal mix between walking and cycling. In the semi-rural /rural environment the relatively low numbers of pedestrians implies that there are few conflicts, and a shared pathway will avoid providing excessive and underutilised space. Within the Eynsham section where in future significant increases in pedestrian movements are expected, the pathway has been widened to 3.5m on the south side and lined directional separation of the pathway can be introduced. Along the proposed dual carriageway section of the A40 between Hill Farm and the Park & Ride Site improvements are proposed to the shared use pathway along the northern carriageway of the A40. The proposals include improving the shared use pathway from circa 1m-2m wide to 3m wide with additional separation from the proposed dual carriageway. Along this section of the Scheme there are two roundabouts, one proposed at Barnard Gate and the other for access to the Salt Cross Garden Village. Other than these two roundabouts, the shared use pathway provides a route along the northern carriageway of the A40. The improvements to the shared use pathway will improve the quality, safety and journey time for both pedestrians and cyclists.

8.5.5 At the roundabout on the A40 at Barnard Gate, tactile paving and dropped kerbs are proposed across the northern arm of the roundabout. This provides a safe and convenient crossing point for pedestrians and cyclists using the enhanced footway/cycleway along the A40. In addition, a staggered crossing is proposed on the A40 eastern arm of the roundabout. This also provides a safe and convenient crossing point for NMUs using the NMU routes along the northern and southern carriageway. The staggered crossing also improves connectivity to the south along Barnard Gate where a shared use pathway is proposed.

8.5.6 At the roundabout on the A40 for access to the Salt Cross Garden Village to the north and the West Eynsham SDA site to the south, tactile paving and dropped kerbs are proposed across the northern arm of the roundabout. This provides a safe and convenient crossing point for pedestrians and cyclists using the enhanced footway/cycleway along the A40. In addition, a staggered crossing is proposed on the A40 eastern arm of the roundabout. This also provides a safe and convenient crossing point for NMUs using the shared use pathway along the southern carriageway to access the shared use pathway along the northern carriageway of the A40.

8.5.7 Between the existing PRoW 353/1/10 which runs in a north-south direction adjacent to Hill Farm and PRoW 206/22/10 which runs in a north-south direction to the south of Whitehouse Farm, a footway is proposed to connect the two PRoWs along the southern carriageway of the A40. This proposed footway will enhance the connectivity of the two PRoWs and improve the route choices available to users of the local PRoWs, connecting PRoW 206/22/10 to the grade separated crossing.

8.5.8 A 3m wide shared use pathway is proposed along both the north and south side of the A40 from the Park & Ride Site to Cassington Signals. The proposed footway/cycleway offers kerbed separation from vehicles to provide a safe route for pedestrians and cyclists. This is an improvement on the existing facilities, which provided a circa 1m to 2m wide shared use pathway, in part due to the overgrown vegetation and grass reducing the available width. The proposed improvements to the shared use pathway will improve the walking and cycling environment, journey time and safety for pedestrian and cyclists along the A40.

8.5.9 As identified in the baseline conditions chapter, many of the signs for the shared use pathway are incorrectly mounted and positioned, which could cause confusion and potentially be dangerous. The proposed development includes improved signage for pedestrians and cyclists along the shared use pathway on both sides of the A40.

8.5.10 The proposed shared use pathway will provide a continuous route for pedestrians and cyclists along the south side of the A40 whereas the existing route terminates at the Evenlode Public house opposite Cuckoo Lane.

8.5.11 Improved crossing facilities are proposed at the A40/Cuckoo Lane junction which includes a central refuge area for pedestrians and cyclists crossing Cuckoo Lane. There are also improvements to the layout of the A40/Cuckoo Lane junction that will make it easier and clearer for all users, including vehicles, pedestrians and cyclists, to navigate the junction. A new pedestrian/cyclist underpass at Cuckoo Lane ('the Eynsham Underpass') is also proposed increasing north-south pedestrian and cycle connectivity.

8.5.12 At the Park & Ride junction, Toucan crossings are provided across the entrance/egress to the Park & Ride site and across the A40. These crossings offer safe and convenient points for pedestrians and cyclists to cross the Park & Ride entrance/egress and the A40 as well as providing pedestrian and cycle routes into the Park & Ride site with access to bus services along the A40. Pedestrians and cyclists are also given priority on the egress bus lane from the Park & Ride site. The pedestrian and cycle connections to future developments such as the Salt Cross Garden Village and West Eynsham SDA have been future proofed.

8.5.13 Improved pedestrian and cycle facilities are proposed at the A40/Witney Road junction with larger refuge areas provided on either side of Witney Road. The improved Toucan crossings at the A40/Witney Road junction provide connectivity for pedestrians and cyclists to the eastbound and westbound shared use pathway along both the north and south sides of the A40.

8.5.14 West of the Esso Petrol Station a Toucan crossing is proposed to improve the existing uncontrolled crossing, which will provide a safe crossing point of the A40 for pedestrians and cyclists. The Toucan crossing will also connect to a PRoW which runs in a north-south direction into Eynsham. This Toucan crossing provides improved facilities for users crossing the A40 between Eynsham and the Tesco Express located at the Esso Petrol Station, which is the closest supermarket to the residents to the north of Eynsham.

8.5.15 At the separate entrance and egress to the Esso Petrol Station improvements are proposed to provide clear priority to both drivers entering the petrol station and pedestrians and cyclists crossing the egress of the petrol station. These are improvements on the current arrangement where there is no indication provided, through either signage or road markings, to users of the shared use pathway on who has priority.

8.5.16 Between Witney Road and the Eynsham Roundabout PRoW 206/9/10 and PRoW 206/9/20 intercept the A40, with an existing at grade staggered crossing. The proposed Scheme includes upgrading this to a Toucan crossing to improve safety for pedestrians and cyclists.

8.5.17 At the Eynsham Roundabout various improvements are proposed for pedestrians and cyclists, which include replacing the uncontrolled crossings on Lower Road, B4449 and A40 West with Toucan crossings with refuge areas.

8.5.18 West of the Eynsham Roundabout a BP Petrol Station is located on the south side of the A40, which provides separate entrance and egress. The existing layout does not provide clear signage or road marking on which users have priority. The proposed Scheme includes improving the layout of the entrance to the BP Petrol Station to provide clear priority to vehicles entering the petrol station as well as providing priority to pedestrians and cyclists across the egress.

8.5.19 Between the Eynsham Roundabout and Cassington Signals the existing PRoW 152 5/20 runs in a north-south direction crossing the A40. Currently there is an uncontrolled crossing, however there is no tactile paving or refuge island. The proposed Scheme improves the crossing for the PRoW users

through the provision of tactile paving and a central refuge area. This improved crossing will provide benefits to users of the PRoW 152 5/20 through the provision of a safer crossing point across the A40.

8.5.20 At the Cassington Signals there is an existing staggered pedestrian crossing on the A40, adjacent to Cassington Road. There are existing uncontrolled crossings on Eynsham Road and Cassington Road, however these crossings could be blocked by queueing vehicles at the traffic signals. This staggered crossing is proposed to be retained with additional improvements made to the shared use pathway and crossings. The proposals include improving the crossing facilities for pedestrians and cyclists on Eynsham Road and Cassington Road by placing the crossings in front of the vehicle stop lines. This improves the pedestrian and cyclists journey time and routes through the Cassington signals by making them more direct through the junction. The proposed improvements to the crossings will make them easier to navigate as the crossings will not be blocked by queuing vehicles.

8.5.21 To the west of Horsemere Lane a staggered uncontrolled crossing is proposed with tactile paving, dropped kerbs and a central refuge island. This is a new facility that is adjacent to the existing PRoW that runs in a north-south direction along Horsemere Lane. The proposed uncontrolled crossing provides pedestrians and cyclists with a safe and convenient crossing point across the A40 to access the PRoW.

8.5.22 To the east of Horsemere Lane there is no separation from the shared use pathway. The proposals include providing a separation between vehicles and pedestrians and cyclists. Improvements are proposed at the staggered T-Junction for the industrial facilities. This includes providing priority to pedestrians and cyclists over vehicles exiting the two accesses to the industrial facilities. To the east of the staggered T-Junction a new uncontrolled crossing is proposed. This includes tactile paving, dropped kerbs and a central refuge island. This new crossing provides a safe and convenient place for pedestrians and cyclists to cross the A40 and is also provided adjacent to an existing PRoW 152/2/10 which crosses the A40 to the north and south.

8.5.23 Approximately 180m east of Horsemere Lane a new cycle/pedestrian bridge is proposed on both the northern and southern sides of the A40 carriageway as there is currently no separation for the shared use pathways. Along the section east of the industrial facilities staggered T-Junction (approximately 500m east of Horsemere Lane) towards Wolvercote Roundabout, the shared use pathway is widened which provides a safer route for pedestrians and cyclists along the A40. As there are no accesses onto the A40 along this section, the shared use pathway provides an uninterrupted route for pedestrians and cyclists along the A40.

NMU Impact Summary

8.5.24 Below summarises the impact on NMUs:

- **Increased active travel**
  - Oxford has one of the highest rates of cycling in the UK[4], however the existing cycle mode share is significantly lower along the A40 corridor into Oxford and for travel in and around Witney and Eynsham. The proposed new and improved cycle infrastructure will encourage cycling, thereby reducing the number of car trips along the A40.
- **Improved connectivity**
  - The widened shared use pathway will offer a significant improvement over the existing provision both westbound and eastbound along the full extent of the Scheme, improving connections to existing and proposed developments along the A40. The proposed new and improved crossing facilities will provide safe and convenient places for pedestrians and cyclists to cross the A40 providing access to communities, employment, educational and health facilities on either side of the A40.
  - The Scheme will also improve connections to and from the existing bus stops along the A40 and to the Park & Ride where bus services will be accessible.
- **Reduce severance effect of the A40**
  - The A40 is a busy highway corridor and through the provision of new and improved crossing facilities the Scheme will reduce the severance impact of the A40 on NMUs.
- **Improve public health and wellbeing**

[4] Census 2011 Journey to Work.

  - The Scheme will encourage the use of active travel modes, not only at peak times or for commuting but also for leisure throughout the week.

- **Contribute to reducing air pollution, improving air quality and tackling climate change**
  - The Scheme will promote a mode shift from cars to active travel through the provision of high quality NMU infrastructure and will support a mode shift from cars to active travel along the A40.
- **Improve safety for NMUs**
  - The Scheme will provide improved and new crossings as well as improve interactions between pedestrians/ cyclists and motorised vehicles. This includes providing separation between the shared use pathway and in places providing priority to pedestrians and cyclists over motor vehicles. This is therefore likely to result in a reduction in the rate and severity of road accidents involving pedestrians and cyclists. Active travel demand is forecast to increase as a result of planned developments, which would in turn increase the likelihood of accidents if no improvement to pedestrian and cycle crossings and facilities are provided. Proposed speed limit reductions will also reduce the likelihood and severity of accidents.
- **Support local growth**
  - With planned developments on both sides of the A40, particularly in the Eynsham area, there will be an expected increase in demand. The proposed improvements to the NMU infrastructure will be important to support the local development-generated growth.

8.6 Lay-by Provision

8.6.1 As part of the Scheme, two existing eastbound lay-bys will be removed, one east of Whitehouse Farm and another at the location of the WRAB. The existing westbound lay-by at Eynsham will not be closed as part of the Scheme. However, the Scheme includes provision for a future southern arm at the Park & Ride signalised junction to serve the West Eynsham SDA development, and when delivered this arm would sever the existing lay-by.

8.6.2 OCC has undertaken a wider review of lay-bys along the A40 corridor, including surveys of lay-by usage. As part of the Scheme two new lay-bys are proposed within the dualling section: opposite Salutation Farm (westbound); and opposite Fir Tree Farm (eastbound). The westbound lay-by is provided to future-proof the Scheme for the possible closure of the lay-by at Eynsham as part of works associated with the West Eynsham SDA development.

8.6.3 The conclusion to the OCC review was that the proposed relocation of some lay-by space along the A40 will not have a significant impact on drivers‘ opportunities to take a break.

8.7 Scheme Impacts Summary

8.7.1 Overall, the Scheme is forecast to provide operational improvements to the majority of junctions on the A40 along the extent of the Scheme in 2031. This is due to the proposed dualling and junction improvements such as longer flare lengths increasing capacity at junctions.

8.7.2 The Scheme does cause some additional delay for vehicles travelling along the A40 due to the proposed additional pedestrian / cycle crossing points along the corridor and the speed limit reduction. This additional delay has been calculated as approximately 130 seconds, assuming vehicles stop at one of the pedestrian/ cycle crossings. However, this is anticipated to be the worst case as the Vissim model has been coded to activate crossings on every cycle and have long clearance times which is not what would happen in reality as the crossings would only be called when pedestrians are waiting to cross. These additional crossing points for NMUs will increase safety for NMUs and improve north-south connectivity.

8.7.3 Furthermore, the Scheme is predicted to significantly increase the number of individuals using buses along the A40 in both 2024 and 2031 due to the additional bus stops and the provision of the bus lanes and Park and Ride. The journey time for buses travelling eastbound along the A40 is forecast to improve in 2031 with the implementation of the Scheme due to the proposed eastbound bus lane which enables the buses to avoid the congestion for general traffic on the main carriageway. The journey time for westbound buses along the A40 is forecast to slightly increase in 2031 with the implementation of the Scheme due to the reduction in speed limit along this section and the delay of stopping at additional bus stops and pedestrian crossings. This has been calculated as introducing approximately 160 seconds to

trip times. These measures will improve safety, improve accessibility to buses and improve amenity for pedestrians and cyclists and the planned development in the area would not be able to come forward without additional crossing points on the A40.

8.7.4 The Scheme will have a significantly positive impact on active travel with the proposed improvements to the existing pedestrian / cycle facilities as well as providing additional formal crossing points. These improvements will improve the quality, safety and journey time for both pedestrians and cyclists. In addition, the Scheme will reduce the severance effect of the A0 and support local growth in the area.

9 Construction Phase Impacts

9.1 Introduction

9.1.1 This section provides an overview of the construction programme and activity and considers the potential impact of the construction of the proposed Scheme. Balfour Beatty has been appointed to provide Early Contractor Involvement (ECI) input on the Scheme. The detailed construction strategy was being prepared at the time of the production of this TA. Therefore, a high-level analysis has been undertaken of the potential implications of the construction activity, based on the information available at the time.

9.1.2 As part of a planning permission for the proposed development, it is anticipated that there will be a pre-commencement condition to produce a Construction Environmental Management Plan (CEMP), with Construction Traffic Management Plans (CTMPs) produced as relevant ahead of each phase of construction. The CTMP will consider the construction activity for that phase and identify appropriate measures to minimise or mitigate impacts. A list of the potential measures which may be included within the CTMP is provided in section 9.3.

9.1.3 The intention is to maintain at least one lane of the A40 open in each direction throughout the construction period, except for occasional lane and full closures which may be required for certain activities (see below for more details). Any lane or full closures will be agreed in advance with OCC, and these works will be carried out overnight or at weekends to minimise disruption to traffic on the A40 and surrounding area. Any such lane or full closures will be publicised in advance.

9.2 Programme & Activity

Construction Programme

Overview

9.2.1 Preliminary construction phasing plans are provided in the Design and Access Statement (drawing no. A40-ACM-HGN-E0_ZZ_ZZ_ZZ-DR-CH-0023 and 0024). Construction of the Scheme is forecast to begin in Spring 2022 with completion by the end of Spring 2025. Below is a summary of the preliminary information provided by Balfour Beatty regarding the construction programme including compound areas and activities.

Integrated Bus Lane & Dukes Cut

Enabling Works

9.2.2 The enabling works for the Integrated Bus Lane & Dukes Cut is forecast to start in Spring 2022 and finish in Autumn 2023. This includes utility diversions across the A40 corridor including telecoms, gas, electric and water. It is expected that the majority of these works will be carried out offline, i.e. not within the carriageway, however there may be some requirement for temporary traffic lights and off-peak (i.e. night-time) carriageway closures.

Mobilisation

9.2.3 Between Spring and Summer 2023 it is forecast the mobilisation of the Integrated Bus Lanes and Duke Cut will begin. This includes the enhancement of what will be the existing Park & Ride compound, located at the Park & Ride site. This will be located on the existing footprint of the compound and no further significant clearance works is expected to be required for this compound. This compound will be used for the construction of the eastern satellite compound, with both compounds to be used for the construction of hardstanding, laydown areas, haul road construction, temporary utility connections and delivery of office/welfare.

Phase 1

9.2.4 Integrated Bus Lane & Dukes Cut Phase 1 is forecast to occur between Spring 2023 and Autumn 2023 and includes:

- Westbound highway works;
- Westbound element of the Park & Ride junction; and
- The construction of the underpass (westbound).

9.2.5 The westbound highway works will require narrow lanes with a speed limit restriction also to be in place. Each section of the highway works will follow the same sequence which is detailed below:

- Site clearance & hard breakout;
- Earthworks & drainage;
- Culvert Extensions (precast);
- Footway and carriageway construction;
- Installation of street furniture (including bus shelters);
- Fencing, Vehicle Restraint System (VRS) and landscaping; and
- Surfacing and lining

9.2.6 Temporary Traffic Regulation Orders (TTROs) will be applied for in advance of the work to facilitate the completion behind temporary vehicle restraints under narrow lanes. TTROs will be required for off-peak road closures.

9.2.7 For the construction of the underpass (westbound), highway works will be undertaken within the narrow lanes. There will be a requirement for a full or partial road closure of Cuckoo Lane and restricted access to Old Witney Road. To allow the crane access for the installation of the subway box structure, a full road closure of the A40 (off-peak) will be required.

Phase 1A

9.2.8 Phase 1A is forecast to occur between Winter 2023 and Summer 2024 and will include the following:

- Westbound highway works;
- Westbound Dukes Cut highway works;
- Westbound Cassington Halt Bridge;
- Construction of underpass (eastbound);
- Eastbound element of the Park & Ride junction; and
- Commence Cassington New Bridge

9.2.9 TTROs will be applied for in advance of the work outlined above to facilitate the completion behind temporary vehicle restraints under narrow lanes. These will be required for off-peak road closures.

9.2.10 Before narrow lanes can be installed, the existing temporary barrier will be removed to allow the required works for the westbound Dukes Cut highway works. In additional to the highway works consistent with the other widening of the A40, works are required to the structures in this area consisting of exposing the bridge decks, localised concrete repairs if required and waterproofing and resurfacing.

9.2.11 The narrow lanes will be required to remain on the westbound section that passes the Cassington new structure to allow for the installation of the new steel footbridge. Works include the construction of temporary access, bulk earthworks, installation of sheet pile retaining walls, construction of temporary works for piling platform, installation of piles, construction of abutments, installation of prefabricated steel bridge, waterproofing of structure, installation of parapets and installation of street furniture.

9.2.12 The construction of the underpass (eastbound) will be completed concurrently with the eastbound Park & Ride junction works with the narrow lanes. As identified previously there will be a requirement for a full or partial closure of Cuckoo Lane and restricted access to Old Witney Road. Construction works will consist of installation of temporary works (sheet piles) to allow the opening cutting for the subway boxes. The installation of the subway box will require a full road closure (off-peak) of the A40 to allow for the crane to have access to install the subway box.

9.2.13 The commencement of the Cassington New Bridge will include the extension of the existing carriageway to the south by 6m, with a new structure. The highway works includes site clearance, removal of redundant utility infrastructure, temporary works for the edge beam and to facilitate the piling mats, flood

control measures, installation of piled foundations, abutments construction, backfilling, waterproofing, embankment and strengthening and installation of new parapets.

Phase 2 and Phase 2A

9.2.14 Phase 2 is forecast to run between Summer 2024 and Winter 2024, and Phase 2A between Winter 2024 and Spring 2025. Both Phase 2 and Phase 2A will include the eastbound highway works and will each follow the sequence outlined below:

- Site clearance and hard breakout;
- Earthworks and drainage;
- Culvert extensions (precast);
- Footway and carriageway construction;
- Installation of street furniture (including bus shelters);
- Fencing, VRS and landscaping; and
- Surfacing and lining

9.2.15 TTROs will be applied for in advance of the work outlined above to facilitate the completion behind temporary vehicle restraints under narrow lanes. These will be required for off-peak road closures.

A40 Dualling

Mobilisation

9.2.16 The mobilisation for the A40 dualling is forecast to run concurrently with the Integrated Bus Lane and Dukes Cut, between Spring and Summer 2023. The construction will include the western satellite compound and the works will include the construction of hardstanding, provision of laydown areas, haul road construction, temporary utility connections and delivery of office/welfare facilities.

Phase 1

9.2.17 Phase 1 is forecast to occur between Summer 2023 and Summer 2024. Phase 1 will include:

- The western offline areas up to the new Barnard Gate roundabout
  - Works will be completed in the offline areas first to allow for traffic to run on the new dual carriageway in a later phase.
  - Also includes the works for the proposed Hill Farm access to the north of the existing A40.
- Barnard Gate roundabout works north and south, including access roads to local stakeholders
  - This section will include the offline construction of the roundabout to the north and south. This will allow for traffic to be switched to the southern part of the new roundabout and allow the completion of the remaining section in the online phase.
  - This phase will also construct the southern access roads to Ambury Close and Fir Tree Farms, along with the realignment of Barnard Gate to the north.
- Eastern section offline including northern section of WRAB.
  - Works to be completed offline to first allow traffic to run on the new dual carriageway section in a later phase.
  - Works to also take place along the northern part of the WRAB. This will allow traffic to be switched to the northern part of the new roundabout and allow the completion of the remaining section in the online phase.

9.2.18 The below sequence is what would be expected for each of the three components outlined above:

- Establish perimeter fencing;
- Traffic management/access arrangements/temporary roads;
- Site clearance;

- Vegetation clearance;
- Topsoil strip;
- Earthwork's operations;
- Install drainage and attenuation ponds;
- Construction of Whitehouse culvert;
- Footway and carriageway construction;
- Construction of temporary tie in detail;
- Installation of street furniture (including bus shelters);
- Fencing, VRS and landscaping;
- Surfacing and lining; and
- Landscaping.

Phase 2

9.2.19 Phase 2 of the A40 dualling is forecast to occur between Summer 2024 and Summer 2025. Both below sections will involve installation of narrow lanes within this section. There may be a requirement for some site clearance to facilitate the narrow lanes. Phase 2 will include:

- Western online section to Barnard Gate roundabout including stakeholder access points
- Eastern online sections at Barnard Gate roundabout including construction of the southern part of the western roundabout (WRAB).

9.2.20 The below sequence is what would be expected for both sections outlined above:

- Establish perimeter fencing;
- Traffic management/access arrangements/temporary roads;
- Site clearance;
- Vegetation clearance;
- Topsoil strip;
- Earthwork's operations;
- Install drainage and attenuation ponds;
- Construction of Barnard Gate culvert;
- Footway and carriageway construction;
- Construction of temporary tie in to either the eastern or western dual carriageway;
- Installation of street furniture (including bus shelters);
- Fencing, VRS and landscaping;
- Surfacing and lining; and
- Landscaping.

Summary of Construction Programme

9.2.21 Below provides a summary of the construction programme:

- **Integrated Bus Lane & Dukes Cut**
  - Enabling Works Spring 2022 – Autumn 2023
  - Mobilisation Spring 2023 – Summer 2023
  - Phase 1 Spring 2023 – Autumn 2023
  - Phase 1A Winter 2023 – Summer 2024

  - Phase 2 Summer 2024 – Winter 2024
  - Phase 2A Winter 2024 – Spring 2025
- **Dualling**
  - Mobilisation Spring 2023 – Summer 2023
  - Phase 1 Summer 2023 – Summer 2024
  - Phase 2 Summer 2024 – Summer 2025

Compound Areas

9.2.22 A plan showing the provisional construction compound locations is provided in Appendix A4. It is envisaged that the construction compounds will be comprised of two satellite welfare sites at either end of the Scheme, a core compound within the Park & Ride site and a material and stockpiling area in central locations to facilitate access and minimise disruption. The locations shown are still under review and subject to change.

Vehicle Types

9.2.23 Below is a list of the types of vehicles expected to be utilised for the construction works:

- Car/pick up/3.5-ton van;
- 7.5-ton box van/panel van;
- Low loader;
- Articulated HGV;
- Ready mix concrete truck;
- Mobile crane;
- Water bowser;
- Road cleaning vehicle;
- Skip lorry; and
- 32-ton tipper truck

9.2.24 It is currently unknown at this stage the number of vehicle trips associated with the construction of the Scheme. However, information provided by Balfour Beatty is that the following construction vehicle mix is expected:

- Light Good Vehicles (LGVs) 20%
- Medium Good Vehicles (MGVs) 60%
- Heavy Good Vehicles (HGVs) 20%

9.2.25 Based on the programme, the vehicles are expected to be used for the following purposes:

- Collection 15%
- Delivery 60%
- Waste 25%

HGV Routes

9.2.26 HGVs will use the A34 and A40 and adhere to clearance restrictions. Where possible large deliveries will be kept to off-peak times to minimise disruption and to avoid the following:

- Disruption and delays for local traffic;
- Noise and vibration impacts from HGV movements both on site and by vehicles to/from the construction sites;
- Air quality impacts from exhaust emissions;

- Dust and nuisance from mud on the road;
- Community effects from construction traffic including severance and amenity effects; and
- Cumulative effects on local roads if other major construction projects were programmed for the same time as the proposals.

Temporary Closures, Diversions or Relocations

9.2.27 Where temporary road closures are required, TTROs will be applied for well in advance. These include overnight lane closures and the potential for full weekend closures to facilitate significant lifts. Early communication will be undertaken with OCC regarding temporary road closures.

9.3 Construction Traffic Management Plan

9.3.1 As noted above, a CTMP will be required for each phase of the construction. This will identify the strategy for controlling / minimising traffic related impacts of the construction, in particular the effects of highways work on the A40 and associated with deliveries to the site. The following key principles will be identified in the CTMP, and the CEMP where relevant.

- The CTMP will be consulted on with the local highway authority. All proposals for off-site transport management will be required to conform to the CTMP.
- The contractor will work with OCC to identify appropriate times for vehicles to travel to/from the site and to minimise impact of construction vehicles and deliveries on the A40, especially during peak times. This will need to consider key sensitive receptors and the impacts on local residents and communities of different working times and practices, e.g. minimising the need for night-time working where properties are adjacent to the A40. Some activities may need to be completed beyond the normal working day for reasons such as engineering practicality and/or public safety, which will be agreed in advance with OCC. Examples of this could include:
  - temporary highway/traffic management works;
  - formwork – erection and removal;
  - concrete pours;
  - earthwork movements;
  - completion of crane lifting operations;
  - heavy lifts such as bridge decks;
  - heavy/large components of the Scheme; and
  - movement of abnormal loads.
- The identification of routes for construction vehicles to and from the site. The routes identified will primarily be major roads (motorways and A roads). Approvals from the local highway authority will be obtained in respect of the means and routes by which anything required for construction is to be transported by large goods vehicles (as defined in Part IV Road Traffic Act 1988) on a highway to a construction or storage site, or to a waste disposal site.
- An appropriate control system will be implemented for the dispatch of all vehicles containing excavated material or other waste material.
- All Temporary Traffic Management shall be in accordance with the Traffic Signs Manual: Chapter 8, Safety at Street Works and Road Works: A Code of Practice (2013), Traffic Signs Regulations and General Directions 2016.
- Approval will be obtained from OCC regarding the formation, layout or alteration of any permanent or temporary means of access to a highway to be used by vehicular traffic. Procedures for applications for temporary interference to the highway and for any required TTROs will be discussed with OCC.
- The works will be carried out in such a way that inconvenience to the public arising from any increases in traffic flows and disruptive effects of construction traffic is limited, as far as reasonably practicable.

- The Contractor shall ensure appropriate pedestrian and cycling routes are maintained while ensuring any temporary closures are supported by appropriate and clearly signed alternative routes.
- The Contractor will ensure that all working areas are sufficiently and adequately fenced off from members of the public and to prevent animals from straying on to the working area. The standard of enclosure and screening at a particular site will be selected in order to maintain effective site security and achieve appropriate noise attenuation and visual effect, and limit dust accumulation. In some areas screening may be painted and may include viewing points and relevant project information.
- All reasonably practicable measures will be put in place to avoid/limit and mitigate the deposition of mud and other debris on the highway. These measures will have regard to the nature and the use of the Site and will include:
  - hardstanding at the access and egress points which will be cleaned at appropriate intervals;
  - vehicle clean down points to clean vehicle wheels at each exit point on to the highway;
  - the correct loading of vehicles and sheeting of loads where necessary to avoid spillage during their journeys;
  - the use of mechanical road sweepers combined with water sprays for the suppression of dust to clean site hardstanding, roads and footpaths in the vicinity of the Site; and
  - the flushing of gullies in the vicinity of the Site.
- Wherever practicable, concrete wash out facilities will be installed at the point of work. Where this is not practicable, concrete deliveries will be directed to the nearest available wash out facility and supervised to ensure they wash out before driving onto the live carriageway. All compound areas will have a concrete wash out facility.
- Parking for construction staff will be provided within the site compounds. Site access points for site personnel, construction related vehicles and emergency access will be identified and signed for both vehicular traffic and pedestrian/cycle access.
- The Contractor will comply with Construction Logistics and Cyclist Safety (CLOCS) Standard requirements to manage risk associated with vehicle movements. Deliveries and construction activity will be consolidated where feasible.
- Suppliers will be expected to be part of a best practice scheme, e.g. TfL's Freight Operator Recognition Scheme (FORS), which is aligned to CLOCS requirements.
- Loads leaving construction sites will be covered where possible in conditions where dust could be generated and become a nuisance.
- All HGVs will be expected to use site wheel washes when required.
- Undertake daily inspections to ensure roads are clear of mud and other debris, together with dust suppression during periods of dry weather, at locations where access tracks meet the public roads.
- All vehicles using construction sites will be required to drive safely and to ensure that other users of the area are not endangered.
- All HGV drivers will be briefed on the importance of observing speed limits and driving with care and respect and in particular through residential areas.
- All HGV drivers will be briefed on the importance of allowing traffic to pass safely and of not causing an obstruction to other road users.
- All appropriate arrangements will be made prior to any required delivery to site by a heavy load.

10 Summary and Conclusion

10.1 Summary

10.1.1 This TA has been produced to consider the impacts of the proposed A40 Smart Corridor Scheme on the transport networks that may be affected by the proposals.

10.1.2 The Scheme comprises a mix of walking, cycling, public transport and highway infrastructure improvements along the A40 between Witney and Duke's Cut. The planning application seeks full planning permission for:

- *The dualling of approximately 3.2km of the A40 carriageway from the existing Hill Farm junction at Witney to the Eynsham Park and Ride site (R3.0057/19) including the construction of two new roundabouts;*
- *An eastbound and westbound bus lane approximately 6.5km in length from the Eynsham Park and Ride site to existing structures at Duke's Cut waterway (Duke's Cut Canal Bridge, Earl's Culvert, Wolvercote Railway Bridge and Wolvercote Canal Bridge);*
- *Capacity and connectivity improvements over the existing structures at Duke's Cut waterway to enable the proposed eastbound bus lane to extend over existing structures into the A34 flyover in the east, forming a connection into Oxford North (Northern Gateway) strategic development site;*
- *Construction of a new signalised junction to the Eynsham Park and Ride site;*
- *New pedestrian/cyclist underpass at Cuckoo Lane ('the Eynsham Underpass'). Two new pedestrian/cycle bridges at Cassington Halt (Cassington Halt Footbridge North and Cassington Halt Footbridge South);*
- *Widening of Cassington New Bridge;*
- *Demolition and replacement/extension of existing White House Culvert;*
- *Demolition and replacement/extension of Barnard Gate New Culvert;*
- *New and improved shared use pathways, including new shared use links to National Cycle Network (NCN) Route 5 at Duke's Cut waterway;*
- *Alterations to existing junctions and property accesses along the A40;*
- *Controlled crossings, external lighting, noise barriers, sustainable drainage systems, landscaping, habitat creation including ecology ponds and associated hibernacula; and*
- *All associated engineering and temporary construction works, site compound and storage areas*.

10.1.3 The Scheme delivers infrastructure that will support movement and connectivity associated with new and existing development sites. The assessment of impacts starts with a base assumption that all of the Local Plan development sites will be delivered by 2031 and considers the cumulative impacts with and without the A40 Smart Corridor Scheme in place.

10.1.4 In order to capture the impact of the improved public transport, walking and cycling infrastructure, the assessment of the Scheme has been based on output from the OSM, which includes a public transport model and takes into consideration mode change due to improvements in public transport infrastructure, increased bus service levels and the strong policy shifts to support sustainable travel.

10.1.5 This approach constrains traffic growth in OSM to NTEM (at a County level) with demand matrices updated to reflect the 2018 Local Plan growth in West Oxfordshire, which OCC considered was the most appropriate modelling approach to use for the purpose of this TA. The approach takes into consideration WODC and OCC vision and policy requirements for future travel choices as well as the growth in homes and jobs planned along the A40 corridor in the West Oxfordshire Local Plan 2031.

10.1.6 A smaller corridor model (A40 Corridor Assignment Model) was cordoned from OSM and updated in more detail to provide a robust evidence base for the A40 corridor projects. Output from the cordoned model has been fed into a Vissim microsimulation model of the A40 corridor to inform the design and appraisal of the A40 Smart Corridor proposals.

10.1.7 The TA includes a summary of existing conditions along the A40 Corridor. Historic and more recent traffic flow data has been reviewed, and shows that the A40 has been characterised by heavy flows for a number of years, and that congestion during the AM and PM peaks is a common occurrence, with Wolvercote roundabout being a key capacity constraint on the network. There has been limited or no traffic growth over sections of the A40 over the last 30 years, whilst traffic flows have generally increased in Oxfordshire in the same period, indicating that it is likely that growth has been limited by capacity constraints on the network. The congested conditions are also reflected in journey times, particularly eastbound in the AM peak when it takes on average 26 minutes to travel from Shores Green to Wolvercote roundabout, and westbound in the PM peak when the travel time from Wolvercote roundabout to Shores Green is also 26 minutes.

10.1.8 A review of existing provision for pedestrians and cyclists has also been undertaken. Whilst there is provision along the majority of the route, there are a number of gaps and the existing pedestrian and cycle facilities are generally narrow, poorly signed and lack adequate separation from the busy A40 carriageway. Overall, the existing facilities are sub-standard and do not encourage these modes for travel along the A40 corridor.

10.1.9 Below is a summary of the assessment of the Scheme against the A40 Strategy objectives set out in Section 3.1 of this report.

Table 10-1: Assessment of the Scheme against A40 Strategy objectives

Support major new housing and employment sites proposed in West Oxfordshire's Local Plan and unlock growth in line with HIF; Promote economic growth in Oxfordshire and creation of new jobs
• Delivery of the Scheme will increase the capacity of the transport networks to accommodate development growth and also allows increased demand from this development growth to be accommodated sustainably. Implementation of the Scheme has been shown to result in significant increases in bus patronage (ref Section 8.4) due to improvements in bus journey times and journey time reliability. The Scheme also has an overall positive impact on network capacity and journey times for general traffic (ref Section 8.3). • In this way the Scheme along with the other A40 Corridor Strategy projects will help to support the delivery of new homes along the A40 corridor, including 4,813 homes in Witney and Eynsham. It will also support delivery of jobs with 40 hectares of employment land to be opened up in Salt Cross Garden Village, representing up to an additional 4,556 jobs.
Provide greater travel choice and encourage more use of bus, cycling and walking
• Implementation of the Scheme is predicted to significantly improve bus operating conditions and lead to substantial increase bus in patronage. In the AM peak hour, eastbound passenger numbers are predicted to increase from 182 in the DM scenario to 603 in the DS scenario, an increase of 231%. In 2031, the increase is predicted to be from 287 to 857 passengers (199%). There is a similar impact in the westbound direction in the PM peak hour, with passenger numbers predicted to increase from 183 to 492 in 2024 (169%) and from 260 to 752 (189%) with implementation of the Scheme. Further details of bus patronage are provided in Section 8.4. • The Scheme proposes five new bus stops and relocation of two bus stops along the corridor, increasing accessibility for passengers traveling from Eynsham and Cassington. These bus stops will provide access to frequent services within a 10-minute walk for the majority of residents in the Salt Cross Garden Village and West Eynsham developments, as well as existing residents in Eynsham and Cassington. This is clearly illustrated in Figure 8-9 of this report. • The Scheme enables a substantial increase in passenger capacity of the corridor due to the proposed increase in walking, cycle and bus provision. • In line with policy to encourage active travel in the area, the Scheme includes enhanced shared-use pedestrian and cycle crossings and paths along the A40 between Witney and Duke's Cut. A new shared use pedestrian and cycle path is also proposed from the A40 to the Oxford Canal (National Cycle Route 5) (ref Section 8.5). • The Scheme therefore removes a number of barriers to travel by active and sustainable modes and will encourage a shift to these transport options. These new facilities will be in place prior to any substantial occupation of the proposed developments along the A40 corridor, which is important in establishing sustainable travel patterns from an early stage to achieve a step change in mode share.

Improve public transport accessibility and connectivity to employment and public services

- As noted above, the Scheme proposes five new bus stops, increasing accessibility for passengers traveling from Eynsham and Cassington and the new developments at the Salt Cross Garden Village and West Eynsham developments, as well as existing residents in Eynsham and Cassington (ref Figure 8-9).
- To support the Scheme, it is anticipated that the number of bus services operating along the A40 corridor will increase which will increase the bus capacity and connectivity in the area. In particular access to Oxford's Eastern Arc is anticipated to increase with an increase in bus frequency which will support access to high value, high skilled employment in this area including the Headington Hospital Quarter and Oxford Brookes University.

Facilitate quicker, more efficient and reliable journeys for people travelling by bus along the A40

- The proposed eastbound and westbound bus lanes are predicted to significantly improve bus journey times and reliability, with additional bus stops along the route providing better access to buses from the new developments and from the rest of Eynsham. In the 2031 AM peak hour, the eastbound bus journey time between Shores Green and Wolvercote roundabout is predicted to reduce by 65% to 21 minutes with the introduction of the Scheme (ref Figure 8-10). This is also 5 minutes faster than the journey time in 2020 (ref Figure 4-23). In the PM peak in the westbound direction the Scheme results in a small increase in bus journey time (ref Figure 8-11), however this is as a result of the proposed speed limit reduction, additional crossing facilities and the additional bus stops. Further details of bus journey times are provided in Section 8.4.
- The proposed bus lanes also reduce the variability of bus journey times significantly in both directions in 2024 and 2031 (ref Figure 8-14 and Figure 8-15).

Ensure that the Scheme does not increase journey times for private vehicles using the A40.

- The analysis has shown that the proposed Scheme will not worsen congestion issues and overall the Scheme has a positive impact on highway network capacity and journey times (ref Section 8.3).
- The Dualling section of the Scheme has been shown to work within capacity and to ease levels of congestion, which is predicted in the 2031 Do Minimum scenario. The Dualling also facilitates the increase in traffic flows which is predicted due to more trips to/ from the Park & Ride, without any network capacity issues.
- The analysis has shown that the junction modifications proposed as part of the Integrated Bus Lanes Scheme will provide a significant benefit to general traffic, compared to the existing junctions, and the junctions are able to accommodate the predicted demand in the 2031 forecast year (ref Section 8.2).

To facilitate safer travel along and across the A40 corridor

- The Scheme includes enhanced shared-use pedestrian and cycle crossings and paths along the A40 between Witney and Duke's Cut, and a new shared use pedestrian and cycle path is also proposed from the A40 to the Oxford Canal (National Cycle Route 5) (ref Section 8.5). There are also significant improvements to facilities to cross the A40, including integration of a new underpass into the Scheme at Eynsham. An alternative at-grade signal-controlled crossing will be provided as a replacement for the underpass if this is not delivered with the Scheme.
- The Scheme also proposes reductions in speed limit along the A40 (ref Section 6.2). This will also help to create a safer environment for pedestrians and cyclists travelling along and across the A40, reducing the likelihood and severity of accidents.
- As part of the Scheme two new lay-bys are proposed within the dualling section. The westbound lay-by being provided in the likelihood of future possible closure of the lay-by at Eynsham as part of works associated with the West Eynsham SDA development. The locations of the new lay-bys ensures that spacing between lay-bys remains acceptable (ref Section 8.6). This recognises the continued importance of the A40 as an important route for the safe movement of freight.

Impact on Wolvercote Roundabout and Pear Tree Interchange

- The Scheme does not change the design of the Wolvercote roundabout or Pear Tree Interchange, but the traffic modelling for the Scheme has included these key junctions. The results indicate that whilst the existing capacity issues at the Wolvercote roundabout are predicted to remain in the future year assessments, the proposed Scheme will not have a significant impact on the operation of either the Wolvercote roundabout or the Pear Tree Interchange (ref Section 8.2).

10.2 Conclusions

10.2.1 The A40 Smart Corridor Scheme is an essential element of OCC's A40 Corridor Strategy and it has been demonstrated that the Scheme positively contributes to the A40 Strategy objectives. Therefore, it is considered that the Scheme is positive in transport terms and in line with the local, regional/county and national policy objectives and there are no reasons on transportation grounds why it should not be granted planning permission.