

A40 Corridor Improvements

A40 Integrated Bus Lanes

Option Assessment Report (OAR)

Oxfordshire County Council

April 2021

Quality information

Prepared by	Checked by	Verified by	Approved by
Lizzie Cornwell (Consultant) Rohit Sharma (Senior Consultant) Gabi Mcerlane (Graduate Consultant)	Simon Willison (Associate Director) Paula Rodriguez (Engineer)	Mike Ager (Principal Engineer)	Aldo Strydom (Project Manager) Pp Sarah Guest

Revision History

Revision	Revision date	Details	Authorized	Name	Position
V1	13/11/2020	IBL Draft OAR	AS	Aldo Strydom	Project Manager
V2	01/04/2021	IBL Final OAR	AS	Aldo Strydom	Project Manager

Distribution List

# Hard Copies	PDF Required	Association / Company Name

Prepared for:

Oxfordshire County Council

Prepared by:

AECOM Infrastructure & Environment UK Ltd
AECOM House
63-77 Victoria Street
St Albans
Hertfordshire AL1 3ER
United Kingdom

T: +44(0)1727 535000
aecom.com

© 2020 AECOM Infrastructure and Environment Limited. All Rights Reserved.

This document has been prepared by AECOM Infrastructure & Environment UK Limited ("AECOM") for sole use of our client (the "Client") in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between AECOM and the Client. Any information provided by third parties and referred to herein has not been checked or verified by AECOM, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of AECOM.

Table of Contents

1	Introduction.....	9
1.1	Background	9
1.2	Scheme Development.....	12
1.3	Report Purpose.....	14
1.4	Report Structure	14
2	Policy Context	16
2.1	Introduction.....	16
2.2	National Policies	16
2.3	Regional Policies	17
2.4	Local Policies.....	19
3	Current and Future: Context and Conditions	24
3.1	Introduction.....	24
3.2	Geographic Context.....	24
3.3	Current Conditions	24
3.4	Future Conditions	57
3.5	Identifying the need for Intervention	59
4	Development of Scheme Objectives	61
4.1	Scheme Objectives	61
4.2	LTP4 and WODC Local Plan Objectives	61
4.3	A40 Corridor Strategy Objectives.....	62
4.4	A40 Science Transit Objectives	62
4.5	A40 Smart Corridor Objectives.....	63
4.6	Integrated Bus Lanes Objectives	64
5	Option Development and Sifting.....	65
5.1	Introduction	65
5.2	Background	65
5.3	A40 Corridor Improvements	70
5.4	Method	72
5.5	Stage 1 – Initial Sift.....	75
5.6	Stage 2 – Initial Scoring	79
6	Stage 2: Appraisal and Scoring.....	80
6.1	Introduction	80
6.2	Element 1: Park and Ride Junction	81
6.3	Element 2: Cuckoo Lane – Vehicle Access to Park and Ride	85
6.4	Element 3: Cuckoo Lane – Bus Access to P&R	88
6.5	Element 4: Cuckoo Lane – Close Access to P&R	93
6.6	Element 5: Cuckoo Lane – Right Turn Banned (In & Out)	94
6.7	Element 6: Cuckoo Lane branched off to join P&R Junction.....	97
6.8	Element 7: Old Witney Road.....	97
6.9	Element 8: Elm Place Access and Layby	97
6.10	Element 9: Evenlode Public House Access.....	98
6.11	Element 10: Witney Road Junction	102
6.12	Element 11: Esso Petrol Station and Spareacre Lane.....	105
6.13	Element 12: Lower Road Roundabout	107
6.14	Element 13: Cassington New Bridge.....	113
6.15	Element 14: Cassington Road Junction (West)	117
6.16	Element 15: Durham Road Access (South of A40).....	119
6.17	Element 16: Cassington Road Junction (East)	120
6.18	Element 17: Eynsham Road Junction	123
6.19	Element 18: Cassington Halt Bridge.....	128
6.20	Weighting.....	134
7	Stage 3 – Updated Longlist, Sifting and Scoring.....	137
7.2	Element 1: Park and Ride Junction	140
7.3	Element 10: Witney Road Junction	142
7.4	Element 11: Crossings at Esso Petrol Station and Spareacre Lane/Hanborough Road	144
7.5	Element 12: Lower Road roundabout.....	146
7.6	Element 13: Cassington New Bridge.....	149
7.7	Element 18: Cassington Halt Bridge.....	150
7.8	Element 19: Eastern Link Section (near to SAC, SSSI).....	153

7.9	Element 21: Cassington Road Junction	155
7.10	Additional Assessment: Horsmere Lane Closure.....	157
7.11	Weighting for Stage 3	157
7.12	Closing	158
8	Preferred Options and Next Steps	159
8.1	Preferred Options	159
8.2	Element 1: Park and Ride Junction	161
8.3	Element 2: Cuckoo Lane – Vehicle Access to Park and Ride	161
8.4	Element 3: Cuckoo Lane – Bus Access to Park and Ride	162
8.5	Element 4: Cuckoo Lane – Close Access to Park and Ride	162
8.6	Element 5: Cuckoo Lane – Right-turn banned in & out.....	163
8.7	Element 8: Elm Place Access & Layby – Alteration to access	164
8.8	Element 9: Evenlode Public House access	164
8.9	Element 10: Witney Road junction	165
8.10	Element 11: Crossings at ESSO Petrol Station and Spareacre Lane / Hanborough Road.....	165
8.11	Element 12: Lower Road Roundabout junction	166
8.12	Element 13: Cassington New Bridge.....	167
8.13	Element 14: Cassington Road / Eynsham Road junction – Cassington Road junction (West)	167
8.14	Element 15: Cassington Road / Eynsham Road junction – Durham Road access (South of A40)	167
8.15	Element 16: Cassington Road / Eynsham Road junction – Cassington Road junction (East)	167
8.16	Element 17: Cassington Road / Eynsham Road junction – Eynsham Road junction.....	168
8.17	Element 21: Cassington Road junction	168
8.18	Element 18: Cassington Halt Bridge.....	168
8.19	Element 19: Eastern Link section (next to SAC, SSSI)	169
8.20	Next Steps	169
9	Risks and Assumptions	171
9.1	Risks.....	171
9.2	Assumptions	173
	Appendix A List of Referred Documents	175
	Appendix B Alignment of Policy Documents and the Scheme	176
	Appendix C Eynsham Park and Ride	177
	Appendix D Initial Long List of Options	178
	Appendix E Initial sift	181
	Appendix F Stage 2 Sifting Criteria	190
	Appendix G Stage 2 Sifting Outcome	191
	Appendix H Stage 3 Sifting Outcome.....	193
	Appendix I Stage 3 Scoring Outcome	195
	Appendix J ANPR Semantic Maps.....	198

Tables

Table 2-1 Some of the key reviewed policy documents.....	16
Table 3-1 Socio-economic Metrics.....	26
Table 3-2 Information on Local Road Network.....	28
Table 3-3 Modal Share of Commuting Trips in Oxfordshire and West Oxfordshire.....	39
Table 3-4 Traffic Flows on A40 and Surrounding Roads.....	46
Table 4-1 LTP4 Goals and Objectives.....	61
Table 4-2 WODC Local Plan 2031: Transport-related Core Objectives.....	61
Table 4-3 Connecting Oxfordshire links to Science Transit Phase 2 Objectives.....	62
Table 4-4 A40 Smart Corridor Objectives.....	63
Table 4-5 Integrated Bus Lanes Scheme Objectives.....	64
Table 5-1 A40 Science Transit 2 EAST Assessment.....	68
Table 5-2 Public consultation results for proposed Phase 1 and Phase 2.....	70
Table 5-3 Stages and Evidence Base for Sifting.....	72
Table 5-4 Sift 1.....	75
Table 6-1 Sift 2 Criteria.....	80
Table 6-2 Option 1.1.....	82
Table 6-3 Option 1.2.....	82
Table 6-4 Option 1.3.....	83
Table 6-5 Option 1.4.....	84
Table 6-6 Option 1.10.....	84
Table 6-7 Option 2.1.....	85
Table 6-8 Option 2.2.....	86
Table 6-9 Option 2.3.....	86
Table 6-10 Option 2.4.....	87
Table 6-11 Option 2.10.....	87
Table 6-12 Option 3.1.....	88
Table 6-13 Option 3.2.....	89
Table 6-14 Option 3.3.....	89
Table 6-15 Option 3.4.....	90
Table 6-16 Option 3.5.....	91
Table 6-17 Option 3.6.....	91
Table 6-18 Option 3.11.....	92
Table 6-19 Option 4.1.....	93
Table 6-20 Option 4.2.....	93
Table 6-21 Option 5.1.....	94
Table 6-22 Option 5.2.....	95
Table 6-23 Option 5.3.....	96
Table 6-24 Option 8.1.....	97
Table 6-25 Option 9.1.....	98
Table 6-26 Option 9.2.....	98
Table 6-27 Option 9.3.....	99
Table 6-28 Option 9.4.....	99
Table 6-29 Option 9.5.....	100
Table 6-30 Option 9.6.....	101
Table 6-31 Option 10.1.....	102
Table 6-32 Option 10.2.....	104
Table 6-33 Option 10.3.....	105
Table 6-34 Option 11.2.....	105
Table 6-35 Option 11.3.....	106
Table 6-36 Option 12.1.....	108
Table 6-37 Option 12.2.....	109
Table 6-38 Option 12.3.....	109
Table 6-39 Option 12.4.....	110
Table 6-40 Option 12.6.....	112
Table 6-41 Option 13.1.....	113
Table 6-42 Option 13.2.....	115
Table 6-43 Option 13.3.....	116
Table 6-44 Option 14.1.....	117
Table 6-45 Option 14.2.....	118
Table 6-46 Option 15.2.....	119
Table 6-47 Option 15.3.....	120
Table 6-48 Option 16.1.....	121
Table 6-49 Option 16.2.....	122
Table 6-50 Option 17.1.....	123
Table 6-51 Option 17.2.....	123
Table 6-52 Option 17.3.....	125
Table 6-53 Option 17.4.....	126
Table 6-54 Option 17.5.....	126
Table 6-55 Option 17.6.....	127
Table 6-56 Option 18.1.....	129
Table 6-57 Option 18.2.....	130
Table 6-58 Option 18.3.....	131
Table 6-59 Option 18.4.....	132
Table 6-60 Option 18.5.....	133
Table 6-61 Option 18.6.....	134
Table 6-62 Weighting Scenarios – maximum score.....	134

Table 6-63 Weighting Scenarios Result	135
Table 7-1 Additional Options First Sift	138
Table 7-2 Option 1.11	140
Table 7-3 Option 1.12	141
Table 7-4 Option 1.14	141
Table 7-5 Option 10.1	142
Table 7-6 Option 10.4	143
Table 7-7 Option 10.5	144
Table 7-8 Option 11.3	144
Table 7-9 Option 11.4	145
Table 7-10 Option 12.1	146
Table 7-11 Option 12.2	146
Table 7-12 Option 12.3	147
Table 7-13 Option 12.6	148
Table 7-14 Option 12.7	148
Table 7-15 Option 13.1	149
Table 7-16 Option 13.2	150
Table 7-17 Option 18.1	150
Table 7-18 Option 18.3	151
Table 7-19 Option 18.5	152
Table 7-20 Option 18.9	152
Table 7-21 Option 19.1	153
Table 7-22 Option 19.2	154
Table 7-23 Option 21.1	155
Table 7-24 Option 21.2	156
Table 7-25 Stage 3 Weighting	157
Table 8-1 Preferred Options for Each Junction	159
Table 9-1 Risk Assessment	171

Figures

Figure 1-1 A40 Corridor	9
Figure 1-2 A40 Corridor Schemes	11
Figure 1-3 A40 Strategy and Scheme Evolution.....	12
Figure 1-4 . DfT's Transport Appraisal Process.....	15
Figure 2-1 Key Strategic Development Areas at Eynsham and Witney	21
Figure 3-1 Indices of Multiple Deprivation	27
Figure 3-2 Road Network.....	28
Figure 3-3 Rail Network along the A40 Corridor.....	29
Figure 3-4 Bus Network along the A40 Corridor.....	30
Figure 3-5 Cycle Infrastructure on the A40 Corridor.....	32
Figure 3-6 A40 Footway/Cycleway between Eynsham and Cassington	33
Figure 3-7 Typical Weekday 24hr 2-Way A40 Pedestrian Count.....	33
Figure 3-8 Typical Weekday 24hr 2-Way A40 Cyclist Count	34
Figure 3-9 Weekday Cycle Totals at Count Points (counts as of November 2017)	34
Figure 3-10 A40 Hourly Cycle Flow by Direction (2018)	35
Figure 3-11 Recorded Daily Cycle Flow on A40 East of Cassington	35
Figure 3-12 Distribution of Cycle Flow by Time of Day	36
Figure 3-13 PCT Assigned Daily Cyclists on A40 (two-way), 2019.....	36
Figure 3-14 Census 2011 Cycle to Work Demand (LSOA Level)	37
Figure 3-15 Potential Cycle to Work Demand: Go Dutch Scenario (LSOA Level).....	38
Figure 3-16 Public Rights of Way.....	39
Figure 3-17 Car Commute Destinations of Southern West Oxfordshire Origins.....	40
Figure 3-18 Bus Commute Destinations of Southern West Oxfordshire Origins	40
Figure 3-19 Traffic Patterns along the A40 from west of Eynsham – Eastbound in the AM peak period	41
Figure 3-20 Traffic Patterns along the A40 from Oxford – Eastbound in the AM peak period	42
Figure 3-21 Journey Time Route – A40	43
Figure 3-22 Journey Time Variability along the A40 in the AM Peak Eastbound	44
Figure 3-23 Journey Time (mm:ss) Variability along the A40 in the PM Peak Westbound	44
Figure 3-24 Congestion along the A40, AM Peak (Monday, 7:10am)	45
Figure 3-25 Congestion along the A40, PM Peak (Thursday, 17:15pm)	45
Figure 3-26 Congestion in North Oxford, average AM Peak, 08:00am).....	46
Figure 3-27 Mode Split at A40 Lower Road Roundabout	47
Figure 3-28 Mode Split at A40 Eynsham Road	47
Figure 3-29 Mode Split at A40 East	48
Figure 3-30 Location of Collisions along the A40 between Witney and Eynsham, 2015-2019.....	49
Figure 3-31 Location of Collisions along the A40 between Eynsham and Duke's Cut, 2015-2019.....	50
Figure 3-32 Location of Collisions involving Cyclists along the A40 between Witney and Eynsham	50
Figure 3-33 Location of Collisions involving Cyclists along the A40 between Eynsham and Duke's Cut	51
Figure 3-34 Location of Collisions involving Pedestrians along the A40 between Eynsham and Duke's Cut	52
Figure 3-35 Special Areas of Conservation, Ancient Woodland, and Areas of Outstanding Natural Beauty	53
Figure 3-36 Air Quality Management Area and Sites of Special Scientific Interest	54
Figure 3-37 Noise Important Areas (Roads).....	55
Figure 3-38 Flood risk along A40	55
Figure 5-1 Overview of Previous Consultations.....	65
Figure 5-2 Public consultation results (level of support)	66
Figure 5-3 Public consultation results (scheme priority)	66
Figure 5-4 A40 Corridor Improvements	71
Figure 5-5 Location of the elements.....	78
Figure 5-6 Location of the elements (zoomed)	79
Figure 6-1 Option 1.1 – Signalised Junction.....	81
Figure 6-2 Right Turn Banned (In & Out)	95
Figure 6-3 Option 10.1: Signalised Junction with Physical Separation	102
Figure 6-4 Option 10.2: Signalised Junction no Physical Separation.....	104
Figure 6-5 Option 12.1: Signalised Junction (40mph).....	107
Figure 6-6 Option 12.1: Signalised Junction (40mph).....	108
Figure 6-7 Option 13.1: Widen Bridge on South Side Opt. 1	113
Figure 6-8 Option 13.2: Widen Bridge on South Side Opt. 2	115
Figure 6-9 Option 14.2: Right Turn Allowed onto A40	118
Figure 6-10 Option 15.2: Durham Road Access (South of A40) - Right Turn Pocket.....	119
Figure 6-11 Option 16.1: Dedicated Right Turn Lane into Eynsham Road	121
Figure 6-12 Option 16.2: Right Turn Pocket into Eynsham Road	122
Figure 6-13 Option 17.3: Eastbound Bus Lane and General Traffic Lane Through Junction	125
Figure 6-14 Option 17.6: Controlled Crossing South Across Eynsham Road (No Central Island).....	127
Figure 6-15 Option 18.1: No Bridge Extension with Bus Lanes and two shared use cycle/pedestrian bridges.....	129
Figure 6-16 Option 18.3: Widen Bridge on South Side Opt. 1	131
Figure 6-17 Widen Bridge on North & South Side	133
Figure 7-1 Additional Elements – Locations	137
Figure 7-2 Eastbound and Westbound Bus Lanes through Cassington Junction.....	155
Figure 7-3 Two General Traffic Straight Ahead Lanes	156
Figure 8-1 Location of the elements (zoomed)	159
Figure 8-2 Park and Ride junction preferred option layout (4-arm design).....	161
Figure 8-3 Park and Ride junction preferred option layout (3-arm design).....	161
Figure 8-4 Cuckoo Lane – Vehicle Access to Park and Ride preferred option layout	162
Figure 8-5 Cuckoo Lane – Bus Access to Park and Ride preferred option layout.....	162
Figure 8-6 Cuckoo Lane – Close Access to Park and Ride preferred option layout	163
Figure 8-7 Cuckoo Lane – Right-turn banned (out of Cuckoo Lane).....	164

Figure 8-8 Elm Place Access & Layby preferred option layout	164
Figure 8-9 Evenlode Public House access preferred option layout.....	165
Figure 8-10 Witney Road junction preferred option layout.....	165
Figure 8-11 Crossings at ESSO Petrol Station and Spareacre Lane / Hanborough Road preferred option layout	166
Figure 8-12 Lower Road Roundabout junction preferred option layout.....	166
Figure 8-13 Cassington New Bridge preferred option layout	167
Figure 8-14 Cassington Road Junction preferred option layout	168
Figure 8-15 Cassington Halt Bridge preferred option layout	168
Figure 8-16 Eastern link section (next to SAC, SSSI) preferred option layout.....	169
Figure 9-1 Park and Ride Site Boundary and Associated Schemes	177

1 Introduction

1.1 Background

- 1.1.1 The A40 corridor crosses the county of Oxfordshire connecting towns and villages such as including Witney and Eynsham, with the historic city of Oxford (Figure 1-1). The A40 serves a much wider purpose of connecting Oxfordshire with neighbouring counties and regions including Cheltenham, Gloucester and South Wales to the west, and Buckinghamshire, Greater London and the M40 to the east. Along its length, the A40 alternates between a single carriageway and dual carriageway configuration. In the west of the county, the A40 is largely comprised of a single carriageway road. The section between Witney and Oxford is currently operating above capacity, with daily congestion issues affecting all road users.
- 1.1.2 Increased commuting into the City of Oxford, and a reliance on private vehicles for travel has led to the worsening levels of congestion on the highway network across much of Oxfordshire. One reason for increased commuting into Oxford from surrounding districts and counties is the high housing costs with Oxford among the most expensive places in the country (see section 3.3).
- 1.1.3 These issues are considered significant barriers to economic growth and prosperity in the county and would be further exacerbated by the additional traffic generated by planned development, dictating the need for intervention.

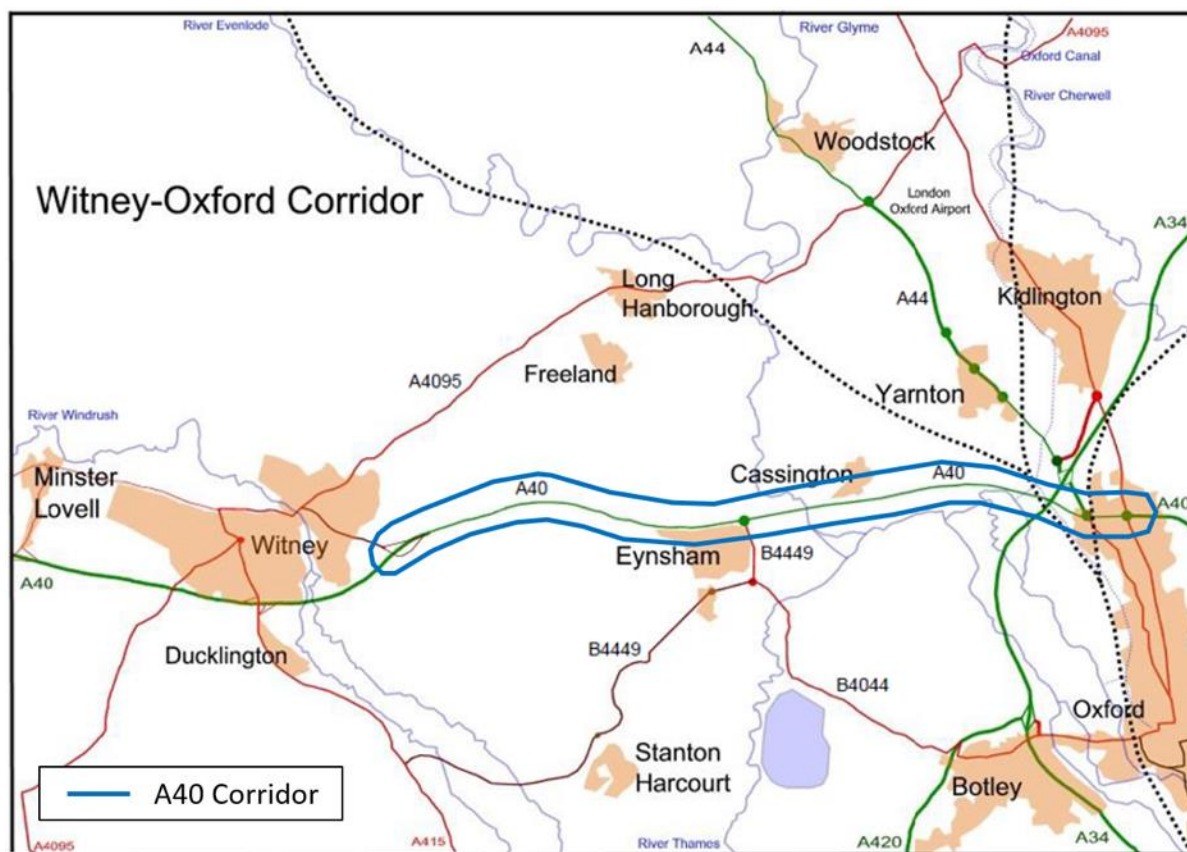


Figure 1-1 A40 Corridor

Source: A40 Science Transit Phase 2 – Option Assessment Report (OCC, 2017)

- 1.1.4 Oxfordshire is a prosperous and vibrant county, combining a successful, thriving economy with a high-quality environment. Oxfordshire has committed to the delivery of 100,000 new homes between 2011 and 2031 as identified within the 2014 countywide Strategic Housing Market Assessment and the five districts' Local Plans.
- 1.1.5 The West Oxfordshire District Council Local Plan 2031, which covers the section of the A40 between Witney and the outskirts of Oxford, was adopted in September 2018 and commits to delivering West Oxfordshire's housing need (13,200 homes in the period 2011-2031), as well as assisting Oxford City in meeting its unmet housing need (2,750 homes in the period 2021-2031), totalling at least 15,950 new homes in the West Oxfordshire District up to 2031.

Promoting Use of Sustainable Transport on the A40 Corridor

- 1.1.6 The Oxfordshire Local Transport Plan 4 (LTP4), titled Connecting Oxfordshire, was adopted by Oxfordshire County Council (OCC) in 2015 and updated in 2016. It was developed with three over-arching transport goals in mind:
- i. To support jobs and housing growth and economic vitality;
 - ii. To reduce emissions, enhance air quality and support the transition to a low carbon economy; and
 - iii. To protect and enhance Oxfordshire's environment and improve quality of life (including public health, safety and individual wellbeing).
- 1.1.7 The overall strategy in the Local Transport Plan 4 to 2031 acknowledges that predicting and providing fully for increased demand for road travel by car and freight vehicles in the form of highway capacity improvements is neither affordable nor desirable from an environmental or economic perspective.
- 1.1.8 The plan states the need to make the best use of existing capacity. Journeys made by low-occupancy private vehicles must reduce and make up a smaller proportion of transport mileage in the future and that more journeys are made by means of transport that take up less road capacity, taking advantage of smarter means of travel, and fully accounting for the potential of any increased road capacity to generate additional car traffic.
- 1.1.9 A Baseline Statement for the OCC A40 Witney-Oxford Corridor Route Strategy was prepared in September 2014. It identified that the A40 has long standing issues of congestion and leading to extended journey times and high journey unreliability (see section 3.3). The problems and challenges for the Witney-Oxford corridor were summarised as:
- highway links which are currently operating at or above capacity for extended periods of the day with journey speeds as low as 10mph in the AM peak and unreliable and unpredictable journey times;
 - junctions with capacity constraint issues on at least one arm;
 - buses carrying large numbers of trips on generally congested routes;
 - an expected large increase in demand on an already congested and capacity constrained route subject to worsening delays in both directions; and
 - commercial and residential development focused on areas where the highway network is already under pressure.
- 1.1.10 There are few alternative means of travel from this part of West Oxfordshire: the few alternative road routes also suffer from heavy congestion; there is no convenient rail or other fixed link connection; buses have no alternative but to use the congested roads (such as A40 between Witney and Oxford).
- 1.1.11 In informing the development of an A40 Corridor Strategy a range of potential options were identified as potential improvement solutions including:
- Park and Ride
 - Bus lanes
 - Tidal Flow bus lane
 - Rail line re-opening
 - Guided busways and Trams
 - Non-conventional rapid transit (people movers/automatic light rail/monorail)
 - Dual Carriageway
 - Tidal Flow lanes

- 1.1.12 Through 2015 and 2016 an assessment evaluating alternative strategies for the corridor was undertaken followed by public consultation.
- 1.1.13 In May 2016 the OCC adopted a road-based improvement strategy as the most viable, affordable alternative that could be delivered within a relatively short timescale. The A40 corridor strategy which seeks to encourage greater use of public transport and cycling for trips between West Oxfordshire and Oxford includes a section of road dualling, the provision of a new Park and Ride site, fully-segregated bus lanes between Eynsham and Oxford Ring Road and improved cycle route provision from Witney along the A40 corridor to Oxford.

A40 Corridor Improvement Programme

- 1.1.14 Funding has been secured from government to deliver a number of projects that will deliver the A40 strategy and which form the A40 Corridor Improvement Programme:
- **(1) A40 Science Transit Phase 2 (A40STP2) scheme:** This scheme is to be funded from the Department for Transport (DfT) Local Growth Fund (LGF):
 - A new 850 space Park and Ride site in Eynsham, and associated highway improvements including junction improvements¹;
 - A full eastbound (towards Oxford) bus lane from the Park and Ride to Duke's Cut; and some short sections of westbound bus lane from Duke's Cut to the Park and Ride.
 - **(2) A40 Smart Corridor schemes:** Funding has also more recently been secured from Homes England's Housing Infrastructure Fund (HIF) for three further schemes that will complement the STP2 scheme:
 - An extension of the A40 dual carriageway between Witney and Eynsham;
 - A full westbound bus priority lane from Duke's Cut to the Eynsham Park and Ride site; and
 - A40 capacity and connectivity improvements at Duke's Cut canal and railway bridges that will widen the existing A40 bridges over the railway and canals and/or provide new pedestrian/cycle bridges adjacent to these existing A40 bridges. These works will create space for a new eastbound bus lane and an improved cycleway along this section of the A40. It further includes a cycleway link between the A40 and the National Cycle Network (NCN) 5.

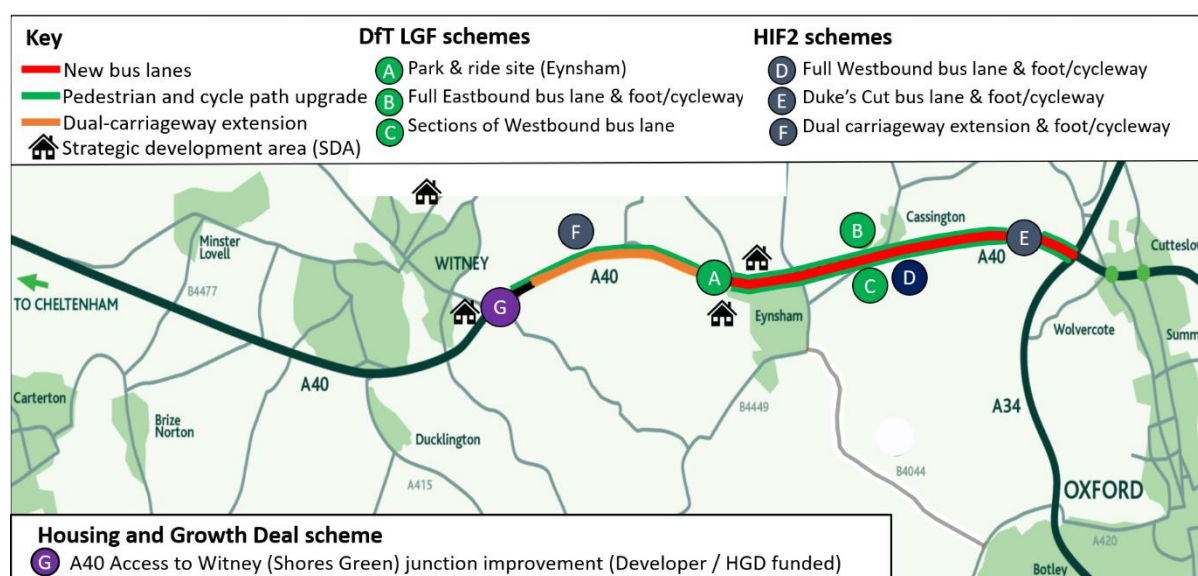


Figure 1-2 A40 Corridor Schemes

Source: Adapted from A40STP2; Oxfordshire CC - © Crown copyright and database right 2020

¹ See 0 for further information on the proposed Eynsham Park and Ride

- 1.1.15 The A40 Smart Corridor scheme was originally envisaged to be delivered as a second phase of works after the completion of A40STP2. However, following the award of the HIF funding OCC is now proposing to combine elements of the A40STP2 and Smart Corridor Schemes. This will ensure scheme benefits are maximised; deliver cost and programme efficiencies and minimise disruption during construction.
- 1.1.16 Figure 1.3 shows the evolution of the A40 Corridor Strategy and Schemes. A key scheme within the A40 corridor improvement programme is the A40 Integrated Bus Lanes scheme between Eynsham Park and Ride and Duke's Cut, consisting of the following elements:
- A full eastbound bus lane from the Park and Ride to Duke's Cut;
 - A full westbound bus lane from Duke's Cut to the Park and Ride;
 - Foot / cycleway enhancements and improved crossings for pedestrians and cyclists; and
 - Associated highway and junction improvements.
- 1.1.17 The Integrated Bus Lanes scheme is likely to be implemented in parallel with the other A40 corridor schemes set out above.

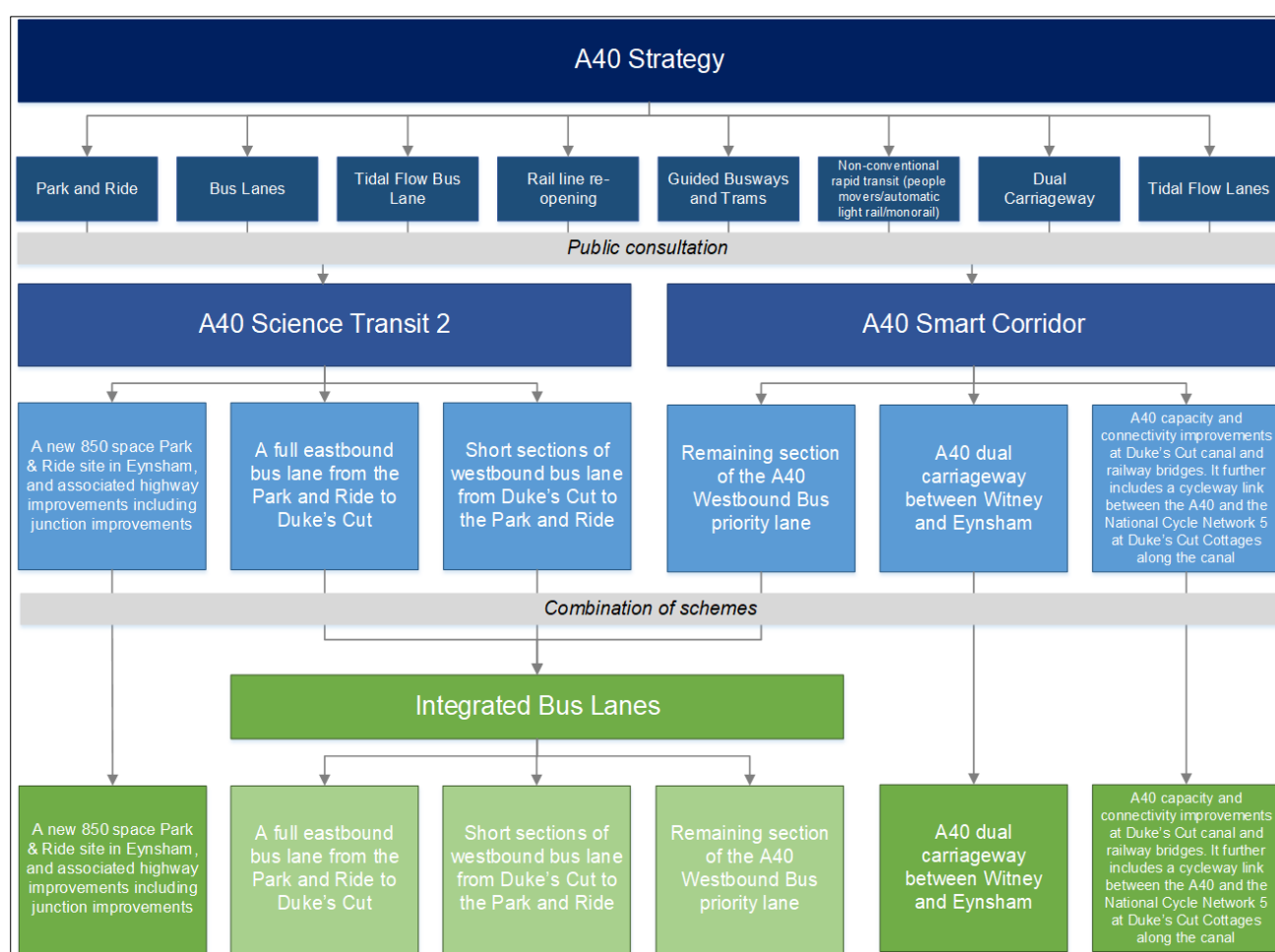


Figure 1-3 A40 Strategy and Scheme Evolution

1.2 Scheme Development

- 1.2.1 AECOM has been commissioned by Oxfordshire County Council (OCC) to carry out an optioneering exercise of the Integrated Bus Lanes scheme to identify possible solutions to address the current and future issues on the A40 corridor.
- 1.2.2 In addition, two further optioneering exercises have been commissioned for following the A40 Smart Corridor schemes:
- An extension of the A40 dual carriageway between Witney and Eynsham; and

- Capacity and connectivity improvements at Duke's Cut Bridges.

- 1.2.3 These optioneering exercises will be presented as three Option Assessment Reports (OARs). These reports will include option development and sifting in accordance with Department for Transport (DfT) Early Assessment and Sifting Tool (EAST) Guidance.
- 1.2.4 The Park and Ride scheme will be delivered in parallel with the other A40 corridor schemes.
- 1.2.5 The impact of COVID-19 includes uncertainty in travel demand, public transport usage, active travel mode share and others. Some of the impacts are likely to be short term but others may alter overall travel patterns and behaviours over the long term. To account for these uncertainties, relevant recent policies and literature published during the COVID-19 pandemic have been reviewed briefly and their relevance considered to the A40 schemes, such as the DfT's Gear Change: A bold vision for cycling and walking report (2020)² and its implications on scheme design.

1.3 Report Purpose

- 1.3.1 This Option Assessment Report describes the option development process of the Integrated Bus Lanes scheme, setting out the decision-making process that was used to reach the shortlisted options to be taken forward to public consultation and for further assessment.
- 1.3.2 This report sets out the study context; provides details of the adopted approach; discusses current and future conditions, and objectives for the study; provides details of the long list of options to address issues on the A40 corridor; sets out the criteria for the initial sifting of the long list; and summarises the results of the initial sifting (which will be updated over time based on workshops, consideration of stakeholder views, and updated modelling).

1.4 Report Structure

- 1.4.1 This Option Assessment Report follows the DfT Transport Appraisal Guidance (TAG), as illustrated in DfT's Transport Appraisal Process (TAP)³ (Figure 1-4). It provides a summary of steps one to six in Stage 1 of the appraisal process – Option Development – including the review and summary of the work to date.

² DfT (2020). <https://www.gov.uk/government/publications/cycling-and-walking-plan-for-england>

³ Department for Transport (2018) Transport Analysis Guidance: The Transport Appraisal Process. <https://www.gov.uk/government/publications/webtag-transport-appraisal-process-may-2018>

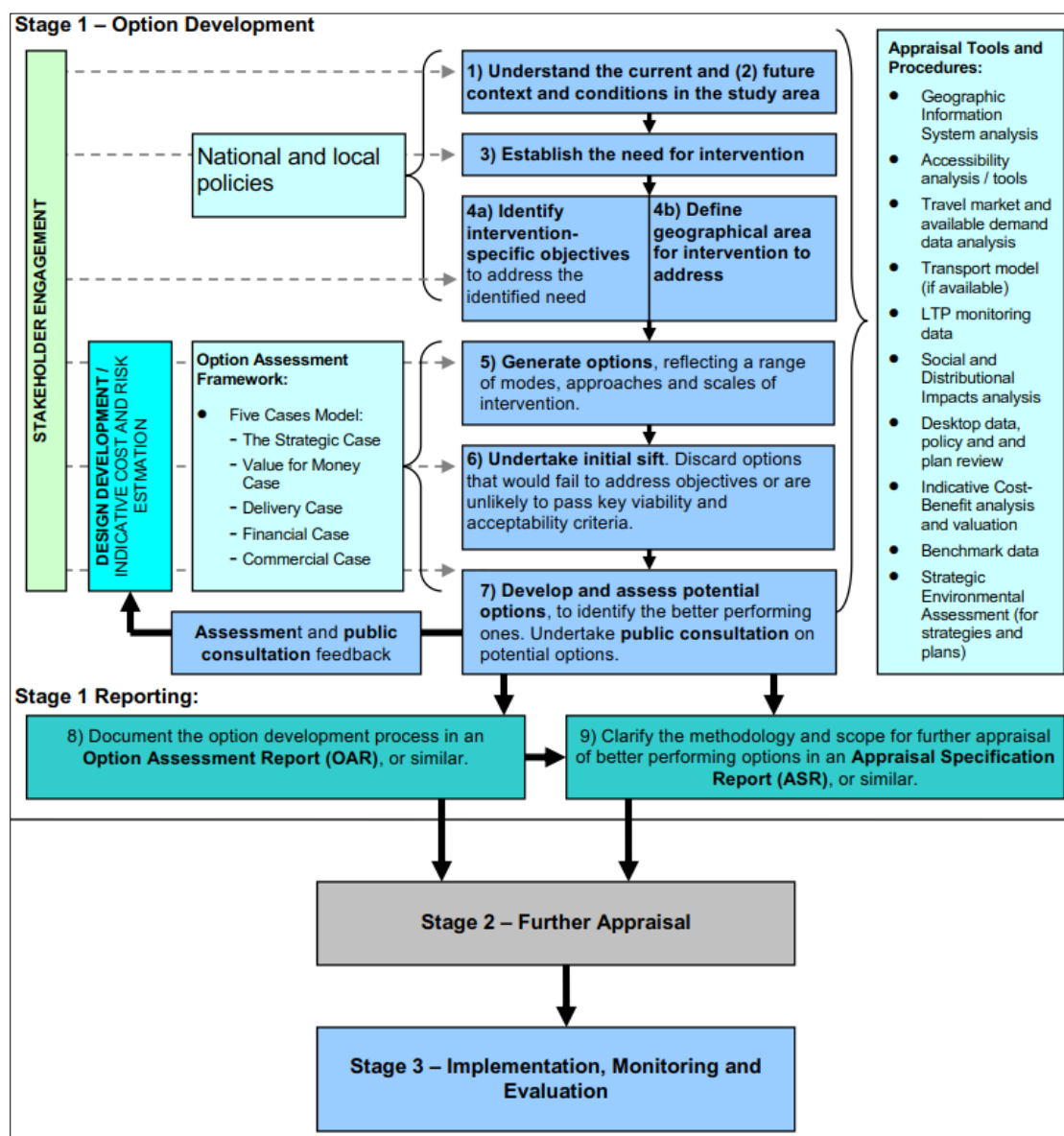


Figure 1-4 . DfT's Transport Appraisal Process

Source: Transport Appraisal Process (DfT, 2018)

1.4.2 Following this introductory chapter, this report is structured as follows:

- Chapter 2: Policy Context
- Chapter 3: Current and Future: Context and Conditions
- Chapter 4: Development of Scheme Objectives
- Chapter 5: Option Development and Sifting
- Chapter 6: Stage 2: Appraisal and Scoring
- Chapter 7: Stage 3 – Updated Longlist, Sifting and Scoring
- Chapter 8: Preferred Options and Next Steps
- Chapter 9: Conclusions and Next Steps

2 Policy Context

2.1 Introduction

- 2.1.1 A review of relevant national, regional and local policies (Table 2-1) was undertaken to ensure the proposed scheme aligns with broad policy goals and to confirm whether existing policies and programmes are in favour of interventions in these circumstances, and of a similar type and scale. This review has informed the development of the scheme objectives (see Chapter 4).

Table 2-1 Some of the key reviewed policy documents

National			
National Planning Policy Framework, Ministry of Housing, Communities & Local Government	Industrial Strategy White Paper, Department for Business, Energy & Industrial Strategy	Transport Investment Strategy; Gear Change: A bold vision for cycling and walking report; A Better Deal for Bus Users; Decarbonising Transport, Department for Transport	Housing White Paper – Fixing Our Broken Housing Market, Department for Communities and Local Growth
Regional			
Strategic Economic Plan for Oxfordshire 2016, Oxfordshire Local Enterprise Partnership	Connecting Oxfordshire: Local Transport Plan 2015-2031, Oxfordshire County Council	Oxfordshire Infrastructure Strategy, Oxfordshire County Council	
Local			
West Oxfordshire Adopted Local Plan (2011-2031), West Oxfordshire District Council	Oxford Transport Strategy; Bus and Rapid Transit Strategy; Active and Healthy Travel Strategy; A40 Corridor Strategy, Oxford Park and Ride Strategy. Oxfordshire County Council	Oxfordshire Cotswolds (Salt Cross) Garden Village Area Action Plan; Eynsham Neighbourhood Plan; and other local housing developments related policies.	

2.2 National Policies

- 2.2.1 At a national level, Government policy endeavours to balance the need to deliver economic growth for a growing population, increased housing demand and increasingly congested transport networks with a longer-term vision of a sustainable and carbon neutral economy, making better use of available capacity and technology. These are reflected in the National Planning Policy Framework (NPPF), Industrial Strategy White Paper, the Housing White Paper, and the DfT's Transport Investment Strategy.
- 2.2.2 The **NPPF** seeks to promote sustainable transport and states that significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes.
- 2.2.3 There are currently proposals to create a **Major Road Network (MRN)**⁴, and the A40 corridor would be part of this network. The proposals outline five central policy objectives: reduce congestion, supporting economic growth and rebalancing, support housing delivery, support all road users, and support the Strategic Road Network (SRN) which comprises motorways and some A-roads. The MRN would create a new funding stream to raise the standards of economically and regionally important roads in England (such as the A40 corridor) and seamlessly connect and complement the SRN.
- 2.2.4 The **Industrial Strategy** states that the availability of high-quality infrastructure is essential for continued growth and prosperity. The Strategy's vision for a transformed economy is centred around productivity, and infrastructure is identified as one of the five foundations of this, such as the Integrated Bus Lanes scheme.
- 2.2.5 The **Housing White Paper** – Fixing Our Broken Housing Market (2017) sets out initiatives that strive to reach a step-change in housing supply in England. There are four key proposals contained within the housing strategy:
- Planning for the right homes in the right places;
 - Building homes faster;
 - Diversifying the market; and
 - Helping people now.

⁴ Proposals for the Creation of a Major Road Network (<https://www.gov.uk/government/consultations/proposals-for-the-creation-of-a-major-road-network>, 2017)

- 2.2.6 The role of transport in supporting local growth is highlighted in the **DfT's Transport Investment Strategy**, which states that transport investment must seek to create a better and more reliable transport network in order to build a stronger, more balanced economy, enhance productivity and respond to local growth priorities. Its objectives are to:
- Create a more reliable, less congested, and better-connected transport network that works for the users who rely on it;
 - Build a stronger, more balanced economy by enhancing productivity and responding to local growth priorities;
 - Enhance the global competitiveness by making Britain a more attractive place to trade and invest; and
 - Support the creation of new housing (the Housing White Paper recognises transport infrastructure as one of the keys to unlocking development and delivering places where people want to live).
- 2.2.7 The **Gear Change: A bold vision for cycling and walking** report (2020) aims to see a step-change in cycling and walking in the coming years. The report notes that increasing cycling and walking can help tackle some of the most challenging issues faced by society: improving air quality, combatting climate change, improving health and wellbeing, addressing inequalities and tackling congestion. This will help create better connected, healthier and more sustainable communities. This document is accompanied by the DfT's new 'Cycle Infrastructure Design: Local Transport Note 1/20'. Whilst the 'Gear change' sets out the DfT's aims and vision for the future, the more detailed LTN 1/20 document provides the practical advice to achieving the stated policy aims. The main shift between LTN 1/20 and previous design guidance is the establishment of core design principles (20 design principles). This is especially pertinent in light of the COVID-19 restrictions and its future impacts on travel pattern (which has profoundly affected the way individuals live, work and travel and increased the desire to be more active). The Integrated Bus Lanes scheme design will refer to these design principles.
- 2.2.8 **A Better Deal for Bus Users**⁵ highlights the key role which bus plays in the transport system and sets aside £220 million to provide bus services which meet the needs and demands of the public. As part of this, bus priority is identified as a key tool to improve bus services. All new road investments in England which receive central government funding will now be required to either support bus priority measures or explain why bus priority is not necessary. There will be further support for local authorities to ensure they have the information they need to effectively prioritise buses. This has a direct relevance to the Integrated Bus Lanes scheme and shows clear alignment with the national government policies.
- 2.2.9 **Decarbonising Transport: Setting the Challenge**⁶ identifies that climate change is the most pressing environmental challenge of our time, and to meet the target to achieve 'net zero' greenhouse gas (GHG) emissions by 2050, transport has a vital role to play. As such, the Transport Decarbonisation Plan (TDP) will set out in detail how the significant reductions in emissions needed across all modes of transport to achieve carbon budgets and net zero emissions across every single mode of transport by 2050. There have been previous strategies to reduce GHG emissions in individual transport modes, the TDP will take a coordinated, cross-modal approach to deliver the transport sector's contribution. The report looks at both how private vehicles can achieve low emissions, but also looks at the role of freight. This is needed in parallel to the rapid development and deployment of clean technology. The TDP is to be released in Spring 2021. This policy document further recognises the importance of planning for sustainable communities and providing a transport system which promotes increased levels of sustainable and active travel, which the Integrated Bus Lanes assists with.

2.3 Regional Policies

- 2.3.1 Oxfordshire Local Enterprise Partnership's (OxLEP's) **Strategic Economic Plan** (SEP) for Oxfordshire (2016) sets out a vision for Oxfordshire to be a vibrant, sustainable, inclusive, world leading economy, driven by innovation, enterprise and research excellence. Whilst being strong in many areas, including innovation, enterprise and research, the SEP also refers to challenges around the lack of affordable housing, increasing congestion, sustainability and inclusion, and the need for greater resilience. The SEP is clear that the overall priority for Oxfordshire's places is to plan simultaneously for both jobs and housing growth, putting in place the infrastructure required for both, whilst also protecting and where possible enhancing environmental quality and social inclusion. These priorities are consistent with Government policy and the objectives set out in the DfT Transport Investment Strategy but adapted to suit Oxfordshire's own socio-economic and environmental challenges.
- 2.3.2 In terms of connectivity, the SEP sets out key actions, a number of which are relevant to the A40 corridor, in particular:
- Support for the implementation of the Oxfordshire Local Transport Plan 2015-2031 to address congestion and to identify ways to avoid exacerbating existing problems due to growth;

⁵A Better Deal for Bus Users (<https://www.gov.uk/government/publications/a-better-deal-for-bus-users/a-better-deal-for-bus-users>, 2020)

⁶Decarbonising Transport: Setting the Challenge

(https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/932122/decarbonising-transport-setting-the-challenge.pdf, 2020)

- Ensure, through the planning process, that connectivity improvements are linked to the scale and location of planned growth; and
- Implement the Oxfordshire Active and Healthy Travel Strategy.

- 2.3.3 OxLEP has also produced the **Oxfordshire Local Industrial Strategy (LIP)** and accompanying **Oxfordshire Investment Plan**. The LIP responds to the government's UK Industrial Strategy and sets out a bold and ambitious vision for Oxfordshire to be one of the top three global innovation systems by 2040. The LIP aims to deliver clean and sustainable transformative growth across Oxfordshire, through focussing on innovation, people (including an Oxfordshire Social Contract with investment in skills) and improvements to the physical, digital, financial, knowledge and social infrastructure. The Oxfordshire Investment Plan takes forward the ambitions set out in the LIS, translating policy ideas and commitments to a transformational programme for action and delivery. In the LIP, the severe congestion on the A40 is noted as a key constraint holding Oxfordshire back. In addition, the Oxfordshire Investment Plan identifies the A40 Science Transit and A40 Smart Corridor as part of the 'Infrastructure Pillar' and as such are critical to the success of the county. Therefore, across these two interlinked documents there is clear and consistent support for the Integrated Bus Lanes scheme.
- 2.3.4 The **Oxfordshire's Housing and Growth Deal**⁷ is an agreement between the national government and in the Oxfordshire area councils (Cherwell District Council; Oxford City Council; Oxfordshire County Council; South Oxfordshire District Council; Vale of White Horse District Council; West Oxfordshire District Council) and the Local Enterprise Partnership (OxLEP), to plan and support the delivery of 100,000 new homes between 2011 and 2031. The A40 Smart Corridor supports this ambition by unlocking Local Plan housing growth, which contributes to the Oxfordshire Housing and Growth Deal (HGD).
- 2.3.5 The **Oxfordshire Infrastructure Strategy (OXIS)** recognises the A40 corridor as a Growth Corridor with key strategic sites along it. The OXIS highlights infrastructure requirements to 2040 and identifies the need to a prioritise and develop a long-term strategy to address congestion on the A40. The Integrated Bus Lanes scheme will help improve accessibility, congestion and provide a sustainable alternative to car travel.
- 2.3.6 The **Connecting Oxfordshire Local Transport Plan 4 (LTP4, 2016)**, is the overarching local plan for transport in Oxfordshire. As part of the plan it includes the Science Transit Strategy, Rail Strategy, Bus and Rapid Transit Strategy and the Active & Healthy Travel Strategy, the latter two of which are discussed further below. The LTP4 is part of the Connecting Oxfordshire series of documents, which includes the A40 Strategy, comprising the A40 Science Transit Phase 2 scheme and the A40 Smart Corridor schemes. LTP4 identifies the problem of "acute traffic congestion" on the A40, and the need for improved public transport. Without improvements to improve public transport infrastructure, the LTP4 predicts that traffic conditions will deteriorate significantly. Chronic A40 congestion, which will likely improve through the proposed scheme, is identified as a means of reducing delays. LTP4 promotes the use of low and zero emission forms of transport including trials of electric buses and supports further pilots, where appropriate. It is expected that new public transport vehicles will conform to high environmental standards.

2.4 Local Policies

- 2.4.1 The **Oxford Transport Strategy (OTS)** sets out OCC's transport vision and strategy up to 2035 for Oxford as part of the LTP4. The OTS identifies that the number of vehicles entering the city centre is forecast to grow by over 40% if left unchecked, putting substantial strain on the historic core. The OTS identifies a number of road links and junctions that experience substantial delays, including the A40, particularly during the morning peak period. It states that it is necessary to intercept car trips further away from the city and identifies a number of Park and Ride sites including at Eynsham. It is proposed in the OTS to introduce a city-wide Workplace Parking Levy (WPL) to gain control of the use of private cars as a means of travelling to work, which may help to achieve a greater use of public transport and the A40 Smart Corridor scheme. 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'*. Such schemes will be supported by the Integrated Bus Lanes scheme and could be implemented in parallel.
- 2.4.2 The **Bus and Rapid Transit Strategy (2016)** has been developed to complement the LTP4 and the main elements of the strategy include integration of the bus network and provision of accessible, high quality infrastructure. The strategy also includes development of a mass rapid transit system and routes between Oxford and proposed Park and Ride sites; aims to tackle congestion and delays; and development or upgrade of new high quality premium urban and interurban services. The **Oxford Park and Ride Strategy (2016)** is located within the Bus and Rapid Transit Strategy, in which it is identified that Oxford's Park and Ride system is a key element affecting the City and County's bus system and changes to the Park and Ride strategy and system will have a considerable impact on the planning, operation and attractiveness of the public transport network.
- 2.4.3 The **Active and Healthy Travel Strategy (2016)** also builds on the LTP4 with the aim to 'contribute to reducing pressure on the road network, contribute to economic growth and the reduction of emissions, quality of life and health, and link active travel with bus and rail options by enabling sustainable door to door journeys combining cycling or walking with public transport'. The strategy outlines that cycling alone cannot replace the car for long journeys but does state that the combination of cycling and public transport can create more door-to-door sustainable trips. There is also encouragement of walking and to prioritise funding available for the best value for money investments for walking.

- 2.4.4 **West Oxfordshire District Council (WODC)** adopted their **Local Plan (2011 – 2031)** in 2018, noting it was underpinned by a general presumption in favour of 'sustainable development'. Once adopted, applications for planning permission must be determined in accordance with the plan unless material considerations indicate otherwise; and that they would work with OCC (as the highways authority), developers, local councils, bus and rail operators and other voluntary and community sectors to:
- Increase the use of bus, rail and community transport through the provision of improved services, facilities and information including specific schemes identified in the Local Transport Plan (Connecting Oxfordshire) and Infrastructure Delivery Plan (IDP); and
 - Provide safe and convenient travel within and between the network of towns and villages in West Oxfordshire, particularly for pedestrians, cyclists and other vulnerable road users, users of public and community transport including specific schemes identified in the Local Transport Plan and IDP.
- 2.4.5 The Local Plan highlights the need to provide access to high quality public transport facilities and focus on new developments in areas that have good access to sustainable transport. As part of the Local Plan, the West Oxfordshire District Council IDP has been adopted which identifies the infrastructure which is needed to support future growth in West Oxfordshire until 2031. The A40 Smart Corridor scheme is included in the IDP (under the names A40 Science Transit and A40 Longer Term Strategy).
- 2.4.6 The Local Plan contains several Core Policies which are related to the Integrated Bus Lanes scheme:
- The West Oxfordshire Local Plan identifies transport in West Oxfordshire as an issue of critical importance. It is recognised that the level of commuting between West Oxfordshire and Oxford is putting significant pressure on the A40 resulting in daily occurrences of congestion;
 - The Local Plan states that A40 problems are a major constraint to inward investment into the District, and relieving congestion through investment in transport infrastructure is important in terms of public amenity and air quality, and essential to unlocking future housing provision and sustainable economic growth. The commitment to deliver the Local Plan is underpinned by critical infrastructure delivery. The A40 Smart Corridor scheme is defined as "critical" within the Local Plan IDP;
 - The Local Plan's Policy T1 states that the council will continue to work in partnership with Oxfordshire County Council in relation to securing improvements to the A40 between Witney and Oxford. This will include longer term improvements, including the provision of a westbound bus lane from Oxford to Eynsham and dualling of the A40 between Witney and Eynsham⁸;
 - Highway Improvement Schemes, which includes West Oxfordshire District Council's commitment to work in partnership with OCC;
 - Oxfordshire Cotswolds Garden Village (now called Salt Cross Garden Village): Strategic Location for Growth (this is A40 Smart Corridor dependent development); and
 - Eynsham-Woodstock Sub-Area Strategy: anticipates delivery of over 5,500 homes in the sub-area. It recognises transport as a key issue in the sub-area, specifically the significant congestion between Eynsham and Oxford during peak hours⁹.
- 2.4.7 Furthermore, WODC's Local Plan seeks to provide for at least 15,950 homes and identifies four Strategic Development Areas (SDA), of which three are along the A40 Corridor and the Integrated Bus Lanes will help support these (Figure 2-1):
- East Witney (450 homes; SDA site);
 - North Witney (1,400 homes; SDA site);
 - Oxfordshire Cotswolds (now called Salt Cross) Garden Village (2,200 homes)¹⁰;
 - West Eynsham (1,000 homes; SDA site);
 - A further 100 homes would be delivered at two large sites within Carterton; and
 - Overall the A40 corridor in West Oxfordshire will see an increase of around 10,000 homes.

⁷ Oxfordshire Housing and Growth Deal (2018, <https://www.gov.uk/government/publications/oxfordshire-housing-deal>)

⁸ HIF2 Business Case Submission, OCC (2019)

⁹ Eynsham P&R modelling report_with_appendices_18032019.pdf, <https://www.westoxon.gov.uk/media/1912795/eynsham-woodstock-sub-area.pdf>

¹⁰ Oxfordshire Cotswolds (now called Salt Cross) Garden Village is proposed as a 'Strategic Location for Growth' (SLG) in the WODC Local Plan.

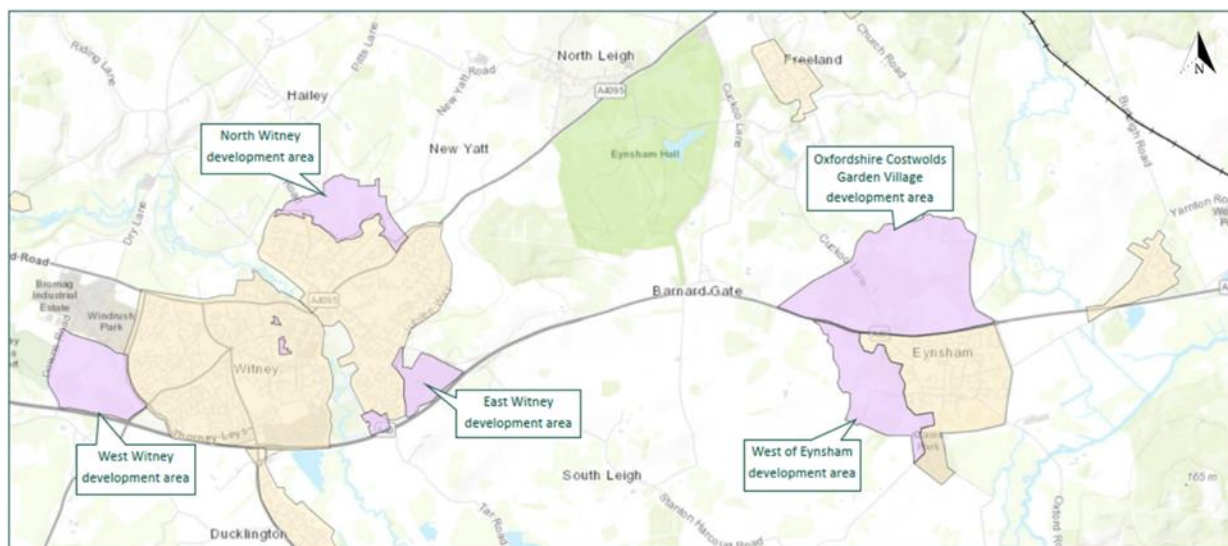


Figure 2-1 Key Strategic Development Areas at Eynsham and Witney

Source: A40 Strategy – Consultation (OCC, 2019)

2.4.8 Furthermore, as part of the 2019 **HIF Bid** for the A40 Smart Corridor scheme it was demonstrated that the A40 Smart Corridor, which includes the Integrated Bus Lanes, has a clear alignment with local planning policies. For example, it is highlighted that the scheme will help achieve the policies, and housing targets, identified in the WODC Local Plan. The scheme is also in alignment with county-wide policies, such as the LTP4 and OXIS. The HIF Bid provided solid and clear justification for the scheme, which as mentioned above, led to funding being awarded for the A40 Smart Corridor, which includes the Integrated Bus Lanes scheme.

2.4.9 **The Salt Cross Garden Village Area Action Plan (AAP)** (pre-submission draft, August 2020) establishes a vision for Salt Cross and will be used alongside the Local Plan and Eynsham Neighbourhood Plan to determine future development proposals. WODC have published the final pre-submission draft version of the AAP which has been submitted to the Secretary of State for independent examination.

2.4.10 The Salt Cross Garden Village AAP also states that sustainable travel options are required to enable delivery of the strategic housing and employment development sites proposed along the A40 corridor in the West Oxfordshire's Local Plan, including Salt Cross. In addition, modelling undertaken in support for the AAP demonstrates that development at Salt Cross will have an impact on the A40 and surrounding routes and that there will be remaining problems on the network during peak periods. Therefore, it is imperative that development at Salt Cross supports the 'Connecting Oxford' plans and encourage modal shift.

2.4.11 It is highlighted as part of the AAP that Salt Cross will benefit from the sustainable transport infrastructure along the A40 Corridor including eastbound and westbound bus lanes; improved cycling and walking connections; capacity improvements between Witney and Eynsham; and a new Park & Ride site located within the garden village site which will form the focus of a new 'Sustainable Transport Hub'. It is important to ensure that the active and healthy travel initiatives associated with Salt Cross are effectively integrated with the A40 corridor schemes. The A40 Corridor improvement schemes are included in the policies of the Salt Cross AAP, as outlined below:

- Policy 14 – Active and Healthy Travel
 - Upgraded A40 footway/ cycleway
 - A40 Duke's Cut Bridge works
- Policy 15 – Public Transport
 - A40 Eastbound bus lanes: Between Eynsham Park & Ride and Wolvercote roundabout (including widening and/ or strengthening works to the bridge structures at Duke's Cut).
 - A40 Westbound bus lanes: Between Eynsham Park & Ride and Duke's Cut Bridges.
 - Adjustments to A40 junctions and the provision of bus gates to give priority to buses joining the general traffic lane where continuous bus lanes cannot be provided.
 - Improved bus stop provision.
- Policy 17 – Road Connectivity and Access
 - Extension of the existing A40 dualling (between Witney and the new Park & Ride access junction).

- Improvements to the Lower Road/ A40 roundabout.
- Highway and junction capacity improvements along the A40 as part of the A40 Corridor improvements.
- Provision of enhanced facilities at the proposed Eynsham Park & Ride.

2.4.12 **A Salt Cross Garden Village Transport Strategy** (July 2020) has been developed as part of the Salt Cross Area Action Plan. The OCGV acknowledges that car dependent settlements based around the needs of car users must be avoided as this undermines the benefits of the A40 corridor schemes and results in rat running through the Garden Village and surrounding villages. In order to minimise car use, opportunities to achieve a modal shift towards active travel and public transport need to be created. This will be attained through creating movement and connectivity that achieves the following:

- A sustainable community where walking and cycling are the prime modes of choice;
- Digitally connected developments that enable work from home or work from local hub;
- Development which by its best practice design principles, facilities and encourages active and healthy travel;
- Development that supports the A40 Corridor improvements; and
- A future proofed settlement that can respond to technological and societal changes.

2.4.13 The A40 Corridor Improvements are outlined as part of the Transport Strategy, highlighting the importance of the improvements for the Salt Cross Garden Village. The Garden Village can support the A40 Corridor Improvements, and the A40 Corridor Improvements will provide the Garden Village with enhanced sustainable travel options. The Garden Village Development will require a new roundabout (the 'Western Development Roundabout') to be delivered, located on the A40 to the west of the proposed Park & Ride access junction. This development required infrastructure will need to be fully integrated with the A40 Dualling scheme, one of the three A40 Corridor Improvement schemes.

2.4.14 In addition, the **Eynsham Neighbourhood Plan 2018-2031**¹¹ (2020) notes that the Eynsham village is the fourth largest community in West Oxfordshire, which makes it bigger than some small nearby towns. It highlights the congestion along the A40 in peak periods. Policy ENP7 Sustainable Transport, supports WODC Policy T1 outlines that new development shall have safe access to local transport networks by private car and public transport. This includes a preference for developments to be accessed by vehicles by existing main roads (A40, B4044 and B4449) and not using Eynsham village roads. Furthermore, encouragement shall be given to the use of alternatives to private cars, such as the proposed Eynsham Park and Ride. Importance is placed on improved connectivity to and within the village, as well as reducing the severance caused by the A40. In addition, policy ENP5 Sustainability: Climate Change highlights the particular support will be given for proposals that help meet the intentions of the Climate Change 2008. This reaffirms the policy goals of the WODC Local Plan to address the climate emergency.. Overall, it is clear that there is alignment with the Integrated Bus Lanes scheme and the Eynsham Neighbourhood Plan as it will provide enable improved bus services along the A40, encouraging use of the proposed Eynsham Park and Ride thereby reducing congestion along the A40 north of Eynsham.

2.4.15 A table showing the alignment of each policy document considered above and the A40 Dualling scheme can be found in Error! Reference source not found..

Relevance to the Integrated Bus Lanes scheme

The policies largely focus on infrastructure investment, promoting sustainable travel, delivering homes and jobs, reducing congestion, and improving air quality and health.

The investment in the Integrated Bus Lanes scheme will deliver bus lanes and active travel infrastructure that would help to promote sustainable travel, improve accessibility, support/create jobs and likely improve air quality and growth. It will provide a sustainable alternative to car travel which could have other co-benefits such as reduction in carbon emission and improved health. Some existing policies identify schemes which can enable mode shift towards sustainable travel from car travel, such as Workplace Parking Levy, and these will be supported by the Integrated Bus Lanes scheme.

Local Plan allocations show there to be a significant amount of proposed development along the A40 Corridor, which need to be considered in conjunction with suitable transport schemes and mitigation. For example, the emerging planning documents related to the Salt Cross Garden Village highlight the importance of sustainable transport along the A40 Corridor and create a need for the Integrated Bus Lanes

¹¹ https://eynsham-pc.gov.uk/variable/organisation/173/attachments/Eynsham-Neighbourhood-Plan-2018-2031-Referendum_FINAL.pdf

scheme to be taken forward. The Integrated Bus Lanes scheme will support sustainable transport provision for the Salt Cross Garden Village from the outset to avoid a reliance on private cars.

Overall, across the local, regional and national policies considered there is expected to be strong support for the Integrated Bus Lane scheme as it will help achieve many of these policies.

3 Current and Future: Context and Conditions

3.1 Introduction

- 3.1.1 This chapter of the report provides a summary of key contextual factors influencing the local area and a review of the current and forecast conditions. It reviews the existing data and previous work conducted in order to identify key challenges in the study area, which would help develop the scheme objectives and, subsequently, a suitable scheme to meet those objectives. The scheme objectives (see Chapter 4) will be critical in later stages to assess and sift options, as well as becoming a key component against which the final proposed solution will be appraised and, following implementation, evaluated.
- 3.1.2 **Error! Reference source not found.** lists the existing studies, strategies and data that have been used to understand the local context. Given the significant amount of work already undertaken to understand and assess current and future issues in the area, as well as potential solutions, only a summary of the most pertinent points are presented in this chapter.

3.2 Geographic Context

- 3.2.1 West Oxfordshire is one of the five districts which make up the county of Oxfordshire. Its largest settlement is Witney but other significant centres in the district include Carterton and Chipping Norton. The district spans the area between the Oxford Green Belt and the Cotswolds Area of Outstanding Natural Beauty. Its southern boundary is marked by the River Thames and a number of the Thames' major tributaries (e.g. the Glyme, Windrush and Evenlode) flow through the district (as shown in Figure 1-1 in Chapter 1).
- 3.2.2 The A40 forms a major east-west route across the south of the 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 and Carterton as well as the smaller settlements of Eynsham and Burford. The A40 is also signed as the advisory route for lorry traffic between Oxford and Eynsham to encourage these vehicles to avoid the Air Quality Management Area in Chipping Norton (located to the north of Witney on the A44).
- 3.2.3 The A40 forms the most direct transport link between Oxford and Witney although there are less suitable alternatives using A4095/A44 and A415/B4449/B4044; the A4095/A44 also forms an alternative route for bypassing the A40 and Oxford and accessing the M40 for longer distance traffic. The B4044 passes over the Swinford Toll Bridge (charge of 5p per car in each direction) which has limited capacity and is subject to queues at peak hours; the A4095 passes through the centre of Witney where there are long-standing capacity and environmental issues. Currently nearly all public transport connections between Oxford and Witney also use the A40, at least on the section between Witney and Eynsham. Some vehicle traffic between Carterton and Oxford travels via Bampton (B4449/A415) to the A420 to avoid the A40.

3.3 Current Conditions

- 3.3.1 As part of the initial stage of option development, it is important to understand the current and future context and conditions in the study area, including the main issues and the proposals that have been put forward in recent years to address these.
- 3.3.2 The local context and, where appropriate, current and future trends for the following are discussed in this section:
- Socio-economic context;
 - Existing highways and public transport infrastructure;
 - Cycle routes and public rights of way;
 - Travel patterns and modal share;
 - Collisions;
 - Traffic flows and congestion issues; and
 - Environment.

Socio-economic Context

- 3.3.3 Selected socio-economic indicators are presented in Table 3-1. West Oxfordshire has a population of 110,600, constituting approximately 16% of Oxfordshire's population.
- 3.3.4 The district has higher levels of employment compared to the averages in Oxford, Oxfordshire, the South East and England. The ratio of jobs to population is 0.86, which is comparable to the region and England as a whole, while being significantly lower than the employment opportunities provided in Oxford. This indicates a requirement for out-commuting to the regional centre or further afield for residents in the district, thus transport infrastructure schemes (such as Integrated Bus Lanes) could help improve accessibility and agglomeration benefits.
- 3.3.5 While the proportion of the population with qualifications at NVQ4 and above is slightly lower than the average in Oxford, it is higher than the averages in the county, the South East region, and England.
- 3.3.6 Weekly pay in West Oxfordshire is approximately 8% higher than the England average. However, house prices are approximately 28% higher than the England average, although lower than the county average.

Table 3-1 Socio-economic Metrics

Metrics		West Oxfordshire	Oxford	Oxfordshire	South East	England
Population (2019)	All people (2019)	110,600	152,500	691,700	9,180,100	56,287,000
	Population aged 16 – 64	59.8%	69.6%	62.5%	61.2%	62.4%
	Qualifications at NVQ4 and above	53.7%	57.9%	50.9%	43.4%	40.0%
Employment (Jul 2019 – June 2020)	Economically active – in employment	79.8%	79.5%	82.5%	79.3%	76.2%
	Economically active – unemployed	2.8%	3.3%	2.5%	3.4%	4%
	Economic inactivity*	17.7%	16.5%	15.2%	17.8%	20.5%
	Part time proportion	34.8%	33.1%	32.3%	33.2%	32%
Job Density (2018)	Ratio jobs: population aged 16-64	0.86	1.33	0.67	0.88	0.87
Employee Jobs (2019)	The 2 largest employment sectors	15.2%	28.9%	15.7%	16.4%	15.4%
		Wholesale And Retail Trade; Repair Of Motor Vehicles And Motorcycles	Education		Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	
		10.9%	17.4%	14.6%	12.8%	12.8%
		Manufacturing; Accommodation and Food Service Activities	Human Health and Social Work Activities	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	Human Health and Social Work Activities	
Gross Weekly Pay (by residence) 2020	Full-Time Workers	£632.10	£666.60	£662.00	£631.80	£589.80
	Ratio compared to England	1.07	1.13	1.12	1.07	1.00
House Prices	Average House Price (Dec. 2020)**	£289,676	£391,738	£309,142	£271,016	£224,650
	Ratio compared to England	1.29	1.74	1.38	1.21	1.00

Source: NOMIS, unless stated otherwise

*Student, Looking after family/home, Temporary sick, Long-term sick, Discouraged, Retired, Other

**UK House Price Index: Average price for first-time buyers

- 3.3.7 Figure 3-1 shows the indices of Multiple Deprivation at a Lower Layer Super Output Area (LSOA) around the A40 corridor. Generally, the A40 corridor bypasses areas that would not be considered either the most or least deprived areas in the country. However, the A40 corridor does connect some of the least deprived neighbourhoods nationally, such as neighbourhoods within the wards of Witney East in Witney; Eynsham and Cassington in Eynsham; and Wolvercote and Summertown in Oxford. Similarly, the A40 corridor also connects some of the most deprived neighbourhoods, such as neighbourhoods within the wards of Northfield Brook and Carfax in Oxford. A range of domains are driving this deprivation, such as crime, health, and education.

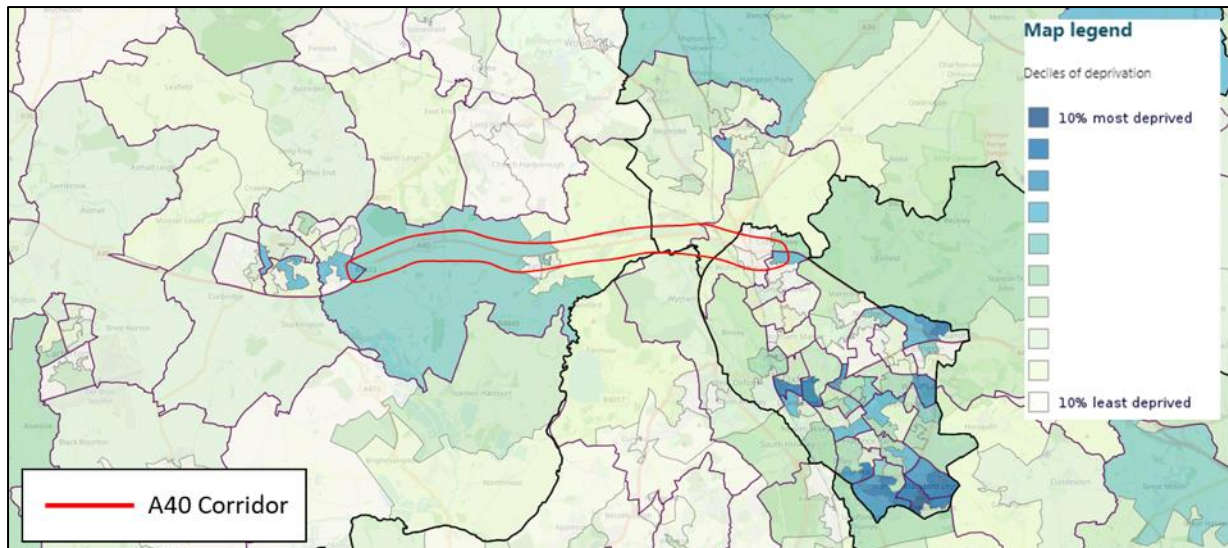


Figure 3-1 Indices of Multiple Deprivation

Source: Ministry of Housing, Communities & Local Government (2019)

Existing Highways and Public Transport Infrastructure

3.3.8 Figure 3-2 shows the road network in the area around the A40 corridor. The A40 is an important long-distance route linking central and south east England with the west of England and south and west Wales. It is also the main arterial route in West Oxfordshire linking the growing towns of Witney and Carterton with Oxford and the wider country. The A40 corridor connects with several B roads that provide alternative routes between the towns and villages in West Oxfordshire, such as the B4044 between Eynsham and Oxford.

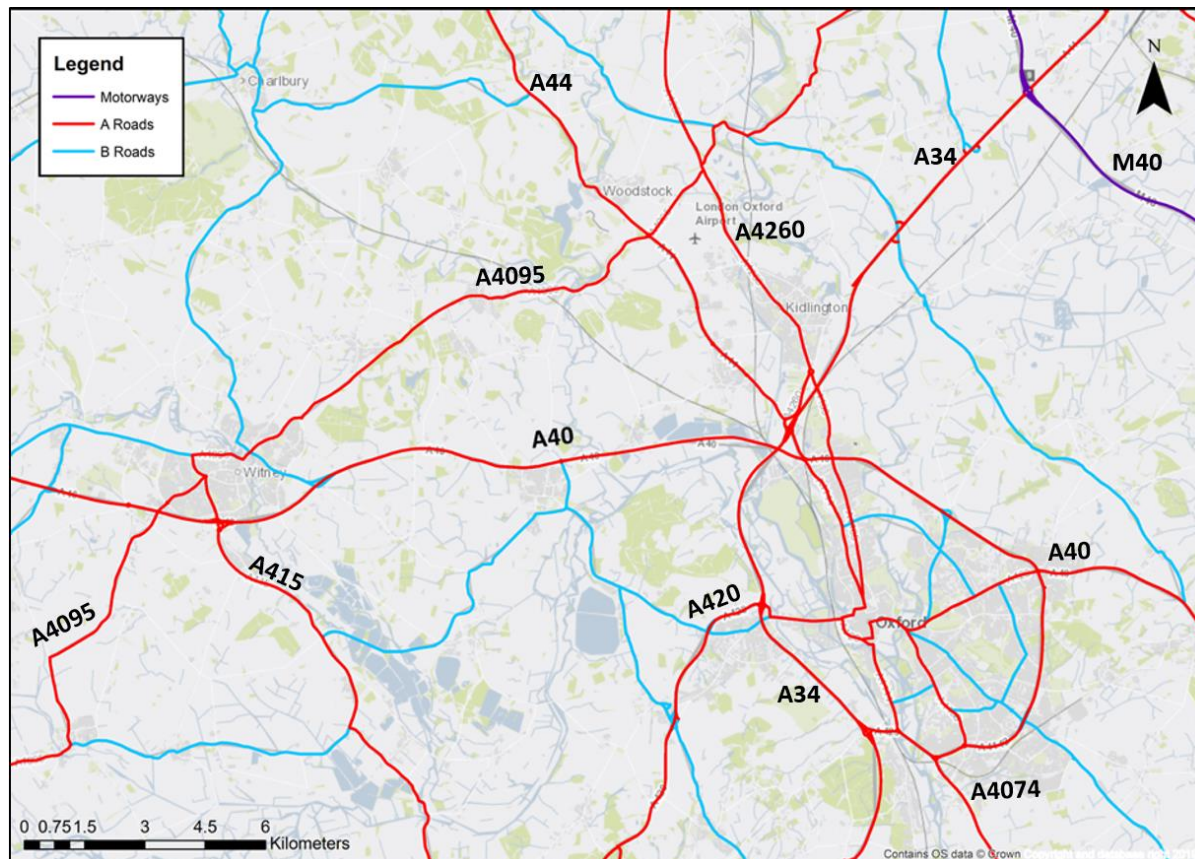


Figure 3-2 Road Network

Source: AECOM © Crown copyright and database right 2020

3.3.9 Table 3-2 outlines the characteristics of the A40 between Witney and Duke's Cut, and the surrounding road network, including details of carriageways and footways.

Table 3-2 Information on Local Road Network

Road	Speed Limit (mph)	Single/Dual	Footways/Cycle
A40	National Speed Limit (60mph)	Single (section between Witney Shores Green and Hill Farm is Dual)	Both sides of carriageway from Eynsham to Duke's Cut.
Lower Road	National Speed Limit (60mph)	Single	No existing footways
Cuckoo Lane	National Speed Limit (60mph)	Single	No existing footways
A4095	Varies Along Route	Single	Varies along route but generally provided in villages
Witney Road	30mph	Single	Both sides of carriageway
B4449	50mph	Single	No existing footways on northern section, one footway on southern link
B4044	50mph (30mph at Swinford Toll Road, and 40mph at Farmoor)	Single	Generally provided on one side

Source: Oxfordshire Cotswolds Garden Village Transport Assessment (Stantec, 2020)

- 3.3.10 The regional rail network is demonstrated in Figure 3-3. Several rail stations are in the vicinity of the A40 corridor, all with services connecting to Oxford. The Oxford – London service operated by Chiltern Railways connects Oxford, Oxford Parkway, and (as a limited stop) Islip with London Marylebone. Using this service, it takes around 1 hour 10 minutes to travel from Oxford to London Marylebone during weekday morning peaks. CrossCountry runs a service between Bournemouth and Manchester that stops at Oxford station. Great Western Railways also serves stations in the area, specifically Oxford, Hanborough, and Combe. Using the GWR routes, these stations can be connected with Hereford, Reading and London Paddington, among other locations. During weekday morning peaks, it takes around an hour to travel between Oxford and London Paddington.
- 3.3.11 As part of the Salt Cross Garden Village AAP, it is identified that Hanborough Station is the closest to the Garden Village, and therefore the opportunity is presented to encourage modal shift and increase use of the station through provision of active travel links. There is a vision for Hanborough Station which 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. This could increase the number of trains to four per hour, with a train every 30 minutes to London and Worcester.

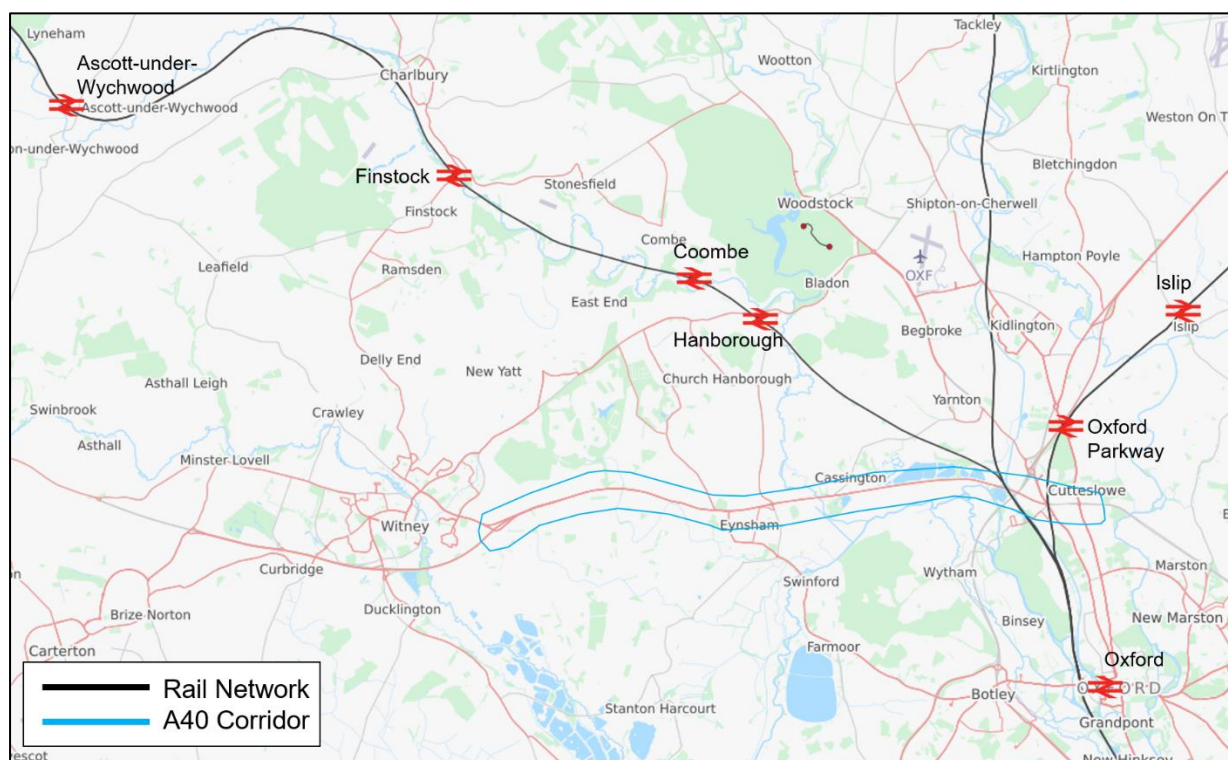


Figure 3-3 Rail Network along the A40 Corridor

Source: OpenStreetMap (2020)

- 3.3.12 Bus services along the A40 Corridor are shown in Figure 3-4. The Witney – Oxford corridor is served by three main bus services:
- S1/NS1 - which runs between Oxford, Witney and Carterton via Botley, Farmoor, Eynsham (village) and Curbridge (4 buses per hour through the day with additional services running in peak hours plus out of peak and night services);
 - S2/NS2 which runs between Oxford and Witney & Carterton via Wolvercote, Cassington, Eynsham (A40) and Minster Lovell (2 buses per hour through the day plus out of peak and night services);
 - H2 (formerly the S7) which runs between Oxford, Witney and Carterton via Oxford Brookes University, John Radcliffe Hospital, Summertown and Eynsham (1 bus per hour Monday to Saturday, with a limited service on Sunday); and
 - 11 which runs between Oxford and Witney via Botley, Farmoor, Eynsham (village), Long Hanborough, Freeland and North Leigh (1 bus per hour between 0600 and 1800).

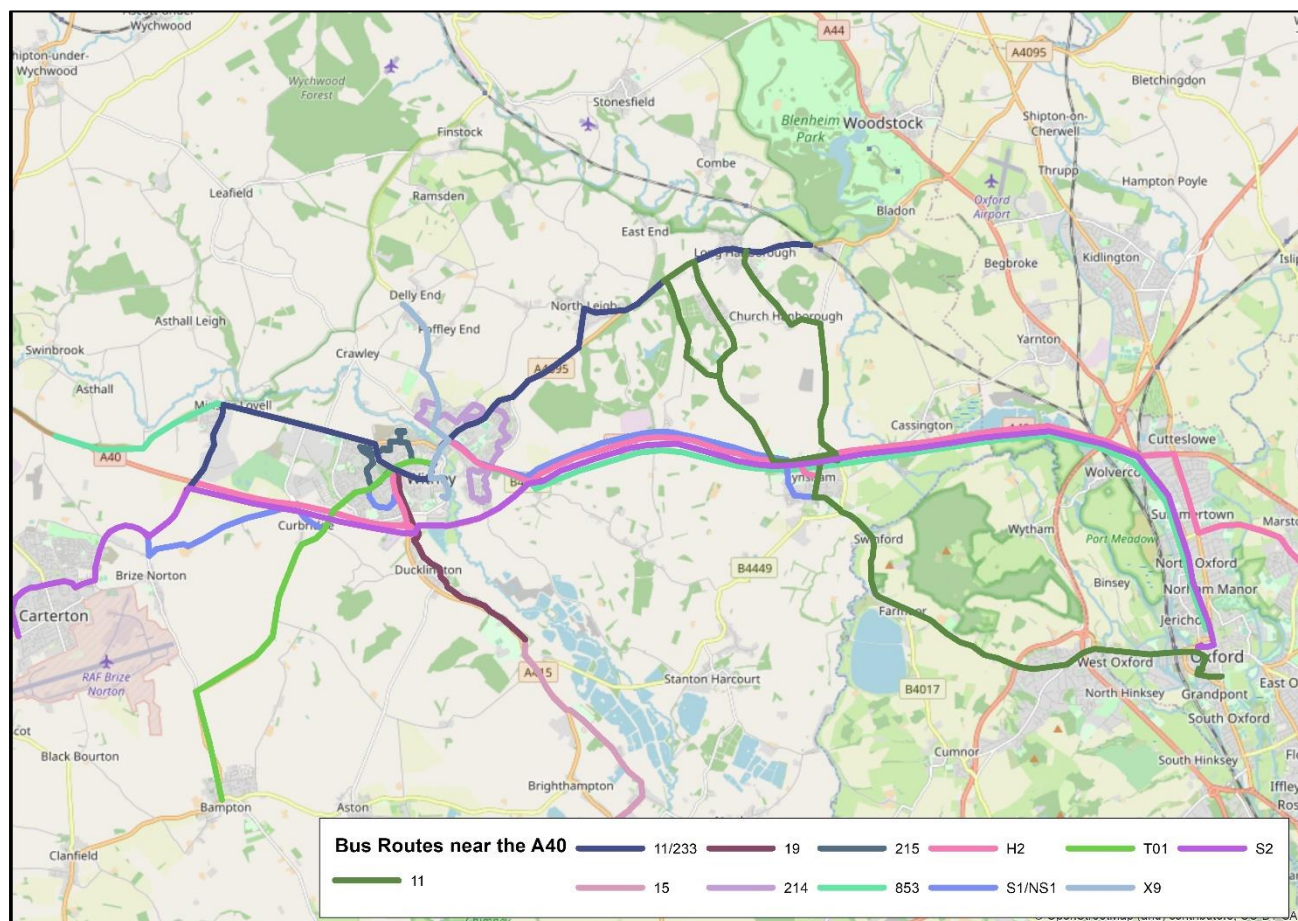


Figure 3-4 Bus Network along the A40 Corridor

Source: AECOM analysis based on OpenStreetMap (2020)

- 3.3.13 The 853 bus route provides a long-distance service along the A40 between Cheltenham and Oxford. This service is infrequent, running four times a day Monday – Saturday, and takes approximately 1 hour 45 minutes across the entire route or around 40 minutes between Witney and Oxford.
- 3.3.14 In addition, the S7 runs a limited, out of peak hours only service between Witney and the John Radcliffe Hospital in Headington along the A40. Discussions with Stagecoach have suggested that they are unable to run services during the peak because of concerns around operating to a reliable timetable during these hours¹². A transport scheme (such as the Integrated Bus Lanes and others) should help improve journey time along the A40 and further, and should lead to an increase in bus patronage and modal shift.
- 3.3.15 The existing bus infrastructure varies along the A40 corridor. At present, there is no bus lane provision along the A40 Corridor. Along the A40 corridor there are six bus stops, three in each direction. Both the Cassington Turn and Evenlode bus stops (both directions) have a bus shelter and a bus flag and are situated in a layby. The A40 Slip Road bus stops (Witney) provide a layby and a bus flag, but no bus shelter. Not all of the bus stops provide step-free access (with the use of Kassel kerbs).
- 3.3.16 Currently, the S1/NS1, S2/NS2 and S7 are both run by luxury Gold double-decker buses which includes Wi-Fi on board, extra legroom and leather seats. The 11 service is operated by a single decker bus service.

Pedestrian and Cycle Infrastructure Provision and Use

- 3.3.17 Active travel infrastructure is available along most of the A40 corridor. A landscaped safety strip is provided on the carriageway verge which separates the carriageway from the footway/ shared path (Figure 3-5 and Figure 3-6). A footway/cycleway is available on the northern side of the A40 between Witney and Eynsham, and on both sides of the A40 between Eynsham and Oxford. From Shores Green to Cuckoo Lane the shared use path is between 1m - 1.5m in width, reducing to under 1m through Eynsham. From Cassington to Duke's Cut the shared use path is 1m wide.
- 3.3.18 An uncontrolled staggered crossing with dropped kerbs, tactile paving and a central refuge island with railings, is located adjacent to the Tesco Express / Petrol Filling Station, and an informal uncontrolled crossing with dropped kerbs is located approximately 300m to the west of Eynsham Roundabout. Further, a staggered signalised crossing is located on the eastern arm of the A40 / Witney Road signalised junction. The active travel infrastructure, as part of the Integrated Bus Lanes scheme, should help expand this network and provide additional safer crossing points along the A40.

¹² A40 Science Transit Phase 2 – Option Assessment Report (OCC, 2017)

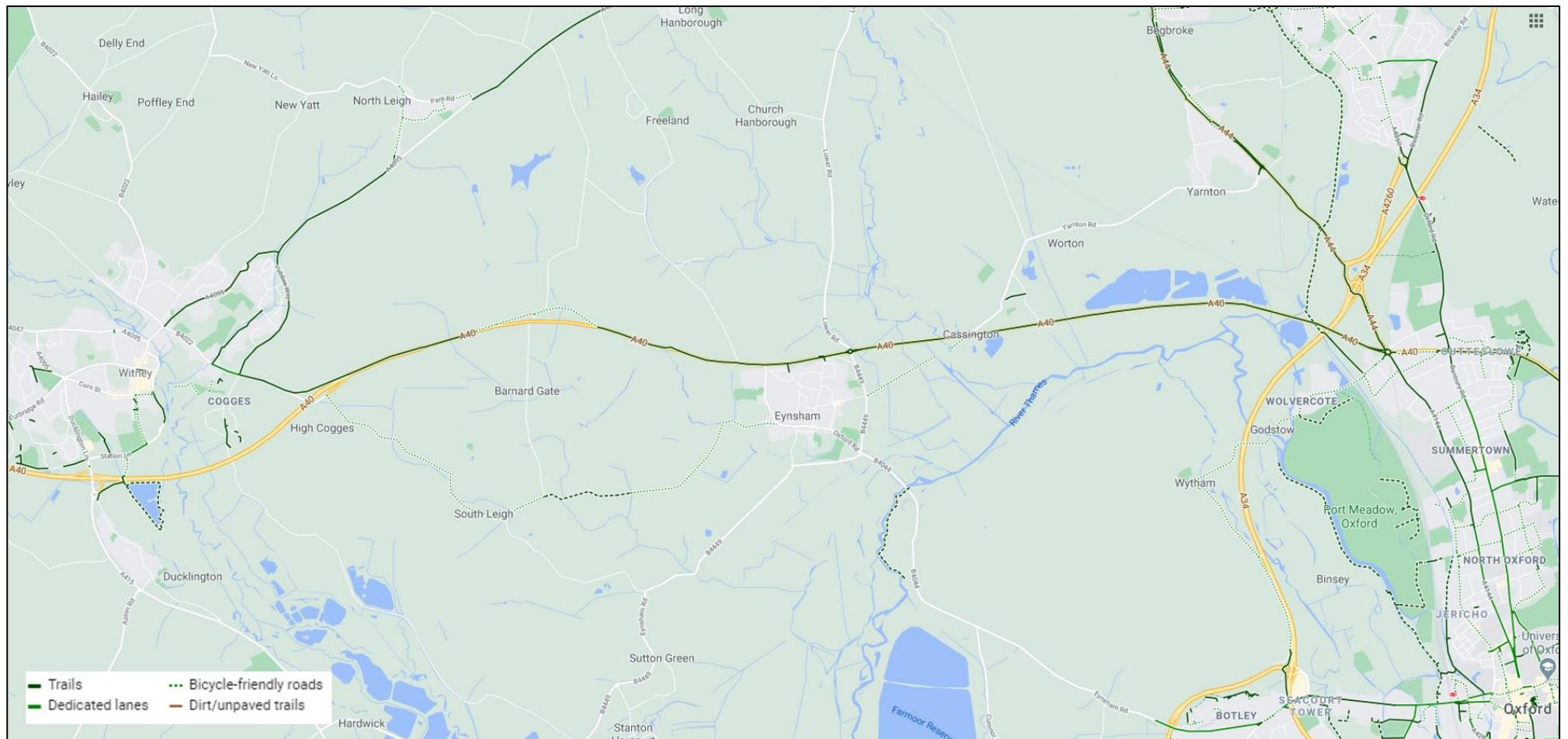


Figure 3-5 Cycle Infrastructure on the A40 Corridor

Source: Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google



Figure 3-6 A40 Footway/Cycleway between Eynsham and Cassington

Source: Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google

- 3.3.19 In the OCC A40 Corridor – Witney to Oxford North Future Walking and Cycling Provision (June 2020) report an assessment of the existing and future active travel network and volumes along the A40 was undertaken. Figure 3-7 and Figure 3-8 show the typical weekday 24-hour two-way flows for pedestrian and cyclists respectively. This data was collected in November 2017, as AECOM reviewed camera surveys undertaken from Sunday 19th November 2017 to Saturday 25th November 2017. Figure 3-7 shows that use of the paths alongside the A40 varies depending on location, with the sections of the path near to Eynsham and Cassington having higher footfall than more rural sections. In Eynsham, it appears pedestrians use the A40 to access the bus stops near the Evenlode pub. Similarly, in Cassington there are higher pedestrian flows near bus stops on the A40. In many rural locations there are no crossing facilities available for pedestrians in the vicinity of bus stops.
- 3.3.20 Figure 3-8 suggests that from west to east between Eynsham and Cassington, the number of cyclists using the A40 doubles as volumes join at Cassington Road. This is likely the eastern end of the corridor is closer to Oxford and therefore a shorter cycle ride. In Eynsham some cyclists were observed travelling westbound towards Witney.

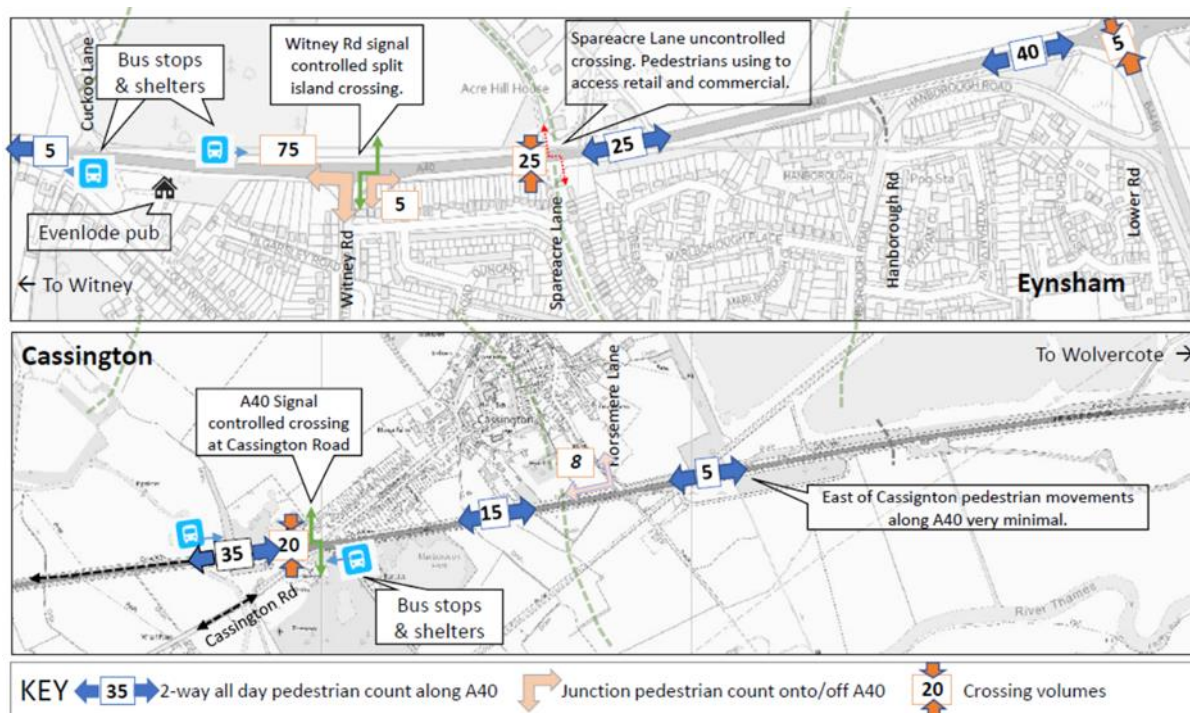


Figure 3-7 Typical Weekday 24hr 2-Way A40 Pedestrian Count

Source: A40 Corridor – Witney to Oxford North Future Walking and Cycling Provision



Figure 3-8 Typical Weekday 24hr 2-Way A40 Cyclist Count

Source: A40 Corridor – Witney to Oxford North Future Walking and Cycling Provision

- 3.3.21 Figure 3-9 below shows the weekday cycle totals on the A40 shared use path, split by whether the north side or south side path was used.
- 3.3.22 Figure 3-9 shows that 75% of cycle traffic between Cassington Road and Duke's Cut uses the South Side path, and this increases to over 85% for only westbound flows. West of Witney Road there is no south side path. Between Witney Road and Lower Road there is a balance in the use of north and south side pathways, and these are used by both pedestrians and cyclists.

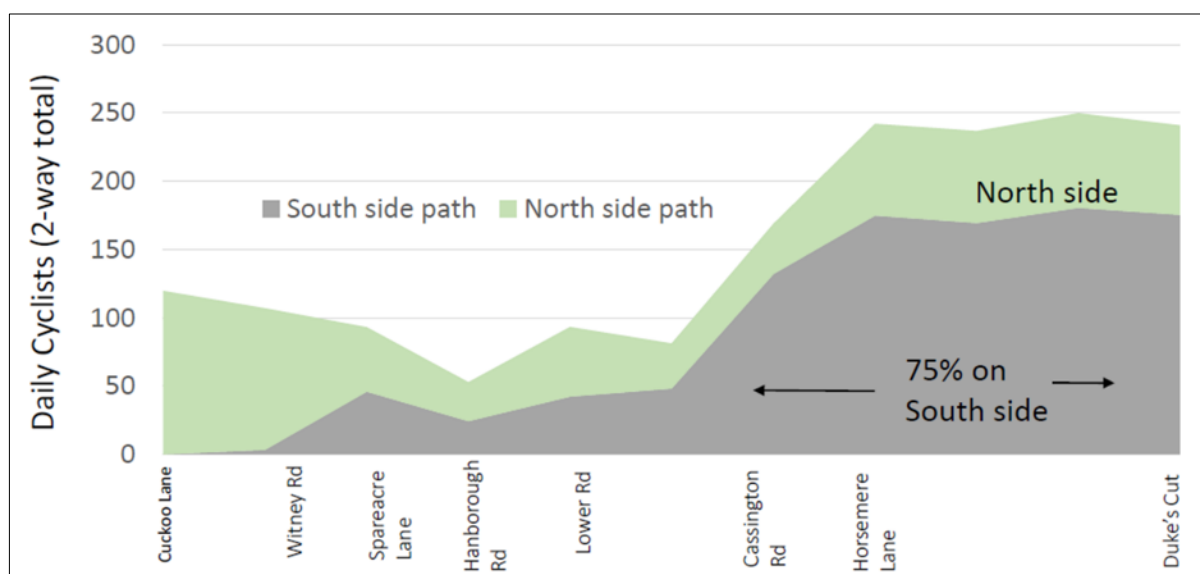


Figure 3-9 Weekday Cycle Totals at Count Points (counts as of November 2017)

Source: A40 Corridor – Witney to Oxford North Future Walking and Cycling Provision

3.3.23 Figure 3-10 shows the hourly cycle flow by direction along the A40. This shows there is a tidal flow of cyclists along the A40, with the predominant flow in the morning peak eastbound towards Oxford and the predominant flow in the evening peak being westbound towards Witney. In addition, this shows there are increased levels of cycling in June when the weather is warmer and clearer, and there is increased daylight.

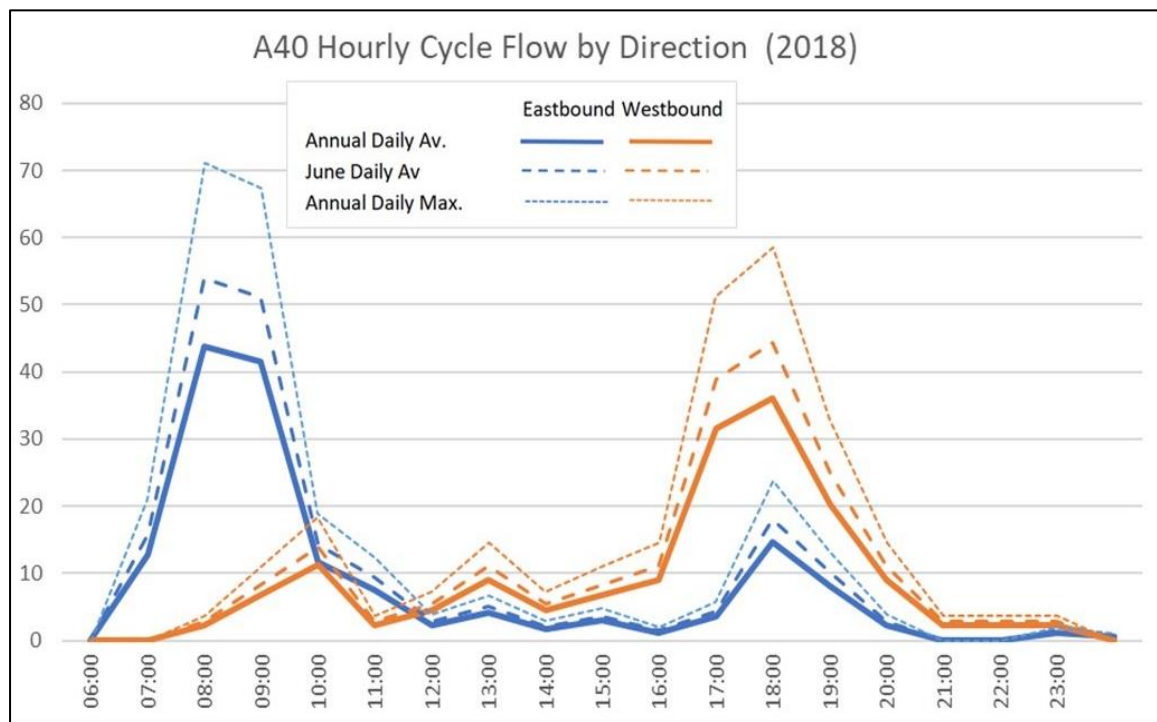


Figure 3-10 A40 Hourly Cycle Flow by Direction (2018)

Source: OCC

3.3.24 Figure 3-11 shows the recorded daily cycle flow on the A40 East of Cassington, towards Oxford between 2005 – 2018. Over this period, the number of cyclists along the A40 have increased significantly, more than doubling. This shows that in 2018 whilst the average number of cyclists per day was 278, this increased to 364 in June, and the highest daily maximum being 461 cyclists. This shows there is potential to further increase the number of cyclists using the A40, given the current usage levels.

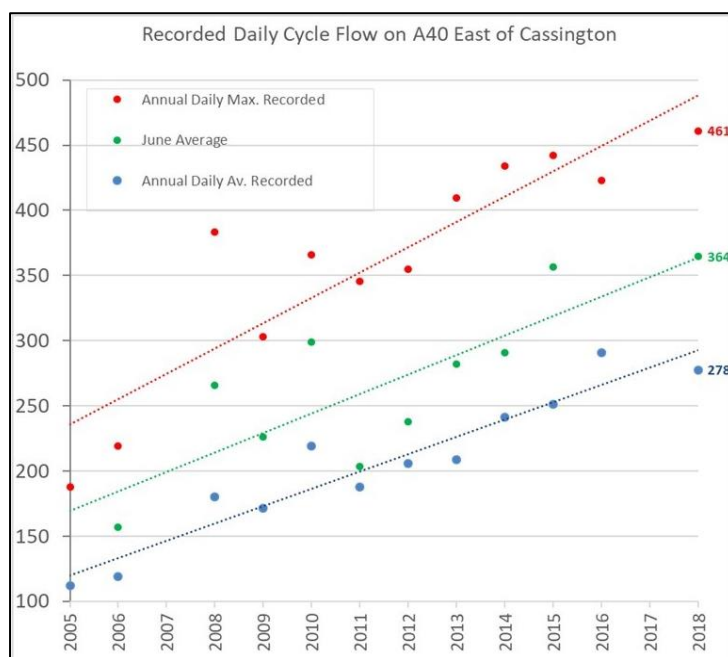


Figure 3-11 Recorded Daily Cycle Flow on A40 East of Cassington

Source: OCC

3.3.25 Figure 3-12 shows the distribution of weekday cycling by time of day. This shows that there is a highly peaked pattern aligned to the weekday commuter peak periods. The dominant movement in the AM peak is eastbound (towards Oxford), and in the PM peak the dominant movement is westbound (away from Oxford).

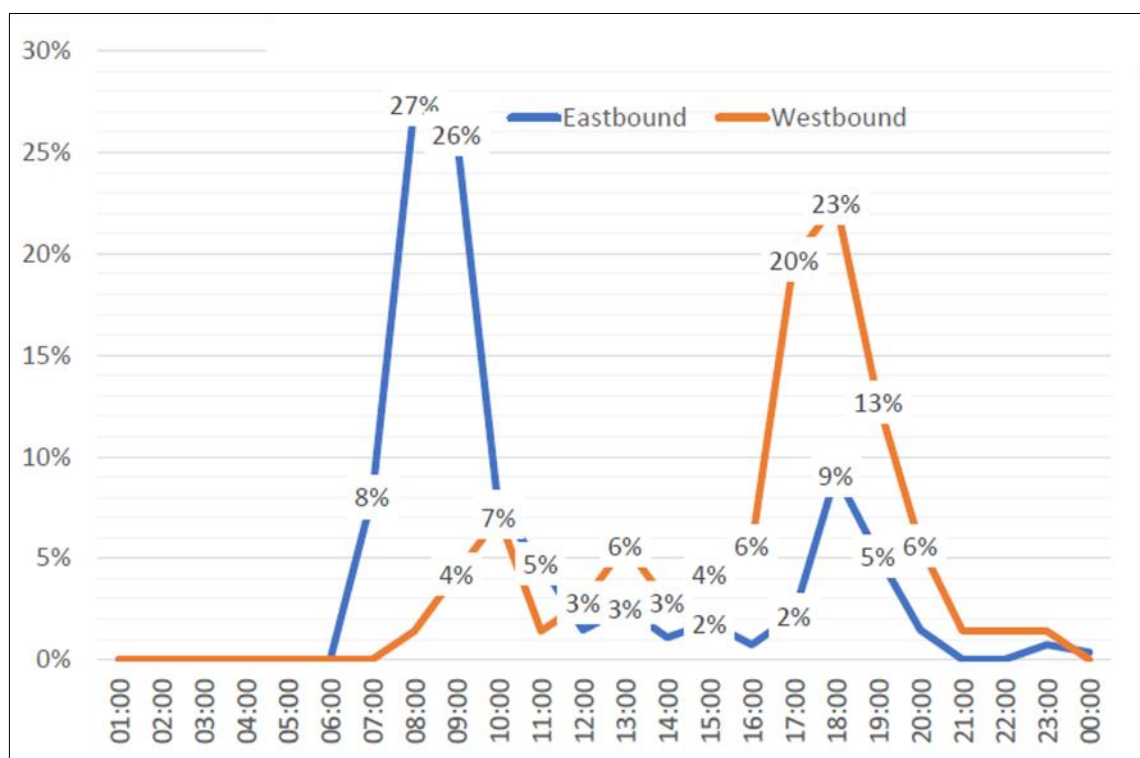


Figure 3-12 Distribution of Cycle Flow by Time of Day

Source: A40 Corridor – Witney to Oxford North Future Walking and Cycling Provision

3.3.26 The Propensity to Cycle Tool (PCT) has been used to demonstrate cycling commuting demand in the area. It should be noted that the tool is based on 2011 Census data. Figure 3-13 shows the PCT estimate of cyclist flows on the A40 align well with the observed cycle count data as discussed above.

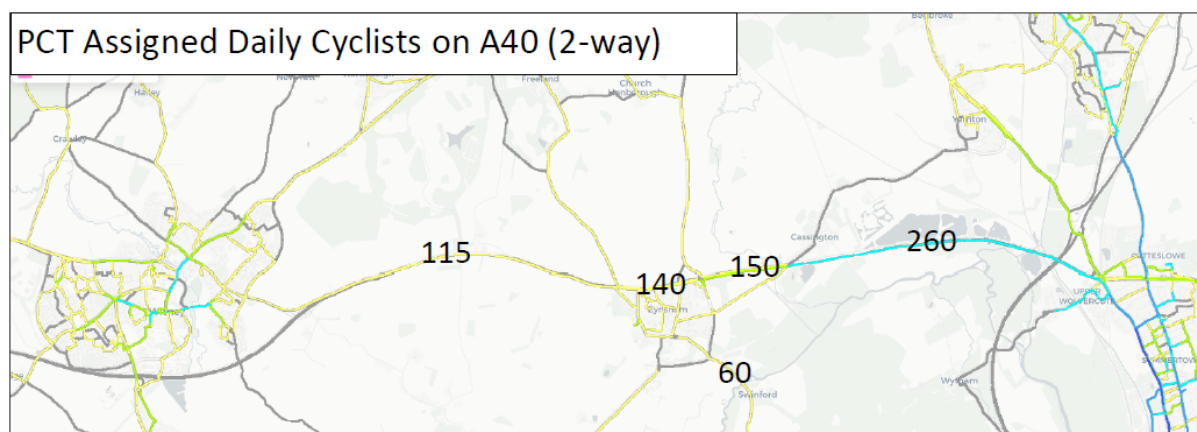


Figure 3-13 PCT Assigned Daily Cyclists on A40 (two-way), 2019

Source: A40 Corridor – Witney to Oxford North Future Walking and Cycling Provision

- 3.3.27 As seen in Figure 3-14, the PCT at a LSOA level indicates that there is limited cycling commuting demand along the A40 corridor and in Witney (4-6%), whereas the general Oxford area shows significantly higher levels of demand, ranging between 15-29%. The figure also shows the location of strategic housing allocations, highlighting the potential to increase the percentage of commuters cycling to work across the A40 Corridor. It is to be noted that the PCT provides an indicative O-D pattern of commuting trips only and it doesn't include non-commuting trips such as leisure trips.

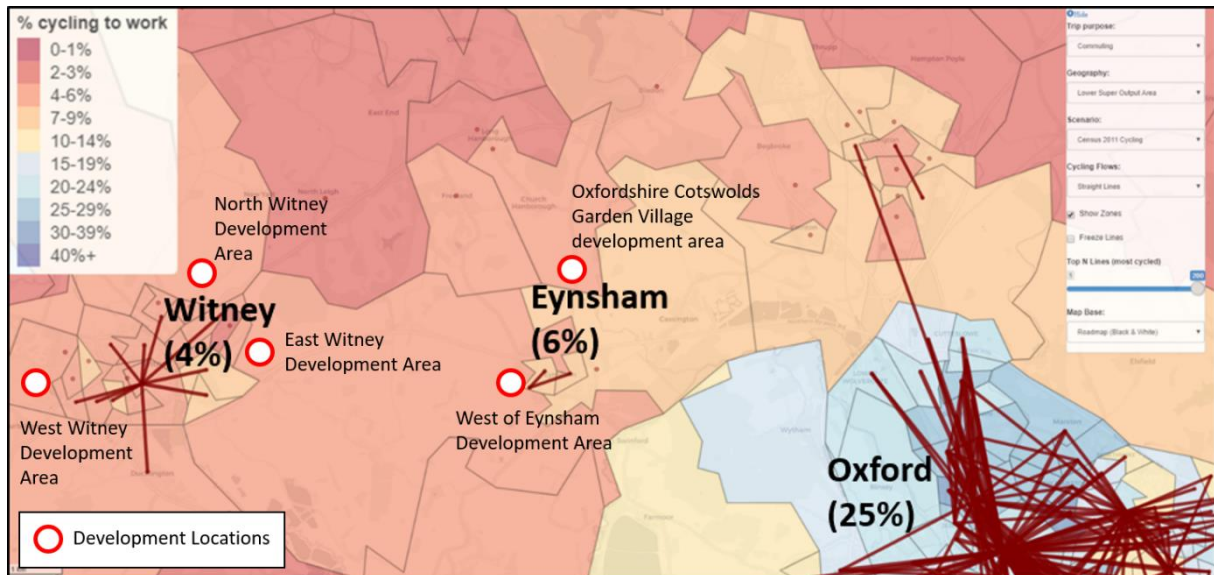


Figure 3-14 Census 2011 Cycle to Work Demand (LSOA Level)

Source: Propensity to Cycle Tool

- 3.3.28 The PCT has been used to demonstrate the high cycle demand under different scenarios. Figure 3-15 demonstrates the potential cycle demand in the area around the A40 corridor in the “Go Dutch” scenario; the propensity to cycle if the area had the same infrastructure and cycling culture as the Netherlands (but retained its hilliness and commute distance patterns)¹³. Cycle commuting demand significantly increases in the area, now at around 15-29%, although there are still no O-D desire lines along the A40 corridor as there were none in the baseline. It is possible that the distance between the urban centres along the A40 corridor, such as between Witney and Oxford (around 18km), is a deterrent (according to Google Maps travel planner, it would take around 45 minutes to cycle between Witney and Duke’s Cut using the A40). The substantial housing proposed along the A40 corridor (as discussed in previous sections) will generate new cycling trips along sections of the A40 corridor (such as from new development at Eynsham and Witney to Oxford).

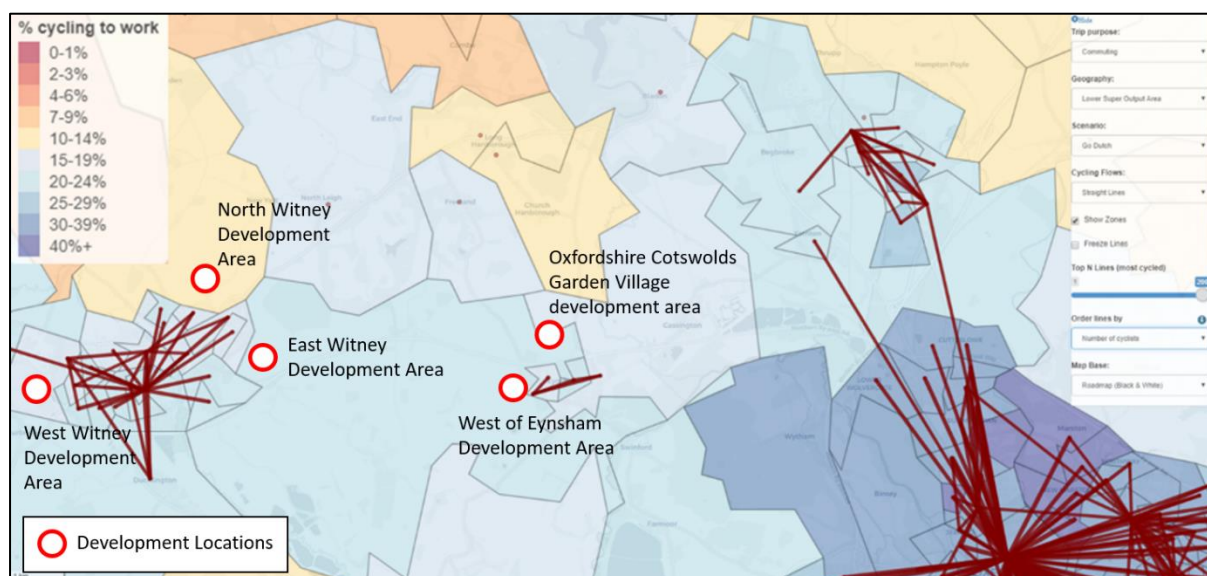


Figure 3-15 Potential Cycle to Work Demand: Go Dutch Scenario (LSOA Level)

Source: Propensity to Cycle Tool

¹³ Lovelace, R., Goodman, A., Aldred, R., Berkoff, N., Abbas, A. and Woodcock, J. (2016). The Propensity to Cycle Tool: An Open Source Online System for Sustainable Transport Planning. *Journal of Transport and Land Use*, 10(1). Center for Transportation Studies. Available at: <https://arxiv.org/abs/1509.04425>

- 3.3.29 There are a number of public rights of way routes in the area, including the promoted route running south of the A40 corridor and connecting Oxford, Wytham, Swindon, Eynsham, and South Leigh (Figure 3-16). Footpaths connect Witney with High Cogges, providing crossing over the A40 via the Stanton Harcourt Rd bridge. Footpaths also connect South Leigh with the A40 at Hill Farm. In Eynsham, there are two promoted crossings over the A40: one uncontrolled crossing with a protected island just west of Tesco Express; and one uncontrolled crossing with no pedestrian facilities about 350 metres west of Eynsham Roundabout. There are no controlled crossings along this stretch of the A40. As part of the Integrated Bus Lanes scheme, new shared use paths are proposed alongside the A40, set back from the road. The addition of these routes will create a more comprehensive network of walking and cycling routes along the A40 Corridor and therefore should encourage greater use of active travel.

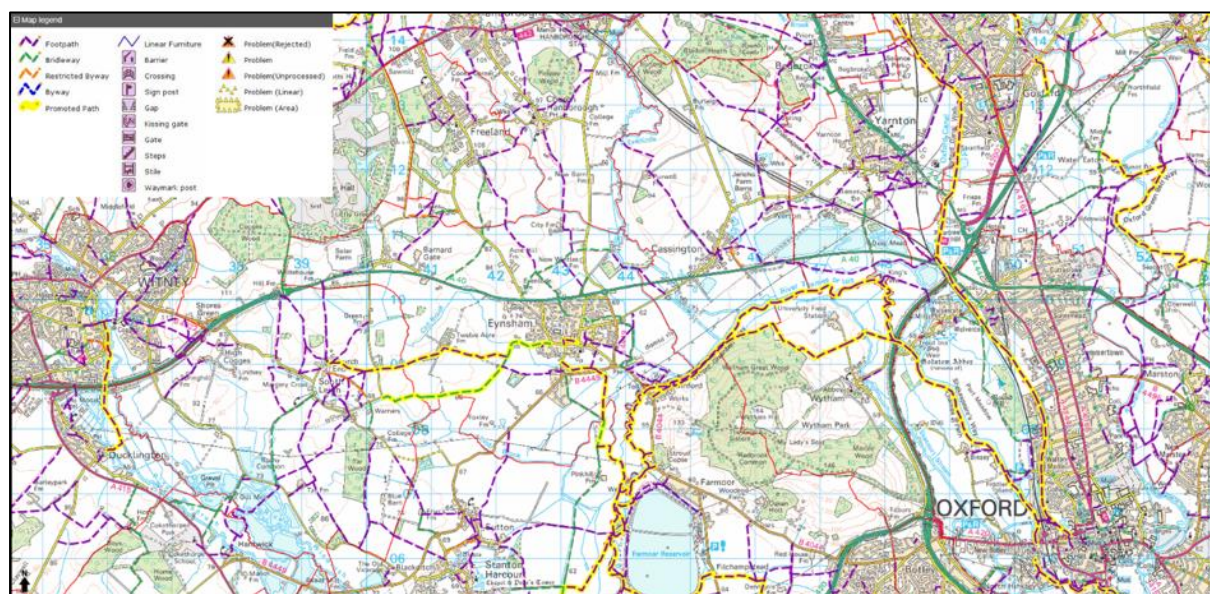


Figure 3-16 Public Rights of Way

Source: OCC (2020)¹⁴

Travel/ Traffic Patterns and Modal Share

- 3.3.30 Table 3-3 shows the modal share of commuting trips in Oxfordshire and West Oxfordshire from the 2011 Census. This analysis highlights that West Oxfordshire has almost 10% more residents driving to work than in comparison to Oxfordshire as a whole. Furthermore, in West Oxfordshire fewer people use the bus to get to work, with 4.3% of people using the bus in West Oxfordshire compared to 7.1% in Oxfordshire. Similarly, fewer people cycle to work in West Oxfordshire (4.1%) compared to Oxfordshire (7.1%).
- 3.3.31 The existing mode share split of West Oxfordshire therefore provides an opportunity for the A40 Corridor Improvements including the Integrated Bus Lanes scheme to significantly change travel behaviour in the district and along the A40 Corridor. Considering bus usage in West Oxfordshire is lower than across the county, there is potential to encourage greater bus usage through offering a significantly improved bus experience with additional bus services and greater journey time reliability. In addition, considering the large proportion of residents which drive to work, the scheme also has the potential to improve journey times and reduce congestion and queueing, benefitting those who have no choice but to drive and not just existing bus users.

Table 3-3 Modal Share of Commuting Trips in Oxfordshire and West Oxfordshire

Method of travel to work	Oxfordshire	West Oxfordshire
Work mainly at or from home ¹⁵	7.2%	8.0%
Train	3.0%	1.9%
Bus, minibus or coach	7.1%	4.3%
Taxi	0.3%	0.1%
Motorcycle, scooter or moped	0.9%	0.8%
Car	61.6%	70.0%
Bicycle	7.1%	4.1%
On foot	12.3%	10.3%
Other method of travel to work	0.6%	0.5%

Source: Census 2011

¹⁴ OCC Countryside Access Map: <https://publicrightsofway.oxfordshire.gov.uk/Web/standardmap.aspx>

¹⁵ Usually this is not included, however considering the current COVID-19 impacts it is shown here to provide a context.

- 3.3.32 Based on 2011 Census data, 41% of car commuters (about 9,000 people) from the southern wards of West Oxfordshire are going to destinations which will or could use the section of A40 between Witney and Oxford. Commuting to Oxford makes up 16% of all car commutes from these wards (3,600 people), as seen in Figure 3-17. Car commuters from West Oxfordshire to Oxford have destinations across the city, reflecting the city's employment patterns, with concentrations in the city centre, Headington and Cowley areas.
- 3.3.33 Commuters' journeys using bus and coach services from southern West Oxfordshire, as seen in Figure 3-18, are more locally focused with 56% (980 people) travelling to other parts of Oxfordshire and 60% (1,050 people) in total travelling to destinations which could involve travel along the A40 between Witney and Oxford. Commuting to Oxford makes up 52% of all bus commuting from these wards (900 people). Bus commuting to Oxford is concentrated in the city centre with lesser numbers in West Oxford and Headington, reflecting bus service destinations.

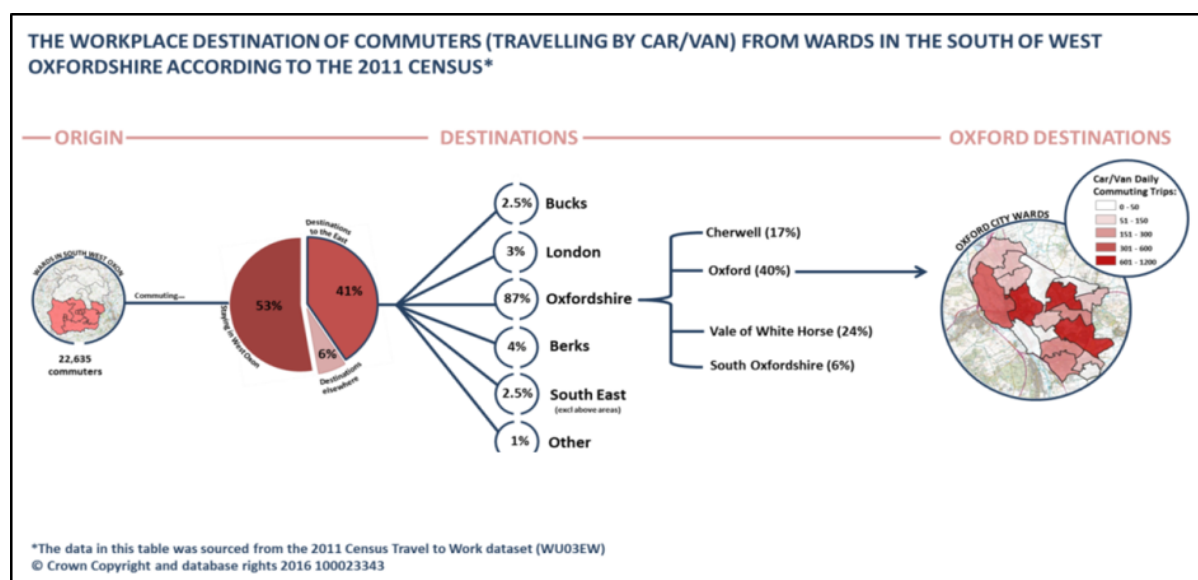


Figure 3-17 Car Commute Destinations of Southern West Oxfordshire Origins

Source: A40 Science Transit Phase 2 – Option Assessment Report (OCC, 2017); Census 2011 data

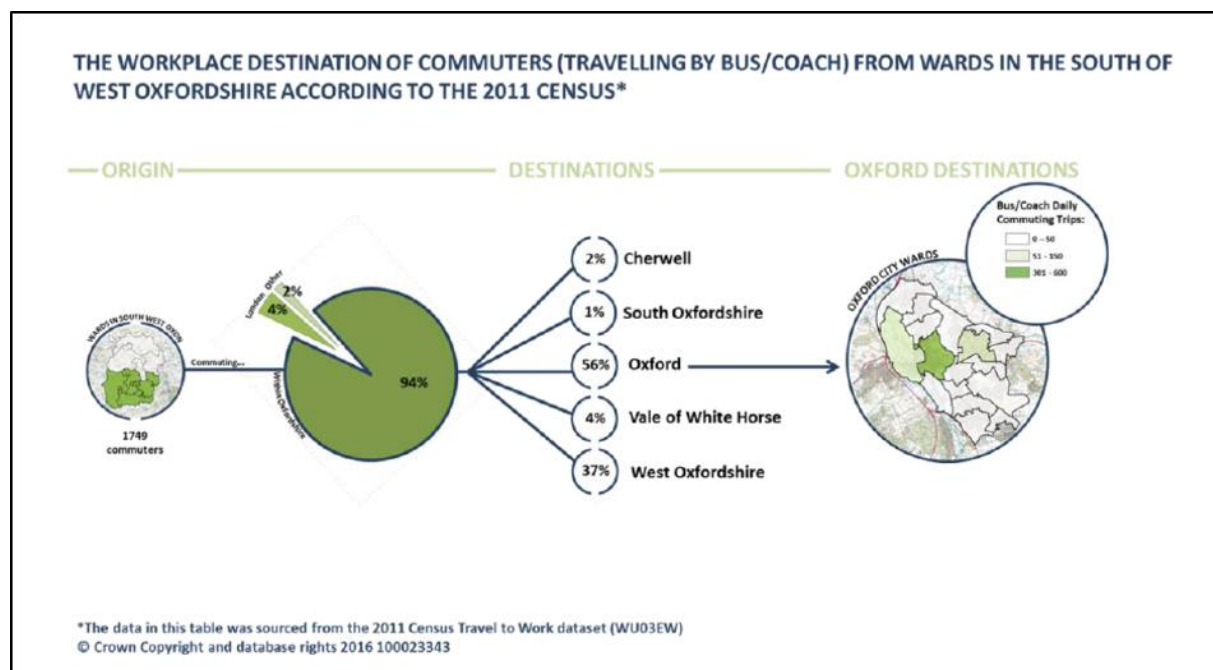


Figure 3-18 Bus Commute Destinations of Southern West Oxfordshire Origins

Source: A40 Science Transit Phase 2 – Option Assessment Report (OCC, 2017); Census 2011 data

- 3.3.34 ANPR surveys undertaken in February 2020 have been used to assess the travel patterns along the A40 corridor in the AM and PM peak periods. Figure 3-19 below shows the results of Site 1 which is located west of Eynsham. This shows that eastbound in the AM peak, 51% traffic from west of Witney continues along the A40 to Duke's Cut. At the Lower Road roundabout (Eynsham), 10% of vehicles turn off the A40 to travel north towards the A4095, A44, Bladon village and Hanborough station, and 15% travel south onto the B4449 which provides access to Eynsham as well as onwards connections towards Botley and Oxford. Further along at the Cassington signals, 9% bear left onto Eynsham Road into Cassington village.
- 3.3.35 Figure 3-20 shows that from the A40 near Wolvercote, 21% of trips travel south at the Wolvercote Roundabout along the A4144. A further 58% of traffic continues along the A40 towards Cutteslowe, with 26% continuing along the A40 to Wheatley. In addition to Figure 3-19 and Figure 3-20, semantic maps have been developed to show the travel pattern from ANPR data analysis (see Appendix J).
- 3.3.36 The recent ANPR surveys reaffirm that a significant number of trips originate or end in West Oxfordshire.
- Therefore, any intervention focused on the A40 from Witney to Oxford will benefit the residents of West Oxfordshire; specifically, the Integrated Bus Lane scheme will provide a more sustainable option for local trips and as a result, encourage a change in travel behaviour. This will provide benefits to the residents of West Oxfordshire such as improving travel times, reducing congestion and others.

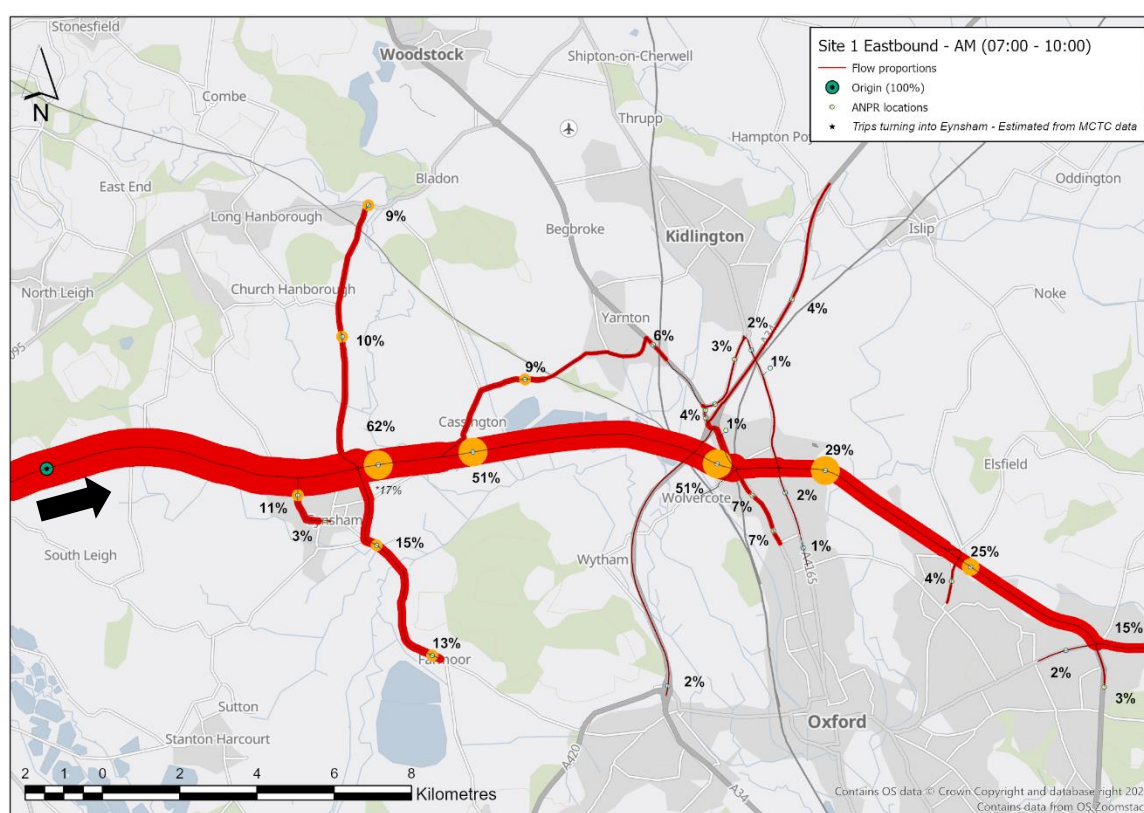


Figure 3-19 Traffic Patterns along the A40 from west of Eynsham – Eastbound in the AM peak period

Source: AECOM analysis based on ANPR surveys undertaken in February 2020.

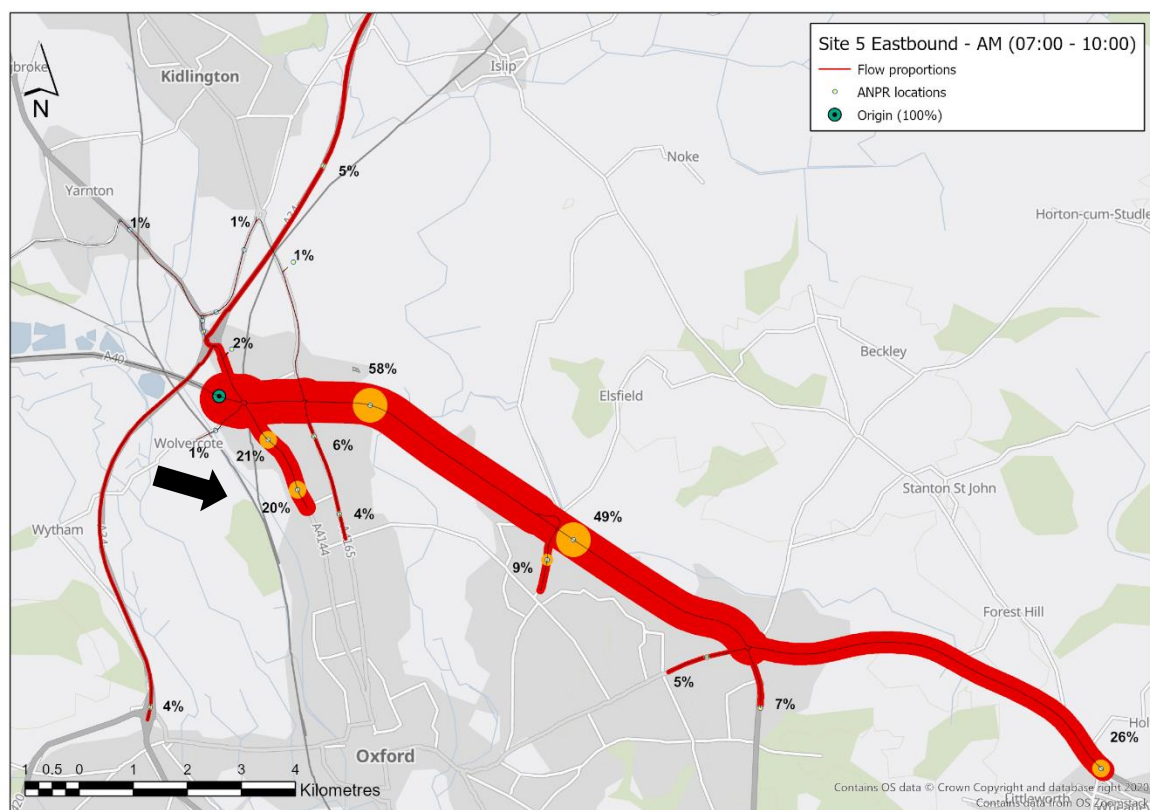


Figure 3-20 Traffic Patterns along the A40 from Oxford – Eastbound in the AM peak period

Source: AECOM analysis based on ANPR surveys undertaken in February 2020

Journey Times, Traffic Flows and Congestion Issues

- 3.3.37 Figure 3-22 and Figure 3-23 show the journey time variability along the A40 in the AM and PM peak hours (Figure 3-21 shows the locations referenced in these two figures). Figure 3-22 shows the journey time variability eastbound along the A40 in the morning travelling towards Oxford. This shows that there is greater variability towards the west of the study area¹⁶, especially between Hill Farm and Lower Road and between Cassington Road and Wolvercote. In the PM peak, as Figure 3-23 shows, the variability has a significant range, and the greatest variation is between Wolvercote and Cassington Road where journeys can vary from 3.5 minutes to 18.5 minutes. This data shows that there is poor journey time reliability along the A40 between Oxford and Witney.
- 3.3.38 Low journey time reliability on the A40 also negatively affects bus service reliability, and as a result can discourage operators from running services along this vital route. At present, the bus operator will only run limited services along the A40 to Oxford North and Oxford East as they cannot guarantee the quality of service and buses meeting the schedule beyond this. Implementing the Integrated Bus Lanes scheme will dramatically improve journey time reliability along the A40 and as a result unlock more frequent and faster bus services. This will then encourage greater use of the bus and lead to mode shift to more sustainable modes along the A40 Corridor.

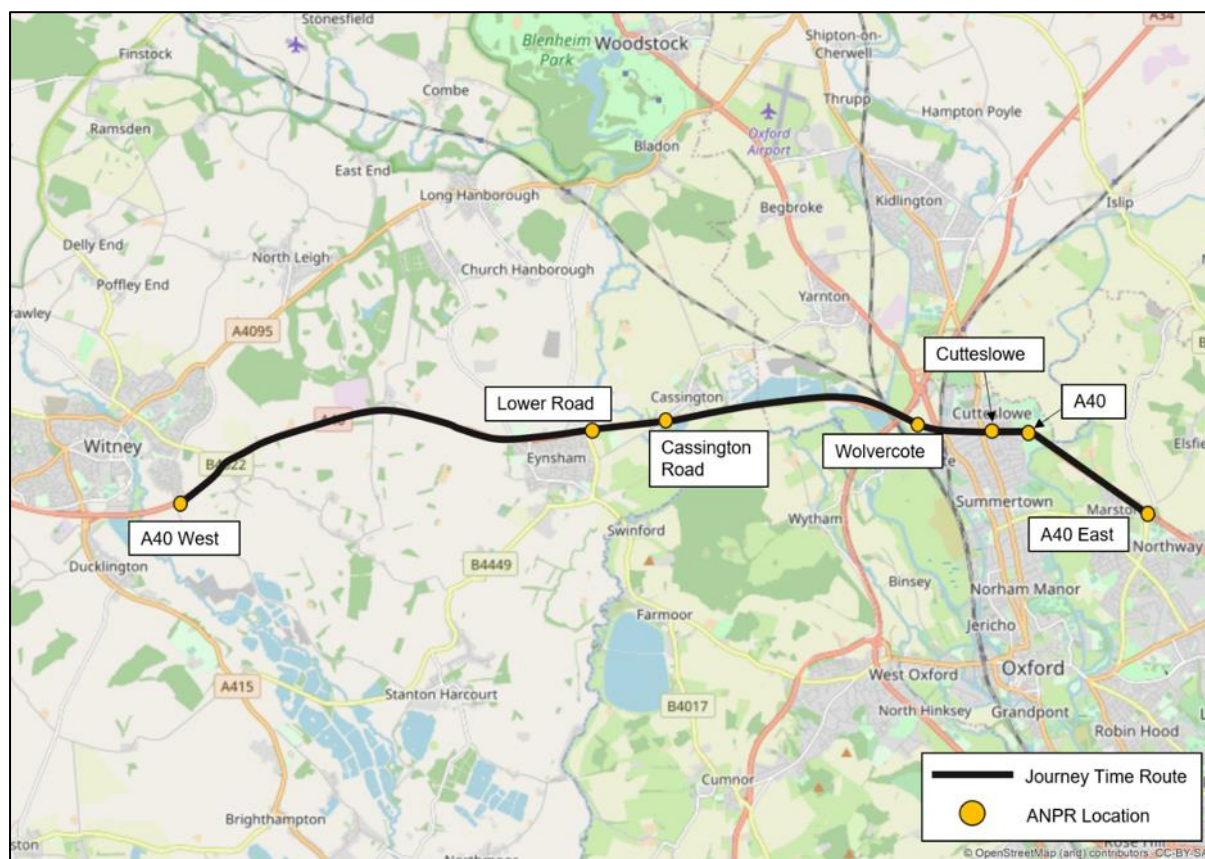


Figure 3-21 Journey Time Route – A40

Source: Adapted from OCC 2020 survey

¹⁶ The variation seems to cover over the central/eastern end between Cutteslowe and Cassington Road, then levels off.

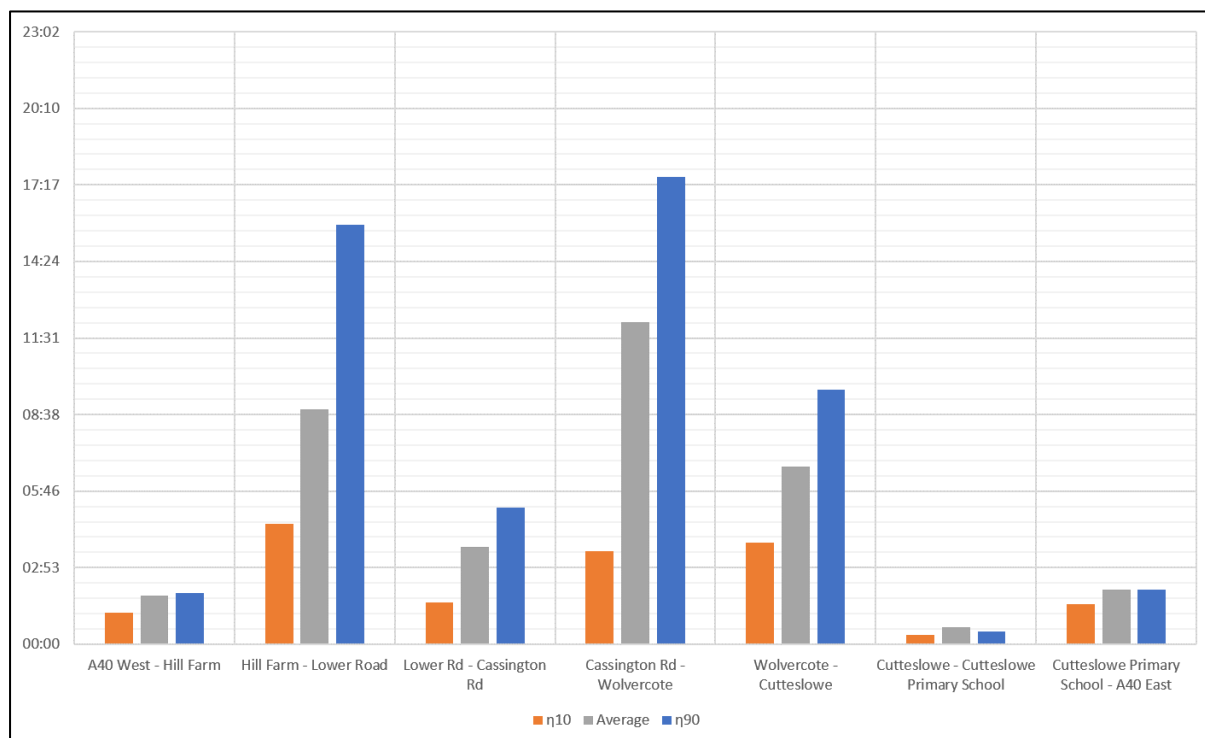


Figure 3-22 Journey Time Variability along the A40 in the AM Peak Eastbound

Source: AECOM analysis based on ANPR surveys undertaken in February 2020

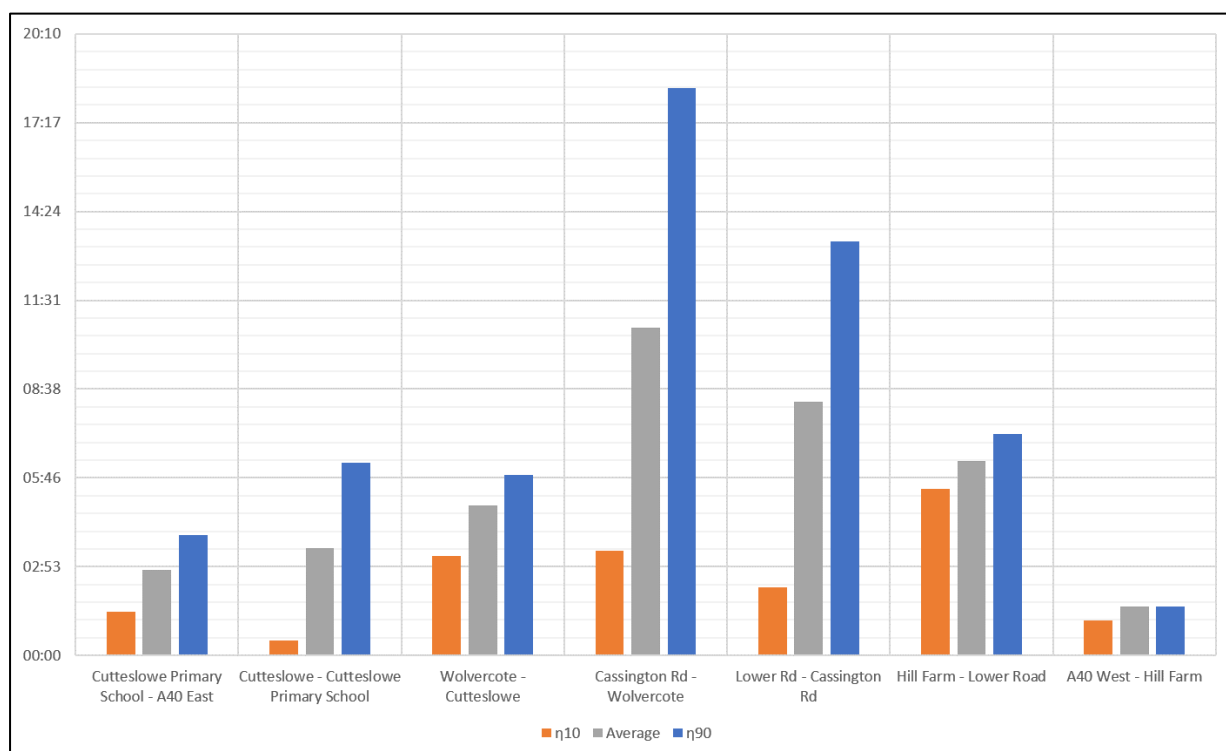


Figure 3-23 Journey Time (mm:ss) Variability along the A40 in the PM Peak Westbound

Source: AECOM analysis based on ANPR surveys undertaken in February 2020

3.3.39 Figure 3-24 and Figure 3-25 below show the average congestion along the A40 in the AM and PM peaks respectively. In the AM peak, slower traffic builds up along the A40 in the eastbound direction near Eynsham and therefore leads to congestion and long queues. In the PM peak, slower traffic builds up at the Lower Road roundabout in the westbound direction creating a long queue of traffic, which extends beyond the Cassington signals. Slow traffic is also found in both directions near Eynsham. Figure 3-26 shows congestion north of Oxford later in the AM Peak, where there is slow traffic between the Wolvercote and Cutteslowe roundabouts, as well as on all arms of the Wolvercote roundabout.

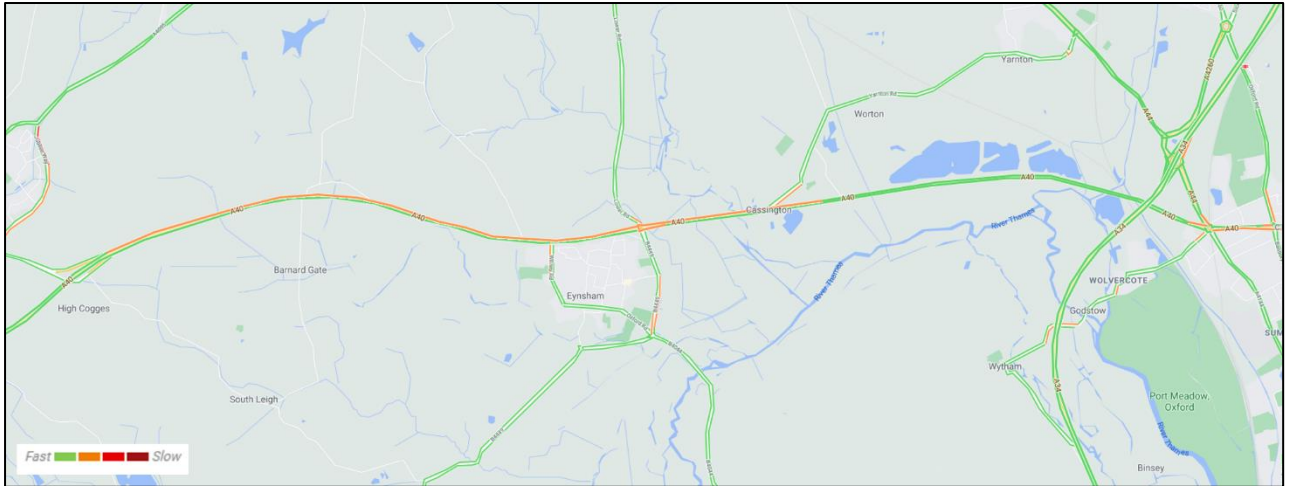


Figure 3-24 Congestion along the A40, AM Peak (Monday, 7:10am)

Source: Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google

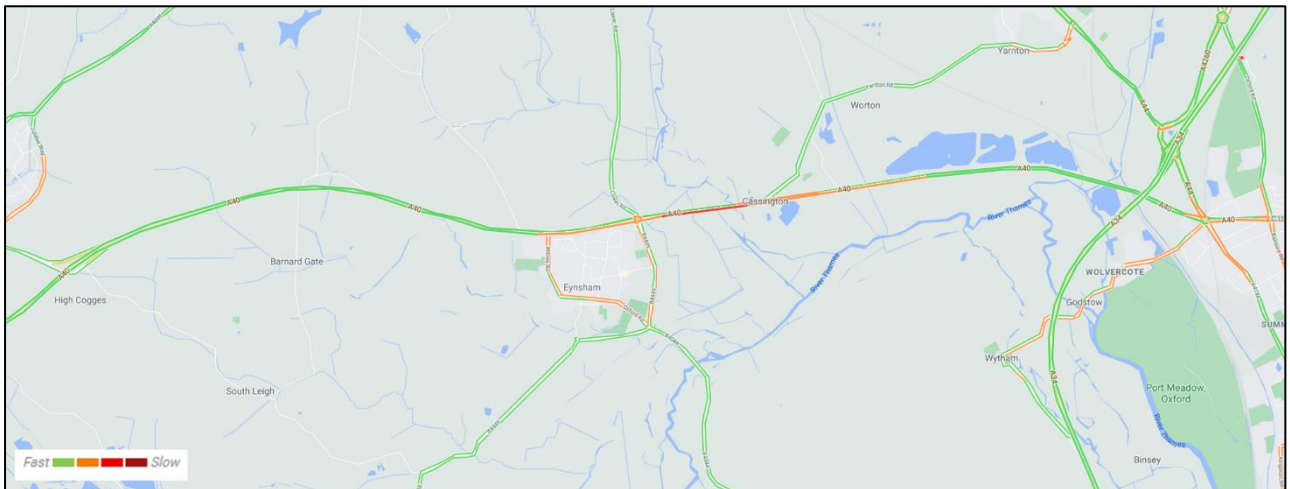


Figure 3-25 Congestion along the A40, PM Peak (Thursday, 17:15pm)

Source: Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google

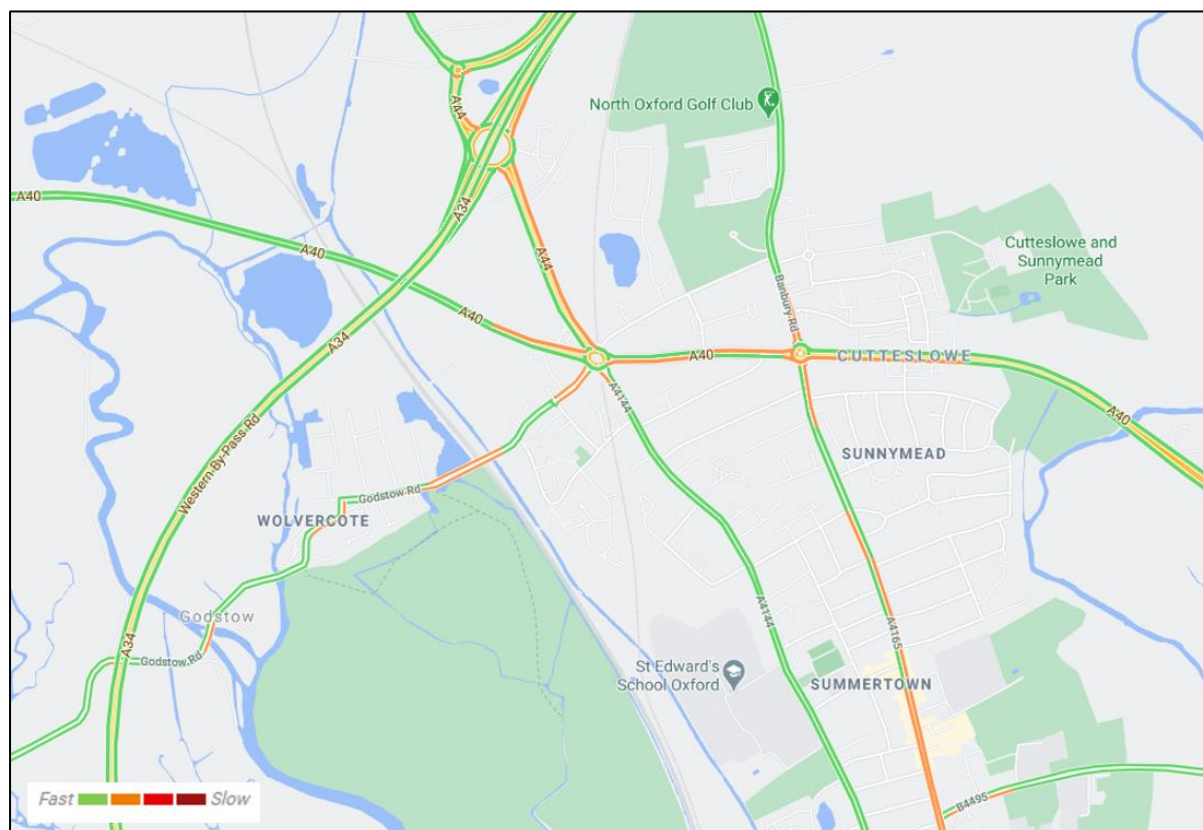


Figure 3-26 Congestion in North Oxford, average AM Peak, 08:00am

Source: Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google

- 3.3.40 Traffic volumes along the A40 and surrounding road network have been examined with key results shown in Table 3-4. This information has been taken from the ANPR surveys undertaken in February 2020 on behalf of AECOM.
- 3.3.41 Table 3-4 shows that just east of Witney, over 27,000 vehicles a day use the A40. The average daily traffic along the A40 increases east to west towards Witney. However, due to the presence of queues near some of the survey locations on the day of the survey, it is likely that the total number of vehicles observed is higher than shown below. For example, at the A40 West site traffic is free flowing and every vehicle will be captured. At the A40/Eynsham Road junction queues often form in the AM and PM peaks and as such readings from the ANPR will only capture the vehicles which managed to access the junction and therefore may not account for the entire queue.

Table 3-4 Traffic Flows on A40 and Surrounding Roads

Name	Source	Year	AM (08:00 - 09:00)	PM (17:00 - 18:00)	Daily Traffic
			Two-Way Traffic	Two-Way Traffic	Two-Way Traffic
A40 West (near Hill Farm)	AECOM	2020	1,455	2,460	27,123
Lower Road	AECOM	2020	642	693	-
A40/Lower Road Roundabout	AECOM	2020	1,423	1,434	23,878
A40/Eynsham Road (Cassington)	AECOM	2020	881	854	19,076
A40 East (near Duke's Cut)	AECOM	2020	881	771	18,835
A4095	AECOM	2020	1,187	1,297	-
Witney Road	AECOM	2020	501	462	-
B4044 at Swinford Toll Bridge	AECOM	2020	1,013	1,152	-

(- denotes daily two-way traffic was not available)

Source: AECOM analysis based on February 2020 ANPR Surveys

3.3.42 Figure 3-27 to Figure 3-29 below show the mode split at three locations along the A40 from Lower Road to west of Duke's Cut. This shows that along the A40:

- there is a fairly consistent mode split with nearly 80% of traffic being cars;
- at Duke's Cut a very small number of cyclists were captured; and
- buses only make up 1% of the traffic along the A40, which is in part due to the lack of services running along the A40 as a result of unreliable journey times.

3.3.43 The Integrated Bus Lanes scheme has the potential to increase the mode share of buses using the A40 through provision of dedicated bus infrastructure. In addition, the high proportion of car-based trips shows that there is potential for many of these trips to be made by bus and shift the mode share along the A40 to more sustainable modes.

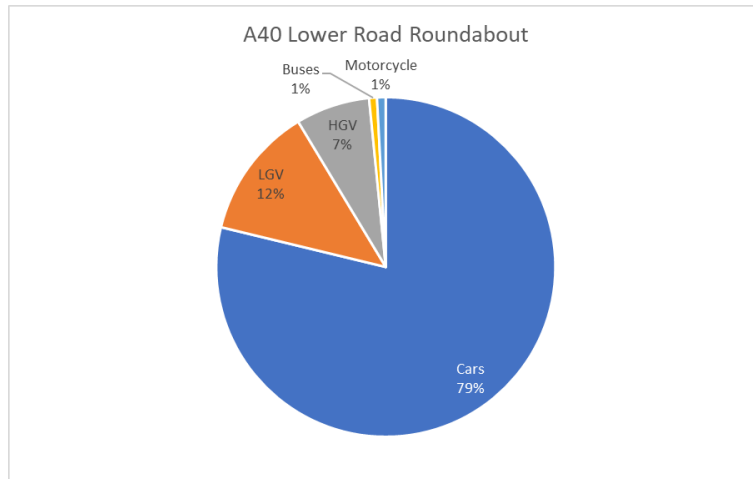


Figure 3-27 Mode Split at A40 Lower Road Roundabout

Source: AECOM analysis based on February 2020 ANPR Surveys

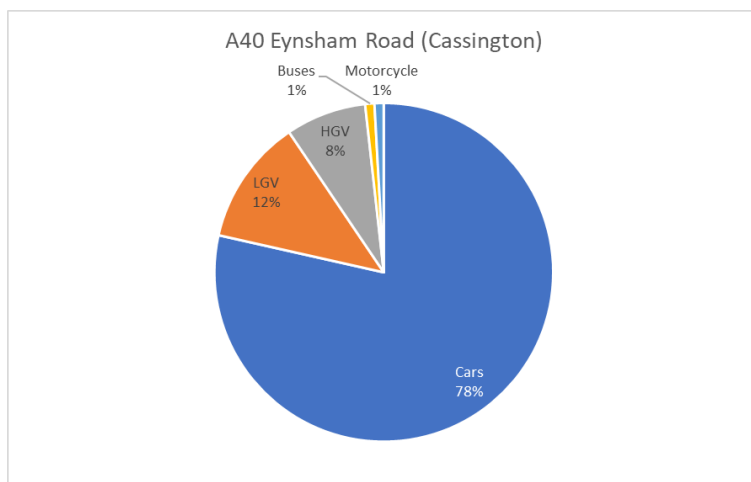


Figure 3-28 Mode Split at A40 Eynsham Road

Source: AECOM analysis based on February 2020 ANPR Surveys

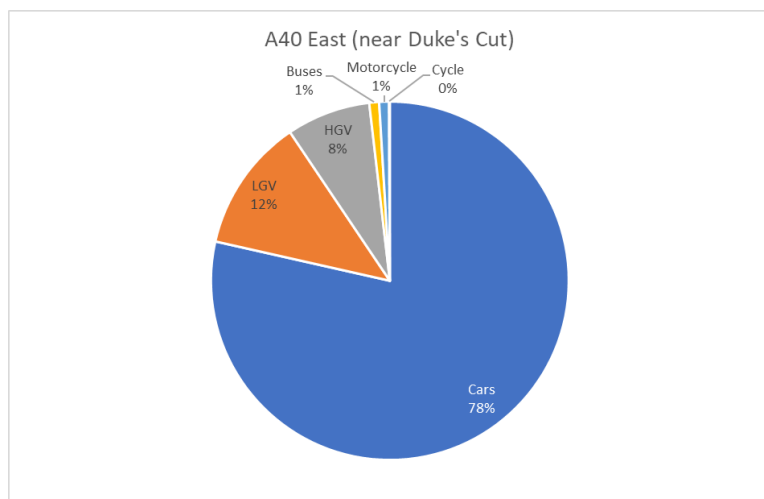


Figure 3-29 Mode Split at A40 East

Source: AECOM analysis based on February 2020 ANPR Surveys

3.3.44 Based on the above analysis and local understanding of the congestion issues along the A40 corridor, these issues are caused by a combination of:

- Junction capacity limits at Wolvercote Roundabout, Eynsham Roundabout, Cassington traffic lights, and Witney Road traffic signals. Queueing can be observed at these junctions throughout the day; and
- Underlying link capacity issues. At present these are masked to a great extent by the junction capacity issues but are witnessed in the PM peak for westbound traffic between Eynsham and Shores Green.

Collisions

3.3.45 A Collision Investigation Study¹⁷ was undertaken by AECOM. The study shows a decrease in the number of year-on-year collisions over the five years between 2013 and 2018. Overall, 86 personal injury collisions occurred during the 69-month study period from 01/01/2013 to 30/09/2018 (however, it does not include latest collision data). A single collision resulted in a fatality, 20 collisions resulted in serious injury severity and 65 collisions resulted in slight injury severity. The findings from the Collision Investigation Study found that the overwhelming majority of collisions were due to behavioural factors and not road geometry factors.

3.3.46 Figure 3-30 and Figure 3-31 show the location of crashes (personal injury collisions) along the A40 and surrounding road network for the past 5 years (2015 to 2019) (CrashMap¹⁸). This shows that there are more collisions to the east of Eynsham towards Duke's Cut as compared to the west of Eynsham. There does not appear to be a pattern to the severity of the accidents along the A40, however more severe accidents tend to occur at junctions. There are several clusters of accidents along the A40 which could be considered as hot spots. There is a clear hot spot of accidents near Hill Farm, east of Witney, most likely due to the road layout transitioning from a dual carriageway to a single carriageway and vehicles having issues while merging. Additionally, north of Eynsham at the Cuckoo Lane junction and Lower Road roundabout there is a hotspot. This could be due to the lack of signalisation at these junctions resulting in less traffic regulation and increasing the likelihood of queues. Along the eastern section of the A40 (from Eynsham to Duke's Cut) collisions are spread across the length of the road which may be caused by the extensive queueing along this section. There has been a recent collision that resulted in multiple fatal casualties that occurred on the Wolvercote Rail bridge at Duke's Cut in October 2020. There are no details at present, and as this collision is recent it does not appear on the maps below. More information may be released following the inquest which will be held in March 2021.

3.3.47 The Integrated Bus Scheme will result in new layouts of junctions and carriageway therefore this will provide an opportunity to implement a safe design option to help reduce the collisions (such as by following design guidelines including Design Manual for Roads and Bridges and DfT's 'Cycle Infrastructure Design: Local Transport Note 1/20').

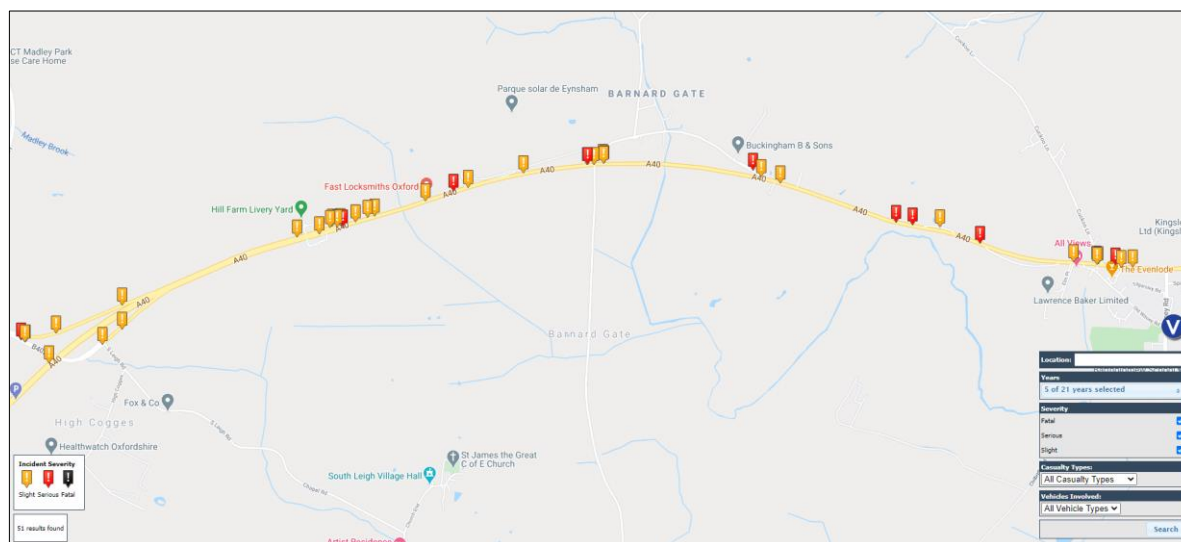


Figure 3-30 Location of Collisions along the A40 between Witney and Eynsham, 2015-2019

Source: Export from <https://www.crashmap.co.uk/Search>

¹⁷ 2019, as part of the A40 Park and Ride and Bus Lane Scheme Transport Assessment

¹⁸ Crashmap does not show damage only collisions

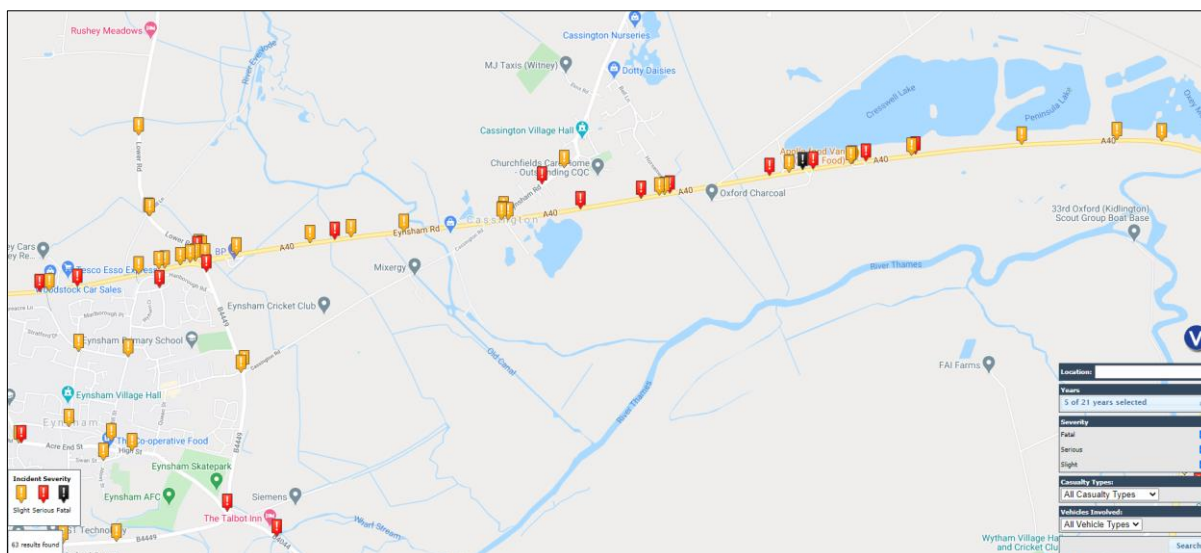


Figure 3-31 Location of Collisions along the A40 between Eynsham and Duke's Cut, 2015-2019

Source: Export from <https://www.crashmap.co.uk/Search>

3.3.48 Figure 3-32 and Figure 3-33 below show collisions along the A40 where the vehicle involved was a cyclist for the period 2015 – 2019. This shows that there are a fairly low number of collisions involving cyclists, and collisions tend to occur at junctions rather than along the main carriageway. There are a cluster of collisions at the roundabout just east of Duke's Cut, and one of these was fatal. Over the past five years there has been one serious accident at the Lower Road roundabout and one serious accident at the Shores Green slip roads. The majority of collisions along the A40 involving cyclists have been slight in nature.

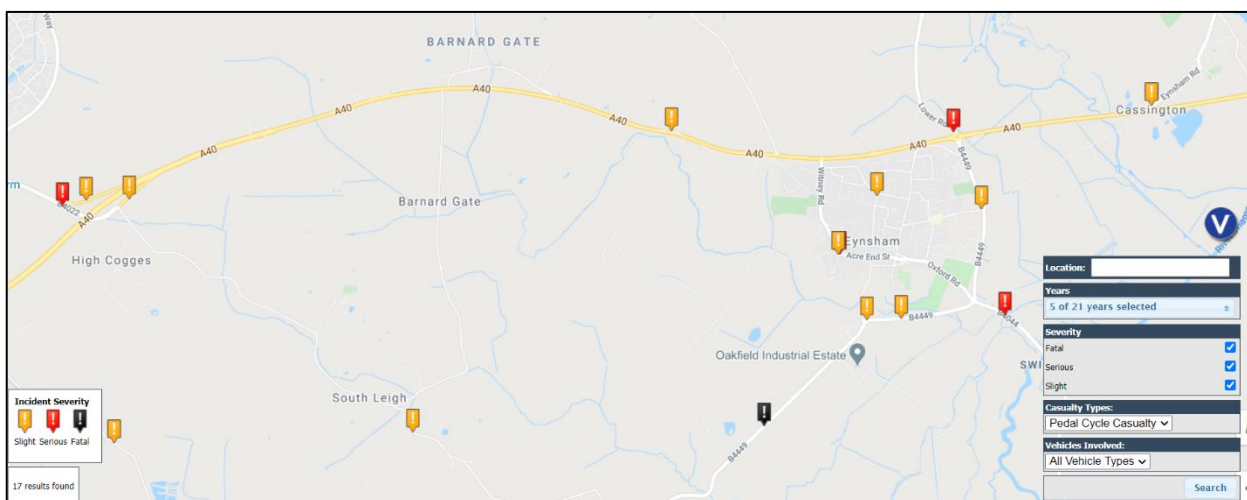


Figure 3-32 Location of Collisions involving Cyclists along the A40 between Witney and Eynsham

Source: Export from <https://www.crashmap.co.uk/Search>

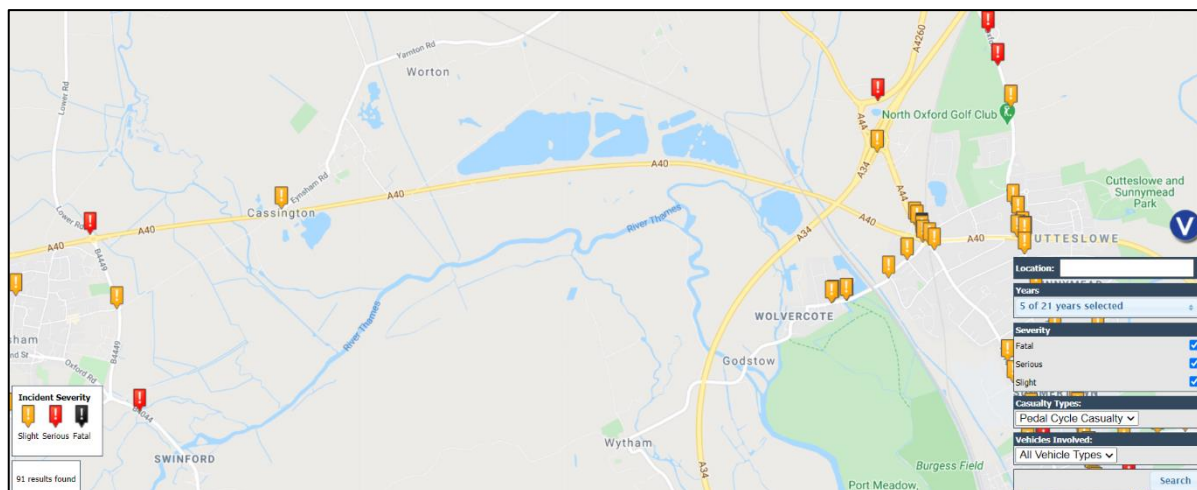


Figure 3-33 Location of Collisions involving Cyclists along the A40 between Eynsham and Duke's Cut

Source: Export from <https://www.crashmap.co.uk/Search>

- 3.3.49 As shown in Figure 3-34, there have been very few collisions involving pedestrians over the period 2015 – 2019, and none alongside the A40 Witney and Eynsham. There were no collisions east of Eynsham towards Witney hence why the map focusses on Eynsham to Duke's Cut. Notably, there has been one fatal collision involving a pedestrian along the A40 between Cassington and Duke's Cut. However, other factors were given as to the circumstances around the fatal accident that are not related to the road geometry or the environment. (A passenger of a parked vehicle, following an altercation with the driver, exited the vehicle under the influence of alcohol and stepped in front of a passing motorist) There have been no further collisions involving pedestrians along the A40. This could be due to low numbers of pedestrians using the shared path alongside the A40, but nonetheless the fatal collision highlights that it is paramount that the safety of the shared path needs to be improved.

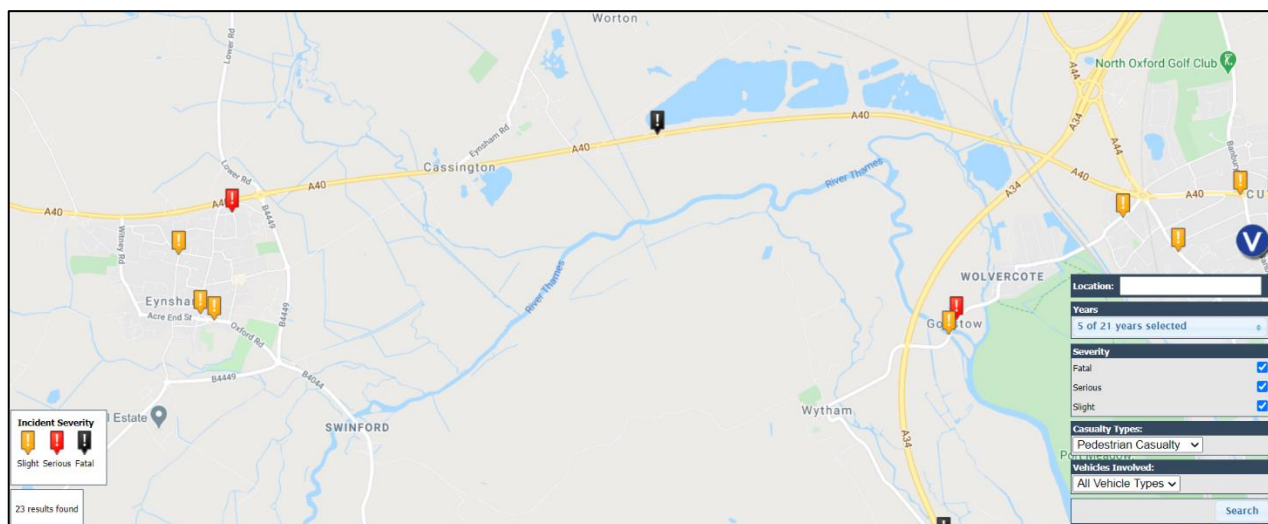


Figure 3-34 Location of Collisions involving Pedestrians along the A40 between Eynsham and Duke's Cut

Environment

- 3.3.50 The A40 corridor is located in close proximity to a number of environmental designations including with an Air Quality Management Area (AQMA) and Noise Important Areas. The most sensitive designations are the nationally and internationally ecological sites, including the Oxford Meadows Special Areas of Conservation (SAC).
- 3.3.51 Figure 3-35 and Figure 3-36 outline the ecological designations in the wider area around the A40 corridor. Of special significance is the Oxford Meadows SAC located south of the A40 corridor around Duke's Cut and Lower Wolvercote (shown in yellow in Figure 3-35). SACs are sites that have been designated on a European level and are considered of international importance. The Oxford Meadows SAC is designated for lowland hay meadows. In order to get permission to carry out works near a SAC (and also Sites of Special Scientific Interest), a developer must submit a Habitat Regulations Assessment (HRA) to Natural England. This can be completed prior to submission or during the determination of a planning application. The HRA must demonstrate that a project will not have likely significant effects on the qualifying features of the SAC and a site's integrity. If this cannot be demonstrated, then Natural England can refuse permission and effectively block implementation of the scheme.
- 3.3.52 In order for the HRA to be approved, the effects of the scheme on the Oxford Meadows SAC will need to be understood and minimised wherever possible. This will include minimising vegetation clearance requirements adjacent to the SAC, ensuring that the drainage design does not affect the hydrology or water quality of the SAC and completing air quality modelling to understand whether increased traffic might lead to increased nitrogen deposition.
- 3.3.53 The whole of Oxford City has been designated an AQMA (Figure 3-36). An AQMA is an area where, based on review and assessment of air quality, the local authority has judged that it is unlikely to achieve the national air quality objectives. As a result of exceedances of the annual mean Limit Value for nitrogen dioxide (NO₂), an AQMA was designated in Oxford in 2010. This will be considered as part of the air quality modelling for the scheme and may influence the routing of construction vehicles during the construction phase.
- 3.3.54 Along the route of the proposed Integrated Bus Lanes scheme, there are some locations which are likely to be impacted by changing air quality levels. These are as follows:
- Residential properties close to the A40 in Eynsham;
 - Residential properties close to the A40 in Cassington;
 - Existing properties along the proposed route of Integrated Bus Lanes;
 - Oxford Canal;

- Oxford Meadows SAC;
- Planned development at Salt Cross Garden Village; and
- Oxford AQMA.

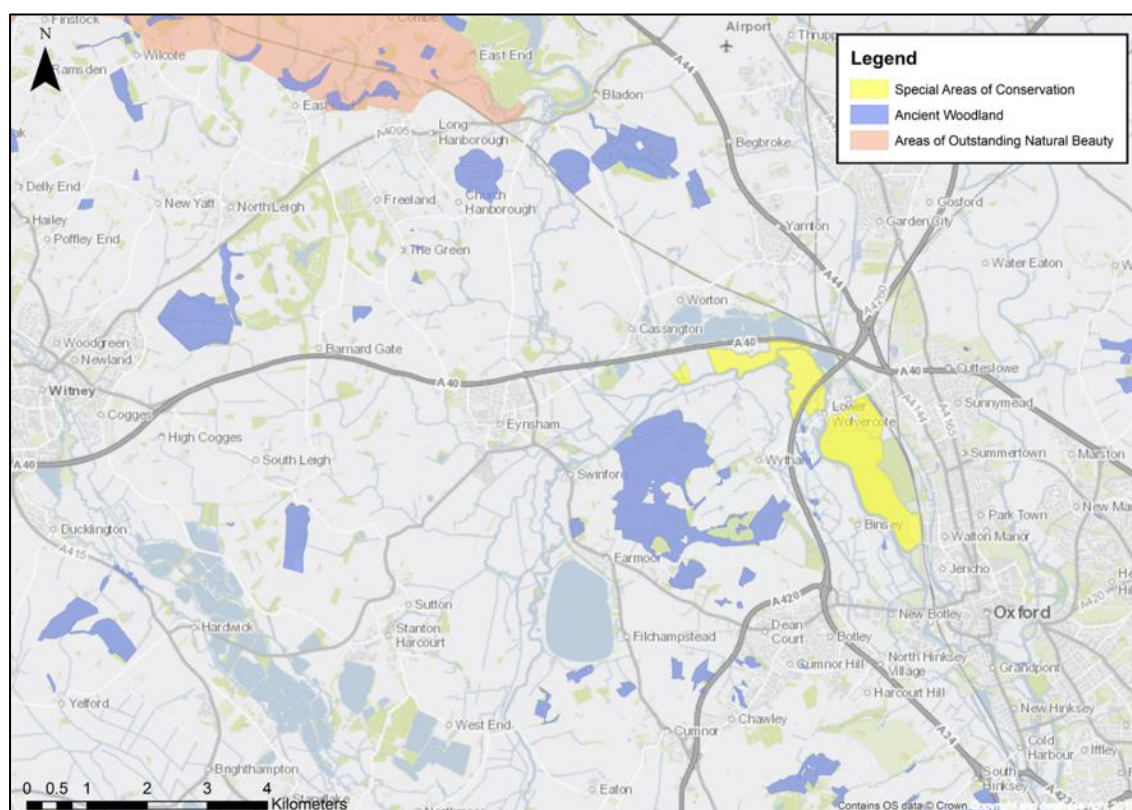


Figure 3-35 Special Areas of Conservation, Ancient Woodland, and Areas of Outstanding Natural Beauty

Source: Natural England Open Data (2019); DEFRA (2019); AECOM © Crown copyright and database right 2020

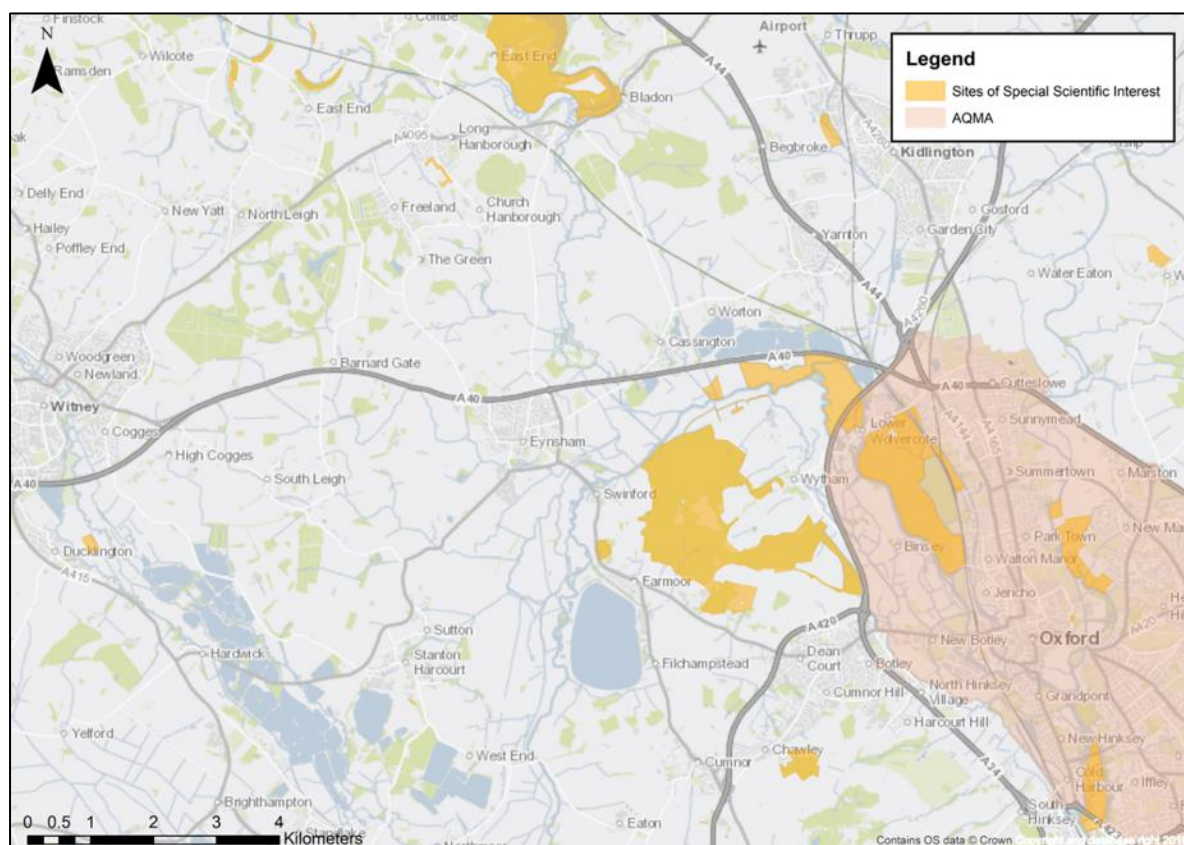


Figure 3-36 Air Quality Management Area and Sites of Special Scientific Interest

Source: Natural England Open Data (2019); DEFRA (2019); AECOM © Crown copyright and database right 2020

- 3.3.55 Noise Important Areas are the noise hotspots where the 1% of the population that are affected by the highest noise levels from major roads are located, according to the results of strategic noise mapping. Figure 3-37 demonstrates that several noise important areas are present along the A40 corridor, including in Eynsham and between Wolvercote Roundabout and Cutteslowe Roundabout. The Defra Noise Action Plan: Roads (2019) sets out that the relevant highway authorities are responsible for examining Noise Important Areas and forming a view about what measures, if any, might be taken in order to assist with the implementation of the Government's policy on noise. This will be considered in the noise modelling and, if necessary, the requirement for further noise mitigation (e.g. acoustic barriers) will be considered.
- 3.3.56 Furthermore, it is important to highlight any noise sensitive receptors along the A40 which may be impacted by changing noise levels due to the Integrated Bus Lanes scheme. This includes:
- Residential properties close to the A40 in Eynsham;
 - Residential properties close to the A40 in Cassington;
 - Oxford Meadows SAC;
 - NCN Route 5 near Duke's Cut;
 - Oxford Canal;
 - Planned development at Salt Cross Garden Village; and
 - Existing properties along the proposed route of Integrated Bus Lanes.

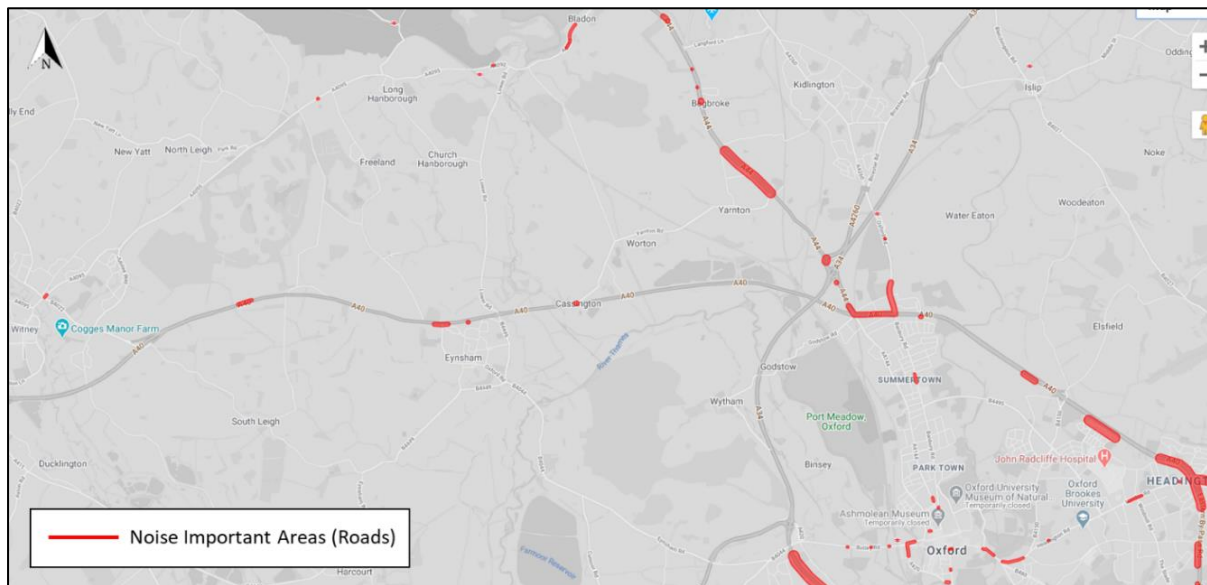


Figure 3-37 Noise Important Areas (Roads)

Source: www.extrium.co.uk

3.3.57 Figure 3-38 shows the flood risk from rivers or sea along the A40. This shows that the majority of flood risk along the A40 is near and east of Eynsham towards Oxford. Near to the proposed route of the Integrated Bus Lane scheme, there are extensive areas of medium and high flood risk, following both the River Thames and River Evenlode. This flood risks needs to be considered as part of the design of the Integrated Bus Lanes, as it could lead to challenges with the design.

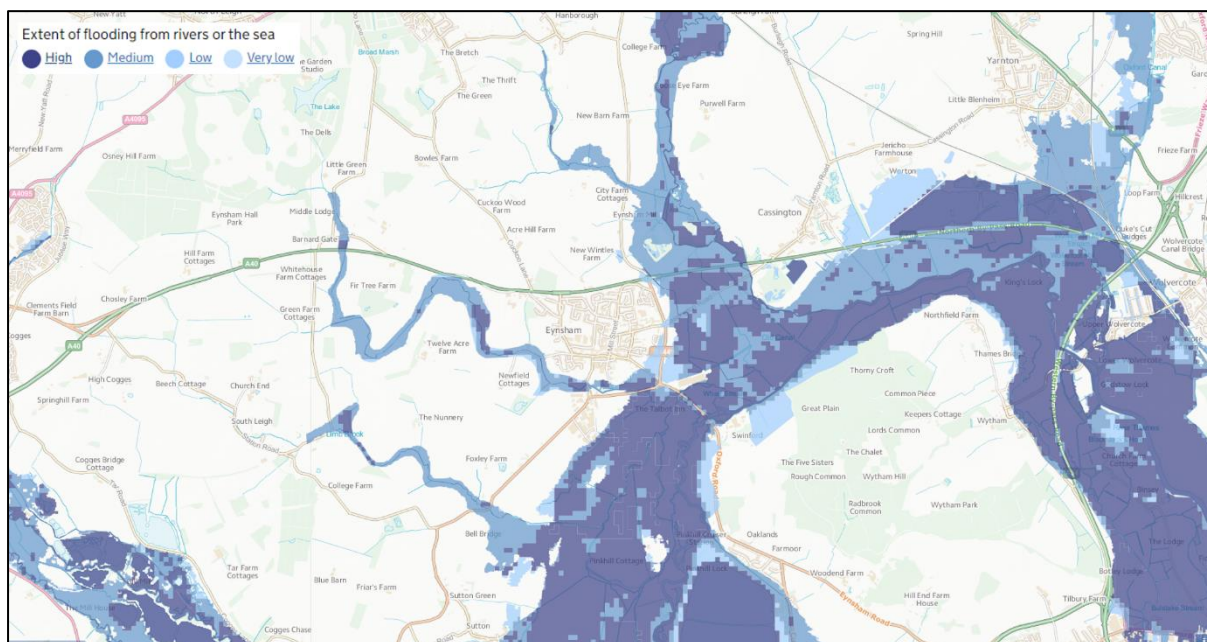


Figure 3-38 Flood risk along A40

Source: <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map>

3.3.58 The visual impact of the proposed Integrated Bus Lanes on local receptors should also be considered. It is likely the alignment of the Integrated Bus Lanes will have visual impacts upon:

- Residential properties close to the A40 in Eynsham;
- Residential properties close to the A40 in Cassington;
- Planned development at Salt Cross Garden Village;

- Existing properties along the proposed route of Integrated Bus Lanes;
- Oxford Canal; and
- Footpaths near to the A40 between Eynsham and Wolvercote roundabout, including NCN Route 5 near the Oxford Canal.

3.3.59 Additional environmental constraints around the A40 corridor include:

- Immediately to the west of the A34 there are a series of bridges over the Oxford Canal, Oxford-Banbury/Worcester railway and Duke's Cut (a canal link connecting the Oxford Canal and River Thames) where the verge is limited to that necessary for the provision of the footway/cycleway (0.7 km). Any on-line improvement to the route would need these bridges to be either widened, supplemented or replaced. This would add considerably to the cost and engineering complexity of such a scheme;
- The Cassington Gravel Works form the northern boundary of the A40 for most of the section of road between Cassington and Duke's Cut. The current workings, including the materials processing plant, are to the western end of the site around the line of the old Oxford-Witney railway, which has been converted into a haul road for the site. The gravel works (current and worked out) cover the entire area between the A40 and the Cotswold rail line and could present an important constraint to any off-line transport improvements; and
- It is believed that there is the site of a medieval village adjacent to the A40 in this area, although its exact location is not known.

- 3.3.60 Addressing these issues will need to take into account Policy 1 of OCC's LTP4, which states that the county will work to ensure that the transport network supports sustainable economic and housing growth in the county, whilst protecting and where possible enhancing its environmental and its creative, cultural, heritage and tourism assets, and supporting the health and wellbeing of its residents.

3.4 Future Conditions

- 3.4.1 In order to effectively appraise the Integrated Bus Lanes scheme, it is imperative to understand the future context and situation in which the schemes will sit. As part of this, the following section provides an overview of development proposals, and forecasted transport conditions.

Future Growth

- 3.4.2 The population in West Oxfordshire is expected to grow in the future. The West Oxfordshire Local Plan 2031 commits to delivering 13,200 new homes between 2011-2031, the equivalent of 660 new homes per year. In addition, West Oxfordshire is delivering an additional 2,750 new homes between 2021-2031 to assist Oxford City in meeting its unmet housing need. As a result, the total level of housing provision until 2031 is forecast to be at least 15,950 homes.
- 3.4.3 A significant proportion of this housing will be provided in the towns of Witney, Carterton and Chipping Norton, and around 10,000 of the new homes will be delivered along the A40 corridor in Carterton, Witney, and Eynsham Parish. Based on existing travel choices the substantial future growth would worsen the current congestion on the A40 corridor due to its limited capacity. However, the A40 corridor improvement schemes, including the A40 Integrated Bus Lanes scheme, aim to alleviate congestion by encouraging a modal shift from the private car to the more sustainable use of public transport, walking and cycling, will increase the A40 corridor capacity and facilitate delivery of these new homes. Four key Strategic Development Areas have been identified along the A40 corridor (mentioned in the section 2.2.5 and shown in Figure 2-1).
- 3.4.4 Two of the key sites surrounding the A40 are the Salt Cross Garden Village (SCGV) development area and the West Eynsham Strategic Development Area (SDA). OCGV and West Eynsham SDA combined will provide around 3,200 new homes, a Science Park generating a significant number of new jobs, primary and secondary education provision and additional service facilities. Although the two developments are separated by the physical barrier of the A40, there are several interdependencies between OCGV and West Eynsham SDA including transport and access arrangements.
- 3.4.5 According to the Oxford Local Plan 2036, 10,884 new homes will be delivered in Oxford between 2016-2036. In addition to this, and as a result of the constrained nature of Oxford (due to greenbelt and other sensitive areas), the remaining Oxfordshire districts need to collectively deliver 14,300 dwellings by 2031 to assist Oxford in meeting its unmet housing need.
- 3.4.6 In the county as a whole, 88,000 new jobs and 100,000 new homes will be delivered between 2011-2031 (number of homes by site is listed in **Error! Reference source not found.**), as set out in Oxfordshire's Strategic Housing Market Assessment¹⁹. Up to 4,556 of these new jobs will be delivered at Salt Cross Garden Village, just north of the A40 near Eynsham.

Transport Modelling

- 3.4.7 As part of the successful HIF bid modelling was undertaken using the Oxfordshire Strategic Model (OSM) in order to assess the impact of the A40 Dualling scheme on the transport network. Three scenarios were tested:
- Scenario P, Do Nothing, Future Year Growth; without 'dependent' development; without transport interventions
 - Scenario S, Future Year Growth; without 'dependent' development; with transport interventions
 - Scenario R, Future Year Growth; with dependent development; with transport interventions

¹⁹ The Oxfordshire Strategic Housing Market Assessment
(https://www.oxford.gov.uk/downloads/download/495/strategic_housing_market_assessment, 2014)

- 3.4.8 The results from Scenario P show that the growth in housing and employment within the vicinity of the A40 Corridor is likely to negatively impact upon the transport network. OSM modelling of Scenario P shows that with 5,223 independent new homes increased delay and congestion are likely. Queues and delays are likely to be experienced at the A40 junctions with Cassington Road, Witney Road and Cuckoo Lane. These junctions are forecast to be approaching capacity or over capacity.
- 3.4.9 High level observations from OSM based on 2041 Scenario R suggest that tidal movement patterns are likely to persist along the A40 with the main movement eastbound towards Oxford in the AM peak and westbound from Oxford in the PM peak. Demand levels along the A40 corridor are consistent as alternative parallel routes are less attractive.
- 3.4.10 Overall, the observations for the AM peak are as follows:
- Due to the growth and the associated increase in capacity more traffic is drawn to the A40 corridor
 - Additional capacity is provided for bus services at Duke's Cut and westbound along the A40 corridor
 - There is a forecast increase in general network delay eastbound on the dual motorway section east of Witney at the proposed roundabout junction enabling HIF development site access. This increase in delay is likely to be associated with additional demand accessing the network at the new junction. As the design evolves this junction may need to be amended to facilitate additional capacity
 - Widening at Duke's Cut is likely to lead to reduced bus journey times through this section
- 3.4.11 Overall, the observations for the PM peak are as follows:
- As with the AM peak, additional traffic is drawn to the A40 corridor
 - There is a forecast increase in general network delay eastbound and westbound on the dual motorway section east of Witney. This increase in delay is likely to be associated with additional demand accessing the network from proposed HIF development sites. As the design evolves a multi lane signal-controlled roundabout may be required to provide additional capacity
 - Public transport modelling suggests that the introduction of the westbound bus lane in Scenario S is likely to reduce bus journey times between Wolvercote and Witney, when compared to Scenario P, particularly in the PM peak, bus journey times are forecast to reduce by almost 5 minutes. Modelled comparison of bus journey times between Scenario R and Scenario P suggest a forecast reduction in bus journey time of around 4 minutes in the PM peak. This equates to a bus journey time increase of around 1 minute for Scenario R with proposed HIF growth included.

- 3.4.12 Given the scale of growth and existing issues, it is unlikely that congestion and delay can be completely removed from the A40 entirely. HIF infrastructure is likely to improve A40 performance in Scenario S, however some corridor delays are likely to be experienced and junction design review may be required, particularly to the development access roundabout. The proposal does bring substantial advantages to public transport journey speed and reliability along the corridor, enhancing this both for existing journeys and those from the new developments.
- 3.4.13 Furthermore, the extension of the A40 Westbound bus priority lane will facilitate bus service reliability between Oxford and HIF developments at West Eynsham and the Oxfordshire Cotswold Garden Village. The tidal nature of movements along the A40 Corridor means that residents of proposed HIF sites are likely to benefit greatest from the bus lane in the evening peak, returning home from work at Oxford employment centres (whilst also providing improved accessibility to the proposed Science Park at Oxfordshire Cotswolds Garden Village). This improved level of service is likely to encourage growth in general bus patronage to proposed HIF housing sites and also encourage use of the Eynsham Park and Ride site.
- 3.4.14 Whilst the HIF bid does not consider assessment of the Integrated Bus Lanes scheme operating within or above capacity, volume/capacity (V/C) has been undertaken for several junctions north of Eynsham as part of Scenario P. This modelling forecasts that in 2041 the two A40 junctions with Cassington Lane and Witney Road are likely to be over capacity (V/C >95%), thus breaching a reasonable level of service. The A40 junction with Cuckoo Lane is forecast to have a V/C >85%, thus approaching operational capacity. This indicates that by 2041 without further intervention the A40 will be significantly over capacity, leading to considerable congestion and delays.

3.5 Identifying the need for Intervention

- 3.5.1 The analysis to date has demonstrated that there are significant challenges on the A40 corridor between Witney and Oxford, both existing issues and future concerns.
- 3.5.2 These include vehicle congestion, which affects both private and public transport modes, air and noise pollution, a lack of peak-time public transport provision and potential safety concerns. The mode share along the A40 shows that the overwhelming majority of traffic comprises cars, with a much smaller number comprising buses. There is the potential to shift some of this car traffic to more sustainable modes, including bus, and increase sustainable travel mode share along the A40. In addition, if housing development comes forward as planned, there will be significant capacity issues on the existing infrastructure without intervention. There is a clear need for infrastructure improvements to enable delivery of additional homes in the area.
- 3.5.3 Thus, intervention is needed to:
- **Encourage modal shift to sustainable travel:** Significant private car traffic congestion reduces bus reliability and attractiveness. This includes improving integration between various modes as a means of reducing car travel and encouraging the use of more sustainable modes of transport.
 - **Provide high quality cycling and walking provision:** to encourage more sustainable and active travel.
 - **Protect and enhance the environment:** There is an AQMA along the eastern section of the A40 corridor, between Wolvercote and Cutteslowe, that was declared in 2010 due to exceedances of nitrogen dioxide. The A40 corridor is surrounded by several ecological/landscape designations, such as noise important areas and Special Areas of Conservation (SACs).
 - **Reduce congestion:** There are long-standing issues of congestion and journey time unreliability on the A40 corridor, issues which are likely to be exacerbated by planned local growth.
 - **Support local growth:** West Oxfordshire will deliver an increase of 15,950 homes by 2031, most of which will be centred around Witney, Carterton, and Eynsham. Local growth plans also include the delivery of 4,556 new jobs in Salt Cross Garden Village, a new garden village to the north of A40, near Eynsham. Furthermore, economic growth, including increased employment, is planned more widely across West Oxfordshire. There is a Science Park proposed at Salt Cross. Reliable infrastructure is essential to support local growth, as well as providing enhanced connectivity from West Oxfordshire to employment areas in central, northern and eastern Oxford.

- 3.5.4 As such, the analysis of challenges to date has demonstrated the need for interventions to address the issues and ensure the area has transport provisions suitable for the intended increase in housing.
- 3.5.5 The next chapter sets out scheme objectives that have been developed on the basis of the identified challenges and existing policies, both local and national.
- 3.5.6 A longlist of options was then generated to address the identified challenges by meeting the proposed objectives. For this assessment, an unbiased approach is taken, irrespective of previously identified or 'preferred' options.

4 Development of Scheme Objectives

4.1 Scheme Objectives

- 4.1.1 This chapter of the report sets out the agreed scheme objectives based on the assessment of contextual factors, challenges and the underlying policy context set out in the previous two chapters of this report.
- 4.1.2 As such, the objectives have been tailored to the need for the Integrated Bus Lanes scheme, but also to maintain consistency with the wider policy aspirations, other A40 corridor schemes and ensure that the scheme will contribute to delivering wider regional policies and plans.
- 4.1.3 The scheme objectives were agreed in workshops with OCC, and after reviewing them against the objectives in the LTP4 and West Oxfordshire District Council's (WODC) Local Plan. The objectives for each of these are set out in turn, with alignment between the two shown in Table 4-2.
- 4.1.4 The A40 Corridor Strategy Objectives are also considered, as the Integrated Bus Lanes scheme was originally developed as part of this strategy.
- 4.1.5 All potential scheme options will be assessed against these objectives.

4.2 LTP4 and WODC Local Plan Objectives

- 4.2.1 The OCC 'Connecting Oxfordshire' Local Transport Plan 4 (LTP4) developed three overarching transport goals around the economy (1), the environment (2) and society (3), and ten objectives to support these goals. These are set out in Table 4-1.

Table 4-1 LTP4 Goals and Objectives

LTP4 Goals		LTP4 Objectives
LTP4#1 – Support jobs and housing growth and economic vitality	1.1	Maintain and improve transport connections to support economic growth and vitality across the county
	1.2	Make most effective use of all available transport capacity through innovative management of the network
	1.3	Increase journey time reliability and minimise end-to-end public transport journey times on main routes
	1.4	Develop a high-quality, innovative and resilient integrated transport system that is attractive to customers and generates inward investment
LTP4#2 – Reduce emissions, enhance air quality and support the transition to a low carbon economy	2.1	Minimise the need to travel
	2.2	Reduce the proportion of journeys made by private car by making the use of public transport, walking and cycling more attractive
	2.3	Influence the location and layout of development to maximise the use and value of existing and planned sustainable transport investment
	2.4	Reduce per capita carbon emissions from transport in Oxfordshire in line with UK Government targets
LTP4#3 – Support social inclusion and equal opportunities; protect and enhance the environment and improve quality of life (including public health, safety and individual wellbeing)	3.1	Mitigate and wherever possible enhance the impacts of transport on the local built, historic and natural environment
	3.2	Improve public health and wellbeing by increasing levels of walking and cycling, reducing transport emissions, reducing casualties and enabling inclusive access to jobs, education, training and services

Source: Connecting Oxfordshire: Local Transport Plan 2015-2031, Oxfordshire County Council

- 4.2.2 The specific transport related objectives identified in the WODC Local Plan are listed in Table 4-2 below. In addition, these have been mapped to the most pertinent OCC LTP4 objectives to demonstrate the synergy and consistency between them. The WODC objectives include a combination of economic, environmental, and social elements, and hence any one objective may map to more than one of the LTP4's three overarching goals.

Table 4-2 WODC Local Plan 2031: Transport-related Core Objectives

Core Objectives (CO)	Description	Map to LTP4 Objectives
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	1.1, 2.1

Core Objectives (CO)	Description	Map to LTP4 Objectives
CO10	Ensure that land is not released for new development until the supporting infrastructure and facilities are secured	1.2, 2.3
CO11	Maximise the opportunity for walking, cycling and use of public transport	1.3, 2.2
CO13	Plan for enhanced access to services and facilities without unacceptably impacting upon the character and resources of West Oxfordshire	3.1, 3.2
CO15	Contribute to reducing the causes and adverse impacts of climate change, especially flood risk	2.4, 3.1
CO16	Enable improvements in water and air quality	3.1
CO17	Minimise the use of non-renewable natural resources and promote more widespread use of renewable energy solutions	2.4

- 4.2.3 The objectives above, from both the OCC's LTP4 and WODC's Local Plan, have been used to inform the Integrated Bus Lanes scheme objectives, as found in Section 4.6. The LTP4 acknowledges that predicting and providing for increased demand for road travel by car and freight vehicles solely in the form of highway capacity improvements is neither affordable nor desirable from an environmental or economic perspective. Therefore, it is considered vital that journeys made by sole occupancy vehicles are reduced. Further to this, it is also highlighted in LTP4, and in the WODC Core Objectives, that journey time delays on the road network can impact on the local economy and make the area less desirable for living and working. There is also an important emphasis on ensuring that any impacts upon the environment are kept to a minimum, or better yet reduced. Overall the objectives from the above documents place a focus on enabling housing and economic growth, encouraging use of sustainable transport and improving the natural environment, all of which are covered as part of the Integrated Bus Lanes objectives.

4.3 A40 Corridor Strategy Objectives

- 4.3.1 The **A40 Corridor Strategy**, which forms the basis of the development of the Integrated Bus Lanes scheme, was developed alongside the WODC Local Plan. The overarching A40 Strategy has three core objectives:
- a) Improve travel times and journey reliability along the A40 corridor, particularly between Witney and Oxford;
 - b) Stimulate economic growth, in line with the Oxfordshire Strategic Economic Plan; and
 - c) Improve safety and reduce environmental impacts such as air pollution and noise along the A40 corridor. These objectives were developed to address the specific problems identified while taking into account the relevant County and District goals and objectives.
- 4.3.2 The A40 Corridor Strategy was initially comprised of two overarching schemes, the A40 Science Transit Phase 2 and the A40 Smart Corridor. In formulating the objectives for these two overarching schemes, the key challenges and priorities were distilled, and objectives created accordingly.

4.4 A40 Science Transit Objectives

- 4.4.1 As part of the A40 Science Transit scheme, five objectives were defined. Table 4-3 below outlines the linkages between the objectives for the A40 Science Transit scheme, the LTP4 goals and objectives and outlines any relevance to the A40. The green, yellow and orange represent a high, medium and low relevance to the A40 respectively. This clearly shows that the A40 Science Transit as a scheme is aligned with the goals and objectives of LTP4 and will help achieve the aims of the LTP4.

Table 4-3 Connecting Oxfordshire links to Science Transit Phase 2 Objectives

LTP4 Goals	LTP4 Objectives	Relevance to A40 situation	STP2 Objectives
To support jobs and housing growth and economic vitality	Maintain and improve transport connections to support economic growth and vitality across the county	High – West Oxfordshire has the lowest productivity and competitiveness in the county but has been identified for significant growth	To improve travel times and/or journey reliability between Witney/Carterton and Oxford
	Make most effective use of all available transport capacity through innovative management of the network	High – A40 is at or close to capacity for much of the day leading to problems	

LTP4 Goals	LTP4 Objectives	Relevance to A40 situation	STP2 Objectives
	Increase journey time reliability and minimise end-to-end public transport journey times on main routes	High – journey times along A40 have high variability and buses have no way to avoid them	To stimulate economic growth within Oxford, West Oxfordshire and the Oxfordshire Knowledge Spine
	Develop a high quality, innovative and resilient integrated transport system that is attractive to customers and generates inward investment	Low – Will be significant whichever option is chosen	
To support the transition to a low carbon future	Minimise the need to travel	Low – none of the options would have a direct impact on this, although they may have an indirect impact through influencing location of development or encouraging longer distance commuting	Interface with existing and committed schemes in the corridor including P&R
	Reduce the proportion of journeys made by private car by making the use of public transport, walking and cycling more attractive.	High – The high levels of bus use between West Oxfordshire and Oxford city centre has been a notable success of the county's transport strategy of the last 20-30 years	To reduce carbon emissions and other pollutants associated with travel
	Influence the location and layout of development to maximise the use and value of existing and planned sustainable transport investment	Low – Will be significant whichever option is chosen	To encourage safer travel between Witney/Carterton and Oxford
	Reduce per capita carbon emissions from transport in Oxfordshire in line with UK Government targets.	High – stationary or slow-moving traffic will be emitting excess carbon for extended periods daily	
To support social inclusion and equality of opportunity To protect and, wherever possible enhance Oxfordshire's environment and improve quality of health To improve public health, safety and individual well being	Mitigate and wherever possible enhance the impacts of transport on the local built, historic and natural environment	Medium – this would need to be taken into account whichever option is chosen	
	Improve public health and wellbeing by increasing levels of walking and cycling, reducing transport emissions, reducing casualties and enabling inclusive access to jobs, education, training and services	High – stationary or slow-moving traffic will be emitting excess carbon for extended periods daily; traffic conditions may put off prospective walkers or cyclists on route.	

Source: A40 Science Transit 2 – Option Assessment Report, Oxfordshire County Council (2017)

4.5 A40 Smart Corridor Objectives

- 4.5.1 Three main challenges informed the development of six objectives for the A40 Smart Corridor. These challenges, along with the A40 Smart Corridor objectives and links between these objectives and the WODC and LTP4 objectives set out below in Table 4-4.

Table 4-4 A40 Smart Corridor Objectives

Challenge Summary	A40 Smart Corridor Objectives	Measures of Success	Map to WODC Transport and LTP 4 Objectives
There are long-standing issues of congestion and journey time unreliability on the A40 corridor, issues which are likely to be exacerbated by planned local growth.	Ensure the impact of additional housing on the transport network is acceptable and associated impacts on it are adequately mitigated	Traffic queueing and congestion levels	CO1, CO13 LTP4#1, LTP4#2
West Oxfordshire will deliver an increase of 15,950 homes by 2031, most of which will be centred around Witney, Carterton, and Eynsham. Local growth	Unlock the delivery of 4,813 additional homes along the A40 Smart Corridor in support of the Housing and Growth Deal	Delivery of homes	CO1 LTP4#1, LTP4#2

Challenge Summary	A40 Smart Corridor Objectives	Measures of Success	Map to WODC Transport and LTP 4 Objectives
plans also include the delivery of 4,556 new jobs in Oxfordshire Cotswolds Garden Village, a new garden village to the north of A40, near Eynsham.	Support the delivery of 2,222 affordable homes along the A40 Smart Corridor	Delivery of affordable housing	
	Unlock economic growth at key employment sites along the 'Knowledge Spine' at Oxfordshire Cotswolds Garden Village	Delivery of jobs	
Significant traffic congestion reduces bus reliability and attractiveness and contributes to air and noise pollution.	Encourage sustainable bus travel between Eynsham/Witney/wider area and Oxford	Mode shift to bus	CO1, CO11, CO16 LTP4#2, LTP4#3
	Encourage sustainable cycle and pedestrian travel between Eynsham/Witney/wider area and Oxford	Mode shift to walk and cycle Improved air quality and wellbeing	

4.6 Integrated Bus Lanes Objectives

- 4.6.1 The objectives for the proposed scheme are a combination of both the A40 Smart Corridor and A40STP2 objectives and therefore also draw on the LTP4 and WODC Local Plan objectives, as explained above. The **objectives for the Integrated Bus Lanes scheme** are as follows:

Table 4-5 Integrated Bus Lanes Scheme Objectives

Ref	Theme	Objective	Relevance against the scheme
Objective 1	Support housing development	Unlock the delivery of 4,813 additional homes along the A40 Smart Corridor in support of the Housing and Growth Deal	Improve public transport access and supply to / from West Oxfordshire to Oxford and the developments
Objective 2		Support the delivery of 2,222 affordable homes along the A40 Smart Corridor	
Objective 3		Ensure the impact of additional housing on the transport network is acceptable and associated impacts on it are adequately mitigated	Additional capacity provided further enhances the benefits of the rest of the A40 Corridor schemes
Objective 4	Support economic growth	Unlock economic growth at key employment sites along the 'Knowledge Spine' at Oxfordshire Cotswolds Garden Village	Additional capacity (both private and public transport) to employment sites and improved accessibility, in particular to the east of Eynsham, such as to Oxford.
Objective 5		To stimulate economic growth within Oxford, West Oxfordshire and the Oxfordshire Knowledge Spine	
Objective 6	Improve sustainable transport and provision	Encourage sustainable bus travel between Eynsham/Witney/wider area and Oxford	Improved access to / from West Oxfordshire to Oxford.
Objective 7		Encourage sustainable cycle and pedestrian travel between Eynsham/Witney/wider area and Oxford	Enhance the current shared footway/ cycleway/ crossings.
Objective 8		To improve travel times and/or journey reliability between Witney/Carterton and Oxford	Additional capacity and resilience.
Objective 9	Environment	To reduce carbon emissions and other pollutants associated with travel	Shift from car to bus would reduce emissions and improve air quality; may also improve journey time.
Objective 10	Improve road safety	To encourage safer travel between Witney/Carterton and Oxford	Redesigned crossing and network would help reduce incidents (including for active travel).
Objective 11	Strategic alignment	Interface with existing and committed schemes in the corridor including P&R	Additional capacity further enhances the benefits of the rest of the rest of the A40 Corridor schemes

5 Option Development and Sifting

5.1 Introduction

- 5.1.1 This chapter discusses the option development method and assessment framework developed to sift the options. The assessment framework has been developed in accordance to the DfT's Transport Appraisal Process (2014), Early Assessment Sifting Tool (EAST) Guidance (2017) and the HM Treasury Greenbook (2018).
- 5.1.2 The options have been derived based on the assessment of current and forecast travel patterns, development and growth, and challenges; previous and current proposals from the relevant local authorities and stakeholders; workshops with Oxfordshire County Council officers; and professional judgement based on experience elsewhere and within Oxfordshire to provide a comprehensive list of options.
- 5.1.3 It is recognised that options could be packaged in order to provide an optimum solution to the identified problems and achieve the scheme objectives. However, funding, financing and affordability as well as deliverability will need to be taken into account for not just single options but also potential packages. Delivery may be dependent on different agencies, developers and funding sources, and completion and sign-off of other emerging strategies.
- 5.1.4 Options that are sifted out may still perform well either as part of an overall package; to address other specific issues such as new developments; or following implementation of other options.

5.2 Background

- 5.2.1 The purpose of this section is to document the strategic option appraisal work that underpins the proposed A40 corridor strategy and the schemes, as well as the more recent optioneering exercise that has been conducted to inform the design of the Integrated Bus Lanes scheme. Figure 5-1 gives an overview of the previous strategies and consultations which have taken place in chronological order. The text below considers each of these in turn.

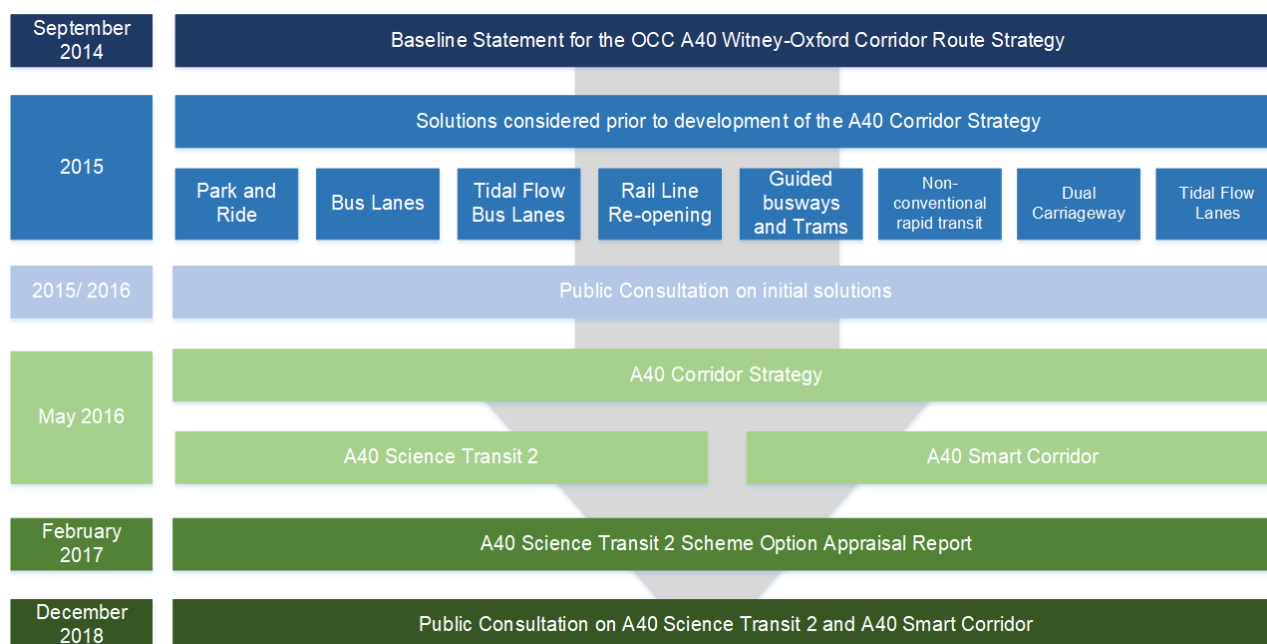


Figure 5-1 Overview of Previous Consultations

- 5.2.2 A Baseline Statement for the OCC A40 Witney-Oxford Corridor Route Strategy was prepared in September 2014. This identified that the A40 has long standing issues of congestion and leading to extended journey times and high journey unreliability. Key problems and challenges for the corridor were identified and these are outlined in Section 1.1.9 of this report. It was noted that there are few alternative means of travel from this part of West Oxfordshire as the alternative routes also suffer from heavy congestion, there are no rail connections and buses have no alternative but to use the congested roads.
- 5.2.3 Furthermore, as part of informing the development of an A40 Corridor Strategy (2015) a range of potential improvement solutions were considered including Park and Ride, Bus Lanes, Tidal Flow Bus Lanes and Dual Carriageway. A full list of potential options is shown in Figure 5-1.

5.2.4 Five of these options then went through a public consultation process (2016), in order to gather public opinions on the potential proposed schemes²⁰. The results represent 796 responses in total and can be seen in Figure 5-2 and Figure 5-3. When asked about level of support for each concept presented, the option that received the highest 'strongly support' response, with just under 50%, was the 'dual carriageway' option.

5.2.5 When the public were asked 'which one scheme or combinations of options, do you think Oxfordshire County Council give top priority to?', the **top three in favour were 'dual carriageway' with 28%, followed by 'bus lane' with 15%, and 'train' with 13%.**

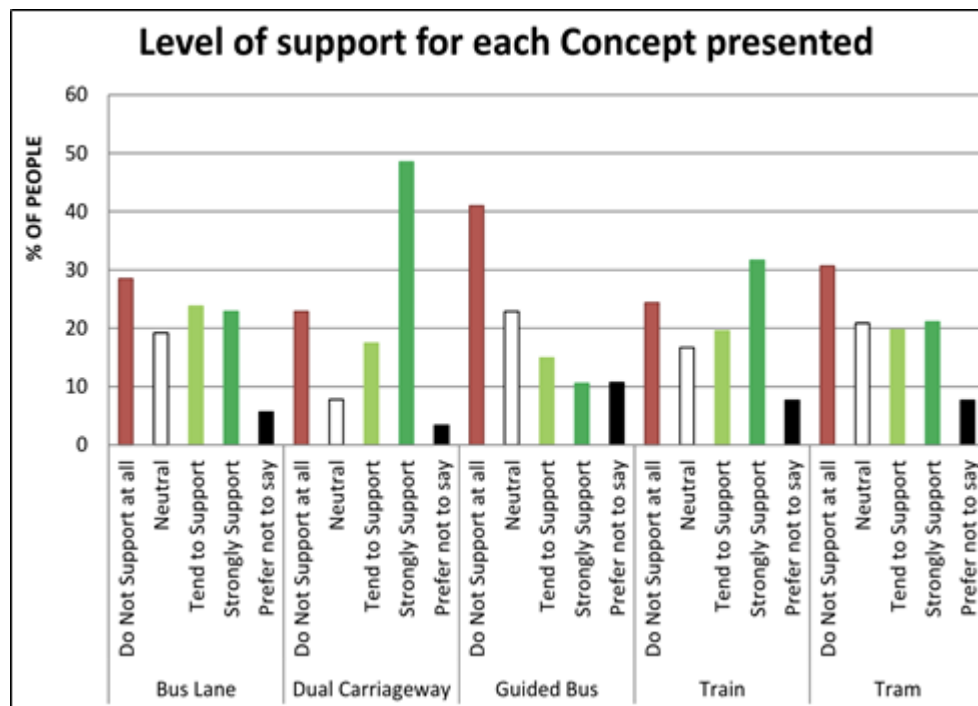


Figure 5-2 Public consultation results (level of support)

Source: Investing in the A40 – Long Term Strategy Consultation Report, OCC (May 2016)

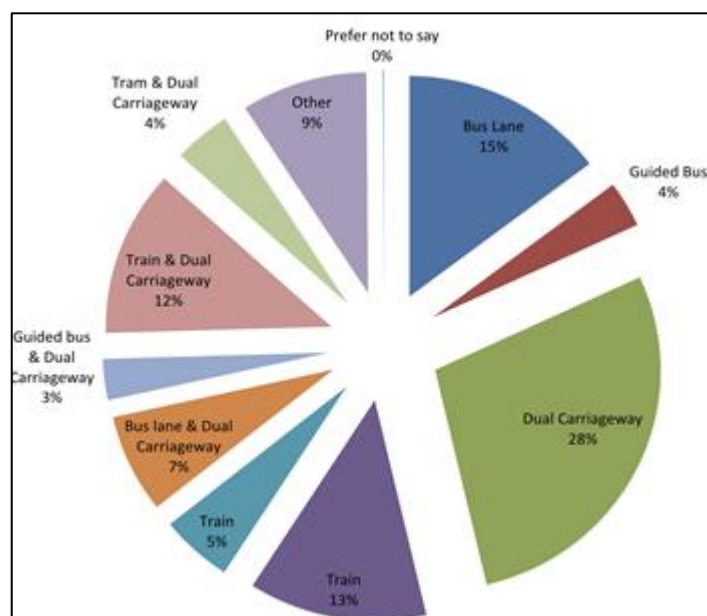


Figure 5-3 Public consultation results (scheme priority)

Source: Investing in the A40 – Long Term Strategy Consultation Report, OCC (May 2016)

²⁰ Lack of clarity/reasoning on how these five options were selected out of the eight options.

- 5.2.6 Following this consultation, in May 2016 OCC adopted the A40 Corridor Strategy which is a road-based improvement strategy as the most viable and affordable option which could be delivered on a relatively short timescale. The strategy seeks to encourage greater use of public transport and cycling for trips between West Oxfordshire and Oxford. The A40 Corridor Strategy promoted two schemes: the A40 Science Transit 2 scheme and the A40 Smart Corridor scheme.
- 5.2.7 As part of the option appraisal work on the A40 Strategy, A40 Science Transit 2 scheme Option Appraisal Report (2017)²¹ was produced. In the report, a number of transport options were assessed using EAST Guidance (2017)²² and the criteria for this appraisal can be found in the A40 Strategy Option Assessment Framework and the results are shown in Table 5-1. The **A40 Bus Lanes scheme scored the highest** in relation to achieving criteria.

²¹ A40 Science Transit Phase 2 – Option Assessment Report (OCC, 2017)

²² EAST is a decision support tool aimed at providing decision makers with relevant, high level, information to help them form an early view of how options perform and compare. The EAST assessment does not in itself make comparisons or recommendations between options, but it is possible to take the output from the EAST assessments and use this to assess the relative “value” of the different options.

Table 5-1 A40 Science Transit 2 EAST Assessment²³

Option	Description	Strategic (20%)	Economic (30%)	Managerial (20%)	Financial (20%)	Commercial (5%)	TOTAL
Dual Carriageway	Widening the A40 to 2 lanes in each direction separated by a central reservation between Shores Green and A40/A44 Link Road generally within current corridor but with significant alterations to junctions. Two options suggested at Eynsham – either widening on current line or bypassing to the north.	15	20	15	11	3	69
Bus Lane	Building 3 metre wide bus lanes on the existing verges between Shores Green and Duke's Cut bridge in both directions. The bus lanes would be separated from the general traffic by a 1 metre buffer.	16	26	14	14	5	82
Guided Bus	Installing a two-way guided busway track to provide a new route from Witney to Oxford using specially adapted buses. The route would use the line of the old railway from Witney to Cassington, except through Eynsham, but would continue alongside the A40 to	14	26	11	8	2	71

²³ The weighting of the (45% Strategic, 35% Economic, 10% Financial, 5% Managerial, 5% Commercial) is based on the Oxfordshire Local Enterprise Partnership (LEP) Local Growth Funds (LGF) assessment (the cases are weighted according to local priorities).

	Duke's Cut canal bridge.						
Heavy Rail	Building a new single track railway line with double track running through stations to allow for trains to pass each other. The line would run from a new station south of Ducklington Roundabout to join the old line near South Leigh, then pass between Eynsham and B4449 before joining the Cotswold line at Yarnton.	15	22	11	6	1	66
Light Rail	Double track light rail line from south of Ducklington to the old railway at South Leigh then using the old railway line to Eynsham where a new line would be created between the village and the southern bypass. The line would continue on the old railway line to A40 where it would either continue to the Cotswold Line at Yarnton or continue alongside the A40 toward Oxford.	15	25	11	7	1	70

Source: A40 Science Transit 2 – Option Assessment Report, Oxfordshire County Council (2017)

- 5.2.8 A further public consultation then took place in December 2018 focused on public views of the proposed A40 schemes ('Phase one – A40 Science Transit 2' and 'Phase two – A40 Smart Corridor'). The consultation received 455 responses with the public given three options to choose from: 'like', 'do not like' and 'no view'. The two schemes which came out on top both gaining over 70% of 'like' votes were 'B4044 Community Path from Eynsham to Botley' and the 'A40 Cycle link to the National Cycle Route 5 on the Oxford Canal Tow Path' (followed by the 'A40 Dual Carriageway' and 'Bus Lane').

Table 5-2 Public consultation results for proposed Phase 1 and Phase 2

What best describes your opinion of the proposals?	Like	Do not like	No view
A40 Eynsham Park & Ride proposal	35%	46%	19%
Bus Lane proposal	41%	40%	19%
A40 Dual Carriageway	53%	26%	21%
Completing the A40 Westbound Bus Lane	44%	32%	24%
A40 Eastbound bus lane over the Duke's Cut and Wolvercote railway bridges	44%	29%	27%
B4044 Community Path from Eynsham to Botley	76%	5%	18%
A40 Cycle link to the National Cycle Route 5 on the Oxford Canal Tow Path	71%	5%	24%

Source: *Investing in the A40 – Long Term Strategy Consultation Report, OCC (May 2016)*

- 5.2.9 Both the options appraisal and the public consultations demonstrate support for the A40 Bus Lanes.
- The A40 Bus Lanes scheme scored the highest in the options appraisal
 - The initial consultation showed that around 50% of respondents support or strongly support the Bus Lane
 - The second consultation showed that 41% of people like the Bus Lane
- 5.2.10 It should be noted these consultations did not suggest that multiple interventions could be taken forward (for example both dual carriageway and bus lane coming forward) and instead considered the interventions in isolation. Further consultation showing the interventions moving forward as a package may lead to more public support.
- 5.2.11 Based on the option appraisal work and the public consultation exercise outlined above a long-term strategy for the A40 was recommended taking a combined approach which included both increased road capacity as well as improvements to the public transport offer. Funding has been secured from the Government to deliver a number of projects which will help realise the A40 Strategy and form the A40 Corridor Improvement Programme. These include, but are not limited to, a section of new road dualling between Witney and Eynsham, the provision of a new Park and Ride site at Eynsham, a fully segregated bus lanes between Eynsham and Oxford Ring Road and improved cycle route provision from Witney along the A40 to Oxford.
- 5.2.12 Originally, the A40 Smart Corridor scheme was envisaged to be delivered as a second phase of works after the completion of A40STP2. However, OCC is now proposing to combine some elements of the A40 Smart Corridor and A40STP2 schemes, to ensure scheme benefits are maximised, deliver cost and programme efficiencies and minimise disruption during construction.

5.3 A40 Corridor Improvements

- 5.3.1 The A40 Corridor Improvements consist of the following schemes, as shown in Figure 5-4:
- The Integrated Bus Lanes scheme;
 - A40 Dualling between Hill Farm, Witney and Eynsham; and
 - Capacity and connectivity improvements at Duke's Cut Bridges.



Figure 5-4 A40 Corridor Improvements

- 5.3.2 The Integrated Bus Lanes scheme includes elements of both the A40STP2 and A40 Smart Corridor schemes (see section 1.1). The Integrated Bus Lanes scheme requires changes to the existing road design, junctions and may impact adjacent land. To meet these needs, a number of options have been devised to deliver the Integrated Bus Lanes scheme. The following section appraises these options.

5.4 Method

- 5.4.1 Overall, the Integrated Bus Lanes (IBL) scheme comprises the implementation of bus lanes along the A40. The construction of the bus lanes will modify the existing two lane A40 to four lane A40 – two lanes for regular traffic and two lanes for buses (and additional active travel infrastructure) and will also include upgrading the junctions/access points to accommodate the widened A40.
- Upgrading the junctions/access points/bridges to accommodate the widened A40 can be delivered in number of ways, such as an existing roundabout junction being reconfigured into a signalised junction, throughabout / hamburger roundabout and others.
 - The option to implement the new bus lane other than along the A40 (by widening the existing A40; an online option) is not preferred as any other/offline option will require substantial land take and will be an expensive option.
 - Thus, it is important to note that only the design of the impacted junctions/ access points along the A40 have been considered as part of the optioneering/appraisal presented in this OAR.
 - However, it is recognised that the width of the main carriageway/bus lane and the width of the shared use path may change and could have number of options on it, but this assessment will be undertaken as part of the next design stages/ feasibility.
 - Therefore, the assessment outlined in this OAR focuses on how each of the junctions/access points along the A40 can accommodate the Integrated Bus Lanes scheme.
- 5.4.2 Overall, the options have been developed based on the following:
- Assessment of current and forecast travel patterns, development and growth, identified challenges and local priorities;
 - Previous and current proposals from the relevant local authorities and stakeholders, especially the A40 Smart Corridor and A40 Science Transit 2 schemes as proposed in Oxfordshire County Council's A40 Strategy;
 - Workshops with Oxfordshire County Council officers; and
 - Professional judgement
- 5.4.3 A robust optioneering and appraisal process was adopted to select better performing junctions/ access points improvement options, in accordance to the DfT TAG guidance. A three-stage appraisal process (shown in Table 5-3) have been undertake, each stage involved workshops with Oxfordshire County Council officers.
- 5.4.4 Appraisal/scoring of an option was undertaken against its 'Do Minimum' (DM) option. The Do Minimum scenario assumes no physical interventions are undertaken on the network within the A40 Corridor that are not already committed or funded. The Do Minimum scenario does therefore include all committed local plan developments and the transport scheme (including park and scheme/associated infrastructure).
- 5.4.5 At each sifting stage, the evidence available to base the assessment on is different. As the stages were completed chronologically (Stage 1 – Stage 3), more evidence was available for the later stages, including specific modelling of options. Each sifting stage draws not only on the new evidence included as part of that stage, but also on the evidence compiled in the previous stages. Table 5-3 below shows the evidence available at each stage.
- 5.4.6 It is to be noted that this is an iterative process, further corrections to the scoring (Stage 2 and Stage 3) can take place in line with feedback from relevant stakeholders, OCC and new/revised evidence.

Table 5-3 Stages and Evidence Base for Sifting

Sifting Stage	Method	Evidence
Stage 1 – Initial Longlist and Sifting	<ul style="list-style-type: none"> • Long list of options was developed, which if delivered can accommodate the bus lanes. • Number of options were sifted out as they had clear issues (such as constructability/ land take/ cost/acceptability) and are likely unfeasible/unviable and therefore not taken forward. • A list of options taken forward to stage 2 was developed. 	<ul style="list-style-type: none"> • CAD sketches (for some options) • Priority for active travel/ sustainable travel • Professional judgement • Extents of highway boundary; land take • General location of utilities; constructability
Stage 2 – Appraisal and Scoring	<ul style="list-style-type: none"> • Appraisal/ scoring of options which were not sifted out in the stage 1 was undertaken against a range of criteria (associated to strategic, economic, financial, management and commercial cases) 	<ul style="list-style-type: none"> • CAD drawings (for some options) • Priority for active travel/ sustainable travel • Professional judgement • Extents of highway boundary; land take

Sifting Stage	Method	Evidence
		<ul style="list-style-type: none"> General location of utilities; constructability Junction capacity modelling (for some options)
Stage 3 – Updated Longlist, Appraisal and Scoring	<ul style="list-style-type: none"> After review and discussions on the stage 2 results with OCC, further options were identified. Similar to stage 1, firstly, several options were sifted out as they had clear issues (such as constructability/ land take/ cost/ acceptability) and are likely unfeasible/unviable and therefore not taken forward. Then, similar to stage 2, appraisal/ scoring of the new options was undertaken against criteria (associated to strategic, economic, financial, management and commercial cases) Based on the scoring of each option and overall feasibility (land take/cost/constructability/impact on users/sustainability), a number of options were sifted out. A shortened list of options was developed and a better performing option (among the short-listed option) was selected as a preferred option. This was undertaken for each junction/access point. 	<ul style="list-style-type: none"> CAD drawings (for some options) Priority for active travel/ sustainable travel Professional judgement Extents of highway boundary; land take General location of utilities; constructability Safety inputs Environmental inputs Structure inputs Traffic modelling (VISSIM for most options) Local junction modelling (LinSIG for some options)

Structural inputs

- 5.4.7 There are several key structures along the current A40 route, at the Cassington Halt (former railway), Cassington New (River Evenlode) bridges and a number of existing culverts along the current A40 route, which represent physical constraints for the scheme due to the limited width available between parapets at these locations. Previous work undertaken as part of the A40 Science Transit 2 scheme have identified that these structures have sufficient structural capacity however they would need to be widened to accommodate four traffic lanes and shared use verges.
- 5.4.8 Options were generated for Cassington Halt Bridge and Cassington New Bridge by looking at different arrangements of widening on one or both sides, plus footbridges on one or both sides. Options were not generated specifically for the other culverts as the impact on them is minimal and minor widening only will be required to upgrade these for a wider carriageway.

Transport modelling method/ inputs

- 5.4.9 Transport modelling undertaken for the Integrated Bus Lanes scheme followed a staged process.
- Initially, junction capacity models (Stage 2) were used to understand at a high level the impact of the Integrated Bus Lanes on each junction along the A40, in terms of capacity and queueing.
 - Then, as the scheme progressed, more detailed VISSIM models (in Stage 3) were produced to understand the impact of the Integrated Bus Lanes scheme.
- 5.4.10 The **Junction Capacity Modelling** was undertaken as part of the A40 Science Transit (+) scheme to include eastbound and westbound bus lanes. Whilst this may not directly reflect the junction designs as part of the Integrated Bus Lanes, it provided a good indication of the how the junction will cope with the impact of the Integrated Bus Lanes scheme.
- 5.4.11 Below, an overview is given of the methodology used to develop the models, but further information and modelled results can be found in the technical notes produced by AECOM entitled 'A40 Science Transit Plus – Traffic Modelling (local)' and 'Witney Road – Traffic Modelling'. As is customary with junction capacity modelling, a series of assumptions were made for both the LinSig and Junctions 9 models, these are outlined in Chapter 9.2.
- To model the A40 Park and Ride junction, the Witney Road junction and the Cassington junction: LinSig v3.2.40.0 software has been used.
 - To model the Lower Road roundabout: Junctions v9.5.0.6896 software has been used.
 - It should be noted that each junction was modelled in isolation and impacts at upstream and downstream junctions were not considered.

5.4.12 The design used for each of the junction models was as follows:

- At Park and Ride: signalised T-junction design at the planned access point of the Park and Ride with the A40 was considered (currently there is no junction at this location).
- At Lower Road junction: conversion of an existing un-signalised roundabout to a signalised crossroads with signalised controlled pedestrian crossings was considered.
- At Cassington junction: modification of the existing signalised staggered junction to incorporate crossing facilities for vulnerable users and make provisions for bus priority was considered. The layout was amended to improve traffic flow conditions at the junction. Two options were modelled:
 - Two Lanes Through – this model includes two westbound lanes for general traffic on A40.
 - Bus Lanes Through – this model converts the nearside westbound lane to a bus lane on the A40 with a left turn flared lane at the entry to Cassington Road.
- At Witney Road junction, three options have been modelled:
 - Option 1 included a reverse staggered crossing on the east side of the A40, and the addition of bus lanes in both directions.
 - Option 2 included a reverse staggered crossing on the east side of the A40, the addition of bus lanes in both direction and a straight across pedestrian crossing on Witney Road.
 - Option 3 included a reverse staggered crossing on the east side of the A40, the addition of bus lanes in both direction and a staggered pedestrian crossing on Witney Road

5.4.13 **VISSIM modelling:** after assessing the operation of the shortlisted options through the junction models, VISSIM modelling was undertaken. VISSIM microsimulation model (operational assessment) was undertaken to account for the possible interaction between consecutive junctions along the A40 corridor and in order to compare signalised and priority-controlled options in a consistent manner. 2031 VISSIM Corridor model developed by Wood Consultants on behalf of OCC was used for this. The VISSIM operational models provided greater detail regarding the performance of the options and an assessment of possible interactions between the junction options along the corridor. The modelling approach is summarised below:

- The proposed signalised options were initially assessed and optimized in LinSig using 2031 Actual flows extracted from the “2031 - A40 Corridor Strategic model” developed by Pell Frischmann.
- The refined options that operated within/ close to capacity in the LinSig models were coded in the 2031 VISSIM model to be assessed and compared against the priority-controlled roundabout options.
- If queues blocked back through the junction option, demand was released elsewhere in the network as a stress test, to also assess how the junction performed with full demand flows in the model.
- Signal timings were optimised within VISSIM to provide a direct comparison between the different options.
- The proposed junction options were tested with sub-options – so different levels of priority for cyclists, pedestrians and buses could be assessed.
- Several iterations between design and modelling were undertaken to refine the proposed design for each option.
- Modelling results, such as average speed and journey times were extracted for both general traffic and buses to inform the comparison between options.

- 5.4.14 It should be noted that the VISSIM models used in the option assessment are interim models, which are suitable for comparing the relative performance of each option in the absence of an updated model. The performance of the preferred option is intended to be tested in an extended/ updated 2020 VISSIM base model, which is being developed by AECOM in parallel with the option testing. The modelling assumptions and limitations for the operational assessment undertaken in VISSIM have been summarised in Chapter 9.2.

5.5 Stage 1 – Initial Sift

- 5.5.1 Stage 1 included development of initial long list of options and appraisal/ sifting of these options, as discussed in the above section of this chapter.
- 5.5.2 The initial long list of options were developed for a number of junctions/access roads/bridges along the A40, providing several options for each of the 18 elements along the A40 corridor as shown in the summary Table 5-4. Number of options were sifted out as they had clear issues (such as constructability/ land uptake/ cost) and are likely unfeasible/unviable and therefore were not taken forward.
- 5.5.3 Detailed appraisal and rational of sifting out options are presented in **Appendix E**. The options which have been taken forward to Stage 2 are mentioned in Table 5-4 and detailed out in the next chapter. Figure 5-5 and Figure 5-6 show the location of each of the element referred to in Table 5-4.

Table 5-4 Sift 1

Ref	Junction/Access Road/Bridge	Element	Comment
1	Park and Ride Junction	Park and Ride Junction	Initially 10 options were developed and assessed, of which 5 were sifted out. The following 5 options were taken forward to Stage 2 sift. <ol style="list-style-type: none"> Signalised Junction consisting of crossroads to access the Park and Ride Site from the A40 with dedicated signals for buses and general traffic. Signalised Hamburger Roundabout with central lanes for through traffic and dedicated signals for buses and general traffic entering and exiting the Park and Ride site from the A40. Roundabout for traffic accessing the Park and Ride site from the A40, including a bus gate east of the roundabout. This is the current Do Minimum as it is the proposal as part of the A40STP2. Signalised Roundabout with dedicated signals for buses and general traffic entering and exiting the Park and Ride site from the A40. Bus Gate for westbound buses.
2	Cuckoo Lane	Vehicle Access to Park and Ride	Initially 10 options were developed and assessed, of which 5 were sifted out. The following 5 options were taken forward to Stage 2 sift. <ol style="list-style-type: none"> Signalised Junction consisting of crossroads to access the Park and Ride Site from Cuckoo Lane with dedicated signals for buses and general traffic. Signalised Hamburger Roundabout with central lanes for through traffic and dedicated signals for buses and general traffic entering and exiting the Park and Ride site from Cuckoo Lane. Roundabout for traffic accessing the Park and Ride site from Cuckoo Lane, including a Bus Gate for westbound buses. Signalised Roundabout with dedicated signals for buses and general traffic entering and exiting the Park and Ride site from Cuckoo Lane. Do Minimum (A40 STP2 Design).
3		Bus Access to Park and Ride	Initially 11 options were developed and assessed, of which 4 were sifted out. The following 7 options were taken forward to Stage 2 sift. <ol style="list-style-type: none"> Do Minimum (A40 STP2 Design). Signalised Junction consisting of crossroads to access the Park and Ride site from Cuckoo Lane with dedicated signals for buses and general traffic. Signalised Hamburger Roundabout with central lanes for through traffic and dedicated signals for buses entering and exiting the Park and Ride site from Cuckoo Lane. Roundabout, for buses accessing the Park and Ride site from Cuckoo Lane, including a bus gate east of the roundabout. Signalised Roundabout with dedicated signals for buses and general traffic. Major/ Minor Junction, for entry and exit into and out of the Park and Ride for buses and general traffic from Cuckoo Lane. Bus Gate giving priority to buses getting into east of Cuckoo Lane junction.

Ref	Junction/Access Road/Bridge	Element	Comment
4		Close Access to Park and Ride	Initially 2 options were developed and assessed and were taken forward to Stage 2 sift. <ol style="list-style-type: none"> Close Access to Park and Ride from Cuckoo Lane (for general traffic only). Access to Park and Ride from Cuckoo Lane is intended to provide access from the north of Cuckoo Lane. Do Minimum (A40 STP2 Design).
5		Right Turn Banned (In & Out)	Initially 3 options were developed and assessed and were taken forward to Stage 2 sift. <ol style="list-style-type: none"> Major/ Minor Junction, no restriction on turning movements (the Do Minimum [A40 STP2 Design] option). Access permitted to traffic using Cuckoo Lane. Right Turn Banned (In & Out). Signalised Junction to allow right turn in and out.
6		Branched off to join Park and Ride Junction	Initially 9 options were developed and assessed but none of them were taken forward to Stage 2 sift, as all deemed unfeasible. All options would also have a detrimental effect on the design of the Park and Ride site.
7	Old Witney Road	Old Witney Road	Initially Old Witney Road/A40 junction was developed and assessed but it was not taken forward to Stage 2 sift as it would create unnecessary additional traffic past residential properties to bypass the Witney Road Junction.
8	Elm Place Access & Layby	Elm Place Access & Layby	Initially 2 options were developed and assessed. The following option was taken forward to Stage 2 sift and the 'Removal of Layby' option was sifted out at this initial stage. "Removal of Layby" option is subject to further work/engagement between OCC/WODC/West Eynsham developer. This option may need to be revisited. <ol style="list-style-type: none"> Alteration to Access, change existing arrangements as proposed in A40 STP2 design. This is the Do Minimum option. Access would need to be modified if Old Witney Road is opened.
9	Evenlode Public House Access	Evenlode Public House Access	Initially 6 options were developed and assessed. All of the 6 options were taken forward to Stage 2 sift. <ol style="list-style-type: none"> Without westbound bus lane and banning of right-out movement from Evenlode Public House onto the A40. Without westbound bus lane and banning of right-in and right-out movements (between Evenlode Public House and the A40). With westbound bus lane and banning of right-out movement from Evenlode Public House onto the A40. With westbound bus lane and banning of right-in and right-out movements (between Evenlode Public House and the A40). With Westbound Bus Lane -All movements allowed. Without westbound bus lane with right turning movements not banned.
10	Witney Road Junction	Witney Road Junction	Initially 3 options were developed and assessed, and all were taken forward to Stage 2 sift. <ol style="list-style-type: none"> Signalised Junction with Physical Separation (between the westbound general traffic lane and the dedicated right turn lane). Signalised Junction with No Physical Separation (reduced hatched marking separation between the westbound general traffic lane and dedicated right turn lane). Signalised Junction (Bus Only Right Turn) with ban of right turn into Witney Road for general traffic only.
11	Esso Petrol Station and Spareacre Lane	Esso Petrol Station and Spareacre Lane	Initially 3 options were developed and assessed, of which 1 was sifted out. The following 2 options were taken forward to Stage 2 sift. <ol style="list-style-type: none"> Uncontrolled Crossing with traffic islands to connect the Spareacre Lane PROW. Controlled Crossing across the A40 to connect the Spareacre Lane PROW.
12	Lower Road Roundabout	Lower Road Roundabout	Initially 6 options were developed and assessed, of which 1 was sifted out. The following 5 options were taken forward to Stage 2 sift. <ol style="list-style-type: none"> Signalised Junction, consisting of crossroads with dedicated signals for buses and general traffic (40mph speed limit) Hamburger Roundabout with central lanes for through traffic and dedicated signals for general traffic wishing to access Lower Road or B4449 (40mph speed limit). Roundabout connecting A40 with Lower Road and B4449 (50mph speed limit).

Ref	Junction/Access Road/Bridge	Element	Comment
			4. Signalised Roundabout (40mph speed limit). 5. Increase Size of Existing Roundabout to increase capacity.
13	Cassington New Bridge	Cassington New Bridge	Initially 4 options were developed and assessed, of which 1 was sifted out. The following 3 options were taken forward to Stage 2 sift. 1. Widen Bridge on South Side1 : incorporate a 3m wide footway on the north side (no verge) and a 3m wide footway on the south side (1.5m verge). 2. Widen Bridge on South Side2 : incorporate a 2m wide footway on the north side (no verge) and a 3m wide footway on the south side (1.5m verge). 3. Widen Bridge on South Side3 : without Westbound Bus Lane (bus gate prior to the bridge) and incorporate a 3m wide footway on the north side (no verge) and a 3m wide footway on the south side (1.5m verge).
14	Cassington Road/Eynsham Road Junction	Cassington Road Junction (West)	Initially 4 options were developed and assessed, of which 2 were sifted out. The following 2 options were taken forward to Stage 2 sift. 1. Right Turn Banned onto A40 from Cassington Road. 2. Right Turn Allowed onto A40 from Cassington Road.
15		Durham Road Access (South of A40)	Initially 3 options were developed and assessed, of which 1 was sifted out. The following 2 options were taken forward to Stage 2 sift. 1. Right Turn Pocket , central traffic island shortened to allow for a right turn pocket for vehicles turning onto Durham Lane. 2. Potential Interface with Junction , closing the access to A40 and provide alternative access through private land.
16		Cassington Road Junction (East)	Initially 2 options were developed and assessed, and both were taken forward to Stage 2 sift. 1. Right Dedicated Right Turn Lane into Eynsham Road , and no westbound bus lane. 2. Right Turn Pocket into Eynsham Road , no westbound bus lane.
17		Eynsham Road Junction	Initially 6 options were developed and assessed, and all of them were deemed feasible, and were taken forward to Stage 2 sift. 1. Left turn slip road into Eynsham Road , eastbound bus lane terminates prior to the junction for vehicles to turn left. 2. Dedicated left turn lane into Eynsham Road (no eastbound bus lane). 3. Eastbound Bus Lane and general traffic lane through junction . 4. Uncontrolled crossing north across Eynsham Road (No Central Island) . 5. Controlled Crossing South across Eynsham Road (Central Island) . 6. Controlled Crossing South across Eynsham Road (No Central Island) .
18	Cassington Halt Bridge	Cassington Halt Bridge	Initially 8 options were developed and assessed, of which 2 were sifted out. The following 6 options were taken forward to Stage 2 sift. 1. No Bridge Widening with Bus Lanes , localised narrowing of bus lanes and construction of north and south footbridges. 2. No Bridge Widening without Bus Lanes , no footbridges both north and south of the bridge deck will be constructed for Non-Motorised User (NMU) flows. 3. Widen Bridge on South Side1 , incorporate 3m wide footway on south side and a footbridge on north side. 4. Widen Bridge on South Side 2 , incorporate 3m wide footway on south side and a 3m wide at-grade footway on the north side crossing the road beneath the bridge. 5. Widen Bridge on North & South Side , incorporate a 3m footway on the north side and a 3m footway on the south side. 6. Structure Infilling & Signalised Junction . Allows incorporation of a 3m footway on both the north and south side. Need to create a signalised junction east of Cassington Halt bridge to allow access to the quarry.

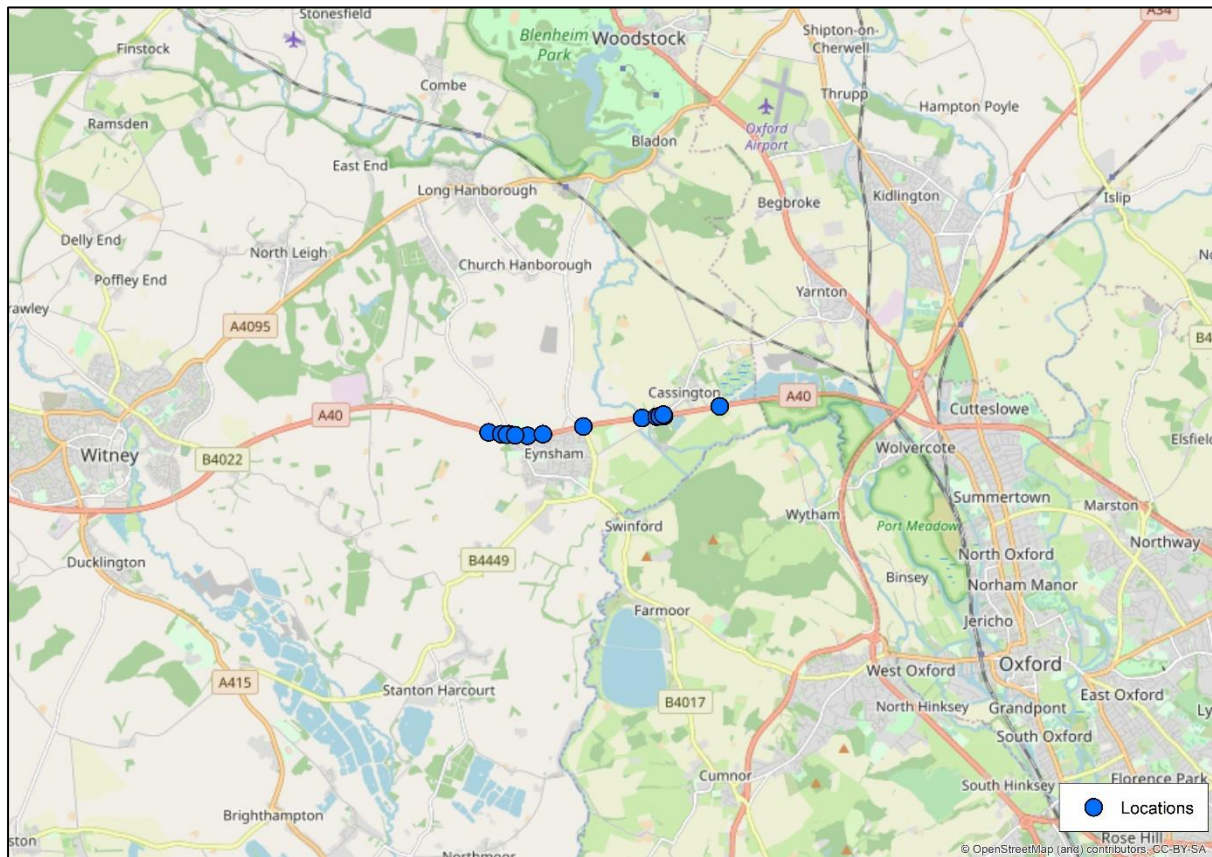


Figure 5-5 Location of the elements

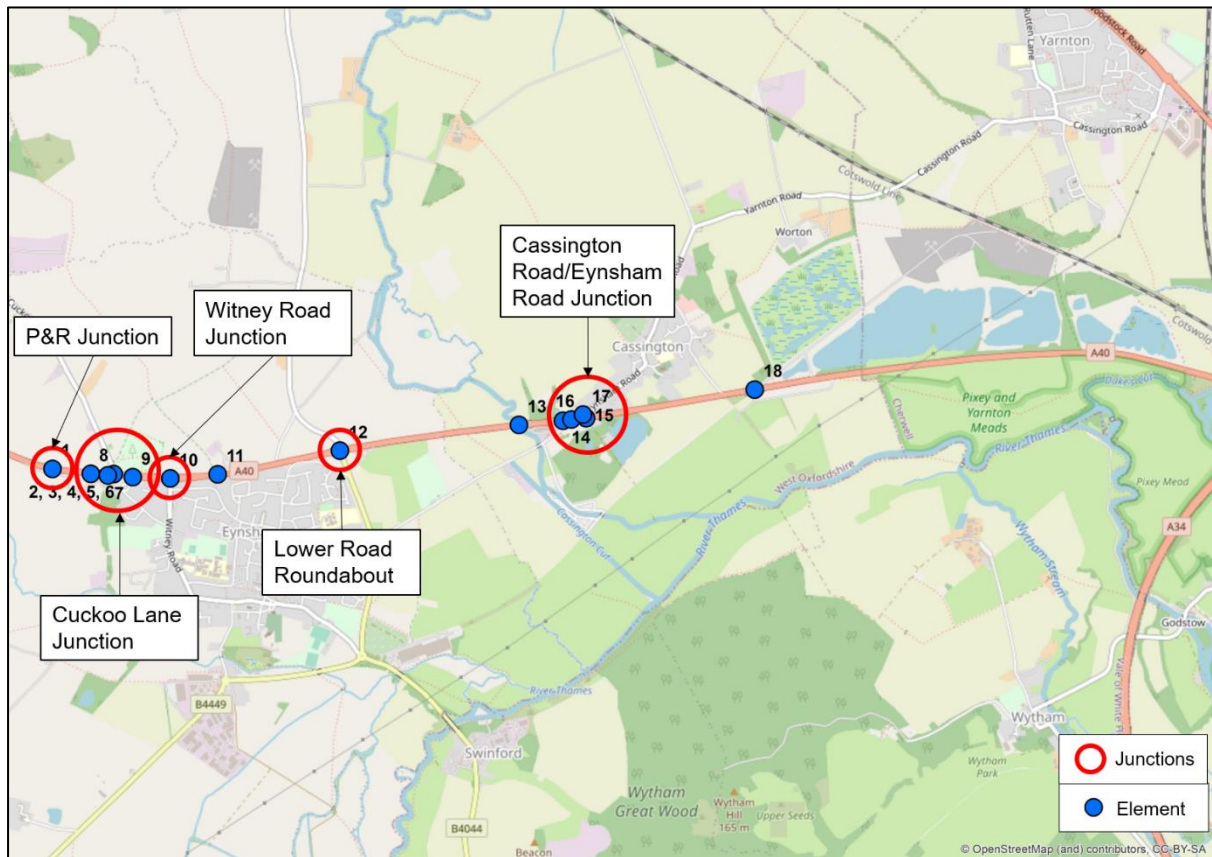


Figure 5-6 Location of the elements (zoomed)

5.6 Stage 2 – Initial Scoring

- 5.6.1 The purpose of the second sift is to appraise the options against strategic, economic, financial, management and commercial criteria. This will help reach a short list of options which are better performing options as compared to others. Detailed assessment of options as part of Stage 2 sift is discussed in the next chapter.

6 Stage 2: Appraisal and Scoring

6.1 Introduction

- 6.1.1 Stage 2 consists of appraisal/ further assessment (their benefits and issues) and scoring of the options taken forward based on the Stage 1 sift (see section 5.4.4).
- 6.1.2 This stage appraisal is based on EAST (see section 5.2 for details on EAST), but adapted to suit the local context, key success criteria and key locally specific issues along A40 corridor. The criteria developed and used in the Stage 2 is aligned with DfT's Option Assessment Framework, and includes criteria on the Strategic Case, Economic Case, Management Case, Financial Case and Commercial Case (discussed in Table 6-1; more detailed criteria for each case is shown in 0).

Table 6-1 Sift 2 Criteria

Criteria	Scoring	Description
Strategic Case	Very Good Impact (2)	Fit with project objectives and wider transport and government objectives. <i>11 sub-criteria were considered thus resulting in a maximum score of 22 for an option.</i>
Economic Case		The scale of benefits arising from the improved transport network in terms of connectivity, reliability, resilience, housing, wider economic impacts, environmental and social impacts. <i>13 sub-criteria were considered thus resulting in a maximum score of 26 for an option.</i>
Financial Case	Neutral/No Impact (0)	Assessment of infrastructure capital costs, operating and maintenance costs. <i>2 sub-criteria were considered thus resulting in a maximum score of 4 for an option.</i>
Management Case	Poor Impact (-1)	Assessment of option feasibility and stakeholder and public accessibility <i>26 sub-criteria were considered thus resulting in a maximum score of 13 for an option.</i>
Commercial Case	Very Poor Impact (-2)	Flexibility of an option, funding and income potential. <i>1 sub-criteria were considered thus resulting in a maximum score of 2 for an option.</i>

- 6.1.3 This assessment for all 18 elements includes transport modelling, engineering, safety, transport planning, environment and other inputs/data that would help in appraising the options and undertake sifting in accordance to the EAST. The next sections provide description, including outlining the Do Minimum option for each element, detailed assessment and scoring of all the option considered in Sift 2.

6.2 Element 1: Park and Ride Junction

- 6.2.1 Five options (**Options 1.1, 1.2, 1.3, 1.4 and 1.5**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration.
- 6.2.2 The Do Minimum layout for Element 1, as is currently proposed, is a 3-arm un-signalised roundabout. On the approach to the roundabout from the A40, the single lane carriageway flares to 3 lanes, with one Park and Ride filter lane and two straight ahead general traffic lanes. The exit from the Park and Ride has two lanes, one for A40 East and one for A40 West traffic.

Option 1.1: Signalised Junction

- 6.2.3 Option 1.1 is a signalised junction to access the Park and Ride site from the A40 with dedicated signals for buses and general traffic. This could possibly incorporate a controlled crossing for pedestrians and cyclists within the signalised junction. An alternative would be to retain the toucan crossing nearer to Cuckoo Lane. Figure 6-1 shows the option and Table 6-2 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

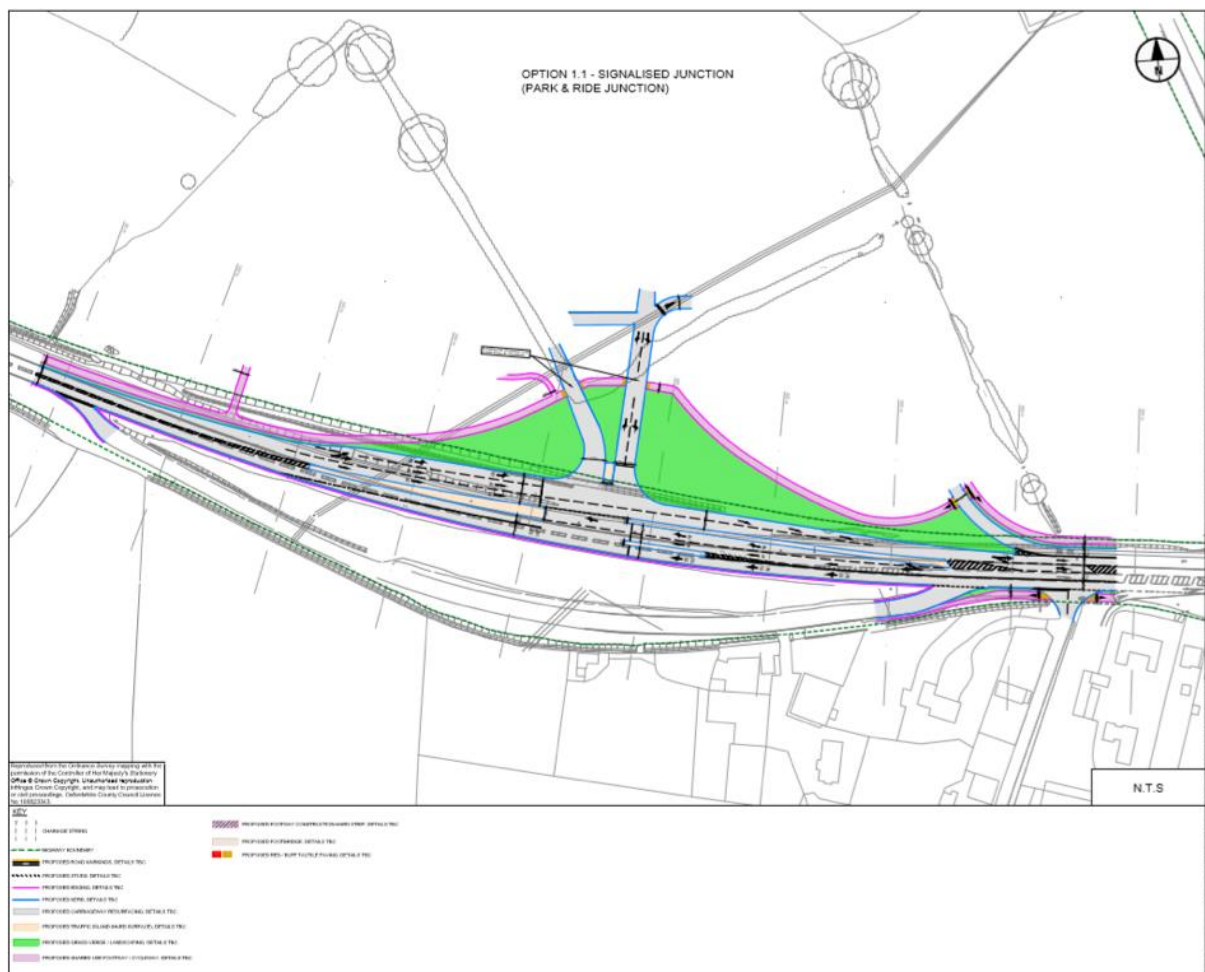


Figure 6-1 Option 1.1 – Signalised Junction

Table 6-2 Option 1.1

Benefits	Issues	Sift against Business Case elements: Score and Comments
<p>Would not impact on gas main as current proposal</p> <p>Less earthworks required compared to roundabout</p> <p>Buses would be able to get priority at the junction</p> <p>Work has been undertaken on designing this layout, so less impact on the programme towards delivery than other options</p> <p>Aligns with the Scheme objectives. It also complies with OCC's A40 Walking and Cycling Strategy improving existing infrastructure for NMUs</p> <p>Improves active travel infrastructure</p> <p>Implementation of signals improves bus journey times as traffic through the junction is better regulated</p> <p>Improves connectivity across public and private modes of transport</p> <p>Won't impact the Park & Ride design and delivery is not complex</p> <p>LinSig modelling has been undertaken and provides evidence that a signalised junction will work</p>	<p>Further work is needed to include pedestrian and cycle facilities across the junction north-south.</p> <p>Higher maintenance costs than the roundabout option due to the implementation of signals</p>	<p>This option is presented as the best design solution in the strategic case as it is the only option that guarantees bus priority, improving bus journey times compared to the other options.</p> <p>This option is the best solution in the economic case as it contributes to better connectivity of public and private modes of transport across the various A40 corridor settlements. This includes encouraging sustainable forms of travel.</p> <p>This option has the best financial case as it would have less capital costs than the other options assessed as it doesn't conflict with the existing gas main on the southern side of the road (diversion works could be approximately £1.3m).</p> <p>The management case is the best as it scores highly for practical feasibility.</p> <p>The commercial case is neutral, as there are no impacts on committed schemes, however consideration should be given to the potential West Eynsham proposals to put a fourth arm on the junction.</p> <p>In summary, with a total score of 24, this option ranks as the best assessed. It is likely to cost significantly less due to not needing to divert the gas main or import/export large quantities of fill/cut material. It won't impact the Park and Ride site design and the delivery is not nearly as complex as some of the other options (such as the hamburger roundabout). LinSig modelling has been undertaken and provides evidence that a signalised junction will work at the junction. Some further work is needed to include pedestrian and cycle facilities across the junction North-South and South-North. This option ranks first in comparison to the other options for the P&R Junction. Therefore, this is a preferred design solution.</p> <p>Preferred design solution.</p>

Option 1.2: Hamburger Roundabout

6.2.4 Option 1.2 is a signalised hamburger roundabout with central lanes for through A40 traffic, the circulatory carriageway for left/right turning traffic and dedicated signals for buses and general traffic entering and exiting the Park and Ride site from the A40. This could possibly incorporate a controlled pedestrian crossing at the signalised hamburger junction. An alternative would be to retain the standalone toucan crossing nearer to Cuckoo Lane. Table 6-3 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-3 Option 1.2

Benefits	Issues	Sift against Business Case elements: Score and Comments
<p>Could be an alternative to conventional roundabouts if traffic modelling indicates a benefit</p> <p>Buses may be able to get priority, but space may be limited for dedicated bus lane.</p> <p>Could be used in conjunction with option 1.10</p> <p>Aligns with the Scheme objectives</p> <p>Improve infrastructure for NMUs</p> <p>Increased capacity compared to a normal roundabout as it incorporates lanes for through-traffic. This can improve journey time reliability</p>	<p>Would probably impact Gas Main as a similar sized roundabout profile would be needed to option 1.3. This would be very expensive</p> <p>Cannot guarantee bus priority</p> <p>Complex to deliver and may conflict with existing layby on the southern side of the road</p> <p>Difficult to change in the future</p>	<p>Strong strategic case providing a hamburger roundabout. It aligns with the Scheme Objectives and A40 STP2 Scheme Objectives. It also complies with OCC's A40 Walking and Cycling Strategy improving existing infrastructure for NMUs.</p> <p>This option has a strong economic case with a score of 9, due to the journey time improvements it provides.</p> <p>The financial case is very weak due to large capital and operation and maintenance costs for the roundabout, including implementation and maintenance of the signals.</p> <p>The management case is very weak. This option is considered to be the most expensive option due to the interference with the gas main and implementation of signals.</p>

Benefits	Issues	Sift against Business Case elements: Score and Comments
		<p>The commercial case is neutral, as there are no impacts on committed schemes, however consideration should be given to the potential West Eynsham proposals to put a fourth arm on the junction.</p> <p>In summary, with a total score of 7, this option scores low. It is expensive with the main costs of diverting the gas main, implementing and maintaining the signals and providing earthworks (including the appropriate levelling of land). In terms of highways construction, it may lead to issues to find a solution for existing traffic diversions. Overall, this junction layout is not deemed suitable for this location. This option ranks joint 2nd with Option 1.3.</p> <p>Supported design solution, but not preferred.</p>

Option 1.3: Roundabout

- 6.2.5 Option 1.3 is a roundabout for traffic accessing the Park and Ride site from the A40. A bus gate east of the roundabout will allow entry of buses into the general traffic lanes. This option would retain proposed toucan crossing nearer to Cuckoo Lane. Table 6-4 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-4 Option 1.3

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>This is the current proposal as in A40 STP2, so much of the design and planning has already been completed</p> <p>Improves infrastructure for NMUs</p> <p>There is flexibility with changing this option for future needs</p>	<p>Impact on gas main on the southern side of the existing road. This makes the option expensive</p> <p>Unable to provide any priority for buses to access the Park and Ride</p>	<p>Slightly positive strategic case. It is neutral with aligning with the Scheme Objectives, it does comply with OCC's A40 Walking and Cycling Strategy.</p> <p>The economic case is poor as this option due to no bus priority.</p> <p>The financial case is weak due to large capital and operation and maintenance costs for the roundabout, however stronger than the signalised options.</p> <p>The management case is neutral as it aligns with Local Authority policies in not providing signals, but the alignment would impact the gas main.</p> <p>The commercial case is neutral, as there are no impacts on committed schemes, however consideration should be given to the potential West Eynsham proposals to put a fourth arm on the junction.</p> <p>In summary, with a total score of 7, this option ranks as joint 2nd with Option 1.2. It is relatively expensive with the main cost of diverting the gas main. However, it has the advantage that it is already in the public domain as it was the initial design solution and it perfectly ties in with the proposed Park and Ride layout.</p> <p>Preferred design solution.</p>

Option 1.4: Signalised Roundabouts

- 6.2.6 Option 1.4 is a signalised roundabout with dedicated signals for buses and general traffic entering and exiting the Park and Ride site from the A40. It could possibly incorporate controlled crossing in the signalised roundabout. An alternative would be to retain the toucan crossing nearer to Cuckoo Lane. Table 6-5 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-5 Option 1.4

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Buses may be able to gain priority due to signals</p> <p>Roundabout would probably be unchanged compared to A40 STP2 roundabout design, it may need some minor change</p> <p>Limited impact on the design, so less impact on the delivery of the design than other options</p> <p>Improves infrastructure for NMUs</p> <p>Previous modelling has however shown that a normal roundabout would perform well, so signalised the junction may not be required</p>	<p>Impact on gas main on the southern side of the existing road. This makes the option expensive</p> <p>Higher construction and maintenance costs than proposed roundabout</p> <p>Does not align with the Scheme objectives</p> <p>Decreases journey time savings</p>	<p>Weak strategic case. It does not align with the Scheme Objectives. However, it does comply with OCC's A40 Walking and Cycling Strategy.</p> <p>The economic case for this option is mixed. It may give priority to buses, however further modelling and testing would be required.</p> <p>The financial case is weak due to large capital and operation and maintenance costs for the roundabout and implementation and maintenance of the signals.</p> <p>The management case is also weak as the highways alignment would impact the gas main.</p> <p>The commercial case is neutral, as there are no impacts on committed schemes, however consideration should be given to the potential West Eynsham proposals to put a fourth arm on the junction.</p> <p>In summary, with a total score of -4, this option has scored poorly. It is expensive with the main cost of diverting the gas main and comes with risk and uncertainty. This option is ranked 5th (last) out of the potential options.</p> <p>Supported design solution, but not preferred.</p>

Option 1.10: Bus gate east of proposed junction for WB buses

- 6.2.7 Option 1.10 gives priority to westbound buses to allow the buses to merge into the general traffic in order to be in the offside lane of the road. This option would retain the proposed toucan crossing nearer to Cuckoo Lane. Table 6-6 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-6 Option 1.10

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>It would enable buses to be at the front of the queue at the next junction</p> <p>Aligns with the Scheme objectives</p> <p>Guarantee bus priority which would be a positive impact on journey time reliability and public transport connectivity</p> <p>There is no sacrifice on provision for NMUs</p>	<p>Impact on gas main on the southern side of the existing road. This makes the option expensive</p> <p>This option would introduce another set of signals before the main junction, there may not be enough room to do this with Cuckoo Lane and the possible toucan crossing so close</p>	<p>Relatively strong strategic case providing a bus gate east of the proposed junction for westbound buses. This aligns with the Scheme Objectives.</p> <p>The economic case is strong with positive impacts on society. However, it does come at the cost of decreased journey time reliability for private vehicles.</p> <p>The financial case is weak due to relatively large capital and operation and maintenance costs associated, including maintaining the signals.</p> <p>The management case is also weak as the new highways alignment would impact the gas main.</p> <p>The commercial case is neutral, as there are no impacts on committed schemes, however consideration should be given to the potential West</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		<p>Eynsham proposals to put a fourth arm on the junction.</p> <p>In summary, with a total score of -3, this option has scored poorly. It is expensive with the main cost of diverting the gas main. Overall, as shown by the low score, there are not many benefits of providing this layout combined with a highway junction feature. The option ranks 4th in comparison to other options.</p> <p>Supported design solution, but not preferred.</p>

6.3 Element 2: Cuckoo Lane – Vehicle Access to Park and Ride

- 6.3.1 Five options (**Options 2.1, 2.2, 2.3, 2.4 and 2.10**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration.
- 6.3.2 The Do Minimum layout for Element 2, as is currently proposed, is outlined below as part of Option 2.1.

Option 2.1: Signalised Junction

- 6.3.3 Option 2.1 is a signalised junction to access the Park and Ride site from Cuckoo Lane with dedicated signals for buses and general traffic. Table 6-7 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-7 Option 2.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Allows free flow of traffic on the A40</p> <p>Aligns with the Scheme objectives</p> <p>Signals can guarantee bus priority which would benefit bus journey times and connectivity</p> <p>Space to incorporate shared-use facilities</p> <p>Safer than other options for vehicles turning in and out of Cuckoo Lane</p> <p>Less expensive than some of the roundabout options due to less excavated material and being less likely to require land take.</p>	<p>Changing P&R site access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardise delivery timescales</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan</p> <p>This could be quite an expensive option</p>	<p>Strong strategic case compared to the other options due to aligning with the Scheme Objectives.</p> <p>This option has a high score for the economic case due to signals guaranteeing bus priority (better journey time), shared-use facilities and the option being safer.</p> <p>The financial case is weak due to large capital and operation and maintenance costs in designing and constructing a signalised junction.</p> <p>The management case is weak. This option would involve changing the Park and Ride design and would most likely conflict with the Garden Village Masterplan due to the potential closure of Cuckoo Lane.</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of 21, this option is ranked as second. It is still an expensive option and requires re-designing the Park and Ride. However, the layout would create a safer situation for right-turning traffic into and out of Cuckoo Lane. It can also incorporate bus priority thus assisting bus reliability. Therefore, this is a preferred design solution (along with Option 2.10).</p> <p>Preferred design solution.</p>

Option 2.2: Hamburger Roundabout

- 6.3.4 Option 2.2 is a signalised hamburger roundabout with central lanes for through traffic and dedicated signals for buses and general traffic entering and exiting the Park and Ride site from Cuckoo Lane. Table 6-8 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-8 Option 2.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Allows free flow of traffic on the A40 Could improve entry/egress from Cuckoo Lane	Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardise delivery timescales Higher maintenance costs than normal roundabout proposal Possible conflict with gas main in southern side of existing carriageway This option would potentially require land take Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan Increased journey times for private vehicles Would not guarantee bus priority Expensive option	Very poor strategic case as compared to the other options due to not aligning with the Scheme Objectives. The economic case is relatively strong. However, it would lead to increased journey times for private vehicles as it restricts the free flow of both eastbound and westbound traffic on the A40. The financial case is very poor due to large capital and operation and maintenance costs in designing and constructing a hamburger roundabout. The management case is very weak with a score of -8. This option would involve changing the Park and Ride design and would most likely conflict with the Garden Village Masterplan. It would require land take leading to higher costs and public objection. In summary, with a total score of -6 , this ranks fourth. It is the most expensive option with a high complexity of delivery. It requires land take and re-designing the Park and Ride. The benefits are limited to providing this option, especially at this location. Supported design solution, but not preferred.

Option 2.3: Roundabout

- 6.3.5 Option 2.3 includes a roundabout for traffic accessing the Park and Ride site from Cuckoo Lane. This option includes a bus gate east of Cuckoo Lane to allow entry of buses into a general traffic right turn lane to turn onto Cuckoo Lane prior to entering the roundabout. Table 6-9 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-9 Option 2.3

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Allows free flow of traffic on the A40 Improves bus entry/egress from Cuckoo Lane	Require re-designing the proposed P&R layout which would jeopardise delivery timescales. This option would potentially require land take Possible conflict with gas main in southern side of existing carriageway. Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan. Would not guarantee bus priority Expensive option It would lead to decreased journey times for private vehicles as it restricts the free flow of both	Weak strategic case compared to the other options due to not aligning with the Scheme Objectives. The economic case score is fair, reflecting the free flow traffic on the A40. The financial case is poor due to large capital and operation and maintenance costs in designing and constructing a roundabout. The management case is poor. This option would involve changing the Park and Ride design and would most likely conflict with the Garden Village Masterplan. Therefore, the commercial case is poor. In summary, with a total score of -5 , this option ranks 3 rd . It is one of the more expensive options potentially requiring land take and re-designing the

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
	eastbound and westbound traffic on the A40.	Park and Ride. The benefits cannot offset the costs and negatives associated with this option. Supported design solution, but not preferred.

Option 2.4: Signalised Roundabout

6.3.6 Option 2.4 is a signalised roundabout with dedicated signals for buses and general traffic entering and exiting the Park and Ride site from Cuckoo Lane. Table 6-10 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-10 Option 2.4

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Allows free flow of traffic on the A40. Improves access/egress for buses into Cuckoo Lane	Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardise delivery timescales. Higher maintenance costs than normal roundabout proposal. Possible conflict with gas main in southern side of existing carriageway. Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan. Leads to increased journey times for private vehicles Does not guarantee bus priority Expensive option	Weak strategic case compared to the other options due to not aligning with the Scheme Objectives. The economic case is good, reflecting the free flow traffic on the A40. The financial case is very weak due to large capital and operation and maintenance costs related to the option. The management case is poor. This option would involve changing the Park and Ride design and would most likely conflict with the Garden Village Masterplan. It may also require land take leading to higher costs and public objection. The commercial case is very weak with a score of -5. In summary, with a total score of -8 , this option is very weak and ranks 5 th (last). It is one of more expensive options potentially requiring land take and re-designing the Park and Ride. The benefits cannot offset the costs and negatives associated with this option. Supported design solution, but not preferred.

Option 2.10: Do Minimum (A40 STP2 Design)

6.3.7 Option 2.10 is the Do Minimum option in which all vehicles will use the currently proposed junction from the A40 as shown in the STP2 design. Table 6-11 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-11 Option 2.10

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Would not impact on existing A40 STP2 design Aligns with Scheme objectives Would continue to provide free flow for the A40 eastbound and westbound general traffic Improves infrastructure for NMU's	No significant impact on journey time and other factors	Strongest strategic case compared to the other options due to strongly aligning with the Scheme Objectives and the A40 STP2 Scheme Objectives. The economic case is also the strongest due to positive impacts on the economy, environment and society; with notable improvements on journey time reliability for buses and private vehicles.

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Does not require changing the P&R design or conflict with the Garden Village Masterplan</p> <p>Does not require land take</p> <p>Less expensive – a significant amount of work has already been undertaken</p>		<p>The financial case scores well, due to not requiring land take and low capital and operation and maintenance costs.</p> <p>The management case and commercial case both score 0.</p> <p>In summary, with a total score of 29, the STP2 Design option is ranked highest, by a significant margin. It is one of the less expensive options not requiring land take or re-design of the Park and Ride. A significant amount of work has been undertaken for this option which makes it easier to deliver. Therefore, this is a preferred design solution (along with Option 2.1).</p> <p><i>Preferred design solution.</i></p>

6.4 Element 3: Cuckoo Lane – Bus Access to P&R

6.4.1 Seven options (**Options 3.1 – 3.6 and 3.10**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration.

6.4.2 The Do Minimum layout for Element 3, as is currently proposed, is outlined as part of Option 3.1.

Option 3.1: Do Minimum (A40 STP2 Design)

6.4.3 Option 3.1 is the junction as it is currently proposed. In this option buses access the P&R site by the main access and exit eastbound via a dedicated lane and westbound by the proposed junction. Table 6-12 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-12 Option 3.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Would not impact on existing A40 STP2 design</p> <p>Aligns to scheme objectives</p> <p>Encourages safer travel</p> <p>Does not require changing the P&R design</p> <p>Does not require land take</p>	<p>May conflict with the Garden Village Masterplan</p> <p>Does not allow bus priority</p>	<p>Strong strategic case compared to the other options due to partially aligning to the A40 STP2 Scheme Objectives and Local Policies. This is mainly due to being compliant with OCC's A40 Walking and Cycling Strategy and encouraging safer travel.</p> <p>The economic case is also very strong due to net positive impacts on the economy, environment and society.</p> <p>The financial case is slightly negative. This is due to being one of the least expensive options to design, construct and operate due to the lack of signals, land take and design changes.</p> <p>The management case reduces the overall score for this option. This option would not involve changing the Park and Ride design, however, it may conflict with the Garden Village Masterplan, which may consider closing the Cuckoo Lane junction with the A40.</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of 17, this option is ranked first by a significant margin. It is one of the less expensive options not requiring land take</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		or re-design of the Park and Ride. It is also a safer option than the others. <i>Preferred design solution.</i>

Option 3.2: Signalised Junction

6.4.4 Option 3.2 is a signalised junction providing bus access to the Park and Ride Site from Cuckoo Lane with dedicated signals for buses and general traffic. Table 6-13 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-13 Option 3.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Aligns to the Scheme objectives Provides bus priority	Option would introduce additional traffic signalised junction close to other junctions (Witney Road, Toucan Crossing, Park and Ride main access) which could increase journey times Require re-designing the proposed P&R layout which would jeopardise delivery timescales. Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan. Likely to be quite expensive Requires land take to introduce the shared use facility	Strongest strategic case compared to the other options due to aligning to the Scheme Objectives. The economic case is also very positive, due to provision of bus priority and the positive impacts on housing delivery, economic growth and PT journey time improvements. The financial case is weak. This is one of the more expensive options to design, construct and operate due to the implementation of signals. The management case is also weak, due to the construction impacts, land take required and some opposition from stakeholders. The commercial case is neutral. In summary, this option scores 11 and ranks second. However, it is one of the more expensive options due to site constraints and implications. There are benefits from providing bus priority, however the negatives may outweigh these benefits. <i>Supported design solution, but not preferred.</i>

Option 3.3: Hamburger Roundabout

6.4.5 Option 3.3 is a signalised hamburger roundabout with central lanes for through traffic and dedicated signals for buses entering and exiting the Park and Ride site from Cuckoo Lane. Table 6-14 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-14 Option 3.3

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
NA	Re-designing the proposed P&R layout which would jeopardise delivery timescales. Conflict with gas main located on the southern side of the existing road which would potentially require a diversion and lead to increased costs. This option would potentially require land take.	One of the weakest strategic case compared to the other options due to not aligning to the Scheme Objectives. The economic case is weak, due to impact on private vehicles journey time and safety concerns for cyclist and pedestrians. The financial case is weak. This is one of the most expensive options to design, construct and operate.

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
	<p>Potential issues with Cuckoo Lane being closed as part of the Garden Village Masterplan.</p> <p>Very expensive to design, construct and operate</p> <p>The implementation of a separate Park and Ride access for buses would potentially have a negative effect on journey time reliability for private vehicles, buses and NMU's</p>	<p>The management case is very weak, due to the impact on the gas main, the land take required and associated opposition.</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of -28, this option is ranked joint fifth (with Option 3.4). It is one of the most expensive options due to site constraints and implications (land take, re-designing the Park and Ride, implementation of signals, earthworks and utility diversions).</p> <p>Supported design solution, but not preferred.</p>

Option 3.4: Roundabout

- 6.4.6 Option 3.4 is a roundabout for buses accessing the Park and Ride site from Cuckoo Lane. This option includes a bus gate east of Cuckoo Lane to allow entry of buses into a general traffic right turn lane to turn onto Cuckoo Lane prior to entering the roundabout. Table 6-15 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-15 Option 3.4

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
NA	<p>Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardise delivery timescales.</p> <p>Conflict with gas main located on the southern side of the existing road which would potentially require a diversion and lead to increased costs.</p> <p>Not the best design solution from a flow perspective if it only provides access to P&R for buses.</p> <p>This option would potentially require land take.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p> <p>The implementation of a separate Park and Ride access for buses would potentially have a negative effect on journey time reliability for private vehicles, buses and NMU's.</p>	<p>Very poor strategic case compared to the other options due to not aligning to the Scheme Objectives.</p> <p>The economic case is weak as this option cannot guarantee bus priority and would also have a negative effect on private vehicles journey time.</p> <p>The financial case is relatively weak. This is much cheaper than a signalised roundabout, however still relatively expensive to design, construct and operate.</p> <p>The management case is very weak with a score of -7, due to land take and the impact on the gas main.</p> <p>The commercial case is one of the weakest.</p> <p>In summary, with a total score of -28, this option is ranked as joint fifth (with Option 3.3). It is not the most expensive option, however, will be complex to deliver due to site constraints and implications (land take, re-designing the Park and Ride, earthworks and utility diversions).</p> <p>Supported design solution, but not preferred.</p>

Option 3.5: Signalised Roundabout

6.4.7 Option 3.5 is a signalised roundabout with dedicated signals for buses and general traffic. Table 6-16 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-16 Option 3.5

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
NA	<p>Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardise delivery timescales.</p> <p>Not the best design solution from a flow perspective if it only provides access to P&R for buses.</p> <p>This option would potentially require land take.</p> <p>Potential issues with Cuckoo Lane being closed as part of the Garden Village Masterplan.</p> <p>Expensive option to design, construct and operate</p> <p>The implementation of a separate Park and Ride access for buses and an additional set of signals would potentially have a negative effect on journey time reliability for private vehicles, buses and NMU's</p> <p>It may also conflict with the Garden Village Masterplan, which may consider closing Cuckoo Lane junction with the A40.</p>	<p>Weakest strategic case compared to the other options due to not aligning to the Scheme Objectives.</p> <p>The economic case is weak due to the impact of a second set of signals on journey times for both private vehicles and buses.</p> <p>The financial case is very weak as this is considered to be the most expensive option to design, construct and operate.</p> <p>The management case is very weak with a score of -12, due to impact on gas main and the diversions required.</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of -29, this option is ranked as the lowest (seventh). It is the most expensive option due to the site constraints and implications (land take, re-designing the Park and Ride, implementation of signals, earthworks and utility diversions).</p> <p>Supported design solution, but not preferred.</p>

Option 3.6: Major/ Minor Junction

6.4.8 Option 3.6 is a major/ minor junction for entry and exit into and out of the Park and Ride for buses and general traffic from Cuckoo Lane. Table 6-17 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-17 Option 3.6

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Allows free flow of traffic on the A40.</p> <p>Complies with OCC's A40 Walking and Cycling Strategy by providing the required shared use facility without needing land take</p>	<p>Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardise delivery timescales.</p> <p>Potential issues with Cuckoo Lane being closed as part of the Garden Village Masterplan.</p> <p>Does not align with Local Authority policies</p> <p>Would not guarantee bus priority</p> <p>Negatively affects bus service reliability as it does not provide bus priority (unless is combined with a bus gate).</p>	<p>Weak strategic case compared to the other options due to largely neutral impacts for the Scheme Objectives.</p> <p>The economic case is relatively strong due to improvements to the shared use facility and the impacts on active travel.</p> <p>The financial case is slightly negative. It is a cheaper option than most options considered but would require a higher capital cost than DM as it would require re-aligning and upgrading Cuckoo Lane.</p> <p>The management case is slightly negative as it does not align with Local Authority policies.</p> <p>The commercial case is neutral.</p> <p>This option scores 6 and ranks third. It would allow compliance with OCC's A40 Walking and Cycling Strategy by providing the required shared use facility without needing land take. However, it would not guarantee bus priority and is</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		considered to be less safe and efficient than other options due to potential issues with the bus turning movements into the Park and Ride. <i>Supported design solution, but not preferred.</i>

Option 3.11: Bus gate east of Cuckoo Lane junction

6.4.9 Option 3.11 is a bus gate giving priority to buses turning into Cuckoo Lane from the east. Table 6-18 outlines potential benefits, issues and EAST assessment scores (against the other options of this junction).

Table 6-18 Option 3.11

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Encourages sustainable travel Guarantee bus priority Would benefit bus journey time and connectivity	Requires set of signals in advance of the junction, which would likely clash with Witney Road Junction. Changing P&R access would require re-designing the proposed P&R layout which would jeopardise delivery timescales. Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan. Expensive to provide a bus gate and maintain the signals Negatively impact the Park and Ride layout and therefore the construction timeframes.	Strong strategic case compared to the other options due to encouraging sustainable travel and being compliant with OCC's A40 Walking and Cycling Strategy. The economic case is also relatively strong in most aspects; however, it reduces the reliability for private vehicles due to the bus priority. The financial case is weak as it is an expensive option to provide a bus gate and maintain the signals. The management case is also weak as it is seen as not being practically feasible (impacts the gas main). The commercial case is neutral. In summary, with a total score of -1 , this option is ranked third out of seven assessed options. It would guarantee bus priority and would need to be implemented along with one of the other options proposed (roundabout or major/minor junction). It would benefit bus journey time and connectivity but would negatively impact general traffic journey time if compared to the DM scenario. <i>Supported design solution, but not preferred.</i>

6.5 Element 4: Cuckoo Lane – Close Access to P&R

6.5.1 Two options (**Options 4.1 and 4.2**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration.

6.5.2 The Do Minimum layout for Element 3, as is currently proposed, is outlined in Option 4.2.

Option 4.1: Close Access to P&R

6.5.3 Option 4.1 is to close the proposed access to Park and Ride from Cuckoo Lane. Table 6-19 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-19 Option 4.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Access to Park and Ride from Cuckoo Lane is intended to provide access from the north of Cuckoo Lane and for cyclists using Cuckoo Lane</p> <p>Should only consider option to close to general traffic and include installation of gate or other access for cyclists only, not to close completely</p>	<p>Vehicular traffic may not be able to use as emergency access should the need arise</p> <p>Does not align with the Scheme Objectives</p>	<p>Weak strategic case compared to the other option. The option does not align with the Scheme Objectives such as improving travel times and encouraging safer travel.</p> <p>The economic case is weak due to private vehicles needing to turn right out of Cuckoo Lane to access the Park and Ride via the main entrance.</p> <p>The financial case is better than Option 4.2 due to not needing to do any design or construction work for this area.</p> <p>The management case is slightly negative. There is some flexibility for future changes to the layout and it may interface well with the Garden Village Masterplan if Cuckoo Lane changes in the future (i.e. gets blocked off).</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of 1, this option is ranked as the lowest. It is recommended to have an access point to the Park and Ride for emergency access. Providing an entry only access point for general traffic also combines well with the right-turn ban into and out of Cuckoo Lane to regulate traffic in the area.</p> <p>Supported design solution, but not preferred.</p>

Option 4.2: Do Minimum (A40 STP2 Design)

6.5.4 Option 4.2 represents the Do Minimum scenario, which is the scheme as it is currently proposed. Access to the Park and Ride from Cuckoo Lane is intended to provide access from the north of Cuckoo Lane and for cyclists using Cuckoo Lane. Table 6-20 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-20 Option 4.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Would not impact on existing A40 STP2 design</p> <p>It could also act as an emergency access should the need arise.</p> <p>With the A40 STP2 Scheme Objectives such as improving travel times and encouraging safer travel</p>	<p>No significant impact on journey time and other factors</p>	<p>Stronger strategic case compared to the other option. The option aligns better with the A40 STP2 Scheme Objectives such as improving travel times and encouraging safer travel.</p> <p>The economic case is very strong due to improved reliability for private vehicles.</p>

		<p>The financial case and commercial case have neutral scores due to having negligible impacts on the scheme when compared to the proposed A40 STP2 design.</p> <p>The management case is slightly negative due to the diversion required as part of construction.</p> <p>In summary, with a total score of 15, this option is ranked as the highest scoring option. It is recommended to have an access point to the Park and Ride for emergency access. Providing an entry only access point for general traffic also combines well with the right-turn ban into and out of Cuckoo Lane to regulate traffic in the area.</p> <p><i>Preferred design solution.</i></p>
--	--	--

6.6 Element 5: Cuckoo Lane – Right Turn Banned (In & Out)

6.6.1 Three options (**Options 5.1, 5.2 and 5.3**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration.

6.6.2 The Do Minimum layout for Element 3, as is currently proposed, is outlined in Option 5.1.

Option 5.1: No restriction on turning movements (Do Minimum)

6.6.3 Option 5.1 represents the Do Minimum scenario. The current proposal is to permit traffic using Cuckoo Lane to access the Park and Ride. Table 6-21 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-21 Option 5.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Would not impact on existing A40 STP2 design</p> <p>Rat running is discouraged due to the internal layout of the Park and Ride.</p>	<p>Cuckoo Lane junction potentially closed as part of Garden Village Masterplan</p> <p>The location has been identified as a cluster site in the Collision Analysis report and this option fails to address the issues</p> <p>Unsafe option as general traffic would need to cross one more lane on exit and entry into Cuckoo Lane when making the right turn movements. Visibility is also an issue.</p>	<p>Weak strategic case compared to the other options, as the option does not align well with the scheme objectives, such as stimulating economic growth and encouraging safer travel.</p> <p>The economic case is also the weakest of all options due to limited benefit to journey times and safety concerns at an identified cluster site.</p> <p>The financial case is neutral as this is the existing design.</p> <p>The management case is slightly negative due to lack of support from district and parish councils.</p> <p>The commercial case is neutral.</p> <p>In summary, this option only scores 3, and therefore ranks third (last) against the other options. This option is much cheaper than providing a signalised junction or right-turn ban, however safety is a concern due to general traffic needing to cross multiple lanes. The location has been identified as a cluster site in the Collision Analysis report and this option fails to address the issues.</p> <p><i>Supported design solution, but not preferred.</i></p>

Option 5.2: Right Turn Banned (In & Out)

6.6.4 Option 5.2 includes a right turn ban in and out of Cuckoo Lane. The right turn out would need to use Lower Road, or right turn into Witney Road, find somewhere to turn and head back. Figure 6-2 shows this option and Table 6-22 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

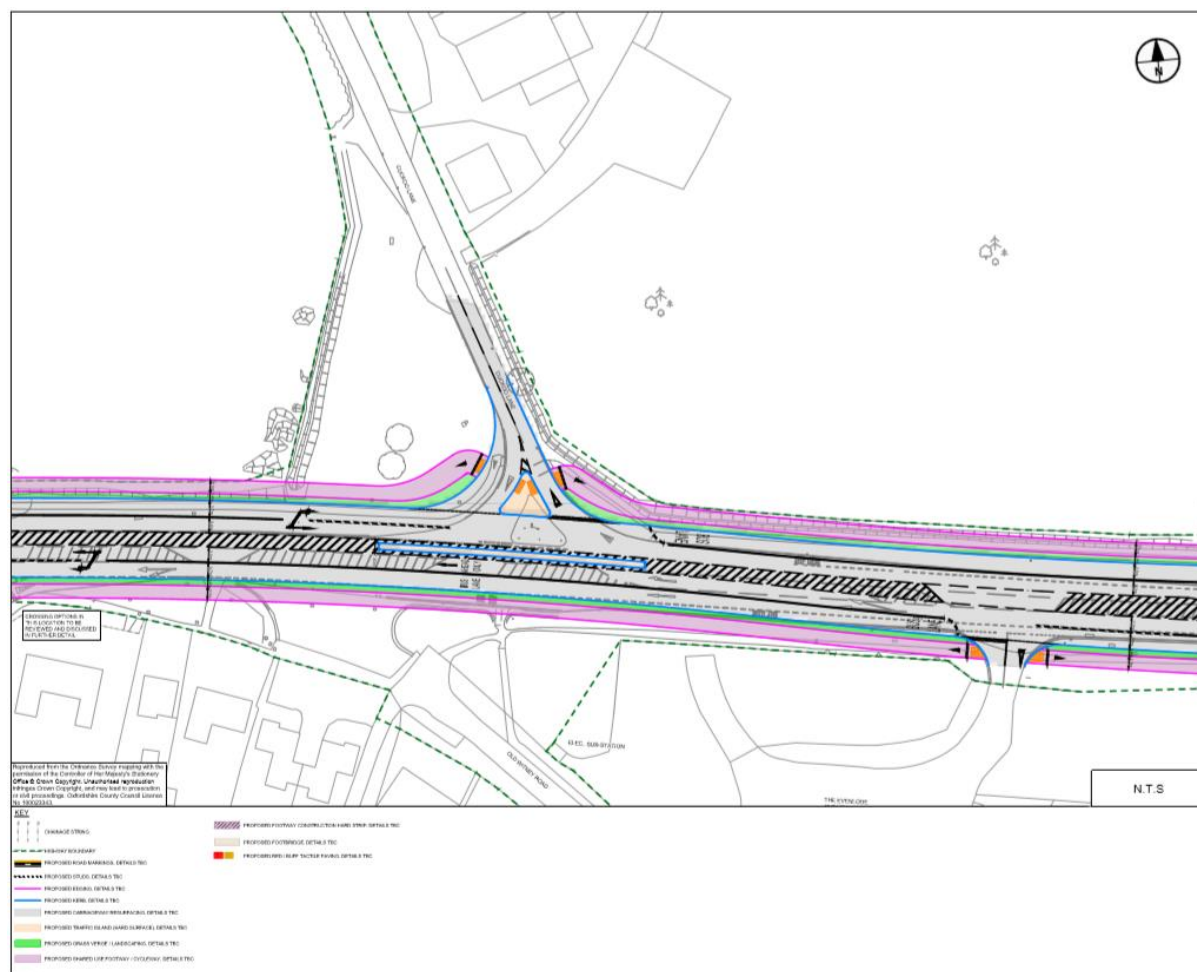


Figure 6-2 Right Turn Banned (In & Out)

Table 6-22 Option 5.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>This option is considered safer than the current layout</p> <p>The location has been identified as a cluster site in the Collision Analysis report and this option addresses the issues</p>	<p>Needs to be modelled to see what impact it will have for example traffic rerouting.</p> <p>Cuckoo Lane junction potentially closed as part of Garden Village Masterplan.</p> <p>Vehicles wishing to turn right into or out of Cuckoo Lane will however need to find an alternative route or use a nearby junction to perform a U-turn.</p> <p>The U-turning will need to be monitored to ensure that it doesn't occur at either Eynsham Road or the proposed Park and Ride signalised junction.</p>	<p>This option has a strong strategic case. The location has been identified as a cluster site in the Collision Analysis report and this option addresses the issues.</p> <p>This option has a relatively strong economic case due to journey time improvements and introduction of shared use facilities.</p> <p>The financial case is significantly better than the signalised junction option due to it being a cheaper alternative.</p> <p>The management case is slightly negative due to impacts on business and public opposition to banning the right turn.</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of 17, this option ranks as the highest scoring option. It is much cheaper than providing a signalised junction and much safer than not restricting movements. The</p>

		<p>risk of dangerous U-turning movements is increased and measures would need to be taken to ensure that it doesn't occur at either Eynsham Road or the proposed Park and Ride signalised junction. Modelling is required to check the impact on the network.</p> <p>Supported design solution, but not preferred.</p>
--	--	---

Option 5.3: Signalised Junction

6.6.5 Option 5.3 is a signalised junction of the A40 with Cuckoo Lane, in addition to the junction proposals for the Park and Ride junction. This junction would allow right turn in and out. Table 6-23 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-23 Option 5.3

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Would regulate the traffic flows and provide a safer point to cross the side road</p> <p>Would incorporate bus priority and essentially would act as a bus gate for the Park and Ride junction</p> <p>Improves accessibility</p>	<p>There would little flexibility to change the option in the future and high complexities of delivery for both design and construction</p> <p>Additional set of traffic signals in close proximity, which would complicate the overall highways layout.</p> <p>It is assumed that if a signalised junction is chosen for the Park and Ride junction then there would be three signalised junctions (Witney Road, Cuckoo Lane and Park and Ride) in a short distance (approx. 640m) and that a form of connection between the signals would be required (SCOOT is suggested).</p>	<p>This option has a strong strategic case, as it aligns with the scheme objectives.</p> <p>The economic case is also strong due to positively impacting society, such as through improving accessibility.</p> <p>The financial case is however the weakest with it being an extremely expensive option.</p> <p>The management case is also weak. The option is not rated highly for practical feasibility.</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of 16, this option is the second highest scored option.</p> <p>There are some benefits to providing a full signalised junction. However, the disadvantages may outweigh the advantages as it would mean that there would be an additional set of traffic signals in close proximity, which would complicate the overall highways layout.</p> <p>Supported design solution, but not preferred.</p>

6.7 Element 6: Cuckoo Lane branched off to join P&R Junction

- 6.7.1 Following the Stage 1, no feasible options were identified for further assessment. Therefore, no options will be discussed here.

6.8 Element 7: Old Witney Road

- 6.8.1 Following the Stage 1, no feasible options were identified for further assessment. Therefore, no options will be discussed here.

6.9 Element 8: Elm Place Access and Layby

- 6.9.1 Following the initial sift only one option (**Option 8.1**) was identified for further assessment. This assessment is summarised below, with information provided on the scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration. The Do Minimum layout for Element 8, as is currently proposed, is outlined as part of Option 8.1.

Option 8.1: Alteration to Access

- 6.9.2 Option 8.1 is to alter the existing arrangements as proposed in A40 STP2 design. Table 6-24 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).
- 6.9.3 It should be noted that the proposed arrangement at this location is subject to future change. If a 4th arm is delivered at the P&R junction to access West Eynsham development, the existing layby may need to be closed or relocated. Alternative access arrangements to the properties located behind the layby may also be required. This option may need to be revisited in conjunction with the West Eynsham developers.
- 6.9.4 Elm Place access is also subject to future change due to Thomas Homes development. This option may need to be revisited in conjunction with Thomas Homes developers.

Table 6-24 Option 8.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
NA	<p>Junction layout currently not affected by changes in STP2 design. Access would need to be modified if Old Witney Road was opened onto the A40.</p> <p>Impact on the utilities, such as the gas main likely low statutory and non-statutory bodies' support.</p> <p>Little flexibility to change the option in the future and having design impacts on both the highways and park and ride elements of the scheme</p>	<p>Neutral strategic case and financial case. This is due to having negligible impacts to the overall scheme.</p> <p>The economic case is slightly negative, due to the increase in conflict points.</p> <p>The management case is weak with a score of -6 due to having an impact on the utilities, such as the gas main and scoring low for statutory and non-statutory bodies' support.</p> <p>The commercial case also scores low with little flexibility to change the option in the future and having design impacts on both the highways and park and ride elements of the scheme.</p> <p>In summary, with a total score of -9. There are no other options and this one is feasible.</p> <p><i>Preferred design solution.</i></p>

6.10 Element 9: Evenlode Public House Access

- 6.10.1 Six options (**Options 9.1 – 9.6**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration. The Do Minimum layout, as is currently proposed, is as the existing layout (a give-way access from the Evenlode to the A40, all movements at the junction are permitted).

Option 9.1: Without westbound bus lane and banning of right-out movement

- 6.10.2 Option 9.1 includes not implementing the westbound bus lane on the A40 and banning of right-out movement from Evenlode Public House onto the A40. Table 6-25 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-25 Option 9.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Safer option due to only crossing one lane as opposed to two</p> <p>Low impacts on the environment relative to providing a bus lane and overall positive impacts on society</p>	<p>Requires customers to exit the Evenlode Public House site by car through the back onto Old Witney Road.</p> <p>Appropriate signage and a one-way system are needed to enforce the ban.</p> <p>Flows not known (further surveys needed).</p> <p>Traffic will be U-turning at nearby junction (depending on chosen option) west of pub if wanting to go eastbound.</p> <p>Would not be a popular choice with patrons.</p> <p>There will most likely be opposition from locals, the parish council and the Evenlode Public House.</p> <p>Does not align strongly on the A40 STP2 scheme objectives</p>	<p>Weaker strategic case in comparison to most of the other options.</p> <p>The economic case is high due to low impacts on the environment relative to providing a bus lane and overall positive impacts on society.</p> <p>The financial case is the joint worst out of all options due to having to provide a bus gate.</p> <p>The management case score is by far the worst due to the likely opposition for the proposal and little practical feasibility.</p> <p>The commercial case is neutral.</p> <p>This option scores 14 and ranks fifth out of the six options for this junction. There are clearly benefits to banning the right-out movement in combination with not providing a bus lane. However, the likely opposition is too significant to be ignored and there are not enough benefits to justify providing this layout.</p> <p>Supported design solution, but not preferred.</p>

Option 9.2: Without westbound bus lane and banning of right-in and right-out movements

- 6.10.3 Option 9.2 includes not implementing the westbound bus lane on the A40 and banning of right-out movement onto the A40 from Evenlode Public House. Also, a ban of right-in movements into Evenlode Public House from the A40. Table 6-26 outlines potential benefits, issues and EAST assessment scores (against the other options of this junction).

Table 6-26 Option 9.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Banning both right-in and right-out movements will increase safety</p> <p>Low impacts on the environment relative to providing a bus lane and overall positive impacts on society</p>	<p>Requires customers visiting the Evenlode Public House by car to enter/exit through the back onto Old Witney Road.</p> <p>Appropriate signage and potentially a physical central traffic island are needed to enforce the ban or closing of the access point as a whole.</p> <p>Difficulty for traffic accessing Evenlode Public House. Flows not known (further surveys needed).</p>	<p>Weaker strategic case in comparison to most of the other options.</p> <p>The economic case is high due to low impacts on the environment relative to providing a bus lane.</p> <p>The financial case is the worst out of all options due to having to provide a bus gate.</p> <p>The management case score is low due to the likely opposition for the proposal.</p> <p>The commercial case is neutral.</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
	<p>Traffic will be U-turning at nearby junctions or laybys (depending on chosen option) west of pub if wanting to go eastbound.</p> <p>Would not be a popular choice with the pub patrons.</p>	<p>In summary, with a total score of 20, this option ranks third. There are clearly safety benefits to banning the right-in and right-out movement in combination with not providing a bus lane. However, the likely opposition is too significant to be ignored.</p> <p>Supported design solution, but not preferred.</p>

Option 9.3: With westbound bus lane and banning of right-out movement

6.10.4 Option 9.3 involves implementing the westbound bus lane on the A40 and including the banning of right-out movement from Evenlode Public House onto the A40. Table 6-27 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-27 Option 9.3

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Westbound bus lane fulfils Scheme objectives.</p> <p>Will increase safety through banning the right-out movements</p> <p>Provides a bus lane (increasing bus reliability).</p>	<p>Appropriate signage and a one-way system are needed to enforce the ban.</p> <p>Traffic will be U-turning at nearby junctions or laybys (depending on chosen option) west of the pub if wanting to go eastbound.</p> <p>Would not be a popular choice with patrons.</p>	<p>Strong strategic case in comparison to the other options. It includes the westbound bus lane fulfilling Scheme objectives.</p> <p>The economic case is high due to providing the bus lane (increasing bus reliability).</p> <p>The financial case scores the highest out of all options due to not having to provide a bus gate.</p> <p>The management case score is low due to the likely opposition for the proposal.</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of 24 this option ranks second. There are clearly benefits to banning the right-out movement and of the bus lane. However, the likely opposition may be too significant to be ignored.</p> <p>Supported design solution, but not preferred.</p>

Option 9.4: With westbound bus lane and banning of right-in and right-out movements

6.10.5 Option 9.4 involves implementing the westbound bus lane on the A40 and banning of the right-in movement into Evenlode Public House from the A40 as well as the right-out movement from Evenlode Public House onto the A40. Table 6-28 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-28 Option 9.4

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>No break of bus lane road markings needed.</p> <p>Westbound bus lane fulfils Scheme objectives and will increase safety through banning the right-in and right-out movements.</p> <p>Providing a bus lane will increase bus reliability</p>	<p>Difficulty for traffic accessing the Evenlode Public House. Flows not known (further surveys needed).</p> <p>Traffic will be U-turning at nearby junctions (depending on chosen option) west and east of the pub. .</p> <p>Would not be a popular choice with patrons.</p>	<p>Strong strategic case in comparison to the other options.</p> <p>The economic case is scores well due to provision of the bus lane (improved bus reliability and journey time).</p> <p>The financial case is the joint best out of all options due to no provision of a bus gate.</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		<p>The management case score is low due to the aforementioned likely opposition for the proposal.</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of 33 this option ranks the highest. There are clearly benefits to banning the right-in and right-out movements from safety and operational perspectives, and of the bus lane continuation. However, the likely opposition is too significant to be ignored.</p> <p>Supported design solution, but not preferred.</p>

Option 9.5: With Westbound Bus Lane - All movements allowed

- 6.10.6 Option 9.5 involves implementing the westbound bus lane on the A40 with all right turning movements not banned. It requires a break in the bus lane road markings for westbound general traffic to manoeuvre into the nearside lane and the make the left turn into Evenlode Public House. Table 6-29 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-29 Option 9.5

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Westbound bus lane fulfilling Scheme objectives.</p> <p>Bus lane will improve journey time and reliability.</p> <p>Large support envisaged from key stakeholders.</p>	<p>Westbound bus lane may create several conflict points at the junction which will increase the likelihood of accidents taking place</p>	<p>Weak strategic case in comparison to the other options.</p> <p>The economic case is high due to providing the bus lane (improved bus reliability and journey time).</p> <p>The financial case is the best out of all options due to not having to provide a bus gate.</p> <p>The management case scores high. This is due to likely large support envisaged from key stakeholders.</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of 18, this option ranks fourth. Whilst there may be some challenges arising from this option (i.e. land and safety-related), there are measures to take to mitigate any risks. The benefits may outweigh these concerns (proven by a high score).</p> <p>An AECOM'S RSA expert has been consulted on this matter and no concerns with the proposed design has been raised. The right turning pocket provided on the A40 must be wide enough to allow a vehicle to stop there safely if carrying out a right-turning manoeuvre in 2 stages. The design provides a 4m wide right-turning pocket, which is considered enough.</p> <p>Preferred design solution.</p>

Option 9.6: Without Westbound bus lane with right turning movements not banned

6.10.7 Option 9.6 involves not implementing the westbound bus lane on the A40 with right turning movements not banned. Table 6-30 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-30 Option 9.6

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Safer option due to only crossing one lane as opposed to two.</p> <p>Eastbound general traffic will have a right turning pocket to cross the westbound general traffic lane.</p>	<p>Allows the right turning traffic into and out of Evenlode Public House.</p> <p>Does not capitalise on the benefits associated with the westbound bus lane, such as encouraging sustainable modes of travel.</p>	<p>Weakest strategic case and economic case out of all options due to it being a 'Do Minimum' approach and no significant benefits.</p> <p>The financial case is the worst of all options. This is due to the need for a bus gate and to maintain the signals.</p> <p>The management case is slightly positive. It is envisaged this could be a preferred option by statutory bodies as it doesn't ban any movements.</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of 4, this option ranks sixth (last). Whilst there may be some benefits and some support from stakeholders, this option does not provide a bus lane and instead has the need to incorporate a bus gate, reducing the financial case.</p> <p><i>Supported design solution, but not preferred.</i></p>

6.11 Element 10: Witney Road Junction

- 6.11.1 Three options (**Options 10.1 – 10.3**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration.
- 6.11.2 The Do Minimum layout for Element 10, as is currently proposed, is a signalised junction with left-turn out, and left and right-turn in movements. There is a signalised pedestrian crossing incorporated within the junction. There is 1.3m of physical separation between the westbound general traffic lane and the dedicated right turn lane. No formal crossing is provided across Witney Road.

Option 10.1: Signalised Junction with Physical Separation

- 6.11.3 Option 10.1 is a signalised junction for the Witney Road junction with 1.3m physical separation distance (traffic island) and between the westbound general traffic lane and the dedicated right turn lane. This is designed to a 40mph speed limit. Figure 6-3 shows this option and Table 6-31 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

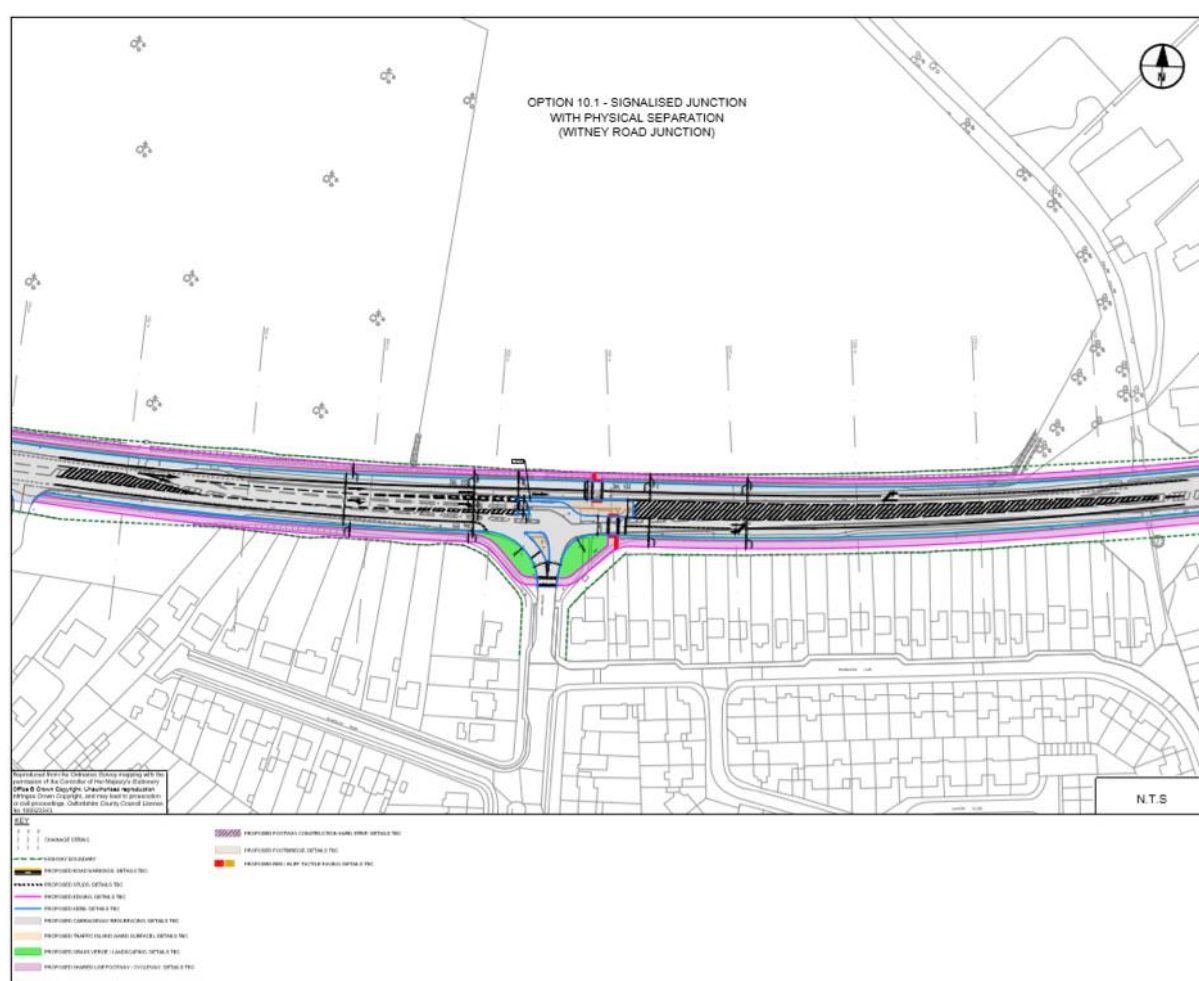


Figure 6-3 Option 10.1: Signalised Junction with Physical Separation

Table 6-31 Option 10.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Fulfils Scheme objectives and aligns with OCC's A40 Walking and Cycling Strategy</p> <p>Increases reliability for all modes of transport</p>	<p>Option considered to remove the physical separation between the right and ahead movements on the eastbound.</p> <p>Considered safer to include the separation although DMRB only states that a physical separation is required</p>	<p>Strongest strategic case out of all options, as it aligns with nearly all the scheme objectives.</p> <p>The economic case is equally as strong as Option 10.2, as it leads to reliability improvements and improves provision for NMUs.</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
	<p>where the speed limit is 50mph and above.</p> <p>May conflict with the highway boundary on the north side due to proposed earthworks.</p>	<p>The financial case is very weak reflecting the implementation of the traffic island and the potential need for land take.</p> <p>The management case scores poorly reflecting diversions and land take, as well as lack of stakeholder support.</p> <p>The commercial case is neutral.</p> <p>In summary, with a score of 18, this option has the second highest total score. This option and option 10.2 are very similar - the difference being the provision of a splitter island separating the right turn lane and the ahead lane for option 10.1. Inclusion of the splitter is marginally safer, and therefore this is the preferred option.</p> <p><i>Preferred design solution.</i></p>

Option 10.2: Signalised Junction no Physical Separation

- 6.11.4 Option 10.2 is a signalised junction for the Witney Road junction with no physical separation distance, but a reduced hatched markings separation between the westbound general traffic lane and the dedicated right turn lane. This is designed to a 40mph speed limit. Figure 6-4 shows this option and Table 6-32 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

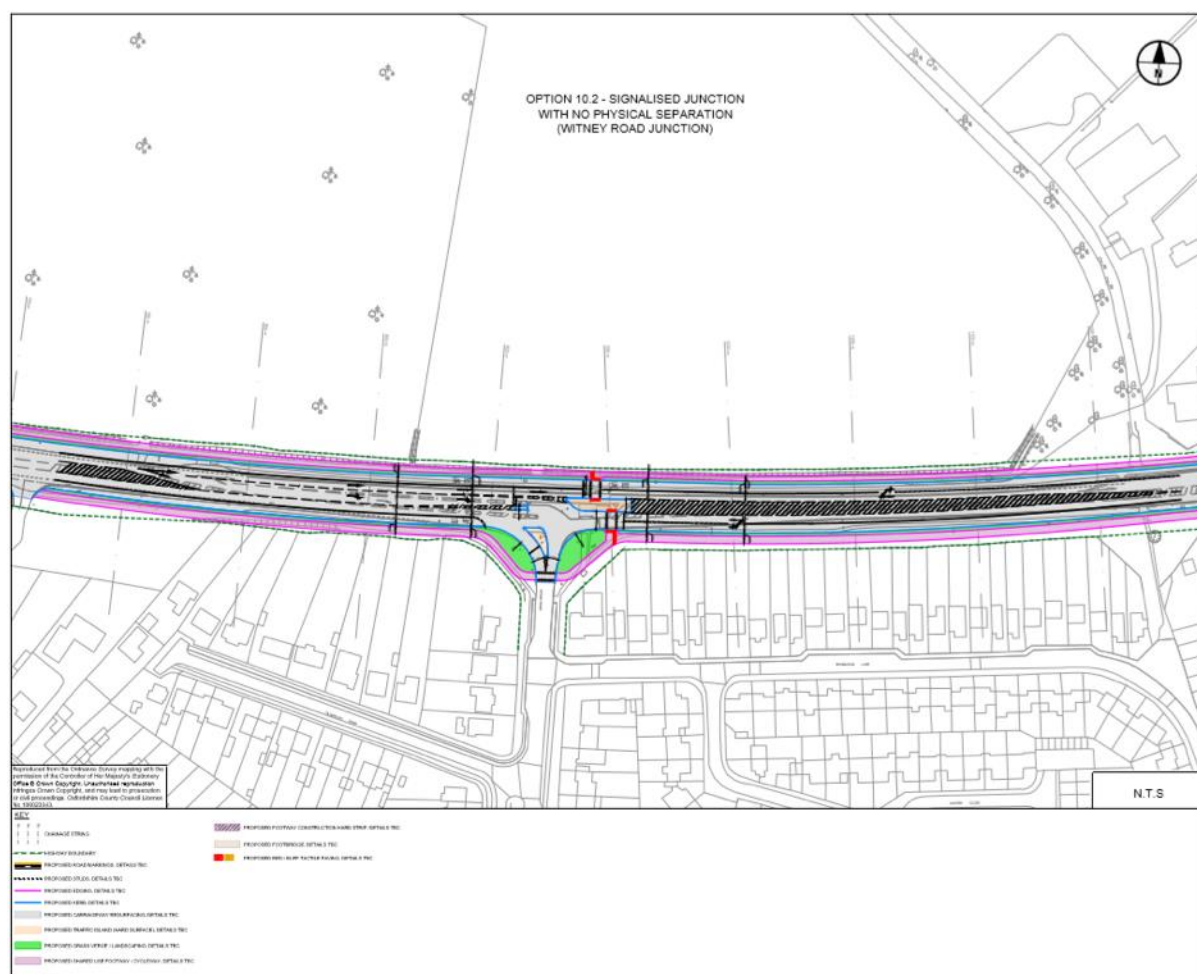


Figure 6-4 Option 10.2: Signalised Junction no Physical Separation

Table 6-32 Option 10.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Fulfils A40 STP2 scheme objectives and aligns with OCC's A40 Walking and Cycling Strategy.</p> <p>Positively impacts society in this area and increases reliability for all modes of transport</p>	<p>DMRB requires a physical separation where the speed limit is 50mph and above. Current proposal with physical separation is considered a safer option.</p>	<p>Relatively strong strategic case as it aligns with most of the scheme objectives.</p> <p>The economic case is equally as strong as option 10.1. This option positively impacts society in this area and strongly scores for reliability for all modes of transport.</p> <p>The financial case is poor due to the impact on the gas main.</p> <p>The management case is the highest out of all options due to being feasible and not impacting land and property as much as option 10.1.</p> <p>The commercial case is neutral.</p> <p>In summary, with a score of 22, this option has the highest total score. This option and option 10.1 are very similar - the difference being the provision of a splitter island separating the right turn lane and the ahead lane for option 10.1, which is safer. Therefore option 10.1 is the preferred design solution.</p> <p><i>Supported design solution, but not preferred.</i></p>

Option 10.3: Signalised Junction (Bus Only Right Turn)

- 6.11.5 Option 10.3 is a signalised junction for the Witney Road junction with 1.3m physical separation distance (traffic island) between the westbound general traffic lane and the dedicated right turn lane for buses only. This is designed to a 50mph speed limit. Table 6-33 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-33 Option 10.3

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
NA	<p>Further modelling required to understand where right turning traffic would go.</p> <p>Potential issue for enforcement.</p> <p>Does not align with Scheme objectives and OCC's A40 Walking and Cycling Strategy.</p> <p>Complex to design and enforce the ban of the right turn onto Witney Road for general traffic.</p> <p>Likely put additional traffic onto another route in order for them to access Eynsham.</p>	<p>Weakest strategic case as it only aligns with some of the scheme objectives.</p> <p>The economic case is also comparatively weak. This is because of the negatives outweighing the positives for restricting the right turn to just buses.</p> <p>The financial case is very weak reflecting the implementation of the traffic island and the potential need for land take.</p> <p>The management case is significantly weaker than options 10.1 and 10.2 with less envisaged support from key stakeholders.</p> <p>The commercial case is neutral and has greater complexities to design and enforce the ban of the right turn onto Witney Road for general traffic.</p> <p>In summary, with a score of 8, this option has the lowest total score (by a significant margin). It would be very difficult to enforce based on the need to allow buses to turn right, but no other vehicles. It would also likely put additional traffic onto another route in order for them to access Eynsham.</p> <p>Supported design solution, but not preferred.</p>

6.12 Element 11: Esso Petrol Station and Spareacre Lane

- 6.12.1 Two options (**Options 11.2 and 11.3**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration. The Do Minimum layout for Element 11, is proposed as a Pegasus (as this is a bridleway crossing; in Do Nothing it is an uncontrolled crossing point with a central refuge).

Option 11.2: Uncontrolled Crossing

- 6.12.2 Option 11.2 is an uncontrolled crossing with traffic islands to connect the Spareacre Lane PROW. Table 6-34 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-34 Option 11.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Uncontrolled crossing has flexibility for future change and requires less design, however it does not interface well with future schemes.	<p>Not as safe as a controlled crossing for NMU on a high-speed 50mph road.</p> <p>Does not encourage other means of transport such as cycling - not a safe means of crossing</p> <p>Does not encourage sustainable travel and does not align with OCC's A40 Walking and Cycling Strategy</p>	<p>Weak strategic case, as the option does not align well with the scheme objectives.</p> <p>The economic case is extremely weak compared to a controlled crossing, as it discourages active travel.</p> <p>The financial case is stronger than providing a controlled crossing as it is less expensive.</p> <p>The management case is significantly weaker than Option 11.3 with less envisaged support from key stakeholders.</p> <p>The commercial case is neutral.</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		<p>In summary, with a score of -8, this option has the lowest total score and ranks second.</p> <p><i>Supported design solution, but not preferred.</i></p>

Option 11.3: Controlled Crossing

6.12.3 Option 11.3 is a controlled toucan crossing across the A40 to connect the Spareacre Lane PROW. Table 6-35 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-35 Option 11.3

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Will encourage sustainable travel and aligns with OCC's A40 Walking and Cycling Strategy</p> <p>Improved safety with street lighting and potential CCTV and increasing accessibility in the area.</p> <p>A controlled crossing provides a better interface with future developments, such as housing and schools.</p> <p>Expected support from key stakeholders.</p> <p>A controlled crossing will provide NMU's with a safe means of crossing a busy road with multiple lanes.</p>	<p>Increase journey time</p> <p>May not be favoured by the majority of the general public.</p> <p>Unable to provide Pegasus crossing, as proposed in the A40 Science Transit scheme, due to width of carriageway to cross the road (approximately 11m max).</p>	<p>Strong strategic case as the option addresses several of the scheme objectives.</p> <p>The economic case scores very good as it improves active travel infrastructure and improves NMU journey times.</p> <p>The financial case is weaker than providing an uncontrolled crossing as it is more expensive.</p> <p>The management case is significantly stronger than option 11.2 with envisaged support from key stakeholders.</p> <p>The commercial case is neutral.</p> <p>In summary, with a score of 10, this option has the highest total score (by a significant margin) and ranks first. There is demand for crossing in this area with a desire line at this location - a public right of way (bridleway) and a shop (Tesco Express) at the petrol station serves part of the community.</p> <p><i>Preferred design solution.</i></p>

6.13 Element 12: Lower Road Roundabout

- 6.13.1 Five options (**Options 12.1 – 12.4 and 12.6**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration.
- 6.13.2 The Do Minimum layout for Element 12, as is currently proposed, is a 4-arm unsignalised roundabout. On both approach arms from the A40, the single lane carriageway flares to two lanes to access the junction. Across the Lower Road roundabout arm there is an unsignalised crossing for the shared use pathway. There is also an unsignalised crossing across the A40 West arm.

Option 12.1: Signalised Junction (40mph)

- 6.13.3 Option 12.1 is a signalised junction with dedicated signals for general traffic. This option does not allow the bus lanes to be carried through the junction. As shown below, bus lanes end before reaching the junction. This is designed to a 40mph speed limit. Figure 6-5 and Figure 6-6 show this option and Table 6-36 outlines potential benefits, issues and EAST assessment scores (against the other options of this junction).

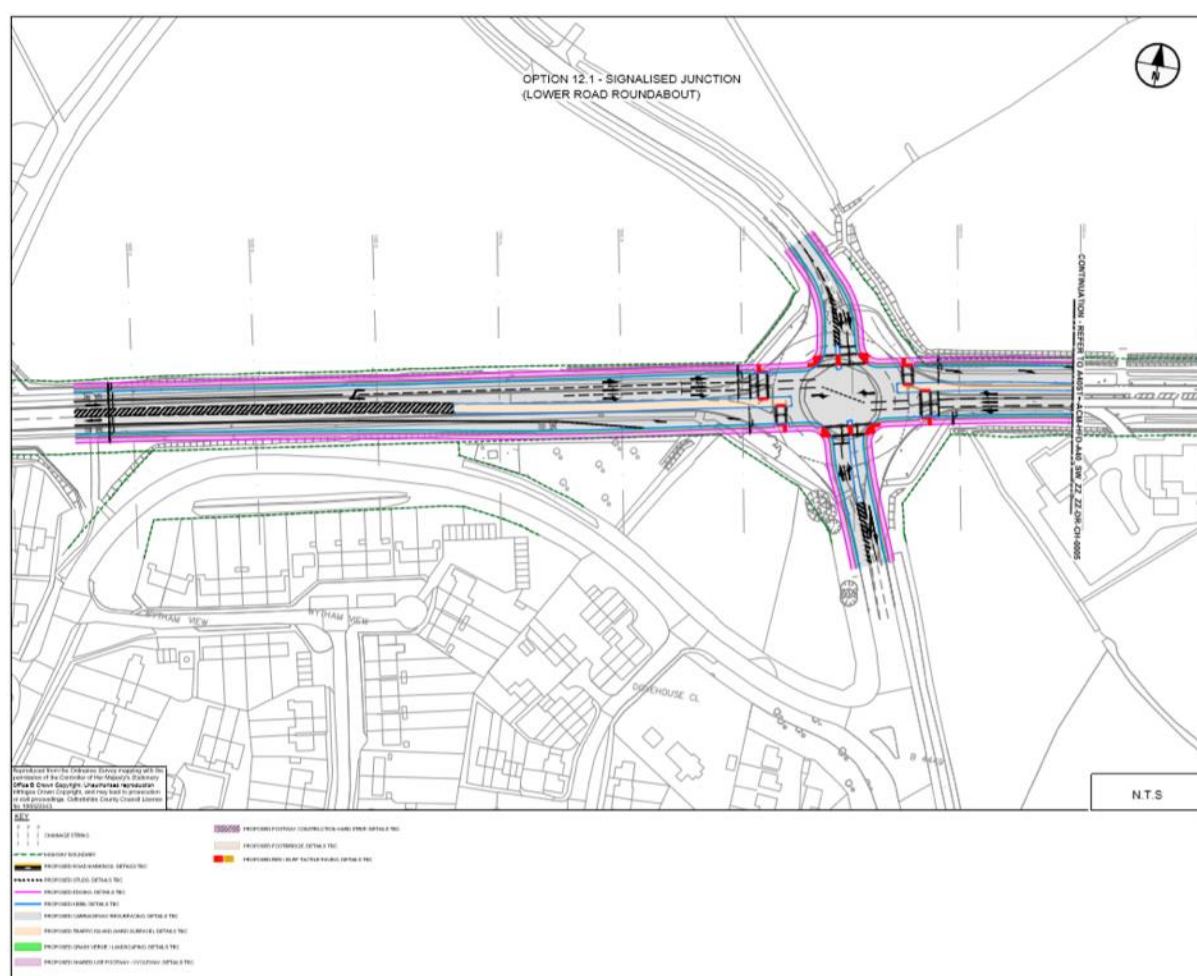


Figure 6-5 Option 12.1: Signalised Junction (40mph)

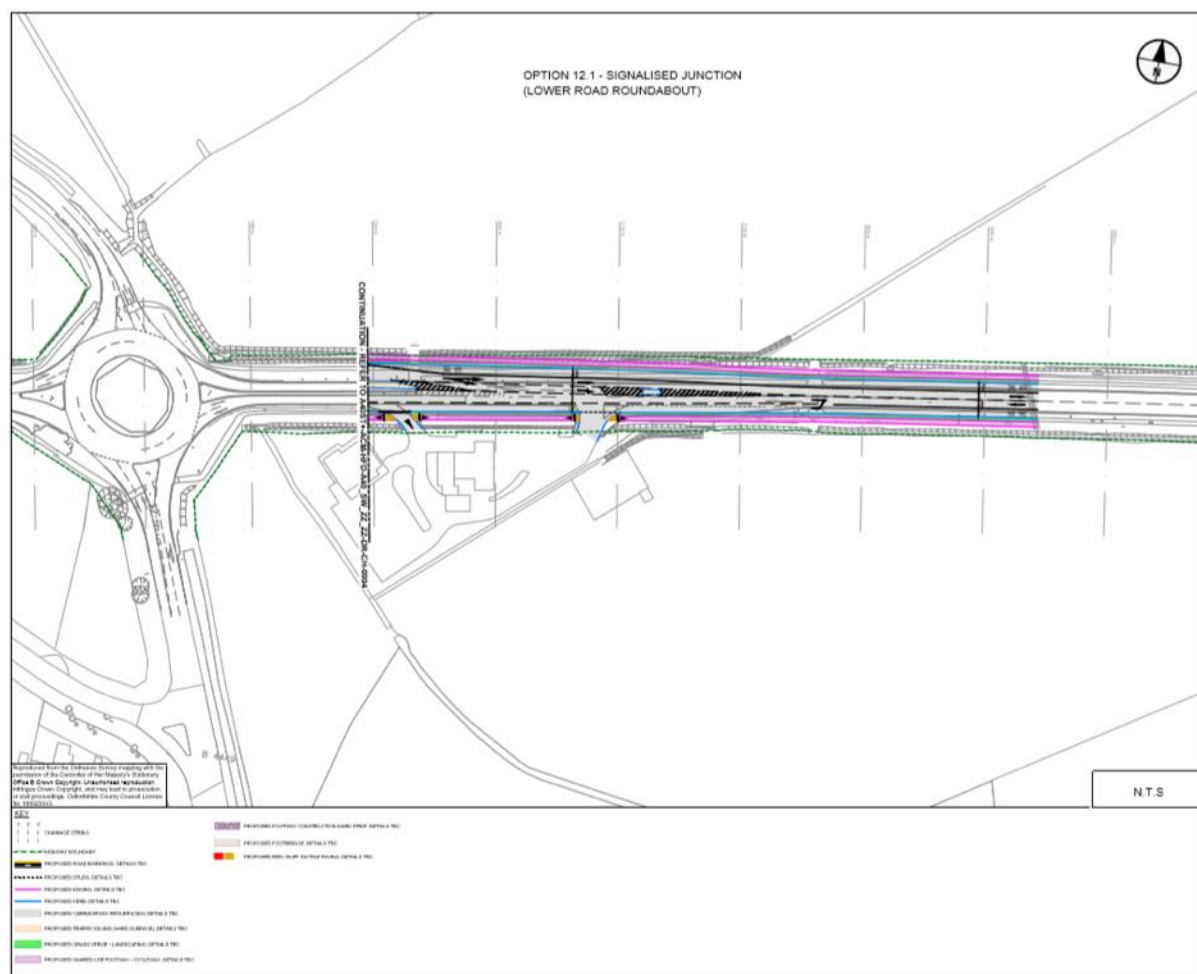


Figure 6-6 Option 12.1: Signalised Junction (40mph)

Table 6-36 Option 12.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>This option allows the continuation of the Westbound bus lane throughout the main carriageway.</p> <p>Potentially safer for Pedestrian/cyclists to cross the road than the existing roundabout.</p> <p>Junction encourages sustainable forms of travel as bus lanes are brought close to the junction.</p> <p>However, bus priority cannot be provided through the junction. NMU travel times and provision aligns with OCC's A40 Walking and Cycling Strategy.</p> <p>Increased reliability for buses, private vehicles and NMU's and increasing accessibility with controlled crossings.</p>	<p>Higher operational costs.</p> <p>Complex to design and construct the signalised junction.</p>	<p>Very strong strategic case relative to the other options as it aligns with nearly all the scheme objectives.</p> <p>The economic case is also strong due to improvement journey times and reliability for all modes, as well as improved safety.</p> <p>This is likely to be an expensive option as the existing roundabout needs to be removed, and this is reflected in the poor financial case score.</p> <p>The management case is the worst at -11 due to significant negative scores for practical feasibility and utility companies.</p> <p>The commercial case is neutral.</p> <p>In summary, with a score of 19, this option is the highest-ranking option. Whilst there are complexities for delivery and large costs involved, there are significant benefits, such as regulating flows, increasing safety and increasing reliability for all traffic and NMU's. Therefore, this option is a preferred design solution.</p> <p>Supported design solution, but not preferred.</p>

- 6.13.4 A recent LinSig modelling analysis (undertaken after the EAST assessment scoring) shows that this option will not be able to proceed based on the current outline design. LinSig modelling shows that a signalised junction will not work at this location due to the traffic flows. The junction will be significantly over capacity at the start without the inclusion of the 2031 predicted flows. Therefore, the option is not taken forward.

Option 12.2: Hamburger Roundabout (40mph)

- 6.13.5 Option 12.2 is a signalised hamburger roundabout with central lanes for through traffic and dedicated signals for general traffic wishing to access Lower Road or the B4449. This is designed to a 40 mph speed limit. Table 6-37 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-37 Option 12.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Increases bus, private vehicle and NMU reliability	<p>This option would require breaking both bus lanes to allow general traffic to incorporate into the nearside lane to turn right/left into Lower Road or the B4449.</p> <p>Negative impact on the flood zone east of the roundabout meaning the culvert would need alteration.</p> <p>Large capital and revenue costs of the hamburger roundabout.</p> <p>Potential opposition from key stakeholders and utilities to be greatly affected.</p>	<p>Positive strategic case, as it meets most of the scheme objectives.</p> <p>The economic case is also positive as it improves journey time and reliability for all modes, as well as provision for NMUs improving safety.</p> <p>The financial case is very weak due to cost of removing existing roundabout.</p> <p>The management case is very poor due to complex construction and the diversions of utilities required.</p> <p>The commercial case is neutral.</p> <p>In summary, with a score of 7, this option scores well and ranks second. Other key contributing factors include; the large geometric footprint possibly extending over the highway boundary (acquisition of land may be needed through Compulsory Purchase Orders (CPO's)), negative impacts on flood mitigation, utility impacts and potential opposition from stakeholders.</p> <p>Supported design solution, but not preferred.</p>

- 6.13.6 A recent LinSig modelling analysis (undertaken after the EAST assessment scoring) shows that this option will not be able to proceed based on the current outline design. LinSig modelling shows that a signalised junction will not work at this location due to the traffic flows. The junction will be significantly over capacity at the start without the inclusion of the 2031 predicted flows. Therefore, the option is not taken forward.

Option 12.3: Leave Existing Roundabout as is (50mph)

- 6.13.7 Option 12.3 is a normal roundabout connecting A40 with Lower Road and B4449. This is designed to a 50 mph speed limit. Table 6-38 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-38 Option 12.3

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
No changes to the junction Little delivery complexities	<p>Does not fulfil the Scheme Objectives and not encouraging sustainable travel.</p> <p>May require land take / CPO to incorporate southern footpath and westbound bus lane, and alteration to culvert on north east side.</p>	<p>The strategic case as it does not meet the scheme objectives.</p> <p>The economic case is slightly positive due to the implementation of swales.</p> <p>The financial case is very positive as there is no cost for this option.</p> <p>The management case is neutral</p> <p>The commercial case is neutral.</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
	<p>No change to bus, private vehicle and NMU reliability and with uncontrolled crossings.</p> <p>No improvement in accessibility.</p> <p>It also may have future capacity issues (likely to reach capacity by 2031).</p>	<p>In summary, with a score of 3, this option ranks third. It does not provide any bus priority measures and is considered less convenient for NMU's compared to the other options. It also may have future capacity issues (likely to reach capacity by 2031). However, the cost savings and lack of complexity of this DM scenario within the assessment are too great to be ignored.</p> <p><i>Preferred design solution.</i></p>

Option 12.4: Signalised Roundabout (40mph)

6.13.8 Option 12.4 is a signalised roundabout at Lower Road. This is designed to a 40 mph speed limit. Table 6-39 outlines potential benefits and issues.

Table 6-39 Option 12.4

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Regulating traffic flows and increasing accessibility</p> <p>Construction would not be complex due to the layout being similar to the existing junction layout.</p>	<p>This option would have higher operational costs than the normal roundabout option.</p> <p>May require land take/CPO.</p> <p>Does not fulfil the Scheme objectives and not encouraging sustainable travel.</p>	<p>Very weak strategic case as the scheme does not align with the scheme objectives and even has a negative impact on some.</p> <p>The economic case is relatively strong. However, it doesn't dramatically improve reliability for any mode of transport.</p> <p>The financial case is weak across all options which aren't of a DM scenario, with this option being slightly better than options 12.1 and 12.2.</p> <p>The management case is -8, the lowest score for all options due to diversion of traffic required for construction, the lack of future proofing and likely stakeholder opposition.</p> <p>The commercial case is neutral.</p> <p>In summary, with a score of -10, this option ranks as the lowest performing option. It does not improve junction capacity and would lead to greater queues, negatively impacting buses and private vehicles alike.</p> <p><i>Supported design solution, but not preferred.</i></p>

6.13.9 A recent LinSig modelling analysis (undertaken after the EAST assessment scoring) shows that this option will not be able to proceed based on the current outline design. LinSig modelling shows that a signalised junction will not work at this location due to the traffic flows. The junction will be significantly over capacity at the start without the inclusion of the 2031 predicted flows. Therefore, the option is not taken forward.

Option 12.6: Increased size of existing roundabout

6.13.10 Option 12.6 is to increase the size of the existing Lower Road Roundabout. The existing Inscribed Circular Diameter (ICD) of the roundabout is relatively small for the existing traffic volume, and observations show that traffic doesn't use the full capacity of the roundabout, so by providing an enlarged ICD, this should increase the capacity.

6.13.11 Table 6-40 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-40 Option 12.6

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
NA	<p>This option would require breaking both bus lanes to allow traffic to use the roundabout.</p> <p>It would also require land take probably to the north of the junction</p>	<p>This option requires further consideration and modelling before EAST assessment can be undertaken.</p> <p><i>Supported design solution, but not preferred.</i></p>

6.14 Element 13: Cassington New Bridge

- 6.14.1 Three options (**Options 13.1 – 13.3**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration. The Do Minimum layout keeps the bridge at the current width and incorporates a bus lane in the eastbound direction only.

Option 13.1: Widen Bridge on South Side Opt. 1

- 6.14.2 Option 13.1 is a bridge widening on south side of Cassington New Bridge to maintain lane widths. This incorporates a 3 metre wide footway on the north side (no verge) and a 3 metre wide footway on the south side (1.5 metre wide verge). Figure 6-7 shows this option and Table 6-41 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

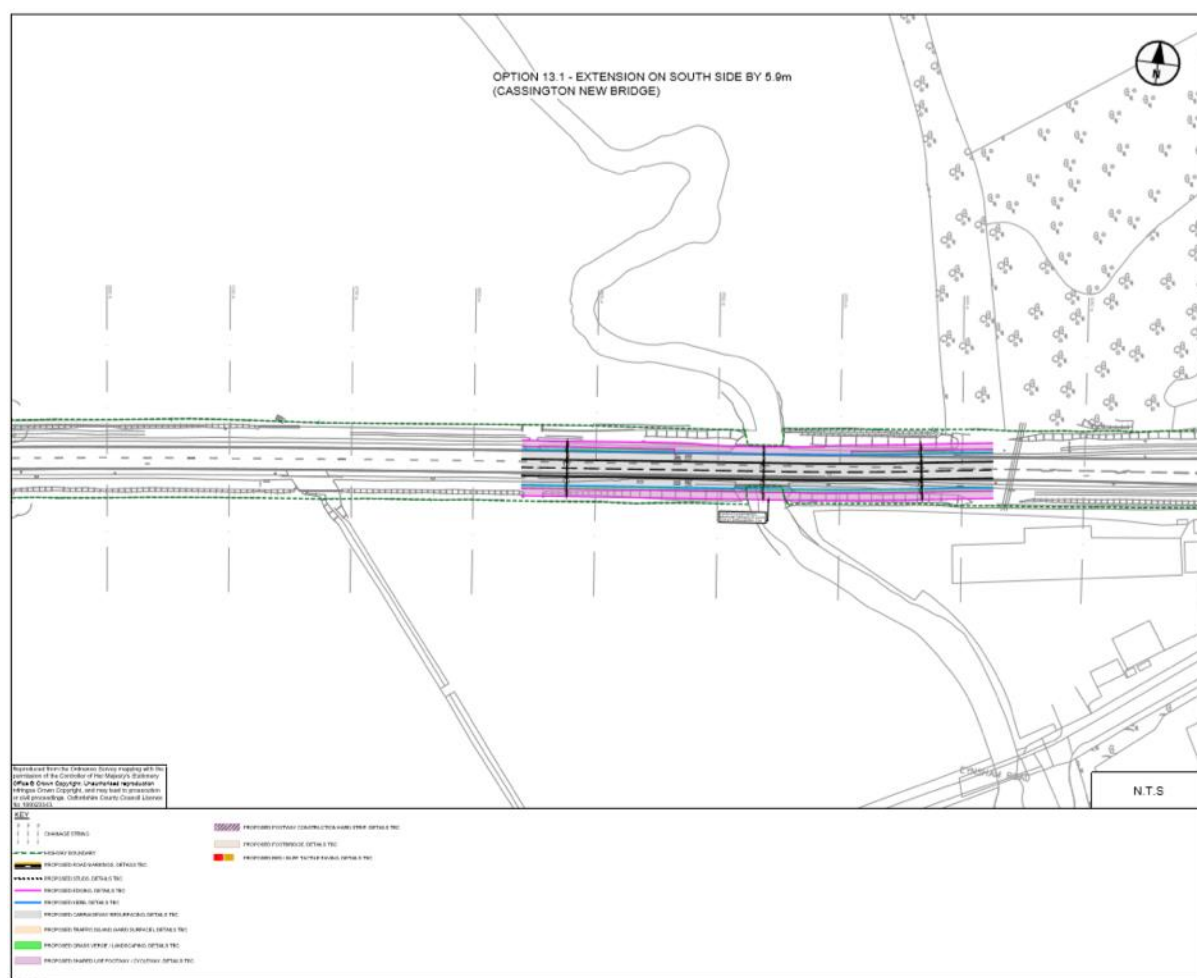


Figure 6-7 Option 13.1: Widen Bridge on South Side Opt. 1

Table 6-41 Option 13.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Allows free flow of traffic on the A40 without narrowing lanes.</p> <p>Allows free flow of pedestrian and cyclist movements along the A40 corridor without having to cross the road.</p>	<p>Requires significant bridge widening of approximately 5.9m - existing parapet to back of footway.</p> <p>Potential safety concerns on north side due to lack of verge protecting pedestrians and cyclists. Effective width of footway will decrease to approximately 2.5m.</p> <p>Potential flood compensation measures for extending bridge.</p>	<p>Options 13.1 and 13.2 are very similar. The difference between the two is 1m less bridge widening for option 13.2. Both options will provide bus lanes and cycle facilities in both directions. This means that their strategic cases are significantly better than Option 13.3.</p> <p>The economic case is strong due to journey time benefits to buses, cyclists and pedestrians.</p> <p>The financial case is very poor and is lower than Option 13.2, as increased widening is more expensive.</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
	Expensive and complex design and construction.	<p>The management case is slightly good, due to support for the bus lane and active travel.</p> <p>The commercial case is neutral.</p> <p>This option scores 25, which ranks the option second. Whilst extending the bridge may be expensive and complex in delivery of design and construction (reflected in the scoring), it is deemed necessary to fulfil essential criteria, mainly providing an eastbound and westbound bus lane through the bridge and active travel infrastructure.</p> <p><i>Preferred design solution.</i></p>

Option 13.2: Widen Bridge on South Side Opt. 2

- 6.14.3 Option 13.2 is a bridge widening on south side of Cassington New Bridge to maintain lane widths. This option incorporates a 2 metre wide footway on the north side (no verge) and a 3 metre wide footway on the south side (1.5 metre wide verge). Figure 6-8 shows this option and Table 6-42 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).
- 6.14.4 Options 13.1 and 13.2 are very similar. However, Option 13.1 provides a wider footway compared to option 13.2 (2.5m over 1.5m) benefitting NMU's. Both options will provide bus lanes and cycle facilities in both directions.

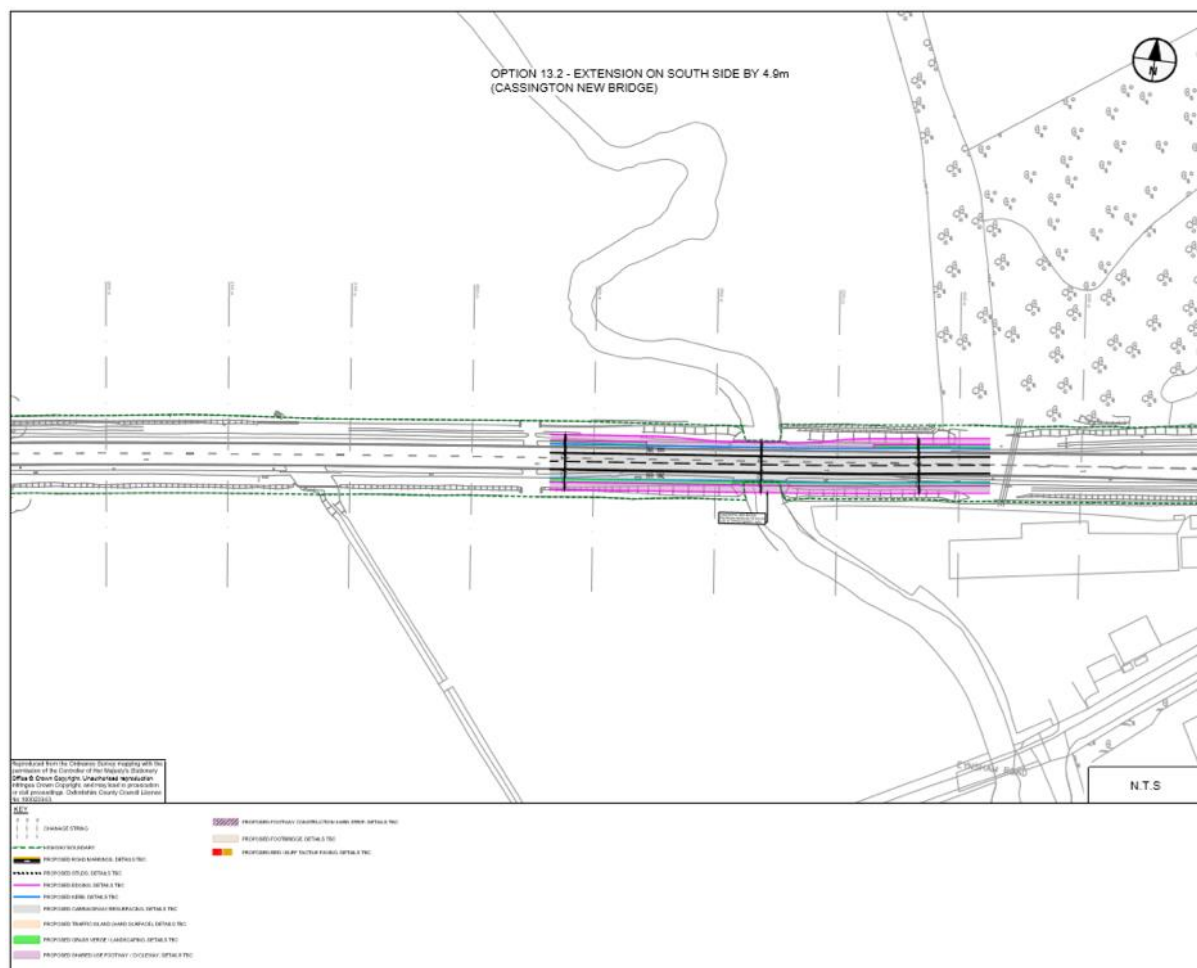


Figure 6-8 Option 13.2: Widen Bridge on South Side Opt. 2

Table 6-42 Option 13.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Allows free flow of traffic on the A40 without narrowing lanes.</p> <p>Allows free flow of pedestrian and cyclist movements along the A40 corridor without having to cross the road.</p> <p>Full cycle provision on south side with a significantly reduced cycle provision on north side.</p> <p>Full bus lane provision</p>	<p>Requires significant bridge widening of approximately 4.9m.</p> <p>Potential safety concerns on north side due to lack of verge protecting pedestrians and cyclists.</p> <p>Effective width of footway will decrease to approximately 1.5m - substandard for shared-use footway-cycleway according to DMRB.</p> <p>Potential flood compensation measures for extending bridge.</p> <p>Expensive and complex in delivery of design and construction</p>	<p>The strategic case is strong as it aligns well with the scheme objectives.</p> <p>The economic case score is strong and is the same as the score for Option 13.1.</p> <p>The financial case is poor due to the cost of widening, however this is less than the cost of Option 13.1.</p> <p>The management case scores 3, due to support for the bus lane and active travel as well as less complex works.</p> <p>The commercial case is neutral.</p> <p>In summary, this option has the highest score at 27. This is mainly due to the full provision of the bus lane and walking and cycling routes. It is slightly more complex</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		<p>than Option 13.1 - but to a lesser extent than other options as it is very similar to Option 13.1.</p> <p><i>Preferred design solution.</i></p>

Option 13.3: Widen Bridge on South Side Opt. 3

6.14.5 Option 13.3 is a bridge widening on the south side of Cassington New Bridge to maintain lane widths, without a westbound bus lane (therefore a bus gate prior to the junction will be required.). This option incorporates a 3m footway on the north side (no verge) and a 3m footway on the south side (1.5m verge). Table 6-43 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-43 Option 13.3

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Requires minimal bridge widening on south side due to removal of Westbound Bus Lane.</p> <p>Reduction in journey time savings due to lack of Westbound Bus Lane.</p> <p>Allows free flow of general traffic on the A40 without narrowing lanes.</p> <p>Allows free flow of pedestrian and cyclist movements along the A40 corridor without having to cross the road.</p>	<p>Potential safety concerns on north side due to lack of verge protecting pedestrians and cyclists. Effective width of footway will decrease to approximately 2.5m.</p> <p>Potential flood compensation measures for extending bridge.</p> <p>Not incorporating either an eastbound or westbound bus lane.</p>	<p>Not incorporating the bus lanes means a lower score for the strategic case in comparison to the other options due to not capitalising on the benefits the bus lanes bring (i.e. improving travel times and encouraging sustainable travel).</p> <p>The economic case is also significantly lower due to negative impacts on reliability for both buses and private vehicles.</p> <p>The financial case is poor due to the maintenance cost of an additional set of signals.</p> <p>The management case and commercial case are both neutral.</p> <p>In summary, this option has a very weak score of 0, which is lower than both of the other options and ranks the option last. This is solely due to not providing bus lanes through the bridge.</p> <p><i>Supported design solution, but not preferred.</i></p>

6.15 Element 14: Cassington Road Junction (West)

- 6.15.1 Two options (**Options 14.1 and 14.2**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration. The Do Minimum layout will allow both left-out and right-out movements from Cassington Road onto the A40, with the Bus Lane terminating upstream of the junction in the DM.

Option 14.1: Right Turn Banned onto A40

- 6.15.2 Option 14.1 includes banning the right turn onto the A40 at the Cassington Road Junction (West). A central traffic island enforces the ban of the right turn onto the A40 from Cassington Road. Those needing to turn right can do so at Eynsham Roundabout (assuming the chosen highway option allows vehicles to do so). Table 6-44 outlines potential benefits, issues and EAST assessment scores (against the other options of this junction).

Table 6-44 Option 14.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Simple signal phasing with no dedicated signals for right turn needed. If flows are low enough, may not need signals, could use Give Way instead.	<p>Further investigation required through modelling to assess the impact on traffic flows.</p> <p>Banning the right turn onto the A40 will potentially cause issues for properties in the area.</p> <p>It is envisaged that this would not be a popular proposal among non-statutory bodies and would reduce access to services.</p>	<p>The strategic case score is very weak as this option does not align with the scheme objectives.</p> <p>As a result of banning the right turns the economic case it is lower than for Option 14.2.</p> <p>The financial case also scores negatively, due to the cost of physical features, but better than Option 14.2.</p> <p>The management case score is weak due to lack of stakeholder support; however, this is the same as Option 14.2.</p> <p>The commercial case is neutral.</p> <p>This option scores very poorly -15 and is therefore the lowest scoring option. It is not the preferred option as it will bring in some form of restriction which is unlikely to be favoured well by the public and businesses. Traffic will require somewhere to be able to turn around and head back towards Oxford which will impact journey times for private vehicles, increase emissions and decrease network connectivity.</p> <p>Supported design solution, but not preferred.</p>

Option 14.2: Right Turn Allowed onto A40

- 6.15.3 Option 14.2 is an allowed right turn onto the A40 at the Cassington Road Junction (West). There would be no central traffic island in order to allow vehicles to make the right turn onto the A40 from Cassington Road. Figure 6-9 shows this option and Table 6-45 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

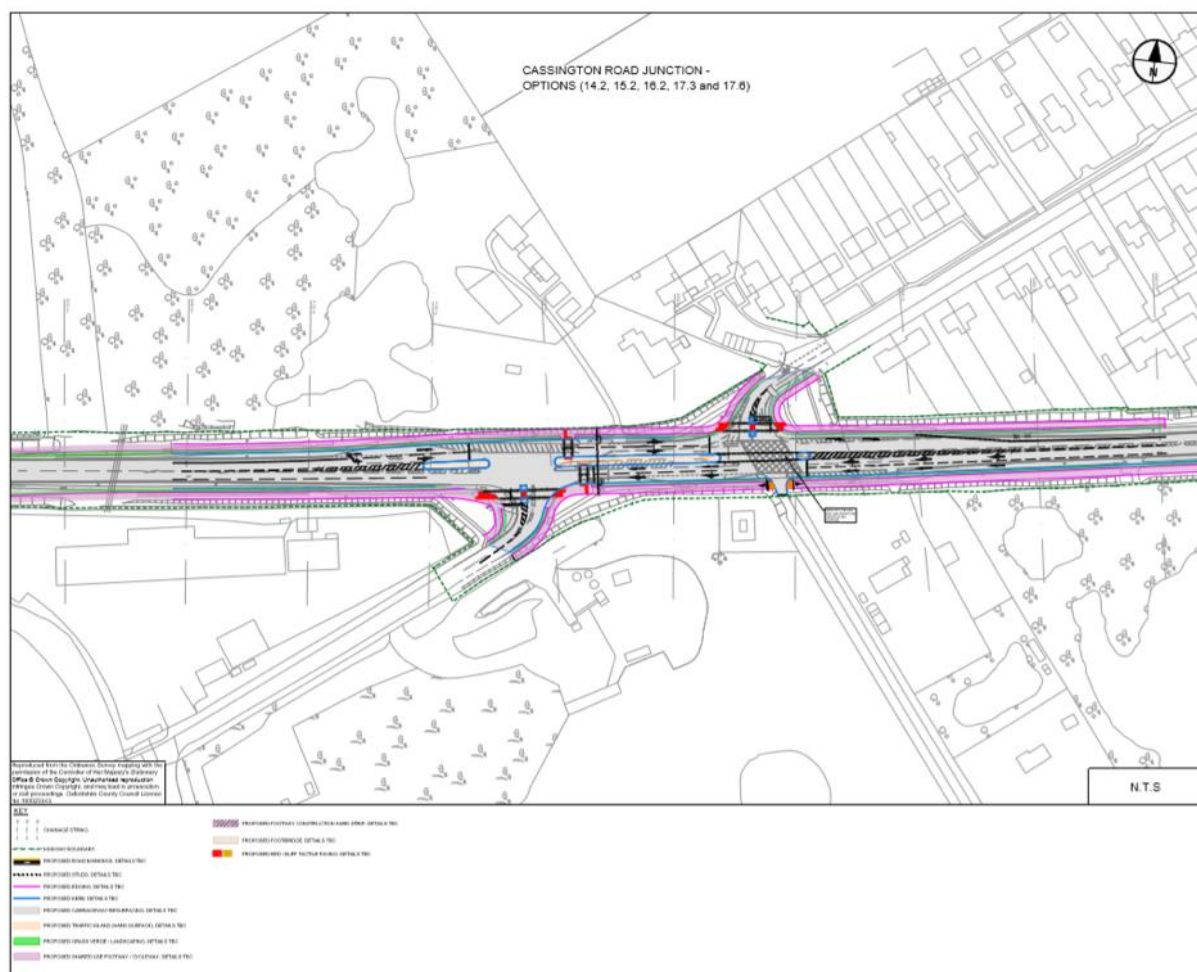


Figure 6-9 Option 14.2: Right Turn Allowed onto A40

Table 6-45 Option 14.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Dedicated signals and phasing to allow for right turn manoeuvre.</p> <p>Permitting all movements from Cassington Road provides residents with access and does not reduce connectivity.</p> <p>Does not have a negative impact on journey times for private vehicles or carbon emissions.</p>	<p>Requires junction re-design and modelling.</p> <p>Break in central traffic island.</p>	<p>The strategic case, whilst still negative, scores better than for Option 14.1, reflecting the full range of movements allowed.</p> <p>The economic case is only slightly negative due to potential impacts on bus reliability from the second set of signals.</p> <p>The financial case is weak due to the significant capital costs required and increase in maintenance costs.</p> <p>The management case is slightly negative due to construction impacts and some complexity.</p> <p>The commercial case is neutral.</p> <p>This option has the highest score out of the two options at -9. This option is likely to be more popular for statutory and non-statutory bodies compared to option 14.1. Whilst the score is negative, it is clearly the better option out of the two.</p> <p>Preferred design solution.</p>

6.16 Element 15: Durham Road Access (South of A40)

6.16.1 Two options (**Options 15.2 and 15.3**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration. The Do Minimum layout is a signalised junction with a right turn pocket from the A40 into Durham Road.

Option 15.2: Right Turn Pocket

6.16.2 The central traffic island is proposed to be shortened to allow for a right turn pocket for vehicles turning onto Durham Lane, as part of the Option 15.2. Figure 6-10 shows this option and Table 6-46 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

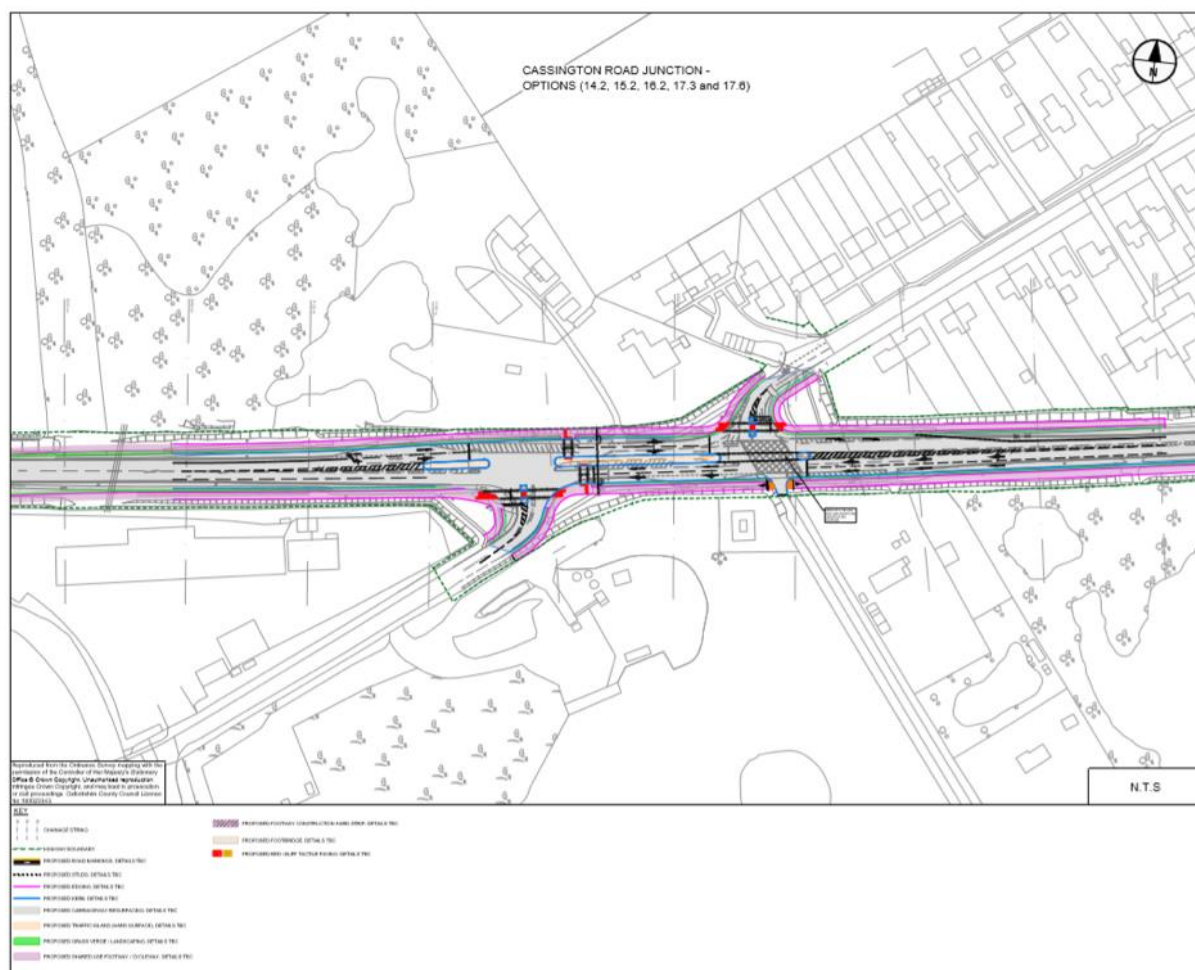


Figure 6-10 Option 15.2: Durham Road Access (South of A40) - Right Turn Pocket

Table 6-46 Option 15.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Allows vehicles to access the isolated residential housing south of the A40 on Durham Lane.</p> <p>Traffic flows making this right turn manoeuvre are very low.</p>	NA	<p>The strategic case is slightly positive as it meets some of the scheme objectives, and scores higher than Option 15.3.</p> <p>The economic case is neutral.</p> <p>The financial case is very slightly negative due to capital costs associated with the turning pocket.</p> <p>With a management case is slightly positive reflecting stakeholder and public support for this option.</p> <p>The commercial case is neutral.</p> <p>This option scores 3, which is significantly higher than Option 15.3 and therefore this option ranks</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		<p>first. This option takes up significantly less road space than a dedicated right turn lane or a potential interface with Cassington Road junction (closing the existing access onto the A40). Due to the known low flows turning onto Durham Road from the A40, there is little need to provide more than a right turn pocket or deviating from the existing layout by much for this access point.</p> <p><i>Preferred design solution.</i></p>

Option 15.3: Potential interface with junction (closing existing access onto A40)

6.16.3 Option 15.3 is to close the access from Durham Road to the A40 and provide alternative access through private land. Table 6-47 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-47 Option 15.3

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
NA	<p>Land take required/CPO.</p> <p>Potential interface with Cassington Road junction (closing the existing access onto the A40) is expensive, complicated in delivery of both design and construction</p>	<p>The strategic case is slightly positive as it aligns with some of the scheme objectives.</p> <p>The economic case scores -1, due to the impact on the environment dependent on the land the access travels through.</p> <p>The financial case is weak due to significant capital costs and increased maintenance costs.</p> <p>The management case is very weak, reflecting the potential land take required.</p> <p>The commercial case is neutral.</p> <p>This option scores -11, making it the lowest scoring option of the two. This option is expensive, complicated in delivery of both design and construction and provides little benefit. The option is likely to be too much work for accessing 2-3 properties and the proposal is deemed to be high-risk. For these reasons, in addition to the very weak score, this is not a preferred design solution.</p> <p><i>Supported design solution, but not preferred.</i></p>

6.17 Element 16: Cassington Road Junction (East)

6.17.1 Two options (**Options 16.1 and 16.2**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration.

6.17.2 The Do Minimum layout is a single general traffic lane, with no bus lane provision through the junction (traffic is able to turn left into Cassington Road and there is a controlled crossing across the A40 carriageway).

Option 16.1: Dedicated Right Turn Lane into Eynsham Road

6.17.3 Option 16.1 is where the Cassington Road Junction (East) has a general traffic dedicated right turn lane, general traffic running lane (straight only) and no westbound bus lane (bus gate prior to junction). Figure 6-11 shows this option and Table 6-48 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).



Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>A dedicated right turn lane will mean no blocking of general traffic wanting to go straight, leading to free flowing westbound traffic on the A40.</p> <p>Option similar to existing layout, thus low cost.</p>	<p>Providing a full right turn lane into Eynsham Road (heading west to north) will prevent vehicles potentially overhanging into lane 1 causing a blockage.</p>	<p>The strategic case is poor as the option does not align well with the scheme objectives.</p> <p>The economic case is poor as bus reliability is worsened due to lack of bus lane.</p> <p>The financial case scores -2 due to an increase in capital and maintenance costs.</p> <p>The management case is very weak due to the complexity of the junction design, minor land take required and the construction impacts.</p> <p>The commercial case is neutral.</p> <p>This option scores -10, and therefore ranks second to Option 16.2 by a considerable margin. Whilst it is a significantly safer option, however due to not providing a westbound bus lane through the junction, it loses the associated benefits. Therefore, it is not a preferred design solution.</p> <p><i>Supported design solution, but not preferred.</i></p>

Option 16.2: Right Turn Pocket into Eynsham Road

6.17.4 Option 16.2 is where the Cassington Road Junction (East) has a general traffic running lane being straight only, central right turn pocket and westbound bus lane on the A40. Figure 6-12 shows this option and Table 6-49 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

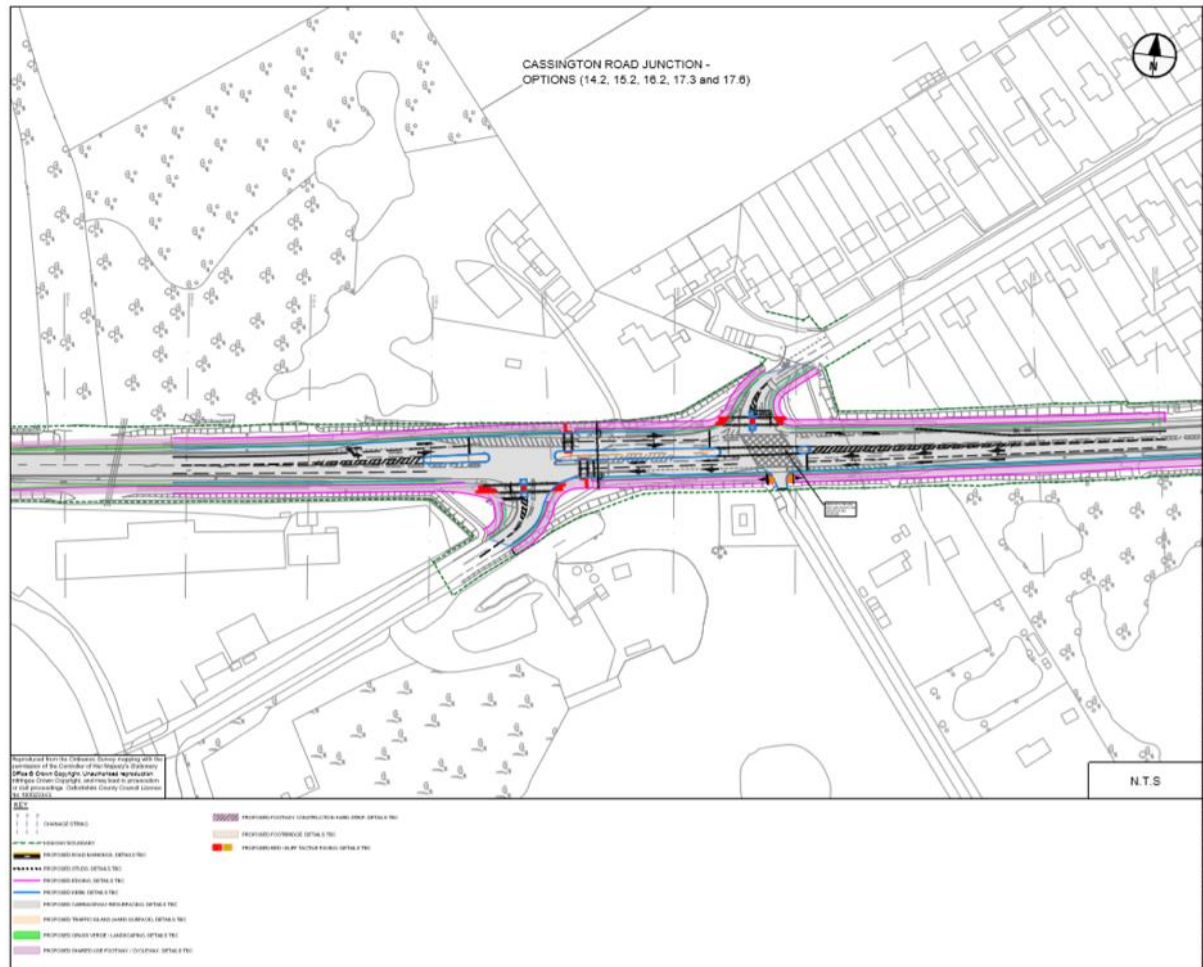


Figure 6-12 Option 16.2: Right Turn Pocket into Eynsham Road

Table 6-49 Option 16.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Layout does capitalise on the benefits of providing the westbound bus lane through the junction.	Potentially restrictive for capacity of the junction. If there are multiple vehicles turning right, they will block the general traffic lane for vehicles wanting to go straight, which is a safety concern.	<p>This option has a strong strategic case, as it includes the westbound bus lane through the junction.</p> <p>The economic case is slightly positive due to bus journey time improvements.</p> <p>The financial case is negative due to an increase in capital and maintenance costs but is equal to Option 16.1.</p> <p>The management case is weak as this is a complex design, utilities will be impacted and the construction impacts will be significant. However, this option is likely to have stakeholder support.</p> <p>The commercial case is neutral.</p> <p>This option scores 2, and therefore is the strongest of the two options. It is however considered less safe than the Option 16.1, but it</p>

		does provide a westbound bus lane through the junction. <i>Preferred design solution.</i>
--	--	--

6.18 Element 17: Eynsham Road Junction

- 6.18.1 Six options (**Options 17.1 - 17.6**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration. The Do Minimum layout is a signalised junction with a dedicated left-turn lane onto Eynsham Road from the A40 westbound, a right turn pocket into Eynsham Road for the A40 eastbound traffic and the bus lane terminates prior to the junction.

Option 17.1: Left Turn Slip Road into Eynsham Road

- 6.18.2 Option 17.1 is where the Eynsham Road Junction has a general traffic left turn slip road and two general traffic running lanes (straight only). There is an eastbound bus lane which terminates prior to the junction to allow vehicles to turn left. Table 6-50 outlines potential benefits, issues and EAST assessment scores (against the other options of this junction).

Table 6-50 Option 17.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Good reliability for NMU's providing the option is combined with 17.5. Increases junction capacity.	Requires large cutback on the northern side of the A40 which will impact footway alignment. Require termination of the eastbound bus lane prior to the junction to allow general traffic access to the left-turn slip road.	Relatively strong strategic case providing the eastbound bus lane through the junction. The economic case is one of the strongest with a score of 15 due to good reliability for NMU's providing the option is combined with 17.5. The financial case is the one of the weakest of all options due to an increase in capital and maintenance costs, however the costs of the junctions are all of a similar scale. The management case is positive as despite the complexity of design and construction of this option, there is expected to be strong support for this option. The commercial case is neutral. In summary, with a total score of 24 , this option is ranked in second out of all junction layout options. Whilst the layout would be similar to existing, it does not make efficient use of the space. In addition, the safety concerns of vehicles blocking the bus lane waiting for signals is great. <i>Supported design solution, but not preferred.</i>

Option 17.2: Dedicated Left Turn Lane into Eynsham Road

- 6.18.3 Option 17.2 would comprise Eynsham Road Junction having a general traffic dedicated left turn lane, one general traffic running lane (straight only) and no eastbound bus lane (there is a bus gate prior to the junction). Table 6-51 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-51 Option 17.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Allows safe manoeuvre and improves capacity for traffic turning left onto Eynsham Road.	No eastbound bus lane means a decrease in journey time savings through Cassington Junction.	Relatively strong strategic case, however there are reduced benefits as there is no bus lane through the junction.

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Improving capacity for general traffic turning onto Eynsham Road and increasing NMU reliability through the junction when combined with option 17.5.	The layout does not capitalise on benefits associated with providing a bus lane through the junction. Concern that the layout won't fit within the highway boundary constraints.	<p>The economic case is one of the strongest with a score of 14 improving capacity for general traffic turning onto Eynsham Road and increasing NMU reliability through the junction when combined with Option 17.5.</p> <p>The financial case is negative due to an increase in capital and maintenance costs; however the costs of the junctions are all of a similar scale.</p> <p>The management case is weak due to the complexity of design and construction, land take required and impact on utilities.</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of 19, this option is ranked fourth out of all junction layout options. Whilst capacity is improved for general traffic making the left turn, the layout does not capitalise on benefits associated with providing a bus lane through the junction. The use of a bus gate breaks the bus lane continuity. In addition, there is concern that the layout won't fit within the highway boundary constraints.</p> <p><i>Supported design solution, but not preferred.</i></p>

Option 17.3: Eastbound Bus Lane and General Traffic Lane Through Junction

6.18.4 Option 17.3 is where the Eynsham Road Junction has a general traffic running lane being straight and left turn into Eynsham Road and an eastbound bus lane through junction. Figure 6-13 shows this option and Table 6-52 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

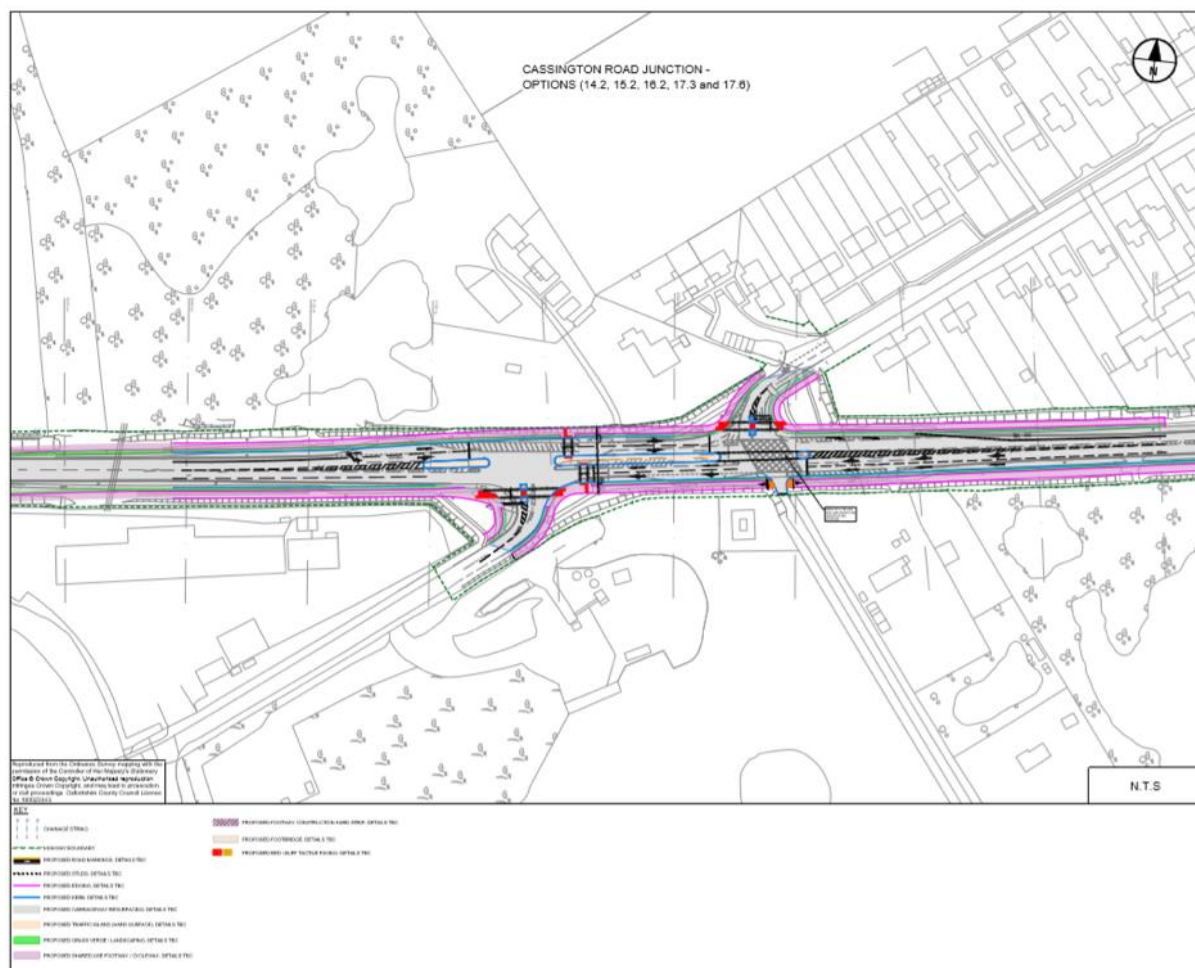


Figure 6-13 Option 17.3: Eastbound Bus Lane and General Traffic Lane Through Junction

Table 6-52 Option 17.3

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Signal phasing would provide buses with time to cross the junction before left turning traffic started their movements onto Eynsham Road.</p> <p>Efficient use of space for the junction with no sacrifice on bus journey times.</p> <p>Footway follows desire line across Eynsham Road.</p> <p>Improved reliability for NMU's and buses.</p> <p>Likely large support from statutory and non-statutory bodies.</p> <p>Do not conflict with the highway boundary constraints.</p>	NA	<p>Very strong strategic case providing the eastbound bus lane through the junction.</p> <p>The economic case is the strongest with a score of 16 improving the reliability for NMU's and buses.</p> <p>The financial case is very poor, due to significant capital costs however the costs of the options are all of a similar scale.</p> <p>The management case is the strongest with a score of 1 due to very strong support from stakeholders and the public.</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of 34, this option is by far the strongest out of all options and ranks first. The benefits clearly outweigh any concerns (of which there are few).</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		<i>Preferred design solution.</i>

Option 17.4: Uncontrolled Crossing North Across Eynsham Road (No Central Island)

6.18.5 Option 17.4 is an uncontrolled crossing across Eynsham Road away from the junction north. This option does not include a central traffic island. Table 6-53 outlines potential benefits, issues and EAST assessment scores (against the other options of this junction).

Table 6-53 Option 17.4

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
NA	<p>Potential safety concerns with pedestrians and cyclists crossing Eynsham Road with no protection and potentially a lack of visibility (over their shoulder).</p> <p>Crossing and footway away from the desire line, but as existing layout.</p> <p>It is less safe than a controlled crossing.</p> <p>Does not contribute to encouraging sustainable forms of travel through walking and cycling.</p>	<p>This option barely deviates from the existing layout, hence the low scores across all cases.</p> <p>The strategic case scores 1, the economic case and management case both score -1 and the financial case and commercial case are both neutral.</p> <p>This option scores -1 overall, well below the other options and rank last. In summary, this option does not improve the existing situation which is not ideal and therefore does not contribute to encouraging sustainable forms of travel through walking and cycling.</p> <p><i>Supported design solution, but not preferred.</i></p>

Option 17.5: Controlled Crossing South Across Eynsham Road (Central Island)

6.18.6 Option 17.5 is a controlled crossing across Eynsham Road at the junction. This option includes central traffic island. Table 6-54 outlines potential benefits, issues and EAST assessment scores (against the other options of this junction).

Table 6-54 Option 17.5

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Safe for pedestrians and cyclists - utilises signals phase for pedestrians and cyclists only.	<p>Unlikely to dramatically improve NMU travel times due to the need for two stages to cross the junction.</p> <p>The extents potentially conflict with the highway boundary, thereby requiring landowner coordination and the envisaged statutory and non-statutory stakeholder support to be lower for this option.</p>	<p>Strong strategic case providing a controlled crossing across Eynsham Road following the desire line.</p> <p>The economic case is also strong, however still lower than Option 17.6 on NMU reliability.</p> <p>The financial case has the same score as Option 17.6, due to capital costs and increase in maintenance costs.</p> <p>The management case is weak with a score of -1 due to construction and utility complexities and minor land take required.</p> <p>The commercial case is neutral.</p> <p>This total score of this option is 15, it ranks fifth in comparison to the other options and is lower than option 17.6.</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		<i>Supported design solution, but not preferred.</i>

Option 17.6: Controlled Crossing South Across Eynsham Road (No Central Island)

6.18.7 Option 17.6 is a controlled crossing across Eynsham Road at the junction. This option does not include central traffic island, instead it is straight across three general traffic lanes. Figure 6-14 shows this option and Table 6-55 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

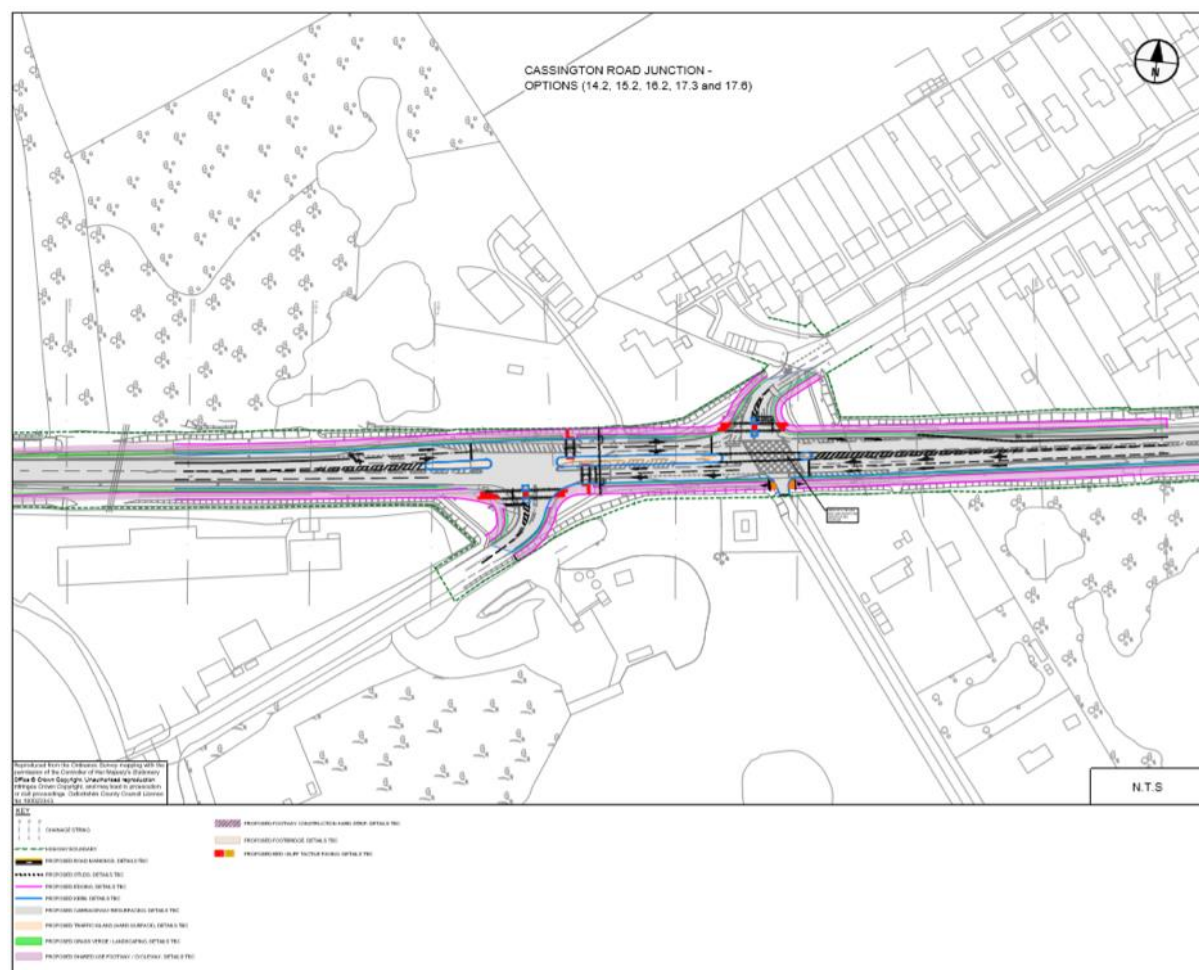


Figure 6-14 Option 17.6: Controlled Crossing South Across Eynsham Road (No Central Island)

Table 6-55 Option 17.6

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Safe for pedestrians and cyclists - utilises signals phase for pedestrians and cyclists only. Likely to improve NMU travel times.</p> <p>The layout fits into the available space without conflicting with the highway boundary as well as high support envisaged from statutory and non-statutory stakeholders.</p>	NA	<p>Strong strategic case providing a controlled crossing across Eynsham Road following the desire line.</p> <p>The economic case is high, standing out with a high score for NMU reliability.</p> <p>The financial case is weak due to the increase in capital and maintenance costs.</p> <p>The management case scores slightly positive due to strong support from stakeholders and the general public.</p> <p>The commercial case is neutral.</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		<p>In summary, with a score of 22, this option is the strongest out of all the crossing options and by a significant margin. It ranks overall third against the other options. In addition, the option combines well with junction layout Option 17.3 (the highest scoring junction layout) providing significant improvements to the junction. Due to the high scoring for this option as well as Option 17.3, both are preferred design solutions.</p> <p><i>Preferred design solution.</i></p>

6.19 Element 18: Cassington Halt Bridge

- 6.19.1 Six options (**Options 18.1 - 18.6**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration. The Do Minimum layout includes no bridge widening at Cassington Halt Bridge with an eastbound bus lane and a separate shared use cycle/pedestrian bridge to the north of the A40.

Option 18.1: No Bridge Widening with Bus Lanes and 2 shared use cycle/pedestrian bridges

- 6.19.2 Option 18.1 comprises no bridge widening at Cassington Halt Bridge. This 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 cycle/pedestrian bridges running parallel to the existing bridge. Figure 6-15 shows this option and Table 6-56 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

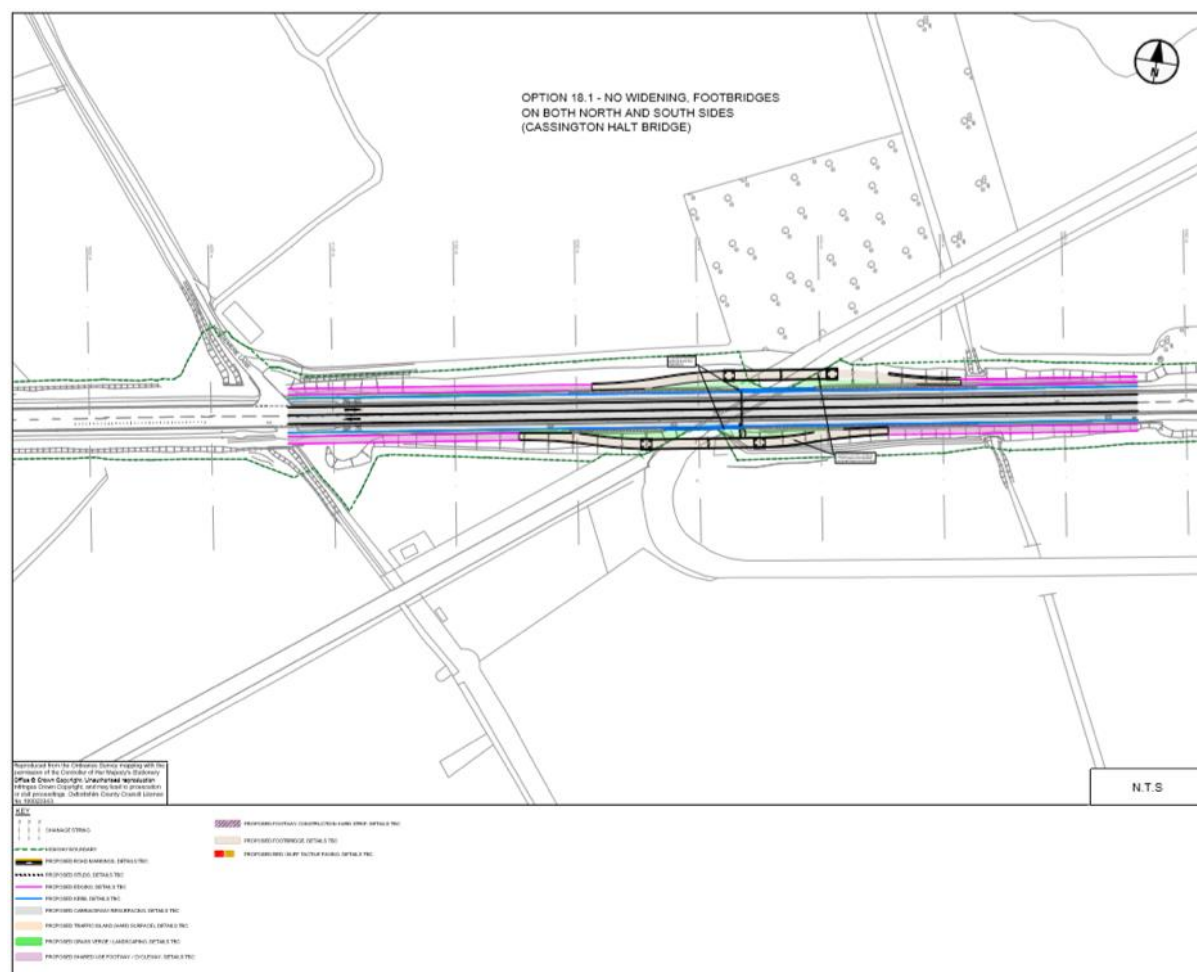


Figure 6-15 Option 18.1: No Bridge Extension with Bus Lanes and two shared use cycle/pedestrian bridges

Table 6-56 Option 18.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Allows free flow of pedestrian and cyclist movements along the A40 corridor over bridge without having to cross the road.</p> <p>Shared use cycle/pedestrian bridges ensure the safety of pedestrians and cyclists.</p> <p>Increases bus reliability.</p> <p>The complexity of designing new shared use cycle/pedestrian bridges is not high, unlike options where the bridge deck is being widened.</p> <p>Incorporating both bus lanes is beneficial for journey time savings with the push towards sustainable modes of transport.</p>	<p>Double white line system across the bridge reduces effective width of eastbound and westbound general traffic lanes, however over short distance.</p> <p>Assumes structural assessment deems bridge to be able to take loading across all lanes – this is potentially unrealistic.</p> <p>Need protection and potentially diversion of IP gas main on north side during construction of shared use cycle/pedestrian bridge.</p> <p>Highly expensive option due to construction of two shared use cycle/pedestrian bridges which may not see great demand due to the location on A40 corridor.</p>	<p>Strong strategic case providing the bus lanes through the bridge with the associated benefits.</p> <p>The economic case is the joint strongest of all options predominantly due to the bus lanes and active travel benefits.</p> <p>The financial case however is weak due to high cost.</p> <p>The management case is neutral reflecting the complexity of design construction and land take as well as the strong support from stakeholders and the general public.</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of 31, this option is ranked as the third highest. This option has a strong strategic and economic case due to the inclusion of bus lanes and active travel provision. The option looks good on paper, however with the caveat that the option depends on the structural assessment of the bridge.</p> <p><i>Preferred design solution.</i></p>

Option 18.2: No Bridge Widening without Bus Lanes

6.19.3 Option 18.2 is where buses merge into the general traffic lanes using bus gates either side of Cassington Halt Bridge. The existing lane widths over the bridge remain the same. Two shared use cycle/pedestrian bridges both north and south of the bridge deck will be constructed for NMU flows. Table 6-57 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-57 Option 18.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Does not rely on structural loading assumptions (as Option 18.1).</p> <p>Allows free flow of pedestrian and cyclist movements along the A40 corridor over bridge without having to cross the road.</p> <p>Shared use cycle/pedestrian bridges ensure the safety of pedestrians and cyclists.</p> <p>Not a complex option to design and construct.</p>	<p>Need protection and potentially diversion of IP gas main on north side during construction of the shared use cycle/pedestrian bridge.</p> <p>Highly expensive option due to construction of two shared use cycle/pedestrian bridges which may not see great demand due to the location on A40 corridor.</p> <p>There are no benefits to bus journey times due to incorporating bus gates.</p>	<p>Weak strategic case compared to other options due to not providing bus lanes through the bridge thus losing the associated benefits.</p> <p>The economic case is strong due to improved NMU provision and improvements to safety, severance and accessibility.</p> <p>The financial case is very poor due to significant capital costs and increases in maintenance cost.</p> <p>The management case for all options is very weak, however this option isn't ranked badly against the alternatives. The complexity of designing new shared use cycle/pedestrian bridges is not high, unlike options where the bridge deck is being widened.</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of 13, this option is ranks last against the other options. Whilst it is not a complex option to design and construct, not incorporating the bus lanes through the bridge loses significant benefits. The shared use cycle/pedestrian bridges, however, encourage walking and cycling and provide safe means of travel for NMU's.</p> <p>Supported design solution, but not preferred.</p>

Option 18.3: Widen Bridge on South Side Opt. 1

- 6.19.4 Option 18.3 comprises bridge widening on the south side of Cassington Halt Bridge. This option incorporates a 3m footway on south side and a shared use cycle/pedestrian bridge on north side. Figure 6-16 shows this option and Table 6-58 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

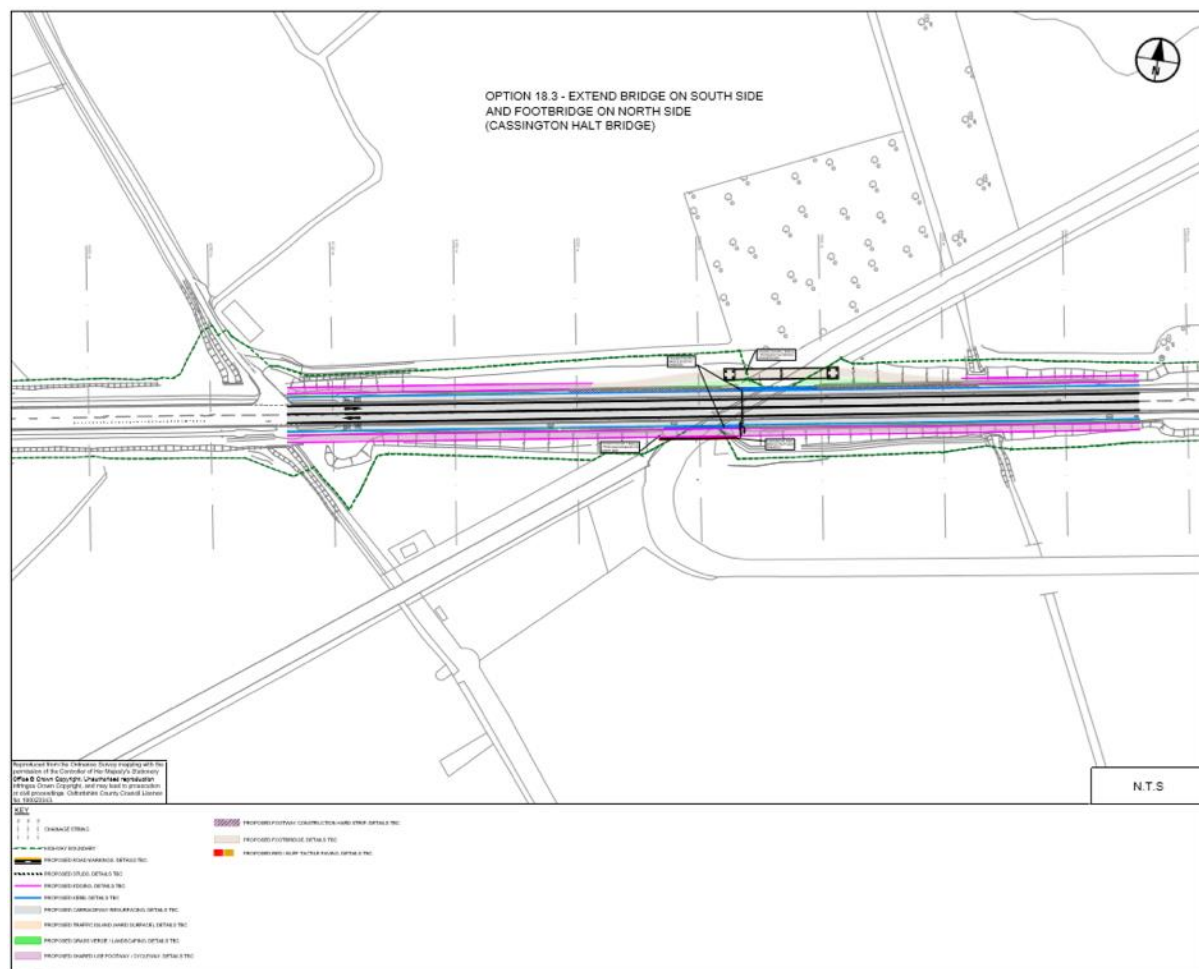


Figure 6-16 Option 18.3: Widen Bridge on South Side Opt. 1

Table 6-58 Option 18.3

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Allows free flow of traffic on the A40 without narrowing lanes.</p> <p>Allows free flow of pedestrian and cyclist movements along the A40 corridor over bridge without having to cross the road.</p> <p>Shared use cycle/pedestrian bridge ensures the safety of pedestrians and cyclists.</p> <p>Increases bus reliability.</p>	<p>Need protection and potentially diversion of IP gas main on north side during construction of the shared use cycle/pedestrian bridge. In addition, gas main may be close to foundations of any southern widening.</p> <p>Expensive option due to construction of shared use cycle/pedestrian bridge.</p> <p>Very complex to deliver.</p>	<p>Very strong strategic case providing the bus lanes through the bridge with the associated benefits.</p> <p>The economic case is the strongest of all options predominantly due to the increase of bus reliability.</p> <p>The financial case is weak. This option has very high capital costs due to engineering challenges envisaged for widening the bridge deck.</p> <p>The management case for all options is very weak, however this option isn't ranked badly against the others. This is due to complexity of design and construction, and the impact upon a gas main.</p> <p>The commercial case is neutral.</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		<p>In summary, with a total score of 33, this option is ranked as the highest. Incorporating both bus lanes is beneficial for journey time savings with the push towards sustainable modes of transport. The shared use cycle/pedestrian bridge also encourages walking and cycling and provides a safe means of travel for NMUs. This option will be very complex to deliver, and therefore option 18.1 is the preferred design solution.</p> <p>Supported design solution, but not preferred.</p>

Option 18.4: Widen Bridge on South Side Opt. 2

6.19.5 Option 18.4 comprises bridge widening on the south side of Cassington Halt Bridge. This option incorporates a 3m shared use facility on the south side and a 3m at-grade shared use facility on the north side crossing the road beneath the bridge. Table 6-59 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-59 Option 18.4

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Allows free flow of traffic on the A40 without narrowing lanes.</p> <p>Potentially no need for diversion or protection of IP gas main on north side.</p>	<p>Gas main may still be close to foundations of any southern widening.</p> <p>Pedestrian safety concerns for providing at-grade shared use facility due to fast moving heavy machinery travelling under Cassington Halt bridge.</p> <p>Accessibility concerns regarding the at-grade shared use facility.</p> <p>Very high capital costs due to engineering challenges envisaged for widening the bridge deck.</p> <p>Complexity of designing and constructing the bridge widening is high.</p>	<p>Weak strategic case compared to the other options. Even though this option provides both eastbound and westbound bus lanes through the bridge, the at-grade shared use facility significantly lowers the scores.</p> <p>The economic case is positive, reflecting the bus lane improvements and active travel benefits. However, this is the weakest economic case for all options.</p> <p>The financial case is the strongest of all options due to not needing to construct shared use cycle/pedestrian bridges.</p> <p>The management case is very weak due to a very complex design and construction, impact on utilities and mixed support from stakeholders.</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of 22, this option is ranked fourth out of the six options. Incorporating bus lanes is good for journey time savings with the push towards sustainable modes of transport. However, the at-grade shared use facility poses significant concerns.</p> <p>Supported design solution, but not preferred.</p>

Option 18.5: Widen Bridge on North & South Side

6.19.6 Option 18.5 includes a bridge widening on both north and south sides of Cassington Halt Bridge. This option incorporates a 3m shared use facility on both sides of the A40. Figure 6-17 shows this option and Table 6-60 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

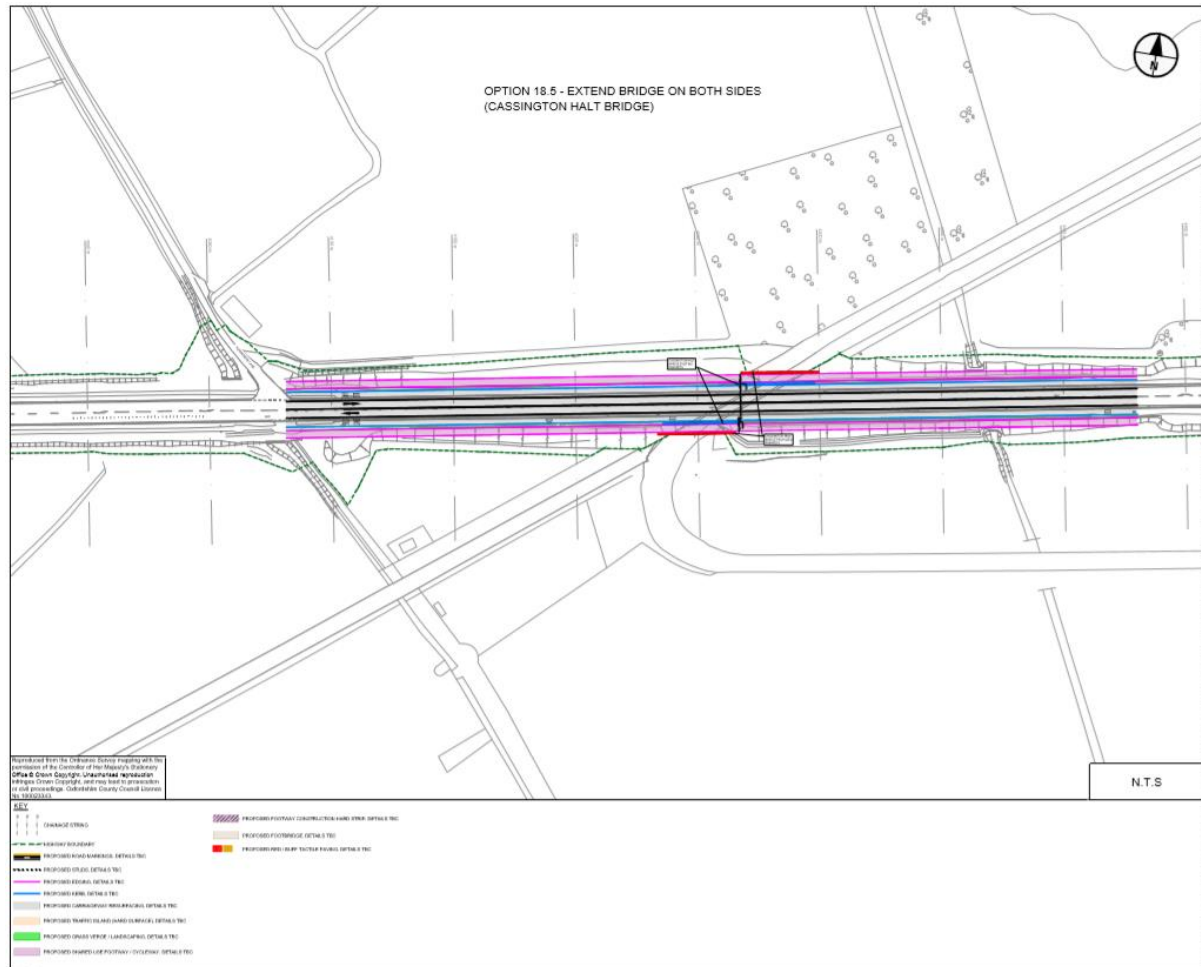


Figure 6-17 Widen Bridge on North & South Side

Table 6-60 Option 18.5

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Allows free flow of traffic on the A40 without narrowing lanes.</p> <p>Allows free flow of pedestrian and cyclist movements.</p> <p>No narrowing of footway.</p> <p>Widening to both the north and south side provides adequate shared-use facilities for NMU's which encourages walking and cycling.</p>	<p>Need protection of IP gas main on the north side during construction of a north-side bridge widening. In addition, gas main may be close to foundations of any southern widening.</p> <p>Potentially expensive option.</p> <p>Complexity of delivery in both designing and constructing the widening of the bridge.</p>	<p>Very strong strategic case providing the bus lanes through the bridge with the associated benefits.</p> <p>The economic case is also strong predominantly due to the increase of bus reliability.</p> <p>The financial case however is relatively weak due to significant capital costs.</p> <p>The management case for all options is very weak, however this option is ranked the best against the others at 0.</p> <p>The commercial case is neutral.</p> <p>This option scores 32 and ranks second in comparison to the options. Incorporating both bus lanes is beneficial for journey time savings with the push towards sustainable modes of transport. This option will be very complex to deliver, and therefore option 18.1 is the preferred design solution.</p> <p>Supported design solution, but not preferred.</p>

Option 18.6: Structure Infilling & Signalised Junction

6.19.7 Option 18.6 consists of infilling of the Cassington Halt Bridge structure. This option allows incorporation of a 3m footway on both the north and south side. This option requires a signalised junction east of Cassington Halt bridge to allow access to the quarry. Table 6-61 outlines potential benefits, issues and EAST assessment scores (against the other options for this junction).

Table 6-61 Option 18.6

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
NA	<p>Cost implications for transporting large quantities of material to infill structure.</p> <p>Filling (with either option) would affect access to services that run under the bridge (IP Gas main mainly).</p> <p>Need an additional signalised junction for access to the Worton Composting and Green Waste Recycling centre decreasing journey time savings along the A40.</p> <p>Access to property to the south of the bridge would be restricted.</p> <p>Potential safety concerns due to visibility over the bridge crest on approach to signalised junction for eastbound traffic.</p> <p>Lack of stakeholder support.</p> <p>Complex to construct and deliver.</p>	<p>Relatively strong strategic case providing the bus lanes through the bridge with the associated benefits.</p> <p>The economic case scores poor. This is due to the negative impacts on the environment and journey time.</p> <p>The financial case is weak. This option has very high capital costs due to engineering challenges envisaged for infilling the structure and providing a signalised junction.</p> <p>The management case for all options is very weak, however this option is clearly the worst, scoring -5. This is due to the complexity associated with infilling the structure, the land take required and mixed stakeholder support.</p> <p>The commercial case is neutral.</p> <p>In summary, with a total score of 16, this option is ranked fifth (second to last). Incorporating both bus lanes is beneficial for journey time savings with the push towards sustainable modes of transport, however this approach is complex, incorporates an additional signalised junction and is unlikely to be supported by stakeholders.</p> <p>Supported design solution, but not preferred.</p>

6.20 Weighting

6.20.1 The scoring undertaken in the Stage 2 (for each option) was against a list of criteria (grouped within the five business cases; see section 6.1 for details). The maximum score an option can get under each case of the five business cases varied (mentioned as 'base case' in the Table 6-62). Due to this imbalance in the maximum score possible for each of the five business cases, the overall results (EAST score of each option) can be reasoned as biased towards the strategic, economic and management cases. Therefore, it was decided that three further weighting scenarios would be tested in order to understand the impact of the weighting on the results and the subsequent ranking of the options (Table 6-62 gives an overview of the weighting assigned in each scenario).

- The first scenario tested was equal weighting, where each business case was assigned a 20% weight.
- The second scenario tested was following OCC's LGF Weighting (see Table 5-1).
- The third scenario tested was limiting the scoring to high-level objectives (reduced the strategic case maximum score from 22 to 12) which were found to be similar to some of the other business case criteria.

Table 6-62 Weighting Scenarios – maximum score

Scenario	Strategic Case	Economic Case	Financial Case	Management Case	Commercial Case	Total
Base case	22	26	4	26	2	80
Scenario 1: Equal Weighting	20	20	20	20	20	80
Scenario 2:	45	35	10	5	5	80

OCC LGF Weighting						
Scenario 3: Limiting Objectives to High-Level	12	26	4	26	2	70

6.20.2 Table 6-63 shows the results (highest scored option for an element) of this weighting process. This table shows that for the majority of the junctions, the highest scoring option in the three additional weighting scenarios is identical to the highest scoring option in the base case. It should be noted that as Junction 6 and Junction 7 had all options sifted out as part of the initial sift, there are no highest scoring options for these two junctions.

6.20.3 There are four instances where the highest scoring option is not uniform across all weighting scenarios. For Elements 10, 11, 12 and 14, in the equal weighting scenario the highest ranking option differs to other scenarios. For Element 18, in the equal weighting scenario (Scenario 1) two options rank as the joint highest, however one of these options is consistent with the other three weighting scenarios.

Table 6-63 Weighting Scenarios Result

#	Element	Highest Scoring Option				Comment
		Base case	Scenarios 1: Equal Weighting	Scenarios 2: OCC LGF Weighting	Scenarios 3: Limiting Objectives to High-Level	
1	P&R Junction	Signalised Junction	Signalised Junction	Signalised Junction	Signalised Junction	All scenarios and base case - have same highest score option
2	Cuckoo Lane - Vehicle Access to P&R	Do Minimum (A40 STP2 Design)	Do Minimum (A40 STP2 Design)	Do Minimum (A40 STP2 Design)	Do nothing (A40 STP2 Design)	All scenarios and base case - have same highest score option
3	Cuckoo Lane - Bus Access to P&R	Do Minimum (A40 STP2 Design)	Do Minimum (A40 STP2 Design)	Do Minimum (A40 STP2 Design)	Do nothing (A40 STP2 Design)	All scenarios and base case - have same highest score option
4	Cuckoo Lane - Close Access to P&R	Do Minimum (A40 STP2 Design)	Do Minimum (A40 STP2 Design)	Do Minimum (A40 STP2 Design)	Do nothing (A40 STP2 Design)	All scenarios and base case - have same highest score option
5	Cuckoo Lane - Right Turn Banned (In & Out)					
6	Cuckoo Lane branched off to join P&R Junction ²⁴					
7	Old Witney Road ²⁴					
8	Elm Place Access & Layby	Alteration to Access	Alteration to Access	Alteration to Access	Alteration to Access	All scenarios and base case - have same highest score option
9	Evenlode Public House Access	With westbound bus lane and banning of right-in and right-out movements	With westbound bus lane and banning of right-in and right-out movements	With westbound bus lane and banning of right-in and right-out movements	With westbound bus lane and banning of right-in and right-out movements	All scenarios and base case - have same highest score option
10	Witney Road Junction	Signalised Junction No Physical Separation	Signalised Junction No Physical Separation	Signalised Junction with Physical Separation	Signalised Junction No Physical Separation	Except Scenarios 2, all others have same highest score option
11	Eso Petrol Station and Spareacre Lane	Controlled Crossing	Uncontrolled Crossing	Controlled Crossing	Controlled Crossing	Except Scenarios 1, all others have same highest score option
12	Lower Road Roundabout	Signalised Junction (40mph)	Leave Existing Roundabout as is (50mph)	Signalised Junction (40mph)	Signalised Junction (40mph)	Except Scenarios 1, all others have same highest score option
13	Cassington New Bridge	Extend Bridge on South Side Opt. 2	Extend Bridge on South Side Opt. 2	Extend Bridge on South Side Opt. 2	Extend Bridge on South Side Opt. 2	All scenarios and base case - have same highest score option
14	Cassington Road Junction (West)	Right Turn Allowed onto A40	Right Turn Banned onto A40	Right Turn Allowed onto A40	Right Turn Allowed onto A40	Except Scenarios 1, all others have same highest score option

²⁴ For Elements 5, 6 and 7 none of the options progressed to the second stage of sifting and therefore weighting was not undertaken for these elements

#	Element	Highest Scoring Option				Comment
		Base case	Scenarios 1: Equal Weighting	Scenarios 2: OCC LGF Weighting	Scenarios 3: Limiting Objectives to High-Level	
15	Durham Road Access (South of A40)	Right Turn Pocket	Right Turn Pocket	Right Turn Pocket	Right Turn Pocket	All scenarios and base case - have same highest score option
16	Cassington Road Junction (East)	Right Turn Pocket into Eynsham Road	Right Turn Pocket into Eynsham Road	Right Turn Pocket into Eynsham Road	Right Turn Pocket into Eynsham Road	All scenarios and base case - have same highest score option
17	Eynsham Road Junction	Eastbound Bus Lane and General Traffic Lane Through Junction	Eastbound Bus Lane and General Traffic Lane Through Junction	Eastbound Bus Lane and General Traffic Lane Through Junction	Eastbound Bus Lane and General Traffic Lane Through Junction	All scenarios and base case - have same highest score option
18	Cassington Halt Bridge	Extend Bridge on South Side Opt. 1	Extend Bridge on South Side Opt. 1 Extend Bridge on South Side Opt. 2	Extend Bridge on South Side Opt. 1	Extend Bridge on South Side Opt. 1	All scenarios and base case - have same highest score option

7 Stage 3 – Updated Longlist, Sifting and Scoring

7.1.1 After the completion of the Stage 2, further assessment and discussions with OCC were undertaken. As a result of this, three new elements and further additional options were identified. Figure 7-1 shows the additional elements included as part of Stage 3. The following method was adopted in Stage 3:

- New elements and further additional options were identified:
 - Firstly, similar to Stage 1, some of these new options were sifted out as they had issues (such as constructability/ land uptake/ cost/ acceptability).
 - Table 7-1 shows the options which have been taken forward after this sifting of the new options (detailed assessment can be found in 0).
 - Then, similar to Stage 2, appraisal/ further assessment (their benefits and issues) and scoring (against criteria associated with strategic, economic, financial, management and commercial cases) of the new options was undertaken. This assessment is discussed in the following sections (detailed scoring can be found in 0)²⁵.

7.1.2 In addition, a further assessment was undertaken to understand the impact of closing Horsemere Lane and this assessment and the outcomes have been described at the end of this chapter.



Figure 7-1 Additional Elements – Locations

²⁵ There are some caveats to be made on the scoring outlined below. There is no scoring outlined below for Elements 17 and 20 as only one option has been taken forward after the sift and therefore no further assessment was required. In addition, whilst Element 13 does not have any new options it is included below as the scoring has been updated, which has led to an updated preferred option.

Table 7-1 Additional Options First Sift

Ref	Junction/Access Road/Bridge	Elements	Comment
1	Park and Ride Junction	Park and Ride Junction	<p>Four new options were suggested, of which 1 was sifted out. The following 3 options have been future proofed to demonstrate that the implementation of a southern arm, to support the delivery of the West Eynsham Strategic Development area, could be accommodated. The following 3 options were taken forward for scoring:</p> <ul style="list-style-type: none"> • Signalised junction with Bus Gate (future proofed for future development): bus gate east of proposed junction for Westbound buses, to allow the bus to merge into the general traffic in order to be in the offside lane of the road. Toucan crossing just west of Cuckoo Lane is retained. • Signalised junction with Express way for buses (future proofed for future development): where the existing westbound layby to be used by buses for access into the P&R site. Buses will have priority at the junction with the proposed southern arm (West Eynsham development access) and at the P&R junction. • Roundabout: existing roundabout option updated to include a 4th arm on the southern side to demonstrate it could be accommodated if required (to support delivery of the West Eynsham Strategic Development Area). NMU facilities are also enhanced due to the provision of formal crossings and shared use facilities on the northern and southern sides of the A40.
2	Cuckoo Lane	Vehicle Access to Park and Ride	No new options to score
3		Bus Access to Park and Ride	No new options to score
4		Close Access to Park and Ride	No new options to score
5		Right Turn Banned (In & Out)	<p>One new option was suggested, which was taken forward:</p> <ul style="list-style-type: none"> • Right Turn Banned (Out of Cuckoo Lane): allows vehicles travelling westbound on the A40 to turn right into Cuckoo Lane. Right-turning movement from Cuckoo Lane into the A40 is banned. Vehicles would need to use Lower Road roundabout in order to make a U-turn.
6		Branched off to join Park and Ride Junction	No new options to score
7	Old Witney Road	Old Witney Road	No new options to score
8	Elm Place Access & Layby	Elm Place Access & Layby	No new options to score
9	Evenlode Public House Access	Evenlode Public House Access	No new options to score
10	Witney Road Junction	Witney Road Junction	<p>Two new options were suggested, of which none were sifted out. The following 2 options were taken forward for scoring:</p> <ul style="list-style-type: none"> • Signalised Junction with Physical Separation (straight through toucan crossing): Signalised junction for Witney Road with traffic island between the westbound general traffic lane and the dedicated right turn lane. Straight through toucan crossings across Witney Road. • Signalised Junction with Physical Separation (uncontrolled crossing): Signalised junction for Witney Road with traffic island between the westbound general traffic lane and the dedicated right turn lane. Uncontrolled crossings across Witney Road.
11	Esso Petrol Station and Spareacre Lane	Esso Petrol Station and Spareacre Lane	<p>Two new options were suggested, of which 1 was sifted out. The following option was taken forward:</p> <ul style="list-style-type: none"> • Controlled Crossing (straight across toucan): Controlled straight toucan crossing across the A40 to connect the Spareacre Lane and Hanborough Rd PROW.

Ref	Junction/Access Road/Bridge	Elements	Comment
12	Lower Road Roundabout	Lower Road Roundabout	One new option was suggested, which was taken forward: <ul style="list-style-type: none"> Existing roundabout enhanced for NMUs: Existing roundabout layout, including eastbound and westbound bus lanes (increased flare lengths and entry widths) and formal crossings for NMUs.
13	Cassington New Bridge	Cassington New Bridge	No new options to score
14	Cassington Road/Eynsham Road Junction	Cassington Road Junction (West)	No new options to score
15		Durham Road Access (South of A40)	No new options to score
16		Cassington Road Junction (East)	No new options to score
17		Eynsham Road Junction	One new option was suggested, which was taken forward: <ul style="list-style-type: none"> Controlled Crossing South Across Eynsham Road (With Central Island): Controlled crossing across Eynsham Road at the junction. Includes a central traffic island to provide NMUs with a safe refuge area.
18	Cassington Halt Bridge	Cassington Halt Bridge	One new option was suggested, which was taken forward: <ul style="list-style-type: none"> Southern footbridge only (no bridge widening): No bridge widening, instead there is localised narrowing of bus lanes and construction of a southern shared use cycle/pedestrian bridge. Northern shared use facility joins the existing road level under the bridge and ramps up again to meet the A40 proposed level.
19	Eastern Link	Eastern Link Section (near to SAC, SSSI)	Two new options were suggested, of which none were sifted out. The following 2 options were taken forward for scoring: <ul style="list-style-type: none"> Eastbound and Westbound bus lane along the whole section: Provide a Westbound bus lane along the whole eastern section between Cassington Halt Bridge and Duke's Cut. Westbound bus lane descoped past the SSI/SAC: Descope the Westbound bus lane along the eastern section between the existing Westbound layby (east of Cassington Halt Bridge) and Duke's Cut.
20	Cuckoo Lane crossing	Cuckoo Lane crossing (west of junction with A40)	Three new options were suggested, of which 2 were sifted out. The following option was taken forward: <ul style="list-style-type: none"> Toucan crossing: Provision of a toucan crossing just west of Cuckoo Lane junction with the A40
21	Cassington Road Junction	Cassington Road Junction	Two new options were suggested, of which none were sifted out. The following 2 options were taken forward for scoring: <ul style="list-style-type: none"> Eastbound and Westbound bus lanes through Cassington junction: Eastbound and Westbound bus lanes carried through Cassington junction. Two general traffic straight ahead lanes through Cassington junction: two straight ahead lanes for general traffic across Cassington junction.

7.2 Element 1: Park and Ride Junction

- 7.2.1 Three options (**Options 1.11 – 1.12, 1.14**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration. The Do Minimum layout for Element 1 is discussed in section 6.2.

Option 1.11: 3-arm signalised junction (future proofing for the provision of a 4th arm) + bus gate

- 7.2.2 Option 1.11 is a 3-arm signalised junction with a bus gate which allows the bus to merge into the general traffic in order to be in the offside lane of the road. This option would retain the proposed toucan crossing nearer to Cuckoo Lane. This option would also be able to accommodate a fourth arm to serve the future West Eynsham development. Table 7-2 outlines potential benefits, issues and scoring results.

Table 7-2 Option 1.11

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
This option would enable buses to be at the front of the queue at the next junction.	<p>Would introduce another set of signals before the main junction, potentially causing traffic to stop multiple times and therefore disrupting flow.</p> <p>Additional flows will affect the junction's capacity.</p> <p>Utilities may be affected due to the additional works required.</p>	<p>Strong strategic case as this option would fulfil the scheme objectives. The implementation of a westbound bus lane and bus gate as well as the enhanced NMU infrastructure (controlled crossing facilities and northern/southern shared use facilities) will contribute to unlocking the delivery of homes encouraging sustainable travel.</p> <p>The economic case presents the highest score of all options, with a positive impact in society. This is because it is considered to be the most suitable option for both NMU's and Public Transport users as a result of the implementation of a bus gate and controlled crossings in the northern, southern and western junction approaches, which significantly improves accessibility, safety and travel times for these groups.</p> <p>The financial case presents a better outcome than the roundabout mainly because of the reduced impact in the existing gas main compared to the roundabout option (1.14).</p> <p>The management case for this option is weaker than for option 1.14. Overall, the traffic modelling results suggest a roundabout would perform better than a signalised option which could lead to objections from a number of stakeholders (i.e. drivers, local authorities, etc).</p> <p>The commercial case is the same for all options, the southern approach will serve the West Eynsham SDA and it is responsibility of the private developers to build that part of the junction.</p> <p>In summary, with a total score of 27, this option ranks the highest. It allows the junction to perform without creating significant congestion with the provision of enhanced and safer NMU facilities as well as a westbound bus gate giving priority to buses.</p> <p><i>Preferred design solution.</i></p>

Option 1.12: 4-arm Signalised Junction and an Expressway for Buses

7.2.3 Option 1.12 is a 4-arm signalised junction, where the existing westbound layby is to be used by buses for access into the P&R site. Buses will have priority at the junction with the proposed southern arm (West Eynsham development access) and at the P&R junction. Table 7-2 outlines potential benefits, issues and scoring results.

Table 7-3 Option 1.12

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
It would provide buses with priority at the junction.	<p>Additional flows will affect the junction's capacity.</p> <p>Utilities may be affected due to the additional works required.</p>	<p>Strong strategic case as this option would fulfil the scheme objectives. The implementation of a westbound bus lane, expressway for buses providing priority, as well as the enhanced NMU infrastructure (controlled crossing facilities and northern/southern shared use facilities) will contribute to unlocking the delivery of homes and encouraging sustainable travel. It is worth noting that traffic modelling undertaken suggests the bus priority may not be as effective as in option 1.11 above. Also, it presents a more complex layout than option 1.11 making this option less safe.</p> <p>The economic case is also relatively strong as it presents a positive impact in capacity, travel times, accessibility and safety for NMU's and public transport users. It presents a lower score than option 1.11 due to the complexity of the junction and the modelling results which suggests the bus priority would be less effective.</p> <p>The financial case presents a better outcome than the roundabout mainly because of the reduced impact in the existing gas main compared to the roundabout option (1.14).</p> <p>This option shows a weak management case. This is due to the opposition to the implementation of signals by some stakeholders as well as the conversion of the layby to an express way for buses.</p> <p>The commercial case is the same for all options, the southern approach will serve the West Eynsham SDA and it is responsibility of the private developers to build that part of the junction.</p> <p>In summary, with a total score of 10, this option ranks the lowest.</p> <p>Supported design solution, but not preferred.</p>

Option 1.14: 4-arm Roundabout

7.2.4 Option 1.14 is where the existing 3-arm roundabout option (Option 1.3) would be altered to include a 4th arm on the southern side (West Eynsham Developers). Table 7-4 outlines potential benefits, issues and scoring results.

Table 7-4 Option 1.14

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Including the 4 th arm onto the roundabout would enable access to the West Eynsham Development area.	<p>Additional flows will affect the junction's capacity.</p> <p>Impact on gas main on the southern side of the existing road.</p>	<p>Strong strategic case as this option would fulfil the scheme objectives. The implementation of a westbound bus lane and bus gate as well as the enhanced NMU infrastructure (controlled crossing facilities and northern/southern shared use facilities) will contribute to unlocking the delivery of homes encouraging sustainable travel.</p> <p>The economic case is the weakest compared to other options as it doesn't provide bus priority and it is considered the NMU infrastructure is not as suitable as in the other options.</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
	<p>Unable to provide any priority for buses to access park and ride.</p> <p>Utilities may be affected due to the additional works required.</p>	<p>However, this junction performs better than a signalised option.</p> <p>The financial case is the weakest of all options as this option has a greater impact on the gas main which would require diversion, leading to a significant increase in cost.</p> <p>The management case is ranked as the strongest of all options. It is not a signalised option which may gain more support of stakeholders and drivers. It also provides enhanced shared use facilities if compared to the Do min. or existing situation.</p> <p>The commercial case is the same for all options, the southern approach will serve the West Eynsham SDA and it is responsibility of the private developers to build that part of the junction.</p> <p>In summary, with a total score of 21, this option ranks the second highest. Overall, the junction performs better than options 1.12 and 1.11 from a traffic signals perspective. However, it does not provide bus priority at the junction approach and the NMU provision is of a lesser quality if compared to the options above.</p> <p>Supported design solution, but not preferred.</p>

7.3 Element 10: Witney Road Junction

7.3.1 Three options (**Options 10.1, 10.4 and 10.5**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration. The Do Minimum layout is discussed in section 0.

Option 10.1: Signalised Junction with Physical Separation (Staggered Toucan Crossing)

7.3.2 Option 10.1 is a signalised junction with physical separation, with staggered toucan crossings at Witney Rd and across the A40. Table 7-5 outlines potential benefits, issues and scoring results.

Table 7-5 Option 10.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Considered safer to include the separation</p> <p>DMRB CD123 Note 7.16 states that physical separation is required where the speed limit is 50mph and above.</p>		<p>Strong strategic case as this option would fulfil the scheme objectives. The eastbound bus lane through the junction, westbound bus lane brought close to the junction and enhanced NMU facilities would all contribute to unlocking the delivery of homes.</p> <p>The economic case is not that strong, but it is the highest of all options. This is because including a staggered crossing on Witney Rd would not create significant congestion, so the junction would still be able to operate.</p> <p>The financial case is weak because there would be an increase in costs due to the signalised junction and some land take which might be required on the northern side.</p> <p>The management case is very weak as this option is more complex due to the implementation of signals, which increases costs and makes it more difficult for future proofing. Utilities could also be affected, and these would require protection.</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		<p>The commercial case is neutral as there is no significant complexity of delivery.</p> <p>In summary, with a total score of 18, this option ranks the highest. It allows the junction to perform without creating significant congestion and provides safer facilities on the southern side for NMUs.</p> <p><i>Preferred design solution.</i></p>

Option 10.4: Signalised Junction with Physical Separation (Straight Through Toucan Crossing)

7.3.3 Option 10.4 is a signalised junction with physical separation. There is also a Toucan provided across Witney Road. Table 7-6 outlines potential benefits, issues and scoring results.

Table 7-6 Option 10.4

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Considered safer to include the separation</p> <p>DMRB CD123 Note 7.16 states that physical separation is required where the speed limit is 50mph and above.</p>		<p>Strong strategic case as this option would fulfil the scheme objectives. The eastbound bus lane through the junction, westbound bus lane brought close to the junction and enhanced NMU facilities would all contribute to unlocking the delivery of homes.</p> <p>The economic case is the weakest of all options. This is because including a straight through crossing on Witney Rd would create significant congestion and queues along the A40. Therefore, journey times would increase significantly.</p> <p>The financial case is weak because there would be an increase in costs due to the signalised junction and some land take which might be required on the northern side.</p> <p>The management case is very weak as this option is more complex due to the implementation of signals, which increases costs and makes it more difficult for future proofing. Utilities could also be affected, and these would require protection.</p> <p>The commercial case is neutral as there is no significant complexity of delivery.</p> <p>In summary, with a total score of 11, this option ranks the lowest. Although this option would provide NMUs with the best facilities, the junction would operate significantly over capacity, creating queues and congestion on the A40. This would affect public transport and general traffic journey times.</p> <p><i>Supported design solution, but not preferred.</i></p>

Option 10.5: Signalised Junction with Physical Separation (Uncontrolled Crossing)

7.3.4 Option 10.5 is a signalised junction for Witney Road with 1.3m physical separation distance (traffic island) between the westbound general traffic lane and the dedicated right turn lane. This is designed to a 50mph speed limit. There are staggered toucan crossings across the A40. Uncontrolled crossing across Witney Rd. Table 7-7 outlines potential benefits, issues and scoring results.

Table 7-7 Option 10.5

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Considered safer to include the separation</p> <p>DMRB CD123 Note 7.16 states that physical separation is required where the speed limit is 50mph and above.</p> <p>Uncontrolled crossing provided across Witney Rd.</p>		<p>Weakest Strategic case out of all options. This is because it would not give NMUs priority on Witney Road and would involve a less safe crossing facility, thus not completely fulfilling the scheme objectives in terms of active travel.</p> <p>The economic case is also weak, mainly because it would not encourage active travel as much as the other options.</p> <p>The financial case is not as weak as the other options because it would be less expensive to construct, as no signals and island are required.</p> <p>The management case is not as weak either, due to the simpler design and construction, as well as allowing future proofing the junction (adding signals for example).</p> <p>The commercial case is neutral as there is no significant complexity of delivery.</p> <p>In summary, with a total score of 12, this option ranks the second. Although this option would not provide NMUs with priority on Witney Rd, the junction would operate better as there would not be additional signals. This means that bus and general traffic journey times would not be negatively impacted.</p> <p>Supported design solution, but not preferred.</p>

7.4 Element 11: Crossings at Esso Petrol Station and Spareacre Lane/Hanborough Road

7.4.1 Two options (**Option 11.3 – 11.4**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration. The Do Minimum is discussed in section 6.12.

Option 11.3: Controlled Crossing (Toucan Staggered)

7.4.2 Option 11.3 is a controlled staggered toucan crossing across the A40 to connect the Spareacre Lane PROW. Table 7-8 outlines potential benefits, issues and scoring results.

Table 7-8 Option 11.3

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Provides the same connectivity between the north and south side of the A40, however in a safe manner for high-speed traffic.</p>	<p>Provides additional signalised crossing close to Witney Road signalised junction, which may decrease journey time savings and may not be favoured by the majority of the general public.</p>	<p>All 5 cases rank very low. This is because the difference with the DoMin is not significant. The strategic and economic cases score better than the other option because a toucan staggered crossing would not affect bus and general traffic journey times as much. The green time for the crossing would be reduced, therefore impacting traffic less.</p> <p>The financial case scores low. This option would still be less expensive than the DoMin (Pegasus crossing).</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
	Unable to provide Pegasus crossing due to width of carriageway to cross the road (approximately 11m max).	<p>The management case scores neutral as public/stakeholder acceptability can vary and there is negligible difference as compared to the DoMin.</p> <p>The commercial case is 0 because there is no complexity of delivery.</p> <p>In summary, with a score of 4, this option scores the highest. Although a toucan staggered crossing might not be ideal for cyclists, overall it provides a safe crossing point for NMUs and does not impact traffic significantly.</p> <p>Preferred design solution.</p>

Option 11.4: Controlled Crossing (Toucan Straight)

7.4.3 Option 11.4 is a controlled straight toucan crossing across the A40 to connect the Spareacre Lane and Hanborough Road PROW. Table 7-9 outlines potential benefits, issues and scoring results.

Table 7-9 Option 11.4

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Provides the same connectivity between the north and south side of the A40, however in a safe manner for high-speed traffic.</p> <p>Most favourable option for cyclists as these would not need to dismount when crossing the A40.</p>	<p>Provides additional signalised crossing close to Witney Road signalised junction, which may decrease journey time savings and may not be favoured by the majority of the general public.</p> <p>Unable to provide Pegasus crossing due to width of carriageway to cross the road (approximately 11m max).</p>	<p>All 5 cases rank very low. This is because the difference with the DoMin is not significant.</p> <p>The strategic and economic cases score worse than the other options because a straight toucan crossing would affect bus and general traffic journey times. The green time for the crossing would be higher than the time required for a staggered crossing, therefore impacts traffic slightly more.</p> <p>The financial case scores low. This option would still be less expensive than the DoMin (Pegasus crossing).</p> <p>The management case scores neutral as public/stakeholder acceptability can vary and there is negligible difference as compared to the DoMin.</p> <p>The commercial case is 0 because there is no complexity of delivery.</p> <p>In summary, with a score of 1, this option scores the lowest. Although a straight toucan crossing might be the best solution for cyclists, overall it impacts traffic a bit more than a staggered crossing.</p> <p>Supported design solution, but not preferred.</p>

7.5 Element 12: Lower Road roundabout

7.5.1 Five options (**Option 12.1 – 12.3, 12.6, 12.7**) is summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration. The Do Minimum is discussed in section 6.13.

Option 12.1: Signalised Junction (40mph)

7.5.2 Option 12.1 is a signalised junction with dedicated signals for buses and general traffic. This is designed to a 40 mph speed limit. Table 7-10 outlines potential benefits, issues and scoring results.

Table 7-10 Option 12.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>This option allows the continuation of the Westbound bus lane throughout the main carriageway.</p> <p>Potentially safer for pedestrians/cyclists to cross the road than the existing roundabout.</p>	<p>Higher operational costs.</p>	<p>The strategic case scores relatively low. This is because no bus priority is provided and the junction is just at capacity. A small increase in flows would affect significantly the junction's operation and therefore bus and general traffic journey times.</p> <p>The economic case also scores low, this is because there would be an impact to the environment, as some land take would be required, and journey times would be significantly affected if flows increase.</p> <p>The financial case scores very weak because signals would need to be implemented and maintained and the whole configuration of the existing junction would need to be changed.</p> <p>The management case scores very weak. This is mainly due to low public/stakeholder acceptability. Signals would affect the free flow of traffic and land take would be required.</p> <p>The commercial case is neutral as there is no complexity of delivery.</p> <p>In summary, with a score of -4, this option scores the second lowest. Although a signalised junction improves greatly NMU priority and safety, the junction operated at capacity, which can have a significant impact on bus and general traffic journey times if flows increase.</p> <p>Supported design solution, but not preferred.</p>

Option 12.2: Hamburger Roundabout (40mph)

7.5.3 Option 12.2 is a signalised hamburger roundabout with central lanes for through traffic and dedicated signals for general traffic wishing to access Lower Road or B4449. This is designed to a 40mph speed limit. Table 7-11 outlines potential benefits, issues and scoring results.

Table 7-11 Option 12.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
	<p>This option would require breaking both bus lanes to allow general traffic to incorporate into the nearside lane to turn right/left into Lower Road or B4449.</p>	<p>The strategic case scores very weak. This is because modelling has shown that this junction would not be able to operate. Significant queues and congestion would block back, increasing journey times for buses and general traffic. Therefore, it would not fulfil the scheme's objectives.</p> <p>The economic case scores very low, mainly due to the impact on the economy.</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		<p>The financial case also scores very low, mainly due to the costs related to construction and signal operation and maintenance.</p> <p>The management case scores very weak. This is because it would require land take and it would have low public/stakeholder acceptability if journey times will be significantly increased.</p> <p>The commercial case scores neutral as there is no complexity of delivery.</p> <p>In summary, with a score of -37, this option scores the worst by far. Although signals would benefit NMUs, general traffic and buses would be significantly impacted due to the congestion and delays. The scheme objectives could not be fulfilled.</p> <p>Supported design solution, but not preferred.</p>

Option 12.3: Leave Existing Roundabout as is (50mph)

7.5.4 Option 12.3 is a normal roundabout connecting A40 with Lower Road and B4449. This is designed to a 50 mph speed limit. Table 7-12 outlines potential benefits, issues and scoring results.

Table 7-12 Option 12.3

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
	May require land take / CPO to incorporate southern footpath and westbound bus lane, and alteration to culvert on north east side.	<p>The strategic case scores well. This is because this option would provide an improvement on NMU facilities and it operates well.</p> <p>The economic case scores better than other options, mainly because it does not impact significantly on the economy nor the environment.</p> <p>The financial case scores neutral as costs would be very low and no signals are included.</p> <p>The management case scores weak as there would not be much stakeholder/public acceptability. Bus lanes are not provided through the junction, and no controlled crossings for NMUs.</p> <p>The commercial case scores neutral as there is no complexity of delivery.</p> <p>In summary, with a score of 20, this option ranks second best.</p> <p>Supported design solution, but not preferred.</p>

Option 12.6: Increased size of existing roundabout

- 7.5.5 Option 12.6 is to increase the size of the existing Lower Road Roundabout. The existing Inscribed Circular Diameter (ICD) of the roundabout is relatively small for the existing traffic volume, and observations show that traffic doesn't use the full capacity of the roundabout, so by providing an enlarged ICD, this should increase the capacity. Table 7-13 outlines potential benefits, issues and scoring results.

Table 7-13 Option 12.6

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
NA	<p>This option would require breaking both bus lanes to allow traffic to use the roundabout.</p> <p>It would also require land take probably to the north of the junction</p>	<p>The strategic case scores well. This is because this option would provide an improvement on NMU facilities and would operate well due to the increase in capacity.</p> <p>The economic case scores low, mainly because it has a greater impact on the environment.</p> <p>The financial case scores weak as costs would be very high due to land take, impact on utilities and the roundabout's construction.</p> <p>The management case scores weak as there would not be much stakeholder/public acceptability. Bus lanes are not provided through the junction, and no controlled crossings for NMUs.</p> <p>The commercial case scores neutral as there is no complexity of delivery.</p> <p>In summary, with a score of 10, this option ranks in the middle.</p> <p>Supported design solution, but not preferred.</p>

Option 12.7: Roundabout enhanced for NMUs

- 7.5.6 Option 12.7 is the existing roundabout layout, including Eastbound and Westbound bus lanes with increased flare lengths and entry widths. The roundabout will also include formal crossings for NMUs. Table 7-14 outlines potential benefits, issues and scoring results.

Table 7-14 Option 12.7

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Includes controlled crossings for pedestrians/cyclists.	May require Land take / CPO to incorporate bus lanes and shared use facilities, and alteration to culvert on north east side.	<p>This option has a very strong Strategic case. This is because, although it does not provide bus priority through the junction, eastbound and westbound bus lanes break before the junction and shared used facilities are provided on the northern and southern side of the A40, along with controlled crossings. Modelling shows the junction operates relatively well.</p> <p>The economic case scores strong as it improves accessibility and journey times for all transport modes.</p> <p>The financial case is weak. This is because the implementation of signals increases cost and may require some utility protection/diversion.</p> <p>The management case scores low because bus priority through the junction is not provided and this might affect stakeholder/public acceptability.</p> <p>The commercial cases scores neutral as there is no complexity of delivery.</p> <p>In summary, with a total score of 26, this option ranks first. Although this option does not provide</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		<p>bus priority, modelling shows it works well in terms of capacity and NMU facilities are improved. Overall, it fulfils the scheme objectives better than the other options.</p> <p><i>Preferred design solution.</i></p>

7.6 Element 13: Cassington New Bridge

- 7.6.1 Two options (**Option 13.1 and 13.2**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration. The Do Minimum is discussed in 6.14.

Option 13.1: Widen Bridge on South Side Opt. 1 (5.9m)

- 7.6.2 Option 13.1 is a bridge widening on south side to maintain lane widths, incorporate a 3m footway on the north side (no verge) and a 3m footway on the south side (1.5m verge). Table 7-15 outlines potential benefits, issues and scoring results.

Table 7-15 Option 13.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Allows free flow of traffic on the A40 without narrowing lanes.</p> <p>Allows free flow of pedestrian and cyclist movements along the A40 corridor without having to cross the road. Full cycle provision on north and south side.</p>	<p>Requires significant bridge widening of approximately 5.9m - existing parapet to back of footway.</p> <p>Potential safety concerns on north side due to lack of verge protecting pedestrians and cyclists. Effective width of the footway will decrease to approximately 2.5m.</p> <p>Potential flood compensation measures for extending bridge.</p>	<p>This option has a very strong strategic case. This is due to the provision of eastbound and westbound bus lanes over the bridge, without affecting general traffic.</p> <p>The economic case is much weaker as it would have some impact on the environment.</p> <p>The financial case is also very weak due to the costs involved in widening the existing bridge.</p> <p>The management case has a slightly higher score due to public and stakeholder acceptability. However, it would involve a complex design and construction.</p> <p>The commercial case is neutral as there is no significant complexity of delivery as compared with the DoMin.</p> <p>In summary, with a total score of 17, this option ranks first. Although this option requires more bridge widening, it provides a safer shared use facility on the northern side of the A40.</p> <p><i>Preferred design solution.</i></p>

Option 13.2: Extend Bridge on South Side Opt. 2 (4.9m)

7.6.3 Option 13.2 is a bridge extension on south side to maintain lane widths, incorporate a 2m footway on the north side (no verge) and a 3m footway on the south side (1.5m verge). Table 7-16 outlines potential benefits, issues and scoring results.

Table 7-16 Option 13.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Allows free flow of traffic on the A40 without narrowing lanes.</p> <p>Allows free flow of pedestrian and cyclist movements along the A40 corridor without having to cross the road. Full cycle provision on south side with a significantly reduced cycle provision on north side.</p> <p>Potential flood compensation measures for extending bridge.</p>	<p>Requires significant bridge widening of approximately 4.9m - existing parapet to back of footway.</p> <p>Potential safety concerns on north side due to lack of verge protecting pedestrians and cyclists. Effective width of the footway will decrease to approximately 1.5m - substandard for shared-use footway-cycleway according to DMRB.</p>	<p>This option has a very strong strategic case. This is due to the provision of eastbound and westbound bus lanes over the bridge, without affecting general traffic.</p> <p>The economic case is much weaker as it would have some impact on the environment.</p> <p>The financial case is also very weak due to the costs involved in widening the existing bridge. However, it would have some cost savings as compared with the other option due to less bridge widening.</p> <p>The management case has a low score due to less public and stakeholder acceptability. Having a narrower shared use facility on the northern side (which does not meet the minimum standards) would negatively affect NMUs, especially cyclists. In addition, it would involve a complex design and construction.</p> <p>The commercial case is neutral as there is no significant complexity of delivery as compared with the DoMin.</p> <p>In summary, with a total score of 14, this option ranks worse. Although this option requires less bridge widening, it provides an unsafe northern shared use facility, which does not meet minimum standards.</p> <p>Supported design solution, but not preferred.</p>

7.7 Element 18: Cassington Halt Bridge

7.7.1 Four options (**Options 18.1, 18.3, 18.5 and 18.9**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration. The Do Minimum is discussed in section 6.19.

Option 18.1: No Bridge Widening with Bus Lanes and two shared use cycle/pedestrian bridges

7.7.2 Option 18.1 is where there is no bridge widening at Cassington Halt Bridge. This assumes a structural assessment deems 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 footbridges. Table 7-17 outlines potential benefits, issues and scoring results.

Table 7-17 Option 18.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>BD95 process undertaken for A40 Science Transit has confirmed that this structure was strengthened in 2002 for vehicle loading to within 600mm of the parapet in anticipation of a future eastbound bus lane scheme.</p>	<p>Need protection and potentially diversion of IP gas main on north side during construction of footbridge.</p>	<p>Very strong strategic case, as this option includes eastbound and westbound bus lanes through the bridge, as well as a northern and southern footbridge for NMUs. In addition, there would be no negative impact on general traffic.</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Localised narrowing of bus lanes is minimal and therefore should not cause safety concerns.</p> <p>Double white line system through bridge reduces effective width of E/B & W/B General Traffic lanes, however over short distance. Traffic naturally slows down on approach to the bridge.</p> <p>Allows free flow of pedestrian and cyclist movements along the A40 corridor over bridge without having to cross the road. Footbridges ensure the safety of pedestrians and cyclists.</p>	<p>Highly costly option due to construction of two footbridges which may not see great demand due to location on A40 corridor.</p>	<p>The economic case is relatively strong due to the increase of bus reliability and the provision of a southern shared use facility.</p> <p>The financial case however is weak. This option has very high capital costs due to the diversion of the IP gas main and construction of two footbridges.</p> <p>The management case is very weak, however this option isn't ranked badly against the others at 0 and -3. The complexity of designing new footbridges is not high, unlike options where the bridge deck is being widened.</p> <p>The commercial case for all options does not greatly vary.</p> <p>In summary, with a total score of 30, this option is ranked as the highest. Incorporating both bus lanes is beneficial for journey time savings with the push towards sustainable modes of transport. The footbridges also encourage walking and cycling and provide safe means of travel for NMU's. Incorporating the bus lanes through the bridge would require localised narrowing of lanes. The structural assessment of the bridge deck deems it feasible for the anticipated loads. This option is a preferred design solution.</p> <p><i>Preferred design solution.</i></p>

Option 18.3: Widen Bridge on South Side Opt. 1

7.7.3 Option 18.3 is where there is bridge widening on the south side of Cassington Halt Bridge. This option incorporates a 3m footway on the south side and a footbridge on the north side. Table 7-18 outlines potential benefits, issues and scoring results.

Table 7-18 Option 18.3

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Allows free flow of traffic on the A40 without narrowing lanes.</p> <p>Allows free flow of pedestrian and cyclist movements along the A40 corridor over the bridge without having to cross the road. Footbridge ensures the safety of pedestrians and cyclists.</p> <p>Bridge extension on south side would be approximately 4.5m.</p>	<p>Widening this type of bridge will need to be undertaken using a similar method to the existing structure. There is a major issue with this as it will not be possible to maintain a 3m easement from the gas main during construction and the gas main may need to be diverted in order to construct abutments in line with the existing. The new abutments would likely be mass concrete abutments with masonry facing. Protection is unlikely to be sufficient.</p> <p>Costly option due to construction of footbridge.</p>	<p>Very strong strategic case, as this option includes eastbound and westbound bus lanes through the bridge, as well as a northern footbridge and southern shared use facility for NMUs. In addition, there would be no negative impact on general traffic.</p> <p>The economic case is relatively strong due to the increase of bus reliability and the provision of a southern shared use facility.</p> <p>The financial case however is weak. This option has very high capital costs due to the diversion of the IP gas main, construction of the footbridge and bridge widening to the south.</p> <p>The management case is weak and the commercial case is very weak. This is due to the high complexity of widening the bridge deck.</p> <p>In summary, with a total score of 27, this option is ranked third. Incorporating both bus lanes is beneficial for journey time savings with the push</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		<p>towards sustainable modes of transport. The footbridge and shared use facility on the south also encourage walking and cycling and provide safe means of travel for NMU's. However, the bridge widening adds more cost and complexity to the option.</p> <p>Supported design solution, but not preferred.</p>

Option 18.5: Widen Bridge on North & South Side

7.7.4 Option 18.5 includes a bridge widening on north and south sides of Cassington Halt Bridge. This option incorporates a 3m footway on the north side and a 3m footway on the south side. Table 7-19 outlines potential benefits, issues and scoring results.

Table 7-19 Option 18.5

Potential Benefits	Potential Issues	Score and Comments
<p>Allows free flow of traffic on the A40 without narrowing lanes.</p> <p>Allows free flow of pedestrian and cyclist movements along the A40 corridor over bridge without having to cross the road.</p> <p>No narrowing of footway.</p>	<p>Widening this type of bridge will need to be undertaken using a similar methodology to existing. There is a major issue with this as it will not be possible to maintain a 3m easement from the gas main during construction and the gas main may need to be diverted in order to construct abutments in line with the existing. The new abutments would likely be mass concrete abutments with masonry facing. Protection is unlikely to be sufficient.</p> <p>Potentially costly option.</p> <p>Requires large extension on north side (approximately 4.0m) and south side (approximately 4.5m).</p>	<p>Very strong strategic case, as this option includes eastbound and westbound bus lanes through the bridge, as well as a northern and southern shared use facilities for NMUs. In addition, there would be no negative impact on general traffic.</p> <p>The economic case is relatively strong due to the increase of bus reliability and the provision of a southern shared use facility.</p> <p>The financial case however is weak. This option has very high capital costs due to the diversion of the IP gas main and bridge widening on both sides.</p> <p>The management case is weak and the commercial case is very weak. This is mainly due to the high complexity of widening the bridge deck.</p> <p>In summary, with a total score of 28, this option is ranked second. Incorporating both bus lanes is beneficial for journey time savings with the push towards sustainable modes of transport. The shared use facilities on the north and south also encourage walking and cycling and provide safe means of travel for NMU's. However, the bridge widening adds more cost and complexity to the option.</p> <p>Supported design solution, but not preferred.</p>

Option 18.9: Widen Bridge on North & South Side

7.7.5 Option 18.9 is where there is no bridge widening. Instead there is localised narrowing of the bus lanes and construction of a footbridge to the south. The northern shared use path joins to the existing road level under the bridge, Table 7-20 outlines potential benefits, issues and scoring results.

Table 7-20 Option 18.9

Potential Benefits	Potential Issues	Score and Comments
<p>BD95 process undertaken for A40 Science Transit has confirmed that this structure was strengthened in 2002 for vehicle loading to within 600mm of the</p>		<p>Strong strategic case, as this option includes eastbound and westbound bus lanes through the bridge, as well as northern and southern shared use facilities for NMUs. This option scores less because, although it does not require bridge widening, the</p>

Potential Benefits	Potential Issues	Score and Comments
parapet in anticipation of a future eastbound bus lane scheme.		<p>northern shared use facility is brought down to the existing road level under the bridge.</p> <p>The economic case is relatively strong due to the increase of bus reliability and the provision of a southern shared use facility.</p> <p>The financial case however is weak. This option has high capital costs due to the diversion of the IP gas main and footbridge on the southern side.</p> <p>The management case is weak as it might have less public and stakeholder acceptability due to the northern shared use facility joining the existing road under the bridge.</p> <p>The commercial case is weak, mainly due to the complexity of constructing the southern footbridge.</p> <p>In summary, with a total score of 20, this option is ranked the worst. Incorporating both bus lanes is beneficial for journey time savings with the push towards sustainable modes of transport. The shared use facilities on the north and south also encourage walking and cycling and provide safe means of travel for NMU's. However, the northern shared use facility would require lighting to improve safety and might not be appealing for NMUs as it does not provide such a direct route for them.</p> <p>Supported design solution, but not preferred.</p>

7.8 Element 19: Eastern Link Section (near to SAC, SSSI)

- 7.8.1 Two options (**Options 19.1, 19.2**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration
- 7.8.2 The Do Minimum layout for Element 19 is an eastbound bus lane along the section from Cassington Halt Bridge to just before Duke's Cut (and no westbound bus lane).

Option 19.1: Eastbound and Westbound Bus Lane along the whole section

- 7.8.3 Option 19.1 is to provide a westbound bus lane along the whole eastern section between Cassington Halt Bridge and Duke's Cut. Table 7-22 outlines potential benefits, issues and scoring results.

Table 7-21 Option 19.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Bus priority along a greater stretch of corridor.	<p>Scheme extents will most likely affect the highway boundary, which means affecting the SAC and SSSI. Impact on the surrounding environment.</p> <p>Natural England could reject the scheme due to the disturbance created for the SSSI and/or SAC</p>	<p>Very strong strategic case providing the eastbound and westbound bus lanes, as it helps comply with the scheme objectives.</p> <p>The economic case however scores less. This is due to the negative (and lack of strong positive) impacts on the environment and economy.</p> <p>The financial case is also very weak. This option has very high capital costs due to engineering challenges envisaged for widening existing culverts and reprofiling ditches and embankments.</p> <p>The management case is also very weak. This is due to poor scoring in the practical feasibility category (due to engineering complexities), likely impacts on utilities and likely objections from Natural England. The commercial case for this option is also weak due to the complexities of delivery in</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		<p>both design and construction, as it would most likely require liaison with environmental specialists.</p> <p>In summary, with a total score of 16, this option ranks the highest. Incorporating both bus lanes can be beneficial for journey time savings with the push towards sustainable modes of transport, although the environmental impacts and costs are large as compared to the other option. Overall, this option will fulfil the scheme's objectives.</p> <p><i>Preferred design solution.</i></p>

Option 19.2: Westbound Bus Lane descope past the SSSI/SAC

7.8.4 Option 19.2 is to descope the westbound bus lane along the eastern section between the existing westbound layby (east of Cassington Halt Bridge) and Duke's Cut. Table 7-22 outlines potential benefits, issues and scoring results.

Table 7-22 Option 19.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
<p>Scheme extents within highway boundary.</p> <p>No issues with SSSI and/or SAC - less environmental impact to the surrounding environment.</p>	<p>No WB bus priority along this stretch of corridor.</p>	<p>Relatively strong strategic case providing just an eastbound bus lane along with shared use facilities for NMUs on the northern and southern sides of the A40.</p> <p>The economic case however scores less. The financial case is very weak.</p> <p>The management case is weak; however, this option is better than providing an eastbound and westbound bus lane as it would involve less construction, thus a better scoring in the practical feasibility category. This option does not affect the existing SSSI/SAC and has less environmental impact, thus has a better level of public and stakeholder acceptability.</p> <p>The commercial case for this option is neutral as there is no complexity in delivering the option.</p> <p>In summary, with a total score of 9, this option ranks the lowest. Traffic modelling has shown that bus and general traffic travel time is not affected if a WB bus lane is not included. However, the model has significant caveats which need to be considered (i.e. Wolvercote junction acts as a filter for westbound traffic due to its reduced capacity). Not including the WB bus lane would allow for better NMUs facilities (wider and safer spaces) and avoid any impacts to the SSSI/SAC and the environment as a whole. However, the descope of the WB bus lane would not align with "Policy T2 - Highway Improvement Schemes" from the West Oxfordshire Local Plan.</p> <p><i>Supported design solution, but not preferred.</i></p>

7.9 Element 21: Cassington Road Junction

- 7.9.1 Two options (**Options 21.1, 21.2**) are summarised in this section, with information provided on their scoring, detailed assessments and as to whether the option is recommended to be taken forward for further consideration
- 7.9.2 The Do Minimum layout for Element 21 is for a single general traffic lane passing through the junction for general straight-ahead traffic. There is a short flare for right turns into Cassington Road from the eastbound A40. The eastbound bus lane terminates prior to the junction, then becoming a general traffic lane for the Eynsham Road junction. There is no westbound bus lane provision. There is a signalised crossing across Cassington Road.

Option 21.1 Eastbound and Westbound Bus Lanes through Cassington Junction

- 7.9.3 Option 21.1 is to implement both an eastbound and westbound bus lane through the Cassington Junction. Figure 7-2 shows this option and Table 7-23 outlines potential benefits, issues and scoring results.

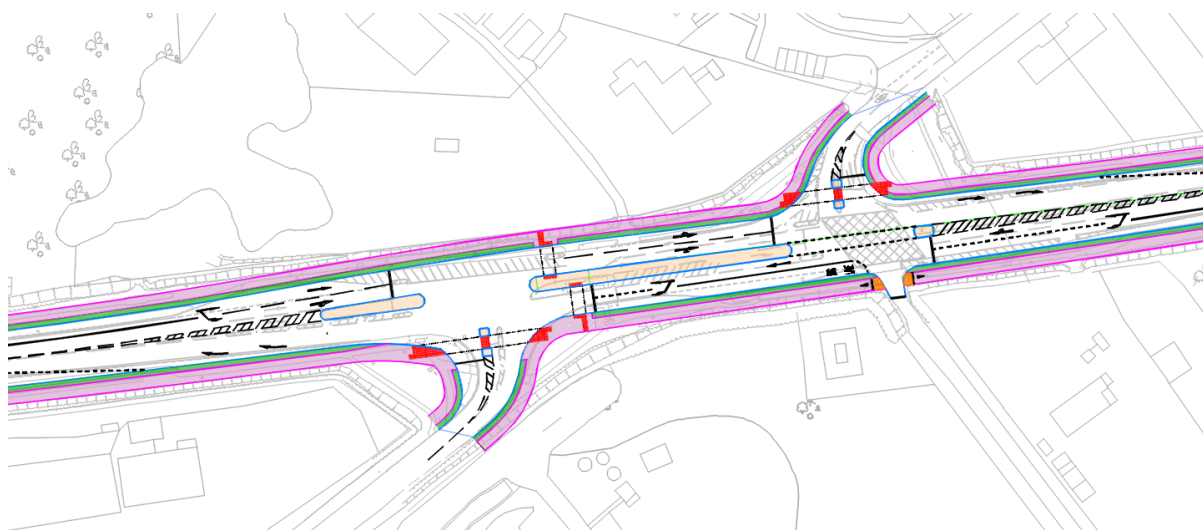


Figure 7-2 Eastbound and Westbound Bus Lanes through Cassington Junction

Table 7-23 Option 21.1

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Bus priority across the whole junction.		<p>This option has a very weak strategic case. This is because providing an eastbound and westbound bus lane through Cassington junction would reduce capacity for general traffic and would create significant congestion and queues along the corridor. Therefore, it would not allow the unlocking of the additional homes and does not meet the scheme objectives.</p> <p>The economic case is also weak as bus lanes through the junction will create journey time and reliability disbenefits for general traffic which will negatively impact growth and development along the A40 Corridor. There may also be an increase in collisions, which would lead to economic disbenefit.</p> <p>The financial case is also weak due to increased costs due to greater extents of the shared use facilities.</p> <p>The management case is stronger due to public and stakeholder acceptability for the bus lane and active travel facilities. It would most likely have support from stakeholders, public transport users and other NMUs.</p> <p>The commercial case is neutral as there is no complexity of delivery.</p> <p>In summary, with a total score of -12, this option is ranked the worst. This is mainly due to the significant congestion that</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		<p>would be caused along the corridor, which would directly impact on the economy as travel times would increase and reliability would decrease.</p> <p>Supported design solution, but not preferred.</p>

Option 21.2 Two General Traffic Straight Ahead Lanes

7.9.4 Option 21.2 includes two straight ahead lanes for general traffic across Cassington junction. Figure 7-3 shows this option and Table 7-24 outlines potential benefits, issues and scoring results.

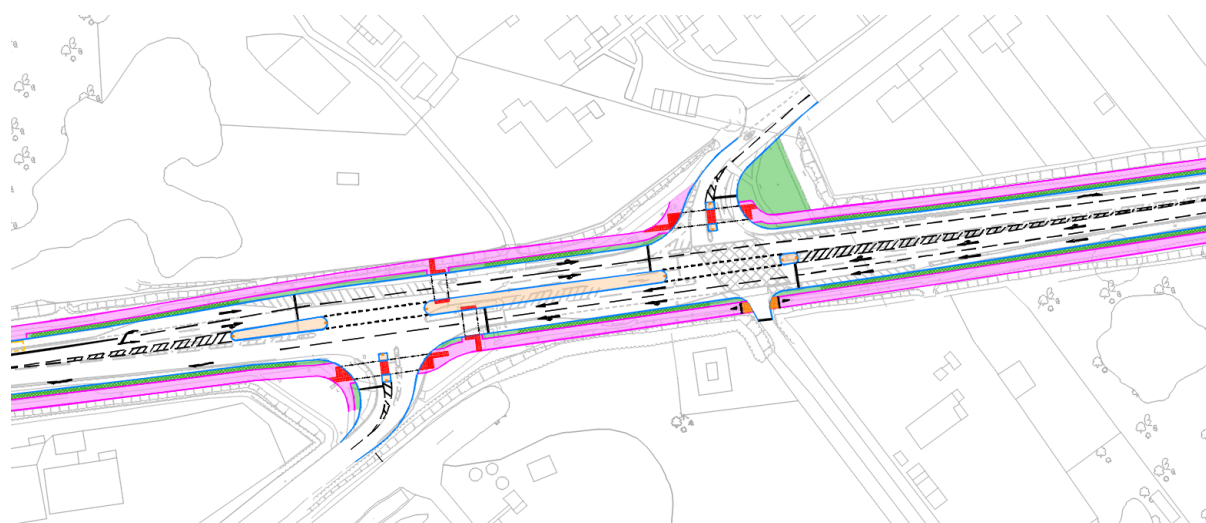


Figure 7-3 Two General Traffic Straight Ahead Lanes

Table 7-24 Option 21.2

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
Bus lanes end just before the junction - general traffic lanes allow an increase in the junction's capacity.	No bus priority through the junction.	<p>This option has a positive strategic case as it does not provide full public transport priority through the junction and therefore general traffic has increased capacity at the junction compared to Option 21.1. Therefore, general traffic is not impeded by a bus lane and is more free flowing, which helps meet the scheme objectives.</p> <p>It has a positive economic case as there is slightly increased capacity at the junction reducing queues and congestion, improving journey time reliability. This supports housing and economic growth along the A40 Corridor.</p> <p>The financial case is also weak due to increased costs due to greater extents of the shared use facilities.</p> <p>The management case is only slightly positive as it may not have much support from public transport users as a bus lane is not provided through the junction.</p> <p>The commercial case is neutral as there is no complexity of delivery.</p> <p>In summary, with a total score of 13, this option is ranked the highest. This option scores vastly better than option 21.1 due to a less complex design and no impact on the environment or the economy.</p>

Potential Benefits	Potential Issues	Sift against Business Case elements: Score and Comments
		<i>Preferred design solution.</i>

7.10 Additional Assessment: Horsemere Lane Closure

- 7.10.1 In addition, as part of Stage 3, an updated traffic modelling assessment has been carried out at Cassington Junction in order to determine the impact on the junction if Horsemere Lane were closed to the A40. It is expected that, as a result of a closure of Horsemere Lane, traffic would reroute to the junction of the A40/Eynsham Road. The LinSig model has been run incorporating these additional flows on Eynsham Road.
- 7.10.2 The results from this assessment show that the closure of Horsemere Lane would result in only small numbers of vehicles transferring to Eynsham Road and entering the A40 via the existing traffic signals. These additional vehicles would have a limited impact on the signal operation.
- 7.10.3 In conclusion the closure of Horsemere Lane can be considered as a viable option with negligible detrimental impact on the signals at A40/Eynsham Road. Eynsham road can operate sufficiently with just a single lane approach even with Horsemere Lane closed.
- 7.10.4 For further details please refer to the A40/Cassington Rd/Eynsham Rd – Horsemere Lane Assessment Report.

7.11 Weighting for Stage 3

- 7.11.1 In line with the methodology outlined in section 6.20 of this report, the additional options were tested in three further weighting scenarios to understand the impact of the scoring on the top ranking options. These scenarios are shown in Table 6-62 above.
- 7.11.2 Table 7-25 shows the outcome of the weighting scenarios for the additional Stage 3 options.
- 7.11.3 This shows that for four of the elements with additional options, there is discrepancy in the highest scoring option. For Elements 10,12 and 13, the highest ranking option is different in the equal weighting scenario (Scenario 1) in comparison to the other scenarios. For Element 18, the OCC LGF weighting scenario produces a different highest ranking option compared to the other scenarios.

Table 7-25 Stage 3 Weighting

#	Element	Highest Scoring Option				Comment
		Central	Scenarios 1: Equal Weighting	Scenarios 2: OCC LGF Weighting	Scenarios 3: Limiting Objectives to High- Level	
1	P&R Junction	3-arm signalised junction (future proofing for the provision of a 4th arm) + bus gate	3-arm signalised junction (future proofing for the provision of a 4th arm) + bus gate	3-arm signalised junction (future proofing for the provision of a 4th arm) + bus gate	3-arm signalised junction (future proofing for the provision of a 4th arm) + bus gate	All Scenarios and Base - have same highest score option
10	Witney Road Junction	Signalised Junction with Physical Separation (staggered toucan crossing)	Signalised Junction with Physical Separation (Uncontrolled crossing)	Signalised Junction with Physical Separation (staggered toucan crossing)	Signalised Junction with Physical Separation (staggered toucan crossing)	Except Scenarios 1, all others have same highest score option
11	Crossings at Esso Petrol Station and Spareacre Lane / Hanborough Rd	Controlled Crossing (Toucan Staggered)	Controlled Crossing (Toucan Staggered)	Controlled Crossing (Toucan Staggered)	Controlled Crossing (Toucan Staggered)	All Scenarios and Base - have same highest score option
12	Lower Road Roundabout	Roundabout - Enhanced for NMUs (with bus lanes and controlled crossings)	Leave roundabout as is (with bus lanes + uncontrolled crossings)	Roundabout - Enhanced for NMUs (with bus lanes and controlled crossings)	Roundabout - Enhanced for NMUs (with bus lanes and controlled crossings)	Except Scenarios 1, all others have same highest score option

#	Element	Highest Scoring Option				Comment
		Central	Scenarios 1: Equal Weighting	Scenarios 2: OCC LGF Weighting	Scenarios 3: Limiting Objectives to High-Level	
				controlled crossings)		
13	Cassington New Bridge	Extend Bridge on South Side Opt. 1 (5.9m)	Extend Bridge on South Side Opt. 2 (4.9m)	Extend Bridge on South Side Opt. 1 (5.9m)	Extend Bridge on South Side Opt. 1 (5.9m)	Except Scenarios 1, all others have same highest score option
18	Cassington Halt Bridge	No Bridge widening with Bus Lanes and 2 shared use cycle/pedestrian bridges	No Bridge Extension with Bus Lanes and 2 shared use cycle/pedestrian bridges	Extend Bridge on North & South Side	No Bridge Extension with Bus Lanes and 2 shared use cycle/pedestrian bridges	Except Scenarios 2, all others have same highest score option
19	Eastern Link section (next to SAC, SSSI)	EB and WB bus lane along the whole section	WB bus lane descoped passed the SSSI/SAC	EB and WB bus lane along the whole section	EB and WB bus lane along the whole section	Except Scenarios 1, all others have same highest score option
21	Cassington Road Junction	Two general traffic straight ahead lanes through Cassington junction	Two general traffic straight ahead lanes through Cassington junction	Two general traffic straight ahead lanes through Cassington junction	Two general traffic straight ahead lanes through Cassington junction	All Scenarios and Base - have same highest score option

7.12 Closing

- 7.12.1 This chapter has discussed Stage 3 assessment process of the new options at various elements. This has led to the preferred design solution selected during the Stage 2 being updated for some elements (discussed in next chapter).

8 Preferred Options and Next Steps

8.1 Preferred Options

8.1.1 Figure 8-1 shows the location of the junctions/elements within the IBL scheme.

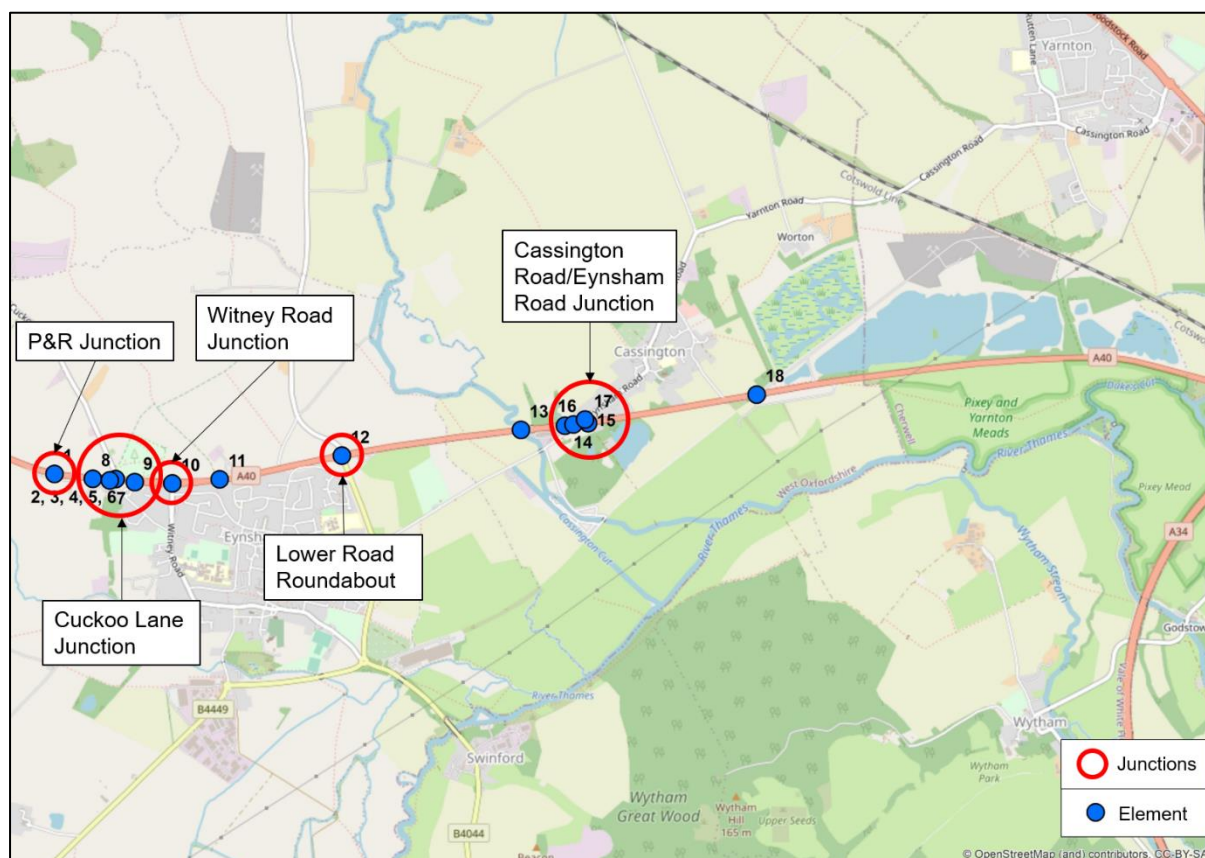


Figure 8-1 Location of the elements (zoomed)

8.1.2 Following all three stages of assessment, preferred options have been identified for each of the elements considered, as shown in Table 8-1.

Table 8-1 Preferred Options for Each Junction

Ref	Junction/Access Road/Bridge	Elements	Preferred Option
1	Park and Ride Junction	Park and Ride Junction	1.11 – 3-arm signalised junction (future proofing for the provision of a 4th arm) + bus gate
2	Cuckoo Lane	Vehicle Access to Park and Ride	2.10 – Do Nothing (A40 STP2 Design)
3		Bus Access to Park and Ride	3.1 – Do Nothing (A40 STP2 Design)
4		Close Access to Park and Ride	4.2 – Do Nothing (A40 STP2 Design)
5		Right Turn Banned (In & Out)	5.4 – Right Turn Banned (Out of Cuckoo Lane) *
6		Branched off to join Park and Ride Junction	No preferred options
7	Old Witney Road	Old Witney Road	No preferred options
8	Elm Place Access & Layby	Elm Place Access & Layby ²⁶	8.1 – Alteration to Access

²⁶ Layby to be retained subject to further OCC/WODC/West Eynsham developer discussions

Ref	Junction/Access Road/Bridge	Elements	Preferred Option
9	Evenlode Public House Access	Evenlode Public House Access	9.5 – With Westbound Bus Lane - All movements allowed
10	Witney Road Junction	Witney Road Junction	10.1 – Signalised Junction with Physical Separation (Staggered Toucan Crossing)
11	Crossings at Esso Petrol Station and Spareacre Lane / Hanborough Road	Crossings at Esso Petrol Station and Spareacre Lane / Hanborough Road	11.3 – Controlled Crossing (Staggered Toucan Crossing)
12	Lower Road Roundabout	Lower Road Roundabout	12.7 – Existing roundabout enhanced for NMUs
13	Cassington New Bridge	Cassington New Bridge	13.1 – Widen bridge on South Side Opt. 1 (3m shared use on northern/southern side) – 5.9m
14	Cassington Road/Eynsham Road Junction	Cassington Road Junction (West)	14.2 – Right Turn Allowed onto A40
15		Durham Road Access (South of A40)	15.2 – Right Turn Pocket
16		Cassington Road Junction (East)	16.2 – Right Turn Pocket into Eynsham Road
17		Eynsham Road Junction	17.7 – Controlled crossing south across Eynsham Rd (with central island) *
18	Cassington Halt Bridge	Cassington Halt Bridge	18.1 – No bridge widening with Bus Lanes (2 shared use cycle/foot bridges)
19	Eastern Link	Eastern Link Section (near to SAC, SSSI)	19.1 – Eastbound and Westbound bus lane along the whole section
20	Cuckoo Lane crossing	Cuckoo Lane crossing (west of junction with A40)	20.2 – Toucan crossing *
21	Cassington Road Junction	Cassington Road Junction	21.2 – Two general traffic straight ahead lanes through Cassington junction

* These options were not scored since all other options were discarded during the sifting process. Consequently, options 5.4, 17.7 and 20.2 were taken forward.

8.1.3 Detail on each of the preferred options is given below.

8.2 Element 1: Park and Ride Junction

8.2.1 The preferred option for the Park and Ride junction is a signalised junction with a bus gate. The design has been future proofed to allow a 4-arm to be included on the southern side to provide access to the future West Eynsham Development. The bus gate would give priority to buses travelling westbound over general traffic. Figure 8-2 shows the layout for this option.

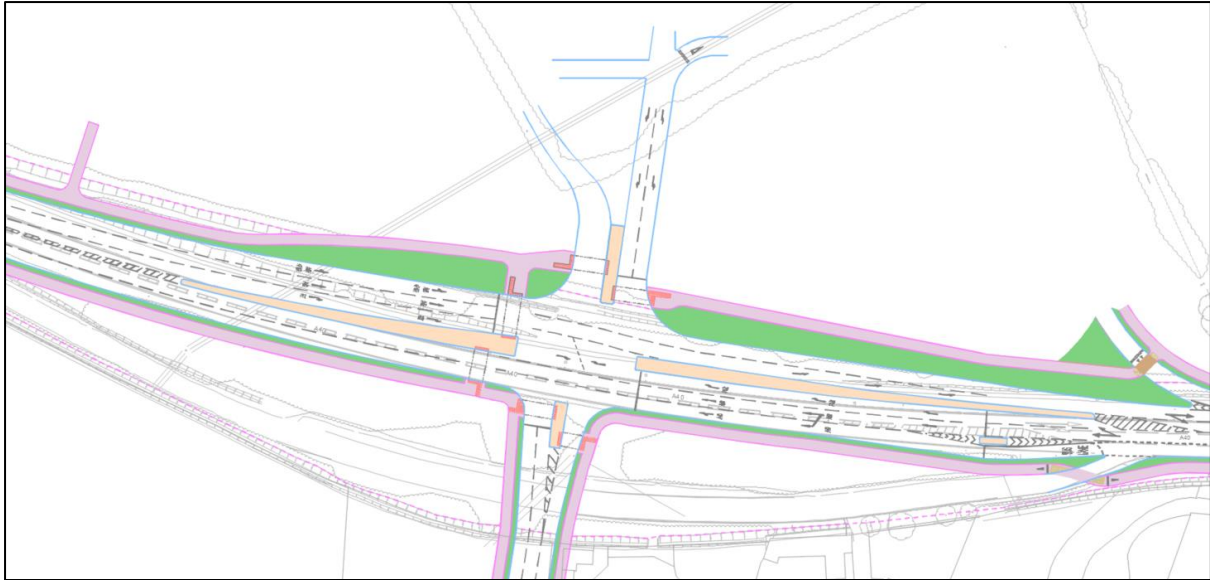


Figure 8-2 Park and Ride junction preferred option layout (4-arm design)

8.2.2 The preferred option for the Park and Ride junction has also been designed with 3-arms. Figure 8-3 shows this layout and the initial design that would be put in place prior to the construction of the southern development.

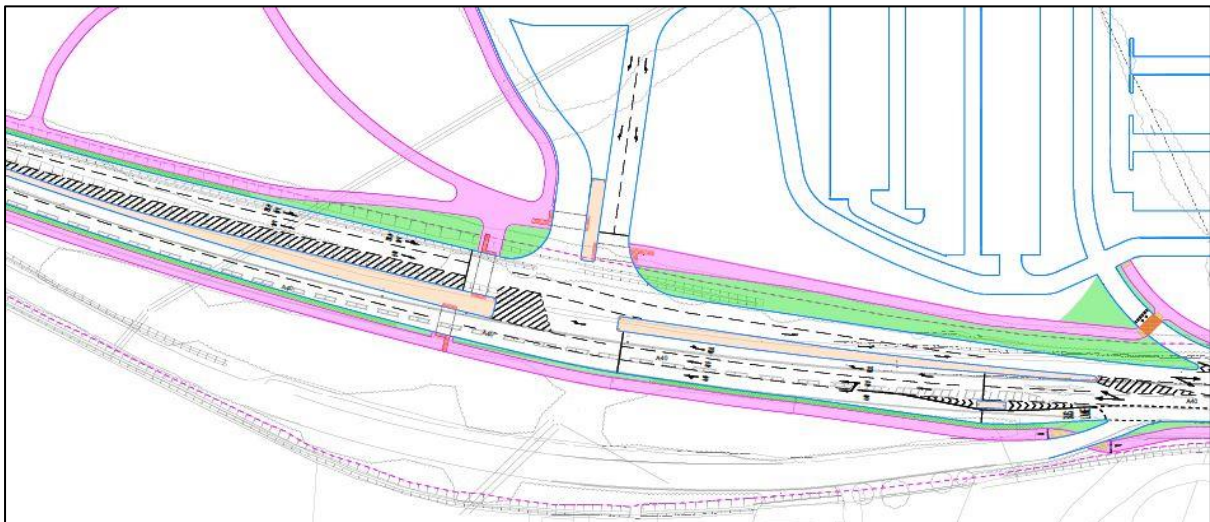


Figure 8-3 Park and Ride junction preferred option layout (3-arm design)

8.3 Element 2: Cuckoo Lane – Vehicle Access to Park and Ride

8.3.1 The preferred option for Cuckoo Lane (Vehicle Access to Park and Ride) is the Do Minimum option in which all vehicles will use the currently proposed junction from the A40 as shown in the STP2 design, which is the Park and Ride junction. Figure 8-4 shows the layout for this option.



Figure 8-4 Cuckoo Lane – Vehicle Access to Park and Ride preferred option layout

8.4 Element 3: Cuckoo Lane – Bus Access to Park and Ride

- 8.4.1 The preferred option for Cuckoo Lane (Bus Access to Park and Ride) is the Do Minimum option in which all vehicles will use the currently proposed junction from the A40 as shown in the STP2 design, which is the Park and Ride junction. Figure 8-5 shows the layout for this option.



Figure 8-5 Cuckoo Lane – Bus Access to Park and Ride preferred option layout

8.5 Element 4: Cuckoo Lane – Close Access to Park and Ride

- 8.5.1 The preferred option for Cuckoo Lane (Close Access to Park and Ride) is the Do Minimum option. Access to the Park and Ride from Cuckoo Lane is intended to provide access from the north of Cuckoo Lane and for cyclists using Cuckoo Lane. Figure 8-6 shows the layout for this option.



Figure 8-6 Cuckoo Lane – Close Access to Park and Ride preferred option layout

8.6 Element 5: Cuckoo Lane – Right-turn banned in & out

- 8.6.1 The preferred option for Cuckoo Lane (Right-turn banned in & out) is Right Turn Banned (Out of Cuckoo Lane). This option allows vehicles travelling westbound on the A40 to turn right into Cuckoo Lane. Right-turning movement from Cuckoo Lane into the A40 is banned. Vehicles would need to use Lower Road roundabout in order to make a U-turn. Figure 8-7 shows the layout for this option.
- 8.6.2 This option is to be implemented before the Garden Village access road is built. Without this option, vehicles would need to travel a large distance in order to be able to access the areas to the north of the proposed P&R site. Allowing the right-turning movement from the A40 into Cuckoo Lane is necessary at this initial stage. There is a future aspiration to ban both the right in and right out turn to Cuckoo Lane once the Garden Village Access Road is built.
- 8.6.3 The right turn out would need to use Lower Road, or right turn into Witney Road, find somewhere to turn and head back. shows the layout for this option. Figure 8-7 shows the layout for this option.

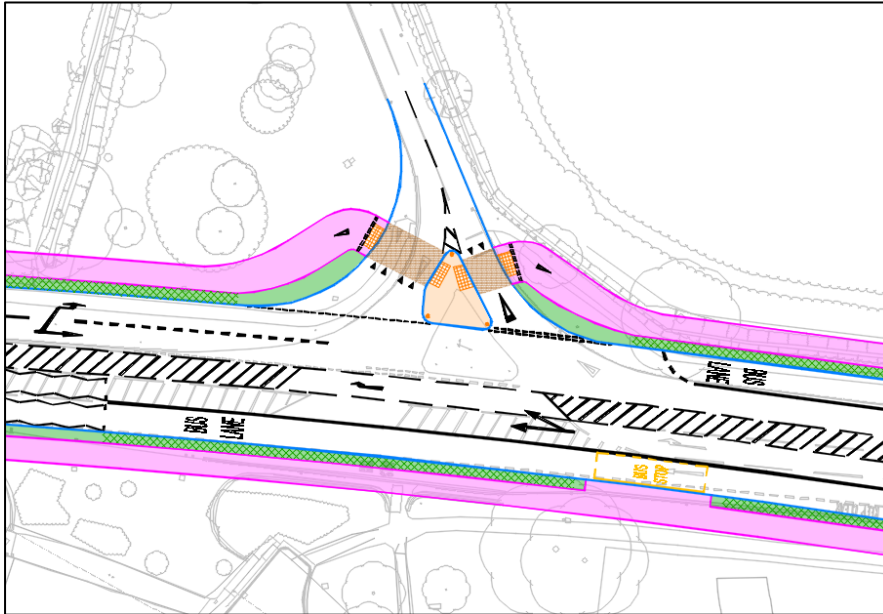


Figure 8-7 Cuckoo Lane – Right-turn banned (out of Cuckoo Lane)

8.7 Element 8: Elm Place Access & Layby – Alteration to access

- 8.7.1 The preferred option for Elm Place Access & Layby is not affected by the STP2 design and considers that the design will need to be modified if Old Witney is opened onto the A40. Figure 8-8 shows the layout for this option.

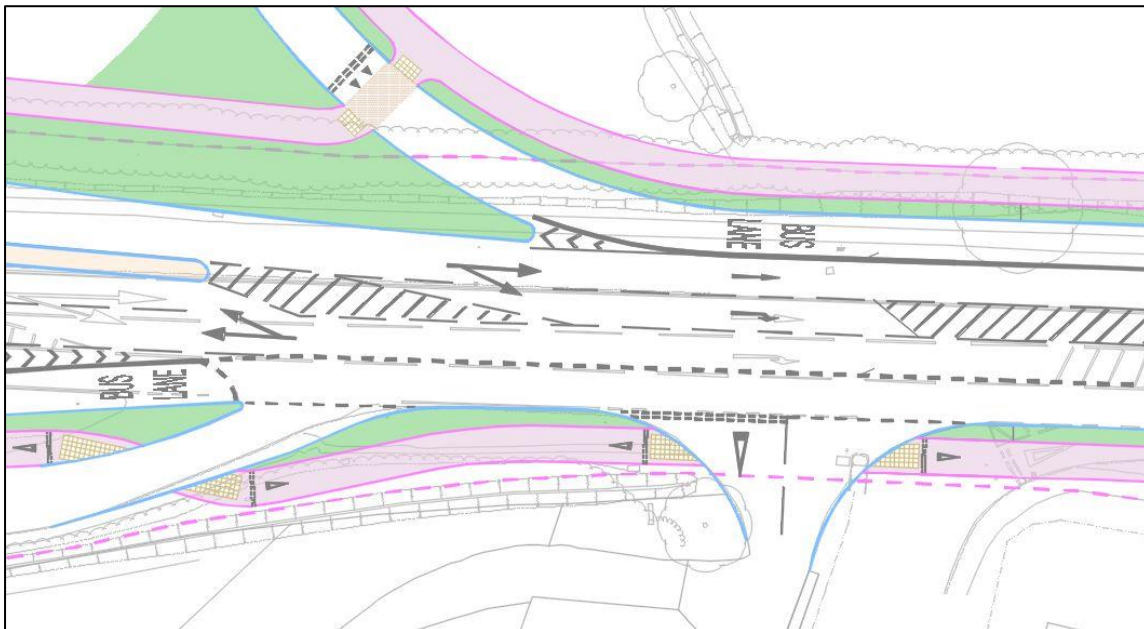


Figure 8-8 Elm Place Access & Layby preferred option layout

8.8 Element 9: Evenlode Public House access

- 8.8.1 The preferred option for Evenlode Public House access involves implementing the westbound bus lane on the A40 with all movements allowed. It requires a break in the bus lane road markings for westbound general traffic to manoeuvre into the nearside lane and the make the left turn into Evenlode Public House, as well as allowing right-turning movements at the junction. Figure 8-9 shows the layout for this option.

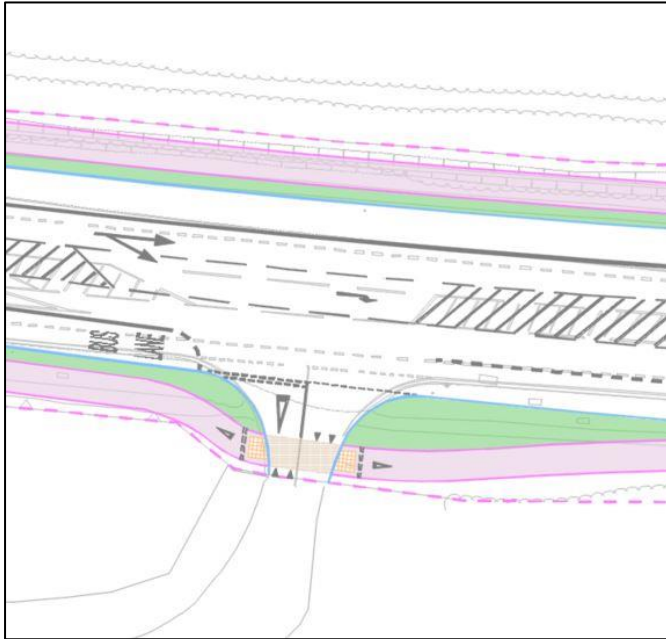


Figure 8-9 Evenlode Public House access preferred option layout

8.9 Element 10: Witney Road junction

- 8.9.1 The preferred option for Witney Road junction is a signalised junction with a physical separation for right-turning vehicles from the A40 into Witney Road and toucan staggered crossings. It provides enhanced NMU facilities along the northern and southern sides of the A40 and allows the eastbound bus lane to continue through the junction. The westbound bus lane breaks before the junction to allow general traffic to turn left into Witney Road. Figure 8-10 shows the layout for this option.

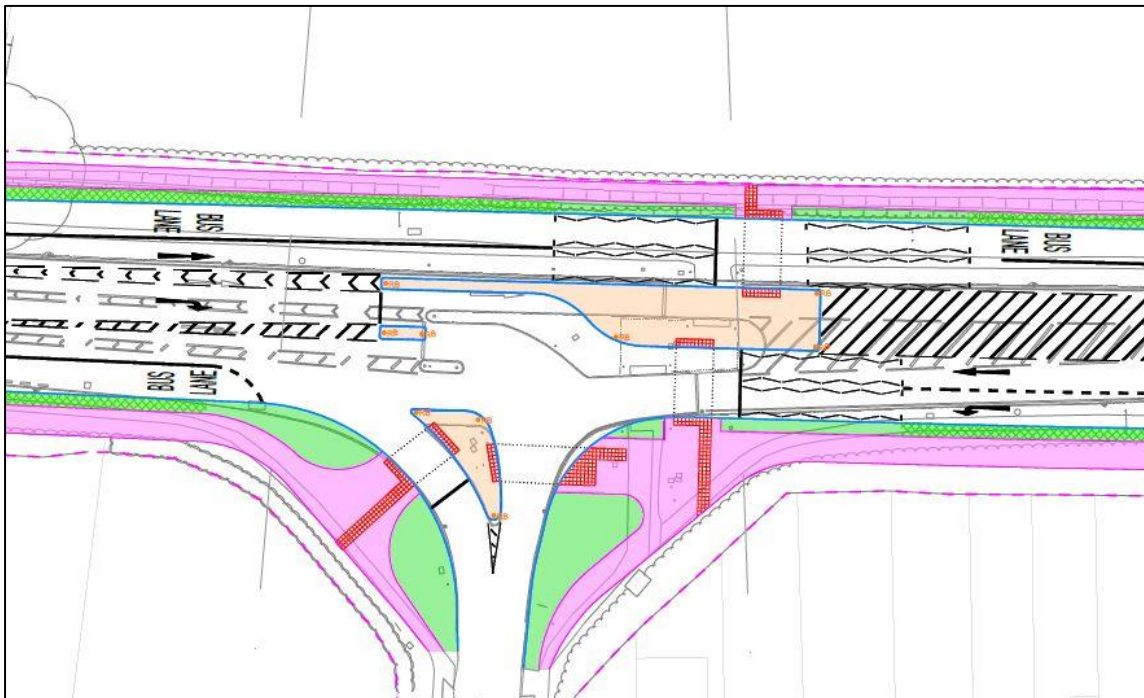


Figure 8-10 Witney Road junction preferred option layout

8.10 Element 11: Crossings at ESSO Petrol Station and Spareacre Lane / Hanborough Road

- 8.10.1 The preferred option for the two standalone crossings next to ESSO Petrol station and Hanborough Road is a controlled toucan staggered crossing. Although a toucan staggered crossing might not be ideal for cyclists, overall it provides a safe crossing point for NMUs and does not impact traffic significantly. It also improved connectivity and accessibility to proposed bus stops near those crossings. Figure 8-11 shows the layouts for this option.

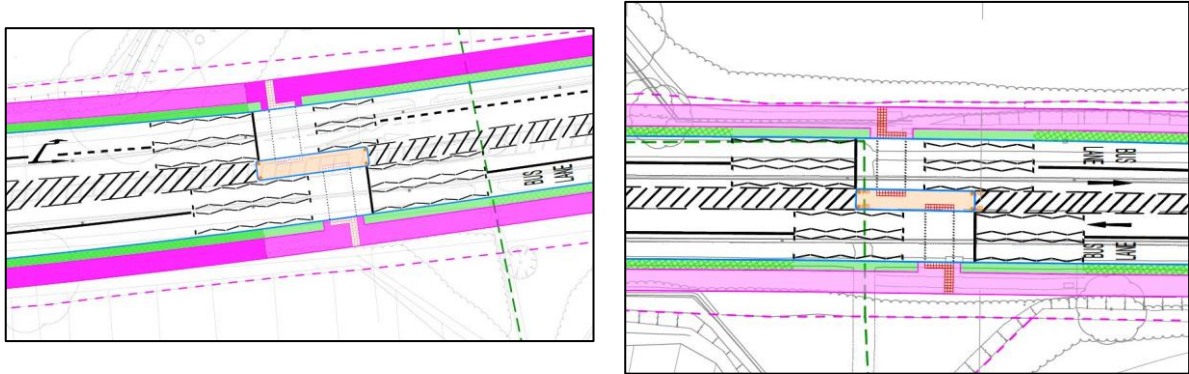


Figure 8-11 Crossings at ESSO Petrol Station and Spareacre Lane / Hanborough Road preferred option layout

8.11 Element 12: Lower Road Roundabout junction

- 8.11.1 The preferred option for Lower Road Roundabout junction is the existing roundabout enhanced for NMU's. Shared use facilities are provided along the northern and southern sides of the A40, and controlled crossings provided on the northern and southern arms. This would provide NMU's with safe crossing points and would give them priority over general traffic. This option does not allow bus lanes to continue through the junction so these break before. Figure 8-12 shows the layout for this option.

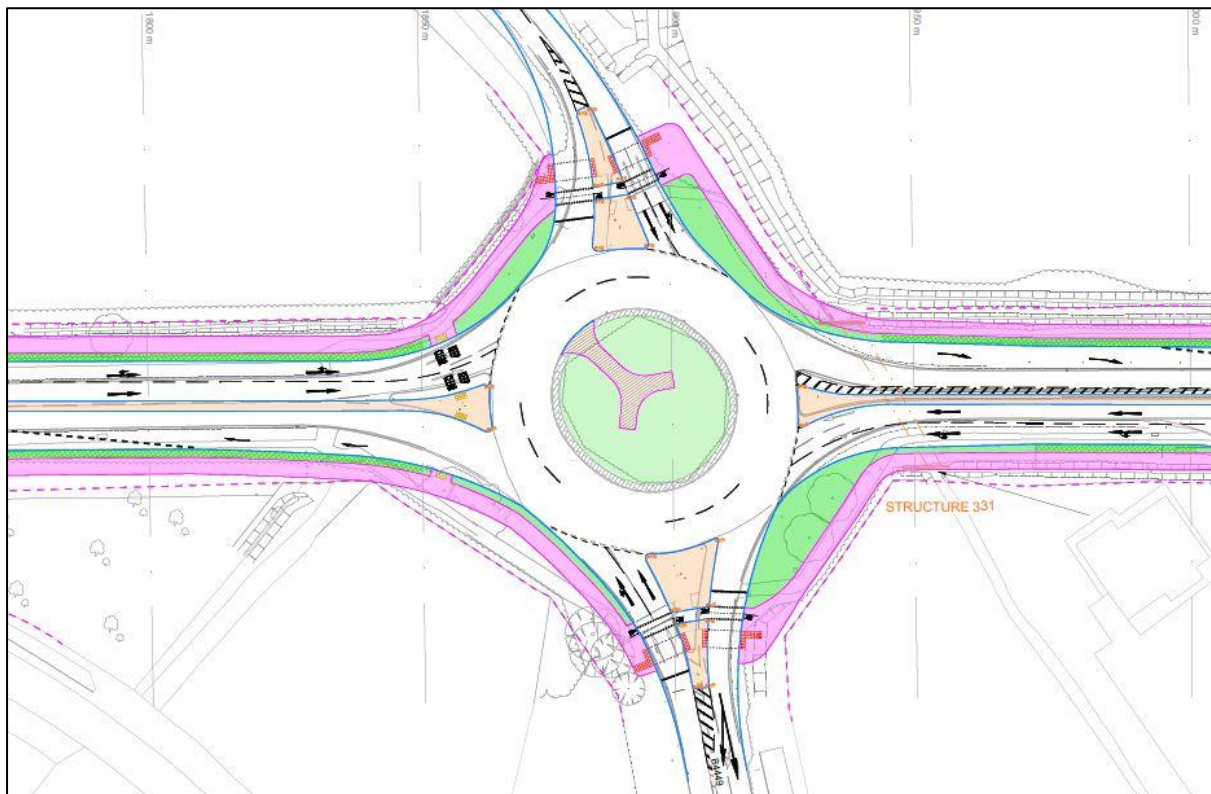


Figure 8-12 Lower Road Roundabout junction preferred option layout

8.12 Element 13: Cassington New Bridge

- 8.12.1 The preferred option for Cassington New Bridge involves widening the bridge on the south side only by 5.9m. This is to be able to accommodate the eastbound and westbound bus lanes, as well as 3m shared use facility along the southern side of the A40 and at least 2m on the northern side. Figure 8-13 shows the layout for this option.

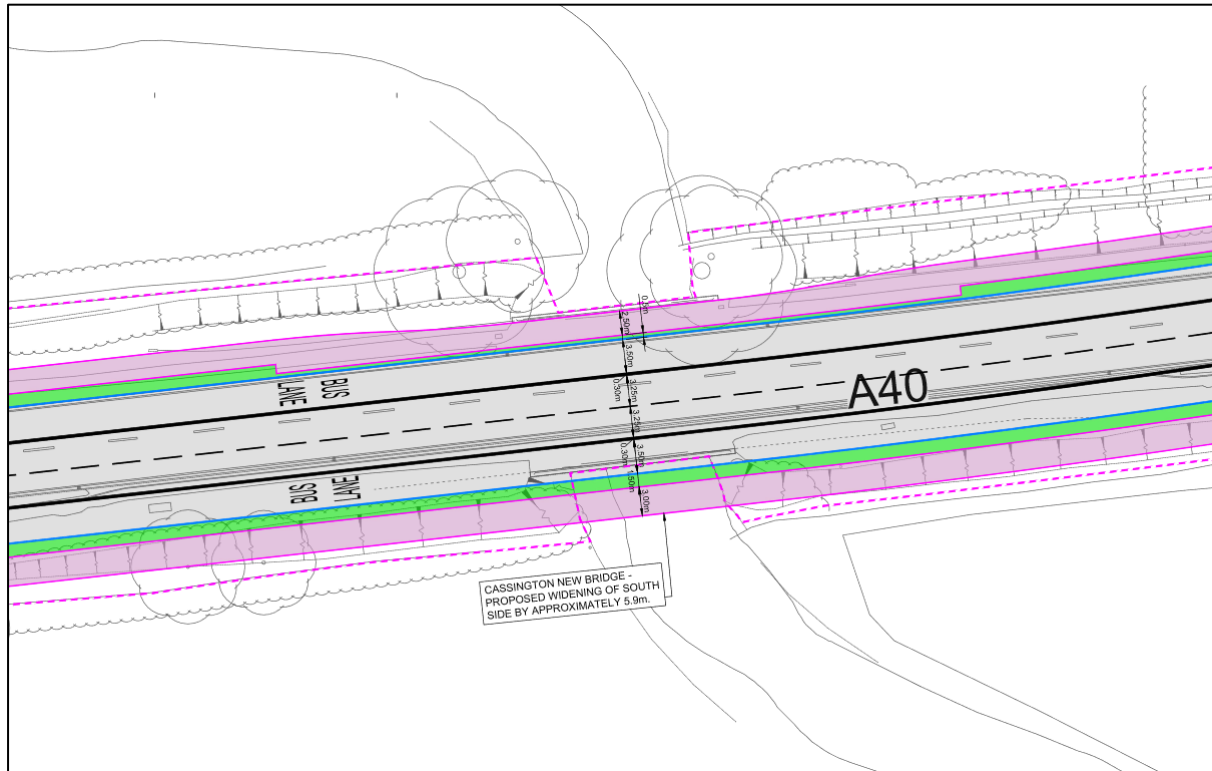


Figure 8-13 Cassington New Bridge preferred option layout

8.13 Element 14: Cassington Road / Eynsham Road junction – Cassington Road junction (West)

- 8.13.1.1.1 The preferred option for Cassington Road junction (west) is an allowed right turn onto the A40. There would be no central traffic island to allow vehicles to make the right turn onto the A40 from Cassington Road. Figure 8-14 shows the layout for this option.

8.14 Element 15: Cassington Road / Eynsham Road junction – Durham Road access (South of A40)

- 8.14.1.1.1 The preferred option for Durham Road is to allow for a right-turn pocket for vehicles turning onto Durham Road from the A40. This means that the central traffic island needs to be shortened to allow for this facility. Figure 8-14 shows the layout for this option.

8.15 Element 16: Cassington Road / Eynsham Road junction – Cassington Road junction (East)

- 8.15.1 The preferred option for Cassington Road junction (east) has a general traffic running lane being straight only, a central right-turn pocket and a westbound bus lane on the A40. Figure 8-14 shows the layout for this option.

8.16 Element 17: Cassington Road / Eynsham Road junction – Eynsham Road junction

- 8.16.1 The preferred option for Eynsham Road junction includes a controlled toucan crossing across Eynsham Road on the desire line for NMU's. It includes a central traffic island to provide NMU's with a safe stopping area, as the crossing is long. Figure 8-14 shows the layout for this option.

8.17 Element 21: Cassington Road junction

- 8.17.1 The preferred option for Cassington Road junction (considering all its individual elements) includes two straight ahead traffic lanes for general traffic. Bus lanes cannot be continued through the junction as this would impact the junction's capacity significantly. This means that the bus lanes break before the junction. Shared use facilities for NMU's are provided along the northern and southern sides of the A40, as well as controlled toucan crossings on the desire lines. A staggered toucan crossing is proposed across the A40. Figure 8-14 shows the layout for this option.

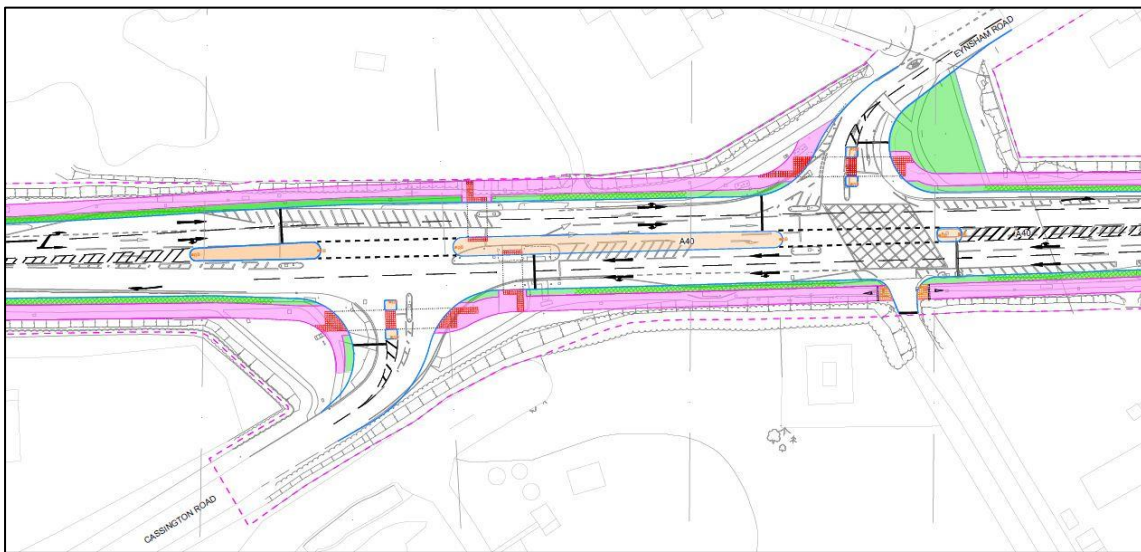


Figure 8-14 Cassington Road Junction preferred option layout

8.18 Element 18: Cassington Halt Bridge

- 8.18.1 The preferred option for Cassington Halt Bridge does not involve bridge widening. Instead, it involves localised narrowing of lanes to be able to accommodate the eastbound and westbound bus lanes through the bridge, as well as a shared use cycle/ pedestrian bridge on the northern and southern side. Figure 8-15 shows the layout for this option.

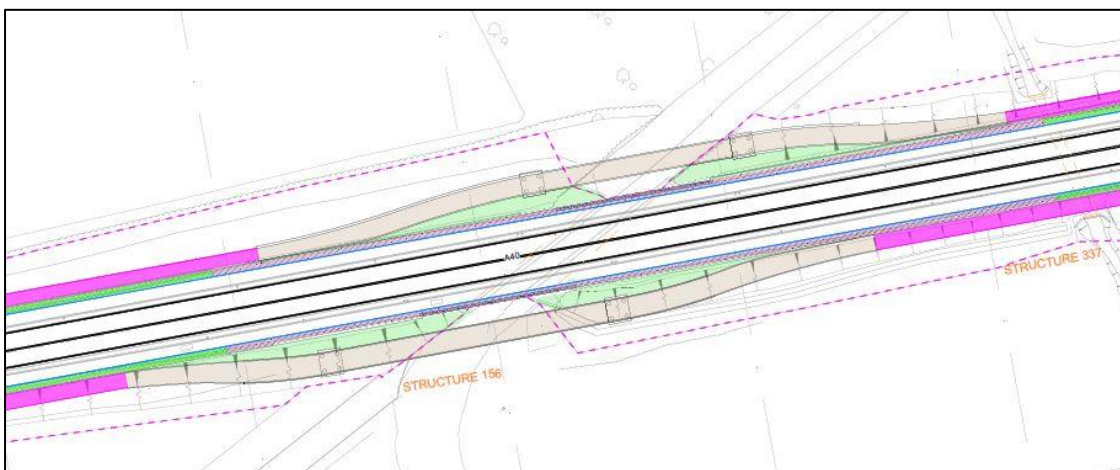


Figure 8-15 Cassington Halt Bridge preferred option layout

8.19 Element 19: Eastern Link section (next to SAC, SSSI)

- 8.19.1 The preferred option for the Eastern Link section is to maintain an eastbound and a westbound bus lane through this section. The design also includes a 3m shared use facility on the southern side and a 1.5m facility on the northern side. Figure 8-16 shows the layout for this option.



Figure 8-16 Eastern link section (next to SAC, SSSI) preferred option layout

8.20 Next Steps

- 8.20.1 The preferred options to deliver the IBL scheme have been selected through the optioneering process discussed in this report. These options will now be taken forward for further assessment and design to understand the feasibility of the schemes in greater detail (Feasibility Design; Preliminary Design including geotechnical ground surveys; Detailed Design).
- 8.20.2 It is to be noted that this is an iterative process. Further corrections to the scoring (Stage 2 and Stage 3) can take place in line with feedback from relevant stakeholders, OCC and new/revised evidence. Some the options might prove beneficial if packaged together. Further baseline surveys (ecological, noise, air quality, traffic, topographical etc.) may need be undertaken to inform further option design work, traffic modelling and impact appraisals that are required to inform the next stage of option assessment.
- 8.20.3 The VISSIM models used in the option assessment are interim models, which are suitable for comparing the relative performance of each option in the absence of an updated model. The performance of the preferred option is intended to be tested in an extended/ updated 2020 VISSIM base model, which is being developed by AECOM in parallel with the option testing.
- 8.20.4 A logic map should be developed for the preferred options to set out the short to medium term outcomes and longer term impacts.
- 8.20.5 A high-level ASR to set out the methodology and how further appraisal will be undertaken including potential scenarios and sensitivity tests. The ASR will detail the proposed approach to modelling and forecasting, the proposed level of design or specification which will inform the cost estimation and other details.
- 8.20.6 The list of risks and mitigation measures will be updated to include risks on modelling, design, land take, cost estimates, COVID-19 on travel patterns/ demand, and other key components.

- 8.20.7 Finally, as the study progresses, design and refinement of the preferred option(s)/ sub-options(s) to be undertaken; but as evidence, for example from updated modelling, becomes available, it may be necessary to revisit the optioneering. Options sifted out at this stage may still have a strong case for more specific needs (e.g. related to particular development sites and / or following delivery of other interventions, as part of an overarching packaged approach, funds permitting).

9 Risks and Assumptions

9.1 Risks

- 9.1.1 Risks will continue to be managed in accordance with recognised guidance from HM Treasury's Green Book on Appraisal and Evaluation in Central Government, the Office of Government Commerce (OGC), and the Department for Transport's Transport Analysis Guidance and Procedures for Dealing with Optimism Bias in Transport Planning.
- 9.1.2 A risk register needs to be produced for the SC scheme, which will remain a live document. There are expected to be risks around scheme delivery and costs, planning and modelling assumptions, limitations, caveats and exclusions at this early stage assessment. Key risks are discussed in Table 9-1.

Table 9-1 Risk Assessment

#	Description of risk and context	Effect	Mitigation
1	Lack of agreement on the scheme objectives, scope and programme.	The study is delayed, there is abortive work or effort is focused in the wrong areas.	We will confirm this with you during various stages of the project and in our regular meetings. This will be part of the OAR/ ASR reports, which we will share with you to review as required.
2	Objectives and sifting criteria not aligned with local and national priorities, guidance, funding/ financing opportunities, uncertainty due to COVID-19 and are based on local pressure, perceptions or desired scheme(s).	Scheme has a non-compliant case, may lack strong political support and rejected for funding/ planning permission.	By following the TAG process, we will address, manage and mitigate this risk. Be-spoke sifting criteria reflecting the scheme and location context will be developed. In the current political and economic climate, it is imperative that we demonstrate how the scheme aligns to and fulfils Government objectives and priorities. We will regularly review the government policies and update our method/approach accordingly, such as including the DfT's Cycling and Walking Plan for England (2020) design recommendations and revised TAG guidance which account the COVID impact.
3	Major gaps in the optioneering work and sifting is inconsistent or poorly documented.	The process appears non-transparent and the study are open to challenge.	AECOM has nominated an experienced team with expertise in delivering or reviewing multi-criteria appraisal and direct experience in recent relevant projects and undertaken critical reviews of major scheme. The TAG process will be followed, and assessment will be well-documented, this will be done in regular consultation with OCC.
4	Insufficient information to populate all aspects of the sifting criteria, review, update and follow the TAG process.	There is potential for subjectivity in assessment.	Early engagement and ongoing workshops will help ensure there is early sight of our approach to sifting. We are also reliant on inputs from others e.g. the design, modelling, environment and others – we will provide support to them if needed or help review to speed things along. OAR/ ASR report will document the adopted method/ approach and available data. Develop scenarios to account for uncertainties, such as scenarios around weighting business case elements scoring.
5	Modelling evidence/ results are inconsistent or stronger for some options than for others, and raises concern among stakeholders e.g. basis of trip patterns underpinning the modelling. Modelling do not include/ address the impact of COVID 19 on future travel pattern.	Acceptability of scheme is questioned.	We will share model results and raise any concerns on the results/ plausibility. This will not in itself address any underlying issues with the model(s), should any stakeholders objection is based on the technical modelling approach against TAG criteria and best practice. We can define sensitivity tests/ stress tests (including recent OBR revision on future growth) that will help build confidence on how the scheme responds and help alleviate concerns on the models or results.
6	Lack of focus on active travel as compared to motorised travel. Increase in active travel trips during the COVID-19 is not considered.	Relevance and acceptability of scheme is questioned.	We will document the active travel pattern in the study area by using Census data, local policies and also include propensity to cycle tool to show high cycling use scenarios. Optioneering work will include criteria on active travel and the DfT's Cycling and Walking Plan for England (2020) design recommendations will be used as part of the assessment.
7	Assessment of problems/ challenges and results from the modelling show poor case; or construction impacts are significant in economic terms or stakeholder acceptance terms.	Relevance and acceptability of scheme is questioned.	Keep up to date of early indications. Use workshop to go through likely outputs and identify where to expect potential challenges in explanation / difficult outputs to explain. Develop thorough but accessible evidence base. We can map the modelling outputs against relevant key performance indicators, local priorities and challenges.
8	Lack of engagement with key people in OCC, consultants, local	Relevant people are not engaged early	Continuously review programme and assess engagement requirements. Review the work in line with

#	Description of risk and context	Effect	Mitigation
	councils, stakeholders and public/ local resident groups.	enough to contribute relevant and valuable inputs and insights, lessons learned etc.	key stakeholder concerns such as land take, active travel infrastructure, safety, environment and others.
9	There are too many options/ sub-options being modelled and assessed in the timescales.	Timescales are impacted, it is difficult to review and understand the differences between options, and the scheme becomes disjointed and lacks focus.	Discuss with you, reviewing the results and the best ways of categorising the options / sub-options. Consider use of annexes to contain more detailed information. Adopt a robust approach that will be clearly defined in ASR/OAR.
10	Modelling approach and area covered by model challenged by stakeholders or in scrutiny; change of scope and approach will impact the timescale and cost of the study.	Relevance and acceptability of scheme is questioned.	Review existing information and model results if available on travel patterns; seek early view from OCC and if possible key stakeholders.
11	Existing models found to be of poor quality and not suitable for use - potential issues with consistency with other OCC work using these models. Impact on programme if significant work required to update.	Relevance and acceptability of scheme is questioned.	Models reviewed and found to be of reasonable quality and issues are being monitored so risk of inconsistency is lower. Adopt a robust approach (and follow the TAG guidance) that will be clearly defined in ASR/OAR.
12	Latest OSM model runs agreed to use for demand forecasts may not be based on latest design, so mismatch between capacity in OSM and microsimulation.	The study is delayed, there is abortive work or effort is focused in the wrong areas	Assess difference between design used in OSM runs and the latest designs after optioneering process. Consider rerunning OSM and extracting updated demand forecasts, if differences are considered to be significant enough.
13	There are issues with collected survey data which result in microsimulation calibration/ validation issues, delaying programme.	Relevance and acceptability of scheme is questioned.	Review and checking of data as early as possible to identify any issues in a timely manner. Regular updates between AECOM/ OCC to highlight any issues with calibration/ validation as soon as possible.
14	Local Modelling or Microsimulation Modelling identifies design requirements that cannot be achieved within budget/ programme of project such as due to land take.	Relevance and acceptability of scheme is questioned.	Regular communication with OCC and designers to ensure a deliverable solution is achieved. Early testing of options in microsimulation to enable a solution to be found.
15	Demand predicted by OSM model for microsimulation, results in over saturation of microsimulation network, due to inconsistencies or differences between tools.	Relevance and acceptability of scheme is questioned.	Early investigation of OSM models and likely demand predictions - to identify if some iteration required between VISSIM/ OSM and define sensitivity tests/ stress tests (including recent OBR revision on future growth) that will help build confidence on how the scheme responds and help alleviate concerns on the models or results
16	Over focus/estimation of public transport usage as compared to the recent/future change in public transport usage pattern due to the COVID-19 is not considered.	Study results are questioned. Relevance and acceptability of scheme is questioned.	We will document the public transport pattern in the study area by using Census data, local policies, recent trends and proposed public transport improvements. We can define sensitivity tests to account for uncertainty in public transport usage and comment on the impact of COVID-19 on public transport usage (such as in terms of timescale).
17	Lack of detail on proposed developments. Uncertainty on proposed development – delivery year/ location/ details.	Unable to model accurately, model outputs are unreliable, there is abortive work and relevance of the scheme is questioned.	Regular updates between AECOM/ OCC to highlight any issues with calibration/ validation as soon as possible.
18	Land acquisition required where initially not envisaged	This could have a negative effect on the CPO process, causing issues or delays in the programme.	ECI input on constructability required to make sure enough land is covered within the RLB
19	Diversion of utilities due to proposed design	Increase in total cost and programme of the scheme	C2 information has been gathered to obtain an overview of the approximate location of utilities. C3 information will be requested during the next design stage

#	Description of risk and context	Effect	Mitigation
20	Objection on the scheme from Natural England if there are negative impacts to the SSSI/SAC	Acceptability of scheme is questioned.	Engage Natural England by having early discussions of the proposals and any mitigation measures that would be required.
21	Objections from other important stakeholder (e.g. Environment Agency etc)	Acceptability of scheme is questioned.	Engage with stakeholders by having early discussions of the proposals and any mitigation measures that would be required.

9.2 Assumptions

9.2.1 This section provides an overview of the key assumptions made whilst undertaking this OAR. This includes modelling, design and highways assumptions.

Modelling Assumptions

9.2.2 The modelling assumptions and limitations for the operational assessment undertaken in LinSig are as follows:

- Due to the proposed nature of the junctions, the saturation flow has been calculated using RR67 from the latest design available as per the time of the traffic modelling.
- Cruise speeds in the model have been defined in line with the proposed speed limits on each arm
- Modelling traffic merges highlights one of LinSig's key limitation. The mode of operation of the merge i.e. merging in turns cannot be modelled accurately in the software. Therefore, in order to replicate that traffic behaviour, a lower saturation flow (1600PCU/Hr) is used on the merging arms as compared to the upstream arms. This, however, is merely an assumption and true traffic behaviour at the junction cannot be replicated entirely in LinSig at merging sections.
- Bonus green time has been added on to the relevant lanes where extremely low flow was observed. It was assumed that the lack of demand for the stage will provide benefits elsewhere in the junction
- No U-turning traffic has been added into the LinSig model. The U-turning traffic flow has been omitted from the model due to low amount of traffic making that manoeuvre. It is not expected to significantly impact the results.
- Specifically for the Cassington Junction, Cassington Road is 7.5m wide whereas Eynsham Road is 6.5m wide. The maximum permitted width of the lane is 5m for RR67 calculations. The lane widths have been assumed to be 5m wide.

9.2.3 The modelling assumptions and limitations for the operational assessment undertaken in Junctions 9 software are as follows:

- Due to the classification of traffic data in 15mins time intervals, a "Direct" flow profile has been used for the modelling.
- "Lane Simulation" mode has been used in the software to prevent overestimation of entry capacities due to multi-lane entries.
- The geometric parameters have been measured against the available topographical information. This might cause some inconsistencies in the measurements of the geometric parameters, but it is not expected to significantly impact the results.

9.2.4 The modelling assumptions and limitations for the operational assessment undertaken in VISSIM have been summarised below:

- The demand and routing included in the operational models were kept consistent with the 2031 Models developed by Wood. AECOM has not reviewed the methodology used to develop the 2031 demand and routing included in these models.
- The 2031 models developed by Wood were based on demand forecasts from a previous version of the OSM Strategic model. Pell Frischmann has since developed updated forecast models, which AECOM will use to develop updated 2031 VISSIM forecast models, based on the VISSIM 2020 base model developed by AECOM.

- The signalised junctions were coded as demand dependent, allowing the VISSIM model to optimize the signal operation depending on modelled flows/ arrival patterns.
- The saturation flows for the proposed signalised junction were calibrated to provide an approximate value of 1800 PCUs/hour per lane.
- The pedestrian/ cycle facilities at the signalised junctions have also been coded as demand dependent i.e. the activations are controlled by the number of pedestrians and cyclists crossing at each arm of the junctions.
- The 2031 demand for pedestrian/ cyclists at each junction was provided by OCC.
- No changes have been applied in the bus services coded in the 2031 models developed by Wood.
- The 2031 VISSIM model used in the relative comparison of the design options does not include some key junctions in the wider area, such as Wolvercote roundabout, which may interact with and affect the operation of the scheme.

Design and Highways Assumptions

9.2.5 The design and highways assumptions for the options defined above are as follows:

- It is assumed that General traffic flows are not to be significantly impacted, allowing the corridor to be within capacity as much as possible.
- The proposed width for general traffic lanes varies along the route. It is 3.65m at the P&R junction but it is reduced to 3.4m up to the Apollo Food Van Layby, just east of Cassington Halt Bridge. Beyond this point until the tie-in with Duke's Cut, general traffic lanes are 3.5m wide. Over Cassington Halt Bridge general traffic lanes are reduced to 3.25m. This constitutes a Departure from Standard.
- The proposed width for bus lanes varies along the route. It is 3.65m between the P&R junction and just east of the Apollo Food Van Layby. Beyond this point until the tie-in with Duke's Cut, bus lanes are 3.5m wide. Over Cassington Halt Bridge bus lanes are also reduced to 3.5m.
- Hard strips have not been included within the proposed design due to land availability constraints. This constitutes a Departure from Standard.
- The proposed design provides 1.5m verges on both sides of the carriageway, which will function as a vegetated drainage channel (swale). This constitutes a Departure from Standard.
- A 40mph speed limit is proposed between the P&R site and just east of Lower Rd junction. A 50mph speed limit is proposed between east of Lower Rd junction and the tie-in with Duke's Cut.
- NMU shared use facility widths have been designed as per OCCs "A40 Corridor Witney to Oxford North Future Walking and Cycling Provision" document. The shared use facility running along the southern side of the A40 has been designed to 3.0m, which complies with the minimum width recommended by LTN1/20. However, the width of the shared use facility along the northern side of the A40 varies along the route, with the minimum value being 1.50m. This constitutes a Departure from Standard.
- It is assumed that the Topographical surveys are accurate.
- C2 drawings obtained from the different utility companies have been used to carry out the optioneering/feasibility design. C3's will be requested where necessary for the next stage of design.
- The Design Manual for Roads and Bridges (DMRB) has been used as the main highways standard document.
- The DfT's WebTAG (Transport Appraisal Process) requirements have been followed during the Optioneering/Feasibility stage.
- It is assumed that the P&R site layout will remain as designed in the A40 Science Transit scheme.
- It is assumed that the Bus stop locations from the A40 Science Transit Phase 2 scheme are to be maintained wherever possible for the A40 Smart Corridor Integrated Bus Lanes scheme.
- Pedestrian and cycle flows provided by OCC have been used to carry out traffic modelling in VISSIM.
- It is assumed that there will be a very low traffic flow entering/exiting field accesses during the day.

Appendix A List of Referred Documents

Document name	Last updated	Project	Author
A40 Strategy - Consultation	2019	A40 Strategy	OCC
A40 Option Assessment Report	2017	A40 Smart Corridor	OCC
HIF2 Economic Appraisal Report	2019	A40 Smart Corridor	Steer
HIF2 Business Case Submission	2019	A40 Smart Corridor	OCC
A40 Smart Corridor - Feasibility Design	2019	A40 Smart Corridor	AECOM
Eynsham P&R modelling report	2019	A40 Science Transit 2 – Business Case	OCC
A40 Option Assessment Report	2017	A40 Science Transit 2 – Business Case	OCC
DfT Outline Business Case Submission	2019	A40 Science Transit 2 – Business Case	OCC
VISSIM Base Model Local Validation Report	2019	OCGV Eynsham AAP and West Eynsham SPD – Supporting Transport Study	Wood
VISSIM 2031 Forecast Year Report	Still being finalised	OCGV Eynsham AAP and West Eynsham SPD – Supporting Transport Study	Wood
Cotswolds Garden Village AAP & West Eynsham SPD: Developing the Transport Evidence Base	2019	OCGV Eynsham AAP and West Eynsham SPD – Supporting Transport Study	Wood
Oxfordshire Housing and Growth Deal	2017	Oxfordshire Housing and Growth Deal	Oxfordshire Growth Board
Draft Access to Witney – TAG Report	2020	Access to Witney	OCC
Oxfordshire Infrastructure Strategy (OXIS)	2017	Oxfordshire Infrastructure Strategy (OXIS)	Oxfordshire Growth Board
Connecting Oxfordshire Local Transport Plan 4 (LTP4)	2016	Connecting Oxfordshire Local Transport Plan 4 (LTP4)	OCC
Oxford Transport Strategy	2016	Oxford Transport Strategy	OCC
West Oxfordshire Local Plan 2031	2018	West Oxfordshire Local Plan 2031	West Oxfordshire District Council
Oxford Local Plan 2036	2019	Oxford Local Plan 2036	Oxford City Council
A40 Park and Ride and Bus Lane Scheme – Transport Assessment	2019	A40 Smart Corridor	AECOM
A40 Corridor – Witney to Oxford North Future Walking and Cycling Provision	2020	A40 Corridor	TBC
National Planning Policy Framework	2019	National Planning Policy Framework	Ministry of Housing, Communities and Local Government
Highways England Delivery Plan	2015	Delivery Plan	Highways England
Industrial Strategy White Paper	2017	Building a Britain fit for the future	HM Government
Housing White Paper	2017	Fixing our broken housing market	Ministry of Housing, Communities and Local Government
Transport Investment Strategy	2017	Transport Investment Strategy	Department for Transport
Strategic Economic Plan Oxfordshire	2016	Strategic Economic Plan	OxLEP
Bus and Rapid Transit Strategy	2016	Bus and Rapid Transit Strategy	OCC
Oxfordshire Cotswolds Garden Village AAP, Transport Strategy	2020	OCGV	OCC
Garden Village Oxfordshire, Transport Assessment	2020	OGV	Stantec
West Eynsham, Strategic Development Area	2018	West Eynsham	West Oxfordshire District Council
Salt Cross Garden Village AAP	2020	Salt Cross Garden Village	West Oxfordshire District Council

Appendix B Alignment of Policy Documents and the Scheme

Policy Document	Alignment
National Policy Planning Framework	Moderate
Major Road Network	Strong
Industrial Strategy White Paper	Strong
Transport Investment Strategy	Strong
Gear Change: A bold vision for cycling and walking report	Moderate
A Better Deal for Bus Users	Strong
Housing White Paper – Fixing Our Broken Housing Market	Moderate
Strategic Economic Plan for Oxfordshire 2016	Moderate
Oxfordshire Local Industrial Strategy	Moderate
Oxfordshire Investment Plan	Strong
Oxfordshire's Housing and Growth Deal	Moderate
Connecting Oxfordshire: Local Transport Plan 2015-2031	Strong
Oxfordshire Infrastructure Strategy	Strong
West Oxfordshire Adopted Local Plan (2011-2031)	Strong
Oxford Transport Strategy	Moderate
Bus and Rapid Transit Strategy	Strong
Active and Healthy Travel Strategy	Moderate
A40 Corridor Strategy	Strong
Oxford Park and Ride Strategy	Strong
Oxfordshire Cotswolds (Salt Cross) Garden Village Area Action Plan	Strong
Salt Cross Garden Village Transport Strategy	Strong
Eynsham Neighbourhood Plan	Strong

Appendix C Eynsham Park and Ride

As part of the A40 Strategy, the need for a new Park and Ride scheme along the A40 was highlighted. This led to a site in Eynsham being identified as a future Park and Ride site, as part of Phase 1 of the A40 Corridor Strategy.

The Eynsham Park and Ride site was included as part of the A40 Science Transit 2 scheme. The scheme includes:

- An 850 car parking space Park & Ride, with additional cycle parking and motorcycle parking;
- A segregated eastbound bus lane between the proposed Park & Ride and Duke's Cut, with intermittent gaps on junction approaches;
- A westbound bus lane starting a short distance west of the A40/Horsemere Lane junction and ending approximately 150m before the A40/Eynsham Road signalised junction;
- A westbound bus lane starting approximately 300m west of the A40/Cassington Road signalised junction continuing for approximately 550m;
- Shared footway/cycleway on the northern side of the A40 with links into the Park & Ride site;
- A new roundabout on the A40 to provide access to the Park & Ride; and
- A new entry only access to the Park & Ride from Cuckoo Lane.

Two access junctions are provided for the Park and Ride: the primary access junction is a roundabout with the A40, west of Cuckoo Lane, the secondary access is from Cuckoo Lane and is a priority T-junction. As part of the scheme the existing bus stops along the bus lane route will be improved and re-located and a new pair of bus stops will be provided.

The proposed Park and Ride will be located to the north of the A40 west of Cuckoo Lane, to the north-west of Eynsham. Figure 9-1 shows the location of the scheme.

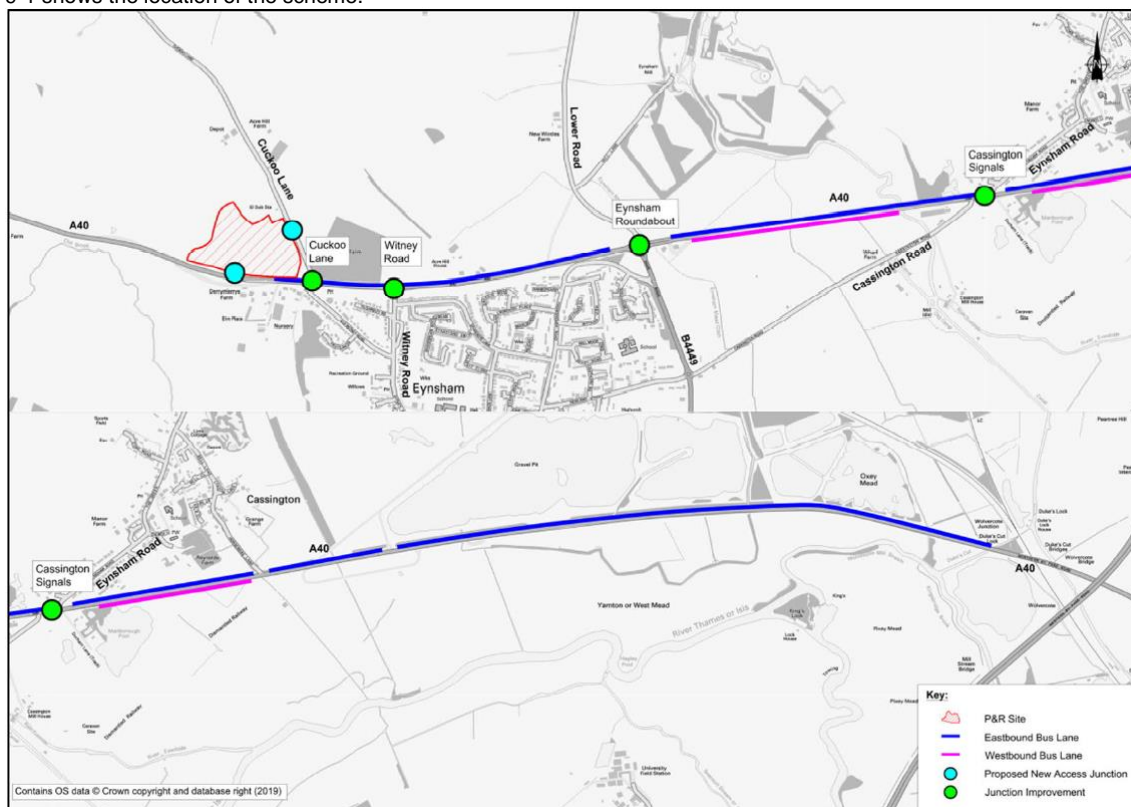


Figure 9-1 Park and Ride Site Boundary and Associated Schemes

Source: A40 Park & Ride and Bus Lane Scheme Transport Assessment, AECOM (May 2019)

The aim of the scheme is to improve the reliability, frequency and variety of destination in Oxford served by public transport, thereby encouraging a reduction in car travel into Oxford and to do so while avoiding significant adverse impacts on general traffic along the A40 corridor. The scheme also delivers improvements for people using non-motorised transport along and across the A40.

Further information on the Eynsham Park and Ride can be found in the A40 Park & Ride and Bus Lane Scheme Transport Assessment (AECOM, 2019).

Appendix D Initial Long List of Options

Item No.	Options	
1	P&R Junction	
1.1	P&R Junction	Signalised Junction
1.2	P&R Junction	Hamburger Roundabout
1.3	P&R Junction	Roundabout
1.4	P&R Junction	Signalised Roundabout
1.5	P&R Junction	Major-minor Junction
1.6	P&R Junction	Mini Roundabout
1.7	P&R Junction	Turbo Roundabout
1.8	P&R Junction	Compact Roundabout
1.9	P&R Junction	Grade-Separated
1.10	P&R Junction	Bus gate east of proposed junction for WB buses
2	Cuckoo Lane - Vehicle Access to P&R	
2.1	Cuckoo Lane - Vehicle Access to P&R	Signalised Junction
2.2	Cuckoo Lane - Vehicle Access to P&R	Hamburger Roundabout
2.3	Cuckoo Lane - Vehicle Access to P&R	Roundabout
2.4	Cuckoo Lane - Vehicle Access to P&R	Signalised Roundabout
2.5	Cuckoo Lane - Vehicle Access to P&R	Major-minor Junction
2.6	Cuckoo Lane - Vehicle Access to P&R	Mini Roundabout
2.7	Cuckoo Lane - Vehicle Access to P&R	Turbo Roundabout
2.8	Cuckoo Lane - Vehicle Access to P&R	Compact Roundabout
2.9	Cuckoo Lane - Vehicle Access to P&R	Grade-Separated
2.10	Cuckoo Lane - Vehicle Access to P&R	Do Minimum (A40 STP2 Design)
3	Cuckoo Lane - Bus Access to P&R	
3.1	Cuckoo Lane - Bus Access to P&R	Do Minimum (A40 STP2 Design)
3.2	Cuckoo Lane - Bus Access to P&R	Signalised Junction
3.3	Cuckoo Lane - Bus Access to P&R	Hamburger Roundabout
3.4	Cuckoo Lane - Bus Access to P&R	Roundabout
3.5	Cuckoo Lane - Bus Access to P&R	Signalised Roundabout
3.6	Cuckoo Lane - Bus Access to P&R	Major-minor Junction
3.7	Cuckoo Lane - Bus Access to P&R	Mini Roundabout
3.8	Cuckoo Lane - Bus Access to P&R	Turbo Roundabout
3.9	Cuckoo Lane - Bus Access to P&R	Compact Roundabout
3.10	Cuckoo Lane - Bus Access to P&R	Grade-Separated
3.11	Cuckoo Lane - Bus Access to P&R	Bus gate east of Cuckoo Lane junction
4	Cuckoo Lane - Close Access to P&R	
4.1	Cuckoo Lane - Close Access to P&R	Close Access to P&R
4.	Cuckoo Lane - Close Access to P&R	Do Minimum (A40 STP2 Design)
5	Cuckoo Lane - Right Turn Banned (In & Out)	
5.1	Cuckoo Lane - Right Turn Banned (In & Out)	Major / Minor Junction - No restriction on turning movements (Do Minimum (A40 STP2 Design))
5.2	Cuckoo Lane - Right Turn Banned (In & Out)	Right Turn Banned (In & Out)
5.3	Cuckoo Lane - Right Turn Banned (In & Out)	Signalised junction
6	Cuckoo Lane branched off to join P&R Junction	
6.1	Cuckoo Lane branched off to join P&R Junction	For Signalised Junction at P&R
6.2	Cuckoo Lane branched off to join P&R Junction	For Hamburger Roundabout at P&R

Item No.	Options	
6.3	Cuckoo Lane branched off to join P&R Junction	For Roundabout at P&R
6.4	Cuckoo Lane branched off to join P&R Junction	For Signalised Roundabout at P&R
6.5	Cuckoo Lane branched off to join P&R Junction	For Major-minor Junction at P&R
6.6	Cuckoo Lane branched off to join P&R Junction	For Mini Roundabout at P&R
6.7	Cuckoo Lane branched off to join P&R Junction	For Turbo Roundabout at P&R
6.8	Cuckoo Lane branched off to join P&R Junction	For Compact Roundabout at P&R
6.9	Cuckoo Lane branched off to join P&R Junction	For Grade-Separated at P&R
7	Old Witney Road	
7.1	Old Witney Road	Opening of Old Witney Road
8	Elm Place Access & Layby	
8.1	Elm Place Access & Layby	Alteration to Access
8.2	Elm Place Access & Layby	Removal of Layby
9	Evenlode Public House Access	
9.1	Evenlode Public House Access	Without westbound bus lane and banning of right-out movement
9.2	Evenlode Public House Access	Without westbound bus lane and banning of right-in and right-out movements
9.3	Evenlode Public House Access	With westbound bus lane and banning of right-out movement
9.4	Evenlode Public House Access	With westbound bus lane and banning of right-in and right-out movements
9.5	Evenlode Public House Access	With westbound bus lane - All movements allowed
9.6	Evenlode Public House Access	Without Westbound bus lane with right turning movements not banned
10	Witney Road Junction	
10.1	Witney Road Junction	Signalised Junction with Physical Separation
10.2	Witney Road Junction	Signalised Junction No Physical Separation
10.3	Witney Road Junction	Signalised Junction (Ban of right turn into Witney Rd for general traffic, however not buses)
11	Esso Petrol Station and Spareacre Lane	
11.1	Esso Petrol Station and Spareacre Lane	No Crossing
11.2	Esso Petrol Station and Spareacre Lane	Uncontrolled Crossing
11.3	Esso Petrol Station and Spareacre Lane	Controlled Crossing
12	Lower Road Roundabout	
12.1	Lower Road Roundabout	Signalised Junction (40mph)
12.2	Lower Road Roundabout	Hamburger Roundabout (40mph)
12.3	Lower Road Roundabout	Leave Existing Roundabout as is (50mph)
12.4	Lower Road Roundabout	Signalised Roundabout (40mph)
12.5	Lower Road Roundabout	Turbo Roundabout (40mph)
13	Cassington New Bridge	
13.1	Cassington New Bridge	Extend Bridge on South Side Opt. 1
13.2	Cassington New Bridge	Extend Bridge on South Side Opt. 2
13.3	Cassington New Bridge	Extend Bridge on South Side Opt. 3
13.4	Cassington New Bridge	Extend Bridge on North and South Side
14	Cassington Road Junction (West)	
14.1	Cassington Road Junction (West)	Right Turn Banned onto A40
14.2	Cassington Road Junction (West)	Right Turn Allowed onto A40
14.3	Cassington Road Junction (West)	Entry only into Cassington Road from the A40
14.4	Cassington Road Junction (West)	Blocking of Cassington Road (No entry or exit)
15	Durham Road Access (South of A40)	
15.1	Durham Road Access (South of A40)	Dedicated Right Turn Lane
15.2	Durham Road Access (South of A40)	Right Turn Pocket
15.3	Durham Road Access (South of A40)	Potential interface with junction (closing existing access onto A40)
16	Cassington Road Junction (East)	
16.1	Cassington Road Junction (East)	Dedicated Right Turn Lane into Eynsham Road

Item No.	Options	
16.2	Cassington Road Junction (East)	Right Turn Pocket into Eynsham Road
17	Eynsham Road Junction	
17.1	Eynsham Road Junction	Left Turn Slip Road into Eynsham Road
17.2	Eynsham Road Junction	Dedicated Left Turn Lane into Eynsham Road
17.3	Eynsham Road Junction	Eastbound Bus Lane and General Traffic Lane Through Junction
17.4	Eynsham Road Junction	Uncontrolled Crossing North Across Eynsham Road (No Central Island)
17.5	Eynsham Road Junction	Controlled Crossing South Across Eynsham Road (Central Island)
17.6	Eynsham Road Junction	Controlled Crossing South Across Eynsham Road (No Central Island)
18	Cassington Halt Bridge	
18.1	Cassington Halt Bridge	No Bridge Extension with Bus Lanes
18.2	Cassington Halt Bridge	No Bridge Extension without Bus Lanes
18.3	Cassington Halt Bridge	Extend Bridge on South Side Opt. 1
18.4	Cassington Halt Bridge	Extend Bridge on South Side Opt. 2
18.5	Cassington Halt Bridge	Extend Bridge on North & South Side
18.6	Cassington Halt Bridge	Structure Infilling & Signalised Junction
18.7	Cassington Halt Bridge	Demolition of Structure
18.8	Cassington Halt Bridge	Widening of carriageway lanes with no widening of the structure - Using alternative route for peds and cyclists.

Appendix E Initial sift

Item No.	Junction	Options	Description	Comments	Assessment Comments
1.1.	P&R Junction	Signalised Junction	Signalised junction to access the Park and Ride Site from the A40 with dedicated signals for buses and general traffic. Possibly incorporate controlled crossing in the signalised junction. Alternative would be to retain the toucan crossing nearer to Cuckoo Lane	Would not impact on gas main as current proposal. Less earthworks required compared to roundabout. Buses would be able to get priority at the junction. Work has been undertaken on designing this layout - so less impact on the delivery than other options	Recommended for further assessment
1.2.	P&R Junction	Hamburger Roundabout	Signalized hamburger roundabout with central lanes for through traffic and dedicated signals for buses and general traffic entering and exiting the Park and Ride site from the A40. Possibly incorporate controlled crossing in the signalised hamburger. Alternative would be to retain the toucan crossing nearer to Cuckoo Lane	Could be an alternative to normal roundabouts if traffic modelling indicates a benefit. Would probably impact Gas Main as a similar sized roundabout profile would be needed to 1.3. Buses may be able to get priority, but space may be limited for dedicated bus lane. Use in conjunction with 1.10?	Recommended for further assessment
1.3.	P&R Junction	Roundabout	Roundabout for traffic accessing the Park and Ride site from the A40. Bus gate east of the roundabout will allow entry of buses into the general traffic lanes. Would retain proposed toucan crossing nearer to Cuckoo Lane	Current proposal in A40 STP2. Impact on gas main on the southern side of the existing road. Unable to provide any priority for buses to access park and ride unless used in conjunction with 1.10.	Recommended for further assessment
1.4.	P&R Junction	Signalised Roundabout	Signalised roundabout with dedicated signals for buses and general traffic entering and exiting the Park and Ride site from the A40. Possibly incorporate controlled crossing in the signalised roundabout. Alternative would be to retain the toucan crossing nearer to Cuckoo Lane	Impact on gas main on the southern side of the existing road. Higher construction and maintenance costs than proposed roundabout. Buses may be able to gain priority due to signals. Roundabout would probably be unchanged compared to A40 STP2 roundabout design, it may need some minor changes, Signals would need to be designed, so less impact on the delivery of the design than other options	Recommended for further assessment
1.5.	P&R Junction	Major-minor Junction	Major-minor junction for entry and exit into and out of the Park and Ride for buses and general traffic from the A40. Would retain proposed toucan crossing nearer to Cuckoo Lane	This option would be dependent on P&R flows. May not be the most suitable based on current flows in A40 main carriageway. Unable to provide any priority to buses. Likely to cause delays to traffic entering and exiting the P&R (turning right). May introduce accidents. Not considered a viable option. Changing P&R access would require re-designing the proposed P&R layout which would jeopardize delivery timescales.	Not supported. Not supported as the junction requires some form of control measure to regulate the flow of traffic.
1.6.	P&R Junction	Mini Roundabout	Mini roundabout on Cuckoo Lane for traffic accessing the Park and Ride site. Needs central right turn lane for accessing Cuckoo Lane. Would retain proposed toucan crossing nearer to Cuckoo Lane	This option is discounted following DMRB CD 116 guidance: Mini roundabouts shall only be used on roads with 30 mph speed limit or less. Mini-roundabouts are not suitable for roads that are frequently used by buses due to the difficulties in completing turning manoeuvres. CD 116 Section 2.9 states that they must not be used at new junctions or accesses serving or intended to serve, one or more properties, and linking directly to the site.	Not supported. Not suitable for this type of road with high levels of traffic flow.
1.7.	P&R Junction	Turbo Roundabout	Turbo roundabouts provides a spiralling flow of traffic, requiring drivers to choose their direction before entering the roundabout. Bus gate east of the roundabout will allow entry of buses into the general traffic lanes. Would retain proposed toucan crossing nearer to Cuckoo Lane	No design guidance found in the UK. Not tested and tried much in UK. May not work properly with a predominantly ahead movement on a 3 arm roundabout - it needs the other movements to slow it down. This solution potentially reduces traffic speeds which makes it safer for pedestrians and cyclists crossing the road. Conflict with gas main located in the southern side of the existing road which will require a diversion and increased costs. Would need careful consideration on signage. No bus priority could be included - unless used in conjunction with 1.10 Changing P&R access would require re-designing the proposed P&R layout which would jeopardize delivery timescales. No evidence found regarding benefits this would have in rural areas.	Not supported. Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project. Not widely accepted for use in the UK (only one recorded location). There is currently no evidence of this option being successful in a rural environment such as the A40 corridor.
1.8.	P&R Junction	Compact Roundabout	Roundabout with a central island of at least 4m in diameter and an ICD of between 28m and 36m with single lane entries and exits on each approach. The circulatory carriageway has a width such that it is not possible for two cars to pass one another. Bus gate east of the roundabout will allow entry of buses into the general traffic lane. Would retain proposed toucan crossing nearer to Cuckoo Lane	This option is discounted following DMRB CD 116 guidance (Section 2.3) as it is not appropriate for existing traffic levels in the A40 corridor (with AADT of circa 25000). "For roads with a speed limit of 50mph or greater and traffic levels of greater than 8,000 two-way AADT on any approach, a normal roundabout shall be used". "Where the posted speed limit is 40mph or less, compact roundabouts are recommended for traffic levels of less than 8,000 two-way AADT on all approaches."	Not supported. Not suitable for this type of road with high levels of traffic flow.
1.9.	P&R Junction	Grade-Separated	Grade separated junction providing dedicated access to P&R. Likelihood that bridge or other crossing facility would be incorporated into the design	Full grade separation would work and provide access into and out of park and ride Land would be required Structures would be substantial Would likely impact on utilities in addition to the IP gas main Changing P&R access would require re-designing the proposed P&R layout which would jeopardize delivery timescales. Discounted due to cost implications.	Not supported. Not supported at this location due to cost implications.
1.10.	P&R Junction	Bus gate east of proposed junction for WB buses	Priority to WB buses to allow the bus to merge into the general traffic in order to be in the offside lane of the road. Would retain proposed toucan crossing nearer to Cuckoo Lane	This option could be considered in conjunction with other schemes. It would enable buses to be at the front of the queue at the next junction. Use in conjunction with non-signalised options. Disadvantages - Would introduce another set of signals before the main junction, is there enough room to do this with Cuckoo Lane and the possible toucan crossing so close?	Recommended for further assessment
2.1	Cuckoo Lane - Vehicle Access to P&R	Signalised Junction	Signalised junction to access the Park and Ride Site from Cuckoo Lane with dedicated signals for buses and general traffic.	Allows free flow of traffic on the A40. Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardize delivery timescales. Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.	Recommended for further assessment
2.2	Cuckoo Lane - Vehicle Access to P&R	Hamburger Roundabout	Signalised hamburger roundabout with central lanes for through traffic and dedicated signals for buses and general traffic entering and exiting the Park and Ride site from Cuckoo Lane.	Allows free flow of traffic on the A40. Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardize delivery timescales. Higher maintenance costs than normal roundabout proposal. Possible conflict with gas main in southern side of existing carriageway. This option would potentially require land take. Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.	Recommended for further assessment

Item No.	Junction	Options	Description	Comments	Assessment Comments
2.3	Cuckoo Lane - Vehicle Access to P&R	Roundabout	Roundabout for traffic accessing the Park and Ride site from Cuckoo Lane. Bus gate east of Cuckoo Lane will allow entry of buses into a general traffic right turn lane to turn onto Cuckoo Lane prior to entering the roundabout.	<p>Allows free flow of traffic on the A40.</p> <p>Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>This option would potentially require land take</p> <p>Possible conflict with gas main in southern side of existing carriageway.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	Recommended for further assessment
2.4	Cuckoo Lane - Vehicle Access to P&R	Signalised Roundabout	Signalised roundabout with dedicated signals for buses and general traffic entering and exiting the Park and Ride site from Cuckoo Lane.	<p>Allows free flow of traffic on the A40.</p> <p>Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>Higher maintenance costs than normal roundabout proposal.</p> <p>Possible conflict with gas main in southern side of existing carriageway.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	Recommended for further assessment
2.5	Cuckoo Lane - Vehicle Access to P&R	Major-minor Junction	Major-minor junction for entry and exit into and out of the Park and Ride for buses and general traffic from Cuckoo Lane.	<p>Allows free flow of traffic on the A40.</p> <p>Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	<p>Not supported.</p> <p>Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project.</p>
2.6	Cuckoo Lane - Vehicle Access to P&R	Mini Roundabout	Mini roundabout on Cuckoo Lane for traffic accessing the Park and Ride site. Needs central right turn lane for accessing Cuckoo Lane.	<p>This option is discounted following DMRB CD 116 guidance: Mini roundabouts shall only be used on roads with 30 mph speed limit or less. Mini-roundabouts are not suitable for roads that are frequently used by buses due to the difficulties in completing turning manoeuvres.</p> <p>Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	<p>Not supported.</p> <p>Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project.</p>
2.7	Cuckoo Lane - Vehicle Access to P&R	Turbo Roundabout	Turbo roundabouts provides a spiralling flow of traffic, requiring drivers to choose their direction before entering the roundabout. Bus gate east of the roundabout will allow entry of buses into the general traffic lanes.	<p>Allows free flow of traffic on the A40.</p> <p>Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>No design guidance found in the UK. Not tested and tried much in UK. May not work properly with a predominately ahead movement on a 3 arm roundabout - it needs the other movements to slow it down. This solution potentially reduces traffic speeds which makes it safer for pedestrians and cyclists crossing the road.</p> <p>Possible conflict with gas main in southern side of existing carriageway.</p> <p>This option would potentially require land take.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	<p>Not supported.</p> <p>Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project. Not widely accepted for use in the UK (only one recorded location). There is currently no evidence of this option being successful in a rural environment such as the A40 corridor.</p>
2.8	Cuckoo Lane - Vehicle Access to P&R	Compact Roundabout	Roundabout with a central island of at least 4m in diameter and an ICD of between 28m and 36m with single lane entries and exits on each approach. The circulatory carriageway has a width such that it is not possible for two cars to pass one another. Bus gate east of the roundabout will allow entry of buses into the general traffic lane.	<p>This option is discounted following DMRB CD 116 guidance as it is not appropriate for existing traffic levels in the A40 corridor (with AADT of circa 25000).</p> <p>"For roads with a speed limit of 50mph or greater and traffic levels of greater than 8,000 two-way AADT on any approach, a normal roundabout shall be used".</p> <p>"Where the posted speed limit is 40mph or less, compact roundabouts are recommended for traffic levels of less than 8,000 two-way AADT on all approaches."</p> <p>Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	<p>Not supported.</p> <p>Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project.</p>
2.9	Cuckoo Lane - Vehicle Access to P&R	Grade-Separated	Grade separated junction providing dedicated access to P&R	<p>Full grade separation could work and this would need to be produced in conjunction with the main access to park and ride due to the proximity.</p> <p>Land would be required</p> <p>Structures would be substantial</p> <p>Changing P&R access would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>Would likely impact on utilities in addition to the IP gas main.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	<p>Not supported.</p> <p>Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project.</p>
2.10	Cuckoo Lane - Vehicle Access to P&R	Do Minimum (A40 STP2 Design)	All vehicles will use the currently proposed junction from the A40 as shown in the STP2 design - refer to Item 1 for options	<p>Would not impact on existing A40 STP2 design.</p>	Recommended for further assessment
3.1	Cuckoo Lane - Bus Access to P&R	Do Minimum (A40 STP2 Design)	As currently proposed, buses access P&R by the main access, and exit eastbound by dedicated lane and westbound by proposed junction.	<p>Would not impact on existing A40 STP2 design.</p>	Recommended for further assessment
3.2	Cuckoo Lane - Bus Access to P&R	Signalised Junction	Signalised junction providing bus access to the Park and Ride Site from Cuckoo Lane with dedicated signals for buses and general traffic.	<p>Option would introduce additional traffic signalised junction close to other junctions (Witney Road, Toucan Crossing, Park and Ride main access).</p> <p>Changing P&R access would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	Recommended for further assessment
3.3	Cuckoo Lane - Bus Access to P&R	Hamburger Roundabout	Signalised hamburger roundabout with central lanes for through traffic and dedicated signals for buses entering and exiting the Park and Ride site from Cuckoo Lane.	<p>Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>Conflict with gas main located in the southern side of the existing road which would potentially require a diversion and lead to increased costs.</p> <p>This option would potentially require land take.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	Recommended for further assessment

Item No.	Junction	Options	Description	Comments	Assessment Comments
3.4	Cuckoo Lane - Bus Access to P&R	Roundabout	Roundabout for buses accessing the Park and Ride site from Cuckoo Lane. Bus gate east of Cuckoo Lane will allow entry of buses into a general traffic right turn lane to turn onto Cuckoo Lane prior to entering the roundabout.	<p>Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>Conflict with gas main located in the southern side of the existing road which would potentially require a diversion and lead to increased costs.</p> <p>Not best design solution from a flow perspective if it is only provides access to P&R for buses.</p> <p>This option would potentially require land take.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	Recommended for further assessment
3.5	Cuckoo Lane - Bus Access to P&R	Signalised Roundabout	Signalised roundabout with dedicated signals for buses and general traffic.	<p>Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>Not best design solution from a flow perspective if it is only provides access to buses.</p> <p>This option would potentially require land take.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	Recommended for further assessment
3.6	Cuckoo Lane - Bus Access to P&R	Major-minor Junction	Major-minor junction for entry and exit into and out of the Park and Ride for buses and general traffic from Cuckoo Lane.	<p>Allows free flow of traffic on the A40.</p> <p>Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	Recommended for further assessment
3.7	Cuckoo Lane - Bus Access to P&R	Mini Roundabout	Mini roundabout on Cuckoo Lane for traffic accessing the Park and Ride site. Needs central right turn lane for accessing Cuckoo Lane.	<p>According to DMRB CD 116 guidance: Mini roundabouts shall only be used on roads with 30 mph speed limit or less. Mini-roundabouts are not suitable for roads that are frequently used by buses due to the difficulties in completing turning manoeuvres. Option discounted due to these requirements</p> <p>Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	<p>Not supported.</p> <p>Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project.</p>
3.8	Cuckoo Lane - Bus Access to P&R	Turbo Roundabout	Turbo roundabouts provides a spiralling flow of traffic, requiring drivers to choose their direction before entering the roundabout. Bus gate east of the roundabout will allow entry of buses into the general traffic lanes.	<p>Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>No design guidance found in the UK. Not tested or tried much in UK. May not work properly with a predominately ahead movement on a 3 arm roundabout - it needs the other movements to slow it down. This solution potentially reduces traffic speeds which makes it safer for pedestrians and cyclists crossing the road.</p> <p>Conflict with gas main located in the southern side of the existing road which would potentially require a diversion and lead to increased costs.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	<p>Not supported.</p> <p>Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project. Not widely accepted for use in the UK (only one recorded location). There is currently no evidence of this option being successful in a rural environment such as the A40 corridor.</p>
3.9	Cuckoo Lane - Bus Access to P&R	Compact Roundabout	Roundabout with a central island of at least 4m in diameter and an ICD of between 28m and 36m with single lane entries and exits on each approach. The circulatory carriageway has a width such that it is not possible for two cars to pass one another. Bus gate east of the roundabout will allow entry of buses into the general traffic lane.	<p>This option is discounted following DMRB CD 116 guidance as it is not appropriate for existing traffic levels in the A40 corridor (with AADT of circa 25000). "For roads with a speed limit of 50mph or greater and traffic levels of greater than 8,000 two-way AADT on any approach, a normal roundabout shall be used". "Where the posted speed limit is 40mph or less, compact roundabouts are recommended for traffic levels of less than 8,000 two-way AADT on all approaches."</p> <p>Changing P&R access to Cuckoo Lane would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	<p>Not supported.</p> <p>Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project.</p>
3.10	Cuckoo Lane - Bus Access to P&R	Grade-Separated	Grade separated junction providing dedicated access to P&R	<p>Full grade separation could work and this would need to be produced in conjunction with the main access to park and ride due to the proximity.</p> <p>Land would be required</p> <p>Structures would be substantial</p> <p>Changing P&R access would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>Would likely impact on utilities in addition to the IP gas main.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	<p>Not supported.</p> <p>Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project.</p>
3.11	Cuckoo Lane - Bus Access to P&R	Bus gate east of Cuckoo Lane junction	Bus gate giving priority to buses getting into east of Cuckoo Lane junction	<p>Similar to 1.10 - a bus gate would provide buses with the ability to be at the head of the queue - but it would mean introducing another set of signals in advance of the junction - also this would likely clash with Witney Road Junction - so the bus gate would need to be moved further east - east of Witney Road.</p> <p>Changing P&R access would require re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>Potential issues with Cuckoo Lane being closed as part of Garden Village Masterplan.</p>	Recommended for further assessment
4.1.	Cuckoo Lane - Close Access to P&R	Close Access to P&R	Close proposed access to P&R from Cuckoo Lane	<p>Access to Park and Ride from Cuckoo Lane is intended to provide access from the north of Cuckoo Lane and for cyclists using Cuckoo Lane. Option to close should only consider option to close to general traffic - installation of gate or other access for cyclists only, not to close completely. If this was too close to vehicular traffic, they would not be able to use as emergency access should the need arise.</p> <p>This is something that can be flexibly looked at in the DD stage of the scheme.</p>	Recommended for further assessment
4.2	Cuckoo Lane - Close Access to P&R	Do Minimum (A40 STP2 Design)	As currently proposed	<p>Access to Park and Ride from Cuckoo Lane is intended to provide access from the north of Cuckoo Lane and for cyclists using Cuckoo Lane. It could also act as an emergency access should the need arise.</p>	Recommended for further assessment

Item No.	Junction	Options	Description	Comments	Assessment Comments
5.1	Cuckoo Lane - Right Turn Banned (In & Out)	Major / Minor Junction - No restriction on turning movements (Do Minimum (A40 STP2 Design))	Access permitted to traffic using Cuckoo Lane	Current proposal in A40 STP2 is to permit traffic using Cuckoo Lane to access the Park and Ride. Rat running is discouraged due to the internal layout of the park and ride. Cuckoo Lane junction potentially closed as part of Garden Village Masterplan.	Recommended for further assessment
5.2	Cuckoo Lane - Right Turn Banned (In & Out)	Right Turn Banned (In & Out)	Right Turn Banned (In & Out)	This option is considered safer than current proposed layout. Depending on the actual P&R junction - may have to consider U turning vehicles. Right turn out would need to use Lower Road - Or right turn into Witney Road, find somewhere to turn and head back. Needs to be modelled to see what impact it will have. Cuckoo Lane junction potentially closed as part of Garden Village Masterplan.	Recommended for further assessment
5.3	Cuckoo Lane - Right Turn Banned (In & Out)	Signalised junction	Signalised junction to allow right turn in & out	An additional option included to signalise the junction of the A40 with Cuckoo Lane - this would be in ADDITION to the junction proposals for the park and ride junction. It's assumed that if a signalised junction is chosen for the Park and Ride junction then there would be three signalised junctions (Witney Road, Cuckoo Lane and Park and Ride) in a short distance (approx. 640m) and that a form of connection between the signals would be required (Suggested SCOOT)	Recommended for further assessment
6.1.	Cuckoo Lane branched off to join P&R Junction	For Signalised Junction at P&R	Cuckoo Lane closed for general traffic from its junction with the A40 all the way up to the north of existing vehicle repairing site and branched off from this point to join proposed P&R circular carriageway on north-west corner through a mi-roundabout/priority junction. General traffic travelling southbound from Cuckoo Lane will be accessing the P&R site and the A40 (via the proposed P&R signalised junction) through this arrangement.	Potential increase in construction costs compared to current proposal. OCC don't own the land anymore - considered as a non-starter. Cuckoo Lane potentially closed as part of Garden Village Masterplan. All options may require land or CPO. Would add complications to proposed junction (additional Arm) All options would impact proposed P&R layout and would compromise number of spaces and drainage layout. All options would require considerable re-designing the proposed P&R layout which would jeopardize delivery timescales. For P&R junction layout please refer to item No 1.	Not supported. Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project.
6.2.	Cuckoo Lane branched off to join P&R Junction	For Hamburger Roundabout at P&R	Cuckoo Lane closed for general traffic from its junction with the A40 all the way up to the north of existing vehicle repairing site. Cuckoo Lane to be branch off from this point to join proposed P&R circular carriageway on north-west corner through a mini-roundabout/priority junction. General traffic travelling southbound from Cuckoo Lane will be accessing the P&R site and the A40 (via the proposed P&R hamburger roundabout) through this arrangement.	Potential increase in construction costs compared to current proposal. All options may require land or CPO. Would add complications to proposed junction (additional Arm) All options would impact proposed P&R layout and would compromise number of spaces and drainage layout. All options would require considerable re-designing the proposed P&R layout which would jeopardize delivery timescales. For P&R junction layout please refer to item No 1. OCC don't own the land anymore - considered as a non-starter. Cuckoo Lane potentially closed as part of Garden Village Masterplan.	Not supported. Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project.
6.3.	Cuckoo Lane branched off to join P&R Junction	For Roundabout at P&R	Cuckoo Lane closed for general traffic from its junction with the A40 all the way up to the north of existing vehicle repairing site. Cuckoo Lane to be branch off from this point to join proposed P&R circular carriageway on north-west corner through a mini-roundabout/priority junction. General traffic travelling southbound from Cuckoo Lane will be accessing the P&R site and the A40 (via the proposed P&R roundabout) through this arrangement.	Potential increase in construction costs compared to current proposal. All options may require land or CPO. Would add complications to proposed junction (additional Arm) All options would impact proposed P&R layout and would compromise number of spaces and drainage layout. All options would require considerable re-designing the proposed P&R layout which would jeopardize delivery timescales. For P&R junction layout please refer to item No 1. OCC don't own the land anymore - considered as a non-starter. Cuckoo Lane potentially closed as part of Garden Village Masterplan.	Not supported. Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project.
6.4.	Cuckoo Lane branched off to join P&R Junction	For Signalised Roundabout at P&R	Cuckoo Lane closed for general traffic from its junction with the A40 all the way up to the north of existing vehicle repairing site. Cuckoo Lane to be branch off from this point to join proposed P&R circular carriageway on north-west corner through a mini-roundabout/priority junction. General traffic travelling southbound from Cuckoo Lane will be accessing the P&R site and the A40 (via the proposed P&R signalised roundabout) through this arrangement.	Potential increase in construction costs compared to current proposal. All options may require land or CPO. Would add complications to proposed junction (additional Arm) All options would impact proposed P&R layout and would compromise number of spaces and drainage layout. All options would require considerable re-designing the proposed P&R layout which would jeopardize delivery timescales. For P&R junction layout please refer to item No 1. OCC don't own the land anymore - considered as a non-starter. Cuckoo Lane potentially closed as part of Garden Village Masterplan.	Not supported. Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project.
6.5.	Cuckoo Lane branched off to join P&R Junction	For Major-minor Junction at P&R	Cuckoo Lane closed for general traffic from its junction with the A40 all the way up to the north of existing vehicle repairing site. Cuckoo Lane to be branch off from this point to join proposed P&R circular carriageway on north-west corner through a mini-roundabout/priority junction. General traffic travelling southbound from Cuckoo Lane will be accessing the P&R site and the A40 (via the P&R major/minor junction) through this arrangement.	Potential increase in construction costs compared to current proposal. All options may require land or CPO. Would add complications to proposed junction (additional Arm) All options would impact proposed P&R layout and would compromise number of spaces and drainage layout. All options would require considerable re-designing the proposed P&R layout which would jeopardize delivery timescales. For P&R junction layout please refer to item No 1. OCC don't own the land anymore - considered as a non-starter. Cuckoo Lane potentially closed as part of Garden Village Masterplan.	Not supported. Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project.
6.6.	Cuckoo Lane branched off to join P&R Junction	For Mini Roundabout at P&R	Cuckoo Lane closed for general traffic from its junction with the A40 all the way up to the north of existing vehicle repairing site. Cuckoo Lane to be branch off from this point to join proposed P&R circular carriageway on north-west corner through a mini-roundabout/priority junction. General traffic travelling southbound from Cuckoo Lane will be accessing the P&R site and the A40 (via the P&R mini roundabout junction) through this arrangement.	Potential increase in construction costs compared to current proposal. As per item 1.6 - Mini roundabouts not permitted on new junctions All options may require land or CPO. Would add complications to proposed junction (additional Arm) All options would impact proposed P&R layout and would compromise number of spaces and drainage layout. All options would require considerable re-designing the proposed P&R layout which would jeopardize delivery timescales. For P&R junction layout please refer to item No 1. OCC don't own the land anymore - considered as a non-starter.	Not supported. Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project.
6.7.	Cuckoo Lane branched off to join P&R Junction	For Turbo Roundabout at P&R	Cuckoo Lane closed for general traffic from its junction with the A40 all the way up to the north of existing vehicle repairing site. Cuckoo Lane to be branch off from this point to join proposed P&R circular carriageway on north-west corner through a mini-roundabout/priority junction. General traffic travelling southbound from Cuckoo Lane will be accessing the P&R site and the A40 (via the P&R turbo roundabout junction) through this arrangement.	Potential increase in construction costs compared to current proposal. All options may require land or CPO. Would add complications to proposed junction (additional Arm) All options would impact proposed P&R layout and would compromise number of spaces and drainage layout. All options would require considerable re-designing the proposed P&R layout which would jeopardize delivery timescales. For P&R junction layout please refer to item No 1. OCC don't own the land anymore - considered as a non-starter. Cuckoo Lane potentially closed as part of Garden Village Masterplan.	Not supported. Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project. Not widely accepted for use in the UK (only one recorded location). There is currently no evidence of this option being successful in a rural environment such as the A40 corridor.

Item No.	Junction	Options	Description	Comments	Assessment Comments
6.8.	Cuckoo Lane branched off to join P&R Junction	For Compact Roundabout at P&R	Cuckoo Lane closed for general traffic from its junction with the A40 all the way up to the north of existing vehicle repairing site. Cuckoo Lane to be branch off from this point to join proposed P&R circular carriageway on north-west corner through a mini-roundabout/priority junction. General traffic travelling southbound from Cuckoo Lane will be accessing the P&R site and the A40 (via the P&R compact roundabout) through this arrangement.	<p>Potential increase in construction costs compared to current proposal.</p> <p>All options may require land or CPO. Would add complications to proposed junction (additional Arm) All options would impact proposed P&R layout and would compromise number of spaces and drainage layout.</p> <p>All options would require considerable re-designing the proposed P&R layout which would jeopardize delivery timescales.</p> <p>For P&R junction layout please refer to item No 1.</p> <p>OCC don't own the land anymore - considered as a non-starter.</p> <p>Cuckoo Lane potentially closed as part of Garden Village Masterplan.</p>	<p>Not supported.</p> <p>Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project.</p>
6.9.	Cuckoo Lane branched off to join P&R Junction	For Grade-Separated at P&R	Grade separated service road providing dedicated access to P&R circulatory road.	<p>Full grade separation could work, and this would need to be produced in conjunction with the main access to park and ride due to the proximity.</p> <p>Land would be required. OCC don't own the land anymore - considered as a non-starter.</p> <p>Structures would be substantial</p> <p>Would likely impact on utilities in addition to the IP gas main</p> <p>All options may require land or CPO. Would add complications to proposed junction (additional Arm) All options would impact proposed P&R layout and would compromise number of spaces and drainage layout.</p> <p>For P&R junction layout please refer to item No 1.</p> <p>Cuckoo Lane potentially closed as part of Garden Village Masterplan.</p>	<p>Not supported.</p> <p>Not supported as it would mean major changes to the internal layout of the Park and Ride and changes to the existing proposed layout of the STP2 project.</p>
7.1.	Old Witney Road	Opening of Old Witney Road	Proposed Old Witney Road/A40 junction.	<p>This option could lead rat running increasing traffic within Eynsham town centre and residential areas.</p> <p>Adding this junction would interfere with proposed westbound bus lane and southern cycle path.</p> <p>It is located opposite junction with Cuckoo Lane which could lead to safety issues if uncontrolled A full junction would be required - refer to Cuckoo Lane options above.</p>	<p>Not supported.</p> <p>Not supported as it would create unnecessary additional traffic past residential properties to bypass the Witney Road Junction.</p>
8.1.	Elm Place Access & Layby	Alteration to Access	Change existing arrangements as proposed in A40 STP2 design - probably in conjunction with 7.1 Existing layby closure.	<p>Junction layout currently not affected by changes in STP2 design. Access would need to be modified if Old Witney Road was opened up.</p>	<p>Recommended for further assessment</p>
8.2.	Elm Place Access & Layby	Removal of Layby		<p>Relocation of the layby should be assessed as part of the dual carriageway scheme. However, access to properties would still be required.</p> <p>This option will only need to be considered if a 4th arm is provided at the P&R junction (to access West Eynsham development). The future of the layby is subject to further work/engagement between OCC/WODC/West Eynsham developer. This option may need to be revisited</p>	<p>Not supported.</p> <p>Not supported due to access required to properties. May be stopped up as a layby, but it would be recommended to consider providing additional laybys along the dualling section near to the park and ride with restricted parking; otherwise people may park here instead of the park and ride.</p>
9.1.	Evenlode Public House Access	Without westbound bus lane and banning of right-out movement	Not implementing the westbound bus lane and banning of right-out movement from Evenlode Public House onto the A40.	<p>Safer option due to only crossing one lane as opposed to two.</p> <p>Requires general public to exit Evenlode Public House through the back.</p> <p>Appropriate signage and a one way system is needed to enforce the ban.</p> <p>Flows not known (further surveys needed).</p> <p>Traffic will be U-turning at nearby junction (depending on chosen option) west of pub if wanting to go eastbound.</p> <p>Would not be a popular choice with patrons.</p>	<p>Recommended for further assessment</p>
9.2.	Evenlode Public House Access	Without westbound bus lane and banning of right-in and right-out movements	Not implementing the westbound bus lane and banning of right-out movement onto the A40 from Evenlode Public House. Also, a ban of right-in movements into Evenlode Public House from the A40.	<p>Requires general public to enter and exit Evenlode Public House through the back.</p> <p>Appropriate signage and potentially a physical central traffic island are needed to enforce the ban or closing of the access point as a whole (this would save space in a constrained area).</p> <p>Difficulty for traffic accessing Evenlode Public House. Flows not known (further surveys needed).</p> <p>Traffic will be U-turning at nearby junction (depending on chosen option) west of pub if wanting to go eastbound.</p> <p>Would not be a popular choice with patrons.</p>	<p>Recommended for further assessment</p>
9.3.	Evenlode Public House Access	With westbound bus lane and banning of right-out movement	Implementing the westbound bus lane and including the banning of right-out movement from Evenlode Public House onto the A40.	<p>Provide a bus lane westbound, but only allow the right turning traffic into Evenlode Public House. Eastbound general traffic will have a right turning pocket to cross both the westbound general traffic lane and westbound bus lane to access the Evenlode Public House. Some land may be needed, but note this is OCC land that is expected to be leased to the pub.</p> <p>Appropriate signage and a one way system is needed to enforce the ban.</p> <p>Flows not known (further surveys needed).</p> <p>Traffic will be U-turning at nearby junction (depending on chosen option) west of pub if wanting to go eastbound.</p> <p>Would not be a popular choice with patrons.</p>	<p>Recommended for further assessment</p>
9.4.	Evenlode Public House Access	With westbound bus lane and banning of right-in and right-out movements	Implementing the westbound bus lane and banning of right-in movement into Evenlode Public House from the A40 as well as the right-out movement from Evenlode Public House onto the A40.	<p>Provide a bus lane westbound but ban both right turning traffic into and out of Evenlode Public House.</p> <p>No break of bus lane road markings needed.</p> <p>Difficulty for traffic accessing the Evenlode Public House. Flows not known (further surveys needed).</p> <p>Traffic will be U-turning at nearby junction (depending on chosen option) west of pub if wanting to go eastbound.</p> <p>Would not be a popular choice with patrons.</p>	<p>Recommended for further assessment</p>
9.5.	Evenlode Public House Access	With westbound bus lane - All movements allowed	Implementing the westbound bus lane with all right turning movements not banned.	<p>Provide a bus lane westbound, but allow the right turning traffic into and out of Evenlode Public House. Eastbound general traffic will have a right turning pocket to cross both the westbound general traffic lane and westbound bus lane to access the Evenlode Public House. Some land may be needed but note this is OCC land that is expected to be leased to the pub.</p> <p>Requires break in bus lane road markings for westbound general traffic to manoeuvre into bus lane and make the left turn into Evenlode Public House.</p>	<p>Recommended for further assessment</p>

Item No.	Junction	Options	Description	Comments	Assessment Comments
9.6.	Evenlode Public House Access	Without Westbound bus lane with right turning movements not banned	Not implementing the westbound bus lane with right turning movements not banned.	Does not provide a bus lane westbound, but allows the right turning traffic into and out of Evenlode Public House. Eastbound general traffic will have a right turning pocket to cross the westbound general traffic lane. Safer option due to only crossing one lane as opposed to two.	Recommended for further assessment
10.1.	Witney Road Junction	Signalised Junction with Physical Separation	Signalised junction for Witney Road with 1.3m physical separation distance (traffic island) and between the westbound general traffic lane and the dedicated right turn lane. This is designed to a 40mph speed limit.	Option considered to remove the physical separation between the right and ahead movements on the eastbound. Considered safer to include the separation and in addition DMRB requires a physical separation where the speed limit is 40mph and above.	Recommended for further assessment
10.2.	Witney Road Junction	Signalised Junction No Physical Separation	Signalised junction for Witney Road with no physical separation distance, but a reduced hatched markings separation between the westbound general traffic lane and the dedicated right turn lane. This is designed to a 40mph speed limit.	DMRB requires a physical separation where the speed limit is 50mph and above. Current proposal with physical separation is considered safer option.	Recommended for further assessment
10.3	Witney Road Junction	Signalised Junction (Ban of right turn into Witney Rd for general traffic, however not buses)	Signalised junction for Witney Road with 1.3m physical separation distance (traffic island) and between the westbound general traffic lane and the dedicated right turn lane for buses only. This is designed to a 50mph speed limit.	Further modelling required to understand where right turning traffic would go. Potential issue for enforcement.	Recommended for further assessment
11.1.	Eso Petrol Station and Spareacre Lane	No Crossing	No crossing across the A40 connecting the Spareacre Lane PROW. Removes the existing uncontrolled crossing.	Decreases connectivity between the north and south side of the A40. Removes existing uncontrolled crossing. Makes current situation worse. Pedestrians and cyclists will need to cross at Witney Road Junction (approximately 210m east of PROW) - not aligned with PROW desire line.	Not supported. Not considered a suitable option as there is demand for crossing at this point. To remove the crossing all together would encourage crossing elsewhere where is may not be safe.
11.2.	Eso Petrol Station and Spareacre Lane	Uncontrolled Crossing	Uncontrolled crossing with traffic islands to connect the Spareacre Lane PROW.	As existing layout. Provides the same connectivity between the north and south side of the A40. Not as safe as a controlled crossing on a high-speed 50mph road. Does not negatively impact journey times by holding up traffic at signals. Does not encourage other means of transport such as cycling - not a safe means of crossing.	Recommended for further assessment
11.3.	Eso Petrol Station and Spareacre Lane	Controlled Crossing	Controlled toucan crossing across the A40 to connect the Spareacre Lane PROW.	Provides the same connectivity between the north and south side of the A40, however in a safe manner for high-speed traffic. Provides additional signalised crossing close to Witney Road signalised junction, which may decrease journey time savings and may not be favoured by the majority of the general public. Unable to provide Pegasus crossing due to width of carriageway to cross the road (approximately 11m max).	Recommended for further assessment
12.1.	Lower Road Roundabout	Signalised Junction (40mph)	Signalised junction with dedicated signals for buses and general traffic - 40 mph speed limit	This option allows the continuation of the Westbound bus lane throughout the main carriageway. Potentially safer for Pedestrian/cyclists to cross the road than the existing roundabout. Higher operational costs.	Recommended for further assessment
12.2.	Lower Road Roundabout	Hamburger Roundabout (40mph)	Signalised hamburger roundabout with central lanes for through traffic and dedicated signals for general traffic wishing to access Lower Road or B4449 - 40 mph speed limit	This option would require breaking both bus lanes to allow general traffic to incorporate into the nearside lane to turn right/left into Lower Road or B4449.	Recommended for further assessment
12.3.	Lower Road Roundabout	Leave Existing Roundabout as is (50mph)	Normal roundabout connecting A40 with Lower Road and B4449 - 50 mph speed limit	May require Land take / CPO to incorporate southern footpath and WB bus lane, and alteration to culvert on north east side.	Recommended for further assessment
12.4.	Lower Road Roundabout	Signalised Roundabout (40mph)	Signalised roundabout - 40 mph	This option would have higher operational costs than the normal roundabout option. May require land take/CPO.	Recommended for further assessment
12.5.	Lower Road Roundabout	Turbo Roundabout (40mph)	Turbo roundabouts provides a spiralling flow of traffic, requiring drivers to choose their direction before entering the roundabout. Bus gate east of the roundabout will allow entry of buses into the general traffic lanes.	No design guidance found in the UK. Not tested and tried much in UK. This solution potentially reduces traffic speeds which makes it safer for pedestrians and cyclists crossing the road. Would need careful consideration on signage. No bus priority could be included No evidence found regarding benefits this would have in rural areas.	Not supported. Not widely accepted for use in the UK (only one recorded location). There is currently no evidence of this option being successful in a rural environment such as the A40 corridor.
12.6	Lower Road Roundabout	Increased size of existing roundabout	The existing ICD of the roundabout is relatively small for the existing traffic volume, and observations show that traffic doesn't use the full capacity of the roundabout, so by providing an enlarged ICD /smaller centre island should increase the capacity	This option would require breaking both bus lanes to allow traffic to use the roundabout. It would also require land take probably to the north of the junction	Recommended for further assessment
13.1.	Cassington New Bridge	Extend Bridge on South Side Opt. 1	Bridge extension on south side to maintain lane widths, incorporate a 3M footway on the north side (no verge) and a 3M footway on the south side (1.5m verge).	Requires significant bridge widening of approximately 5.9m - existing parapet to back of footway. Allows free flow of traffic on the A40 without narrowing lanes. Allows free flow of pedestrian and cyclist movements along the A40 corridor without having to cross the road. Full cycle provision on north and south side. Potential safety concerns on north side due to lack of verge protecting pedestrians and cyclists. Effective width of footway will decrease to approximately 2.5m. Potential flood compensation measures for extending bridge.	Recommended for further assessment
13.2.	Cassington New Bridge	Extend Bridge on South Side Opt. 2	Bridge extension on south side to maintain lane widths, incorporate a 2m footway on the north side (no verge) and a 3m footway on the south side (1.5m verge)	Requires significant bridge widening of approximately 4.9m - existing parapet to back of footway. Allows free flow of traffic on the A40 without narrowing lanes. Allows free flow of pedestrian and cyclist movements along the A40 corridor without having to cross the road. Full cycle provision on south side with a significantly reduced cycle provision on north side. Potential safety concerns on north side due to lack of verge protecting pedestrians and cyclists. Effective width of footway will decrease to approximately 1.5m - substandard for shared-use footway-cycleway according to DMRB (ref XXX). Potential flood compensation measures for extending bridge.	Recommended for further assessment

Item No.	Junction	Options	Description	Comments	Assessment Comments
13.3.	Cassington New Bridge	Extend Bridge on South Side Opt. 3	Bridge extension on south side to maintain lane widths, without Westbound Bus Lane (bus gate prior) and incorporate a 3m footway on the north side (no verge) and a 3m footway on the south side (1.5m verge)	Requires minimal bridge widening on south side due to removal of Westbound Bus Lane. Reduction in journey time savings due to lack of Westbound Bus Lane. Allows free flow of general traffic on the A40 without narrowing lanes. Allows free flow of pedestrian and cyclist movements along the A40 corridor without having to cross the road. Full cycle provision on north and south side. Potential safety concerns on north side due to lack of verge protecting pedestrians and cyclists. Effective width of footway will decrease to approximately 2.5m. Potential flood compensation measures for extending bridge.	Recommended for further assessment
13.4.	Cassington New Bridge	Extend Bridge on North and South Side	Bridge extension on north and south side to maintain lane widths, incorporate a 3m footway on the north side (1.5m verge) and a 3m footway on the south side (1.5m verge)	Requires significant bridge widening - total is approximately 5.9m. Potentially costly option. Additional disruption due to works on both sides of the bridge. Potential EA objections to extended works over River Evenlode Allows free flow of general traffic on the A40 without narrowing lanes. Allows free flow of pedestrian and cyclist movements along the A40 corridor without having to cross the road. Full cycle provision on north and south side. Protection of pedestrians and cyclists due to 1.5m verge on both north and south sides. No reduction of effective widths on north side (as is the case for other options). Potential flood compensation measures for extending bridge.	Not supported. The cost implications, disruption and complexity of work (design and construction) are too great in comparison to the other options. There may also be EA objections to extending the bridge north over the River Evenlode Therefore, this is not supported.
14.1.	Cassington Road Junction (West)	Right Turn Banned onto A40	Central traffic island enforces the ban of the right turn onto the A40 from Cassington Road.	Investigation required through modelling to assess the impact on traffic flows. Simple signal phasing with no dedicated signals for right turn needed. If flows are low enough, may not need signals, could use Give Way instead as long as Left Turn is enforced. Those needing to turn right can do so at Eynsham Roundabout (assuming highway option allowing vehicles to do so).	Recommended for further assessment
14.2.	Cassington Road Junction (West)	Right Turn Allowed onto A40	No central traffic island to allow vehicles to make the right turn onto the A40 from Cassington Road.	Dedicated signals and phasing to allow for right turn manoeuvre. Extra phase for signals. Requires junction re-design and modelling. Break in central traffic island.	Recommended for further assessment
14.3.	Cassington Road Junction (West)	Entry only into Cassington Road from the A40	Cassington Road entry only from the A40. All vehicles to head south and use B4449 to access A40. Road gated at Cassington Bridge.	This would involve upgrading Cassington Road, strengthening the existing bridge and look at the overall modelling. The only advantage having less traffic into the A40 from the junction. Would potentially encourage rat running into Eynsham. Discarded due to cost implications and little benefits.	Not supported. There is little benefit with this option and a high cost attached. It would also potentially encourage rat running into Eynsham. The costs outweigh the benefits; therefore, it is not supported.
14.4.	Cassington Road Junction (West)	Blocking of Cassington Road (No entry or exit)	All traffic banned into Cassington Road.	Cassington Road would experience significant increase in traffic and would require upgrading including the bridge. The road would have to be 2 ways to allow access to properties. Likely objections from properties along Cassington Road. Discarded due to complications and other disadvantages.	Not supported. This option is not feasible as it would mean Cassington Road would experience significant increase in traffic and would require upgrading. The road would have to be 2 ways to allow access to properties.
15.1.	Durham Road Access (South of A40)	Dedicated Right Turn Lane	General traffic dedicated right turn lane, general traffic running lane (straight only) and eastbound bus lane.	Discarded due to very low known flows using Durham Lane on the south side of the A40. Therefore, taking up a large area with a dedicated right turn lane is inefficient for junction capacity. There may not be enough space for this in addition to a 1.5m island for signals.	Not supported. This option is not feasible due to the large amount of space a dedicated right turn lane would take up - it cannot be justified with the existing flows turning onto Durham Road.
15.2.	Durham Road Access (South of A40)	Right Turn Pocket	Central traffic island shortened to allow for a right turn pocket for vehicles turning onto Durham Lane.	Decreasing the length of the central traffic island creates enough space for a central right turn pocket. This allows vehicles to access the isolated residential housing south of the A40 on Durham Lane. There are only a few houses with farmland on this lane. Traffic flows making this right turn manoeuvre are very low, therefore this option is favoured over Item 15.1 (discarded due to low flows).	Recommended for further assessment
15.3.	Durham Road Access (South of A40)	Potential interface with junction (closing existing access onto A40)	Close the access to A40 and provide alternative access through private land.	Land take required/CPO. Potential benefits outweigh work required to obtain land outside HWB.	Recommended for further assessment
16.1.	Cassington Road Junction (East)	Dedicated Right Turn Lane into Eynsham Road	General traffic dedicated right turn lane, general traffic running lane (straight only) and no westbound bus lane (bus gate prior to junction).	Advantages of this layout may outweigh the disadvantages of removing the westbound bus lane. A dedicated right turn lane will mean no blocking of general traffic wanting to go straight, leading to free flowing westbound traffic on the A40. Option similar to existing layout.	Recommended for further assessment
16.2.	Cassington Road Junction (East)	Right Turn Pocket into Eynsham Road	General traffic running lane being straight only, central right turn pocket and westbound bus lane.	Potentially restrictive for capacity of junction. If there are multiple vehicles turning right, they will block the general traffic lane for vehicles wanting to go straight. Signal phasing may need to separate the flows for this option to be feasible, however this may lead to an inefficient junction.	Recommended for further assessment
17.1.	Eynsham Road Junction	Left Turn Slip Road into Eynsham Road	General traffic left turn slip road, 2x general traffic running lanes (straight only). Eastbound bus lane terminates prior to the junction for vehicles to turn left	Requires large cutback which will impact footway alignment. Increases junction capacity, however vehicles waiting to turn left may hang out into the general traffic lane and block it. Requires termination of eastbound bus lane prior to the junction to allow general traffic access to the left-turn slip road Works well with option 17.5 (controlled crossing).	Recommended for further assessment
17.2.	Eynsham Road Junction	Dedicated Left Turn Lane into Eynsham Road	General traffic dedicated left turn lane, general traffic running lane (straight only) and no eastbound bus lane (bus gate prior to junction).	No eastbound bus lane means decrease in journey time savings through Cassington Junction. Allows safe manoeuvre to turn left onto Eynsham Road.	Recommended for further assessment
17.3.	Eynsham Road Junction	Eastbound Bus Lane and General Traffic Lane Through Junction	General traffic running lane being straight and left turn into Eynsham Road and eastbound bus lane through junction.	Signal phasing would provide buses with time to cross the junction before left turning traffic started their movements onto Eynsham Road. Efficient use of space for the junction with no sacrifice on bus journey times. Footway follows desire line across Eynsham Road.	Recommended for further assessment

Item No.	Junction	Options	Description	Comments	Assessment Comments
17.4.	Eynsham Road Junction	Uncontrolled Crossing North Across Eynsham Road (No Central Island)	Uncontrolled crossing across Eynsham Road away from the junction north. Does not include a central traffic island.	Potential safety concerns with pedestrians and cyclists crossing Eynsham Road with no protection and potentially a lack of visibility (over their shoulder). Crossing and footway away from the desire line, but as existing layout.	Recommended for further assessment
17.5.	Eynsham Road Junction	Controlled Crossing South Across Eynsham Road (Central Island)	Controlled crossing across Eynsham Road at the junction. Includes central traffic island.	Safe for pedestrians and cyclists - utilises signals phase for pedestrians and cyclists only.	Recommended for further assessment
17.6.	Eynsham Road Junction	Controlled Crossing South Across Eynsham Road (No Central Island)	Controlled crossing across Eynsham Road at the junction. Does not include central traffic island. Instead is straight across three general traffic lanes.	Safe for pedestrians and cyclists - utilises signals phase for pedestrians and cyclists only.	Recommended for further assessment
18.1.	Cassington Halt Bridge	No Bridge Extension with Bus Lanes	No bridge extension - assumes structural assessment deems bridge to be able to take loading across all lanes. Localised narrowing of bus lanes and construction of north and south footbridges.	Assumes structural assessment deems bridge to be able to take loading across all lanes - potentially unrealistic. Localised narrowing of bus lanes is minimal and therefore should not cause safety concerns. Double white line system through bridge reduces effective width of E/B & W/B General Traffic lanes, however over short distance. Traffic naturally slows down on approach to the bridge. Need protection and potentially diversion of IP gas main on north side during construction of footbridge. Allows free flow of pedestrian and cyclist movements along the A40 corridor over bridge without having to cross the road. Footbridges ensure the safety of pedestrians and cyclists. Highly costly option due to construction of two footbridges which may not see great demand due to location on A40 corridor.	Recommended for further assessment
18.2	Cassington Halt Bridge	No Bridge Extension without Bus Lanes	Buses merge into the general traffic lanes using bus gates either side of Cassington Halt Bridge. Existing lane widths over the bridge remain the same. Two footbridges both north and south of the bridge deck will be constructed for NMU flows.	Does not rely on structural loading assumptions (as Option 18.1). Need protection and potentially diversion of IP gas main on north side during construction of footbridge. Allows free flow of pedestrian and cyclist movements along the A40 corridor over bridge without having to cross the road. Footbridges ensure the safety of pedestrians and cyclists. Highly costly option due to construction of two footbridges which may not see great demand due to location on A40 corridor.	Recommended for further assessment
18.3.	Cassington Halt Bridge	Extend Bridge on South Side Opt. 1	Bridge extension on south side, incorporate 3m footway on south side and a footbridge on north side.	Need protection and potentially diversion of IP gas main on north side during construction of footbridge. In addition, gas main may be close to foundations of any southern widening. Allows free flow of traffic on the A40 without narrowing lanes. Allows free flow of pedestrian and cyclist movements along the A40 corridor over bridge without having to cross the road. Footbridge ensures the safety of pedestrians and cyclists. Costly option due to construction of footbridge. Bridge extension on south side would be approximately 4.5m.	Recommended for further assessment
18.4.	Cassington Halt Bridge	Extend Bridge on South Side Opt. 2	Bridge extension on south side, incorporate 3m footway on south side and a 3m at-grade footway on the north side crossing the road beneath the bridge.	Allows free flow of traffic on the A40 without narrowing lanes. Potentially no need for diversion or protection of IP gas main on north side, although gas main may still be close to foundations of any southern widening. Pedestrian safety concerns for providing at-grade footway due to fast moving heavy machinery travelling under Cassington Halt bridge. In addition, street lighting may be required for crossing the road. Bridge extension on south side would be approximately 4.5m.	Recommended for further assessment
18.5.	Cassington Halt Bridge	Extend Bridge on North & South Side	Bridge extension on north and south side, incorporate a 3m footway on the north side and a 3m footway on the south side.	Need protection of IP gas main on north side during construction of north bridge extension. In addition, gas main may be close to foundations of any southern widening. Allows free flow of traffic on the A40 without narrowing lanes. Allows free flow of pedestrian and cyclist movements along the A40 corridor over bridge without having to cross the road. No narrowing of footway. Potentially costly option. Requires large extension on north side (approximately 4.0m) and south side (approximately 4.5m).	Recommended for further assessment
18.6.	Cassington Halt Bridge	Structure Infilling & Signalised Junction	Infilling of bridge structure. Allows incorporation of a 3m footway on both the north and south side. Need to create a signalised junction east of Cassington Halt bridge to allow access to the quarry.	Cost implications for transporting large quantities of material to infill structure, although a lightweight material could be used (polystyrene as a fill material as the structure still takes the loading) Would be subject to load assessments. Filling (with either option) would affect access to services that run under the bridge (IP Gas main mainly) Includes usage of heavy machinery, protection of utilities and strengthening of embankments. Need an additional signalised junction for access to the Worton Composting and Green Waste Recycling centre decreasing journey time savings along the A40. Access to property to the south of the bridge would be restricted Potential safety concerns due to visibility over the bridge crest on approach to signalised junction for eastbound traffic.	Recommended for further assessment
18.7.	Cassington Halt Bridge	Demolition of Structure	Demolition of bridge structure and flattening of carriageway to allow incorporation of 3m footways on the north and south side. Removes the crest curve on the bridge to improve visibility. Need to implement a signalised junction in order to allow access to the quarry.	Would involve a large quantity of material to be removed - structure and embankments. Without further investigation, unsure if levels would be achievable. Historic interest in bridge would be lost / major objections to removal Includes usage of heavy machinery, protection of utilities. Need an additional signalised junction for access to the Worton Composting and Green Waste Recycling centre decreasing journey time savings along the A40.	Not supported. This option is too costly, too complex to deliver (with too much disruption), provides an additional signalised junction slowing traffic and would not be supported due to the structure being of historic significance.
18.8.	Cassington Halt Bridge	Widening of carriageway lanes with no widening of the structure - Using alternative route for peds and cyclists.	Peds and Cyclists taken off shared use cycleway at Horsemere Lane and follow Thames Water access track down to at-grade level under the bridge. Then utilise gravel pit loop under bridge to gain access back to the A40 in either direction - allows crossing the A40 by utilising the bridge under the road.	Assumes access is permitted to what is currently private land - Thames Water track down to at-grade level under bridge, then use of private road. Issues likely around lighting, security and maintenance. Requires land negotiation and land outside of existing highway boundary.	Not supported. This option is not feasible due to the uncertainties with land negotiations and the safety and security concerns for NMU's. It does not align with local authority policies in

Item No.	Junction	Options	Description	Comments	Assessment Comments
					encouraging sustainable and safe forms of travel.

Appendix F Stage 2 Sifting Criteria

Business Case - Elements	Category	Criteria		Sub-criteria
Strategic Case	S1. Scheme Objectives	S1.1	Scheme Objectives	Unlock the delivery of 4,813 additional homes along the A40 Smart Corridor in support of the Housing and Growth Deal
				Support the delivery of 2,222 affordable homes along the A40 Smart Corridor
				Ensure the impact of additional housing on the transport network is acceptable and associated impacts on it are adequately mitigated
				Unlock economic growth at key employment sites along the 'Knowledge Spine' at Oxfordshire Cotswolds Garden Village
				Encourage sustainable BUS travel between Eynsham/Witney/wider area and Oxford
		S.1.2	A40 STP2 scheme objectives	Encourage sustainable CYCLE and PEDESTRIAN travel between Eynsham/Witney/wider area and Oxford
				To improve travel times and/or journey reliability between Witney/Carterton and Oxford
				To reduce carbon emissions and other pollutants associated with travel
				To stimulate economic growth within Oxford, West Oxfordshire and the Oxfordshire Knowledge Spine
				To encourage safer travel between Witney/Carterton and Oxford
Economic Case	E1. Impact on the Economy	E1.1	For this stage of assessment, score for ALL users i.e. business, freight, commuters, leisure and education trips	Interface with existing and committed schemes in the corridor including P&R
				PT travel time changes
				Highway user travel time changes
	E2. Impact on the Environment	E1.2	Reliability	Walk and cycle
				Buses
		E2.8	Water environment	Private vehicles
				NMUs (walk and cycle)
	E3. Impact on Society	E2.9	Environment (other)	Flood mitigation
		E3.2	Physical activity	Water quality
		E3.4	Accidents	SSSI, Habitats, etc
		E3.8	Severance	Health benefits
Financial Case	F1. Capital and Revenue Costs	F1.1	Infrastructure capital costs, operating and maintenance costs	Impact on RATE of incidents
				Severance
				Accessibility - access to the road/infrastructure for residents/landowners
Management Case	M1. Practical Feasibility	M1.1	Engineering, interfaces, complexity and feasibility	Farmers, Residents etc.
		M1.2	Effect on the network - TM, Delays etc during construction	Capital costs/Consider Affordability against total scheme budget
		M1.3	Possibility to change option - option flexibility	Operation and maintenance costs
	M2. Stakeholder acceptability	M2.1	Local authorities, delivery partners, statutory bodies, landowners, Utility companies	Design and Construction - Include programme etc. design standards
				Prep and Management during construction
				Future Proofing
				Environment Agency
				Network Rail
				Natural England
				Canal and Rivers Trust
	M3. Public Acceptability/Interest	M3.1	Public acceptability/interest	District Councils
				Parish Councils
				Utilities
				Non-Statutory bodies (residents association groups, cyclox, horse group)
				Land and property impacts, access to property, businesses etc
Commercial Case	C2. Complexity of Delivery	C2.3	Commercial Viability - Complexity of procurement of contractor	Public view on scheme components. Earlier consultation responses may help inform this. Views are relevant when related to the actual scheme impacts e.g. traffic flows, congestion, noise, air quality etc, rather than whether the scheme enables more development, which is a separate issue, and should be treated at the A40 overall scheme programme level.
				Breaking down of schemes to ease the delivery (specialist partners for example). Include consideration of things such as D&B

Appendix G Stage 2 Sifting Outcome

Item No.	Options		Scoring					
			Strategic	Economic	Financial	Management	Commercial	Total
1	P&R Junction	Max possible score	22	26	4	26	2	80
1.1	P&R Junction	Signalised Junction	15	13	-2	-2	0	24
1.2	P&R Junction	Hamburger Roundabout	13	10	-4	-12	0	7
1.3	P&R Junction	Roundabout	7	4	-2	-2	0	7
1.4	P&R Junction	Signalised Roundabout	34	5	-4	-9	0	-4
1.10	P&R Junction	Bus gate east of proposed junction for WB buses	3	3	-3	-6	0	-3
2	Cuckoo Lane - Vehicle Access to P&R		Strategic (max 22)	Economic (max 26)	Financial (max 4)	Management (max 26)	Commercial (max 2)	Total (max 80)
2.1	Cuckoo Lane - Vehicle Access to P&R	Signalised Junction	13	14	-3	-3	0	21
2.2	Cuckoo Lane - Vehicle Access to P&R	Hamburger Roundabout	-1	10	-4	-11	0	-6
2.3	Cuckoo Lane - Vehicle Access to P&R	Roundabout	-4	6	-2	-5	0	-5
2.4	Cuckoo Lane - Vehicle Access to P&R	Signalised Roundabout	-1	7	-4	-10	0	-8
2.10	Cuckoo Lane - Vehicle Access to P&R	Do Minimum (A40 STP2 Design)	13	18	-2	0	0	29
3	Cuckoo Lane - Bus Access to P&R		Strategic (max 22)	Economic (max 26)	Financial (max 4)	Management (max 26)	Commercial (max 2)	Total (max 80)
3.1	Cuckoo Lane - Bus Access to P&R	Do Minimum (A40 STP2 Design)	13	9	-1	-4	0	17
3.2	Cuckoo Lane - Bus Access to P&R	Signalised Junction	12	10	-3	-8	0	11
3.3	Cuckoo Lane - Bus Access to P&R	Hamburger Roundabout	-6	-5	-4	-13	0	-28
3.4	Cuckoo Lane - Bus Access to P&R	Roundabout	-13	-6	-2	-7	0	-28
3.5	Cuckoo Lane - Bus Access to P&R	Signalised Roundabout	-8	-5	-4	-12	0	-29
3.6	Cuckoo Lane - Bus Access to P&R	Major-minor Junction	3	5	-1	-1	0	6
3.11	Cuckoo Lane - Bus Access to P&R	Bus gate east of Cuckoo Lane junction	4	3	-4	-4	0	-1
4	Cuckoo Lane - Close Access to P&R		Strategic (max 22)	Economic (max 26)	Financial (max 4)	Management (max 26)	Commercial (max 2)	Total (max 80)
4.1	Cuckoo Lane - Close Access to P&R	Close Access to P&R	2	-1	2	-2	0	1
4.2	Cuckoo Lane - Close Access to P&R	Do Minimum (A40 STP2 Design)	10	6	0	-1	0	15
5	Cuckoo Lane - Right Turn Banned (In & Out)		Strategic (max 22)	Economic (max 26)	Financial (max 4)	Management (max 26)	Commercial (max 2)	Total (max 80)
5.1	Cuckoo Lane - Right Turn Banned (In & Out)	Major / Minor Junction - No restriction on turning movements (Do Minimum (A40 STP2 Design))	0	5	0	-2	0	3
5.2	Cuckoo Lane - Right Turn Banned (In & Out)	Right Turn Banned (In & Out)	7	11	0	-1	0	17
5.3	Cuckoo Lane - Right Turn Banned (In & Out)	Signalised junction	7	16	-4	-3	0	16
8	Elm Place Access & Layby		Strategic (max 22)	Economic (max 26)	Financial (max 4)	Management (max 26)	Commercial (max 2)	Total (max 80)
8.1	Elm Place Access & Layby	Alteration to Access	0	-1	0	-8	0	-9
9	Evenlode Public House Access		Strategic (max 22)	Economic (max 26)	Financial (max 4)	Management (max 26)	Commercial (max 2)	Total (max 80)
9.1	Evenlode Public House Access	Without westbound bus lane and banning of right-out movement	8	16	-4	-6	0	14
9.2	Evenlode Public House Access	Without westbound bus lane and banning of right-in and right-out movements	9	18	-4	-3	0	20
9.3	Evenlode Public House Access	With westbound bus lane and banning of right-out movement	17	12	-1	-4	0	24
9.4	Evenlode Public House Access	With westbound bus lane and banning of right-in and right-out movements	18	17	-1	-1	0	33
9.5	Evenlode Public House Access	With westbound bus lane – All movements allowed	8	8	-1	3	0	18
9.6	Evenlode Public House Access	Without Westbound bus lane with right turning movements not banned	-4	9	-4	3	0	4
10	Witney Road Junction		Strategic (max 22)	Economic (max 26)	Financial (max 4)	Management (max 26)	Commercial (max 2)	Total (max 80)
10.1	Witney Road Junction	Signalised Junction with Physical Separation	16	15	-4	-9	0	18
10.2	Witney Road Junction	Signalised Junction No Physical Separation	14	12	-2	-2	0	22
10.3	Witney Road Junction	Signalised Junction (Ban of right turn into Witney Rd for general traffic, however not buses)	13	10	-4	-11	0	8
11	Esso Petrol Station and Spareacre Lane		Strategic (max 22)	Economic (max 26)	Financial (max 4)	Management (max 26)	Commercial (max 2)	Total (max 80)
11.2	Esso Petrol Station and Spareacre Lane	Uncontrolled Crossing	-3	-6	3	-2	0	-8
11.3	Esso Petrol Station and Spareacre Lane	Controlled Crossing	5	9	-2	-2	0	10
12	Lower Road Roundabout		Strategic (max 22)	Economic (max 26)	Financial (max 4)	Management (max 26)	Commercial (max 2)	Total (max 80)
12.1	Lower Road Roundabout	Signalised Junction (40mph)	18	16	-4	-11	0	19
12.2	Lower Road Roundabout	Hamburger Roundabout (40mph)	13	9	-4	-11	0	7
12.3	Lower Road Roundabout	Leave Existing Roundabout as is (50mph)	-1	1	4	0	0	4
12.4	Lower Road Roundabout	Signalised Roundabout (40mph)	-5	5	-2	-8	0	-10
12.6	Lower Road Roundabout	Enlarged Roundabout	6	3	-3	-6	0	0
13	Cassington New Bridge		Strategic (max 22)	Economic (max 26)	Financial (max 4)	Management (max 26)	Commercial (max 2)	Total (max 80)
13.1	Cassington New Bridge	Extend Bridge on South Side Opt. 1	17	8	-2	2	0	25
13.2	Cassington New Bridge	Extend Bridge on South Side Opt. 2	17	8	-1	3	0	27
13.3	Cassington New Bridge	Extend Bridge on South Side Opt. 3	1	0	-1	0	0	0
14	Cassington Road Junction (West)		Strategic (max 22)	Economic (max 26)	Financial (max 4)	Management (max 26)	Commercial (max 2)	Total (max 80)
14.1	Cassington Road Junction (West)	Right Turn Banned onto A40	-8	-4	-1	-2	0	-15
14.2	Cassington Road Junction (West)	Right Turn Allowed onto A40	-3	-1	-3	-2	0	-9
15	Durham Road Access (South of A40)		Strategic (max 22)	Economic (max 26)	Financial (max 4)	Management (max 26)	Commercial (max 2)	Total (max 80)
15.2	Durham Road Access (South of A40)	Right Turn Pocket	2	0	-1	2	0	3
15.3	Durham Road Access (South of A40)	Potential interface with junction (closing existing access onto A40)	1	-1	-3	-8	0	-11
16	Cassington Road Junction (East)		Strategic (max 22)	Economic (max 26)	Financial (max 4)	Management (max 26)	Commercial (max 2)	Total (max 80)
16.1	Cassington Road Junction (East)	Dedicated Right Turn Lane into Eynsham Road	-1	-1	-2	-6	0	-10
16.2	Cassington Road Junction (East)	Right Turn Pocket into Eynsham Road	5	1	-2	-2	0	2
17	Eynsham Road Junction		Strategic (max 22)	Economic (max 26)	Financial (max 4)	Management (max 26)	Commercial (max 2)	Total (max 80)
17.1	Eynsham Road Junction	Left Turn Slip Road into Eynsham Road	9	15	-2	2	0	24
17.2	Eynsham Road Junction	Dedicated Left Turn Lane into Eynsham Road	9	14	-2	-2	0	19

Item No.	Options		Scoring					Total
			Strategic	Economic	Financial	Management	Commercial	
17.3	Eynsham Road Junction	Eastbound Bus Lane and General Traffic Lane Through Junction	20	16	-3	1	0	34
17.4	Eynsham Road Junction	Uncontrolled Crossing North Across Eynsham Road (No Central Island)	1	-1	0	-1	0	-1
17.5	Eynsham Road Junction	Controlled Crossing South Across Eynsham Road (Central Island)	8	10	-2	-1	0	15
17.6	Eynsham Road Junction	Controlled Crossing South Across Eynsham Road (No Central Island)	9	12	-2	3	0	22
18	Cassington Halt Bridge		Strategic (max 22)	Economic (max 26)	Financial (max 4)	Management (max 26)	Commercial (max 2)	Total (max 80)
18.1	Cassington Halt Bridge	No Bridge Extension with Bus Lanes	19	15	-3	0	0	31
18.2	Cassington Halt Bridge	No Bridge Extension without Bus Lanes	8	11	-3	-3	0	13
18.3	Cassington Halt Bridge	Extend Bridge on South Side Opt. 1	20	15	-2	0	0	33
18.4	Cassington Halt Bridge	Extend Bridge on South Side Opt. 2	16	8	-1	-1	0	22
18.5	Cassington Halt Bridge	Extend Bridge on North & South Side	20	14	-2	0	0	32
18.6	Cassington Halt Bridge	Structure Infilling & Signalised Junction	14	9	-2	-5	0	16

Appendix H Stage 3 Sifting Outcome

Item No.	Junction	Options	Description	Comments	Assessment Comments
1.11.	3-arm P&R Junction (future proofed for future development)	3-arm signalised junction (future proofing for the provision of a 4th arm) + bus gate	Priority to WB buses to allow the bus to merge into the general traffic in order to be in the offside lane of the road. Would retain proposed toucan crossing nearer to Cuckoo Lane.	It would enable buses to be at the front of the queue at the next junction. Disadvantages - Would introduce another set of signals before the main junction. Disadvantages - Additional flows will affect the junction's capacity. Disadvantages - Utilities may be affected due to the additional works required.	Option includes a 4th arm requested by OCC on the 3rd August 2020 at an Integrated Bus Lanes Technical Meeting. Option included after the first scoring. Recommended for further assessment
1.12	4-arm P&R Junction	Express way for buses	Existing WB layby to be used by buses for access into the P&R site. Buses to have priority at the junction with the proposed southern arm (West Eynsham development access) and at the P&R junction.	It would provide buses with priority at the junction. Disadvantages - Additional flows will affect the junction's capacity. Disadvantages - Utilities may be affected due to the additional works required.	Option includes a 4th arm requested by OCC on the 3rd August 2020 at an Integrated Bus Lanes Technical Meeting. Option included after the first scoring. Recommended for further assessment
1.13	4-arm P&R Junction	Signalised junction	3-arm signalised junction to be updated to include a 4th arm on the southern side (West Eynsham Developers). No bus gate provided.	Less earthworks required compared to roundabout. Disadvantages - Additional flows will affect the junction's capacity. Disadvantages - Buses would not be able to get priority at the junction. Disadvantages - Utilities may be affected due to the additional works required.	Option includes a 4th arm requested by OCC on the 3rd August 2020 at an Integrated Bus Lanes Technical Meeting. Option included after the first scoring. After further analysis, this option is discarded. Options 1.11 and 1.12 are the preferred options for a 4-arm signalised junction. This option does not provide bus priority, so it does not fully align with the Scheme Objectives.
1.14	4-arm P&R Junction	Roundabout	3-arm roundabout option to be updated to include a 4th arm on the southern side (West Eynsham Developers).	Disadvantages - Additional flows will affect the junction's capacity. Disadvantages - Impact on gas main on the southern side of the existing road. Disadvantages - Unable to provide any priority for buses to access park and ride. Disadvantages - Utilities may be affected due to the additional works required.	Option includes a 4th arm requested by OCC on the 3rd August 2020 at an Integrated Bus Lanes Technical Meeting. Option included after the first scoring. Recommended for further assessment
5.4	Cuckoo Lane - Right Turn Banned (In & Out)	Right Turn Banned (Out of Cuckoo Lane)	Right Turn Banned (Out of Cuckoo Lane)	This option allows vehicles travelling westbound on the A40 to turn right into Cuckoo Lane. Right-turning movement from Cuckoo Lane into the A40 is banned. Vehicles would need to use Lower Rd roundabout in order to make a U-turn. This option is to be implemented before the Garden Village access road is built. Without this access, vehicles would need to travel a large distance in order to be able to access the areas to the north of the proposed P&R site. Allowing the right-turning movement from the A40 into Cuckoo Lane is necessary at this initial stage.	Option included after the first scoring. Option taken forward.
10.4	Witney Road Junction	Signalised Junction with Physical Separation (straight through toucan crossing)	Signalised junction for Witney Road with 1.3m physical separation distance (traffic island) between the westbound general traffic lane and the dedicated right turn lane. This is designed to a 50mph speed limit. Straight through toucan crossings across Witney Rd.	Considered safer to include the separation and in addition DMRB CD123 Note 7.16 states that physical separation is required where the speed limit is 50mph and above. Straight through toucan crossing provided across Witney Rd.	Option included after the first scoring. Recommended for further assessment
10.5	Witney Road Junction	Signalised Junction with Physical Separation (uncontrolled crossing)	Signalised junction for Witney Road with 1.3m physical separation distance (traffic island) between the westbound general traffic lane and the dedicated right turn lane. This is designed to a 50mph speed limit. Staggered toucan crossings across the A40. Uncontrolled crossing across Witney Rd.	Considered safer to include the separation and in addition DMRB CD123 Note 7.16 states that physical separation is required where the speed limit is 50mph and above. Uncontrolled crossing provided across Witney Rd.	Option included after the first scoring. Recommended for further assessment
11.4	Crossings at Esso Petrol Station and Spareacre Lane / Hanborough Rd	Controlled Crossing - straight across toucan	Controlled straight toucan crossing across the A40 to connect the Spareacre Lane and Hanborough Rd PROW.	Provides the same connectivity between the north and south side of the A40, however in a safe manner for high-speed traffic. Provides additional signalised crossing close to Witney Road signalised junction, which may decrease journey time savings and may not be favoured by the majority of the general public. Most favourable option for cyclists as these would not need to dismount when crossing the A40. Unable to provide Pegasus crossing due to width of carriageway to cross the road (approximately 11m max).	Option included after the first scoring. Recommended for further assessment
11.5	Crossings at Esso Petrol Station and Spareacre Lane / Hanborough Rd	Controlled Crossing - Pegasus	Controlled Pegasus crossing across the A40 to connect the Spareacre Lane and Hanborough Rd PROW.	There might not be enough space to provide the required centre island. Provides the same connectivity between the north and south side of the A40, however in a safe manner for high-speed traffic. Provides additional signalised crossing close to Witney Road signalised junction, which may decrease journey time savings and may not be favoured by the majority of the general public. Existing NMU data shows there is no equestrian demand for a Pegasus crossing on this location. AECOM's WCHAR from the 12th April 2019 shows that no equestrian movements were recorded on the surveys, which were undertaken on Sunday 19th November to Saturday 25th November 2017. The bridleways that are located at these crossings are connected into housing estates on the south side and the bridleways terminate shortly after. As the bridleways are not suitable for equestrian use, it is questionable whether any equestrians are using the paths at all. The A40 is not a suitable road for a horse and rider to walk alongside. Therefore, this option is discarded as part of this scheme. However, if equestrian demand increase in future this crossing should be reviewed and upgraded to a Pegasus if needed.	Option included after the first scoring. Not supported
12.7	Lower Road Roundabout	Existing roundabout enhanced for NMUs	Existing roundabout layout, including EB and WB bus lanes (increased flare lengths and entry widths) and formal crossings for NMUs.	May require Land take / CPO to incorporate bus lanes and shared use facilities, and alteration to culvert on north east side. Includes controlled crossings for pedestrians/cyclists.	Option included after the first scoring. Recommended for further assessment
17.7	Eynsham Road Junction	Controlled Crossing South Across Eynsham Road (With Central Island)	Controlled crossing across Eynsham Road at the junction. Includes a central traffic island to provide NMUs with a safe stopping area.	Safe for pedestrians and cyclists - utilises signals phase for pedestrians and cyclists only. Includes a central traffic island to provide NMUs with a safe stopping area - long crossing, so some NMUs might not be able to cross the whole junction at once.	Option included after the first scoring. Option taken forward.
18.9	Cassington Halt Bridge	Southern footbridge only (no bridge extension)	No bridge extension – Localised narrowing of bus lanes and construction of south footbridge. Northern shared use joins to the existing road level under the bridge.	No bridge extension – Localised narrowing of bus lanes and construction of south footbridge. BD95 process undertaken for A40 Science Transit has confirmed that this structure was strengthened in 2002 for vehicle loading to within 600mm of the parapet in anticipation of a future eastbound bus lane scheme.	Option included after the first scoring. Recommended for further assessment
19.1	Eastern Link section (next to SAC, SSSI)	EB and WB bus lane along the whole section	Provide a WB bus lane along the whole eastern section between Cassington Halt Bridge and Duke's Cut.	Scheme extents will most likely affect the highway boundary, which means affecting the SAC and SSSI. Impact on the surrounding environment. Natural England could reject the scheme due to the disturbance created for the SSSI and/or SAC. Bus priority along a greater stretch of corridor.	Option included after the first scoring. Recommended for further assessment

Item No.	Junction	Options	Description	Comments	Assessment Comments
19.2	Eastern Link section (next to SAC, SSSI)	WB bus lane descope past the SSSI/SAC	Desclope the WB bus lane along the eastern section between the existing WB layby (east of Cassington Halt Bridge) and Duke's Cut.	<p>Scheme extents within highway boundary.</p> <p>No issues with SSSI and/or SAC - less environmental impact to the surrounding environment.</p> <p>No WB bus priority along this stretch of corridor.</p>	<p>Option included after the first scoring.</p> <p>Recommended for further assessment</p>
20.1	Cuckoo Lane Crossing	Pegasus crossing	Provision of a Pegasus crossing just west of Cuckoo Lane junction with the A40.	<p>Existing NMU data shows there is no equestrian demand for a Pegasus crossing on this location. AECOM's WCHAR from the 12th April 2019 shows that no equestrian movements were recorded on the surveys, which were undertaken on Sunday 19th November to Saturday 25th November 2017.</p> <p>This option would likely require land take.</p> <p>Travel time for buses and general traffic would be slightly affected due to the additional signals.</p> <p>There is a connection to a bridleway from Cuckoo Lane located north of its junction with the A40. However, there is no bridleway provision to the south of Cuckoo Lane. Therefore, it is questionable whether a Pegasus crossing at this location would be of any use.</p> <p>This option is hence discarded as part of this scheme. If equestrian demand increase in future this crossing could be reviewed and upgraded to a Pegasus if required.</p>	<p>Option included after the first scoring.</p> <p>Not supported</p>
20.2	Cuckoo Lane Crossing	Toucan crossing	Provision of a toucan crossing just west of Cuckoo Lane junction with the A40.	<p>Oxfordshire's County Council Future Walking and Cycling Provision Strategy shows the need to provide shared use facilities and appropriate crossings for pedestrians and cyclists in this area.</p> <p>A toucan crossing would be ideal for cyclists and pedestrians, as it would give them priority.</p> <p>Travel time for buses and general traffic would be slightly affected due to the additional signals.</p>	<p>Option included after the first scoring.</p> <p>Option taken forward.</p>
20.3	Cuckoo Lane Crossing	Uncontrolled	Provision of an uncontrolled crossing just west of Cuckoo Lane junction with the A40.	<p>An uncontrolled crossing wouldn't provide NMUs with priority and it would not provide a safe crossing point, especially with the A40 being a heavily trafficked road. It would not fully comply with the Scheme Objectives and it would not comply with OCC's Walking and Cycling Strategy, which shows that this crossing should be controlled.</p>	<p>Option included after the first scoring.</p> <p>Not supported</p>
21.1	Cassington Road Junction	EB and WB bus lanes through Cassington junction	EB and WB bus lanes carried through Cassington junction.	<p>Bus priority across the whole junction.</p>	<p>Option included after the first scoring.</p> <p>Recommended for further assessment</p>
21.2	Cassington Road Junction	2 general traffic straight ahead lanes through Cassington junction	2 straight ahead lanes for general traffic across Cassington junction.	<p>No bus priority through the junction.</p> <p>Bus lanes end just before the junction - general traffic lanes allow an increase in the junction's capacity.</p>	<p>Option included after the first scoring.</p> <p>Recommended for further assessment</p>

Appendix I Stage 3 Scoring Outcome

#		Options	Strategic Case	Economic Case	Financial Case	Management Case	Commercial Case	Total	Assessment Comments
1	P&R Junction		22	26	4	26	2	80	
1.11.	P&R Junction	3-arm Signalised junction + bus gate (future proofed for future development)	12	15	-1	1	0	27	<p>Preferred design solution.</p> <p>Strong strategic case as this option would fulfil the scheme objectives. The implementation of a westbound bus lane and bus gate as well as the enhanced NMU infrastructure (controlled crossing facilities and northern/southern shared use facilities) will contribute to unlock the delivery of homes encouraging sustainable travel. The economic case presents the highest score of all options, with a positive impact in society. This is because it is considered to be the most suitable option for both NMU's and Public Transport users as a result of the implementation of a bus gate and controlled crossings in the northern, southern and western junction approaches, which significantly improves accessibility, safety and travel times for these groups. The financial case presents a better outcome than the roundabout mainly because of the reduced impact in the existing gas main compared to the roundabout option (1.14). The management case for this option is weaker than for option (1.14). Overall, the traffic modelling results suggest a roundabout would perform better than a signalised option. which could lead to objections from a number of stakeholders (i.e. drivers, local authorities, etc). The commercial case is the same for all options, the southern approach will serve the West Eynsham SDA and it is responsibility of the private developers to build that part of the junction.</p> <p>In summary, with a total score of 27, this option ranks the highest. It allows the junction to perform without creating significant congestion with the provision of enhanced and safer NMU facilities as well as a westbound bus gate giving priority to buses</p>
1.12.	P&R Junction	4-arm Signalised junction + express way for buses	9	9	-1	-7	0	10	<p>Supported design solution, but not preferred.</p> <p>Strong strategic case as this option would fulfil the scheme objectives. The implementation of a westbound bus lane, expressway for buses providing priority, as well as the enhanced NMU infrastructure (controlled crossing facilities and northern/southern shared use facilities) will contribute to unlock the delivery of homes encouraging sustainable travel. It is worth noting that traffic modelling undertaken suggests the bus priority may not be as effective as in option 1.11 above. Also, it presents a more complex layout than option 1.11 making this option less safe. The economic case is also relatively strong as it presents a positive impact in capacity, travel times, accessibility and safety for NMU's and public transport users. It presents a lower score than the option above due to the complexity of the junction and the modelling results which suggests the bus priority would be less effective. The financial case presents a better outcome than the roundabout mainly because of the reduced impact in the existing gas main compared to the roundabout option (1.14). This option shows a weak management case, this is due to the opposition to the implementation of signals by some stakeholders as well as the conversion of the lay by to a express way for buses. The commercial case is the same for all options, the southern approach will serve the West Eynsham SDA and it is responsibility of the private developers to build that part of the junction.</p> <p>In summary, with a total score of 10, this option ranks the lowest.</p>
1.14	P&R Junction	4-arm Roundabout	12	8	-2	3	0	21	<p>Supported design solution, but not preferred.</p> <p>Strong strategic case as this option would fulfil the scheme objectives. The implementation of a westbound bus lane and bus gate as well as the enhanced NMU infrastructure (controlled crossing facilities and northern/southern shared use facilities) will contribute to unlock the delivery of homes encouraging sustainable travel. The economic case is the weakest compared to other options as it doesn't provide bus priority and it is considered the NMU infrastructure is not as suitable as in the other options. However, this junction performs better than a signalised option. The financial case is the weakest of all options as this option has a greater impact in the gas main which would require diversion, leading to a significant increase in cost. The management case is ranked as the strongest of all options. It is not a signalised option which may be gain the support of Local authorities and drivers. It also provides enhanced shared use facilities if compared to the Do min. or existing situation. The commercial case is the same for all options, the southern approach will serve the West Eynsham SDA and it is responsibility of the private developers to build that part of the junction.</p> <p>In summary, with a total score of 20, this option ranks the second highest. Overall, the junction performs better than options 1.12 and 1.11 from a traffic signals perspective. However, It does not provide bus priority at junction approach and the NMU provision is of a lesser quality if compared to the options above.</p>
10	Witney Road Junction								
10.1.	Witney Road Junction	Signalised Junction with Physical Separation (staggered toucan crossing)	16	12	-3	-7	0	18	<p>Preferred design solution.</p> <p>Strong Strategic case as this option would fulfil the scheme objectives. The eastbound bus lane through the junction, westbound bus lane brought close to the junction and enhanced NMU facilities would all contribute to unlock the delivery of homes. The economic case is not that strong, but it is the highest of all options. This is because including a staggered crossing on Witney Rd would not create significant congestion, so the junction would still be able to operate. The financial case is weak because there would be an increase in costs due to the signalised junction and some land take which might be required on the northern side. The management case is very weak as this option is more complex due to the implementation of signals, which increases costs and makes it more difficult for future proofing. Utilities could also be affected, and these would require protection. The Commercial case is neutral as there is no significant complexity of delivery.</p> <p>In summary, with a total score of 18, this option ranks the highest. It allows the junction to perform without creating significant congestion and provides safer facilities on the southern side for NMUs.</p>
10.4.	Witney Road Junction	Signalised Junction with Physical Separation (Straight through toucan crossing)	17	4	-3	-7	0	11	<p>Supported design solution, but not preferred.</p> <p>Strong Strategic case as this option would fulfil the scheme objectives. The eastbound bus lane through the junction, westbound bus lane brought close to the junction and enhanced NMU facilities would all contribute to unlock the delivery of homes. The economic case is the weakest of all options. This is because including a straight through crossing on Witney Rd would create significant congestion and queues along the A40. Therefore, journey times would increase significantly. The financial case is weak because there would be an increase in costs due to the signalised junction and some land take which might be required on the northern side. The management case is very weak as this option is more complex due to the implementation of signals, which increases costs and makes it more difficult for future proofing. Utilities could also be affected, and these would require protection. The Commercial case is neutral as there is no significant complexity of delivery.</p> <p>In summary, with a total score of 11, this option ranks the lowest. Although this option would provide NMUs with the best facilities, the junction would operate significantly over capacity, creating queues and congestion on the A40. This would affect public transport and general traffic journey times.</p>
10.5	Witney Road Junction	Signalised Junction with Physical Separation (Uncontrolled crossing)	9	8	-1	-4	0	12	<p>Supported design solution, but not preferred.</p> <p>Weakest Strategic case out of all options. This is because it would not give NMUs priority on Witney road and would involve a less safe crossing facility, thus not completely fulfilling the scheme objectives in terms of active travel. The economic case is also weak, mainly because it would not encourage active travel as much as the other options. The financial case is not as weak as the other options because it would be less expensive to construct, as no signals and island are required. The Management case is not as weak either due to the simpler design and construction, as well as allowing future proofing the junction (adding signals in the future). The commercial case is neutral as there is no significant complexity of delivery.</p> <p>In summary, with a total score of 12, this option ranks the second. Although this option would not provide NMUs with priority on Witney Rd, the junction would operate better as there would not be additional signals. This means that bus and general traffic journey times would not be negatively impacted.</p>
11	Crossings at Esso Petrol Station and Spareacre Lane / Hanborough Rd								
11.3.	Crossings at Esso Petrol Station and Spareacre Lane / Hanborough Rd	Controlled Crossing (Toucan Staggered)	2	1	1	0	0	4	<p>Preferred design solution.</p> <p>All 5 cases rank very low. This is because the difference with the DoMin is not significant. The Strategic and economic cases score better than the other option because a toucan staggered crossing would not affect bus and general traffic journey times as much. The green time for the crossing would be reduced, therefore impacts traffic less. The Financial case scores low. This option would still be less expensive than the DoMin (Pegasus crossing). The Management case scores neutral as public/stakeholder acceptability can vary and there is negligible difference as compared to the DoMin. The commercial case is 0 because there is no complexity of delivery.</p> <p>In summary, with a score of 4, this option scores the highest. Although a toucan staggered crossing might not be ideal for cyclists, overall it provides a safe crossing point for NMUs and does not impact traffic significantly.</p>

#		Options	Strategic Case	Economic Case	Financial Case	Management Case	Commercial Case	Total	Assessment Comments
11.4.	Crossings at Esso Petrol Station and Spareacre Lane / Hanborough Rd	Controlled Crossing (Toucan Straight)	0	0	1	0	0	1	<p>Supported design solution, but not preferred.</p> <p>All 5 cases rank very low. This is because the difference with the DoMin is not significant. The Strategic and economic cases score worse than the other option because a straight toucan crossing would affect bus and general traffic journey times. The green time for the crossing would be higher than the time required for a staggered crossing, therefore impacts traffic slightly more. The Financial case scores low. This option would still be less expensive than the DoMin (Pegasus crossing). The Management case scores neutral as public/stakeholder acceptability can vary and there is negligible difference as compared to the DoMin. The commercial case is 0 because there is no complexity of delivery.</p> <p>In summary, with a score of 1, this option scores the lowest. Although a straight toucan crossing might be the best solution for cyclists, overall it impacts traffic a bit more than a staggered crossing.</p>
12	Lower Road Roundabout								
12.1.	Lower Road Roundabout	Signalised Junction (40mph)	6	3	-4	-9	0	14	<p>Supported design solution, but not preferred</p> <p>This option has a very strong Strategic case. This is due to the provision of eastbound and westbound bus lanes over the bridge, without affecting general traffic. The economic case is much weaker as it would have some impact on the environment. The Financial case is also very weak due to the costs involved in widening the existing bridge. The Management case has a slightly higher score due to public and stakeholder acceptability. However, it would involve a complex design and construction. The Commercial case is neutral as there is no significant complexity of delivery as compared with the DoMin.</p> <p>In summary, with a total score of 17, this option ranks first. Although this option requires more bridge widening, it provides a safer shared use facility on the northern side of the A40.</p>
12.2.	Lower Road Roundabout	Hamburger Roundabout (40mph)	-12	-4	-4	-17	0	-37	<p>Supported design solution, but not preferred.</p> <p>This option has a very strong Strategic case. This is due to the provision of eastbound and westbound bus lanes over the bridge, without affecting general traffic. The economic case is much weaker as it would have some impact on the environment. The Financial case is also very weak due to the costs involved in widening the existing bridge. However, it would have some cost savings as compared with the other option due to less bridge widening. The Management case has a low score due to less public and stakeholder acceptability. Having a narrower shared use facility on the northern side (which does not meet the minimum standards) would negatively affect NMUs, especially cyclists. In addition, it would involve a complex design and construction. The Commercial case is neutral as there is no significant complexity of delivery as compared with the DoMin.</p> <p>In summary, with a total score of 14, this option ranks worse. Although this option requires less bridge widening, it provides an unsafe northern shared use facility, which does not meet minimum standards.</p>
12.3.	Lower Road Roundabout	Leave roundabout as is (with bus lanes + uncontrolled crossings)	13	7	0	0	0	20	<p>Supported design solution, but not preferred.</p> <p>The Strategic case scores well. This is because this option would provide an improvement on NMU facilities and it operates well. The Economic case scores better than other options, mainly because it does not impact significantly on the economy nor the environment. The financial case scores neutral as costs would be very low and no signals are included. The Management case scores weak as there would not be much stakeholder/public acceptability. Bus lanes are not provided through the junction, not controlled crossings for NMUs. The Commercial case scores neutral as there is no complexity of delivery.</p> <p>In summary, with a score of 20, this option ranks second best.</p>
12.6	Lower Road Roundabout	Increased size of existing roundabout	14	5	-2	-7	0	10	<p>Supported design solution, but not preferred.</p> <p>The Strategic case scores well. This is because this option would provide an improvement on NMU facilities and would operate well due to the increase in capacity. The Economic case scores low, mainly because it has a greater impact on the environment. The financial case scores weak as costs would be very high due to land take, impact on utilities and the roundabout's construction. The Management case scores weak as there would not be much stakeholder/public acceptability. Bus lanes are not provided through the junction, not controlled crossings for NMUs. The Commercial case scores neutral as there is no complexity of delivery.</p> <p>In summary, with a score of 10, this option ranks in the middle.</p>
12.7	Lower Road Roundabout	Roundabout - Enhanced for NMUs (with bus lanes and controlled crossings)	17	11	-2	0	0	26	<p>Preferred design solution.</p> <p>This option has a very strong Strategic case. This is because, although it does not provide bus priority through the junction, eastbound and westbound bus lanes break before the junction and shared used facilities are provided on the northern and southern side of the A40, along with controlled crossings. Modelling shows the junction operates relatively well. The economic case scores strong as it improves accessibility and journey times for all transport modes. The financial case is weak. This is because the implementation of signals increases cost and may require some utility protection/diversion. The management case scores low because bus priority through the junction is not provided and this might affect stakeholder/public acceptability. The commercial cases scores neutral as there is no complexity of delivery.</p> <p>In summary, with a total score of 26, this option ranks first. Although this option does not provide bus priority, modelling shows it works well in terms of capacity and NMU facilities are improved. Overall, it fulfils the scheme objectives better than the other options.</p>
13	Cassington New Bridge								
13.1.	Cassington New Bridge	Extend Bridge on South Side Opt. 1 (5.9m)	15	2	-2	2	0	17	<p>Preferred design solution.</p> <p>This option has a very strong Strategic case. This is due to the provision of eastbound and westbound bus lanes over the bridge, without affecting general traffic. The economic case is much weaker as it would have some impact on the environment. The Financial case is also very weak due to the costs involved in widening the existing bridge. The Management case has a slightly higher score due to public and stakeholder acceptability. However, it would involve a complex design and construction. The Commercial case is neutral as there is no significant complexity of delivery as compared with the DoMin.</p> <p>In summary, with a total score of 17, this option ranks first. Although this option requires more bridge widening, it provides a safer shared use facility on the northern side of the A40.</p>
13.2.	Cassington New Bridge	Extend Bridge on South Side Opt. 2 (4.9m)	13	2	-1	0	0	14	<p>Supported design solution, but not preferred.</p> <p>This option has a very strong Strategic case. This is due to the provision of eastbound and westbound bus lanes over the bridge, without affecting general traffic. The economic case is much weaker as it would have some impact on the environment. The Financial case is also very weak due to the costs involved in widening the existing bridge. However, it would have some cost savings as compared with the other option due to less bridge widening. The Management case has a low score due to less public and stakeholder acceptability. Having a narrower shared use facility on the northern side (which does not meet the minimum standards) would negatively affect NMUs, especially cyclists. In addition, it would involve a complex design and construction. The Commercial case is neutral as there is no significant complexity of delivery as compared with the DoMin.</p> <p>In summary, with a total score of 14, this option ranks worse. Although this option requires less bridge widening, it provides an unsafe northern shared use facility, which does not meet minimum standards.</p>
18	Cassington Halt Bridge								
18.1.	Cassington Halt Bridge	No Bridge Extension with Bus Lanes and 2 footbridges (Assumes Bridge Structurally Sound for Proposal)	18	13	-3	3	-1	30	<p>Preferred design solution.</p> <p>Very strong strategic case, as this option includes eastbound and westbound bus lanes through the bridge, as well as a northern and southern footbridge for NMUs. In addition, there would be no negative impact on general traffic. The economic case is relatively strong due to the increase of bus reliability and the provision of a southern shared use facility. The financial case however is weak. This option has very high capital costs due to the diversion of the IP gas main and construction of two footbridges. The management case is very weak; however, this option isn't ranked badly against the others at 0 and -3. The complexity of designing new footbridges is not high, unlike options where the bridge deck is being widened. The commercial case for all options do not greatly vary.</p> <p>In summary, with a total score of 30, this option is ranked as the highest. Incorporating both bus lanes is beneficial for journey time savings with the push towards sustainable modes of transport. The footbridges also encourage walking and cycling and provide safe means of travel for NMU's. Incorporating the bus lanes through the bridge would require localised narrowing of lanes. The structural assessment of the bridge deck deems it feasible for the anticipated loads. This option is a preferred design solution.</p>

#		Options	Strategic Case	Economic Case	Financial Case	Management Case	Commercial Case	Total	Assessment Comments
18.3.	Cassington Halt Bridge	Extend Bridge on South Side Opt. 1 (footbridge on north side)	19	13	-3	0	-2	<u>27</u>	<p>Supported design solution, but not preferred.</p> <p>Very strong strategic case, as this option includes eastbound and westbound bus lanes through the bridge, as well as a northern footbridge and southern shared use facility for NMUs. In addition, there would be no negative impact on general traffic. The economic case is relatively strong due to the increase of bus reliability and the provision of a southern shared use facility. The financial case however is weak. This option has very high capital costs due to the diversion of the IP gas main, construction of the footbridge and bridge widening to the south. The management case is weak, and the Commercial case is very weak. This is due to the high complexity of widening the bridge deck.</p> <p>In summary, with a total score of 27, this option is ranked third. Incorporating both bus lanes is beneficial for journey time savings with the push towards sustainable modes of transport. The footbridge and shared use facility on the south also encourage walking and cycling and provide safe means of travel for NMU's. However, the bridge widening adds more cost and complexity to the option.</p>
18.5.	Cassington Halt Bridge	Extend Bridge on North & South Side	19	13	-2	0	-2	<u>28</u>	<p>Supported design solution, but not preferred.</p> <p>Very strong strategic case, as this option includes eastbound and westbound bus lanes through the bridge, as well as a northern and southern shared use facilities for NMUs. In addition, there would be no negative impact on general traffic. The economic case is relatively strong due to the increase of bus reliability and the provision of a southern shared use facility. The financial case however is weak. This option has very high capital costs due to the diversion of the IP gas main and bridge widening on both sides. The management case is weak, and the Commercial case is very weak. This is mainly due to the high complexity of widening the bridge deck.</p> <p>In summary, with a total score of 28, this option is ranked second. Incorporating both bus lanes is beneficial for journey time savings with the push towards sustainable modes of transport. The shared use facilities on the north and south also encourage walking and cycling and provide safe means of travel for NMU's. However, the bridge widening adds more cost and complexity to the option.</p>
18.9.	Cassington Halt Bridge	Southern footbridge only (no bridge extension)	17	9	-2	-3	-1	<u>20</u>	<p>Supported design solution, but not preferred.</p> <p>Strong strategic case, as this option includes eastbound and westbound bus lanes through the bridge, as well as northern and southern shared use facilities for NMUs. This option scores less because, although it does not require bridge widening, the northern shared use facility is brought down to the existing road level under the bridge. The economic case is relatively strong due to the increase of bus reliability and the provision of a southern shared use facility. The financial case however is weak. This option has high capital costs due to the diversion of the IP gas main and footbridge on the southern side. The management case is weak as it might have less public and stakeholder acceptability due to the northern shared use facility joining the existing road under the bridge. The Commercial case is weak, mainly due to the complexity of constructing the southern footbridge.</p> <p>In summary, with a total score of 20, this option is ranked the worst. Incorporating both bus lanes is beneficial for journey time savings with the push towards sustainable modes of transport. The shared use facilities on the north and south also encourage walking and cycling and provide safe means of travel for NMU's. However, the northern shared use facility would require lighting to improve safety and might not be appealing for NMUs as it does not provide such a direct route for them.</p>
19	Eastern Link section (next to SAC, SSSI)								
19.1.	Eastern Link section (next to SAC, SSSI)	EB and WB bus lane along the whole section	17	6	-2	-4	-1	<u>16</u>	<p>Preferred design solution.</p> <p>Very strong strategic case providing the eastbound and westbound bus lanes, as it helps comply with the scheme objectives. The economic case however scores less. This is due to the negative (and lack of strong positive) impacts on the environment and economy. The financial case is also very weak. This option has very high capital costs due to engineering challenges envisaged for widening existing culverts and reprofiling ditches and embankments. The management case is also very weak. This is due to poor scoring in the practical feasibility category (due to engineering complexities), likely impacts on utilities and likely objections from Natural England. The commercial case for this option is also weak due to the complexities of delivery in both design and construction, as it would most likely require liaison with environmental specialists.</p> <p>In summary, with a total score of 16, this option ranks the highest. Incorporating both bus lanes can be beneficial for journey time savings with the push towards sustainable modes of transport, although the environmental impacts and costs are large as compared to the other option. Overall, this option will fulfil the scheme's objectives.</p>
19.2.	Eastern Link section (next to SAC, SSSI)	WB bus lane descoped passed the SSSI/SAC	7	5	-1	-2	0	<u>9</u>	<p>Supported design solution, but not preferred.</p> <p>Relatively strong strategic case (although much lower than the other option) providing just an eastbound bus lane along with shared use facilities for NMUs on the northern and southern sides of the A40. The economic case however scores less. The financial case is weak. The management case is weak, however this option is better than providing an eastbound and westbound bus lane as it would involve less construction, thus a better scoring in the practical feasibility category. This option does not affect the existing SSSI/SAC and has lees environmental impact, thus has a better public and stakeholder acceptability. The commercial case for this option is neutral as there is no complexity in delivering the option.</p> <p>In summary, with a total score of 9, this option ranks the lowest. Traffic modelling has shown that bus and general traffic travel time is not affected if a WB bus lane is not included. However, the model has significant caveats which need to be considered (i.e. Wolvercote junction acts as a filter for westbound traffic due to its reduced capacity). Not including the WB bus lane would allow for better NMUs facilities (wider and safer spaces) and avoid any impacts to the SSSI/SAC and the environment as a whole. However, the descoping of the WB bus lane would not align with "Policy T2 - Highway Improvement Schemes" from the West Oxfordshire Local Plan.</p>
21	Cassington Road Junction								
21.1.	Cassington Road Junction	EB and WB bus lanes through Cassington junction	-12	-5	-1	6	0	<u>-12</u>	<p>Supported design solution, but not preferred.</p> <p>This option has a very weak Strategic case. This is because providing an eastbound and westbound bus lane through Cassington junction would reduce capacity for general traffic and would create significant congestion and queues along the corridor. Therefore, it would not allow the unlocking of the additional homes. The economic case is also weak as it would impact the economy. The financial case is also weak due to the costs involved in providing a westbound bus lane. The Management case is stronger due to public and stakeholder acceptability. It would most likely have support from stakeholders, public transport users and other NMUs. The commercial case is neutral as there is no complexity of delivery.</p> <p>In summary, with a total score of -12, this option is ranked the worst. This is mainly due to the significant congestion that would be caused along the corridor, which would directly impact on the economy as travel times would increase and reliability would decrease.</p>
21.2.	Cassington Road Junction	Two general traffic straight ahead lanes through Cassington junction	5	6	-1	3	0	<u>13</u>	<p>Preferred design solution.</p> <p>This option does not have a very strong Strategic case as it does not provide full public transport priority through the junction. However, it is much higher than for the other option. It has a slightly higher economic case as there is no impact to the environment nor the economy. The financial case is weak as it involves more cost due to the inclusion of another westbound general traffic lane. The management case is not very strong as, although it is not a complex design, it may not have much support from some stakeholders and public transport users. The commercial case is neutral as there is no complexity of delivery.</p> <p>In summary, with a total score of 13, this option is ranked the highest.</p>

Appendix J ANPR Semantic Maps

