

**THE OXFORDSHIRE COUNTY COUNCIL (DIDCOT GARDEN TOWN  
HIGHWAYS INFRASTRUCTURE – A4130 IMPROVEMENT (MILTON GATE  
TO COLLETT ROUNDABOUT), A4197 DIDCOT TO CULHAM LINK ROAD,  
AND A415 CLIFTON HAMPDEN BYPASS) COMPULSORY PURCHASE  
ORDER 2022**

**THE OXFORDSHIRE COUNTY COUNCIL (DIDCOT TO CULHAM THAMES  
BRIDGE) SCHEME 2022**

**THE OXFORDSHIRE COUNTY COUNCIL (DIDCOT GARDEN TOWN  
HIGHWAYS INFRASTRUCTURE – A4130 IMPROVEMENT (MILTON GATE  
TO COLLETT ROUNDABOUT), A4197 DIDCOT TO CULHAM LINK ROAD,  
AND A415 CLIFTON HAMPDEN BYPASS) (SIDE ROADS) ORDER 2022**

**AND**

**THE CALLED-IN PLANNING APPLICATION BY OXFORDSHIRE COUNTY  
COUNCIL FOR THE DUALLING OF THE A4130 CARRIAGEWAY,  
CONSTRUCTION OF THE DIDCOT SCIENCE BRIDGE, ROAD BRIDGE  
OVER THE APPLEFORD RAILWAY SIDINGS AND ROAD BRIDGE OVER  
THE RIVER THAMES, AND ASSOCIATED WORKS BETWEEN THE A34  
MILTON INTERCHANGE AND THE B4015 NORTH OF CLIFTON HAMPDEN,  
OXFORDSHIRE (APPLICATION NO: R3.0138/21)**

**PLANNING INSPECTORATE REFERENCE:**

**APP/U3100/V/23/3326625 and NATTRAN/SE/HAO/286 (DPI/U3100/23/12)**

---

**Proof of evidence of**

**ARON LESLIE WISDOM**

**(Strategic Needs and Benefits, Highway Issues, Scheme  
Selection and Alternatives)**

---

**Note: This proof of evidence is of equal relevance to the Inquiry into the called-in  
Planning Application and the Inquiries into the Orders.**

## Table of Contents

1. INTRODUCTION AND QUALIFICATIONS.....	3
2. THE SCHEME .....	5
3. LOCAL CONTEXT .....	6
4. CURRENT AND FUTURE HIGHWAYS ISSUES.....	14
5. POLICY CONTEXT .....	27
6. IDENTIFICATION OF NEED FOR THE SCHEME.....	34
7. OBJECTIVES OF THE SCHEME .....	41
8. THE OPTIONEERING PROCESS .....	44
9. CONSULTATION .....	78
10. SCHEME SELECTION.....	82
11. HIGHWAYS PERFORMANCE WITH THE SCHEME.....	84
12. SCHEME BENEFITS.....	96
13. ALTERNATIVES .....	110
14. RESPONSES TO CONCERNS.....	117
15. SUMMARY PROOF OF EVIDENCE AND CONCLUSION.....	121
16. STATEMENT OF TRUTH AND DECLARATION .....	126

## 1. INTRODUCTION AND QUALIFICATIONS

- 1.1 I am Aron Leslie Wisdom. I am a Programme Lead at Oxfordshire County Council. I am appearing on behalf of Oxfordshire County Council in its capacity as applicant for planning permission (the **Applicant**) and as acquiring authority in relation to statutory orders (the **Acquiring Authority**), to provide evidence on transport issues relating to strategic needs and benefits, highway issues, scheme selection and alternatives.
- 1.2 I have an Honours Degree in Politics and Social Sciences from the University of Sussex and a Master's Degree in Transport Planning from Oxford Brookes University.
- 1.3 I have over 17 years' experience in transport planning in the public and private sector working across the discipline from travel planning and scheme development and delivery through to development management and development plans.
- 1.4 I have represented Oxfordshire County Council at appeal hearings and the Examination in Public for the Vale of White Horse District Council's (VOWHDC) Local Plan 2031 (Part 1 and Part 2) and the Watlington Neighbourhood Plan. I have also been an expert witness for a planning appeal in Sutton Courtenay. The appellant withdrew from that process a short time before the start of the Inquiry.
- 1.5 I should inform the Inquiry that I live in the local area and have done so since 2002. My experience, education, skills and local knowledge means that I am the most suitable expert witness for the Applicant to put forward. I am satisfied that this does not impair my objectivity and that I am properly able to give the declaration as noted in section 16 of my proof of evidence.

### Scope of Evidence

- 1.6 This Proof of Evidence has been prepared regarding strategic needs and benefits, highway issues, and optioneering matters relating to:
  - 1.6.1 The called-in planning application by Oxfordshire County Council for the dualling of the A4130 carriageway, construction of the Didcot Science Bridge, road bridge over the Appleford Railway Sidings and road bridge over the River Thames, and associated works between the A34 Milton Interchange and the B4015 north of Clifton Hampden, Oxfordshire (Application No: R3.0138/21) (the **Planning Application**);
  - 1.6.2 The Oxfordshire County Council (Didcot Garden Town Highways Infrastructure – A4130 Improvement (Milton to Collett Roundabout), A4197 Didcot to Culham Link Road, and A415 Clifton Hampden Bypass) Compulsory Purchase Order 2022 (the **CPO**);
  - 1.6.3 The Oxfordshire County Council (Didcot to Culham Thames Bridge) Scheme 2022 (the **Bridge Scheme**); and
  - 1.6.4 The Oxfordshire County Council (Didcot Garden Town Highways Infrastructure– A4130 Improvement (Milton to Collett Roundabout), A4197 Didcot to Culham Link Road, and A415 Clifton Hampden Bypass) (Side Roads) Order 2022 (the **SRO**) (the CPO, Bridge Scheme and CPO taken together are referred to as the **Orders**).
- 1.7 The Planning Application was submitted, and the Orders were made, to facilitate the delivery of the Access to Didcot Garden Town Highway Improvements (the **Scheme**) which consists of a highway scheme approximately 11km in length, including converting 1.8km of single carriageway to dual carriageway, 6.8km of new single carriageway and approximately 20km of new and/or improved off-carriageway cycling and pedestrian

infrastructure.<sup>1</sup> Connections into the existing public rights of way (PROW) network will also be provided. The Scheme also includes three over bridges.

- 1.8 The Orders were made by the Acquiring Authority on 21 December 2022 and submitted to the Secretary of State for Transport on 26 January 2023.
- 1.9 The Planning Application was submitted to the Oxfordshire County Council in its capacity as Local Planning Authority (**LPA**) by the Applicant on 4 October 2021 and called-in by the Secretary of State for Levelling Up, Housing and Communities for his determination on 25 July 2023. Further detail on the planning history is given in Mr Greep's Proof of Evidence.
- 1.10 The Planning Application and the Orders are now due to be considered by an Inspector, Lesley Coffey, at conjoined Public Inquiries scheduled to open on 20 February 2024. This Proof of Evidence has been prepared in connection with those Inquiries.
- 1.11 The purpose of my evidence is to explain the strategic needs and benefits; the current highway issues; objectives of the Scheme (including the process of identifying Scheme objectives); the optioneering process in deciding upon the Scheme; the consultation undertaken and the impact on the optioneering process; why the Scheme was selected; and how alternatives to the Scheme were considered and rejected during the optioneering process.
- 1.12 My Proof of Evidence should be read in conjunction with other separate but interrelated proofs of evidence submitted on behalf of the Applicant and the Acquiring Authority, including:
  - 1.12.1 Local Transport and Connectivity Plan, prepared by John Disley of Oxfordshire County Council;
  - 1.12.2 Technical Traffic and Highways Engineering – A4130 Widening and Didcot Science Bridge, prepared by Andrew Blanchard of AECOM;
  - 1.12.3 Technical Traffic and Highways Engineering - Culham River Crossing and Clifton Hampden Bypass, prepared by Karl Chan of AECOM;
  - 1.12.4 Traffic Modelling, prepared by Claudia Currie of AtkinsRéalis;
  - 1.12.5 Environmental Impact Assessment, prepared by Alex Maddox of AECOM;
  - 1.12.6 Noise and Vibration, prepared by Andrew Pagett of AECOM;
  - 1.12.7 Air Quality, prepared by Anna Savage of AECOM;
  - 1.12.8 Climate Change, prepared by Chris Landsburgh of AECOM;
  - 1.12.9 Landscape and Visual Impact, prepared by Jane Ash of AECOM;
  - 1.12.10 Planning, prepared by Bernard Greep of Stantec;
  - 1.12.11 Negotiations and Acquisition prepared by Steven Moon of Gateley Hamer; and
  - 1.12.12 Compulsory Purchase Justification prepared by Timothy Mann of Oxfordshire County Council.

---

<sup>1</sup> The reason for the difference between the given length of carriageway compared with the length of cycling and pedestrian infrastructure is because there are parts of the scheme where no vehicular-focused improvement was deemed necessary but where it was important to ensure that new and/or improved provision for non-motorised users was made to ensure quality and continuity. Such locations include (but not limited to): alongside the A4130 between the Science Bridge Link Road and the Collett Roundabout; from the junction of the B4016 with the Didcot to Culham River Crossing towards Appleford Station; and in the vicinity of the proposed Culham Science Centre roundabout.

## 2. THE SCHEME

- 2.1 The Applicant submitted a detailed planning application (reference R3.0138/21) for a highway scheme known as the Didcot Garden Town Housing Infrastructure Fund (the **Scheme**). The Scheme is designed to unlock and accelerate future housing and employment growth in the local area, including access by walking, cycling and public transport.
- 2.2 The Scheme does not aim to provide unlimited highway capacity for cars, or to remove all congestion; it forms part of a balanced transport strategy, helping to engender modal shift to more sustainable forms of transport.
- 2.3 The Planning Application is for the following works:
- The dualling of the A4130 carriageway (A4130 Widening) from the Milton Gate Junction eastwards, including the construction of three roundabouts;
  - A road bridge over the Great Western Mainline (Didcot Science Bridge) and realignment of the A4130 northeast of the proposed road bridge including the relocation of a lagoon;
  - Construction of a new road bridge between Didcot and Culham (Didcot to Culham River Crossing) including construction of three roundabouts, a road bridge over the Appleford railway sidings and a road bridge over the River Thames;
  - Construction of a new road between the B4015 and A415 (Clifton Hampden Bypass), including the provision of one roundabout and associated junctions; and
  - Controlled crossings, footways and cycleways, landscaping, lighting, noise barriers and sustainable drainage systems.
- 2.4 The Scheme is policy-backed and is the cornerstone of mitigation for the planned growth in the area. The Proof of Evidence prepared by Mr Greep sets out a planning policy assessment of the Scheme. However, in summary, the adopted development plans which are relevant to consideration of the Scheme are comprised of the following documents:
- The South Oxfordshire Local Plan 2035: (the **SOLP** - CDG.1);
  - The Vale of White Horse Local Plan 2031 Parts 1 and 2: (the **VOWHLP** - CDG.2.1, CDG2.2, CDG.2.7 and CDG.2.8);
  - Oxfordshire County Council's Minerals and Waste Core Strategy: (the **OMWCS** - CDG.3); and
  - The Culham Neighbourhood Plan: (the **CNP** - CDG.7).
- 2.5 The Applicant submitted a business case to Homes England for the Scheme in January 2019. It was announced by Government that the bid had been successful in securing funding from the Housing Infrastructure Fund (Forward Fund). The Proof of Evidence prepared by Mr Mann provides detailed background on the funding history of the Scheme.

### 3. LOCAL CONTEXT

#### Introduction

- 3.1 In this section I will describe the local context in terms of geographical area, the development plan context, the importance of the area to the local and national economy, with a brief description of the policy context and the alignment with the Scheme (policy matters are covered in more detail in Section 5). I will demonstrate why intervention is absolutely necessary and that, given the local context, why this needs to be a multi-modal intervention. Finally, I will outline the other schemes that have been delivered or are planned to be delivered as part of the Science Vale Area Strategy in the vicinity of the Scheme.

#### Local planning and development context

- 3.2 The Vale of White Horse and South Oxfordshire district council areas cover approximately 485 square miles and have a combined population of 287,998 (Census 2021), with the market towns of Didcot, Abingdon, Wantage, Wallingford, Faringdon and Henley-on-Thames being key settlements. Bridging both Vale of White Horse District Council (**VOWHDC**) and South Oxfordshire District Council (**SODC**) areas is the Science Vale; an area of advanced economic and innovation growth, that is home to a significant proportion of the region's scientific research and development, and high technology businesses. The region benefits from an international reputation as a first-choice location for companies wanting to make their mark in business and research, providing the benefits of business clusters together with high levels of investment. Science Vale covers the area identified in Figure 1.

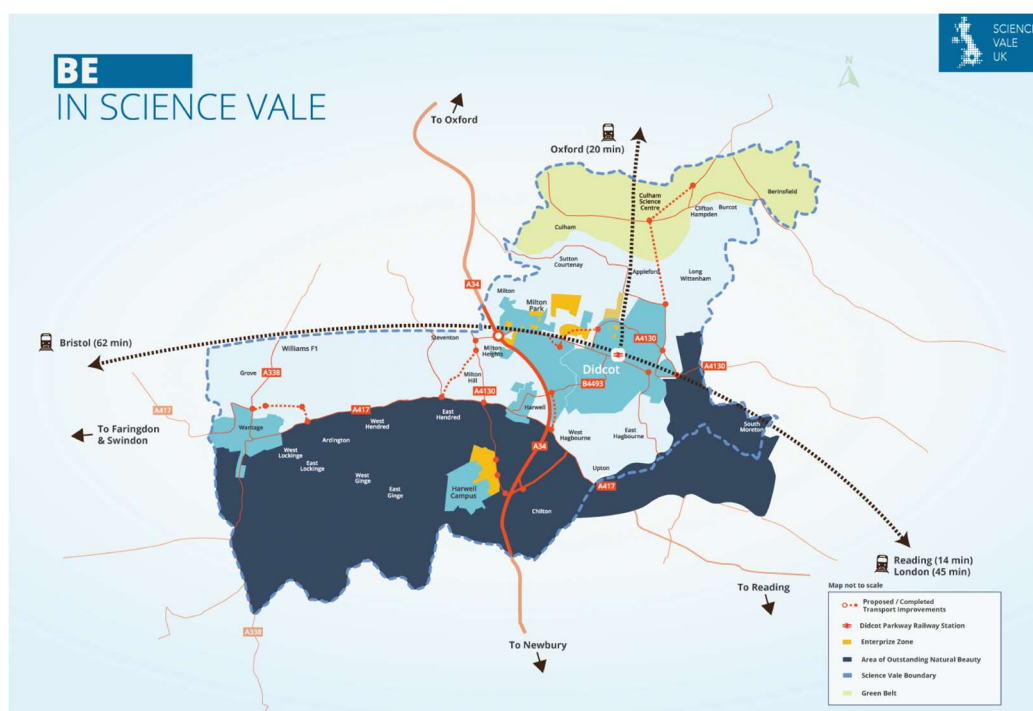


Figure 1: Science Vale (source: [www.sciencevale.com/about/](http://www.sciencevale.com/about/))

- 3.3 Science Vale is a term used to describe a geographical area covering parts of South Oxfordshire and the Vale of White Horse and is expected to deliver approximately 20,000 new homes and approximately 20,000 additional jobs by 2031. The area is vitally important to the local and national economy. It is not a formal entity in and of itself but encompasses the three centres for science and technology at Harwell Campus, Culham Science Centre, and Milton Park. It is supported by settlements including Didcot, Wantage, and Abingdon amongst others.
- 3.4 It is home to two Enterprise Zones, which are: Science Vale UK and the Didcot Growth Accelerator, see Figure 2. New businesses relocating to these areas benefit from

business rates discounts, superfast broadband, and simplified planning zones (Local Development Orders). Science Vale continues to see extensive investment into innovative, high technology research and development, with some of the most advanced research spaces and equipment on the globe being developed at both Harwell Campus and Culham Science Centre. Science Vale anchors the Oxfordshire Knowledge Spine, which is a key north-south corridor of employment growth that covers Bicester, Oxford and Science Vale and is recognised as important to the local and regional economy as identified in the LTCP (p.77, CDG.4), the VOWHLP Part 2 (paragraph 2.33-2.34, p.25, CDG.2.7) and the SOLP (paragraph 3.98, p.62, CDG.1).

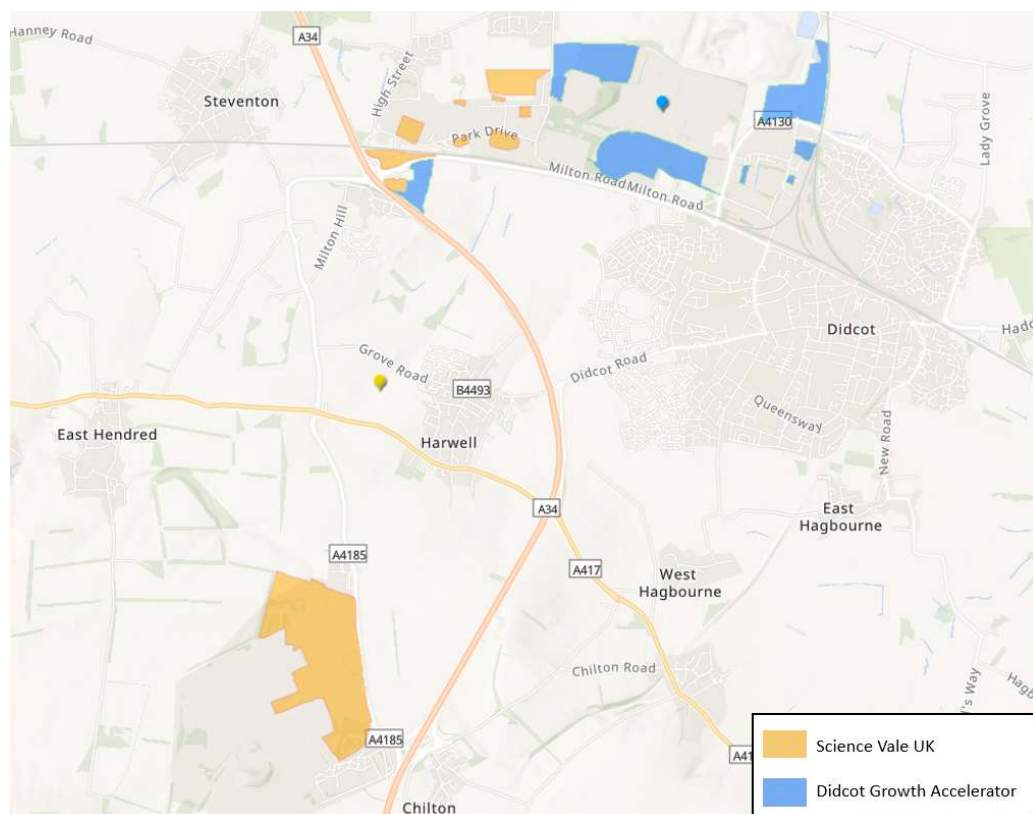


Figure 2: Enterprise Zones (source: <https://enterprisezones.communities.gov.uk/ez-map/>)

- 3.5 Science Vale is identified as a focus for growth in the VOWHLP Part 1 (paragraph 2.10, p.25, CDG.2.1) and Part 2 (paragraph 2.3, p.21, CDG.2.7), the SOLP (paragraph 2.4, p.13, CDG.1), and is proposed to remain the focus in the emerging Joint Local Plan: Preferred Options Consultation Regulation 18 Part 2 (dated January 2024, p.113 found in Appendix AW2.1)
- 3.6 It is also supported by the Science Vale Area Strategy within the Local Transport Plan 4 (LTP4, CDG.5). The area transport strategies are to be renamed 'area travel plans' and are due to be updated as part of the ongoing work associated with the LTCP. Until this update takes place, the area transport strategies remain adopted policy.
- 3.7 Planning for continued high-quality and cojoined employment and housing growth is key to the success of the Science Vale, the wider districts and Oxfordshire as a whole. Continued investment in infrastructure required to support growth is essential to underpin and grow the global Oxfordshire brand. This will ensure that Science Vale and Oxfordshire can attract the very best employers alongside the timely delivery of high-quality, well-planned housing growth.
- 3.8 For context, Figure 3 shows major growth locations within the Science Vale Area and the surrounds. Employment, particularly at Harwell Campus, Milton Park, and Culham Science Centre, is expected to grow over the current and future plan periods. Significant

investment is being attracted at all three locations; this is amplified by internationally significant science and innovation investment ensuring the continued requirement to plan and secure supporting infrastructure.

- 3.9 The map at Figure 3 is to provide context to the scale of growth the immediate local area has experienced, and the level of growth expected up to 2035. It should be noted that some sites (coded brown) have been fully constructed and occupied so this traffic will already be accounted for on the highway network in traffic modelling terms. However, it is also worth noting that not all sites will be built out by 2035 (e.g. site 11) and in some cases the area of land allocated is expected to deliver more new homes than the allocated number (e.g. Site 7). That aside, and for the scale to be truly appreciated, the number of new homes, as illustrated in Figure 3, is 29,714. The expected number of new households is more than double the number of households in Abingdon, at 14,431 (ONS, 2021). Furthermore, Figure 3 does not take into account other growth across the wider VOWHDC and SODC areas, such as sites in Grove, Wantage, Benson and Watlington, to name a few.



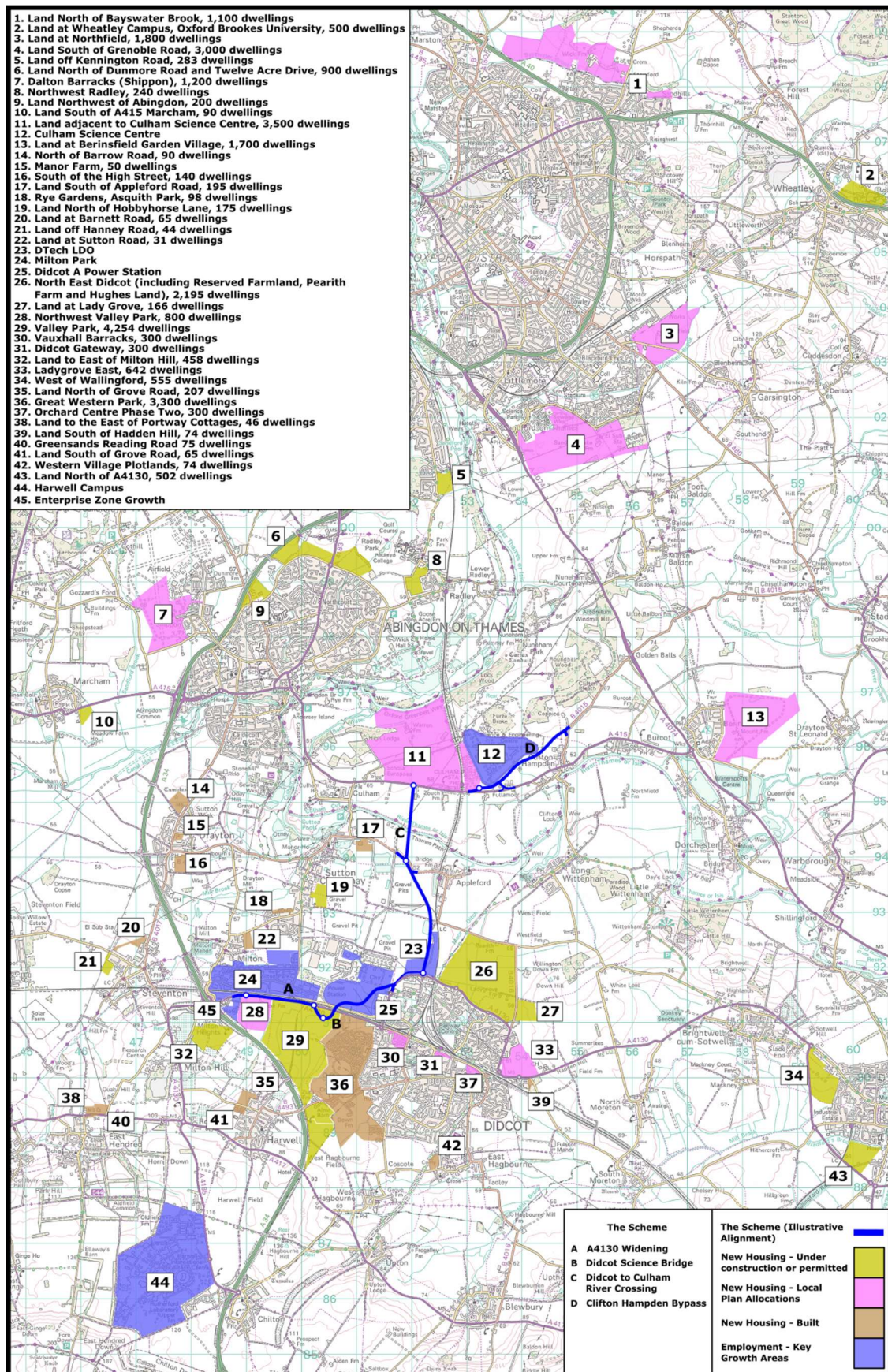


Figure 3 Housing and employment growth in the vicinity of the Scheme

### Allocated Housing Growth

- 3.10 Oxfordshire is a prosperous and vibrant county, combining a successful and thriving economy with a high-quality environment. The Oxfordshire Strategic Housing Market Assessment identifies the need for c.100,000 new homes between 2011 and 2031 (dated March 2014, paragraph 1.3, p.5, CDH.6-b) and is reflected in the five districts' local plans.
- 3.11 The SOLP covers the area between south-east Oxford, Didcot and just north of Reading. The plan was adopted in December 2020 and Policy STRAT2: South Oxfordshire Housing and Employment Requirements (p.28-29, CDG.1), outlines the district's minimum housing need of 18,600 additional homes within the plan period (2021-2035). Furthermore, Policy STRAT2 sets out requirements for the district to deliver Oxford City's unmet housing need of 4,950 additional homes within the plan period. South Oxfordshire therefore aims to deliver a total of 23,550 additional homes within the plan period.
- 3.12 The VOWHLP covers the area from north and west of Didcot including the settlements of Chilton, Wantage, Harwell, Milton, Abingdon and the A4130 corridor (amongst many others), with Swindon on its western border. The VOWHLP Part 1 was adopted in December 2016 and Part 2 was adopted in October 2019, outlining the housing need across the district. Core Policy 4: Meeting Our Housing Needs in Part 1 (pp.44-46, CDG.2.1) identifies at least an additional 20,560 homes required within the plan period (2016-2031). Core Policy 4a: Meeting our Housing Needs in Part 2 (pp.26-27, CDG.2.7) identifies that an extra 2,200 homes are required to assist Oxford City with meeting its housing needs, totalling 22,760 homes to be delivered across the district within the plan period. Therefore, across both districts, a total of 46,310 homes are planned within the currently adopted local plans.
- 3.13 The Evaluation of Transport Impacts (ETI) Study Final Report (CDG.2.3) undertaken for the VOWHLP Part 1 clearly evidences the essential need for the strategic infrastructure package identified to support the planned growth, including the Scheme. The Inspector's Report highlighted that he was satisfied that the mitigation strategy largely mitigates the growth, that modelling is 'strategic' in nature, that more detailed modelling would be required and as a last resort the Local Planning Authority can refuse permission for allocated sites if 'the development would be unsustainable without the unfunded infrastructure' (paragraph 150, p.40, CDG.2.5) Additionally, VOWHDC needs to balance decision-making based on 'a case-by-case basis at the planning application stage, balancing the benefits of the development against the harm likely to result from delayed or unfunded infrastructure' (paragraph 151, p.41, *ibid.*). The Inspector's Report also stated in paragraph 144, p.39, *ibid.*):

*Following several earlier stages this report assessed the likely transport impacts of the plan's proposed 20,560 new homes and 23,000 additional jobs in the district [note that the VOWHDC is a different geographical area to the Science Vale area], based on a range of different transport interventions and improvements (one of medium scale and two of large scale). The report concludes that the Stage 5 ETI mitigation package (which in essence comprises those transport improvements identified in the plan) would largely mitigate the impacts of the proposed new development in the district, albeit that some congestion issues would remain.*

- 3.14 The dependent sites listed in Section 6 (paragraph 6.17, excluding Land adjacent to Culham Science Centre and Land at Berinsfield Garden Village) were included in the ETI assessment. It should be noted that this was without the significant additional growth later planned in the SOLP, including the aforementioned sites at Culham and Berinsfield. These planned additional new homes and jobs will utilise and benefit from the same transport infrastructure as proposed for the VOWHLP, including the Scheme.
- 3.15 Similarly, the ETI process undertaken as transport evidence for the SOLP includes the key dependant sites (listed at paragraph 6.17), together with the Scheme as required mitigation for planned housing and employment growth. This places all planned

development through the local plan processes contingent upon the Scheme. This is explained in further detail in Sections 6 and 8.

#### Didcot Garden Town

- 3.16 Didcot was awarded Garden Town status by central government in December 2015, and following extensive stakeholder and public engagement, the Didcot Garden Town Delivery Plan was published in October 2017 (CDG.6). This was endorsed by both VOWHDC and SODC, as well as the Applicant, the Oxfordshire Local Enterprise Partnership, and Homes England.
- 3.17 Although not a statutory planning document, the delivery plan outlines in more detail how the Didcot Garden Town could develop over the next 15-20 years. It sets out a vision for Didcot, and includes a set of principles on design, local character, density and tenure, transport and movement, landscape and green infrastructure and social and community benefits, which are also included in the VOWHLP Part 2 and the SOLP. The delivery plan also defines a masterplan area, where development opportunity sites have been reviewed in more detail, and an area of influence.
- 3.18 The housing sites within the Didcot Garden Town masterplan area relevant to the Scheme are Car Park Station Road (Gateway Site), Ladygrove East, Land at former Didcot A Power Station, Land to the north east of Didcot, Land to the South of A4130, Orchard Centre phase 2, Vauxhall Barracks, Land to the West of Great Western Park (Valley Park) and North West of Valley Park. The masterplan framework sets out how these residential sites could come forward, and how they relate to other areas of land-use including employment, retail and green spaces. It also shows the linkages with proposed improvements along the key transport corridors within Didcot.
- 3.19 This area of influence includes the major areas of employment related to Didcot at Harwell Campus, Milton Park, and Culham Science Centre. The Didcot Garden Town Delivery Plan also sets out the key infrastructure recognised as required to support the planned growth at Didcot. This includes sustainable transport improvements to rail and bus routes, enhancements to cycle and walking routes, as well as the Scheme in its entirety.
- 3.20 Projects and proposals identified in the delivery plan are now being taken forward by the Council partners, in engagement with others such as developers and infrastructure providers where relevant.
- 3.21 The Garden Town Delivery Plan also notes that where sites are not coming forward in a timely way, there may need to be further intervention from local authorities to ensure housing is delivered, noting that (p.402, CDG.6):

*The Councils will take a positive approach to delivering the garden town Vision, including taking an active role in delivery where necessary. The Councils will seek to unlock stalled sites within the garden town masterplan area by using the powers available to them where appropriate, including: Local Development Orders (LDO) and compulsory purchase powers.*

- 3.22 The Didcot Central Corridor project aims to improve transport and make Didcot a better place for residents. The Applicant is focussing on improving three important routes: the B4493/Station Road/Hitchcock Way (referred to as the Gateway Spine in the Garden Town masterplan); B4493/Didcot Road/Wantage Road/Broadway (referred to as the Cultural Spine in the Garden Town masterplan); Foxhall Road; and the town centre. The aims of the project are to create a stronger identity in the town, making it easier for people to walk and cycle safely, and adding more trees, planting and green areas.
- 3.23 The completion of the Scheme and the Northern Perimeter Road Phase 3 (NPR3) will provide a strategically important alternative route for Didcot, helping to reduce congestion and providing sustainable travel options by improving walking and cycling connectivity and improving bus journey times. By alleviating traffic pressures within the centre of



Didcot, the Scheme and NPR3 will enable consideration of measures within the central corridor that may not be currently viable, enabling the prioritisation of pedestrians and cyclists.

- 3.24 Both the VOWHLP and SOLP are accompanied by Infrastructure Delivery Plans (CDG.1.9, CDG.2.6, and CDG.2.14) that identify a suite of key transport infrastructure schemes required to support allocated growth within the plans. In turn the LTP4 and LTCP reference requirements for delivery of key infrastructure required to support all development growth in Oxfordshire, with the key focus area of Science Vale subject to defined requirements.
- 3.25 Significant highway and active travel infrastructure schemes set out in the Infrastructure Delivery Plans, LTP4, and the LTCP have been delivered (enabled through a variety of government funding initiatives and developer contributions) and further funding is secured and sought for other schemes set out in these documents. Delivered and funded schemes are as follows:

Delivered

- Harwell Link Road
- Chilton Interchange (north-facing slips)
- Milton Interchange ('hamburger upgrade')
- Wantage Eastern Link Road Section 3 (under construction)
- Science Vale Active Travel Network (SVATN) Route 1 – Wantage to Harwell Campus
- SVATN Route 3 – Peep-o-Day Lane
- SVATN Route 5 – Winnaway
- SVATN Route 5 – Wantage Road
- SVATN Route 6 – Milton Road
- SVATN Route 8 – Didcot to Long Wittenham
- Active travel route between Milton Park and Sutton Courtenay (Kelaart's Field)
- Active travel route through Backhill Lane Tunnel
- Closure of Chilton Road (part of Sustrans National Cycle Network Route 544) to vehicular through traffic (this project was partly enabled by the provision of a new roundabout at the southern end of Hagbourne Hill at its junction with the A417. By providing this additional highway capacity it effectively mitigated that which was lost by the closure of Chilton Road. This is an example of where the provision of additional highway capacity for vehicles can facilitate improvements to active travel, as the Scheme does for future planned improvements within Didcot (see paragraphs 3.22-3.23 and 5.20 of this Proof of Evidence).

Funded and in pipeline

- The Scheme
- Didcot Northern Perimeter Road Phase 3 (note the scheme is not currently fully-funded; the Applicant is currently exploring options for additional funding)
- Lodge Hill Interchange (south-facing slips)

- A4130 Steventon Lights (bus priority scheme)
- Milton Heights Active Travel Bridge (note the scheme is not currently fully-funded; the Applicant is currently exploring options for additional funding)

### Conclusion

- 3.26 To conclude, the Science Vale area is vitally important to the Oxfordshire and national economy playing a vital role in the UK's scientific research and development with an additional 20,000 new jobs expected to be created (see sections 1.1.6, p.18 and 4.1.3, p.80, CDG.6). This is coupled with approximately 15,825 new homes (see Table 5.1, pp.66-67, CDA.07) expected to be built by 2034 in the immediate vicinity of the Scheme and many more on the periphery. In short, the population of Didcot area is expected to double in the next 10 years. This unprecedented level of growth is added to a highway network that is already under significant strain due to years of housing and employment growth but with, in some cases, nineteenth century infrastructure. The Scheme aligns with local transport plan policy and local plan policies, across two districts, as well as supporting new homes for Oxford's unmet need. The Scheme also helps to support Didcot Garden Town aspirations. The Scheme works hand-in-glove with other schemes that will provide a multi-modal solution to the challenges. In short, the Scheme is vital to ensuring the continued prosperity of the area whilst providing much needed new homes for its existing and new residents.

## **4. CURRENT AND FUTURE HIGHWAYS ISSUES**

### Introduction

- 4.1 In this section I will describe the local transport network with its current and future transport issues including challenges associated with the highway network, for those walking, cycling or using public transport. I will explain the challenges of transport in a largely rural area with a dispersed spatial arrangement with homes being remote from jobs. I will describe how the network currently operates, where the main 'pinch points' are which indicate a negative future outlook of severe congestion with new development but without the Scheme. I will refer to previous planning decisions which were concerned with network issues. Finally, I will explain the challenges of serving a largely rural network in the face of ever-increasing congestion and that only a multi-modal solution will solve the many and historic challenges that Didcot and the surrounding area faces. This section should be read in conjunction with the Transport Assessment (CDA.7) which confirms the current and future highway issues without the Scheme.

### Highway issues

- 4.2 The districts of VOWHDC and SODC are predominantly rural in nature, with well-dispersed market towns and a constrained interlinking highway network. However, they benefit from excellent access to national strategic highway and rail networks. In this context, passing north south through the area (through Science Vale and past the Enterprise Zones) is the A34 dual carriageway. This link provides connectivity south to the M4 and north to the M40 motorways. In terms of rail connectivity, Didcot benefits from a main line rail hub providing both east west and north south connectivity.
- 4.3 As detailed in the previous section, the area is the focus of large-scale development (both residential and employment) but suffers from chronic congestion associated with growth (both planned and unplanned) since the 1980s with a lack of infrastructure provision to mitigate that growth. Typically, the employment growth has centred on areas outside of the built-up area of Didcot at repurposed Ministry of Defence sites. These have created issues with accessibility especially related to severance created by the River Thames, the Great Western Mainline Railway (connecting Bristol and the West Country with London) and the Cherwell Valley Line (connecting Didcot with Banbury via Oxford).
- 4.4 This severance leads to areas of significant congestion: at the Manor Bridge roundabout (see Figure 4) which is the main access to the Didcot Power Station (including the regenerated area at Didcot A), Southmead Industrial Estate (home to many logistics companies), Asda distribution centre, Didcot Quarter industrial park and Milton Park (a business and technology park home to 350 organisations and 15,000 workers, one of the largest science and technology clusters in Europe). It should be noted that the road through Milton Park is private. Therefore, any freight that does not originate or have a destination in Milton Park, has to use the Manor Bridge Roundabout and the A4130 to access the strategic road network (A34).
- 4.5 Equally, with the completion of the Great Western Park housing site to the west of Didcot and associated access junctions, this has created congestion on the A4130 in both directions. In both peak periods the queue can extend back past the Manor Bridge roundabout and Foxhall Drive roundabout. This then creates exit blocking to the Power Station roundabout (see Figure 4) with queues on Milton Road and the A4130.
- 4.6 The impact of queues on parts of the A4130 means that the A4130 Northern Perimeter Road (NPR) does not act as an effective perimeter road and therefore it is more attractive for through traffic to drive through the town centre (Station Road and Hitchcock Way) which creates congestion in the town. This is particularly acute at Jubilee Way and the Hadden Hill roundabouts (sitting either side of the Great Western Railway Line). Furthermore, without an effective perimeter road, this reduces the opportunities to create attractive conditions for walkers, cycling and buses within a town centre environment. This is very much part of the Didcot Garden Town ethos but will only be made possible by reducing the volume and speed of traffic by creating viable alternatives.

- 4.7 Fundamental issues are associated with crossing the River Thames to the north of Didcot and also through the historic settlement of Clifton Hampden. Access to/from the north is taken from Sutton Bridge and Culham Cut (known locally and hereon referred to as 'Culham Bridges') and the Clifton Hampden Bridge and the neighbouring staggered signalised junction at Clifton Hampden (see Figure 4). Sutton Bridge is Grade II listed and was built c.1807, Culham Cut is Grade II listed and built c.1809, and Clifton Hampden Bridge is Grade II listed and built c.1864.

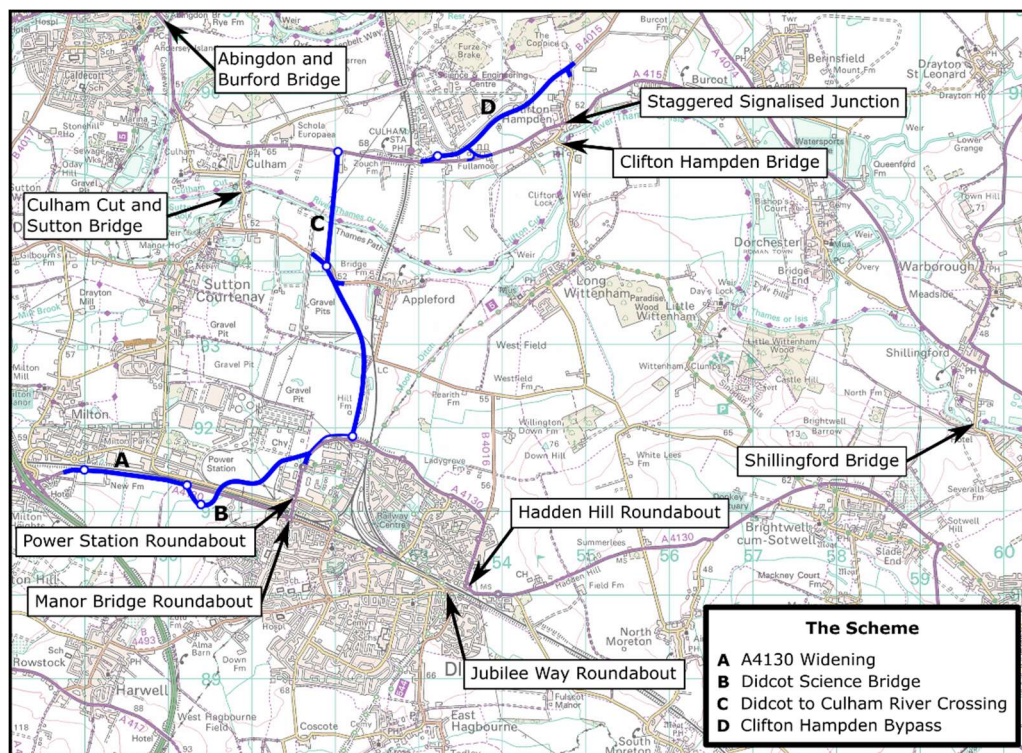


Figure 4: Key highway constraints map (Scheme alignment shown illustratively)

- 4.8 Between the B4017 at Abingdon (at the point of the River Ock - a tributary of the River Thames) and the A4074 at Benson (13km as the crow flies), there are only three road bridges for residents of Didcot and surrounding area to use if travelling north: the Culham Bridges, Clifton Hampden Bridge and Shillingford Bridge. All three are traffic light controlled with one-way 'shuttle' working and Grade II (or Grade II\*) listed. From Didcot, Shillingford Bridge (built in 1827) is not a viable option as it requires a drive of approximately 11km diversion to reach the bridge and Thames crossing via Wallingford. There is no scope to increase capacity at these bridges due to their historic and protected nature and due to the constrained highway network at either side.
- 4.9 The Culham Bridges were built in the early 19<sup>th</sup> Century many decades prior to the invention of the private car. The total span is approximately 180 metres. This is important in the operation of the Culham Bridges being traffic light controlled with one-way 'shuttle' working. The sheer length of the span and the absence of any alternative to crossing the River Thames in the area, results in significant congestion at this location. This is compounded by the fact that traffic signal timings need to be such that 'exit blocking' does not occur as a result of traffic backing from the Abingdon Road / Appleford Road junction and the Abingdon Road (A415) / Tollgate Road junction. If traffic cannot exit from the bridges, in either direction, this can lead to 'gridlock' in the area (see Figure 5). The length of the Culham Bridges, coupled with short signal timings, results in longer queues on the approaches to the Bridges. In the morning peak period, traffic queues can extend by two kilometres or more through Sutton Courtenay to the Drayton Road.

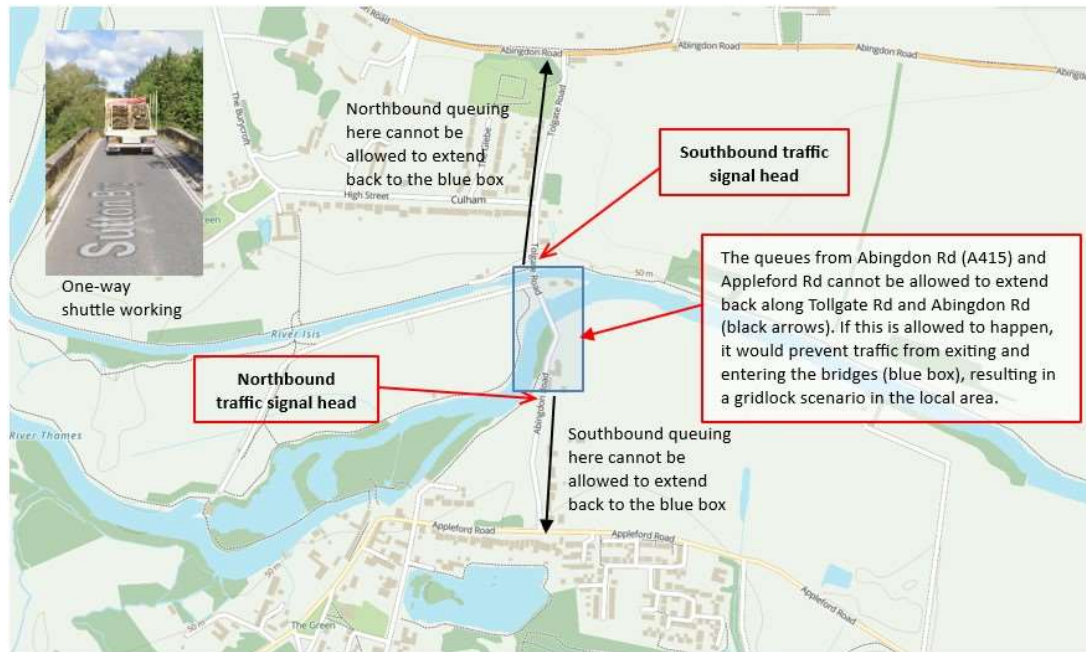


Figure 5: Operation of traffic signals at Culham Bridges

- 4.10 The Clifton Hampden Bridge suffers from similar traffic issues to the Culham Bridges. Built in 1864, it is too narrow for two-way traffic. This creates similar issues with traffic signal phasing as the Culham Bridges but only relevant to the north of the bridge - ensuring traffic does not block back from the Abingdon Road / High Street signalised junction is paramount. This results in significant queuing in both directions.
- 4.11 For local northbound traffic travelling across the Clifton Hampden Bridge (e.g. towards east Oxford), the only realistic option is to drive through Clifton Hampden given the lack of available alternative routes. This means that all traffic has to travel through the Clifton Hampden staggered signalised junction (see Figure 4) which has historically suffered from significant congestion (this is not uncommon for junctions of this type). This leads to congestion on all arms in both peaks but particularly congested in the afternoon (PM) peak with traffic extending past the Culham Science Centre entrance to the west and long queues on the approach to the Abingdon Road from the Oxford Road to the north.
- 4.12 The age of the structures and the limited options for crossing the River Thames, results in very little resilience in the highway network in this area. Several historic bridges in Oxfordshire have been either closed or required traffic management recently including the nearby Abingdon Bridge (this was single lane working for approximately 18 months whilst repairs were completed). There is no option of keeping the bridges open to traffic if either or both the Culham Bridges or Clifton Hampden Bridge required repair as they are already single lane shuttle working. In recent years, the Culham Bridges and Clifton Hampden Bridge both closed in 2021 and 2024 due to flooding, exacerbating already severe traffic congestion issues across the whole area with bus services severely affected and with some villages temporarily without a bus service. The bridges were closed for almost a week (see Figures 6 and 7). In Sutton Courtenay, the Drayton Road was also closed. This meant that to access the village from the north, via car, required travelling through Drayton via a significant diversion. This issue is further exacerbated when the A34 floods as well, as it did in 2024.





*Figure 6: Flooding at Culham Bridges (2024)*





Figure 7: Flooding in Long Wittenham / Clifton Hampden (2024)

- 4.13 To illustrate the significant transport issues particularly in relation to issues to the north of Didcot, an adopted VOWHLP Part 1 strategic site (Land north of Hobbyhorse Lane) was refused largely based on paragraph 32 of the NPPF (2012), now paragraph 115 (NPPF, December 2023), which states:

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

- 4.14 On four separate occasions, development proposals for one dwelling have been refused on the same grounds and have been upheld by the Planning Inspectorate. In each case, the Inspector cited development-related vehicle trips resulting in severe highways impacts (per the NPPF definition) as one of the key reasons for dismissing the appeal. The four cases are as follows:

- APP/V3120/W/17/3187947 (Decision date 6 March 2018) – development proposal was for the erection of a dwelling and alterations to existing semi-detached dwelling [Appendix 3 of CDM.10]APP/V3120/W/17/3187947 (Decision date 6 March 2018) – development proposal was for the erection of a dwelling and alterations to existing semi-detached dwelling (Appendix 3 of CDM.10)
- APP/V3120/W/18/3200241 (Decision date 2 November 2018) – development proposal for change of use from a storage barn to two bedroomed residential dwelling with parking [Appendix 3 of CDM.10]APP/V3120/W/18/3200241 (Decision date 2 November 2018) – development proposal for change of use from a storage barn to two bedroomed residential dwelling with parking (Appendix 3 of CDM.10)
- APP/V3120/W/3214090 (Decision date 26 March 2019) – development proposal for a change of use of agricultural building to a dwelling house and for associated operational development [Appendix 3 of DM.10]APP/V3120/W/3214090

(Decision date 26 March 2019) – development proposal for a change of use of agricultural building to a dwelling house and for associated operational development (Appendix 3 of CDM.10)

- APP/V3120/W/19/3234258 (Decision date 29 November 2019) – development proposal for the erection of 1 house (Appendix 3 of CDM.10).

- 4.15 Since this time, Land north of Hobbyhorse Lane has been allowed at appeal but was not subject to a highway objection. It was only allowed with a condition limiting the number of dwellings prior to the Scheme being delivered. Under the S106 agreement for the development, its dwelling numbers will be capped at 45 occupations, until the Scheme is delivered. However, if the Scheme is not open by 2026, further bus service improvements funded by additional S106 contributions will be provided and the cap on further occupations will be lifted.
- 4.16 To enable growth to come forward ahead of the Scheme delivery, the Applicant has adopted a Development Release Strategy (document contained in Appendix AW2.2). This strategy document permits housing delivery within the transport constrained area to come forward, subject to a variety of mitigating measures and conditions being applied. This is all predicated upon the Scheme coming forward.
- 4.17 Through this process, the Applicant is effectively accepting a degree of pressure on its highway network over and above that which would normally be acceptable, such that housing can be released ahead of the Scheme coming forward. Without this strategy, and until vital highway infrastructure is provided, objections to development in this area would be inevitable. The complexity, scale, cost and risks associated with the required highways enhancements have, to date, prevented private developers from coming forward with individually funded solutions. There is clear evidence of market failure in this area, which is preventing major housing and employment developments allocated in the VOWHLP and SOLP from being realised. This is why public funding was secured to unlock development in this area.
- 4.18 The highway issues, as mentioned above, contribute to challenges for the operation of bus services in the area. This is due to congestion largely on the bridges and adjoining junctions which impact on bus journey time reliability and the attractiveness of the services. Many of the bus routes serving villages are only viable due to pump-priming from development sites. However, services can be unreliable and suffer from the same congestion as all other modes. This makes it unattractive to gain additional patronage to improve the service further. There are currently no options for bus priority given the lack of alternatives for the general traffic particularly crossing the River Thames.
- 4.19 As of January 2024, nine key bus services (plus other supplementary services, see details in Table 1 and Figure 8) operate within the area. These serve key destinations in the area including Didcot, and the surrounding villages, Harwell Campus, Milton Park, and Culham Science Centre. The journey time reliability of all of these services, and therefore their attractiveness and commercial viability, is impacted by congestion in the AM and PM peaks within the town and the surrounding area.

<b>Didcot area bus services (operated by Thames Travel or Oxford Bus Company)</b>	
<b>Service number</b>	<b>Key destinations (not exhaustive)</b>
23/23A	<p>Great Western Park-Milton Park-Didcot Parkway-Wallingford-Henley</p> <p>23 – 13 buses a day running at approximately one an hour. Bus journey times between Didcot and Henley takes 52 mins (departing at 6:10am or 7:15am)</p> <p>23A – four services in AM peak and five in PM peak. Journey time between 12 min and 15 min from Great Western Park to Milton Park in the AM peak and 13 min in the PM peak</p>

33	<p>Oxford-Wootton-Abingdon-Culham-Sutton Courtenay-Milton Park-Didcot Parkway-Wallingford-Henley</p> <p>Approximately a 30min service in AM peak and PM peak. Bus journey times from Didcot to Oxford takes between 1hr 25m (leaving Didcot at 6:48am) and 2hr 1m (leaving Didcot at 7:22am) in the AM peak.</p>
45	<p>Abingdon-Culham Science Centre-Clifton Hampden-Berinsfield-Oxford Science Park-Sandford-Cowley</p> <p>Two services (half hourly) from Abingdon to Culham Science Centre. Hourly service thereafter until 17:35 between Abingdon and Templars Square, Cowley. Only two buses (7:45am and 8:42am) serve Oxford Science Park. The bus journey times from Abingdon to Oxford Science Park are 39min and 40min respectively.</p>
94/94A	<p>Didcot Parkway-the Moretons-Blewbury-the Hagbournes</p> <p>94A – six services; one at 7:20am, four services ever two-hours from 10:10am with one additional service at 15:30 servicing schools. Journey times in the AM peak from Didcot to the Hagbournes takes 10 -19min. 94 – eight buses running to sporadic destinations depending on the time of the bus. One service in the AM from Didcot (8:40am) to Harwell Campus will take 36 min.</p>
91/92/95	<p>Didcot Parkway-Didcot town-Long Wittenham-Clifton Hampden-Culham Science Centre</p> <p>91 – six services on an hourly timetable from 9:20am on a loop in Didcot starting and finishing at Didcot Parkway. 92 – six services on an hourly timetable from 9:45am on a loop in Didcot starting to finishing at Didcot Parkway 95 - Five buses during the day at various times (two AM peak (6:50am and 7:50am), one late afternoon (15:40) and two PM peak (16:55 and 18:10)). Didcot Parkway to Culham Science Centre taking 26 min (departing at 6:50am) or 30min (departing at 7:50).</p>
X2	<p>Oxford-Abingdon-Drayton-Steventon-Milton Park-Didcot Parkway</p> <p>A service that runs at varying times (between 13 and 20 mins in the AM peak) that takes approximately 1h 20 mins to travel between Didcot and Oxford leaving Didcot at 7:10am.</p> <p>The service then offers a 20 min service up to mid afternoon when the timetable offers a 14 min to 27 min service.</p>
X32	<p>JR Hospital-Oxford-Milton Park-Didcot Parkway-Didcot town</p> <p>A 14 min to 30 min AM peak service. The journey takes approximately 1h 1 min leaving Didcot at 6:51am.</p> <p>The services become half hourly during the day and into the evening.</p>
X34/X35	<p>Faringdon-Wantage-Harwell Campus-Newbury-Harwell village-Didcot Parkway</p>



	<p>X34 – AM service starts at 5:22am with a frequency varying from 15 min to 50 min. A half hourly service during the day. PM peak frequency 28 min to 43 min. The service terminates at 23:15. Journey time of 30 min from Didcot to Harwell Campus departing at 6:12am and 40 min departing at 7:12am.</p> <p>X35 – AM service starts at 5:12am with a frequency varying from 10 min to 50 min. A half hourly service during the day. PM peak frequency varies between 15 min and 31 min. the service terminates at 23:45. Journey time of 52 min from Didcot to Wantage departing at 6:37am and 1h 08 min departing at 7:27am.</p>
X36	<p>Wantage-Grove-Steventon-Milton Park-Didcot</p> <p>This service has a frequency between 31 min to 40 min in the AM peak. A half hourly service during the day. A PM frequency of 30 min to 35 min with the last bus terminating at 19:00. Journey times of 1h 13 min from Didcot to Wantage departing at 7:25am and 1h 15 min departing at 7:56am.</p>

Table 1: Didcot area bus services (data taken from Oxford Bus Group website, accessed 12/01/24)

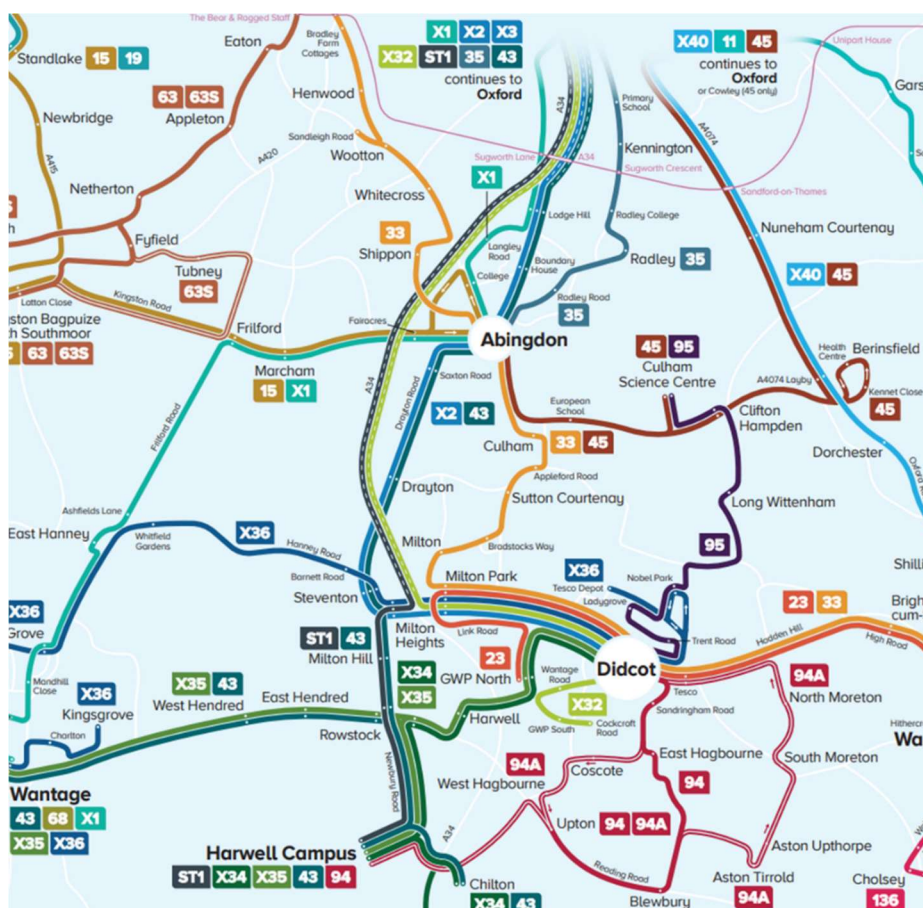


Figure 8: Oxford Bus Group network coverage across southern Oxfordshire (Source: [https://www.oxfordbus.co.uk/services#map\\_list](https://www.oxfordbus.co.uk/services#map_list))

- 4.20 The current bus offer is inadequate, unreliable and, for many routes especially serving the villages, unlikely to remain commercial once subsidies run out. For example, travelling from Sutton Courtenay to the Culham Science Centre would take 14 mins to

travel the 3-mile journey by car. By bus, this would take 46 mins and require two buses (the 33 and 45 services) departing 1 Church Street, Sutton Courtenay at 7:11am (according to Google Maps). Additionally, a bus journey with the same origin and destination departing at 9:06am would take 59 mins and require two buses (using the 33 and 45 services).

- 4.21 The congestion in the area threatens the long-term viability of bus services and does not provide the conditions necessary to enable the enhancement of current bus services or the provision of new services, particularly those that can compete with the convenience of private cars. This is evidenced by the call-in representation of 26 September 2023 from Luke Marion, Managing Director of Oxford Bus Company and Thames Travel (from hereon in referred to as Oxford Bus Group) and found in CDN.07. An extract of this letter is provided below:

*“The chronic congestion and delay that arise have a particularly serious impact on bus Service delivery:*

- *Buses cannot reassign route when particularly severe delay is encountered, unlike most other traffic.*
- *There is a wide and increasing variability in delay, which is quite unpredictable. In practical terms it is impossible to schedule for extreme delay, as to do so would mean that buses were condemned to operating every trip as if it were a “worst case” scenario. Quite apart from the fleet being entirely unproductive, such a timetable would be unsaleable and irrelevant to the public. However, it makes it impossible to avoid buses on occasions being very late, with resulting knock-on issues such as late arrival to work for employees at the strategically important sites in Science Vale UK.*
- *Notwithstanding the above, we have a statutory duty under the Transport Act 1985 to run on time and reliably. Strict punctuality standards are set out by the Traffic Commissioners. To meet these standards demands that we account for the bulk of reasonably foreseeable delays, which means on many occasions, to avoid buses running early, they must “wait time” when traffic is more freely flowing than usual. This is a substantial drain on operating efficiency and resources, and also greatly exasperates the travelling public, reducing the attractiveness and potential of bus services in the area.*
- *Our driving staff are frequently the first people on which the travelling public vent their frustrations. This is increasingly contributing to our challenges in recruiting and retaining staff, in what is a challenging labour market following the impacts of the pandemic and Britain’s exit from the European Union.”*

- 4.22 Equally, the rail offer to and from the Science Vale area is limited as detailed below. Walking and cycling, due to congestion, the danger (and the perception of danger) posed by significant volumes of vehicular traffic, the paucity of safe, high-quality routes and directness do not make cycling attractive for all but the most ardent of cyclists especially for destinations to the north of Didcot.
- 4.23 Didcot Parkway is a major interchange station serving a wide catchment area hence its name ‘Parkway’. It is on the Great Western Mainline with services to Reading and London to the east, and Swindon and Bristol to the west. There is no ‘local’ service west of Didcot. It is also on the Cherwell Valley Line serving Oxford and Banbury calling at smaller stations between Didcot and Oxford. It has 2,895 car parking spaces largely within a recently and purpose-built multi-storey car park. It offers 682 bicycle parking spaces, largely within a secure facility. Brompton Bike Hire is available outside the main station building. Bus stops and interchange are available on the main station forecourt.
- 4.24 During the 2022-2023 financial year, the Office of Rail and Road (ORR) estimate that 2.330 million people passed through Didcot Parkway, either entering, exiting, or interchanging. The main origin or destination was London Paddington (956,756). The station at Appleford had 7,234 entries and exits with Oxford being the main origin or

destination (2,656) to/from Appleford. The station at Culham had 80,752 entries and exits with Oxford being the main origin or destination (35,826) to/from Culham. 15,262 passengers travelled between Didcot and Culham.

- 4.25 There are limitations as to what rail can offer. Rail is a relatively inflexible mode in that it can only serve certain destinations at established stations. For example, rail is a good offer (if sometimes more expensive than other public transport modes) if travelling between Didcot and Oxford city centre. However, there are key employment sites in east Oxford (Oxford Science Park, the BMW plant, etc.) that are not served by train and would involve a lengthy interchange by bus. Similarly, Harwell Campus is not served by rail at all.
- 4.26 There is an overall paucity of active travel provision across Science Vale. In Didcot and the wider Science Vale area the active travel network is fragmented, discontinuous and not conducive to encouraging active travel. Didcot has around a 4.5% mode share in cycling according to 2011 census data (2011 census data is being used due to the 2021 census data being affected by the COVID-19 pandemic, the national lockdown and furlough scheme that resulted in a rapid change in how people travelled to work/worked from home. Although extra guidance was provided on how to answer the census data, the Government is unable to determine how well this was followed). This mode share could be encouraged further through improved infrastructure provision such as dedicated routes and safe, attractive crossings. For example, there is currently no direct cycle route between Didcot and Culham Science Centre. It either includes a convoluted (and unlit) route along Sustrans National Cycle Network Route 5 and along narrow B-Roads which currently suffer from congestion which is not conducive to cycling, even for the most experienced cyclists.
- 4.27 Additionally, many other existing routes for cyclists are narrow, below the standards of current guidance (Local Transport Note 1/20) and next to relatively fast roads or along traffic free routes that can be secluded and are dark in the winter months. This can be off-putting for certain groups particularly women who may be less likely to cycle due to safety concerns. A recent survey undertaken by Lime (electric bike rentals) *Gender Pedal Gap* (Appendix AW2.3) survey found:

*“Nine in 10 (91%) women face barriers to cycling in the UK. The data revealed a significant gender ‘pedal gap’, with women in the UK cycling almost half as much as men every month as a result.*

*Just one in five (19%) UK women feel safe cycling alone at night, according to Lime’s new ‘Tackling the Gender Pedal Gap’ report, which unveils the barriers to cycling for women; in particular, when alone at night and regarding their feelings of personal safety. Four times as many women said that they view personal cars as a safer transport option than cycling when travelling at night alone (82%), suggesting that they are deterred from choosing a more sustainable transport option after dark.”*

It continues:

*“Poorly lit roads (46%), isolated cycle routes in quiet areas (41%), antisocial behaviour (36%) and fear of harassment from other road users (34%) were uncovered as the main deterrents for female cyclists at night. More generally, when it comes to cycling, almost double the amount of women (27%) cite a lack of experience or confidence as a reason not to cycle compared to men (14%). Lime rider data currently shows that approximately just over a quarter of its users identify as female.”*

- 4.28 Similar to the cycle infrastructure the provision for pedestrians is of low quality in some places, although for short trips in town and village centres the infrastructure is better, especially in Didcot. However, links between villages such as Appleford (which currently has few amenities) and Sutton Courtenay (where there are local amenities e.g. local convenience stores and pubs) do not have suitable provision for walking and cycling all

year round, only public rights of way across fields which tend only to be suitable for leisure purposes.

- 4.29 All of the issues identified result in an over-reliance on the private car even for short journeys (63% of the working population drive in Didcot according to the 2011 Census data). Cars are the most used mode of personal travel in many rural areas however, this is because it is often the only mode readily available rather than it being the preferred mode. It is essential that public transport and active travel is supported so that people can choose modes of transport which are both better for the environment and their health.
- 4.30 Given the scale of growth expected in the Didcot Garden Town and Science Vale areas as well as Didcot Parkway being the main interchange station in the region (546,000 passengers in 2022/23 ranked 83 of 2578 railway stations in Great Britain) attracting traffic from even further away (e.g. local villages and Wantage), the above stated highway issues will worsen significantly. This will already be on top of an already 'severe' situation as confirmed by the Planning Inspectors on multiple occasions.
- 4.31 With the expected development in place, up to 2034 (not including all expected development as some sites e.g., Land Adjacent to Culham Science Centre will not 'build-out' until after the Local Plan period), but without the Scheme infrastructure, it is expected that the highway network will not operate efficiently for large parts of the morning and evening. Whilst congestion exists today for much of the peak hours, with new development but without the Scheme, the Paramics model shows severe congestion in both the AM and PM peaks in 2034, as shown in red in Figures 9 and 10 below. This is largely as a result of significant 'exit blocking' across the network which means that congestion at one junction impacts on traffic flow at another. This acts in a ripple effect. This impacts on all modes; the pedestrian and cycle environment as well as the reliability and attractiveness of buses. This then also impacts on businesses and the economic viability of the area.

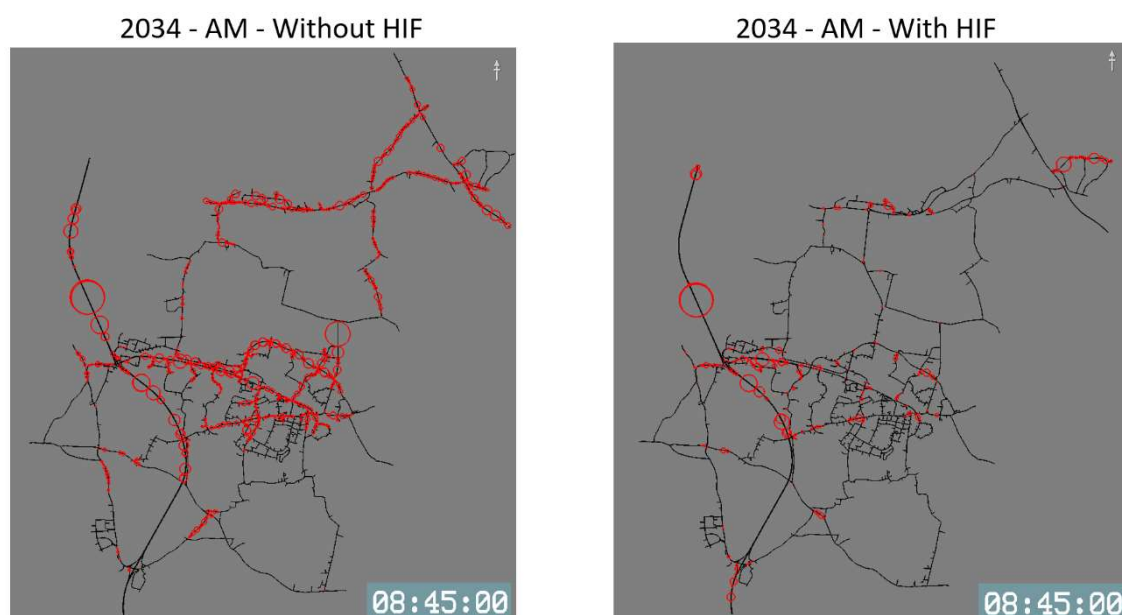


Figure 9: Paramics model extract showing 2034 network at 08:45 with (left) and without (right) the Scheme



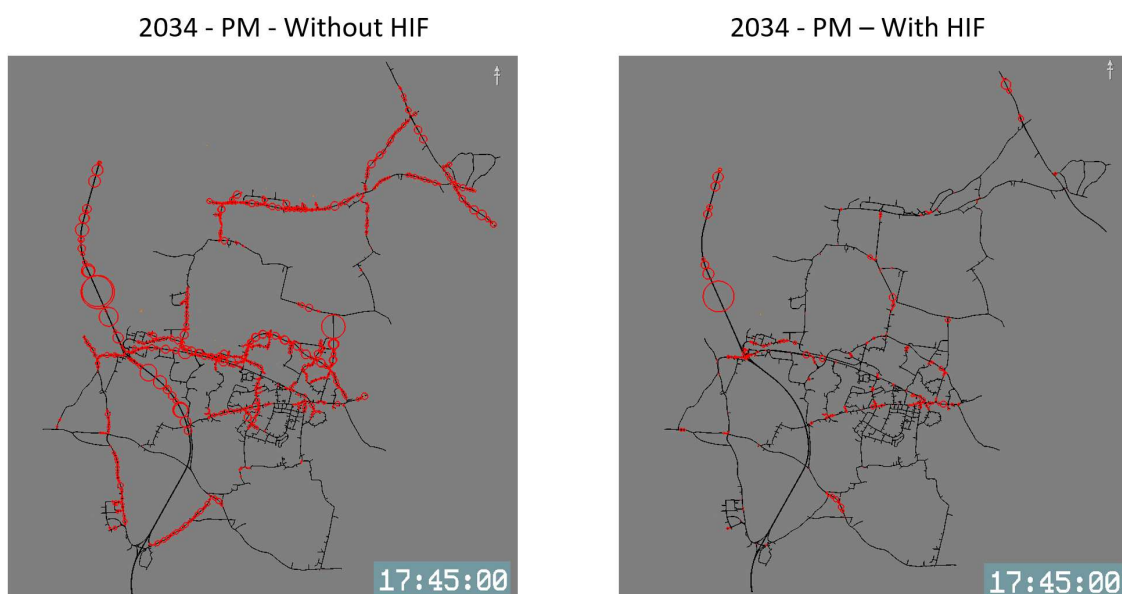


Figure 10: Paramics model extract showing 2034 network at 17:45 with (left) and without (right) the Scheme

- 4.32 The red circles in Figures 9 and 10 are 'hotspots' which show locations where, at that moment in the model run, there are queued vehicles. These indicative queue locations would change in different model runs, and at different times depending on the network operation, but are useful to give an overall picture of the model conditions in different scenarios. In both the AM and PM models without the Scheme (left images), these locations experience severe congestion with queues extending along many of the roads in the model, blocking back from one junction to the next. This is in stark comparison to the models with the Scheme (right images), where there are some localised sections of queueing, but the network can operate.
- 4.33 However, there does not necessarily need to be a transport model to understand the impacts of growth without the Scheme. There are already recognised and accepted 'severe' highway impacts in and around Didcot but particularly in the Sutton Courtenay, Culham, and Clifton Hampden areas. Adding the trips from 15,825 new homes in the vicinity of the Scheme and 20,000 new jobs associated with the Didcot Garden Town area to an already severely congested network will not just compound the existing situation but lead to a situation akin to gridlock for many hours of the day.
- 4.34 Given the lack of public transport options and the paucity of safe and convenient walking and cycling routes without the Scheme, there is very little opportunity for modal shift in this context. This is demonstrated by the existing situation where traffic growth has continued and so have traffic queues. The simple idea that commuters will change mode without the necessary incentives and better provision for active travel and public transport is unrealistic.

### Conclusion

- 4.35 To conclude, the Science Vale area is a popular place to live and work. However, it has been a victim of its own success because the infrastructure has not kept pace with the growth in housing and jobs. This has led to severe congestion across the network as demonstrated by multiple planning appeals for developments of just one dwelling being dismissed. This is uncommon in the planning world and truly highlights the transport challenges that the area faces. This congestion does not only hinder the private car but those wishing to travel by bus, on foot or cycling. These challenges are exacerbated by the fact that this is largely a rural area which makes it harder to convince people to walk and cycle especially in the dark winter months. Even in urban areas where lighting is generally good and 'natural surveillance' is good, women often feel more vulnerable than their male counter parts. The congestion also has an impact on the haulage industry with Didcot also being a centre for logistics. The absence of alternative routes to the A4130 creates challenges with providing bus priority due to the need to maintain access to

Didcot and the surrounding area for other modes including private cars and logistics vehicles. The sheer level of growth, doubling the population in the area with a similar number of new jobs, means no one mode can be seen as a solution. Only a multi-modal option will meet the challenges without harming the economic viability of the Science Vale area. The attractiveness and opportunity that the area offers must be met with the right transport solution.

## 5 POLICY CONTEXT

### Introduction

- 5.1 This section of my Proof of Evidence provides a summary of the policy context relevant to the determination of the Planning Application. Whilst it does not intend to be a full policy review, it will demonstrate that the Scheme has been developed with the local policy context as a driver throughout. As policy has evolved, I will show that the Scheme still aligns with policy and in many instances other policy documents rely on the Scheme to deliver those policy aspirations.
- 5.2 Section 9 'Planning Policy Context' of the Applicant's Call in Statement of Case (CDL.1) dealt with the relevant local and national planning policies in the context of the Scheme. The Proof of Evidence prepared by Mr Greep then provides a comprehensive assessment of the national planning policy relevant to the Scheme.
- 5.3 The Proof of Evidence prepared by Mr Disley provides details of how the Scheme relates to the policies in the LTCP, which is also covered in this section. Provided in this Proof of Evidence is a summary of the local policies that make specific reference to the Scheme. It also references key policies, outlining their main aims, to which the Scheme makes an important and direct contribution.
- 5.4 This includes policies set out in the following documents: the VOWHLP Parts One and Two (CDG.2.1 and CDG.2.7); the SOLP (CDG.1); the LTCP (CDG.4) and the supplementary Science Vale Area Strategy (within LTP4, CDG.5); and the Didcot Local Cycling Walking Infrastructure Plan (LCWIP, CDG.4.1).

### Vale of White Horse Local Plan 2031 Part 1 (adopted December 2016)

- 5.5 Core Policy 4: Meeting Our Housing Needs outlines the housing targets for the district and identifies the key growth areas. As identified in sections 6 (Identification of Need for the Scheme) and 8 (The Optioneering Process), the Scheme was assessed through the Evaluation of Transport Impacts process, forming part of the evidence base for the local plan, and identified as necessary to facilitate the delivery of the allocated growth in the local plan.
- 5.6 Core Policy 6: Meeting Business and Employment Needs outlines the growth in employment land associated with the local plan. As with the housing growth referenced above, the Scheme was identified as necessary to facilitate this growth.
- 5.7 Core Policy 17: Delivery of Strategic Highway Improvements within the South-East Vale Sub-Area identifies the infrastructure required to support the allocated growth in the local plan. It states:

*"In order to deliver the growth in the South East Vale Sub-Area and the wider Science Vale area, the Science Vale Area Strategy has identified highways Infrastructure to mitigate the impact of the planned growth across Science Vale and secure the future economic viability of the area. The package will be further refined through development of the Local Transport Plan 4 being developed by Oxfordshire County Council, and the Local Plan 2031 Part 2."*

- 5.8 A number of strategic improvements to the road network, bus network, and cycling network are identified in this policy, including the three elements of the Scheme that are in the district, which in the policy are referred to as:
- "Science Bridge and A4130 re-routing through the Didcot A site;
  - A4130 dualling between Milton Interchange and Science Bridge; and
  - a new strategic road connection between the A415 east of Abingdon-on Thames and the A4130 north of Didcot, including a new crossing of the River Thames."

- 5.9 Core Policy 18: Safeguarding of Land for Transport Schemes in the South East Vale Sub-Area safeguards areas of land to ensure that other proposals for development do not prejudice the delivery of the identified transport schemes in Appendix E of the plan. This includes the three elements of the Scheme in the district. It notes that (p.92, CDG.2.1), "It does not seek to show a precise alignment for the transport schemes, which will need to be informed by detailed design work, carried out in consultation with Oxfordshire County Council and other relevant parties." This reflects the early stage of the development of the schemes at the time that the plan was produced.
- 5.10 Core Policy 33: Promoting Sustainable Transport and Accessibility states that:
- "The Council will work with Oxfordshire County Council and others to:*
- i. actively seek to ensure that the impacts of new development on the strategic and local road network are minimised*
  - ii. ensure that developments are designed in a way to promote sustainable transport access both within new sites, and linking with surrounding facilities and employment*
  - iii. support measures identified in the Local Transport Plan for the district, including within the relevant local area strategies*
  - iv. support improvements for accessing Oxford*
  - v. ensure that transport improvements are designed to minimise any effects on the amenities, character and special qualities of the surrounding area, and*
  - vi. promote and support improvements to the transport network that increase safety, improve air quality and/or make our towns and villages more attractive."*
- 5.11 As explained in detail in sections 11 (Highways Performance with the Scheme) and 12 (Scheme Benefits), the Scheme makes a significant contribution towards all six of the policy aims stated above.
- 5.12 Core Policy 35: Promoting Public Transport, Cycling and Walking sets out several measures and requirements to encourage the use of sustainable modes of transport including supporting the provision of new cycling routes where the proposals are consistent with the other policies of the local plan. As detailed in the sub-sections on the benefits to active travel, local bus services, and rail services in Section 12 (see paragraphs 12.16-12.33 of this Proof of Evidence), the Scheme includes significant improvements that will contribute to encouraging the use of these modes.
- 5.13 The Site Development Template for the strategic site allocation of Valley Park identifies that (pp.24-25, CDG.2.2): "Access on the A4130 will need to take into account the Science Bridge and enable its delivery" and "The northern corridor of the site will accommodate the landing of the Science Bridge and associated transport works, including duelling [sic] of the A130 [sic]. This land should help frame the gateway to Didcot and have a positive impact on the transformation. A footpath and cycleway from Great Western Park and the existing local centre to Milton Park should be provided along this corridor to offer a more attractive approach to the town from the A34. A boulevard type approach will be encouraged." The Infrastructure Delivery Plan (p.38, CDG.2.6) also identifies that the site will need to make a financial contribution towards the Science Bridge and the A4130 Widening.
- 5.14 The Site Development Template for the strategic site allocation of North West of Valley Park identified that the development will be required to (p.28, CDG.2.2): "Provide land for widening of the A4130." The Infrastructure Delivery Plan (p.41, CDG.2.6) also identifies that the site will need to make a financial contribution towards Science Bridge and Science Bridge and the A4130 Widening.
- 5.15 It is clear from this key policy document and examined in public, that not only is the Scheme policy compliant but the cornerstone of the transport strategy to deliver the ambitious housing and employment growth and the continued prosperity of the Science Vale area. The document does not only support the delivery of the scheme but is

unequivocally stating it is absolutely necessary, as a minimum, to deliver the level of growth allocated within it.

Vale of White Horse Local Plan 2031 Part 2 (adopted October 2019)

- 5.16 Core Policy 4a: Meeting our Housing Needs outlines the housing targets for the district and identifies the key growth areas, including additional sites over and above those allocated in Part 1 of the Vale of White Horse Local Plan 2031. Part 1 established the need for the three elements within the district comprising the Scheme, as part of the transport strategy for the area, to facilitate the delivery of the allocated development.
- 5.17 Core Policy 16b: Didcot Garden Town states that (p.54, CDG.2.7):
- “Proposals for development within the Didcot Garden Town Masterplan Area, as defined on the Adopted Policies Map [and shown by Figure 2.8], will be expected to demonstrate how they positively contribute to the achievement of the Didcot Garden Town Masterplan Principles.”*
- 5.18 Many of the development sites within the Didcot Garden Town Masterplan Area are reliant on the Scheme to mitigate their transport impacts and to provide critical connectivity improvements, including Valley Park, North West of Valley Park, North-East Didcot, and Ladygrove East amongst others.
- 5.19 Figure 2.7 includes a section on transport and movement, which states that (p.55, ibid.):
- “The Garden Town will reduce reliance on motorised vehicles and will promote a step-change towards active and public transport through the creation of a highly legible, attractive and accessible movement network and the appropriate location of housing, employment and leisure facilities. The Garden Town will seek to improve opportunities for access to sport and physical activities through Sport England’s Active Design Principles. Cycling and pedestrian links between the Garden Town, its surrounding villages, and natural assets and the strategic employment sites will be enhanced.”*
- 5.20 The Scheme is fundamental to delivering these aims by reducing the impact of existing and forecast traffic within the town, this will help to make walking and cycling more attractive and help to realise the aspirations of the Didcot Local Cycling and Walking Infrastructure Plan (LCWIP). Additionally, new walking and cycling connectivity to the surrounding area will be provided by the Scheme. As discussed in paragraph 6.14 of this Proof of Evidence (see also CDN.7), a letter from the main bus operator in the area identifies the Scheme as being critical to the continued success of the bus network.
- 5.21 Core Policy 18a: Safeguarding of Land for Strategic Highway Improvements within the South-East Vale Sub-Area in Part 2 of the Local Plan updated the safeguarded land for the Culham to Didcot Thames River Crossing to reflect the latest design work undertaken at the time the local plan was produced.
- 5.22 Whilst this policy document is not as explicit with regards to highway infrastructure required to deliver the plan, VOWHLP Part 2 must be seen in conjunction with Part 1 with all saved policies with reference to the Scheme assumed to be as read. This is especially the case with a large strategic site (1,200 new homes) at Dalton Barracks to the west of Abingdon with traffic that will impact on areas in the Science Vale, namely the A4130 and A415.

South Oxfordshire Local Plan 2035 (adopted December 2020)

- 5.23 STRAT2: South Oxfordshire Housing and Employment Requirements outlines the housing and employment targets for the district. As identified in sections 6 (Identification of Need for the Scheme) and 8 (The Optioneering Process), the Scheme was assessed through the Evaluation of Transport Impacts process, forming part of the evidence base

for the local plan, and identified as necessary to facilitate the delivery of the allocated growth in the local plan.

- 5.24 STRAT3: Didcot Garden Town sets out a number of policy aims, including the promotion of Didcot as the gateway to Science Vale; focusing sustainable major new development at Didcot; and improving access by all sustainable modes of transport amongst others. The Scheme plays a fundamental role in realising all these aims.
- 5.25 Amongst a number of other transport improvements, Policy TRANS1b: Supporting Strategic Transport Investment states that the Council (i.e., SODC) will work with Oxfordshire County Council and others to (p.148-149, CDG.1):

*“support the development and delivery of a new Thames River crossing between Culham and Didcot Garden Town, the A4130 widening and road safety improvements from the A34 Milton Interchange to Didcot, a Science Bridge over the A4130 and railway into the former Didcot A power station site and the Clifton Hampden Bypass.”*

- 5.26 TRANS2: Promoting Sustainable Transport and Accessibility includes a number of aims, some of the key aims include that the Council will work with Oxfordshire County Council and others to (pp.149-150):

*“plan positively for rail improvements within the area that support improved connectivity to areas of new development*

*support provision of measures which improve public transport (including Park & Ride), cycling and walking networks within and between towns and villages in the district; and*

*support, where relevant, sustainable transport improvements in the wider Didcot Garden Town area and in and around Oxford, particularly where they improve access to strategic development locations...”*

- 5.27 As detailed in the sub-sections on the benefits to active travel, local bus services, and rail services in Section 12 (see paragraphs 12.16-12.33 of this Proof of Evidence), the Scheme includes significant improvements that will contribute to encouraging the use of these modes. Additionally, new walking and cycling connectivity to the surrounding area will be provided by the Scheme. As discussed in paragraph 6.14 of this Proof of Evidence (see also CDN.7) a letter from the main bus operator in the area identifies the Scheme as being critical to the continued success of the bus network.
- 5.28 Policy TRANS3: Safeguarding of Land for Strategic Transport Schemes safeguards areas of land to ensure that other proposals for development do not prejudice the delivery of the identified transport schemes. Amongst other schemes, this includes land for the following elements of the Scheme: the Clifton Hampden Bypass; the Thames River crossing between Culham and Didcot; and the Science Bridge.
- 5.29 Policy STRAT9: Land Adjacent to Culham Science Centre identifies that the site will be expected to make significant contributions towards, amongst other improvements, the Clifton Hampden Bypass and the Thames River crossing between Culham and Didcot. The Infrastructure Delivery Plan (CDG.1.9) also identifies that the site will need to make a financial contribution towards these schemes.
- 5.30 Policy STRAT10i: Land at Berinsfield Garden Village identifies that the site will be expected to make significant contributions towards, amongst other improvements, the Clifton Hampden Bypass and the Thames River crossing between Culham and Didcot. The Infrastructure Delivery Plan also identifies that the site will need to make a financial contribution towards these schemes.
- 5.31 Additionally, the Infrastructure Delivery Plan identifies in the district-wide infrastructure schedule that a number of sites (i.e., not only limited to those above) will contribute to the

Clifton Hampden Bypass, the Thames River crossing between Culham and Didcot, and the Didcot Science Bridge and A4130 Capacity Improvements.

- 5.32 It is clear from this key policy document, recently adopted and examined in public, that not only is the Scheme policy compliant but is the cornerstone of the transport strategy to deliver the ambitious housing and employment growth and the continued prosperity of the Science Vale area. The document does not only support the delivery of the scheme but is unequivocally stating it is absolute necessary prior to further adopted strategic site applications being approved.

Science Vale Area Strategy, LTP4 (2016) (CDG.5)

- 5.33 The Science Vale Area Strategy within LTP4 remains adopted policy until it is superseded by the forthcoming update to the area travel plans in the Local Transport and Connectivity Plan. The Science Vale Area Strategy identifies a wide range of improvements to support the planned growth in the area, many of which have already been delivered and others still in the pipeline. As part of this strategy, the following policies directly relating to the Scheme are:

*“SV 2.6: Delivering Science Bridge and widening of A4130 to provide relief to Manor Bridge and support/enable development in the area including Didcot A, NE Didcot, Valley Park and NW Valley Park.*

*SV 2.13 Delivering improved Access to Culham Science Centre (CSC) Phase 1 (new road from CSC entrance to the B4015 north of Clifton Hampden) to improve connectivity between Science Vale and the Eastern Arc of Oxford and direct access to CSC.*

*SV 2.16 Delivering improved Access to Culham Science Centre (CSC) Phase 2 - new river crossing (between Didcot and CSC) to improve connectivity between Science Vale and the Eastern Arc of Oxford and direct access to CSC. This scheme also increases capacity for north/south movements across southern Oxfordshire and reduces pressure on the A34, whilst increasing network resilience across the Thames floodplain.”*

LTCP (adopted July 2022) (CDG.4)

- 5.34 The Scheme makes an important and direct contribution to a number of policies in the LTCP. Some of the key policies are summarised below, which are explored in more detail in Mr Disley's Proof of Evidence, alongside other policies.

*“Policy 2 – Cycle and walking networks*

*a. Develop comprehensive walking and cycling networks that are inclusive and attractive to the preferences and abilities of all residents in all towns. All new walking and cycling schemes will be designed according to the updated Oxfordshire Walking and Cycle Design Standards (to be published in 2022).*

*Policy 3 – Local Cycling and Walking Infrastructure Plans*

*b. Implement local cycling and walking networks in line with LCWIP proposals as funding opportunities arise to achieve a step change in the use of cycling and walking in line with local and national targets.*

*Policy 4 – Strategic Active Travel Network*

*a. Develop a Strategic Active Travel Network in order to identify key routes for walking and cycling between destinations across the county and prioritise interventions to existing and new infrastructure.*

*b. Identify and support all opportunities to develop and link up the Strategic Active Travel Network in new developments, rural and major roadworks and road schemes.”*

- 5.35 The high-quality walking and cycling provision that forms a critical part of the Scheme has been designed to Local Transport Note 1/20: Cycle Infrastructure Design (DfT, July 2020) standards and (in lieu of the updated standards) Oxfordshire County Council's current Walking Design Standards (2017) and Cycling Design Standards (2017) or better. As detailed further in paragraphs 12.16-12.24 of this Proof of Evidence, the Scheme will form a significant part of the Strategic Active Travel Network and provide important connections between multiple destinations. As explained in paragraph 5.39 of this Proof of Evidence, the Scheme is critical to realising the aims of the Didcot LCWIP:

*"Policy 18 – Bus strategy*

*a. Work in partnership with bus operators, District and City councils to maintain a commercially sustainable and comprehensive network of services which is accessible to as many residents as possible.*

*Policy 21 – Rail strategy*

*We will use the Oxfordshire Rail Corridor Study and Oxfordshire Connect projects to guide our approach to rail and priorities for rail investment in Oxfordshire. We will publish a separate rail strategy in 2022 that builds on these projects and identifies potential future rail projects and opportunities across and through Oxfordshire.*

*Policy 22 – Multi-modal travel*

*a. Consider multi-modal travel as a central option for transport planning and planning for new developments to achieve greater integration of the transport system.*

*d. Work with stakeholders, including the rail and bus industry, to improve access to existing railway stations on foot, by cycle and bus."*

- 5.36 As detailed in paragraphs 12.25-12.33 of this Proof of Evidence, the Scheme will play a very important role in supporting the continued success and planned improvements to the bus and rail networks, it will help to facilitate the introduction of new bus services and improvements to existing services and will provide better access to the rail network.

*"Policy 36 – Road schemes*

*b. Where appropriate, adopt a decide and provide approach to manage and develop the county's road network.*

*c. Assess opportunities for traffic reduction as part of any junction or road route improvement schemes."*

- 5.37 The development of the Scheme has followed a 'decide and provide' approach. The Scheme forms part of a balanced transport strategy; the modelling assessment has accounted for modal shift from private vehicles to active travel and public transport; and it provides high-quality walking and cycling facilities; and enables improvements to the bus and rail networks. These points are discussed in more detail in the Proofs of Evidence of Mr Disley and Ms Currie.

*"Policy 54 – Rural journeys*

*We will work with partners and stakeholders to develop tailored solutions for our smaller market towns and rural areas that reduce through traffic, improve connectivity, accessibility, and contribute to delivery of our transport vision."*

- 5.38 The Scheme helps to connect a number of key housing and employment locations which are dispersed across a predominantly rural area of southern Oxfordshire.



## **Didcot Local Cycling and Walking Infrastructure Plan (adopted December 2023) (CDG.4.1)**

- 5.39 The Didcot Local Cycling and Walking Infrastructure Plan (LCWIP) identifies the significance of the Scheme in terms of its role as part of the walking and cycling network in the area and describes it in paragraph 2.5.10 (CDG.4.1) as follows:

*“The proposed Scheme is complex and formed of multiple elements. It is the cornerstone of a future wider active travel network that addresses the existing severe severance to walking and cycling created by road, rail and river in the Didcot and surrounding areas. It is the central ‘puzzle piece’ that unlocks a predominantly off-road walking and cycling route from Oxford to Harwell Science and Innovation Campus (and further afield in both directions) via Kennington, Radley, Culham Science Centre, multiple rail stations, and Didcot.”*

- 5.40 The adopted LCWIP is clear that the Scheme is key to the active travel network in and around Didcot by connecting housing with employment. Not only does the Scheme deliver high-quality and segregated walking and cycling infrastructure across its full length but it is the enabler to connect to a much wider area including Harwell Campus, Milton Park, Abingdon and Oxford.

### Conclusion

- 5.41 To conclude, it is clear from this adopted policy document that the Scheme is compliant with it and, in fact, crucial for the walking and cycling aspirations in the area as it provides key connections within and outside the area. It is not only compliant with many policy documents but absolutely necessary with the Scheme providing the cornerstone of the strategy to deliver growth in the area.

## **6 IDENTIFICATION OF THE NEED FOR THE SCHEME**

### Introduction

- 6.1 This section gives a summary of the background in respect of the need for the Scheme. The information is set out in greater detail in the Transport Assessment (CDA.7) submitted as part of the Planning Application for the Scheme. In addition to considering the need through the lens of five key issues it will also summarise how the need for the scheme was identified through successive local plan transport evidence bases.
- 6.2 The Scheme will address five key issues:
- The poor existing highway network performance;
  - The under-provision of active travel in the area;
  - Improvements in public transport;
  - The need for adequate network resilience and safety; and
  - The delivery of housing and employment growth.

### Existing Highway Network Performance

- 6.3 As discussed in detail in previous sections, Didcot and the wider Science Vale area has seen considerable housing and employment growth over the past 30 years. This has led to significant traffic growth, both within the town and related to commuting across the wider area.
- 6.4 Crucially, both housing and employment growth is planned to continue throughout Didcot and the wider Science Vale area. If growth continues as planned, without identified transport mitigation, current congestion issues will be further exacerbated. This problem will be especially acute within Didcot and its immediate surrounds (Culham/Clifton Hampden in particular). In addition, increased levels of congestion will very likely lead to worsening air quality throughout Didcot and Science Vale as a whole.
- 6.5 Movement in Didcot and Science Vale is characterised by high levels of private car travel and dependence upon the car. The existing high levels of car use across Didcot and Science Vale will continue unabated without suitable transport interventions that contribute to enabling sustainable travel choices.
- 6.6 Utilising the 2020 base traffic flows from the Paramics microsimulation model funded by Oxfordshire County Council, VOWDC and SODC, junction capacity assessments have been undertaken at numerous existing off-site junctions (identified with the prefix "OFF"), as highlighted in Figure 11. This is described further in the Ms Currie's Proof of Evidence.

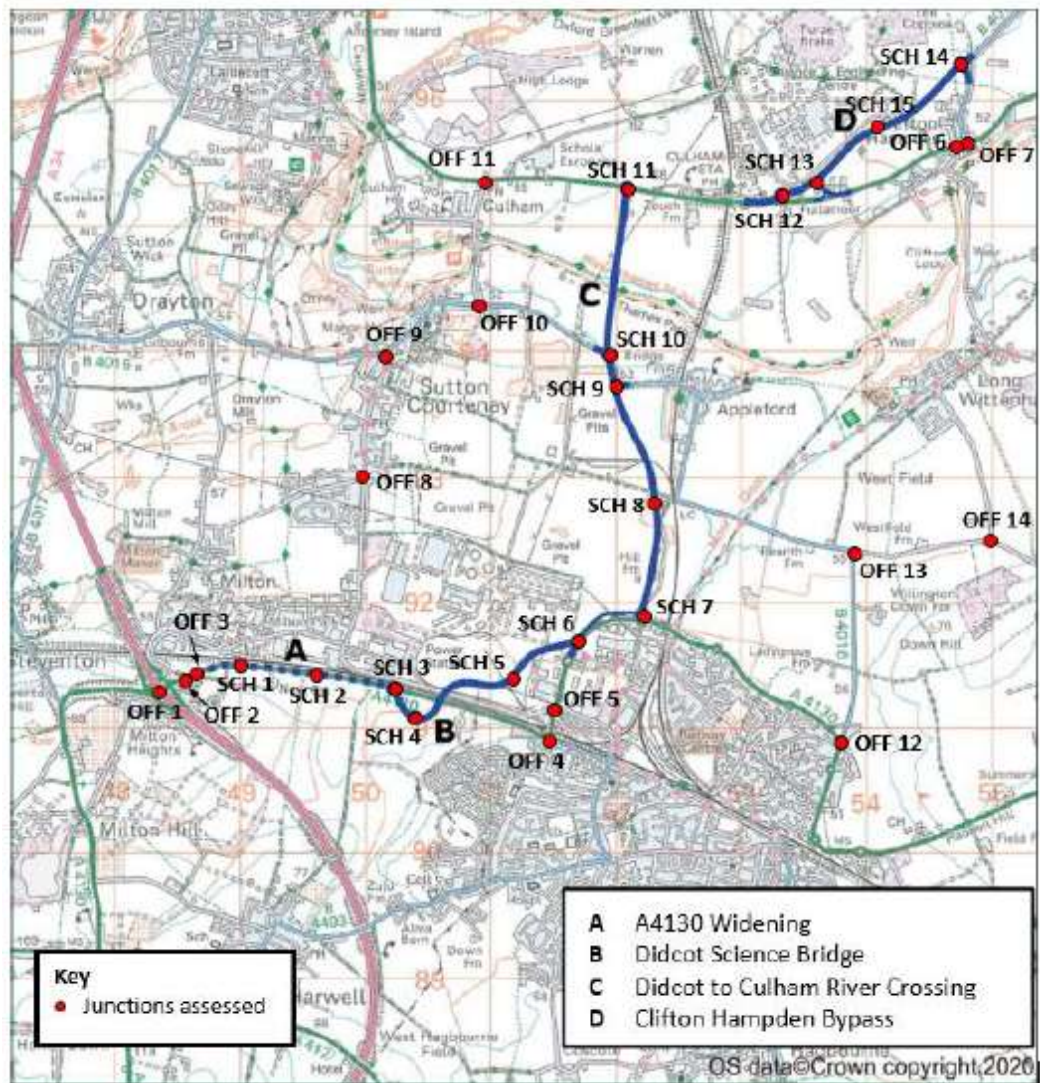


Figure 11: Junction Assessment

6.7 The assessments show that the following off-site existing junctions are operating over capacity in either or both the 2020 morning and evening peak hours:

- (Ref: OFF 3) – A4130 signalised junction with Milton Gate;
- (Ref: OFF 5) – A4130 roundabout with Basil Hill Road and Milton Road (Power Station);
- (Ref: OFF 6) – A415 signalised junction with High Street;
- (Ref: OFF 7) – A415 signalised junction with B4015 Oxford Road;
- (Ref: OFF 9) – B4493 priority junction with Foxhill Road;
- (Ref: OFF 10) – B4016 Appleford Road priority junction with Abingdon Road;
- (Ref: OFF 11) – A415 signalised junction with Tollgate Road;
- (Ref: OFF 12) – A4130 priority junction with Lady Grove; and
- (Ref: OFF 13) – Lady Grove priority junction Sires Hill.

6.8 It is clear that the existing transport network in and around Didcot is not fit-for-purpose and with the expected levels of housing and employment growth, the highway network will not operate efficiently without intervention. This has been confirmed by Inspectors' reports on Local Plans, which is discussed in further detail in paragraph 9.3 of this Proof of Evidence. More detailed information is given in subsequent sections as well as in the Proof of Evidence of Ms Currie.

### Active Travel

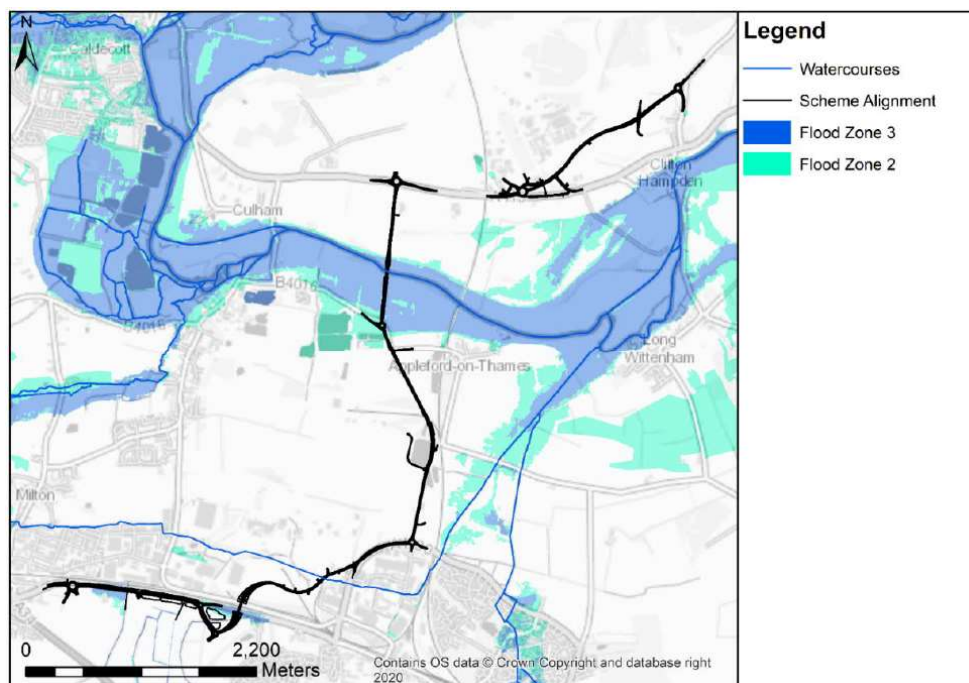
- 6.9 Key origins/destinations in the area include Culham Science Centre, Milton Park, Harwell campus and Didcot Town Centre and also further afield to Abingdon and Berinsfield (see Figure 3). As discussed in detail in paragraphs 4.26-4.28 of this Proof of Evidence, there is currently a lack of direct and attractive active travel routes, particularly for cycling, to and from these locations that would encourage residents/employees to use such sustainable transport modes.
- 6.10 The dispersed, rural nature of the Science Vale area limits the opportunity for walking as a mode to very local trips. Cycling connectivity between key residential and employment areas is reflected in the proportion of people who cycle to work in Didcot (only circa 4.5% according to 2011 Census data), even though many locations stated above are within acceptable cycling distance. The proposed Scheme seeks to begin to address the active travel connectivity issues, in areas where in most need of intervention.

### Public Transport

- 6.11 Due to the severance created by the River Thames and the railway lines coupled with the historic road network and frequent traffic congestion, bus journey time reliability suffers in the area. As such, there are currently only limited north-south services operating across the river to the north of Didcot.
- 6.12 The existing transport network in and around Didcot (and with the expected levels of housing and employment growth), will not operate efficiently for any mode of transport without intervention. This has been made abundantly clear in the representations from the Oxford Bus Group and discussed in more detail in paragraphs 4.20-4.21 of this Proof of Evidence.

### Network Resilience

- 6.13 The area is located within the River Thames catchment and crosses a number of waterways, including the River Thames, Moor Ditch, Stert Brook, Cow Brook, Meadow Brook and Clifton Hampden Brook. As a result, parts of the Site fall within both Flood Zone 2 and Flood Zone 3 as shown on Figure 12.



- 6.14 As shown on Figure 9, the existing bridges over the River Thames at Clifton Hampden and Culham are located within Flood Zone 3. Greater resilience is, therefore, required on the network through the provision of alternative routes through this important employment

and residential area; the Scheme provides this resilience. Please refer to paragraph 4.12 of this Proof of Evidence.

- 6.15 The Scheme also provides highway network resilience. For example, if there is an incident on the A34, the area can better cope with diverted traffic. Currently, traffic will try to divert through the congested network without the Scheme and this is compounded through Sutton Courtenay, Culham and Clifton Hampden due to the limited capacity at the current river crossings. This has a particular impact on emergency services and bus services. With the Scheme, it will provide an alternative diversion route as opposed to all traffic routing through the local villages. Whilst this is not an objective or stated benefit of the Scheme, it does provide an additional, secondary benefit.

#### Delivery of Housing and Employment Growth

- 6.16 The Scheme will support significant growth in housing in SODC and the VOWHDC by directly unlocking or supporting the delivery of approximately 15,825 new homes (and supporting many more in immediate vicinity as per Figure 3) in the Didcot Garden Town area, including approximately 6,000 affordable homes (based on the 37.5% average of the affordable housing requirements for the VOWH and SODC, which are 35% and 40% respectively). This is coupled with substantial areas for employment generating activities, expected to be high value jobs contributing strongly to local and national economic growth. The allocated housing and employment sites alongside the Scheme alignment are shown on Figure 3.
- 6.17 The Housing Infrastructure Fund (HIF) Business Case and benefit cost ratio (BCR) for the Scheme was predominantly predicated on the delivery of new homes by evaluation of land value uplift (LVU) rather than a traditional transport business case. Even though the transport benefits/disbenefits were assessed as part of the Business Case, the use of LVU is reflective of the Government's priority to deliver more new homes in areas where they are most needed. Oxfordshire is a high housing demand area, with Oxford City often cited as one of the most expensive areas to live outside London, relative to wages. It should be noted that only housing sites were included in the HIF1 business case to calculate the LVU and, therefore, BCR and none of the employment sites were assessed (although traffic modelling would have included all known growth at that time). Also, only sites 11, 13, 19, 25 (which, at the time, was allocated for 400 dwellings and will now be employment instead), 28, 29, 30, 31, 33, and 37 were concluded as 'dependent'. Therefore, many more thousands of new homes and jobs are expected to be built which will have an impact on the local and strategic highway network. Also, some sites (e.g., Site 7 – Dalton Barracks) have the potential to accommodate many more new homes than are currently allocated.
- 6.18 The housing schemes represent a significant contribution towards delivering Oxfordshire's Housing and Growth Deal, which supports the delivery of 100,000 new homes across the county up to 2031. However, as set out in paragraph 4.13 and 4.14 of this Proof of Evidence, planning applications in the area have been refused, at least in part, on the grounds of highway safety and the residual cumulative impacts on the road network, in accordance with (variously) paragraph 32 (NPPF, 2012) and paragraph 109 (NPPF, 2018 and 2019). The current iteration of the paragraph is now paragraph 115 (December 2023 NPPF) which states that:

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

- 6.19 As part of the local planning process to determine where housing and employment growth is located in the VOWHDC and SODC areas, the Evaluation of Transport Impacts study has been conducted to inform appropriate highway mitigation. The Scheme, amongst other interventions, was identified as essential for the VOWHDC Local Plan Part 1 adopted in 2016. In the Inspector's report for Part 1, the Inspector was satisfied that a mitigation strategy, including the Scheme, was identified to deal with growth associated with the Local Plan Part 1 and South Oxfordshire's Core Strategy 2016 (CDG.2.5). This was in the knowledge that much of the highway infrastructure was unfunded and a large shortfall was identified to deliver necessary infrastructure. The Evaluation of Transport Impacts study that informed the Local Plans is described below.



- 6.20 The complexity, scale, cost, the ability to secure third party land and risks associated with the Scheme has, to date, prevented private developers from fully funding the Scheme. The above highlights clear evidence of market failure in this area, which is preventing major housing and employment developments from being realised.

Timeline of the process of identification of need for the scheme

- 6.21 This next sub-section summarises how the need for the Scheme was identified through the Evaluation of Transport Impacts processes associated with the development of the transport evidence bases for the local plans in Vale of White Horse and South Oxfordshire. The results of these exercises are discussed in more detail in paragraphs 8.4-8.8 of this Proof of Evidence.

Evaluation of Transport Impacts study to inform the Vale of White Horse District Council Local Plan 2031 Part 1 Strategic Sites and Policies (November 2014)

- 6.22 The ETI work followed an iterative five-stage process, which considered several different levels of potential development in various locations within the district. The final quantum of housing and employment across the district was 20,560 homes and 23,000 jobs.
- 6.23 This iterative process included the consideration of a variety of different mitigation measures, which led to the package of schemes, including improvements for all transport modes, to be included in the resultant local plan policies and infrastructure delivery plan.
- 6.24 In the Inspector's Report (dated 30th November 2016) on the Examination into the VOWHLP 2031 (Part 1), it was recognised that the package of mitigation to support the plan, which includes the Schemes, identified in the ETI:

*"...would largely mitigate the impacts of the proposed new development in the district, albeit that some congestion issues would remain." (CDG.2.5 para. 144, p.39)."*

Evaluation of Transport Impacts - Stage 2 for Vale of White Horse District Council Local Plan 2031 Part 2 (October 2017)

- 6.25 Utilising the same approach to the ETI work undertaken for Part 1, the work for Part 2 followed an iterative process considering different spatial strategies and used the Oxfordshire Strategic Model to test the potential traffic impacts.
- 6.26 As the need for the improvement schemes and the area-wide transport strategy had already been established in the adopted Part 1 plan, the elements comprising the Scheme were assumed to be necessary to facilitate additional growth and therefore were included in the 'do-minimum' scenario as well as the various 'with development' scenarios.

Evaluation of Transport Impacts – Stage 3 for South Oxfordshire District Council Local Plan (July 2020)

- 6.27 As with the ETIs for the VOWHDC local plans, the ETI work for the SODC Local Plan followed an iterative process of testing a variety of spatial strategies and transport mitigation packages. As before, given that the need for the Scheme had been established through previous ETI processes, these remained necessary to accommodate the cumulative development associated with adopted local plans at the time. Further to this, the funding bid for the Scheme was announced in March 2019 as successful prior to the completion of the latter stages of the ETI and thus the schemes were considered appropriate for inclusion in the 'do-minimum' scenarios.
- 6.28 In the Inspector's Report (dated 27th November 2020) on the Examination of the SOLP 2035, it was recognised that the package of mitigation to support the plan, which also includes the Scheme, identified in the updated ETI, would:

*"...enable STRAT8 [Culham Science Centre], STRAT9 [Land Adjacent to Culham Science Centre] and STRAT10 [Berinsfield Garden Village] to proceed. They are part of a wider highway strategy to support the delivery of housing*



*growth in the wider Didcot Garden Town area and to mitigate the impact of existing, approved and allocated developments.” (CDG.1 para. 214, p.214)*

- 6.29 More detailed information on optioneering and identification of the Scheme can be found in Section 8 of this Proof of Evidence

Conclusion

- 6.30 To conclude, the need for the scheme has been identified across multiple policy and evidence documents including being confirmed by planning inspectors on numerous occasions. The main bus operator in the area is unequivocal in the need for scheme for continued and improved bus services. Whilst some feel that additional road capacity will lead to more traffic growth, the view is that the ‘do nothing’ scenario will entrench private car use even further due to the issues with the current highway network preventing the successful operation of bus services and therefore patronage.
- 6.31 The lack of river crossing options and the constrained capacity on existing routes, railway crossing capacity and connections to the A34 have become serious enough that they may make proposed developments less attractive, exacerbate existing traffic-related and highway safety issues and lead to more traffic congestion. This will then disrupt local aspirations to use this growth as the catalyst to transform Didcot into a more coherent and cohesive Garden Town community. In addition, it is imperative to encourage use of sustainable travel throughout Science Vale to reduce health impacts and improve air quality.
- 6.32 Thus, intervention is required to:
- Reduce congestion on the routes to, around and within Didcot;
  - Enable modal shift across Science Vale including enhancing existing and new bus services;
  - Improve accessibility across the River Thames and the GWML in Didcot;
  - Improve resilience of the transport network; and
  - Enable sustainable housing and employment growth within Science Vale.
- 6.33 As such, the analysis of challenges to date and the various adopted policy documents has demonstrated the need for interventions to address the issues and ensure the area has transport provisions suitable for the intended increase in housing and jobs. It is clear from the evidence as well as representations from the Oxford Bus Group that the Scheme, as the only true multi-modal solution, is the right solution.
- 6.34 Improving the transport network within the area by addressing the issues identified above will also help to ensure that the Science Vale remains a world-leading research location (as described in detail in paragraphs 3.1-3.8).
- 6.35 There are 5 key issues the Scheme will address:
- The poor existing highway network performance;
  - The under-provision of active travel in the area;
  - Improvements in public transport;
  - The need for adequate network resilience and safety; and
  - The delivery of housing and employment growth.
- 6.36 It is absolutely clear that the current highway network cannot accommodate any further increases in traffic without having a severe impact on highway performance. This has been confirmed by numerous planning appeal decisions as well as by Inspectors examining Local Plans. This is equally the case for active travel and public transport – existing congestion and the absence of infrastructure (or poor quality infrastructure in terms of active travel) creates an environment that is not conducive to encouraging use of these modes of transport. This is clear from the low mode shares, particularly for cycling and bus use, and also confirmed by the main bus operator in the area.

- 6.37 Flooding in recent years has highlighted poor network resilience and created major issues for accessibility (especially by bus) in the area. This is not just personal mobility but for those that provide key services (e.g. care and healthcare professionals, refuse collections, postal/delivery/logistics services etc). As a result, only very limited development can be allowed without certainty of intervention to solve these issues. This results in not being able to provide the housing people require, a key national priority, but even more so for those that rely on affordable housing (cramped living conditions have been shown to have a detrimental effect on young people's lives and education). Furthermore, economic development will be stunted in a time when the country is recovering from the COVID pandemic and experiencing a cost of living crisis. In short, the need for the Scheme has been soundly justified.

## 7. OBJECTIVES OF THE SCHEME

### Introduction

- 7.1 In this section, I will explain how the objectives were defined in various stages with objectives being adapted at certain points to reflect changing circumstances. Objectives have also been based on specific circumstances using policy documents wherever applicable. I will demonstrate that an extensive, detailed and robust objectives setting approach has been used.

### Scheme objectives

- 7.2 The final scheme objectives were confirmed in the Options Assessment Report 2021 (CDA.19) and can be found in Table 2 below.

Objectives	Theme	Objective Description	Relevance against the scheme	Source
Objective 1	Support housing development	Unlock the delivery of 11,711 additional homes in the Didcot Garden Town area, and more across Science Vale	Improve accessibility across Science Vale between new developments and key employment sites, whilst addressing existing congestion issues	HIF Bid
Objective 2		Support the delivery of 4,847 affordable homes in the Didcot Garden Town area in support of the Housing Growth Deal, and more across Science Vale		HIF Bid
Objective 3		Ensure the impact of additional housing on the transport network is acceptable and associated impacts on the transport network are adequately mitigated.		HIF Bid
Objective 4	Support economic growth	Ensure the impact of employment growth on the transport network is acceptable and associated impacts on the transport network are adequately mitigated.	Increased transport capacity will help mitigate the impact of proposed employment growth across Science Vale	New objective
Objective 5		Unlock Commercial space at key employment sites across Science Vale, including D-Tech and Culham Science Centre	Additional capacity (both private and public transport) to employment sites and improved accessibility, in particular to Science Vale and key employment sites	HIF Bid
Objective 6	Future-proofing	Provision of a flexible transport network to cope with future uncertainties and opportunities	Improved resilience to changes in travel patterns	Access to Science Vale OAR Part 2 (August 2019)
Objective 7	Sustainable Travel	Minimise the need to travel and where travel is necessary promote sustainable modes of transport	Improved public transport capacity and sustainable developments would improve air quality Improved active travel facilities across Science Vale	New objective
Objective 8		Minimise carbon emissions and other pollution such as water, air, noise and light, and increase resilience to the likely impact of climate change, especially flooding.		New objective

Table 2: OAR 2021 Objectives

- 7.3 Prior to adoption of the final Scheme objectives, there were several optioneering exercises over a long period of time which meant objectives were constantly evolving. The following paragraphs explain this process, wherever possible, chronologically. Section 8 explains how these objectives were used in each optioneering exercise.
- 7.4 The process of objective setting can be seen in the context of planned and unplanned growth. The level of speculative development due to five-year housing land supply deficiencies accelerated the need for local plan processes to be undertaken. However, new homes, whilst needed, were poorly located and were not supported by the

appropriate infrastructure, particularly highway infrastructure. This accelerated the development plan approach which overtook the normal policy and strategy development at the local highway authority level.

7.5 The objectives of the Scheme were initially mapped against the Local Transport Plan 4 (adopted in 2015 and updated in 2016 (CDG.5)) objectives which reflected the changing growth assumptions. However, significant weight was also attached to the Local Plan work. As part of the initial Access to Science Vale Option Assessment Report (OAR) Part 1 (started in 2017 and completed in March 2018 (CDA.19)), the following objectives were agreed by a county/district working group as the basis for developing strategic level transport improvements in Science Vale and Didcot:

- Reduce congestion;
- Provide capacity for development;
- Improve connections to major destinations;
- Reduce emissions associated with travel;
- Encourage modal change;
- Provide a flexible transport network that can cope with future uncertainties and opportunities; and
- Improve safety of travel.

7.6 Following this, the OAR Part 2 (CDA.19) refined the overarching objectives to ensure that they directly address the problems and opportunities and align with established regional and local policies and plans. These objectives considered:

- Unlocking the delivery of homes in the Didcot Garden Town area;
- Supporting the delivery of affordable homes in the Didcot Garden Town area;
- Ensuring impact of additional housing on the transport network is acceptable;
- Provisioning of flexible transport network to cope with future uncertainties and opportunities; and
- Unlocking commercial space at key employment sites within the Didcot area.

7.7 As a further iteration, and after a successful HIF1 funding bid, the Scheme objectives were refined once more in the OAR (CDA.19) to ensure they were SMART (specific, measurable, achievable, relevant and time constrained). These objectives consider:

- Unlocking the delivery of 11,711 additional homes in the Didcot Garden Town area;
- Supporting the delivery of 4,847 affordable homes in the Didcot Garden Town area in support of the Housing Growth Deal;
- Ensuring the impact of additional housing on the transport network is acceptable and associated impacts on the transport network are adequately mitigated;
- Delivering high value for money to the public sector; and
- Unlocking commercial space at key employment sites (D-Tech and Culham Science Centre).

- 7.8 It was recognised that the objectives from the various optioneering and objective setting exercises had different purposes. It was therefore decided that an updated OAR, published in 2021 (CDA.19) was required to standardise the approach (including objective setting) to appropriately and comprehensively undertake an optioneering task.
- 7.9 The various objectives from different reports and documents were amalgamated (including objectives from the adopted Local Plans) to cover the gaps, particularly with regards to the environment and minimising climate change. The defined and 'adopted' objectives can be found in Table 2 above.
- 7.10 Full information on the process of objective setting can be found in the Design and Access Statement (CDA.19, pp.70 to 77) submitted as part of the Planning Application.

#### Conclusion

- 7.11 To conclude, and as Section 7 demonstrates, there has been a number of objective setting exercises, with the objectives having evolved over a long period of time. This extensive and robust approach has been informed by Local Plan work, Local Transport Plan policy and not one but three option assessments reports. As new information has become available, the objectives process has been reviewed. This led to a 'combined' and updated Option Assessment Report in 2021 (CDA.19). The final objectives were:
- Objectives 1, 2 and 3 – Support housing development
  - Objectives 4 and 5 – Support economic growth
  - Objective 6 - Future-proofing (network resilience)
  - Objectives 7 and 8 – Sustainable travel
- 7.12 The various different objectives, at different times, were used in various and numerous optioneering exercises. Options were tested against the objectives as described in Section 8 below.

## 8. THE OPTIONEERING PROCESS

### Introduction

- 8.1 This section will set-out the reasonable alternatives considered and explain that the extent of consideration undertaken was proportionate to the stage of development. It will outline that the Scheme has been informed by a detailed and multi-stage optioneering exercise consistent with the relevant regulations and guidance. I will demonstrate that contrary to comments made by some parties, a full optioneering approach was taken with all options considered with a rationale as to why some options did not meet some or all of the objectives and were therefore not taken forward for further assessment or as the preferred option(s).

### An overview of the optioneering process

- 8.2 Given the extensive optioneering process, over many years, for various reasons, it is not always possible to describe the process in a strict chronological manner. This section of my Proof of Evidence has, therefore, been structured to identify how the Scheme, in its entirety, was initially identified through local plan work. I then go into detail around the OAR Part 1 and Part 2. During this process, the Applicant was required to produce an environmental impact report and environmental impact appraisal for the HIF business case which provided an early indication of the environmental constraints and impacts for the then preferred option. The section then describes the OAR (2021) – it was at this stage that all relevant documents related to optioneering (listed in Table 3 below) were brought together along with the OAR Part 1 and Part 2 as one overarching and comprehensive document. During the development of the OAR (2021), several sub-sub-options, particularly in relation to the Didcot to Culham River Crossing element, were also assessed and included in the OAR published in 2021. These sub-sub-options are also articulated in this Proof of Evidence (although further details from other sources, in addition to the OAR (2021) information, are also included for context). For the full optioneering process, refer to the Design and Access Statement (DAS) Appendix A (CDA.19).
- 8.3 The OAR followed the DfT Transport Appraisal Guidance (TAG), as illustrated in DfT's Transport Appraisal Process (TAP). The process followed the Environmental Impact Assessment (EIA) Regulations, the National Planning Practice Guidance (NPPG) and the Design Manual for Roads and Bridges (DMRB) LA 104 Environmental Assessment and Monitoring in that developments should consider "reasonable alternatives" including comparison of the "environmental effects" and that the level of effort should be "proportionate" to the feasibility of assessment.
- 8.4 The Scheme has been subject to an options appraisal process to identify the best way to achieve the stated objectives. Optioneering, in some form and for several different reasons, has been ongoing between 2014 and 2021. The following feasibility, options and modelling reports have been produced to support the development of the Scheme and are listed below (and largely referred to in CDA.19 Appendix A):

Date	Document
2014	Vale of White Horse Local Plan 2031, Evaluation of Transport Impacts
July 2014	Didcot Science Bridge Scoping Report [not an EIA Scoping report]
2015	Didcot to Culham New Road and Thames Crossing: Optioneering and Proof of Concept
March 2018	Access to Science Vale: Options Assessment Report (Part 1)
April 2018	Didcot to Culham Link Road, Thames Crossing – Archaeological Desk-Based Assessment, Alignment 1 and 3
May 2018	Didcot to Culham Link Road, Thames Crossing and Clifton Hampden Bypass Extended Feasibility Appraisal – Flood Study Report



May 2018	Didcot to Culham Link Road, Thames Crossing and Clifton Hampden Bypass Built Heritage
2018	Didcot to Culham Link Road, Thames Crossing and Clifton Hampden Bypass Extended Feasibility Appraisal – Landscape and Visual Appraisal
November 2018	Housing Infrastructure Fund 1 (HIF1) Outline Business Case: Environmental Assessment Report
December 2018	HIF1 Outline Business Case: WebTAG Preliminary Environmental Impact Appraisal Report
September 2019	Access to Science Vale: Options Assessment Report (Part 2)
2020	Didcot to Culham River Crossing: Appleford Sidings Road Bridge, Options Study (AECOM)
2021	Didcot Garden Town HIF1: Options Assessment Report (AECOM)
2021	Didcot to Culham River Crossing: River Thames Bridge and Approaches – Options Study (AECOM)

*Table 3: Feasibility, options and modelling reports / documents*

### VOWHLP Part 1 Optioneering

- 8.5 This sub-section adds more detail of the process of options considered during the Evaluation of Transport Impacts (ETI) associated with the VOWHLP Part 1 to the timeline overview provided in paragraphs 6.22-6.24 of this Proof of Evidence. In 2012 / 2013, work on the VOWHLP Part 1 began to identify suitable development sites and infrastructure required to mitigate new development. An ETI was undertaken in various stages depending on the level of expected growth. This led to a Local Plan consultation in February 2014 and the 'Local Plan – Publication Version' in November 2014. The plan was expected to demonstrate that the level of growth and the mitigation strategy was affordable and deliverable.
- 8.6 A final Stage 5 ETI was undertaken with a distribution of 20,560 homes and 23,000 jobs in the VOWHDC along with South East Plan levels of development in the other districts in Oxfordshire. This stage also tested potential highway options to mitigate the above level of growth. It consisted of three mitigation scenarios – one medium scale and two larger scale. The medium scale schemes consisted of proposals to address traffic problems on the A417, A420, A338 and A4130. The larger scale schemes were to deal with more 'strategic' network issues. The first concentrated on a new Thames crossing near Culham and a new Clifton Hampden Bypass utilising the A415 and A4074 between Didcot and Oxford. The second involved widening the A34 between Milton Interchange and Hinksey Hill Interchange.
- 8.7 Whilst the widening of the A34 had a marginally greater impact in reducing forecast delay in the VOWHDC, a Thames crossing near Culham and the Clifton Hampden bypass provided greater benefits to the wider local highway network. The A34 widening is a much more complex, expensive and longer-term project that needs to be delivered as a whole corridor approach. National Highways (with responsibility for the A34) need to consider this route from Southampton to the M40. Simply widening one section between Milton and Hinksey would likely create significant congestion issues further north on the A34, particularly the western bypass at Oxford. Major work would also likely be required at junctions and routes leading to the A34. Due to this complexity and cost, the A34 widening was discounted as not being viable or deliverable for local growth needs.
- 8.8 It should be noted that in both larger scenarios, whilst some congestion remained, it largely mitigated the impact of development. The ETI was used to demonstrate that a strategy was deliverable within the Local Plan period but that further work was required to establish the exact strategy. This was due to a requirement to adopt a plan-led approach to manage the growth more effectively. The development assumptions in the VOWHLP Part 1 (adopted in December 2016) were on the conservative side. Since that time, all local planning authorities in Oxfordshire have adopted new local plans with significantly more housing growth than assumed in the South East Plan used in the ETI.

- 8.9 Subsequently, the VOWHLP Part 2 and SOLP have been adopted with further growth in the immediate vicinity of the Scheme at Dalton Barracks (west of Abingdon) and new strategic sites at Culham and Berinsfield. In total, these will add 17,460 new homes (see Table 2.1, p.23 of the VOWHLP Part 2, CDG.2.7 and Table 4c, p.88 of the SOLP, CDG.1) in addition to the Stage 5 VOWHLP Part 1 scenario, the majority of which are located in the Science Vale area.
- 8.10 It is envisaged that no more new roads, in addition to the Scheme, will be required in the area to accommodate this additional growth. Instead, it is expected that site specific active travel schemes should come forward from development to complement the Scheme which provides for exemplary walking and cycling provision. For example, it is proposed that a new active travel bridge will be provided into Abingdon from the Land adjacent to Culham Science Centre site (as referenced in the SOLP Infrastructure Delivery Plan, see p.22 of CDG.1.9) whilst also providing improvements to the A415 shared footway/cycleway. Together with the Scheme and other planned improvements, it will provide a predominantly fully segregated (and in some sections traffic-free) cycle route between Didcot and Oxford.
- 8.11 In order to clearly describe the optioneering that has taken place (and the associated environmental constraints and/or opportunities), related to the Scheme as a whole and then each section of the Scheme extending from south to north (i.e. A4130 Widening, Didcot Science Bridge, Didcot to Culham River Crossing, and Clifton Hampden Bypass), is described in turn under separate headings.

Access to Science Vale: Options Assessment Report Part 1 (2018)

- 8.12 This study, in 2018, had a strategic focus and rather than considering specific options for the alignment of the Scheme, it considered strategic transport options that could address the transportation need of the area now and into the future. These strategic transportation options included:

8.13 **Major road options**

MR1: Western approach

- 8.13.1 A4130 dualling – converting the existing single carriageway road to dual carriageway standard between Milton Gate and the proposed Valley Park Roundabout.
- 8.13.2 Didcot Science Bridge – a new road crossing of Great Western Railway by providing a new link road between the A4130 at the Southmead Industrial Park and proposed Valley Park Roundabout.

MR2: Northern approach

- 8.13.3 Culham river crossing – a new link road connecting the A4130 at Ladygrove with A415 near CSC entrance including a new full standard river crossing. It should be noted that no specific alignment for this option was defined.
- 8.13.4 Clifton Hampden Bypass – upgrading of the B4015 from the A415 junction to the A4074 at Golden Balls Roundabout including a bypass of Clifton Hampden and online upgrading of northern section.

8.14 **Public transport options**

PT1: Bus improvements

- 8.14.1 Bus priority including bus lanes and bus priority at traffic signals on main roads within Didcot and on routes between Didcot and Harwell, Wantage, Milton, Abingdon and the A34.
- 8.14.2 Park & Ride in the vicinity of the A34 to serve both journeys into Science Vale and as a remote P&R for journeys to Oxford.

PT2: Rail improvements

8.14.3 Improved rail services from Didcot to Oxford and Reading (double existing service frequency).

8.14.4 Improved stations at Didcot and Culham plus a new station at Grove.

PT3: Autonomous vehicles

8.14.5 Garden Line network to connect to Harwell, Culham, Abingdon, Milton Park, rest of Didcot.

**8.15 Low cost options**

LC1: Traffic management

8.15.1 Junction realignments and signalisation.

8.15.2 Co-ordinated traffic signal control.

LC2: Cycle and pedestrian facilities

8.15.3 Comprehensive cycle and walking networks within Didcot.

8.15.4 Links to other parts of Science Vale.

8.15.5 Cycle priority in town centre.

8.16 These options were analysed using the Department for Transport's (DfT) Early Assessment and Sifting Tool (EAST), which is a decision support tool used to provide evidence on options in a clear and consistent format. It provides relevant, high level, information to inform decision making on how options perform and compare. The options were measured against 20 factors, one of which is the local environment: including environmental factors such as air quality, noise, landscape and visual and the water environment.

8.17 The major road schemes (MR1 and MR2) and the rail improvements (PT2) scored the worst for impacts on the local environment given that their size and scale will have a greater impact on the environment than other options. Bus improvements (PT1), autonomous vehicles (PT3) and traffic management (LC1) scored better due to the limited nature of the construction required, such that impacts on the local environment will be minimised. Cycle and pedestrian facilities (LC2) scored the best, as this proved to have the least impact on the environment. However, the report stated that:

*"It is unlikely that increased cycling and walking alone will be able to resolve the problems associated with connections from the town to the wider national transport network."*

8.18 Of the options assessed, the report concluded that only the major road schemes could address the transport issues and requirements of the area. Therefore, the report concluded that the following three options under MR1 and MR2 should be taken forward for further development:

- The dualling of A4130 and the Science Bridge;
- A new River Thames crossing and the Clifton Hampden Bypass; and
- A combination of both options.

Access to Science Vale: Options Assessment Report Part 2 (2019)

8.19 Building on the recommendations from the Access to Science Vale: Option Assessment Report Part 1, Part 2, in 2019, considered the options below:

- Do minimum (DM) – walking and cycling improvements;

- Do something 1 (DS1) – A4130 dualling (now the A4130 Widening) and Didcot Science Bridge;
  - Do something 2 (DS2) – Culham to Didcot river crossing (now the Didcot to Culham River Crossing) and Clifton Hampden Bypass; and
  - Do something 3 (DS3) – DM, DS1 and DS2 combined.
- 8.20 The options appraisal covered four overarching categories: i) strategic fit; ii) value for money; iii) financial case; and iv) delivery and commercial case. Environmental impacts were considered under the value for money category.
- 8.21 An environmental appraisal of these options was undertaken which focused on the following environmental factors:
- Air quality;
  - Biodiversity;
  - Greenhouse gases;
  - Historic environment;
  - Landscape;
  - Noise;
  - Townscape; and
  - Water environment.
- 8.22 Generally, all options would have adverse impacts on each environmental factor, with impacts on the water environment expected to be the greatest, with a score of 'large adverse' across all options. The assessment determined that DS2 would deliver slight beneficial impacts, for greenhouse gases and noise. Overall, all options would have very similar environmental impacts.
- 8.23 It was concluded that option DS3 had the potential to fully deliver transportation benefits that align with the objectives of the Scheme and therefore, DS3 was chosen as the preferred option for delivering the objectives of the Scheme.
- 8.24 It was determined that the do-nothing scenario is an unreasonable alternative, as the aspirations for the Science Vale and Didcot areas would be unachievable without some form of highway intervention. The do-nothing scenario would have an adverse impact on the local, regional and national economy.
- 8.25 This has subsequently been shown in the Scheme Transport Assessment (CDA.7). Traffic modelling shows that, due to the large number of developments in the area, the highway network in and around Didcot reaches gridlock before the future assessment year in 2039 under the do-nothing scenario. This would have environmental impacts as the traffic model is used to assess greenhouse gases (GHG) and air quality. For example, with the Scheme in place in the year 2034, GHG emissions are estimated to be approximately 1,074 tCO<sub>2</sub>e lower than under the do-nothing scenario. Therefore, GHG emitted by road users, during the year 2034, will be higher under the do-nothing scenario (Environment Statement CDA.15 Chapter 15).
- 8.26 Furthermore, Air Quality (CDA.15 Chapter 6) analysis shows that during the opening year (2024), with the Scheme in place, there will be increases and decreases in nitrogen dioxide (NO<sub>2</sub>) across the air quality study area, compared with the do-nothing scenario. No receptors are predicted to experience an exceedance of the objective for annual mean NO<sub>2</sub> in 2024, with the Scheme in place. Moreover, ES Chapter 10: Noise and Vibration (CDA.15), shows that there will be increases and decreases in noise at sensitive receptors across the noise study area with the Scheme in place, compared with the 'do nothing' scenario (referred to as the do minimum in CDA.15). With the Scheme in place, more properties benefit from a noise and vibration perspective than disbenefit. This is discussed in detail in the Proofs of Evidence of Ms Savage and Mr Pagett.

Environmental Assessment Report for the outline business case (November 2018)

- 8.27 In 2018, the Applicant produced an Environmental Assessment Report to support the outline business case for the Scheme. This was a desk-based appraisal providing information on the environmental sensitivity of the area, the constraints that the environment presents to the Scheme and the potential impacts the Scheme may have on the environment. Suggestions for mitigation measures were provided and further studies recommended. The Environmental Assessment Report focused on the following alignment options for the then preferred option (see Figure 13):



*Figure 13: HIF 1 Scheme Map of Sections A - D, replicated from OCC's HIF 1 Outline*

- 8.28 The report appraised these options against the following environmental disciplines:
- Landscape and visual impacts;
  - Cultural heritage;
  - Air quality;
  - Noise and vibration;
  - Biodiversity;
  - The water environment; and
  - Ground conditions and contaminated land.
- 8.29 The report provided each environmental discipline with a RAG grading (Red/Amber/Green) in relation to their anticipated impact on the environment. The results are in Table 4.

Discipline	Summary Comments	Red/ Amber/ Green Grading
Landscape	The main constraint in landscape terms is to avoid physical impact upon, and loss of, sensitive designations and features. This looks to be achievable for all Sections of the Scheme. Visual constraints include views from residential properties and designated landscapes such as the North Wessex Downs AONB and Registered Parks and Gardens.	Medium
Heritage	The Clifton Hampden Bypass (Section D) will have significant adverse impact on the setting of Scheduled Monuments, a registered park, and two conservation areas. The Culham to Didcot river crossing (Section C) [Didcot to Culham River Crossing] runs very closely adjacent to one Scheduled Monument.	Significant
Air Quality	Proposed route Sections will introduce either a new source of or change to road traffic emissions, potentially elevating local pollutant concentrations. The Scheme does not pass through any Air Quality Management Areas (AQMA) and there are not currently exceedances of the UK Air Quality Strategy objectives at locations of relevant exposure adjacent to the scheme.	Minor
Noise and Vibration	The Scheme has the potential to result in adverse noise effects at surrounding noise sensitive receivers due to increased road traffic noise levels, and a noise impact assessment should be undertaken. The Scheme may also result in beneficial impacts on the local road network where traffic flows are reduced as a result of the Scheme. Adverse vibration impacts are not considered likely at any identified existing receptors however, this will need to be confirmed once more information is obtained regarding potential new residential developments.	Medium
Ecology	Due to their proximity to the Site, Little Wittenham Special Area of Conservation (SAC) and Cothill Fen SAC may be affected by the Scheme. Protected species and Habitats of Principal Importance may be present on Site. These will need to be identified, retained where possible and relocated and or replaced (habitats) if required.	Medium
Water	All Sections cross areas with existing surface water flood risk. The Scheme will increase impermeable area and therefore runoff. This will require mitigation to prevent increasing surface water flood risk to surrounding receptors. All Sections will require a more detailed Level 2 Flood Risk Assessment (FRA) to provide a more detailed assessment of fluvial, surface water, groundwater and other flood risk sources.	Significant
Ground Conditions & Contaminated Land	Potentially contaminative land uses identified including sewage works, power station, railway land, industrial sites and landfill. Section C includes area near landfill, which is seen as a significant risk.	Section A: Medium Section B: Medium Section C: Significant Section D: Medium

Table 4: Summary of the Housing Infrastructure Fund 1 Outline Business Case: Environmental Assessment Report (November 2018)

Environmental Impact Appraisal Report for the outline business case (December 2018)

- 8.30 The Applicant undertook a further environmental study in 2018 (Ref 3.13), which appraised the same options, but provided Transport Analysis Guidance and Appraisal Summary Tables (ASTs) in accordance with the DFT's Transport Analysis Guidance Unit A3: Environmental Impact Appraisal. This reached a similar conclusion as Table 4 above, that the options will have the greatest potential impacts on the water environment and cultural heritage assets. In addition, it was concluded that there could be some slight beneficial effects in relation to noise (related to the redistribution and rerouting of traffic) and greenhouse gases (related to a reduction in total kilometres travelled over a journey).

Options Assessment Report 2021

- 8.31 To provide a robust optioneering exercise and given the scheme has constantly evolved, the Applicant commissioned an updated OAR reflecting the updated evidence base and options, including consideration of multi-modal options, which replaced, but utilised, the existing Part 1 and Part 2 OARs.



8.32 The 2021 OAR assessed the following options (see Table 5):

Ref	Intervention	Mode	Source
0	Do Minimum	No additional Interventions	N/A
1	A4130 Widening	Multi-modal	Previously defined option (HIF)
2	Didcot Science Bridge	Multi-modal	Previously defined option (HIF)
3	Didcot to Culham River Crossing	Multi-modal	Previously defined option (HIF)
4	Clifton Hampden Bypass	Multi-modal	Previously defined option (HIF)
5	Enhanced bus network including bus lanes and bus priority signals	Public Transport	Previously defined option (OAR Part 1)
6	Park & Ride in vicinity of A34	Public Transport	Previously defined option (OAR Part 1)
7	Improved rail services from Didcot to Oxford and Reading	Public Transport	Previously defined option (OAR Part 1)
8	Improved stations at Didcot & Culham plus new station at Grove	Public Transport	Previously defined option (OAR Part 1)
9	Junction realignments and signalisation	Highways	Previously defined option (OAR Part 1)
10	Upgraded and co-ordinated traffic signal control	Highways	Previously defined option (OAR Part 1)
11	Comprehensive cycle and walking networks across Science Vale	Active Travel	Previously defined option (OAR Part 1; SVCN); New option
12	Science Vale Bus Rapid Transit	Public Transport	New option
13	Science Vale Light Rail Link	Public Transport	New option
14	Demand Responsive Transport	Public Transport	New option
15	Small scale bus improvements across Science Vale	Public Transport	New option
16	A34 Widening	Highways	Previously defined option (Didcot to Culham New Road and Thames Crossing: Optioneering and Proof of Concept (2016))

Table 5: Options Assessment Report 2021, Phase 1 options

8.33 The above options were subject to a four phase sift process, with each successive phase assessing and refining options in greater detail. During the initial sifting phase, the options were scored against the Scheme's objectives (as detailed in Section 7 of this Proof of Evidence) and additional criteria (affordability, deliverability, acceptability, and feasibility). Figure 14 indicates geographical locations of the interventions where possible, and the following paragraphs briefly describe how each option was measured against the objectives and whether the option was taken forward to the next phase of optioneering. The scores for each option are in parentheses next to the option title. For full information on optioneering and rationale see CDA.19, and a table of results of the initial sift can be found in Appendix AW2.4 for ease of reference.

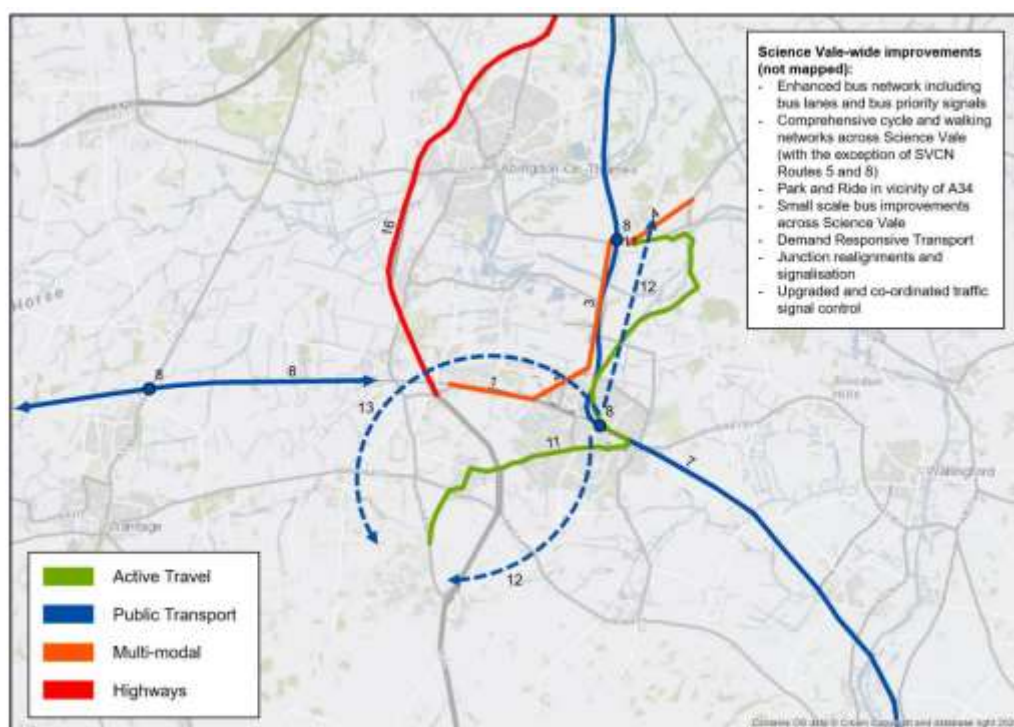


Figure 14: Options assessed as part of the OAR

### Option 0 – DM (-17)

- 8.34 The Do Minimum option would not address the issues identified across Science Vale, would not unlock new homes and employment space and would fail to mitigate the impact of existing pressures or future growth. It does not meet any of the objectives. It was therefore **not taken forward** for further assessment.

### Option 1 – A4130 Widening (20)

- 8.35 This option would help to deliver housing and employment growth and reduce congestion with slight air quality improvements. It would also provide vital active travel infrastructure and link well with a proposed new active travel bridge to Milton Heights. The option is partially in Flood Zone 2 and would require some vegetation removal. However, this has been mitigated by working with the developers at Valley Park by sharing balancing ponds, identifying flood mitigation measures and retaining as much of the existing ditch and vegetation by moving the widened A4130 carriageway further south and retaining the central reservation / median strip. Most of the land required is safeguarded on development sites allocated in the VOWHLP Part 1 (CDG.2.5). The option also scored well for flexibility as, although not justified with the current bus service pattern, it would provide for potential bus priority in the future. As it meets many of the objectives, and the multi-modal nature of the corridor, this option **was taken forward** for further assessment in Phase 2.

### Option 2 – Didcot Science Bridge (15)

- 8.36 This option would help to deliver housing and employment growth, reduce congestion, with only a slight increase in local nitrogen dioxide concentrations in Didcot.<sup>2</sup> Compared to the DM – Option 0, Option 2 it would have a slight improvement in carbon emissions

<sup>2</sup> The air quality receptor was measured on Basil Hill Road and due to a small increase in traffic on this link, with the Scheme in place, there is a slight worsening of air quality at this specific location. The air quality at this location calculated with the Scheme is expected to be far below national requirements (at only 17.5 ug/m3 NO2 concentration from 16.7 ug/m3 on the 'Do Minimum' scenario). There is also anticipated to be a vast reduction in queuing and congestion at Manor Roundabout which would point to improvements in air quality here as a result of the Didcot Science Bridge.

due a reduction in queuing traffic. The option is partially in Flood Zone 2 and would require some vegetation removal. However, these issues have been mitigated by working with the developers at Valley Park by sharing balancing ponds, identifying flood mitigation measures and providing biodiversity net gain of a minimum of 10% across the Scheme. This option would provide direct access from residential development to employment development by active travel. It would also open up the possibility of future bus services serving both new homes and new jobs. Additional capacity would provide flexibility in the future if bus priority was deemed as required. The Didcot Science Bridge is safeguarded in the VOWHLP Part 1 (CDG.2.5) and largely on sites allocated for development including brownfield land in the Former Didcot A Power Station site. This option would be complex to construct with a new structure over the A4130, Great Western Mainline Railway (within the electrification 'neutral' zone) and the Milton Road. The practicalities of engaging with Network Rail would make Didcot Science Bridge more complex to deliver. Given its relatively high score, and the multi-modal nature of the corridor, this option was **taken forward** for further assessment in Phase 2.

### Option 3 – Didcot to Culham River Crossing (16)

- 8.37 This option would help to deliver many of the scheme objectives particularly focussed on accommodating housing and employment growth, reducing congestion and queuing in the surrounding villages. Overall, the option would improve air quality and reduce noise impacts whilst also leading to a slight improvement in carbon emissions from transport. It would create safe, direct and convenient access to the north of Didcot for those walking and cycling as well as opening up the network for improved public transport provision. This includes enabling demand management approaches to the existing crossings at Clifton Hampden and Culham. It would provide additional resilience for events such as floods. The option is partially in Flood Zone 2 and would require some vegetation removal. However, these issues have been mitigated by identifying flood mitigation measures and providing biodiversity net gain of a minimum of 10% across the Scheme. However, this option would require further flood mitigation as opposed to a previous option that ran parallel to the railway line. It was deemed that the benefits of moving the new river crossing further away from residential properties, where possible, outweighed the harm. I note that the OAR does not expressly refer to the previous option and flooding in this context, but it is a further point which would support the OAR conclusion on this option. Whilst the option is feasible, it does have deliverability and engineering challenges (e.g. working through historic landfill). The area required for the scheme north of the River Thames is in the Green Belt. Given its relatively high score, and the multi-modal nature of the corridor, this option was **taken forward** for further assessment in Phase 2.

### Option 4: Clifton Hampden Bypass (18)

- 8.38 This option would help to deliver many of the scheme objectives, especially those focussed on housing and employment growth. The provision of a bypass would reduce queuing and congestion through Clifton Hampden (including outside the village primary school) and Burcot as well as along the A415 towards Culham Science Centre and Berinsfield and thus would improve air quality, reduce noise and result in a slight improvement in carbon emissions from transport. The option would make provisions for walking and cycling whilst improving conditions for existing and future bus services (currently no bus services are available along the B4015 (Oxford Road) north of Clifton Hampden to serve employment in east Oxford). The new road would provide added resilience to the highway network. The creation of the bypass would have adverse environmental impacts with loss of vegetation. However, this could be mitigated by providing biodiversity net gain of a minimum of 10% across the Scheme. This option is wholly within the Green Belt. Given its relatively high score, and the multi-modal nature of the corridor, this option was **taken forward** for further assessment in Phase 2.

### **Option 5: Enhanced bus network including bus lanes and bus priority signals (-3)**

- 8.39 This option would be unlikely to be able to deliver the scale of growth expected in the area and would require road capacity to ensure reliable bus journey times. Without providing extra capacity for bus lanes, the limited road space available would need to be taken from general traffic, pedestrians and cyclists and not likely to be possible or acceptable. In some areas, where congestion is highest, there is limited opportunity to provide bus priority. Whilst it would minimise carbon emissions (traffic and construction), it is unlikely to have the desired effect of mode shift due to the difficulty of providing enough priority in the right place. Areas would still need to be targeted that require some form of localised capacity enhancement that would have environmental impacts and in Flood Zone 2. The cost of service enhancements, in addition to infrastructure requirements, is not likely to be affordable in the long term. This option was **not taken forward** for assessment due to the poor score achieved.

### **Option 6: Park and Ride in vicinity of A34 (-10)**

- 8.40 This option would be unlikely to lead to the scale of change required for the development planned across Didcot and Science Vale. Additional road capacity would still be required on the approach to the Park and Ride, exacerbating congestion and queuing further. It would also therefore have some environmental concerns. It would not provide the walking and cycling infrastructure of some of the other options. Also, this option would not alleviate traffic and congestion in other parts of the network. For example, Oxford has five Park and Ride sites (with two more remote park and rides at Bicester and Eynsham) to intercept journeys at most access points to the city. Whilst Didcot is a rapidly growing town, it does not have the critical mass of a city. The dispersed spatial arrangement across a largely rural area also makes it more difficult for a Park and Ride strategy to be effective. I note that the OAR does not expressly refer to the Oxford Park and Rides in this context, but it is a further point which would support the OAR conclusion on this option. This option was **not taken forward** for assessment due to the poor score achieved.

### **Option 7: Improved rail services from Didcot to Oxford and Reading (-7)**

- 8.41 This option would provide improved accessibility to Culham Science Centre via the rail line. It would, therefore, partially unlock both housing and employment development at Culham Science Centre and ensure the impact of the development is partially mitigated. However, it would not unlock any other sites and only serves specific locations without interchange. At the time of writing the OAR, this option would likely have needed four-tracking of the line between Didcot and Oxford, which would have significant environmental impacts or at the very least potentially the removal of services from other smaller stations such as Appleford. Whilst it would provide one sustainable option, it would not improve the pedestrian and cycle network. This option would also be outside of local control to deliver and could have wider implications on rail service operations and routes. Three key showstoppers were identified for this option in relation to affordability, deliverability and feasibility and was, therefore, **not taken forward** for assessment due to the poor score achieved.

### **Option 8: Improved stations at Didcot and Culham, plus a new station at Grove (3)**

- 8.42 This option would be unlikely to deliver the scale of housing and employment growth expected. The new station at Grove would help provide a flexible transport network and may reduce some trips into the Didcot area due to road users in the Wantage and Grove area not needing to travel to Didcot via private vehicle. The main benefit would be to Wantage and Grove and not the Didcot area. The Improvements to Culham and Didcot stations would be likely to be affordable but would have limited alignment with many of

the objectives including in relation to walking and cycling. The impact of introducing a new station at Grove on the Great Western Main Line could have much wider implications on rail service operations beyond the local area and would be subject to a separate business case with reliance on rail operators to provide services. Whilst there would be challenges to this option it still had a positive score. Therefore, this option was **taken forward** for further assessment to understand in greater detail the benefits and challenges.

#### **Option 9: Junction realignments and signalisation (-22)**

- 8.43 This option would not deliver the scale of housing and employment growth expected. Upgrades have already been made to several junctions, but the volume of current traffic still cannot be accommodated without severe congestion. Affordability is identified as a showstopper due to the sheer number of junctions to upgrade and the cost associated with this but with comparatively little benefit. Space constraints would prevent any further capacity enhancements. This option is a poor fit for Objectives 1 to 5 and was therefore **not taken forward** for further assessment.

#### **Option 10: Upgraded and co-ordinated traffic signal control (-14)**

- 8.44 This option would not deliver the scale of housing and employment growth expected. Affordability is considered neutral because it would be relatively cheap to deliver but would only be effective where junctions are all signalised. The existing and future network (without the Scheme) is a mixture of signal control junctions with unsignalised junction (e.g. roundabouts). The 'control' would be lost at those unsignalised junctions neighbouring signalised junctions. It would, therefore, be only likely to have a very little impact on existing congestion. I note that the OAR does not explain this option in those terms, but it is important to provide further clarification to expand on the point which would support the OAR conclusion on this option. This option is a poor fit for Objectives 1 to 5 and was therefore **not taken forward** for further assessment.

#### **Option 11: Comprehensive cycle and walking networks within Didcot (-2)**

- 8.45 This option, when taking cycling and walking in isolation, would be unlikely to be enough to fully support the development across Science Vale. This option would be a sustainable option and would help to reduce carbon emissions from transport. However, it would be partially within Flood Zones, which is a key environmental concern. This option is lower cost. However, for a comprehensive network it may involve reallocation of road space where space is at a premium and/or where there is a lack of any other alternative routes for motorised vehicles. The option therefore scores low on Objectives 1 to 5 and was **not taken forward** for assessment. However, significant improvements for walking and cycling have been incorporated into the preferred scheme options. Reducing traffic at other locations will enable further improvements to the walking and cycling network, to be undertaken if the Scheme is implemented.

#### **Option 12: Science Vale Bus Rapid Transit (-3)**

- 8.46 This option could help to deliver the scale of change required for the development planned across Didcot and Science Vale. However, it would require road capacity in order to ensure reliable journey times, which, without the Scheme, would involve taking highway capacity away from private vehicles. Where options for private vehicles are already limited, this would likely be unacceptable and with the potential to make congestion elsewhere worse. In order to implement BRT systems, this would require a system of bus lanes and bus priority. This would involve significant infrastructure costs, land take and associated environmental concerns. It therefore scores low on feasibility and affordability. This option was **not taken forward** for further assessment.



### Option 13: Science Vale Light Rail Link (-7)

- 8.47 This option would be unlikely to lead to the scale of change required for some of the development planned across Didcot and Science Vale. It scores very low on affordability and would be inflexible due to the physical infrastructure required for light rail. Whilst it would be sustainable in travel terms, it would have an environmental impact especially in an Area of Outstanding Natural Beauty (AONB). It is unclear whether there would be the critical mass to support such services. I note that the OAR does not expressly refer to critical mass in this context, but it is a further point which would support the OAR conclusion on this option. It is, therefore, a neutral/low fit for Objectives 1 to 5. This option was **not taken forward** for assessment due to the poor score achieved.

### Option 14: Demand Responsive Transport (-4)

- 8.48 This option would be unlikely to lead to the scale of change required to support the proposed development and sufficiently mitigate the impact of this development on the local road network. The option would be affordable and sustainable but unlikely to be successful without further highway capacity improvements as the Demand Responsive Transport (DRT) would rely on the same congested network as all other modes. Similar trials in Oxford (with a much higher critical mass) failed mainly due to congestion. With severe congestion, as highlighted previously in my Proof of Evidence, the service would not be able to respond to demand quickly enough for it to be reliable and therefore would not lead to mode shift from private car to a level required to mitigate expected housing and employment growth. DRT scored poorly so was **not taken forward** for further assessment.

### Option 15: Small scale bus improvements across Science Vale (-9)

- 8.49 This option would be very unlikely to support development across Science Vale, and therefore four showstoppers were identified for Objectives 1-4. Whilst the option is sustainable, feasible and affordable, it simply would not provide the additional capacity to mitigate growth. Without additional highway capacity, the bus journey time reliability would be poor which would worsen with housing and employment growth. Promoting poor performing bus services with small changes to routes or improvement of facilities at stops would not achieve the mode shift required. This option performed very poorly against objectives so was **not taken forward** for further assessment.

### Option 16: A34 widening (-12)

- 8.50 This option, whilst providing additional capacity on one corridor, would not provide significant capacity within Science Vale itself to enable the delivery of required residential and employment development in the area. For example, it would not deliver growth in and around Culham nor resolve any issues at the current river crossings. It would only accommodate trips heading to Abingdon and south Oxford with the existing dual carriageway past Hinksey Interchange likely to impact on the capacity of the new 3-lane A34. This option would not provide for walking and cycling infrastructure and whilst it may improve bus journey time reliability on the A34 to Oxford, bus journey time delays would still be caused by congestion in Didcot itself. It would have significant environmental impacts with complex deliverability issues as well as being unaffordable. The A34 is managed by National Highways (NH) and would need to be promoted by NH so would be outside of the control of the Applicant. Due to the reasons above and due to the poor score against the objectives, this option **was not taken forward** for further assessment.



### Options taken forward to Phase 2

- 8.51 The five options with the highest scores were taken forward to Phase 2: EAST Appraisal - these were as follows: Option 1, Option 2, Option 3, Option 4 and Option 8 (as shown in the Table 5 above).
- 8.52 In order to further appraise the five shortlisted options, Phase 2 assessed these based on the five-case business case approach and a framework based on EAST. The results of this appraisal are in Table 6.

Option	Business Case Element				
	Strategic (max score 60)	Economic (max score 25)	Management (max score 25)	Financial (max score 20)	Commercial (max score 15)
<b>A4130 Widening</b>	50	19	22	17	13
<b>Didcot Science Bridge</b>	49	18	18	15	12
<b>Didcot to Culham River Crossing</b>	49	19	18	14	12
<b>Clifton Hampden Bypass</b>	50	19	20	16	12
<b>Improved stations at Didcot and Culham, plus a new station at Grove</b>	35	18	16	12	7

Table 6: Phase 2 score results

- 8.53 The Phase 2 appraisal took the five options and tested how they performed against the five-case business case criteria laid out in the EAST tool. The benefits of the five options were clearly defined, whilst also highlighting the areas in which each option did not perform well. This assessment was not aimed at identifying one single preferred option, but instead to draw out the strengths and weaknesses of each option.
- 8.54 The Phase 2 assessment identified that across all five-case business case criteria Option 8 (Improved stations at Didcot and Culham, plus a new station at Grove) performed the worst. There were some key concerns for this option including the significant cost, deliverability, and the potential to support planned development across Didcot and Science Vale. There were also concerns surrounding the programme of delivery of this option and how this would align with planned development. Overall, it was demonstrated that this option would not be a suitable fit to support development across Didcot and Science Vale, and therefore this option was discounted and not taken forward to the next stage of assessment. It should be noted that whilst Option 8 did not fit strategically with the aims of this project, this option may still have merit as part of a separate study, such as one focussed on improvements associated with the western Vale area.
- 8.55 Phase 3 and 4: sub options consider design, location, size, and scale alternatives to the four preferred options as identified above. These sub-options helped further refine and develop the option design to ensure the benefits were maximised and the negatives

minimised, and ensure the preferred option taken forward was the best fit for the scheme objectives. A summary of sub-options assessed is in Table 7 and described in the following paragraphs 8.58 to 8.76 of this Proof of Evidence. The 'Level of information' RAG relates to how much information and therefore evidence (e.g., drawings/sketches, feasibility and impact assessments) was available to assess each option:

Ref	Sub-Option	Level of Information	To be assessed?
<b>Option 1: A4130 Widening</b>			
1.1	Introducing higher capacity/quality pedestrian/cycle lanes	Limited Evidence	Not assessed - assessed as part of the Phase 1 sift (Option 12)
1.2	Roundabout at Great Western Park	Limited Evidence	Not assessed – consultation in 2018 has shown that this is not feasible
1.3	Introducing bus only lanes	Limited Evidence	Not assessed - assessed as part of the Phase 1 sift (Option 5)
1.4	Dualling	Substantial Evidence	To be assessed
1.5	Dualling – retain existing drainage ditch and associated vegetation	Substantial Evidence	To be assessed
<b>Option 2: Didcot Science Bridge</b>			
2.1	Alignment A (next to Manor Bridge)	Moderate Evidence	To be assessed
2.2	Roundabout at Great Western Park	Limited Evidence	Not assessed – consultation in 2018 has shown that this is not feasible
2.3	Alignment B	Moderate Evidence	To be assessed
2.4	Alignment C	Substantial Evidence	To be assessed
<b>Option 3: Didcot to Culham River Crossing</b>			
3.1	Option 1	Substantial Evidence	To be assessed
3.2	Option 2	Substantial Evidence	To be assessed
3.3	Option 3	Substantial Evidence	To be assessed
3.4	Option 4	Substantial Evidence	To be assessed
3.5	Option 5	Substantial Evidence	To be assessed
3.6	New Western Alignment	Substantial Evidence	To be assessed
<b>Option 4: Clifton Hampden Bypass</b>			
4.1	Change signal timings	Limited Evidence	Not assessed - assessed as part of the Phase 1 sift (Option 11)
4.2	Localised widening at the staggered junction	Limited Evidence	Not assessed - assessed as part of the Phase 1 sift (Option 10)
4.3	Southern Bypass	Moderate Evidence	To be assessed
4.4	Northern Bypass – alignment closer to Clifton Hampden village	Substantial Evidence	To be assessed
4.5	Northern Bypass – roundabout at eastern end	Substantial Evidence	To be assessed
4.6	Northern Bypass – T-junction at eastern end of bypass	Substantial Evidence	To be assessed

*Table 7: Sub-Option Assessment Status (taken from CDA.19 and amended to remove reference to appendices and section numbers)*

8.56 After a comprehensive and robust optioneering exercise over many years and across multiple exercises, the OAR identified a preferred option for improvements to the transport network to support development in the Didcot and Science Vale areas. These

are as follows (and in addition to the wider transport strategy as explained in Section 4 of this Proof of Evidence):

- **A4130 Widening:** Sub-option 1.5 – Dualling – retain existing drainage ditch and associated vegetation;
- **Didcot Science Bridge:** Sub-option 2.4 – Alignment C;
- **Didcot to Culham River Crossing:** Sub-option 3.6 – New Western Alignment; and
- **Clifton Hampden Bypass:** Sub-option 4.6 – Northern Bypass – T-junction at eastern end.

8.57 Even though the comprehensive cycling and walking network intervention was discounted as a scheme in its own right, due to it not meeting all scheme objectives, high-quality and segregated cycling and walking routes have been provided on all four elements taken forward. This will not only create new and improved routes to key destinations but act as an enabler for further improvements to the cycling and walking network to other destinations such as Milton Park.

8.58 Full details of the sifting and rationale for taking these options forward can be found in the OAR (Appendix A to CDA.19).

8.59 For each of the preferred options several design alternatives were considered and are reflected in the design of the Scheme now proposed. The next section will briefly discuss these design alternatives and which ones were taken forward.

#### Sub-options 1 - A4130 Widening

8.60 Five sub options were considered at various stages for the A4130 Widening. Three were discounted for not meeting objectives (only summarised below - for full rationale see CDA.19):

8.60.1 Option 1.1: Introducing higher capacity/quality pedestrian/cycle lanes – **On its own this option did not meet the congestion reducing objective and was therefore not sufficient to deliver the growth expected.**

8.60.2 Option 1.2: Roundabout at Great Western Park – **Whilst this may resolve some very local issues in terms of the access junction to Great Western Park, it would not solve congestion issues at the Manor Bridge junctions, nor would it resolve congestion on approach to Milton Interchange (Didcot's only access to the Strategic Road Network (SRN) for longer journeys).**

8.60.3 Option 1.3: Introducing bus lanes only – Many of the current and future bus routes would be expected to either run through Great Western Park, Valley Park (which will also provide bus accessibility for North West of Valley Park) and/or Milton Park due to the large patronage base these residential and employment areas offer (as well as onwards journeys to Harwell Campus). Therefore, many buses would not route along the full length of the A4130. Land has been safeguarded eastwards from the Science Bridge junction (towards Didcot) for potential sustainable travel infrastructure (including a bus lane) to/from Didcot town centre. This will serve **Great Western Park and Valley Park. However, the dualling of the A4130 does not preclude further bus priority in future. In fact, without the Scheme, it would not be possible at all.**

8.61 Two options were assessed purely from a design perspective, these were Dualling (Option 1.4) and Dualling whilst retaining the existing drainage ditch and vegetation (Option 1.5). Whilst Option 1.4 would have entailed slightly less land take, as sufficient land was safeguarded in the local plan and fully on allocated housing sites, Option 1.5 was taken forward due to it minimising the ecological impact and landscape harm whilst also helping to improve the cycling and walking environment.

## Sub-options 2 – Didcot Science Bridge

8.62 Four sub-options have been considered for Didcot Science Bridge (see Figure 15).

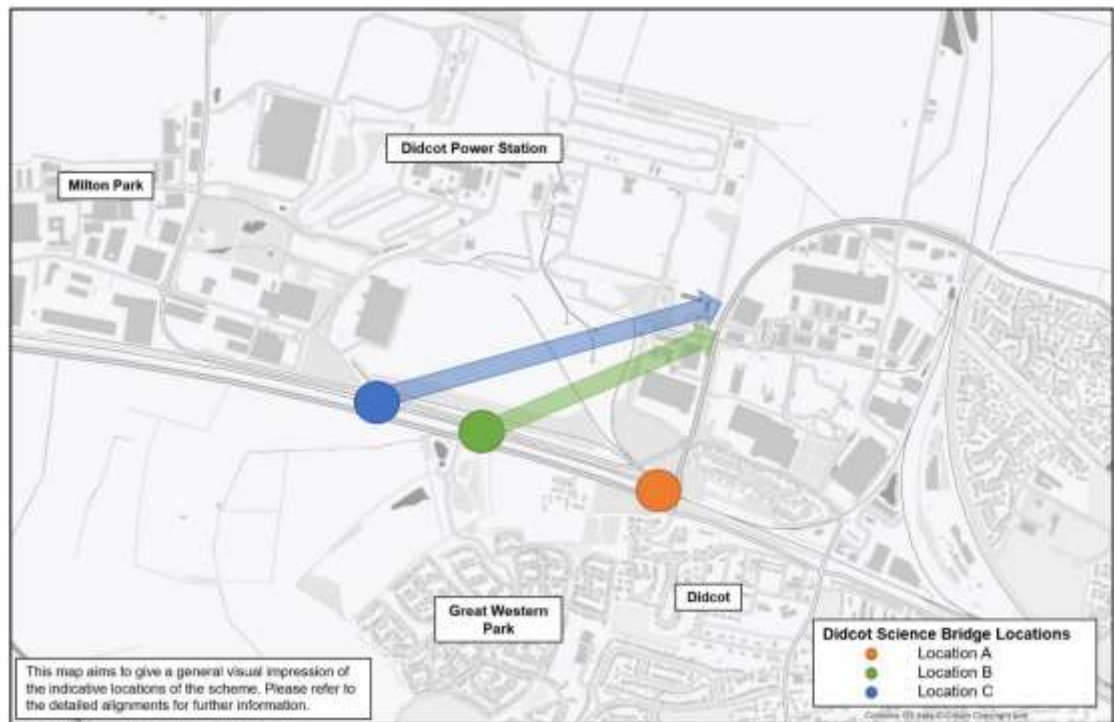


Figure 15: Didcot Science Bridge Sub-options (the 'locations' refer to alignments' in the text below)

- 8.62.1 Option 2.1: Alignment A (next to Manor Bridge) – Whilst this would potentially solve congestion issues at Manor Bridge itself, it would not provide congestion relief to the A4130 (particularly the Great Western Park Junction). It is also likely that the dualling of the A4130 would need to continue to the Manor Bridge. This would remove the possibility of a new bus lane where it is most needed in future. It also would not provide access to two strategic development sites (Valley Park: 4,254 dwellings, and the Didcot A Power Station site: commercial) including direct access for buses, pedestrians and cyclists. There would be significant engineering challenges in this area, potentially with the demolition of properties and land take (land has been secured in Didcot A development site so could be hard to justify) without meeting many of the objectives.
- 8.62.2 Option 2.2: Roundabout at Great Western Park (approximately located by the green circle on Figure 15) – Whilst this may resolve some very local issues in terms of the access junction to Great Western Park, it would not solve congestion issues at the Manor Bridge junctions, nor would it resolve congestion on approach to Milton Interchange (Didcot's only access to the SRN for longer journeys). It also would not provide general access into the development site at the former Didcot A Power Station site, thus limiting access options onto an already congested network. Additionally, this would not provide direct access into a strategic development particularly for future bus, pedestrian and cycle routes.
- 8.62.3 Option 2.3: Alignment B – There are space constraints at the Great Western Park junction and this would reduce development space of Didcot A without providing access to Valley Park and would require further land take and demolition of buildings.
- 8.62.4 Option 2.4: Alignment C – This option would link new housing with new employment, can predominantly be built off-line minimising disruption to the

travelling public and land is available in Didcot A (with part of the link road provided by the developer). This would also avoid the need for traffic to travel through three junctions on the A4130 Northern Perimeter Road. It would provide direct access for buses, pedestrians and cyclists.

- 8.63 After consideration of the benefits and issues for each of the Didcot Science Bridge sub-options it was determined that sub-option 2.4 (Alignment C) is the best performing as it could be built off-line and links housing directly to employment (including for buses, pedestrians and cyclists), and most of the land is available with partial direct delivery by the developer.

### Sub-options 3 – Didcot to Culham River Crossing

- 8.64 For the Didcot to Culham River Crossing there were 6 sub-options assessed, although sub-sub-options were assessed for certain alignments (to be discussed later). Figure 16 below shows the indicative alignments of the six sub-options.

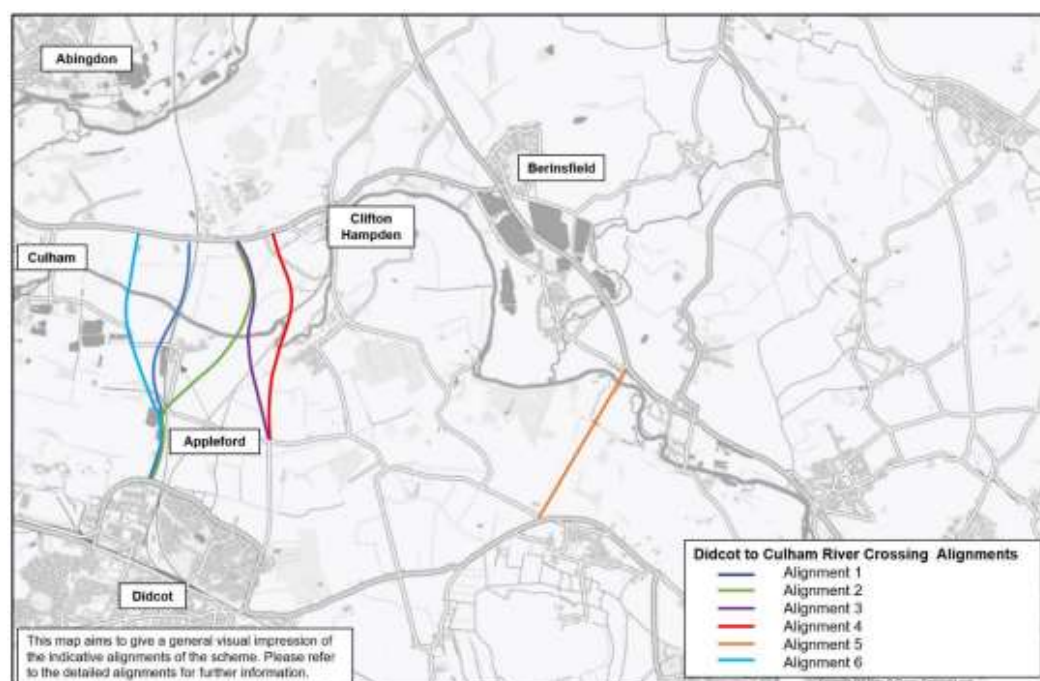


Figure 16: Didcot to Culham River Crossing Sub-options

- 8.65 The Didcot to Culham River Crossing scheme was subject to substantially more optioneering than the other options brought forward as the site is less spatially constrained and many different alignments were able to be investigated at the early design stage. However, there are also a number of environmental and engineering constraints which are unique to the Didcot to Culham River Crossing.
- 8.66 Sub-options 1-5 were initially identified in the Didcot to Culham New Road and Thames Crossing: Optioneering and Proof of Concept in 2016 (CDA.19). The design of the options was developed further in Extended Feasibility Appraisal Work undertaken by Glanville in June and July 2018, which was then peer-reviewed by Waterman<sup>3</sup>. As the first five sub-options were developed as part of the 2016 optioneering proof of concept and the sixth sub-option developed using a different rationale (including the 2018 consultation comments and traffic modelling data), they are discussed separately in the

<sup>3</sup> Waterman (December 2018) also reviewed a Structures Feasibility Report produced by GHD (April 2018), a Flood Study Report produced by Brookbanks (May 2018), an Ecological Desktop Study produced by Baker (June 2018), Extended Feasibility Appraisal Report for Built Heritage produced by Montagu Evans (May 2018), an Extended Feasibility Landscape and Visual Appraisal Report produced by Define (June 2018) and an Archaeological Desk-based Assessments produced by Orion (April 2018).



following tables and explanatory text. The following tables (8-12) outline the benefits and challenges of each sub-option (taken directly from the OAR CDA.19).

Benefits	Challenges
<ul style="list-style-type: none"> <li>Provides additional road capacity to alleviate existing congestion issues and provides the required strategic connections needed.</li> <li>Directly links employment sites at Culham and Enterprise Zones in Didcot.</li> <li>Likely to attract vehicles away from Culham, Long Wittenham, Sutton Courtenay and Clifton Hampden, re-routing existing trips to Didcot, Abingdon, and the Eastern-Arc.</li> <li>Limited noise impact due to proximity to railway line, and positive impact on noise reduction in Long Wittenham as traffic is diverted away from driving through the village.</li> <li>Limited visual impact as this follows the line of the existing railway.</li> <li>The shortest of the Didcot alignments.</li> <li>Could directly serve future housing site to the north of the A415.</li> </ul>	<ul style="list-style-type: none"> <li>Possible impact on the setting of a Scheduled Ancient Monument to north of the River Thames as it passes in close proximity of a Scheduled Ancient Monument. This is likely to lead to strong objection from the local community and English Heritage.</li> <li>Partly in Green Belt.</li> <li>Land take required.</li> <li>Passes close to the village of Appleford.</li> <li>The site of the historic landfill to the west of Appleford has an access track which surrounds the perimeter which the proposed option severs. It will need to be determined if the track needs to be reconnected once the scheme has been constructed.</li> <li>Impacts upon several existing public rights of way.</li> <li>Ponds within 500m of the alignment, and crosses suitable terrestrial habitat for Great Crested Newts.</li> <li>Potential planning constraints with respect to mineral extraction and landfill restoration. Appleford Sidings is safeguarded as a permanent aggregate depot which could pose planning issues.</li> <li>Noise impact on some Appleford properties.</li> </ul>

Table 8: Sub-option 3.1: Benefits and Challenges

Benefits	Challenges
<ul style="list-style-type: none"> <li>Provides additional road capacity to alleviate existing congestion issues and provides the required strategic connections needed.</li> <li>Provides the most direct link between Didcot and Culham Science Centre/Eastern Arc.</li> <li>Provides better route continuity than other options, facilitating strategic movements to/from the Didcot and Culham Science Centre.</li> <li>Positive impact on noise reduction in local villages as through traffic is diverted away.</li> </ul>	<ul style="list-style-type: none"> <li>Directly passes through a Scheduled Ancient Monument to the south of the River Thames. This is likely to lead to strong objection from the local community and English Heritage.</li> <li>Passes close to the village of Appleford.</li> <li>Potential tie-in issues at the northern end with Culham Science Centre and Clifton Hampden bypass (may require significant land).</li> <li>This option impacts on several agricultural plots and their associated access tracks. Further consideration will have to be given as how to best provide alternative arrangements.</li> <li>Impacts upon existing public rights of way (one footpath and two bridleways).</li> <li>Ponds within 500m of the alignment, and crosses suitable terrestrial habitat for Great Crested Newts.</li> <li>Noise impact on some Appleford properties.</li> </ul>

Table 9: Sub-option 3.2: Benefits and Challenges



Benefits	Challenges
<ul style="list-style-type: none"> <li>• Passes but does not directly affect any Scheduled Ancient Monuments.</li> <li>• More likely to be accepted as equidistant between Appleford and Long Wittenham.</li> <li>• Limited noise impact, and positive impact on noise reduction in local villages as through traffic is diverted away.</li> <li>• Limited impact on surrounding ecology.</li> <li>• Provides additional road capacity to alleviate existing congestion issues and provides the required strategic connections needed.</li> </ul>	<ul style="list-style-type: none"> <li>• Potential tie-in issues at the northern end with Culham Science Centre and Clifton Hampden bypass (may require significant land).</li> <li>• Partly in Green Belt.</li> <li>• Requires widening of the B4016, Lady Grove.</li> <li>• This option impacts on several agricultural plots and their associated access tracks. Further consideration will have to be given as how to best provide alternative arrangements.</li> <li>• Impacts upon existing public rights of way (two footpaths and two bridle paths).</li> <li>• Alignment is near to Little Wittenham Wood SSSI/SAC which is designated for its Great Crested Newt population.</li> </ul>

Table 10: Sub-option 3.3: Benefits and Challenges

Benefits	Challenges
<ul style="list-style-type: none"> <li>• Limited impact on surrounding ecology.</li> <li>• Provides additional road capacity to alleviate existing congestion issues and provides the required strategic connections needed.</li> <li>• Positive impact on noise reduction in local villages as through traffic is diverted away.</li> </ul>	<ul style="list-style-type: none"> <li>• Direct impact on Long Wittenham Conservation Area.</li> <li>• Partly in Green Belt.</li> <li>• Requires widening of the B4016, Lady Grove.</li> <li>• This option impacts upon several agricultural plots and their associated access tracks north and south of the river Thames. Further consideration will have to be given as how to best provide alternative arrangements.</li> <li>• Impacts upon existing public rights of way (four footpaths and two bridle paths).</li> <li>• Less likely than some of the other options to reduce traffic at Clifton Hampden.</li> </ul>

Table 11: Sub-option 3.4: Benefits and Challenges

Benefits	Challenges
<ul style="list-style-type: none"> <li>• Lowest costs as shortest length of new road.</li> <li>• Fewer construction impacts as this is the shortest of all options.</li> <li>• Smallest risk profile of all options.</li> <li>• Provides additional road capacity to alleviate existing congestion issues and provides the required strategic connections needed.</li> </ul>	<ul style="list-style-type: none"> <li>• Doesn't provide enough additional road capacity to support proposed growth.</li> <li>• Not an attractive alternative – too far for vehicles to divert.</li> <li>• Partly in Green Belt.</li> <li>• Does not provide any access to Culham Science Centre or Milton Park.</li> <li>• Visual intrusion of the Thames Valley for residential properties in Brightwell-cum-Sotwell and Shillingford.</li> <li>• Within an Area of Outstanding Natural beauty and has a significant impact on the Thames Valley Landscape.</li> <li>• This sub-option has both Highlands Farm and North Farm within close proximity of the proposed alignment. Any proposal in the area will need to consider how the land which is not purchased as part of the scheme will be farmed and accessed.</li> <li>• Impacts upon existing public rights of way (one footpath and one bridle path).</li> <li>• Potential impact on a Principal Aquifer.</li> <li>• Does not provide opportunity for convenient and direct walking and cycling routes between housing and major employment areas.</li> </ul>

Table 12: Sub-option 3.5: Benefits and Challenges

8.67 Alignment 3.1 had the most benefits and least impact of all the options. It would provide the additional road capacity whilst also directly connecting employment and housing sites

by public transport, walking and cycling. It would utilise the areas of brownfield including the existing access road, historic quarrying and landfill activity meaning almost three quarters of the route is 'sterilised' in archaeological terms. This does, however, create potential complexities related to construction. This alignment would be along an existing transport corridor limiting the noise and visual impact. It is situated to be attractive to most existing and new properties in Didcot thereby having the most potential to remove traffic from local villages. However, there are still significant challenges in relations to a Scheduled Ancient Monument, the proximity to a large proportion of Appleford (particularly properties to the north of the village), construction risks on former landfill, the proximity to attenuation ponds and the impact on certain habitats. However, this option performed the best in comparison to other options, so was taken forward as the 'soft' preferred alignment for a public consultation process.

#### Sub-options 3.6: New Western Alignment

- 8.68 This sub-option is based on the alignment of sub-option 3.1, which was the initial preferred option from the earlier optioneering. This design was amended following stakeholder engagement, traffic modelling and archaeological assessments. During the November 2018 public consultation, the Applicant received comments from Appleford residents that the alignment was too close to the village and should be moved westwards.
- 8.69 Updated traffic modelling showed that increased separation between the proposed Abingdon Road (A415) roundabout and proposed Clifton Hampden roundabout operated better in future years. Historic England preferred a more western alignment as it was further from the 'Settlement site N of Thames' Scheduled Ancient Monument.
- 8.70 Additionally, the positioning of the proposed Sutton Courtenay roundabout was moved offline from the B4016, so that the current road surface could be utilised for the proposed pedestrian and cycle facilities. Additionally, building a roundabout offline would reduce the need for traffic management during construction reducing the impact on the travelling public. Originally, when moving the alignment further west it was first attempted to omit a roundabout in the centre of the scheme (as shown by the T-junction on the pink alignment which later became a roundabout as per the proposed scheme), as shown in Figure 17. However, traffic modelling showed that a roundabout was required on the Sutton Courtenay junction to meet a restricted traffic demand. Additionally, the turning into Appleford from the new Didcot to Culham River Crossing became a ghost island junction rather than a roundabout shown on the previous (black) alignment (Figure17).

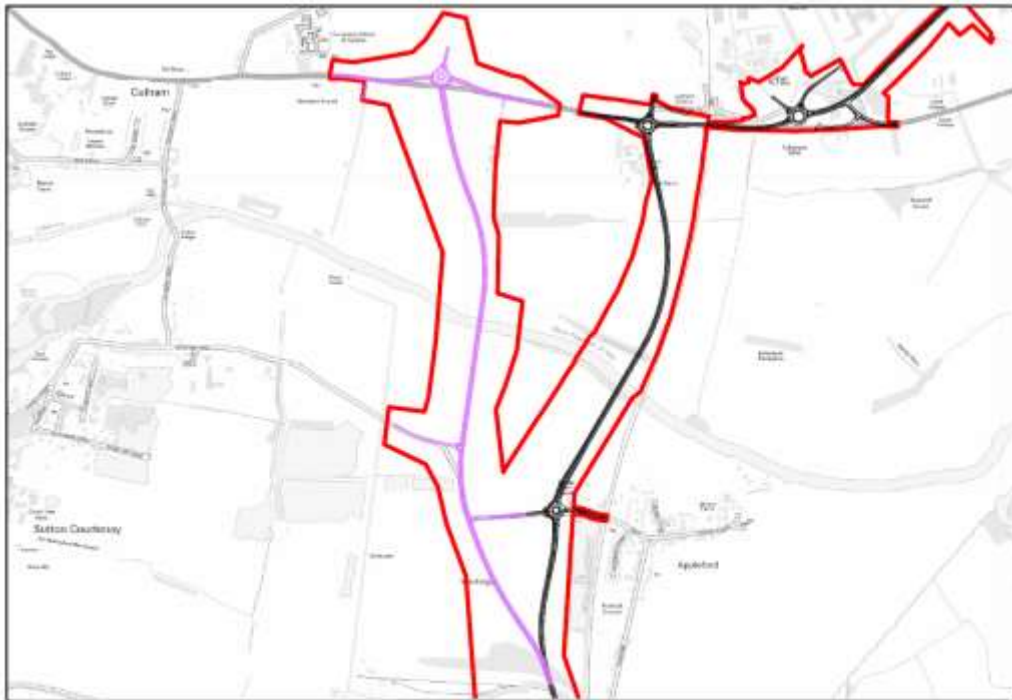


Figure 17: The previously preferred option (black) and the new western alignment (pink)

Benefits	Challenges
<ul style="list-style-type: none"> <li>Compared to sub-option 3.1, the alignment moved further away from the residential properties located in Appleford and at Zouch Farm (located between the River Thames and the A415), potential reducing noise and air quality impacts.</li> <li>Reduces the potential for unknown archaeological impacts of the Scheme, as quarrying and landfill activities will have sterilised the land in terms of archaeological finds.</li> <li>Avoiding potential for impacts on known archaeological monuments located close to the once preferred alignment, some of which are demonstrably equivalent in significance to a 'Scheduled Monument' and in-line with the NPPF, they would require equivalent protection.</li> <li>Reduced construction waste material due to moving of Sutton Courtenay roundabout.</li> <li>Operates better in traffic modelling due to greater distance between northern roundabout and Clifton Hampden Bypass roundabout.</li> <li>Moving the central roundabout offline reduces the traffic management required and therefore reduces disruption on local drivers during construction.</li> </ul>	<ul style="list-style-type: none"> <li>Slight increase agricultural land take.</li> <li>This option will be partially within Flood Zone 2, which poses a key environmental concern with regards to its construction.</li> <li>Requires building over Hanson restoration area.</li> <li>Noise impact on some Appleford properties, although adjacent to existing transport corridor (rail line).</li> </ul>

Table 13: Sub-option 3.6: Benefits and Challenges

- 8.71 A combination of desk-based assessment of various constraints, traffic modelling, stakeholder liaison, and public consultation resulted in the identification of the new preferred alignment for the Didcot to Culham River Crossing. The change to the Didcot to Culham River Crossing north of the Appleford Sidings was in response to consultation responses received from Appleford residents but also informed by traffic modelling evidence and the historic environment. Whilst this made for a slightly longer scheme with associated risks and costs, it was felt the benefits outweighed the disbenefits.
- 8.72 After consideration of the benefits and issues for each of the Didcot to Culham River Crossing sub-options it was determined that sub-option 3.6 (New Western Alignment) is



the best performing as this minimises the environmental impacts, avoids areas of archaeological importance, performs better from a transport modelling perspective and is more likely to be cost effective. Therefore, this was taken forward as the preferred option. It should be noted that this preferred option was later amended again largely to move the northern alignment to the field boundary edge to minimise the impact on the agricultural field and better align with the future access of the new development site (Land Adjacent to Culham Science Centre).

- 8.73 As discussed previously, a number of further sub-sub-options were investigated during engagement with Appleford Parish Council to move the southern section of the Didcot to Culham River Crossing further west. These will be discussed fully later in this Proof of Evidence. However, as demonstrated by the above, wherever possible, the Applicant did move the Scheme further west from previous preferred alignments which benefitted the majority of properties in Appleford where benefits such as noise and air quality are evident (as discussed in the Proofs of Evidence of Mr Pagett and Ms Savage).

#### Sub-options 4 – Clifton Hampden Bypass

- 8.74 For the Clifton Hampden Bypass, although six sub-options were assessed over a period of time, four sub-options were assessed as part of the OAR 2021 (CDA.19). As such, Figure 18 below shows the indicative alignments of the four sub-options assessed and, for completeness, commentary is provided to describe sub-options 4.1 and 4.2 and why no further assessment was made after 2018:

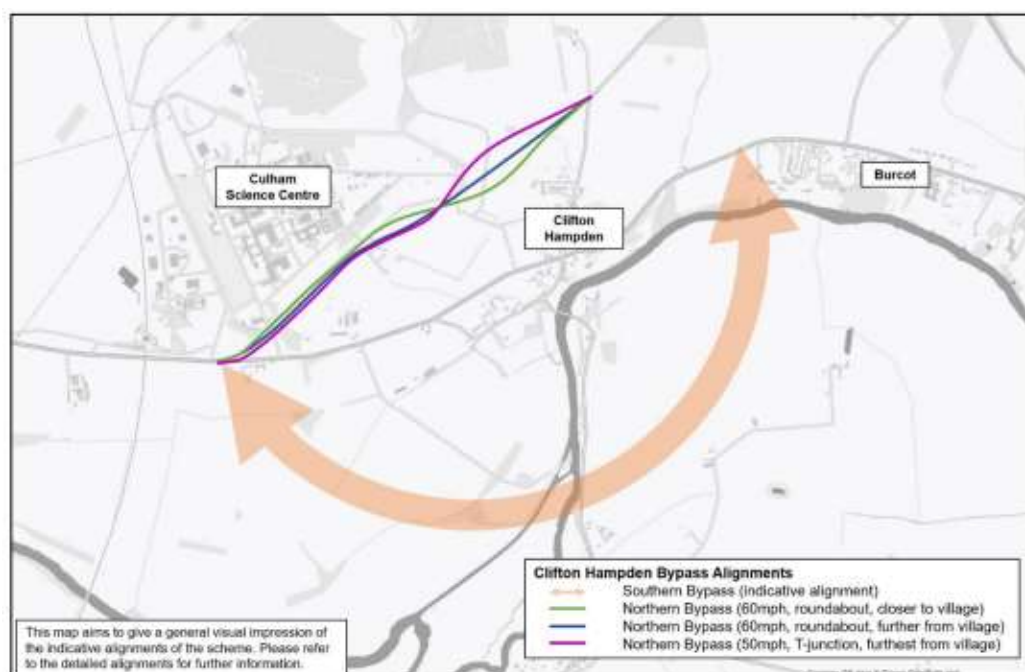


Figure 18: Clifton Hampden Bypass Sub-options

- 8.75 Sub options 4.1 ('change signal timings') and 4.2 ('localised widening at the staggered junction') were not assessed as part of CDA.19. However, these were assessed and ruled out as part of the 2018 consultation (CDA.5 p.71).
- 8.76 Sub-options 4.1 and 4.2 would not have been able to accommodate the amount of traffic associated with the level of the growth in the area. There is also limited space available for localised widening as this would be likely to require additional land from residential gardens and/or reduce pedestrian access. Given the limited benefits this could not be justified. Therefore, sub-options 4.1 and 4.2 were discounted early in the optioneering exercise.
- 8.77 Sub-option 4.3 – Southern bypass had significant challenges so scored poorly in this phase of the assessment. A new bypass route to the south of Clifton Hampden, whilst having benefit of a reduction in some traffic through Clifton Hampden (but not east-west

A415 traffic), was not optimal in traffic terms as it only removed the east/west flow but the B4015 arm being dominant. It would likely increase traffic through Long Wittenham with additional noise for residents near to the bypass. It would require a longer length of road in comparison to the northern option (4.4). A number of environmental constraints were also evident: the presence of the Clifton Hampden Meadows Local Wildlife Site (LWS) and Clifton Hampden Wood LWS; the proximity to the Clifton Hampden Conservation Area; closer proximity to the boundary of the North Wessex Downs AONB; proximity to Scheduled Monuments ('Settlement site at Northfield Farm' and 'Round barrow cemetery at Fullamoor Plantation'); extensive areas of Flood Zones; and numerous listed buildings. Furthermore, it would require two crossings of the River Thames. Given the significant constraints and challenges, this option was discounted.

- 8.78 Sub-options 4.4, 4.5 and 4.6 are all a slight variation of the same northern alignment with different junction options at the northern end (B4015). Sub-option 4.6 was chosen as the preferred option. This option included the alignment furthest away from Clifton Hampden which also enabled a reduction in speed limit. It is also the best performing as it reduces land take and cost, protects a Category A Oak Tree and would discourage the use of the village as a through route.

#### Preferred Scheme Cabinet Approval

- 8.79 After OAR parts 1 and 2 were completed, a consultation was held on the options considered and preferred options based on the evidence at that time to gauge public opinion. Stakeholders and the public largely supported the proposals and the preferred option (with some amendments) with twice as many people supporting than objecting to the Scheme overall. Further information on the consultation exercise can be found in Section 9 of this Proof of Evidence and CDA.5. The preferred alignment received Cabinet Approval in July 2020.

#### Post Cabinet Preferred Alignment – Options west of Appleford village

- 8.80 The Scheme has been informed by a detailed and multi-stage optioneering exercise. This includes the production of an Options Assessment Report to identify the appropriate interventions and subsequent public consultation, engineering, traffic modelling, and impact assessment work to identify the preferred alignments. Feasibility design further refined the preferred alignment, including moving it further west from Appleford, where possible, in part as a result of residents' requests in the November 2018 consultation.
- 8.81 At the November 2018 consultation, some residents of Appleford approached the Applicant's officers to ask whether the road could be pushed west to utilise the existing RWE 'Corridor Road', and to go around the west of the FCC landfill. Although technical challenges were immediately apparent to the Applicant's officers, they liaised with relevant landowners (RWE npower, FCC, Hanson) to understand the feasibility of this route. The suggested alternative routes were deemed unfeasible (as detailed below) and so the new preferred alignment was identified, which pushed the road further from Appleford, where possible.
- 8.82 Extensive liaison with Appleford Parish Council (APC) was undertaken, specifically related to the alignment of the Didcot to Culham River Crossing to the west of Appleford. Nine different alignments for the section to the west of Appleford were discussed with APC (after the July 2020 Cabinet decision on preferred scheme alignment, which itself was informed by a significant alignment optioneering exercise over several years). In summary, the project team reviewed various options proposed by APC and considered additional options, but for reasons of land-use, topography, transport planning, environmental and cost constraints, the Cabinet approved alignment, with mitigation, was still considered to offer the best option for the new road and bridges between Didcot and Culham.
- 8.83 On 7 January 2021, APC submitted to the Applicant a 'position paper' (CDA.5 Appendix J) which had the stated purpose (APC emphasis in bold) *"to summarise Appleford's position on Scheme C: Didcot to Culham River Crossing. Appleford **does not oppose** the proposed road and river crossing. However, it anticipates alterations to Scheme C*

*will be made following on-going consultations.”. The paper proposed an alternative route for the Didcot to Culham River Crossing which travelled through the centre of the operational landfill site, as shown in the extract from the paper below in Figure 19.*



Figure 19: Extract from APC Position Paper showing APC proposed alignment through landfill site – 7<sup>th</sup> January 2021

- 8.84 Although the Applicant had previously engaged with landowners about the principles of similar alignments, after receiving the APC Position Paper, the Applicant re-engaged with landowners: RWE npower (power station), FCC (landfill and recycling), Hanson (aggregates, rail siding), whose responses are summarised below, and the emails included in Appendix AW2.5.

RWE – Power Station – response 1 February 2021

- 8.85 RWE explained to the Applicant that RWE would not allow a new road along Corridor Road “because of the existence of critical infrastructure along Corridor Road, required for the operation of Didcot Power Station,” but stated that it had no objection to a road in land adjacent to it. This is not possible, as to the east is Hanson which is intensifying operations by constructing two additional rail sidings, and to the west is FCC’s recycling centre and composting operation.

FCC – Landfill – response 22 January 2021

- 8.86 FCC explained to the Applicant that the APC alignment cuts through their future landfill areas of this strategic site, which would sterilise some areas and require the site to cease operation prematurely. It also explained how some of the areas are permitted to be ~40 metres deep engineered landfill, which poses significant challenges to road building.



Hanson – Minerals Operation – response 15 January 2021

- 8.87 Hanson explained to the Applicant that it is intensifying their site operations onto its sidings land, east of Corridor Road. Hanson has multiple accesses for HGVs on both Corridor Road and Portway and confirmed they are all required for the safe operation of their site. In the interests of highway safety and capacity, it would not be appropriate to provide Hanson with multiple accesses from the new road.
- 8.88 Whilst considering the previous submission (7 January 2021) from APC, the Applicant received an additional submission on 21 January 2021 from the Appleford Parish Working Group (APWG) (which included some of the Appleford Parish Councillors). This new alignment pushed the previous APC alignment further to the west to avoid the centre of the landfill site, as set out in Figures 20 and 21 below (extracted from the Appleford submission).



*Figure 20: Submission by APWG showing its proposed alignment through west of landfill site – 21 January 2021*



Figure 21: Submission by the APWG showing its proposed alignment through west of landfill site, overlain on the technical drawing of the landfill cells – 21 January 2021

#### 8.89 The new APC alignments remained unfeasible for the following reasons:

- 8.89.1 Route through challenging topography formed of historic landfill. Would incur additional cost to extract old landfill (cost of extraction and landfill tax), and to import additional material to make solid ground;
- 8.89.2 routes through sections of land reserved by FCC for future landfill, sterilising part of the site (site has permission to operate until year 2030);
- 8.89.3 environmental challenges of extracting old landfill;
- 8.89.4 routes longitudinally over a mainline gas pipe;
- 8.89.5 longer alignment incurs additional cost;
- 8.89.6 longer alignment reduces attractiveness of new road to drivers from North East Didcot etc – Appleford Village likely to experience increase in traffic;
- 8.89.7 longer route less direct and attractive for walking and cycling, reducing the modal shift benefits the Applicant's preferred alignment offers. APC has suggested that this can be resolved by constructing a second route for pedestrians and cyclists only, more similar to the Applicant's preferred alignment. This would require additional land and funds, additional bridges over Hanson Rail Sidings and the River Thames etc. It also would not benefit from natural surveillance security, which may result in it not being used in darker winter months due to personal safety concerns;
- 8.89.8 it would be unlikely to meet Design Manual for Roads and Bridges standards without a low speed limit due to the number and tight radii of curves – the road would not serve the function of its intended purpose;
- 8.89.9 at the southern end, the routes cut through an emerging Local Development Order employment site;
- 8.89.10 at the southern end, the routes cut through a third-party field;

- 8.89.11 in the centre, the routes travel through the FCC Recycling Centre and FCC Composting areas;
  - 8.89.12 in the centre, the routes cross the RWE water cooling pipes and fibre optic cables, creating additional challenges and costs;
  - 8.89.13 the Environment Agency requires the Applicant to model the impact of the river crossing structure on flooding in future years with an additional allowance for climate change. This is resulting in flooding upstream from the river crossing bridge, for which mitigation is being sought. Moving the alignment west at the river would push the modelled flood area further upstream, closer to properties in Culham and Sutton Courtenay;
  - 8.89.14 near the river, the road would have to cross RWE's water pipes and fibre optic cables;
  - 8.89.15 the bridge structure would be nearer the high voltage overhead power cables, creating construction challenges; and
  - 8.89.16 road alignment located closer to other properties off the Appleford Road in the neighbouring Parish.
- 8.90 On 8 February 2021 APC submitted an updated drawing to the Applicant showing a new proposed alignment, to the eastern side of the landfill and just west of the lake, as shown in Figure 22:



Figure 22: Submission by Appleford Parish Council showing its proposed alignment to the eastern side of the landfill and just west of the lake – 8 February 2021

- 8.91 The Applicant liaised with FCC regarding the 8 February 2021 APC proposed alignment. It posed a significant number of challenges:
- 8.91.1 Cuts through recent landfill cells 9 and 10 to the south-west of the lake;
  - 8.91.2 Ground settlement is likely to occur in that location for circa 10 years, therefore it is likely that a road would need to be built as a structure using

- piles through the landfill, or the waste would need to be excavated, incurring additional financial and environmental costs;
- 8.91.3 If a piled solution was required, the Applicant would be liable for a warranty regarding leakage of a pierced landfill liner;
  - 8.91.4 Gas is likely to be emitted from these landfill cells for circa 15 years;
  - 8.91.5 If a road was built through a modern landfill the Applicant may have to take on the Environmental Permit and associated conditions with that landfill, due to the complexities of liabilities between the Applicant and FCC;
  - 8.91.6 The bridge structure over the rail sidings would likely be longer as it is crossing the sidings at a wider point;
  - 8.91.7 The bridge structure travels very close to the FCC gantry crane for loading/unloading trains; and
  - 8.91.8 Presence of protected species.
- 8.92 Given the highlighted technical challenges alongside delivery timescales and budgets this option was not pursued.

#### FCC Lake

- 8.93 During ongoing discussions between APC and the Applicant between January and March 2021, APC asked if the bridge structure could be moved west by 100-200 metres from the Applicant's proposed alignment by building the road through the rectangular lake (see the blue line on Figure 26). Given its size and depth, and the volume of water in the lake, a road across it would either need to be a viaduct type structure or require filling in some or all of the lake. Both options would not only increase cost, but also pose additional challenges:
- 8.93.1 Environmental harm of filling in an aquatic habitat and requirements for additional biodiversity off-setting;
  - 8.93.2 A significant volume of fill material would be required to be imported to fill the lake. There is very little 'cutting' of material across the scheme, so the aggregate would be transported by road or rail, incurring further financial and environmental cost;
  - 8.93.3 The rail sidings bridge span and height would likely increase due to the new crossing location;
  - 8.93.4 Additional tree felling would be required;
  - 8.93.5 Presence of protected species;
  - 8.93.6 The rectangular lake is part of FCC's drainage strategy for the older landfill site '90 Acre Field'. Water travels through the balancing pond (north of the Portway), into the rectangular pond, before draining to Moor Ditch to the east under the railway, at a controlled rate through a culvert; and
  - 8.93.7 The rectangular lake is part of FCC's restoration masterplan, where it should be enhanced in biodiversity terms by a specific planning condition 'To encourage the foraging and roosting of wading and overwintering birds such as lapwing, greenshank and sandpiper to ensure that the development does not result in a loss of biodiversity in accordance with Oxfordshire Minerals & Waste Local Plan (1996) PE14 and NPPF paragraphs 9, 109 and 118.'
- 8.94 Given the highlighted technical challenges alongside delivery timescales and budgets this option was not pursued.



### Level Crossing

- 8.95 During ongoing discussions between APC and the Applicant between January and March 2021, APC asked if it would be possible to remove the sidings structure and use a level crossing of the rail tracks instead.
- 8.96 The rail sidings are under private ownership and are used by Hanson, FCC, and Forterra. Through ongoing liaison at the time, the Applicant understood that throughout the day the freight trains are shunted back and forth along the rail sidings as wagons are loaded/unloaded. Trains would be sitting under the sidings structure for periods of the day, as and when required by the operations of the private companies. This would prevent the new road from serving its purpose, as it would be severed by stationary trains.
- 8.97 Additionally, even in the event where trains are not stationary over the crossing, driver delay as a result of a level crossing would make the new road less attractive. This could result in drivers continuing to route via the existing river crossings and through villages, including Appleford. Furthermore, in 2010 Network Rail embarked on a level crossing risk reduction programme. The objective of the programme is to close and upgrade crossings across the network to improve safety. Therefore, any new level crossing, especially with the expected usage on the Didcot to Culham River Crossing, would create safety issues. The Applicant could not promote an unsafe scheme.
- 8.98 Given the highlighted challenges this option was not pursued.
- 8.99 On 4 March 2021 Councillor Ian Hudspeth, then Leader of the Council, responded to APC on all of the alternative Appleford options discussed in the above paragraphs, in more detail, with the 'OCC Response to Appleford-on-Thames position paper' (CDA.5 Statement of Community Involvement Appendix K).

### FCC Lake (s/w Corner)

- 8.100 On 12 April 2021 APC sent the Applicant a new alignment proposal cutting across the southwest corner of the FCC lake, and proposing a 4-arm roundabout with the eastern arm connecting to Appleford as shown in Figures 23, 24, and 25 below:

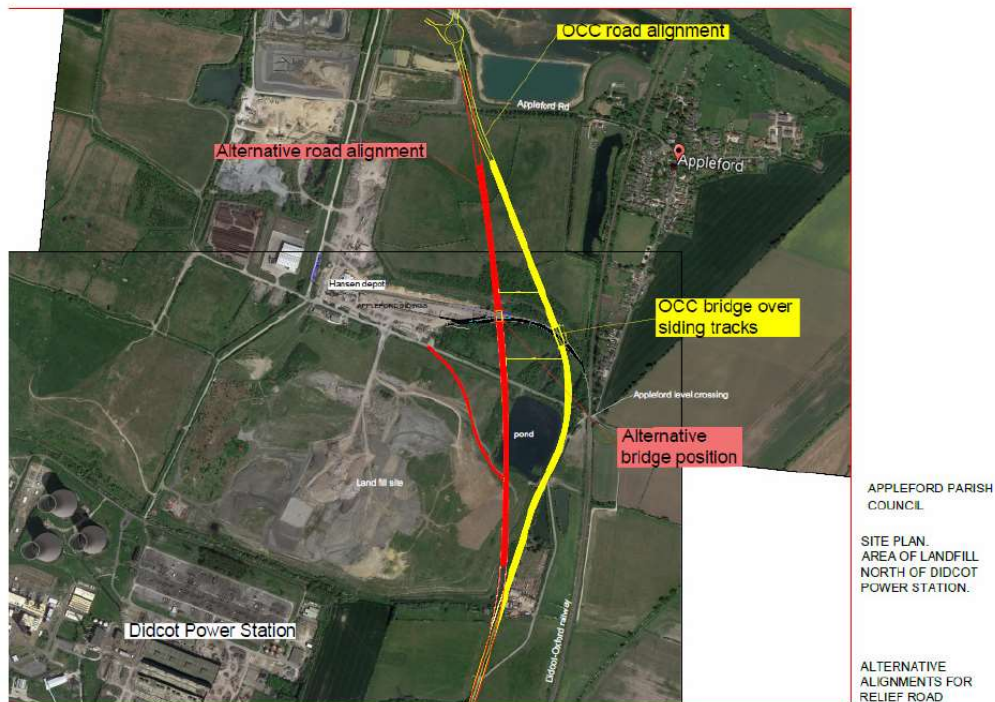


Figure 23: Submission by APWG showing its proposed alignment cutting the southwest corner of the FCC lake – 12 April 2021

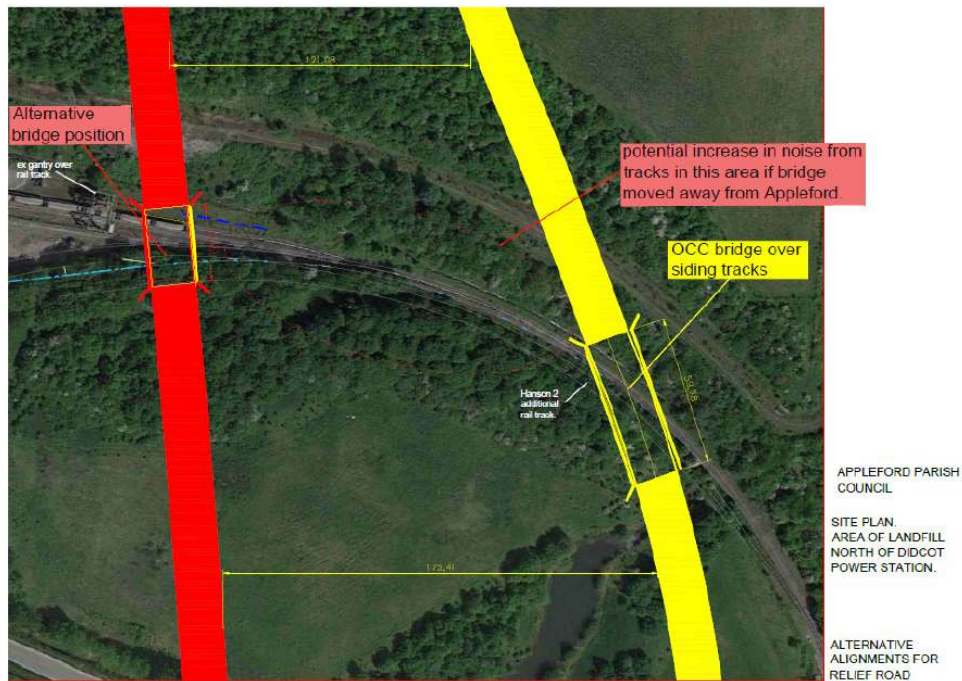


Figure 24: Submission by APWG showing a zoomed in section of the rail sidings area, comparing its proposed alignment which cuts the southwest corner of the FCC lake (red) to the Applicant's proposed alignment (yellow) – 12 April 2021

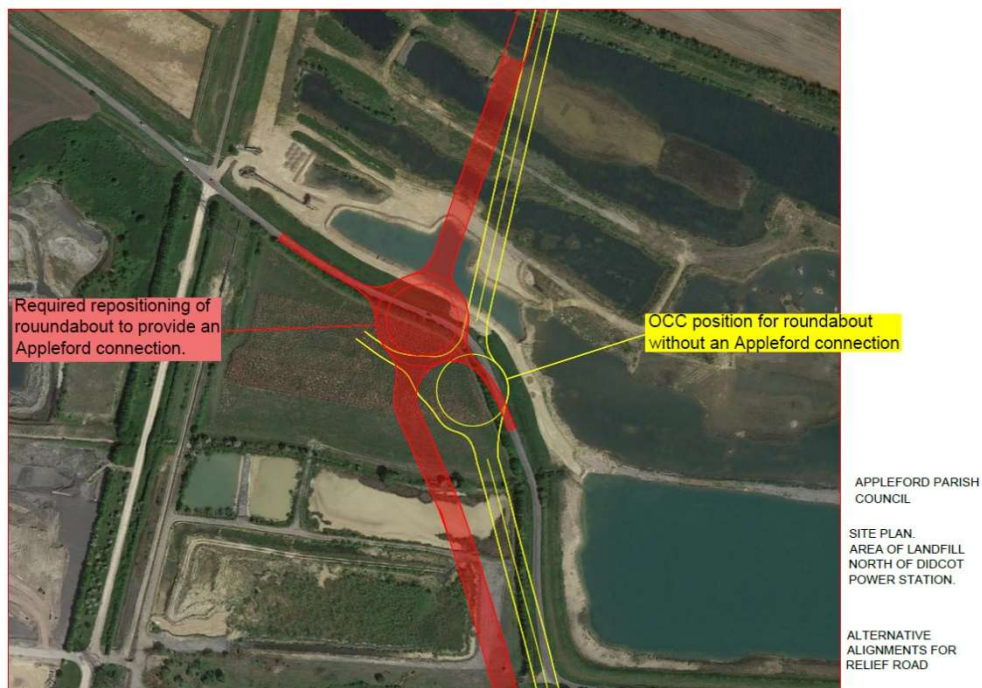


Figure 25: Submission by APWG showing its proposed alignment which cuts the southwest corner of the FCC lake and changes the Applicant's proposed 3-arm roundabout at Sutton Courtenay for a 4-arm roundabout with direct link to Appleford using the eastern arm – 12 April 2021

- 8.101 The Applicant met with APC/APWG on 1 July 2021 to discuss these proposals, and another potential alignment that the Applicant considered following earlier discussions with APC which diagonally crossed the FCC lake, shown in blue in Figure 23 below:



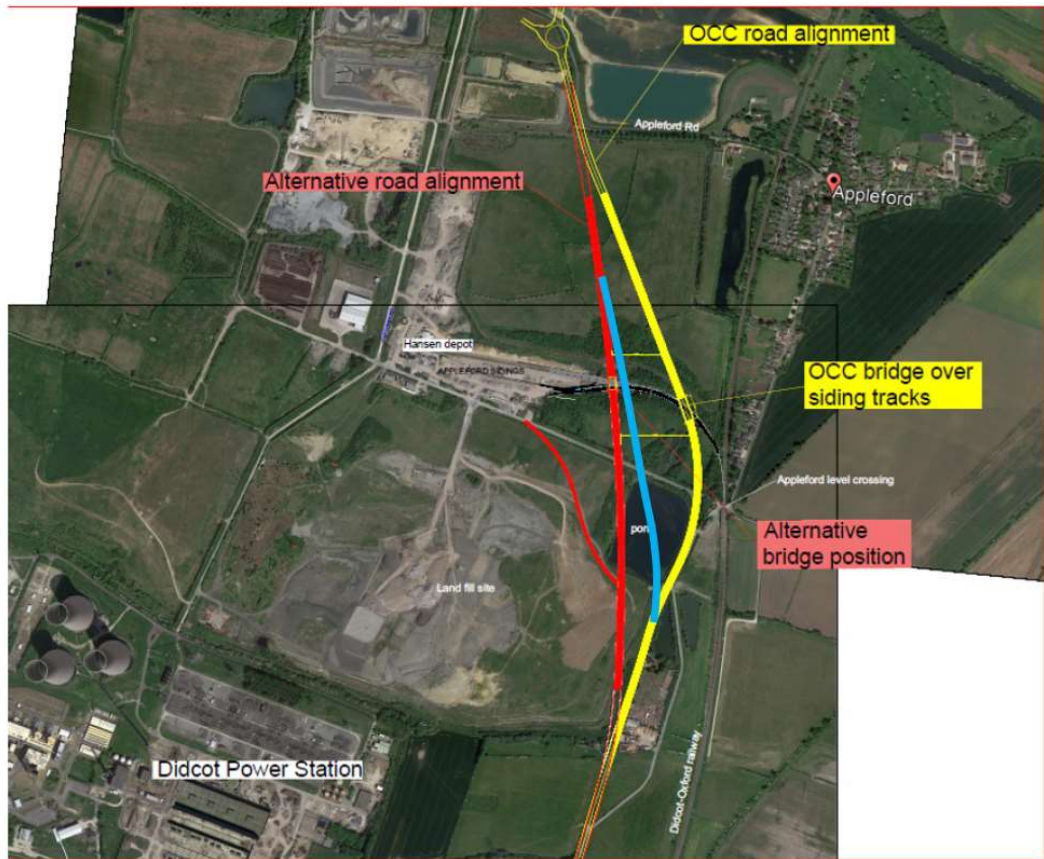


Figure 26: Image discussed with APC/APWG on July 2021, which is the APWG plan of 12 April 2021 but with a blue alignment across the FCC lake added by the Applicant – July 2021

8.102 The Applicant worked with its design consultant AECOM to calculate approximate costs and to consider the risks associated with the red and blue alignments shown in Figure 26 above, as summarised in Table 14 below which was presented to APC/APWG on 1 July 2021.

Alignments	OCC Alignment £11.6m	APC Alignment £23.5m	Lake Alignment £17.9m
Structure cost	£6.4m	£6.4m	£4.5m
Embankment cost	£3.2m	£3.2m	£3.2m
Landfill cost (tax)	-	£1.6m	-
Cost of excavate and dispose landfill material	-	£2.2m	-
Pond fill	-	£1.3m	£3.5m (or £8.9m viaduct bridge)
Risk pot (60% as there are such unknowns for the non-OCC alignments, 21% for current alignment as per cost estimates)	£2.0m	£8.8m	£6.7m
Comments on risks		<ul style="list-style-type: none"> <li>H&amp;S risk on excavating recent landfill</li> <li>Liabilities and cost for adjusting landfill maintenance and monitoring system</li> <li>Impact on FCC gas ring main</li> <li>Ground improvement required on live landfill site</li> <li>Compensation to FCC for loss landfill capacity unknown</li> <li>Further into Hanson operation area, window of build could be limited</li> <li>Potential major structure required for 'mega ditch' as alignment is at an acute angle</li> <li>ECL advice</li> </ul>	<ul style="list-style-type: none"> <li>FCC licenced pond as part of their approved drainage scheme</li> <li>Might require additional drainage area for both live and historic landfill site</li> <li>Impact on FCC gas ring main?</li> <li>Further into Hanson operation area, window of build could be limited</li> <li>Potential major structure required for 'mega ditch' as alignment is at an acute angle</li> </ul>
Other comments		<ul style="list-style-type: none"> <li>Longer span</li> <li>Hanson/FCC access might require underpass</li> <li>Needs pier in centre of rail sidings (might not be feasible due to siding operation)</li> <li>Crossing the high point of 90 acre field, circa 2m higher than current alignment</li> <li>Additional tree loss</li> <li>Known badger sets in the area</li> <li>Embankment cost assumed similar to current alignment, potentially less embankment required south of the siding but more will be needed to the north</li> <li>Reduced noise impact on a number of properties</li> </ul>	<ul style="list-style-type: none"> <li>Additional tree loss</li> <li>Hanson/FCC access might require underpass</li> <li>Crossing the high point of 90 acre field, circa 2m higher than current alignment</li> <li>Known badger sets in the area</li> <li>Reduced noise impact on a number of properties</li> <li>BNG</li> <li>Replacement location?</li> </ul>

Table 14: Presented to APC/APWG on 1<sup>st</sup> July 2021, a comparison of costs and risks for the yellow, red, and blue alignments shown in Figure 26.

- 8.103 The Applicant's officers explained to APC, on 1 July 2021, the difficulty of building a road over a recently filled landfill cell which is circa 20 metres above ground level, and the difficulties of building a new road on the Corridor Road with the high voltage overhead pylons, RWE infrastructure, and Hanson access arrangements. The Applicant has a duty, as the promoting authority, to ensure that it chooses the best route to fulfil the Scheme objectives. The Applicant must only take land that is necessary for the delivery of the Scheme and must use any powers of compulsory purchase only as a matter of last resort. The alternative alignments (red and blue) had significantly higher risks and costs compared to the proposed alignment (yellow) and were therefore not progressed.
- 8.104 On 15 September 2021 the Applicant received a petition with 20 signatories from APC for the alignment to be moved to a new location, between the previous APC proposal (red line in Figure 26) and the lake option (blue line in Figure 26). The September 2021 APC alignment is shown as a dashed red line in Figure 27 below. As with the previous APC/APWG alignment, this option had many issues including the impact on the track around the landfill that FCC insisted the Scheme should avoid (for maintenance access and landfill engineering of drainage and gas systems), and the unlikely prospect of delivering a suitable access junction for Hanson and FCC.

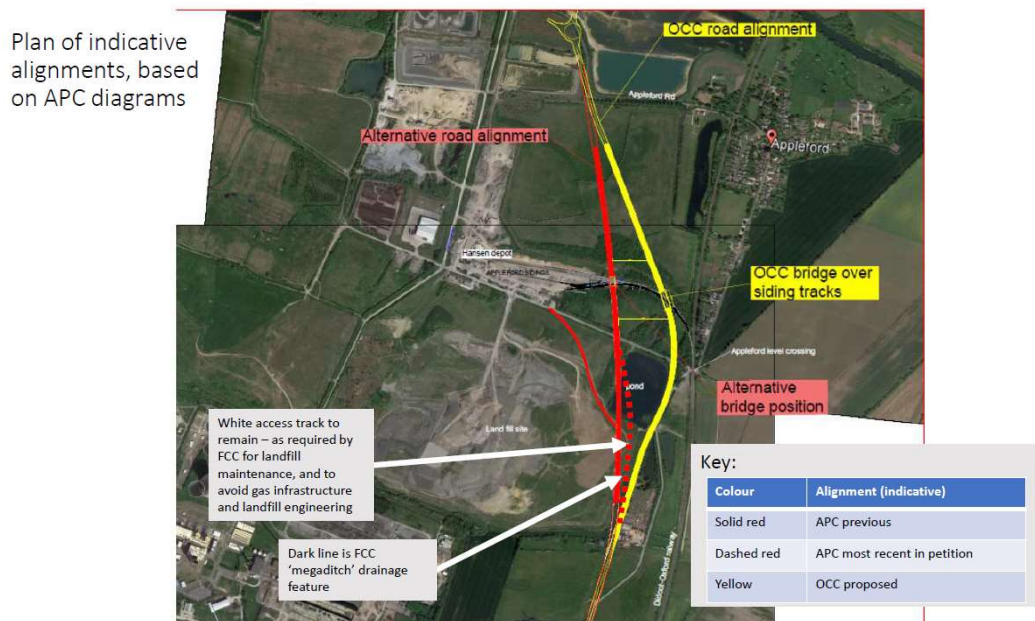


Figure 27: Summary map showing the 15 September 2021 APC alignment in dashed red, and the previous 12 April 2021 APC alignment in solid red

- 8.105 The Applicant considered the 15 September 2021 APC alignment (dashed red), and for the same reasons as with the previous APC alignment, determined that the proposed alignment should be progressed. This was explained to APC by Owen Jenkins (the Applicant's Director of Growth and Economy) by email on 24 September 2021.

### Conclusion

- 8.106 To conclude, a robust and thorough optioneering process was undertaken over a long period of time. In order to provide additional robustness and a 'belt and braces' approach, all optioneering undertaken between 2014 and 2020 was reviewed in a combined manner using all previous objectives, including new objectives to take account of revised policy and strategy to create a combined document (OAR 2021 - CDA.19). This was undertaken with all available information which was proportionate to the stage of development and followed all relevant regulations and guidance.
- 8.107 The optioneering process utilised optioneering as part of Local Plan processes with three separate OAR processes being undertaken by the Applicant. For the combined OAR, published in 2021 (CDA.19 Appendix A), 17 options were considered as part of Phase 1,

from a do minimum (no further interventions to what has already been undertaken and/or funded) to widening of the A34. Options included elements of public transport only measures (including a light rail option) and active travel network improvements being assessed. In total, there were 9 measures that assessed non-car modes.

- 8.108 Five options were taken forward into Phase 2, being the options with the most alignment with the stated objectives; the 4 components of the Scheme and Option 8: Improved stations at Didcot and Culham, plus a new station at Grove. Whilst Option 8 was found to have merits, it was assessed as not being able to support the level of growth in and around Didcot nor solve any of the congestion issues in the local area. However, it was recognised that it would have benefits to Grove and Wantage and should be taken forward as a separate project with a separate business case.
- 8.109 The four remaining options were then assessed with several sub-options to consider design, location, size, and scale alternatives. These sub-options helped further refine and develop the option design to ensure the benefits were maximised and the negatives minimised, and to ensure that the preferred option taken forward was the best fit for the scheme objectives. The sub-options were also informed by a public consultation in 2020 with the preferred options being approved by the Council's Cabinet in July 2020.
- 8.110 Furthermore, sub-sub-options were investigated related to the Didcot to Culham River Crossing after extensive liaison with Appleford. During the 2018 public consultation, representations from Appleford (and others) were made to move the alignment further west. Where this was possible, this was undertaken notwithstanding the further risks this added at the time, such as moving into the centre of the historic landfill site (expected to be deeper) and impacts on flood modelling. However, as has been demonstrated in paragraphs 8.80 to 8.105, to move the Didcot to Culham River Crossing further west, south of the railway sidings, simply was not possible due to the challenges outlined in those preceding paragraphs.
- 8.111 The optioneering process demonstrated that the Scheme, as a multi-modal scheme, met the most objectives. There will be some of the best cycling and walking infrastructure in Oxfordshire implemented as part of the Scheme. It will also provide significant advantages to public transport as outlined by Oxford Bus Group (CDN.7).
- 8.112 In short, a robust and thorough optioneering process was undertaken over a long period of time which included significant engagement with local stakeholders with changes to the Scheme made to reflect concerns. Therefore, a full and robust optioneering process was undertaken and was proportionate to the stage of development and followed all relevant regulations and guidance. The preferred option (the Scheme) is truly a multi-modal option that meets the most objectives as well as providing significant benefits in active travel and public transport terms; elements which are intrinsic to the scheme.

## 9. CONSULTATION

- 9.1 This section will describe the various consultations undertaken in relation to the Scheme. Given the iterative approach to growth and the identification of individual scheme components, at separate times, some consultations may only refer to a scheme component(s) across the package.
- 9.2 The Didcot Science Bridge scheme was originally identified as part of the Applicant's Local Transport Plan 3 (LTP3) in 2011. This policy document was widely consulted on, over multiple stages of consultation, during 2009/10. As the Local Transport Plan is a policy document, the proposal for the Didcot Science Bridge was merely conceptual. Therefore, no changes were made at this stage due to the limited amount of evidence that supported the concept.
- 9.3 The VOWHDC Local Plan 2031 (Part 1) was consulted on between 2013 and 2014 and was examined in public in 2016. The VOWHDC LP safeguards land for the majority of the Scheme. Various polices were also consulted on during this process and later adopted. The ETI modelling associated with the infrastructure package to support the growth in the VOWHDC area was the main focus of consultation comments and topics at Examination in public rather than the Scheme design. The main concern from the Examination related to the scale of the infrastructure and whether it was sufficient for the level of growth proposed. The Inspector believed that the evidence base was robust but that individual development planning applications would need to justify this. I have copied the relevant paragraphs from the Inspector's Report below:

*"144. In relation to transport Oxfordshire County Council, as Highway Authority, commissioned the November 2014 Evaluation of Transport Impacts Study to Inform the Vale of White Horse District Council Local Plan 2031: Part 1. Following several earlier stages this report assessed the likely transport impacts of the plan's proposed 20,560 new homes and 23,000 additional jobs in the district, based on a range of different transport interventions and improvements (one of medium scale and two of large scale). The report concludes that the Stage 5ETI mitigation package (which in essence comprises those transport improvements identified in the plan) would largely mitigate the impacts of the proposed new development in the district, albeit that some congestion issues would remain.*

*145. I have read and heard much debate about the robustness of the Impacts Study's findings and whether or not the residual congestion issues it identifies would be "severe" in terms of paragraph 32 of the NPPF. However, there is no convincing and detailed evidence to demonstrate that the study's conclusions are not robust, bearing in mind that they can only ever be a strategic-level forecast and that more detailed transport impact appraisals will be necessary as part of the consideration of specific development proposals. Moreover, whilst it is to a significant degree a matter of judgement, I have read and heard nothing which persuades me that the District and County Councils' conclusion that the likely residual transport impacts would be acceptable is not a soundly-based finding. In considering this point I have borne in mind that the "starting point" situation for the Vale is as a district which very much suffers from traffic congestion. (CDG.2.5 paragraphs 144 and 145)"*

- 9.4 The Scheme was consulted on during 2014 and 2015 as part of the update to the Applicant's Local Transport Plan (LTP4). It established and adopted, in 2015, all four elements of the Scheme as policy and as the cornerstone of the Science Vale Area Strategy.
- 9.5 The VOWHLP Part 2 was to complement the Part 1 Local Plan. It refined the area required for the Didcot to Culham River Crossing (at Policy CP18a) and was subject to public consultation in 2017. At the time, further safeguarded land was added for a new cycle route between Steventon and Milton Park, a new cycle and pedestrian bridge over the A34 at Milton Heights and new north facing slips at Milton to provide improved access to Milton Park. The Part 2 Local Plan was submitted in 2018 with an Examination in Public and final adoption in 2019. Much of the discussion at examination focused on new housing sites and whether the housing needs of Oxford City had been met; exceptional

circumstances for development in the Green Belt (Dalton Barracks) and in the AONB at Harwell Campus; deliverability and five-year supply; and additional / amended safeguarding. Therefore, there was very little discussion around the Scheme as safeguarded in Part 1 other than the Inspector found that the VOWHDC met its duty to cooperate particularly on the ETI and co-ordinating transport infrastructure matters.

- 9.6 As previously stated in this Proof of Evidence, the Inspector for the VOWH Local Plan Part 1 was examining a lower level of growth. Subsequently, further growth was adopted, particularly in relation to the VOWHDC Part 2 and SODC adopted Local Plans, adding additional pressure to a highway network that has been almost universally acknowledged as being significantly over capacity.
- 9.7 The Applicant held public consultation events between 2 and 25 November 2018 (consultation materials available in CDA.5 Statement of Community Involvement Appendix A) on the proposed package of strategic transport improvements for Didcot and the surrounding area (the Scheme), to support planned growth as detailed in the Local Plans. Two public exhibitions were held in Didcot during this consultation period. The purpose of the consultation was to explain options being considered, and to show early indicative plans of the transport improvements which will support the bid for funding opportunities to Government, such as the Housing Infrastructure Fund (HIF). A total of 307 responses were received during the consultation period. The feedback received during the consultation period helped to inform the Scheme design.
- 9.8 Following the 2018 public consultation, the designs for each section of the Scheme were developed further and a second consultation took place between 20 March and 30 April 2020 (consultation materials available in CDA.5 Statement of Community Involvement Appendix E). In-person public consultation events were planned for the Scheme, however due to Government's guidance on social distancing in response to COVID-19, the in-person events were not able to proceed. Several measures were introduced to ensure people could still participate, including holding an online consultation (which included a live chat function), hosted on the Applicant's website. However, printed versions of the materials were sent to those who requested them due to lack of internet access. The consultation was extended from four to six weeks to allow people more time to respond. In total 686 responses were received, with more than twice as many people supporting than objecting.
- 9.9 In response to the consultations and ongoing engagement, the following changes were made to the Scheme:
- 9.9.1 retaining the existing drainage ditch and associated vegetation on the A4130 Widening component of the scheme;
  - 9.9.2 removal of the autonomous pod lane from the A4130 scheme and repurposing as a buffer for pedestrian and cyclists;
  - 9.9.3 creating a priority T-junction instead of a roundabout junction north of Purchas Road on the Didcot Science Bridge component by;
  - 9.9.4 the cycle and pedestrian facility swapped from the western to the eastern side of the Didcot to Culham River Crossing. This meant improved pedestrian and cycling amenity whilst also moving the carriageway element of the Didcot to Culham River Crossing further away from Appleford;
  - 9.9.5 the design of the Didcot to Culham River Crossing was amended to include low noise surfacing and noise barriers at Appleford;
  - 9.9.6 a new access route to Hanson and FCC operations from the Didcot to Culham River Crossing;
  - 9.9.7 the alignment of the Didcot to Culham River Crossing north of the Appleford Sidings moved west into 90 Acre Field to take into account the environmental concerns of Appleford Parish Council;
  - 9.9.8 in association with the above, the roundabout previously envisaged just west of Appleford on the B4016, which was to serve both Appleford and Sutton Courtenay as a four-arm roundabout, was replaced with a T-junction further



- west to serve Appleford and a three-arm roundabout junction to access the B4106 towards Sutton Courtenay (although originally this was designed a T-junction). The roundabout was also moved offline to accommodate convenient, continuous and safe cycle and pedestrian route;
- 9.9.9 alignment and speed of the Clifton Hampden Bypass amended to take into account environmental concerns of Clifton Hampden Parish Council; and
  - 9.9.10 the northerly junction of the Clifton Hampden Bypass with the B4015 was changed from a roundabout to a T-junction to alleviate concerns of residents and protection of trees.
  - 9.9.11 After the 2020 public consultation, the preferred alignments were approved by Cabinet in June 2020.
  - 9.9.12 The SODC Local Plan 2035 was adopted in December 2020. The full consultation process took place from 2014 to 2019 and included development sites at Culham Science Centre (commercial), west of Culham Science Centre and Berinsfield (residential) as well as a number of sites to the south-east and north-east of Oxford to meet Oxford's unmet housing need amongst other sites. All sites mentioned above were removed from the Oxford Green Belt. Crucially, policies and safeguarding were also included and adopted in SODC Local Plan 2035 for the Scheme.
- 9.10 An EIA Scoping Report was submitted by the Applicant to the Local Planning Authority (LPA) in April 2020. A Scoping Opinion was received in July 2020 which detailed the opinions of both statutory and non-statutory consultees. The EIA undertaken and reported in the Environmental Statement (ES), was based on the Scoping Opinion. These are available in Appendix 4.1. Each of the technical assessments, reported within this ES, have been subject to consultation with the relevant statutory consultees, details of which are provided within Section 3 of each technical chapters (refer to CDA.15 Chapters 6 to 17).
  - 9.11 The Planning Application was submitted on 4 October 2021 and validated on 2 November 2021. Whilst there was a statutory period for consultation, the LPA left the consultation window open for comments and responses throughout the determination period.
  - 9.12 Additionally, the LPA requested further information required to support the Planning Application under Regulation 25 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (The EIA Regulations) in April 2022. The Applicant submitted amended plans and an addendum to the Environmental Statement on 26 October 2022. The documents and drawings which were revised as part of the Supplementary Planning Submission (SPS) and validated by the LPA in November 2022 were subject to a mandatory 30-day consultation. These documents and drawings superseded those originally submitted.
  - 9.13 In addition to the revisions made to supporting documents and drawings, several new documents and drawings were prepared as part of the November 2022 Supplementary Planning Submission (CDB.1 – CDB.10).
  - 9.14 Following comments received from the Environment Agency on the Flood Risk Assessment and the Water Framework Directive Assessment the Applicant submitted further information on these matters under Regulation 25 in December 2022 which was subject to mandatory 30-day consultation (Appendix AW2.6 and AW2.7).
  - 9.15 The LPA requested further information under Regulation 25 in March 2023. The Applicant submitted revised drawings and documents and an addendum to the Environmental Statement in April 2023 which was subject to a mandatory 30-day consultation. These documents and drawings again superseded those previously submitted.
  - 9.16 In addition to the revisions made to supporting documents and drawings, new documents and drawings have been prepared as part of the April 2023 Supplementary Planning Submission (CDC.1 – CDC.4).



### Conclusion

- 9.17 To conclude, a long period of consultation and engagement has been undertaken that has informed the Scheme design and outcomes. This started in 2014 with local plan consultations and Examinations in Public, through to public consultations in 2018 and 2020. In the 2020 consultation, more than twice as many people supported the Scheme than objected. As demonstrated by the preceding paragraphs, many changes have been made as a result of consultation and engagement. This is only intended to be a summary to assist the Inquiry. Full details of consultation and engagement can be found in the Statement of Community Involvement (CDA.5), submitted with the Planning Application for the Scheme.

## 10. SCHEME SELECTION

### Introduction

- 10.1. In this section, and leading on from the Optioneering and Consultation sections, I will briefly set out the reasons for the Scheme's selection and the process undertaken with a summary as to why the Scheme was the favoured option.

### Reasons for the scheme's selection

- 10.2. The optioneering process has been long and extensive. The final element was broken down into four phases and included a high level sift (Phase 1), a DfT EAST-based assessment aligned with HM Treasury guidance on business case criteria (Phase 2), and the identification and assessment of design, size, scale and location alternatives (sub-options) to the preferred options (Phases 3 and 4). This process is detailed in CDA.19.
- 10.3. This optioneering has been informed heavily by assessment work undertaken previously by the Applicant, including two previous OARs, traffic modelling and assessment of environmental constraints.
- 10.4. Information available for options is variable, and therefore reliance has been placed upon qualitative evidence, professional judgement and local knowledge during the assessment of options. The assessment has been undertaken based on the information and guidance available.
- 10.5. Phase 1 took a significant step back to consider a wide range of different modal and spatial options. Many of the options scored relatively poorly against objectives (which had been informed by evidence gathering and aligned with local policies). The best performing options were as follow:
- Option 1: A4130 Widening;
  - Option 2: Didcot Science Bridge;
  - Option 3: Didcot to Culham River Crossing;
  - Option 4: Clifton Hampden Bypass; and
  - Option 8: Improved stations at Didcot and Culham, plus a new station at Grove
- 10.6. Other schemes performing less well in isolation, including walking, cycling and public transport schemes, were not taken forward past Phase 1. However, it is important to recognise that whilst this assessment dismissed them, they are likely to have merit in other contexts and should be considered in conjunction with the preferred options. It should also be noted that high quality, segregated and continuous walking and cycling provision is provided across the Scheme which will rival some of the best in Europe. Buses will also benefit significantly as per the representation from the Oxford Bus Group (CDN.7).
- 10.7. Phase 2 assessed the five best performing options in more detail using the DfT EAST framework, against the Strategic, Economic, Managerial, Commercial and Financial business cases. This assessment identified that Option 8 was not a suitable fit to support the development planned in Didcot and Science Vale but noted that this option may still have value as part of a separate scheme. Therefore, the four remaining schemes were identified to be broadly well-matched in performance against the diverse criteria and therefore it was determined that there was clear justification that these four should be developed further.
- 10.8. Phases 3 and 4 considered the variants within each scheme and assessed these in terms of the overall benefits and challenges they are likely to generate. Again, it is important to highlight here that the list of sub-options has drawn heavily from all phases of optioneering. The level of evidence available for each sub-option, in the form of technical

drawings and environmental assessments, varies considerably and therefore a different level of confidence can be attached to the assessment of each option. However, the options that have less evidence have generally performed more poorly and there is clear rationale for certain options having been developed in more detail.

10.9. Overall, the optioneering identified a preferred option for improvements to the transport network to support development in Didcot and Science Vale. These are as follows:

- A4130 Widening: Sub-option 1.5 – Dualling – retain existing drainage ditch and associated vegetation;
- Didcot Science Bridge: Sub-option 2.4 – Alignment C;
- Didcot to Culham River Crossing: Sub-option 3.6 – New Western Alignment; and
- Clifton Hampden Bypass: Sub-option 4.6 – Northern Bypass – T-junction at the B4105

#### Conclusion

10.10. To conclude, the scheme selection was informed by a lengthy and multi-phase optioneering using as much information available each stage. Throughout the process, the objectives were tweaked to maximise the benefits and minimise the risks/harm. The preferred scheme meets the objectives as a multi-modal scheme that is capable of delivering unprecedented growth whilst also providing enhancements for walking, cycling and public transport in a rural setting. Whilst it has some environmental constraints, these have been minimised and mitigated.

## 11. HIGHWAYS PERFORMANCE WITH THE SCHEME

### Introduction

- 11.1. In this section I will outline the highway performance with the Scheme in place. I will briefly describe the capacity at key junctions, highlight the network performance from an average speed and average journey time perspective. I will then describe how the Scheme performs for non-motorised users and public transport (buses). This will demonstrate how the Scheme delivers enhancements and benefits to all modes. This section is not intended to be a full summary of the modelling (this will be dealt with in Ms Currie's Proof of Evidence) but to give the Inspector an overview of the highway performance with and without the Scheme and the impact on different modes.

### Highway performance

- 11.2. It should be remembered that the Scheme has not been designed to provide unlimited capacity. The Transport Assessment states (paragraph 1.1.1, CDA.7):

*"This Transport Assessment (TA) has been prepared in support of a planning application for the HIF1 Didcot Garden Town Infrastructure project ('the Scheme') on behalf of Oxfordshire County Council (OCC). The Scheme is designed to improve access to future housing and employment growth in the local area, including access by walking, cycling and public transport. The Scheme is policy backed and is the cornerstone of mitigation for the planned growth in the area. The Scheme does not aim to provide unlimited highway capacity for cars, or to remove all congestion; it forms part of a balanced transport strategy which also provides high-quality walking and cycling infrastructure, helping to engender modal shift to more sustainable modes."*

- 11.3. The Transport Assessment (CDA.7) within the Planning Application includes detailed information about the highways performance with and without the Scheme. Some of the key high-level points are presented below. Capacity assessments of the junctions along the proposed Scheme and also a number of off-site junctions were undertaken for 'without Scheme' and 'with Scheme' scenarios in 2024 and 2034. The results for the Scheme junctions indicated that the majority would operate within capacity in 2034.
- 11.4. The demand scenarios used in the Transport Assessment are explained in Figure 28 of the Transport Assessment (CDA.7), replicated below for ease of review. Note that in the 2034 scenarios, 80% demand was used for new development trips, which is one of the 'decide and provide' elements of the Scheme. 'Decide and provide' is addressed in more detail in Ms Currie's and Mr Disley's Proofs of Evidence.

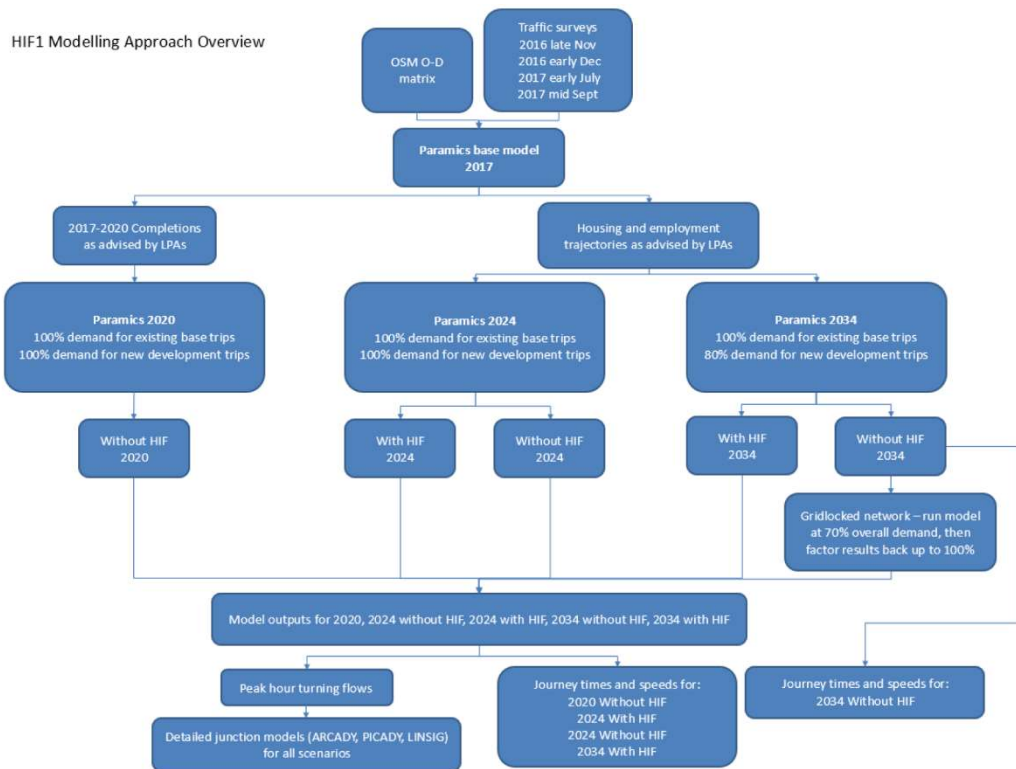


Figure 28: Modelling approach methodology showing the Paramics model demand scenarios in 2020, 2024, 2034

### Junction Assessments

- 11.5. The Transport Assessment (CDA.7) reports in detail on 29 junctions across the Scheme area, as shown in Figure 29 below:

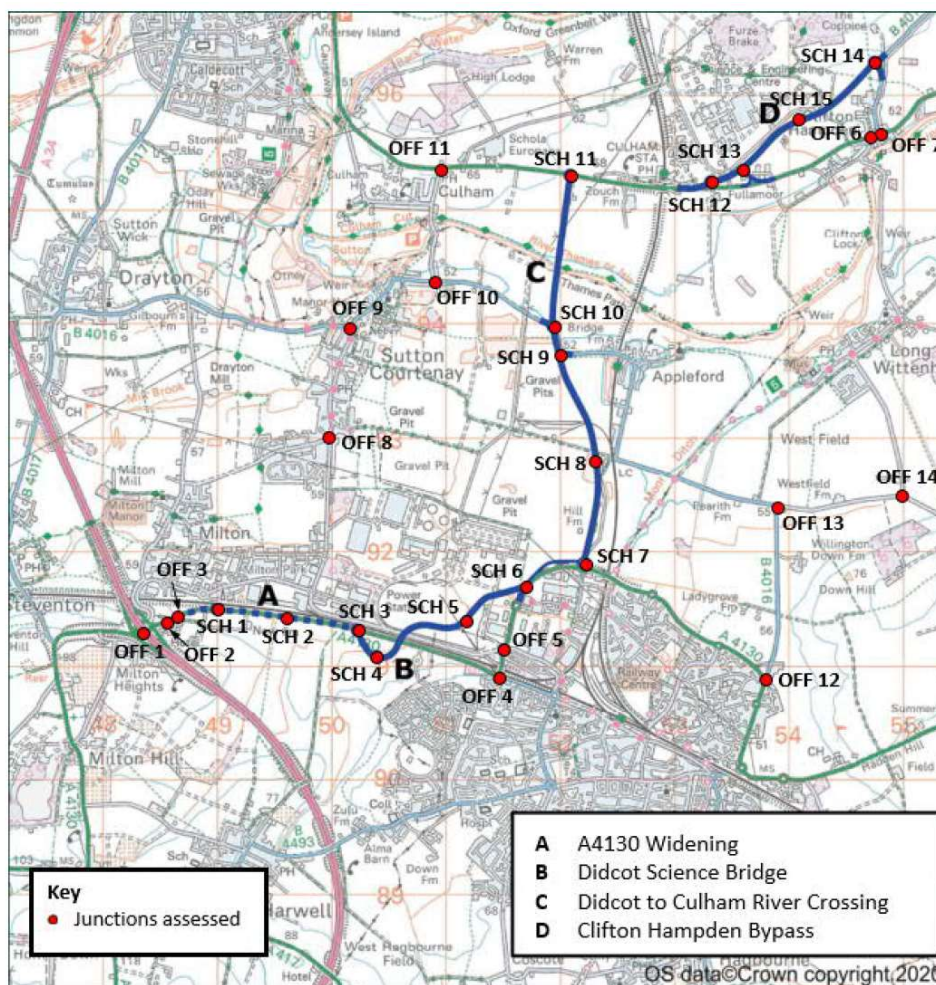


Figure 29: Junctions assessed (This is a replication of Figure 3.24 of the Transport Assessment (CDA.7))

- 11.6. As to not replicate the entire Transport Assessment in my Proof of Evidence, here I summarise some of the key conclusions and provide references to the relevant sections of the Transport Assessment.
- 11.7. Capacity assessments for the off-site junctions (junctions that the Scheme does not physically change, labelled 'OFF...' on Figure 29 above) are summarised in the Transport Assessment (CDA.7 Table 6.17), which shows that the Scheme results in significant improvements at a number of junctions. This includes junctions along the route between Didcot and the A4074 via Long Wittenham and Clifton Hampden, and the route from Milton Interchange to Culham via Sutton Courtenay. This is also reflected in reduced journey times along these routes. For the 'without Scheme' scenarios, in general there is a worsening of results from 2020 to 2024 due to the four years of housing and employment growth, and then a further worsening in 2034 after ten additional years of growth. Detailed assessments and commentaries of the off-site junction modelling results are reported in the Transport Assessment Sections 6.7 and 6.8 (CDA.7).
- 11.8. Capacity assessments for the Scheme junctions (new junctions that the Scheme provides, or existing junctions that the Scheme physically changes, labelled 'SCH...' on Figure 29 above) are summarised in the Transport Assessment (CDA.7 Table 6.1), which shows that on Scheme opening (in year 2024 in the traffic model) the junctions all operate within capacity, except junction 'SCH6 A4130/Science Bridge priority junction' where the side arm is modelled to be over capacity. However, this is deemed as acceptable and discussed in detail in the Transport Assessment (CDA.7 paragraph 6.6.15), with one of the main reasons being that the strategy in this location is for the mainline flow to be prioritised over the minor road arm. After ten years of housing and employment growth,



the modelling results understandably show that the Scheme junctions get busier (more information is available in Ms Currie’s Proof of Evidence on the new sites and assumptions included in the modelling). Four of the Scheme junctions have results indicating that they are over capacity in the future year (SCH6, SCH9, SCH13, SCH14), and the Transport Assessment (CDA.7) discusses these four ‘T-junctions’ in paragraphs 6.6.15, 6.6.22, 6.6.31, and 6.6.34, explaining why this is deemed as acceptable, with one of the main reasons being that the strategy in these locations is for the mainline flow to be prioritised over the minor road arm. Detailed assessments and commentaries of all the Scheme junction modelling results are reported in the Transport Assessment (CDA.7 Section 6.6).

Overall Network Statistics

- 11.9. The average speeds of vehicles were extracted from the Paramics model to represent the overall performance of the network with and without the Scheme.
- 11.10. Results from 2020, 2024 and 2034 scenarios without and with the Scheme for AM and PM peaks are presented in Figure 30 and Figure 31 below.

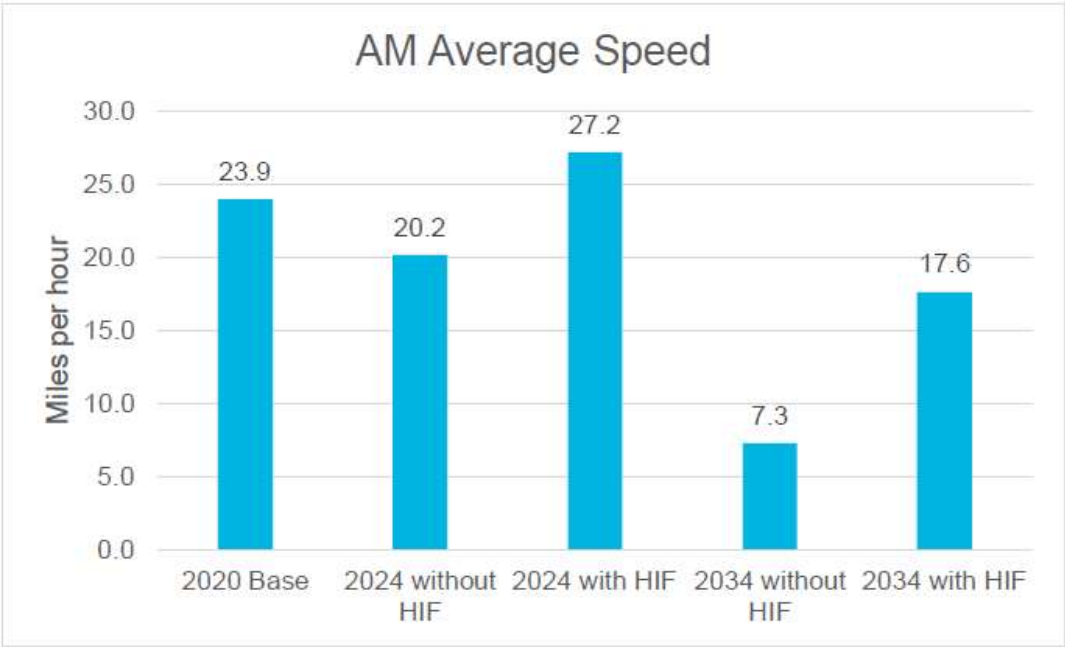


Figure 30: AM average speeds in the Paramics model for different model scenarios (This is a replication of Figure 6.29 of the Transport Assessment (CDA.7))

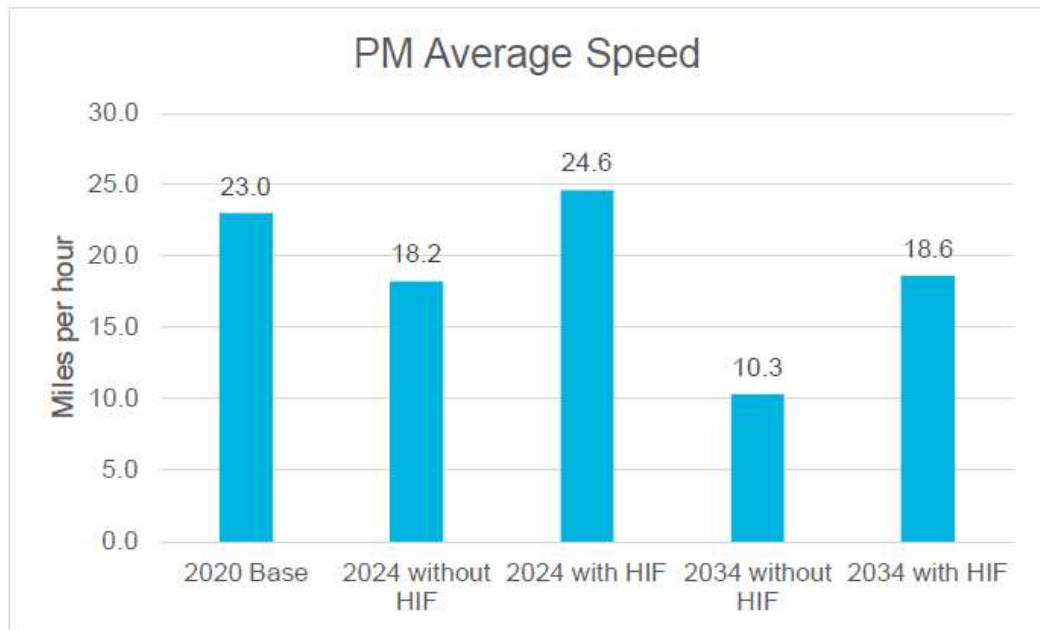


Figure 31: PM average speeds in the Paramics model for different model scenarios (This is a replication of Figure 6.30 of the Transport Assessment (CDA.7))

- 11.11. Figures 30 and 31 above show that additional growth in the model area without the Scheme results in a slower moving network, which can be considered as a proxy for congestion. For example, four years of growth from 2020 to 2024 results in a 3.7mph reduction in the AM and 4.8mph reduction in the PM. The Scheme in 2024 enables the network to operate more efficiently than 2020, as shown by the higher average speeds.
- 11.12. The 2034 without HIF (the Scheme) scenario shows a significant reduction in average speed across the network, due to the gridlock situation that develops in the model. The Scheme enables the 2034 network to operate similarly to 2024 without HIF (the Scheme). It should be noted that the highway elements of the Scheme are intended to be one part of a balanced transport strategy. The high-quality walking and cycling infrastructure elements of the Scheme help to offer alternative options for many journey types and routes.
- 11.13. The average journey times of vehicles were extracted from the Paramics model to represent the overall performance of the network with and without the Scheme. The demand scenarios are the same as for the average speeds above, explained in Figure 28. Results from 2020, 2024 and 2034 scenarios without and with the Scheme for AM and PM peaks are presented in Figure 32 and Figure 33 respectively. For ease of comparison, the change from 2020 Base is also presented in the same figure (32 and 33) for each scenario.

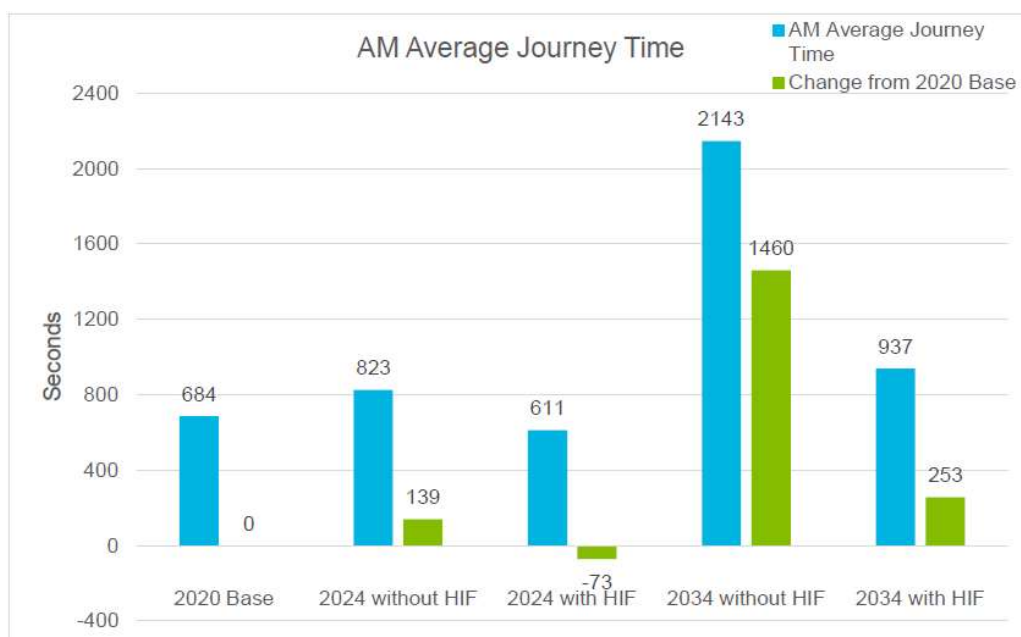


Figure 32: AM average journey times in the Paramics model for different model scenarios (This is a replication of Figure 6.31 of the Transport Assessment (CDA.7))

- 11.14. Figure 32 shows that in the AM peak, four years of growth from the 2020 Base, without the Scheme, is modelled to increase average journey times by over two minutes (139 secs). This is significantly worsened with an additional ten years of growth to 2034, with the average journey time increasing by over 24 minutes (1,460 secs) compared to the 2020 base. In 2024, the Scheme reduces average journey times compared to the 2020 base by over one minute (-73 secs). In 2034, the Scheme has enabled 14 years of growth with an average journey time increase of just over four minutes (253 secs). The average journey time with the Scheme in 2034 is less than half of that without the Scheme (937 to 2,143). The Scheme enables the 2034 network to operate similarly to 2024 without the Scheme.

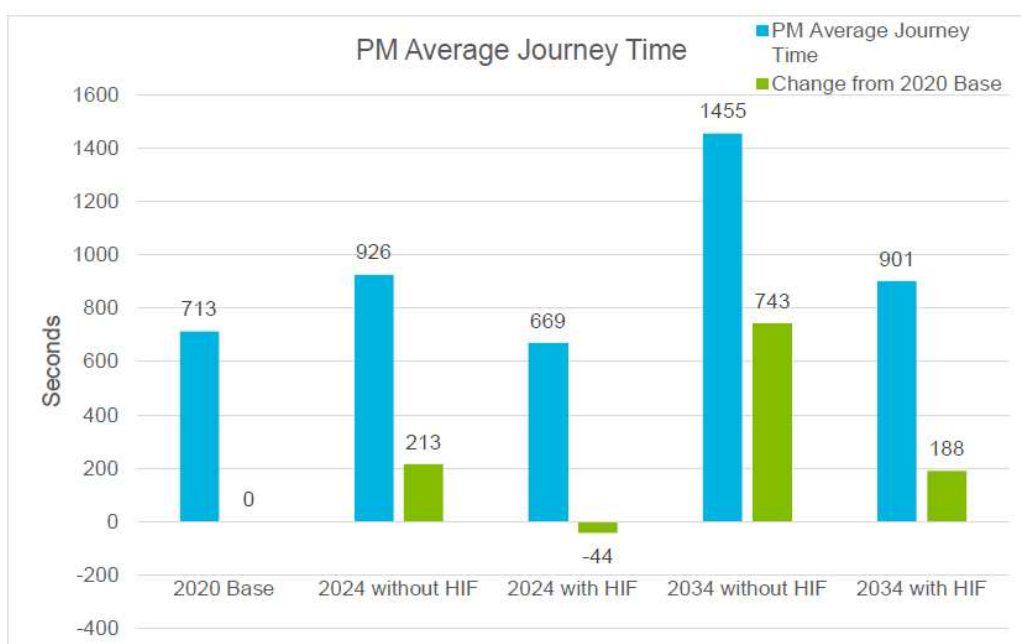


Figure 33: PM average journey times in the Paramics model for different model scenarios (This is a replication of Figure 6.32 of the Transport Assessment (CDA.7))

- 11.15. Figure 33 shows that in the PM peak, four years of growth from the 2020 Base, without the Scheme, is modelled to increase average journey times by three and a half minutes (213 secs). This is significantly worsened with an additional ten years of growth to 2034, with the average journey time increasing by almost twelve and a half minutes (743 secs) compared to the 2020 Base. In 2024, the Scheme reduces average journey times compared to the 2020 base by almost one minute (-44 secs). In 2034, the Scheme has enabled 14 years of growth with an average journey time increase of just over three minutes (188 secs). The average journey time with the Scheme in 2034 is less than two thirds of that without the Scheme (901 to 1,455). The Scheme enables the 2034 network to operate similarly to 2024 without The Scheme.
- 11.16. Put simply, taking a 2020 base year where there is already congestion, one would expect that four years of growth from 2020 to 2024 would lower the average speed, as more vehicles on the same road space would introduce more congestion and create more queueing. If one then imagines another decade of growth on top of this, all else being equal, then the average speed would be expected to be significantly lower as more congestion and queueing develops. This is what Figures 30 and 31 above show, using results from the Paramics model.
- 11.17. In terms of journey times, the opposite is to be expected; more cars on the same network would increase the journey times. This is shown in Figures 32 and 33 above, using results from the Paramics model. The model is producing results that are sensible and show the expected delay. If one then considers the road elements of the proposed Scheme, without a model available, it would be assumed that in 2024 the average speeds in the area would increase, perhaps to higher than in 2020 as the amount of new road capacity is larger than the growth over those four years. However, with another decade of growth, in 2034 with the Scheme, one would expect the average speed to have reduced compared to 2024 with the Scheme but be significantly higher than the 2034 without the Scheme. Again, this is shown in Figures 30 and 31 above. As before, the opposite is true when considering journey times instead of speeds, and the Paramics model results show this in Figures 32 and 33 above. Overall, the results show what one would expect to see if a model was not available, which helps to show that the model is robust. The Transport Assessment (CDA.7) also explains that the modelling shows that the Scheme enables the network to operate in 2034 similarly to 2024 without the Scheme, whilst experiencing ten years of housing and employment growth. This is part of a balanced transport strategy, where the scheme does not aim to provide unlimited highway capacity for cars or to remove all congestion.

#### Non-Motorised Users

- 11.18. The Scheme both directly delivers and indirectly enables a significant number of new and/or improved walking and cycling routes in the area. The provision of additional and improved Non-Motorised User (NMU) routes and crossing points will help to reduce the existing severance caused by the Great Western Mainline and River Thames. Connections to PROW network will be provided, and safe access to and from new bus stops. This will help to engender modal shift away from the private motor car, particularly for commuting purposes for employment and education, but also for important access to amenities such as retail and healthcare, and for leisure trips. The potential future NMU schemes that could link to the Scheme may be delivered by the Applicant, housing or employment developers, or other bodies. The recently approved (14 December 2023) Didcot LCWIP identifies many schemes in the area, and there may be other schemes identified through the planning application processes for other developments.

#### Pedestrian and cycle routes delivered and enabled by the Scheme:

- 11.19. In the subsequent paragraphs, I identify a selection of origins and destinations whereby the Scheme significantly enhances the pedestrian and cycle routes. It also highlights where the Scheme acts as an enabler with potential future pedestrian and cycle schemes to be delivered by the Applicant, developers, or other bodies to create a comprehensive, connected, direct and safe network across the area. It is not intended to be an exhaustive list but aims to highlight some of the opportunities for an improved walking and cycling

network. Further details on the benefits to active travel brought about by the Scheme are provided in Section 12.

**Origin: Great Western Park / Valley Park / North West of Valley Park / Existing Didcot**

**Destination: Milton Park (Enterprise Zone)**

- 11.20. The existing non-motorised users (NMU) route is on the narrow, shared-use facility on the southern side of the A4130, with no significant buffer from the carriageway. This is not an attractive route, due to the narrow width and wind buffeting experienced by passing vehicles, particularly HGVs. The WCHAR (Appendix A of the Transport Assessment, CDA.7) surveys illustrate this, with a low number of just over 600 cyclists (two-way) counted over a 7-day period at the A4130 near Cow Lane. The scheme directly delivers a significantly improved route along the southern side of the A4130, addressing the above issues. This route is also likely to be used by residents from central / southern Didcot, especially when the Valley Park site is constructed which includes NMU infrastructure on the north-south spine road. Additionally, this is likely to be used by residents from the Harwell village, who would access it from Valley Park either from Didcot Road and along the spine road, or along Cow Lane and then up the spine road.

**Destination: Culham Science Centre**

- 11.21. The existing NMU route is neither convenient nor direct, and for large sections has no NMU facilities which requires NMUs to use the carriageway. For many people this is not attractive, as shown by the low census mode share percentage. The route would include the A415, for which the WCHAR surveys (Appendix A of the Transport Assessment, CDA.7) show a low number of cyclists, just over 800 (two-way), counted over a 7-day period. The Scheme delivers a convenient, high-quality NMU route along the A4130, over the Great Western Main Line railway, north over the River Thames, and directly to Culham Science Centre (CSC). For comparison purposes, approximate routes for cycling to CSC from the junction of Cow Lane/A4130 in the centre of the Valley Park site were measured, using existing facilities. These ranged from 8.97km to 10.29km without HIF and required the use of carriageway in some sections, and narrow shared-use facilities. With the Scheme, the equivalent route is approximately 7.54km, with high-quality off-carriageway facility facilities for the full length.
- 11.22. The same improved route to CSC is accessible to residents of existing Didcot from Collett Roundabout, for example by using the Sustrans National Cycle Network Route 5 (NCN5) from Station Road to access Southmead Industrial Estate.

**Origin: Land adjacent to Culham Science Centre (residential)**

**Destination: Milton Park**

- 11.23. The future housing site allocation in the SOLP would be provided with high-quality and direct NMU routes to a significant number of destinations. Without the Scheme, the existing routes are not conducive to promoting modal shift as they require a large portion of on-carriageway on congested roads.
- 11.24. The Scheme provides a route to Milton Park that is approximately one kilometre longer than the existing route through Sutton Courtenay but is off-carriageway for the full length as opposed to the existing route which is predominantly on-carriageway. Additionally, the traffic reductions that the Scheme enables through Sutton Courtenay would make the existing on-carriageway route more pleasant for cyclists who wish to use it.

**Destination: Didcot Centre / Didcot Railway Station**

- 11.25. The Scheme ties in with Collett Roundabout on the A4130 Northern Perimeter Road, which is a short distance from NCN5 inside Southmead Industrial Estate. For comparison purposes, approximate routes for cycling from the proposed housing site to the NCN5 route through the Southmead Industrial Estate (for onwards existing connections to

Didcot Railway Station, etc.) were measured using existing facilities. Without the Scheme, the likely route is approximately 7.44km long, with a large proportion of on-carriageway cycling. With the scheme, this is reduced to approximately 3.97km, all off-carriageway except a small section inside the Southmead Industrial Estate.

**Origin: Appleford**

**Destination: Culham Science Centre**

- 11.26. The existing routes via Clifton Hampden or Culham are neither convenient nor direct (approx. 5.68km and 5.62km respectively), and require on-carriageway cycling, using narrow shared-use facilities and some use of bridleway (to Long Wittenham). With the Scheme, the route is approximately 3.67km, formed of high-quality off-carriageway provision (on-carriageway from the western built-up edge of Appleford into the village).

**Destination: Milton Park Enterprise Zone**

- 11.27. As above for Land adjacent to Culham Science Centre, Appleford also benefits from significantly improved NMU routes to Milton Park.

**Destination: Didcot Centre / Didcot Railway Station**

- 11.28. As above for Land adjacent to Culham Science Centre, Appleford also benefits from significantly improved NMU routes to Didcot Centre / Railway Station (Appleford has a railway station, however not all trains stop there).

**Origin: Berinsfield, Burcot, Clifton Hampden**

**Destination: Various – Didcot, Milton Park etc**

- 11.29. The significant reduction in traffic flow along the A415 through Burcot as a result of the Scheme creates improved conditions for future NMU schemes to be implemented from Berinsfield towards Abingdon/Didcot etc. In the SOLP, the policy wording for the Berinsfield housing site allocation (Policy STRAT10i: Land at Berinsfield Garden Village policy 2, CDG.1) states that:

*“The proposals to develop land at Berinsfield will be expected to deliver: vi) all necessary transport infrastructure, referring to the Infrastructure Delivery Plan, which is likely to include: e. high quality infrastructure to encourage cycling and walking, and provide links through the site and to adjacent employment and into the village of Berinsfield and to other surrounding locations including Culham; specifically (but not limited to) improving the existing pedestrian/cyclist infrastructure along the A415 from Berinsfield to Culham, and providing for a cycle route from Berinsfield to Oxford.”*

- 11.30. The existing shared-use facility will join the Scheme near Culham Science Centre, which then enables village residents to access the Scheme NMU facilities for onwards journeys to Didcot and Milton Park etc, as described in the above sections. With other potential future schemes as described below, this also includes onwards connections to Abingdon and Oxford.

**Origin: Various – Didcot, Valley Park, Appleford, Berinsfield, etc.**

**Destination: Abingdon, Oxford**

- 11.31. The Scheme's NMU facilities are designed to tie into the future housing proposal at Land adjacent to Culham Science Centre. In the SOLP, the policy wording for this site says:

*“Proposals to develop Culham will be expected to deliver:*

*vi) all necessary infrastructure, referring to the Infrastructure Delivery Plan, which is likely to include:*



*b. provision of a new cycle bridge and associated connectivity and paths across the River Thames to connect appropriately with Abingdon on Thames to the north of the site"*

- 11.32. With a new future NMU bridge over the River Thames into southeast Abingdon provided by that site, and other NMU schemes currently being worked on between Abingdon and Oxford via Radley and Kennington, the Scheme's NMU facilities will form the missing link between a predominantly off-carriageway cycle route from Oxford city centre to Didcot. Using sections of NCN5 and NCN544 in Didcot, this then extends the route from Oxford to Harwell Campus and beyond.

**Origin: Milton Heights (residential)**

**Destination: Various - Milton Park Enterprise Zone (employment) / Didcot Centre / Didcot Railway Station / Culham Science Centre**

- 11.33. Another scheme is being progressed by the Applicant to deliver an NMU bridge over the A34, south of Milton Interchange. This would connect with the Scheme at the new Backhill Roundabout on the A4130, enabling onwards journeys.

**Enabling new and improved bus services**

- 11.34. In the subsequent paragraphs, I will briefly explain how the Scheme performs for bus services. I have already explained the issues for current bus services in Section 4 so I will not fully rehearse again here. Also, I have relied on the representation from the Oxford Bus Group (CDN.7) which substantiates Section 4 of this Proof of Evidence and confirms the opportunities for bus services with the Scheme in place.
- 11.35. There are currently poor opportunities for bus routes to offer good journey times and reliability north / south in this area due to the severance created by the River Thames and the historic road network. Journey time data demonstrates that the Scheme will significantly improve journey times over the existing river crossings at Culham Cut / Sutton Bridge and Clifton Hampden Bridge. Bus routes that use these bridges in the future, currently the 95 and 33 services, would benefit from the improved journey times and reliability.
- 11.36. The representation from the Oxford Bus Group clearly explains the highway performance challenges faced by the main bus operator in this area:

*"The chronic congestion and delay that arise have a particularly serious impact on bus service delivery:*

*Buses cannot reassign route when particularly severe delay is encountered, unlike most other traffic.*

*There is a wide and increasing variability in delay, which is quite unpredictable. In practical terms it is impossible to schedule for extreme delay, as to do so would mean that buses were condemned to operating every trip as if it were a "worst case" scenario. Quite apart from the fleet being entirely unproductive, such a timetable would be unsaleable and irrelevant to the public. However, it makes it impossible to avoid buses on occasions being very late, with resulting knock-on issues such as late arrival to work for employees at the strategically important sites in Science Vale UK, Notwithstanding the above, we have a statutory duty under the Transport Act 1985 to run on time and reliably. Strict punctuality standards are set out by the Traffic Commissioners. To meet these standards demands that we account for the bulk of reasonably foreseeable delays, which means on many occasions, to avoid buses running early, they must "wait time" when traffic is more freely flowing than usual. This is a substantial drain on operating efficiency and resources, and also greatly exasperates the travelling public, reducing the attractiveness and potential of bus services in the area."*

- 11.37. The bus operator goes on to explain how elements of the scheme directly improve the highway operation, and therefore bus routes:

*“However, the main public transport movement is east to west across the A4130 between Basil Hill Road and Milton Road. This is the busiest bus corridor in South Oxfordshire by a considerable margin, being the main link between Didcot station and town centre, and Milton Park. Services operate as frequently as every 5 minutes in each direction across the junction at peak time, something typically only seen in dense metropolitan contexts. Beyond Milton Park most of these services continue to provide links to Wantage, Abingdon and Oxford, as well as the wider Science Vale UK.*

*Each and every bus route serving Science Vale UK that we operate runs across this roundabout at some point, with one minor exception (service 92, a local town shopper service). Disruption and delay here thus adversely affects our entire operation.*

*There is no credible means of providing relief to this area without the scheme. The A4130 rail overbridge and the proximity of the roundabouts to it at either end create obvious multiple serious engineering constraints to an on-line improvement.*

*It is the absence of regular links across the Thames towards Culham and South Oxford, including the Oxford Eastern Arc from Didcot and committed developments to the north that is the main issue here. These form a key element of a sustainable connectivity and movement strategy in support of the SOLP2035, and are also featured in the current County LTCP5 as well as its predecessor. Notwithstanding these policy aspirations, chronic congestion on the approaches to the existing river crossings make it all but impossible to envisage their implementation in a form that would be relevant to the public, sufficiently reliable, and commercially sustainable in the longer term. Without these links, major development north of Didcot, at Culham, and potentially at Berinsfield cannot be anything other than greatly more car-dependent than it ought to be.*

*This package of bus service improvements represents one of the most ambitious public transport network interventions anywhere in the County, or, for that matter, in Southern England. They would transform the options for current and future residents of Didcot and wider South Oxfordshire to reach key employment destinations at Culham Science Centre, ARC Oxford, Oxford Science Park and the East Oxford research hospitals. Equally, in the opposite sense, the new bus routes that the scheme would facilitate would provide crucial connectivity from large parts of Oxford including the key knowledge and research sites mentioned above, to other parts of the Science Vale UK cluster, helping to facilitate the agglomeration benefits of the cluster in a radically more sustainable manner.*

*The services involved are relatively long distance and by their nature, need to be reasonably competitive against driving a private vehicle both on frequency and journey time. To be economic to provide, buses must be able to make consistent swift progress. Only the scheme proposals can facilitate this.”*

#### Conclusion

- 11.38. To conclude, it is absolutely clear that the highway network performs better in the future year with all development in place. This is true for private cars, buses, pedestrians, and cyclists alike as well as businesses in the area that rely on an efficient network to operate. Whilst average speeds (AM peak) go down in 2034 with the Scheme in comparison to 2024 with the Scheme, this is not surprising given the additional demand from new homes and jobs. There is a slight betterment in the PM peak. Similarly, average journey times with the Scheme are only marginally worse in the AM peak compared to 2024 without the Scheme. Again, this is to be expected. In the PM peak there is a slight improvement.

However, what is striking is the performance of the network in 2034 without the Scheme, with average speeds at a third of the 2020 base (AM peak) and average journey times being 1,460 seconds (24 minutes) longer in 2034 without the Scheme compared to the base.

- 11.39. The Scheme will provide significant enhancements to the walking and cycling environment. This is not just on the full length of the Scheme but enabling further network enhancements to create a safe, convenient and connected network from Harwell Campus to Oxford. This will create a step-change in pedestrian and cycle infrastructure to encourage more people to make more trips by these modes. Without the Scheme, the network is fragmented and indirect with little hope of improving the mode shares from the current low bases.
- 11.40. There are currently poor opportunities for bus travel and with a 24-minute additional delay, these will likely reduce services in the future as patronage declines. Whilst I have taken the most pertinent parts of the representations from the Oxford Bus Group (CDN.7), Mr Marion eloquently highlights the current issues and as professional bus operator, the Oxford Bus Group will be best place to advise the Inspector. I have therefore not expanded further than the above.
- 11.41. This section puts into stark reality the implications of not taking the Scheme forward to implementation. Whilst not all issues cannot be mitigated, achievable and positive opportunities for mitigation have been identified and implemented as part of the Scheme.

## 12 SCHEME BENEFITS

### Introduction

- 12.1 In this section, I will list the key benefits and link them to the objectives from Section 7. I will then explain the benefits of the Scheme in relation to housing and employment benefits, economic benefits, and the benefits to active travel, local bus services and enhancements to rail services through new development at Culham. I will then outline how these benefits have been recognised by other organisations and stakeholders.
- 12.2 The benefits of the scheme and how they are aligned with the Scheme objectives are listed below in Table 15 (but described in more detail in subsequent paragraphs):

Delivering and Accelerating New Homes	Objectives 1, 2 & 3 – Support Housing development
Individual Scheme Component Benefits	Objectives 1, 2 & 3 - Support Housing development
	Objectives 6 - Future Proofing
	Objectives 7 & 8 – Sustainable Travel
Active Travel Benefits	Objectives 6 - Future Proofing
	Objectives 7 & 8 – Sustainable Travel
Local Bus Service Benefits	Objectives 6 - Future Proofing
	Objectives 7 & 8 – Sustainable Travel
Potential Improvement to Local Rail Service Benefits	Objectives 7 & 8 – Sustainable Travel
Commercial, Employment and Wider Benefits	Objectives 4 & 5 – Support economic growth

*Table 15: Benefits realisation and objectives met*

### Delivering and Accelerating New Homes

- 12.3 The Scheme will unlock and accelerate significant housing development together with ensuring the security and future investment in economic growth for both Science Vale and wider Oxfordshire. It will enable the delivery of housing where people want to live and ensure the co-location of housing with key employment locations.
- 12.4 The Scheme supports significant housing growth and key policies in both VWHDC and SODC local plans, directly unlocking the potential to develop circa 15,825 homes in the Didcot Garden Town area, including circa 6,000 affordable homes. Further, the Scheme ensures the continued development of substantial employment areas, contributing to the delivery of high value jobs, securing local and national economic growth and further enhancing the attractiveness of Science Vale Area as an exciting and well-planned place to live and work.
- 12.5 Whilst each individual component of the Scheme has its own benefits, only with all four components working together can the full benefits be realised. For example, whilst the A4130 provides direct access to the Valley Park housing site (and is required to contribute towards the infrastructure), it is also reliant on the other three components of the Scheme to mitigate traffic travelling north. Equally, given that the A4130 provides direct access to the A34 and, together with the Didcot Science Bridge, enhanced access

along this corridor will discourage new residents in, say, North East Didcot from taking alternative routes due to congestion, thereby reducing through traffic in small villages (see Figure 3). This is a similar scenario across the full length of the Scheme. Therefore, sites without planning permission in the area are unlikely to be able to come forward without increased capacity across the network. It is, therefore, difficult to deliver elements in isolation without compromising on the Scheme's benefits.

#### High-Quality Active Travel Benefits

- 12.6 The Scheme brings with it significant active travel benefits through the provision of approximately 20km of new and/or improved off-carriageway cycling and pedestrian infrastructure. The improved attractiveness and uplift in cycle use as a result of the active travel provision will bring with it journey time savings, health (physical and mental) benefits, reduced absenteeism, and improved productivity bringing with it considerable secondary benefits.
- 12.7 The active travel benefits enabled through delivery of this Scheme go further than simply the additional physical provision noted above. The Scheme enables wider connectivity to footpaths, bridleways, footways and other cycle networks. This is through direct linkage, but also through connectivity of Didcot and Abingdon LCWIPs (CDG.4.1 and CDG.4.5 respectively) and through wider connectivity being planned through the emerging Didcot Area Travel Plan.
- 12.8 The Scheme will make active modes more attractive between various settlements and key employment locations. For example, a direct and segregated cycle route between Didcot and Culham Science Centre would be available and, at an approximate distance of 5km, this roughly equates to a 20-minute bike ride.
- 12.9 Detailed descriptions of the proposed walking and cycling provision associated with each of the four component parts of the Scheme are provided in the Transport Assessment accompanying the Planning Application (CDA.7 paragraphs 4.2.7 to 4.5.13).
- 12.10 The proposed walking and cycling infrastructure associated with the Scheme will connect into the public rights of way (PROW) network and the National Cycle Network, thus helping to make these more accessible to non-motorised users, creating a true network of off-carriageway/traffic free routes.
- 12.11 A Walking, Cycling and Horse-Riding Assessment and Review (WCHAR – CDA.7 Appendix A) was undertaken during the development of the Scheme. This review included engagement with key stakeholders, including a number of local walking and cycling groups and the British Horse Society. The feedback from these groups included some suggestions for improvements to the designs and recognition of the benefits that the schemes would bring for walking and cycling provision in the area.
- 12.12 The walking and cycling infrastructure associated with the Scheme also forms a significant part of Oxfordshire County Council's Strategic Active Travel Network. Without the scheme a crucial part of the network will be missing and will require substantial third-party land acquisition to deliver. Such a scale of land assembly is likely to be significantly more challenging if not undertaken through the Scheme Planning Application and associated CPO process. Active Travel provided as part of a wider scheme also provides 'natural surveillance' which is critical to encouraging all sections of society to cycle and feel safe.
- 12.13 Further to this, the Scheme is fundamental to delivering the aims of the Didcot Garden Town. By reducing the impact of existing and forecast traffic within the town (including potential air quality issues), this will help to make walking and cycling more attractive and help to realise the network of improvements identified in the adopted Didcot LCWIP, (paragraph 2.5.10 of CDG.4.1).
- 12.14 As described above, the Scheme provides high-quality and segregated cycling and walking infrastructure throughout its length that is on par with some of the best in Europe.
- 12.15 Section 6 of the Transport Assessment (CDA.07) highlighted the significant improvement in active travel infrastructure the Scheme proposes. However, to help



assist the Inspector, I have provided an overview of what the current infrastructure is and what the Scheme will deliver.

- 12.16 Currently, on the A4130 to the east of the proposed Backhill roundabout there is a shared (with pedestrians) path with a 2-metre 'usable' width, including the white line buffer, for Non-Motorised Users (NMU). On a road that carries a high proportion of HGVs, this makes the cycling experience uncomfortable. This is shown in Figure 34.



Figure 34: Existing provisions on the A4130

- 12.17 Along the same corridor, the Scheme will provide a 3-metre segregated bi-directional cycleway, a 2-metre segregated footway with a buffer that is approximately 4 metres in width. This is shown in Figure 35. These facilities will connect to the existing facilities west of the Great Western Park signalised junction and the new provisions at Didcot Science Bridge.

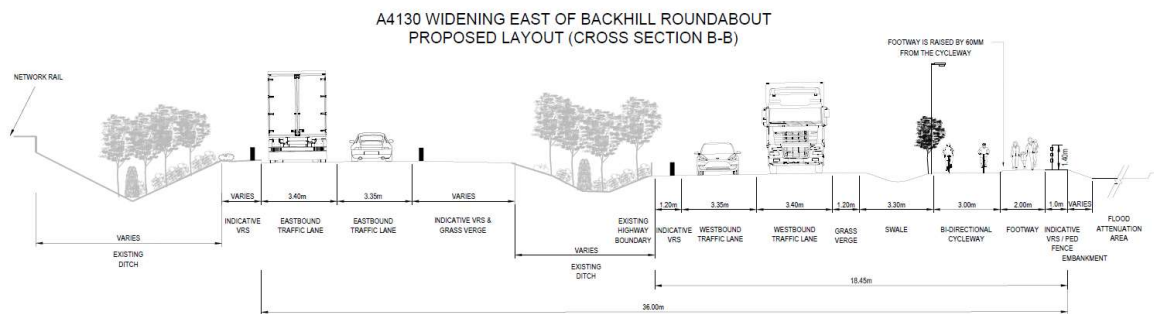


Figure 35: proposed NMU provisions on the A4130

- 12.18 The current provision to cross the Great Western Main Line is at Manor Bridge which forms part of the Didcot Northern Perimeter Road (A4130). There are no formal provisions over the bridge, however, NMUs are known to use the grass verges. This can be seen in Figure 36. There is a proposed developer scheme to upgrade the roundabouts either side of Manor Bridge which also provide a shared path provision over the bridge. However, due to constraints, the width of the provision varies between 2.2 metres and 3 metres.



Figure 36: Existing provisions on the Great Western Mainline – Manor Bridge

- 12.19 The provisions proposed on the new Didcot Science Bridge, the alternative to Manor Bridge, addresses the severance to north/south movements by providing high quality, segregated NMU provisions that consist of a 3-metre bi-directional cycleway and a 2-metre footway as shown in Figure 37. The speed limit of the road is 30mph with the buffer reflecting this. This provision continues through the former Didcot A Power Station site connecting to the Northern Perimeter Road.

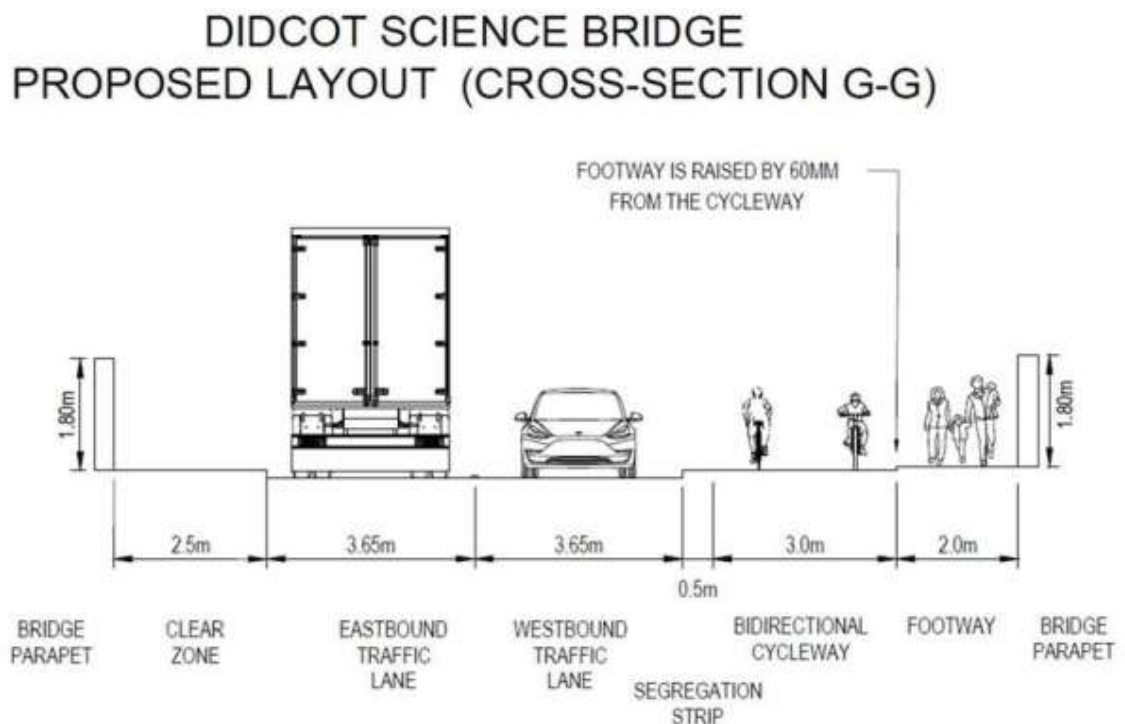


Figure 37: proposed provision over the Great Western Mainline – Didcot Science Bridge

- 12.20 Additionally, the NMU provision on the Northern Perimeter Road, west of Collett Roundabout, is currently below standard. The current footway to the south of the A4130 is approximately 1.5-metre width with no buffer from the carriageway. There is no suitable provision for cyclists. This is shown in Figure 38.



Figure 38: Existing provisions on the A4130 Northern Perimeter Road

- 12.21 Along the same corridor (Figure 39), the Scheme proposes a significant improvement for NMUs with the inclusion of a 3-metre bi-directional cycleway and a segregated 2-metre footway. These are proposed to be set behind the existing treeline and ditch on the western side. This provision continues to Collett Roundabout.

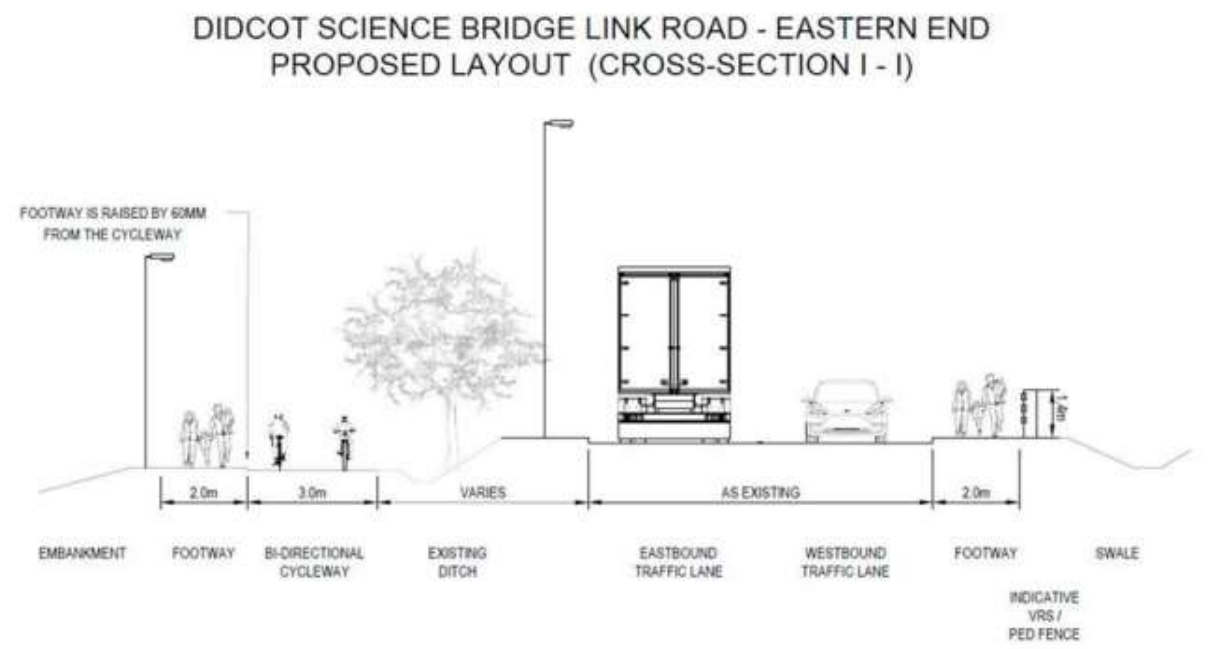


Figure 39: proposed provisions on the A4130 Northern Perimeter Road

- 12.22 Currently the provision for NMUs to cross the River Thames are either over the Culham Bridges or Clifton Hampden Bridge. The provisions on these structures are poor with no facilities for cyclists and very narrow footways. The congestion on the approach to the bridges is also not conducive in supporting modal shift. There is an off-road National Cycle Route (NCR) that runs from Didcot to Long Wittenham but this is an indirect route to Culham Science Centre and is less usable in winter.
- 12.23 Culham Bridges has a narrow footway (with parked cars usually rendering the footway unusable) immediately adjacent to the carriageway on the eastern side only. It measures approximately 1.5 metres in width, with pinch points of approximately 1-metre. This is shown in Figure 40 and 41.
- 12.24 Clifton Hampden Bridge has no provisions for NMUs, although pedestrians do use the 0.6-metre hard standing on the western side, or 0.4-metre on the eastern side. This is shown in Figure 42.





*Figure 40: Existing provisions on the Culham Bridges.*



*Figure 41: Existing provisions on the Culham Bridges highlighting overhanging vehicles.*



*Figure 42: Existing provisions on the Clifton Hampden Bridge.*

- 12.25 The Didcot to Culham River Crossing addresses the severance of the River Thames. This is a genuine alternative to the Sutton Bridge/Culham Cut and Clifton Hampden Bridge. It is proposed to provide a 3-metre bi-directional cycleway and a 2-metre



footway which are segregated from the carriageway with a 2-metre buffer. This is highlighted in Figure 43. The Didcot to Culham River Crossing does also provide an opportunity at one or both historic river crossings to implement demand management to provide better facilities for active travel across the structures (as well as providing more priority for buses). However, this does not form part of the Scheme.

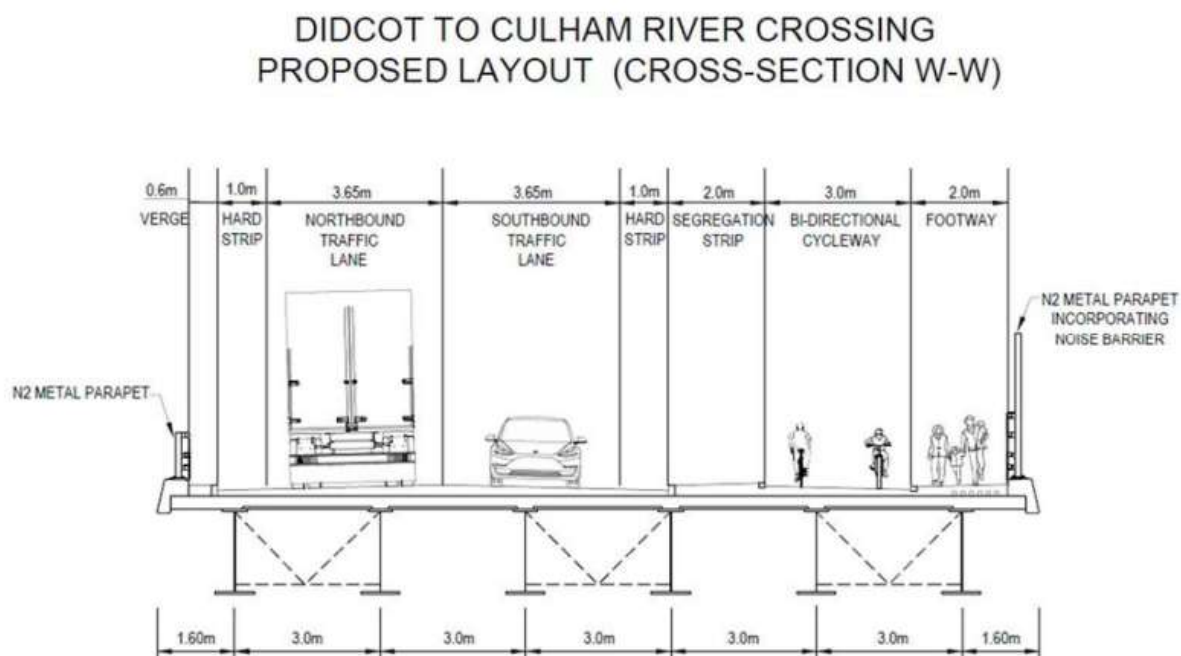


Figure 43: proposed provision on the Didcot to Culham River Crossing.

12.26 The existing provision along the A415 is below standard. It currently measures approximately 1.2 metres in width and shared with pedestrians. There is a 1.6-metre grass buffer from the carriageway. The road is derestricted (60mph). There is no provision to the south of the A415. This is highlighted in Figure 44.



Figure 44: Existing provisions on the A415.



- 12.27 The Scheme will provide vastly improved cycling and walking facilities along both sides of the A415. These consist of a 3-metre bi-directional cycleway a 2-metre footway and a buffer that varies in width. This is shown in Figure 45.

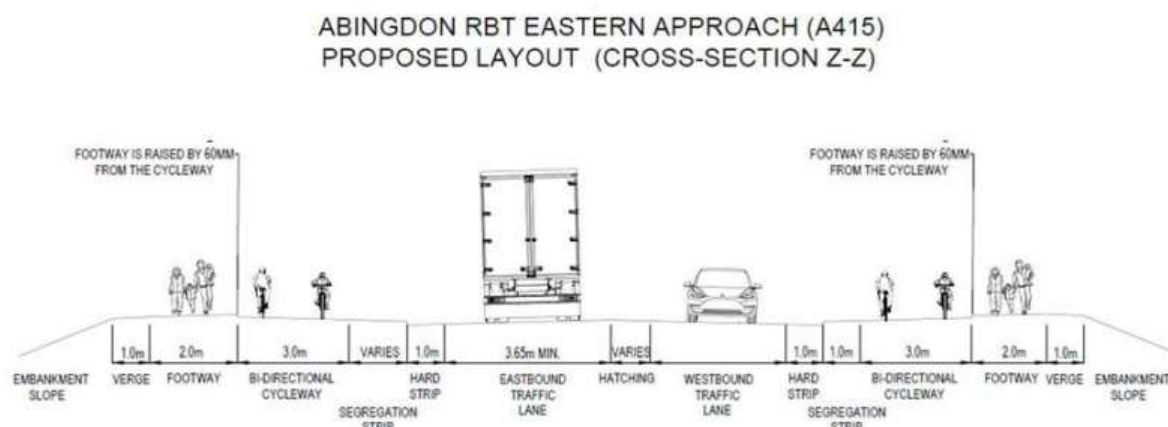


Figure 45: proposed provisions on the A415

- 12.28 Continuing along the A415 the existing provision remains on the northern side. It measures approximately 1.2 metres in width and shared with pedestrians. There is a 1.6m grass buffer as shown in Figure 46. Again, the speed limit of the carriageway remains derestricted (60mph).



Figure 46: Existing provisions on the A415 near Culham Science Centre

- 12.29 The Scheme proposes a significant improvement for NMUs. To the north a 3-metre shared surface is proposed with a 1m buffer from the carriageway. To the south of the A415 a shared surface is being provide that varies in width due to the available highway width and approach to railway bridge. This is highlighted in Figure 47.

## ABINGDON RBT EASTERN APPROACH (A415) PROPOSED LAYOUT (CROSS-SECTION B'-B')

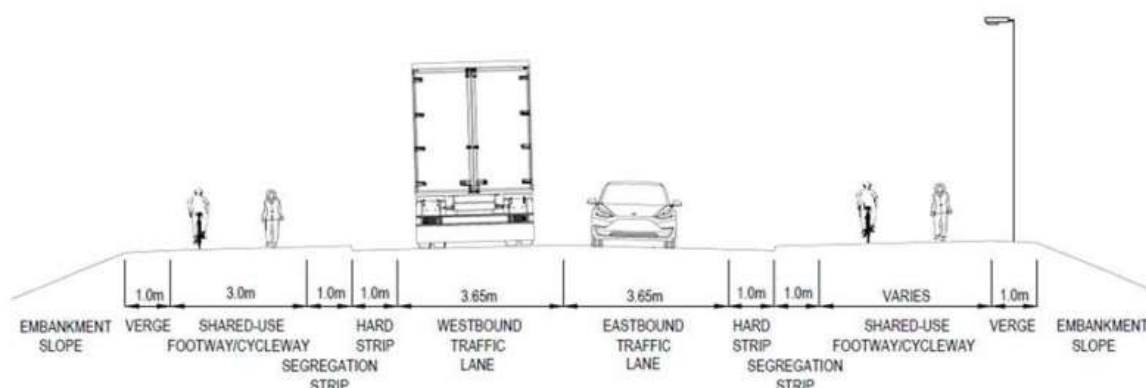


Figure 47: Proposed provision on the A415 near Culham Science Centre.

- 12.30 This facility then continues to the Culham Science Centre entrance. East of Culham Science Centre along the northern side of the Clifton Hampden Bypass a shared surface of 3 metres is being provided up to the extent of the Scheme where it links into the PROW network.
- 12.31 Throughout the Scheme, NMU crossings are proposed. The majority of these are in-line signalised crossings. In-line crossings further support those wishing to walk or cycle as it removes the need to stagger which can be an impediment especially for those using long-tail bikes, cargo bikes or bikes with trailers.
- 12.32 The facilities are not only a significant improvement to what is currently available, they also create safe and direct connections not currently provided. This is described in section 11 paragraph 11.18 to 11.34. In short, the infrastructure for walking and cycling represents a step change in provision in Oxfordshire. It will be direct, convenient, continuous and safe whilst also enabling further network enhancements across a wide area.

### Benefits to Local Bus Services

- 12.33 The local bus network is likely to benefit in two ways. First, the Scheme will provide the opportunity for more direct, faster and more reliable bus routes. This will make journeys more attractive to users and potentially reduce bus operating costs (and therefore fares). Secondly, the developments that are reliant on the Scheme will help to grow the overall public transport market and will potentially support increases in routes or services through providing Section 106 contributions towards pump-priming, increasing demand and commercial viability of operations, within better operating conditions.
- 12.34 As of January 2024, nine key bus services (plus other supplementary services, see details in Table 1, in Section 4) operate within the area directly benefitting from the enhanced connectivity provided by the Scheme. These serve key destinations in the area including Oxford, Wantage, Didcot, the surrounding villages, Harwell Campus, Milton Park, and Culham Science Centre. The journey time and reliability of all of these services, and therefore their attractiveness and commercial viability, is impacted by congestion in the AM and PM peaks within the town. The alleviation of this severe congestion, as a result of the Scheme, would in turn bring about improvements to the journey time and reliability of these bus services whilst introducing new services and higher frequencies.
- 12.35 To a degree, the new bus services are dependent on the Scheme. Without the Scheme, the services that are intended to be introduced to serve the developments allocated in the SODC LP 2035 could not happen as the development sites are dependent on the Scheme. For example, one of the potential new bus services, which is a fundamental part of the improved bus network as it would connect multiple strategic residential sites,

is expected to route via the Didcot to Culham River Crossing. Without the Scheme in place, it would be reliant on the existing river crossings where the forecast congestion may render the service unviable due to congestion.

- 12.36 Many of the existing services are either wholly or partially subsidised by development in the area. Without the development and continued growth at employment sites, these bus services may cease to exist or be severely compromised. Additionally, bus networks are devised on growth areas. The network of new and improved services is predicated on all of the planned growth in the SODC LP 2035 coming forward. In a scenario where only some of this development could proceed, this would undermine the deliverability of the network as a whole and therefore public transport connectivity would be substantially reduced.
- 12.37 Further details on the improvements to the bus network that will be realised by the Scheme are set out in section 6.4 of the Transport Assessment (CDA.7).
- 12.38 The representation from the Oxford Bus Group (CDN.7) sets out in substantial detail the critical role that the Scheme will play in alleviating current issues with the effective functioning of the existing bus network and enabling its planned expansion. One key extract from the letter reads:

*“The proposals [the Scheme] accord entirely with the statutory adopted development plans for the area. They are a fundamental component in the delivery of a multi-modal transport strategy for the immediate locality, and the wider Science Vale, with a high degree of ambition for active travel and public transport. No realistic alternative has been presented to address the mobility requirements of these duly-prepared and tested Local Plans.”*

#### Potential Benefits to Future Rail Service Improvements

- 12.39 Potential improvements to the frequency of rail services at Culham Station and enhanced connectivity between Culham and other key strategic locations on the rail network, are set out in the Oxfordshire Rail Corridor Study (commissioned by the DfT and the Applicant and undertaken by Network Rail, which was finalised/approved in 2020). This identified Culham and Didcot Parkway as two of the main future growth hubs in Oxfordshire.
- 12.40 These improvements are dependent in part on the residential and employment growth planned at and adjacent to Culham Science Centre, as this growth forms part of the forecasts on which anticipated passenger demand is based, along with other allocated development across the Science Vale area (Strategic Report, June 2021, p.6, CDG.17). Consequently, without the delivery of the Schemes and therefore without the housing and employment growth, it could undermine the business case for these rail service frequency enhancements and connectivity improvements.
- 12.41 Without the delivery of the residential and employment site - Land Adjacent to Culham Science Centre, potential improvements to Culham Station would also be unlikely to be delivered. These have already been designed in outline in the Culham Railway Station: Station Improvement Fund report (Great Western Railway, March 2023) and are proposed to include: the creation of a brand-new station building; café space; cycle hub; relocated/new footbridge installed with lifts to allow step free access; bus stop and pick up and drop off areas; extended platforms to accommodate longer trains; and improvements in rail service provision.
- 12.42 These rail improvements would also benefit existing and future residents of many nearby settlements, such as Berinsfield, with planned future bus services linking that site to Culham Station further helping to provide alternative options to private car travel.

#### Commercial, Employment and Wider Benefits

- 12.43 Wider Impacts represent the wider “connectivity” benefits arising from transport with the delivery of the Scheme. These include the clustering benefits that arise from businesses and workers being located closer to one another. This results in improvements in transport connectivity, together with labour supply effects and benefits from increased market competition.

- 12.44 These benefits are based on well-established economic principles (such as productivity benefits arising from increased “clustering”). This can be seen working to great effect in terms of business clustering at Harwell Science and Innovation Campus, Culham Science Centre and Milton Park.
- 12.45 Oxfordshire is one of the UK’s more productive regions, with a large volume of high-skill, high-value jobs within knowledge-intensive sectors, such as those characterised in the Science Vale and in and around Oxford. Firms in these sectors benefit from productivity gains from being located within close proximity to one another, such as improved labour market accessibility and greater knowledge transfers resulting from increased clustering and productivity.
- 12.46 There are two mechanisms by which the Scheme will support the delivery of clustering benefits, these are:
- i. “Static” clustering or proximity effects – these result from improved connectivity between businesses which increases the “effective density” of firms, by bringing them - in effect - closer together.
  - ii. “Dynamic” clustering – reflected by the change in scale and / or location of economic activity. Here, the role of the Scheme in bringing forward dependent housing will have a direct role in making the area a more viable and attractive location for businesses to locate, expand and invest, thereby increasing the overall number of jobs in the area than would be possible in the absence of the Scheme. This will thereby support the expansion of jobs in an already dynamic and highly productive cluster and yield productivity benefits at a local and national level.
- 12.47 The Oxfordshire LEP Local Industrial Strategy (2020, p.3 of Appendix AW2.8) highlights that:
- “...an ambitious vision for Oxfordshire to become one of the top three innovation ecosystems in the world by 2040.” The delivery of additional housing is essential in making the area attractive and affordable to workers, and increasing the effective labour market catchment which will underpin the realisation of future employment and GVA growth in line with the ambitions of the LEP and partners.*
- It goes on to say (p.9):
- Oxfordshire has one of the highest concentration of innovation assets in the world with universities, and science, technology and business parks at the forefront of global innovation in transformative technologies and sectors such as Fusion Technology, Autonomous Vehicles, Quantum Computing, Cryogenics, Space, Life Sciences, and Digital Health, with over 450 high-tech companies across Harwell Campus, Milton Park, and Culham Science Centre within the Science Vale area.”*
- 12.48 The high-value and unique sectoral expertise prevalent in the Science Vale cluster is one where inward investors and businesses want to locate and expand, due to the clustering and knowledge spillovers that characterise the development of high-value specialised clusters. Moreover, the unique nature of activities within the Science Vale, including linkage to the Oxford Universities mean that the jobs growth in these sectors would be unlikely to occur in other locations within the UK. Thus, the Scheme becomes nationally significant, given that it ensures investment in internationally significant projects such as Fusion development at Culham Science Centre, that will simply not be possible without the Scheme in place.
- 12.49 The accelerated delivery of housing as a result of the Scheme will support the continued success of employment sites at Culham Science Centre and D-Tech and expansion at Harwell Campus and Milton Park. The Didcot Garden Town Delivery Plan envisages growth in Didcot will support the creation of 20,000 new jobs (see sections 1.1.6, p.18 and 4.1.3, p.80, CDG.6). The selection of Didcot Garden Town for housing development is based on its location within the Science Vale, and therefore its ability to provide the housing to support the increased supply of workers that is fundamental to supporting the delivery of jobs. A key decision for businesses looking to invest and expand is the supply

of labour, and the delivery of new homes will increase the size of labour market. For workers, the attractiveness of jobs rests on the ability to live within a reasonable commuting distance and on how affordable housing costs are (house prices and rents). The Scheme will help to address these challenges. The Scheme, therefore, has a vital role in providing affordable housing for key and lower skilled workers upon whom the overall economy relies.

#### Recognition of needs and benefits from other parties

- 12.50 A number of submissions via statements of case from Rule 6 parties and representations on the called-in Planning Application have been received in support of the Scheme, recognising its importance to supporting growth in the area.
- 12.51 Furthermore, central government and Homes England recognise the need for the Scheme and recognise its benefits as demonstrated by the awarding of funding through the Housing Infrastructure Fund.
- 12.52 Strengthening this support from central government is the representation from Claire Coutinho MP, Secretary of State for Energy Security and Net Zero (see CDN.18), who notes (p.1):

*“My department’s interest in this decision relates to the potential impact on the Culham Centre for Fusion Energy in Oxfordshire. This centre is run by the UK Atomic Energy Authority (UKAEA) and is central to the UK’s ambition to lead the world in the development of commercially viable fusion energy.”*

And concludes (p.2):

*“I would be grateful if the potential impact on the UK’s Fusion Energy strategy, and consequently impact on potential economic growth, would be fully considered when the Planning Inspectorate undertakes its review.”*

- 12.53 Further emphasising the importance of the Scheme to Culham Science Centre, the representations submitted by the United Kingdom Atomic Energy Agency (UKAEA, CDL.5) states in paragraph 2.2 that the scheme will:

*“(1) meet a critical need for improved infrastructure in the District;  
(2) support the delivery of essential sustainable development [sic] within the District; and  
(3) as a result, unlock the delivery of significant economic, social and environmental benefits within the District and more widely, across the UK.”*

UKAEA concludes in paragraph 7.2 that:

*“UKAEA’s position on the additional issues identified by the Inspector (so far as relevant to its interest in the CSC) is that:*

*(1) OCC’s traffic modelling is robust; OCC has had adequate regard to wider traffic impacts; and the Scheme is consistent with the LTCP;  
(2) the Scheme’s impact on carbon is acceptable and the Scheme will make a positive contribution to climate change;  
(3) the design for the Science Bridge is suitable; and  
(4) there are no reasonable alternatives which should be pursued instead of the Scheme.”*

- 12.54 The statements of case submitted by VOWHDC (CDL.3) and SODC (CDL.4), in paragraphs 1.2 and 1.3 respectively, both strongly support the principle of the Scheme, confirm that it is critical to the delivery of the spatial strategy for planned housing and employment, and explain that (subject to conditions in the case of South Oxfordshire District Council) the Scheme accords with the respective development plans. Further to



this, they both recognise that without the Scheme, delivery of the planned growth in both districts would be at risk (see paragraphs 3.1 and 5.10 respectively).

- 12.55 In addition to support from the Rule 6 parties referenced above, a number of representations from other organisations and individuals have also been made.
- 12.56 As referenced in paragraphs 4.23 and 12.28 in this Proof of Evidence, the Oxford Bus Group representation (CDN.07) extensively articulates support for the Scheme and recognises its critical role in facilitating the bus network required to support the housing and employment growth across the area.
- 12.57 Didcot Town Council (CDN.06) expressed its support for the Scheme, recognising that many new developments within the town will rely heavily on it, and noting the Scheme's critical role in coping with the additional traffic generated by these new developments.
- 12.58 Western Valley Parish Council, located immediately to the west of Didcot (CDN.11), and Drayton St Leonard Parish Council, located to the east of Berinsfield (CDN.13), have also expressed support for the Scheme, in both cases citing its role in alleviating traffic pressures in local villages and supporting the planned growth in the area. Further to this, Maggie and Darren Atkins (CDN.28), have also expressed their support for the Scheme, citing the issues with the existing river crossings when flooding has resulted in their closure.

### Conclusion

- 12.59 To conclude, the benefits, as set out above, are considerable. They far outweigh any disbenefits. The Scheme will unlock 15,825 new homes and support many more new homes and jobs in the VOWHDC and SODC areas with many of the future strategic development sites in the vicinity of Didcot Garden Town having direct access from the Scheme (Berinsfield Garden Village aside).
- 12.60 The Active Travel benefits have been described in detail in this Proof of Evidence. The walking and cycling provision is 20km in length, with much of this two-way and segregated from motor vehicles and each other. The length of the pedestrian and cycle provision is longer than the new road provision to ensure continuity of provision. Wherever possible, and where design standards allow, pedestrians and cyclists have priority.
- 12.61 The benefits to bus services have also been very well articulated but, with the Scheme, the bus provides a real and reliable alternative to the private car with a fast and reliable service across a large network. At appropriate points across the Scheme, bus stops have been designed with appropriate facilities such as shelters and cycle parking. Without the Scheme and with a focus on single modes, the bus benefits will not be achieved.
- 12.62 Without the Scheme, it will be difficult to deliver the strategic sites that do not already benefit from planning permissions. This includes Land Adjacent to Culham Science Centre. Coupled with employment growth at Culham Science Centre, there is a real prospect of increasing services at Culham and Didcot Parkway stations. This will have a much wider benefit across the Science Vale area. The Land Adjacent to Culham Science Centre site also proposes to update station facilities at Culham. Without the Scheme, the development will be difficult to realise and therefore so will the rail enhancements.
- 12.63 The Scheme will assist current and future employment sites by providing additional highway capacity as well as pedestrian, cycle, bus and rail improvements. This will assist the "clustering" approach so crucial in the high-tech sector. The Scheme will also support the already allocated Enterprise Zones which will generate business rates for the local authority to invest back into the local area.
- 12.64 The Scheme should not be seen as only car-borne benefits. As this Proof of Evidence demonstrates, that is a very narrow view and a misunderstanding of the Scheme's objectives.
- 12.65 In short, the benefits of the Scheme are wide-ranging and meet the objectives set out by delivering the growth whilst providing genuine alternatives to the private car. The provision of high-quality and segregated pedestrian and cycle provision is a step change

for Oxfordshire to encourage people to choose active and healthier forms of travel. Coupled with the opportunities for bus services, the Scheme is a multi-modal and balanced approach and the only option that delivers the aims of the local area.

## 13 ALTERNATIVES

### Introduction

- 13.1 In this section, I will consider the alternatives being proposed by other parties and explain how these alternatives have been assessed previously and the reasons why they have not been taken forward for further assessment. It does not attempt to respond to all alternatives as this has largely been dealt with in Section 8 (The Optioneering Process) of this Proof of Evidence. Additionally, minimal evidence has been provided by some parties. I have, therefore, indicated where assumptions have been made.

### The Applicant's consideration of alternatives proposed by other parties

- 13.2 The Applicant went through an extensive and robust exercise of assessing the reasonable alternatives considered, with the extent of consideration undertaken being proportionate to the stage of development. The Applicant used a multi-stage optioneering exercise consistent with the relevant regulations and guidance, including WebTAG, to identify the preferred scheme. Further information on the optioneering process is in Section 8 of this Proof of Evidence.
- 13.3 As explained in Section 8 for the combined OAR, published in 2021 (CDA.19 Appendix A), 17 options were considered as part of Phase 1, from a do-minimum (no further interventions to what had already been undertaken and/or funded) to widening of the A34. Options included elements of public transport only measures and active travel network improvements being assessed. In total, there were 9 measures that assessed non-car modes.
- 13.4 Planning Oxfordshire's Environment and Transport Sustainably (POETS) contends in its Statement of Case (CDL.7 - there are no page numbers or paragraph numbers) that "with the right approach, most of the existing car trips can be undertaken by sustainable modes and active travel, breaking the downward spiral of traffic congestion and its inevitable side-effects." However, POETS does not consider why people are not using sustainable modes currently. With increased development, congestion is increasing with longer queues on a network that POETS agrees is not fit-for-purpose. The 'approach' POETS suggest is to "create a virtuous circle of improved public transport services and less car dependency across the whole area." As set out in sections 4, 6, and 8 of this Proof of Evidence, as well as in the presentations from the Oxford Bus Group (CDN.7), this simply is not possible with the level of current congestion or without additional highway capacity being provided (as per the Scheme).
- 13.5 POETS goes on to say that there is an (CDL.7):
- "...opportunity here instead to build on the presence of not just one, but three, fully operational rail stations, one of which has an electrified main line service to London, Bristol and Cardiff, namely Didcot Parkway, plus Appleford and Culham. These three stations could rapidly develop into hubs for a framework of high frequency, rapid transit corridors linking key destinations across the Science Vale – Culham Science Centre, Didcot town centre, Milton Park and Harwell Science and Innovation Campus – and later beyond to Abingdon, Wallingford, Wantage and Oxford itself. The linking sections should develop dedicated busways with priority measures at junctions and with attractive, almost wholly segregated, cycleways and footways as appropriate, in some cases replacing roads and in other cases augmenting them."*
- 13.6 Again, it is unclear, with the widely accepted level of congestion, how 'rapid transit corridors' can be achieved without additional capacity. As explained in this Proof of Evidence, this can only be achieved by building the Scheme or releasing capacity by reassigning road space from general traffic to public transport and active travel. Given the lack of alternative options for general traffic, as highlighted in Section 4 of this Proof of Evidence, it would not be possible to reassign road space to a level required without involving significant detours or without accessibility for residents and businesses being severely compromised and therefore not acceptable. As an example, to provide meaningful and frequent bus rapid transit to the north of Didcot, it would require closing the current river crossings to all but active travel and buses. Without additional capacity

this would require private vehicles diverting through Abingdon (which POETS is also concerned with) and Wallingford. Interestingly, with the Scheme in place, there is an opportunity to close Culham Bridges, in particular, for all but active travel and buses to support the rapid transit POETS request. Any such restriction to movement of traffic would have to meet the tests in the Road Traffic Regulation Act 1984.

- 13.7 POETS propose that bus rapid transit should be complemented by a series of regular smaller buses serving residential areas and the more dispersed settlements. Again, it is unclear how this can be achieved with the current and future level of congestion. Indeed, demand responsive transport has been tried in Oxford (a much more compact settlement with a greater critical mass than the Didcot area) but was not viable, largely due to congestion, and was abandoned. The main bus operator in the area views the Scheme as the only viable option for improving bus services given the nature of the network and the demand (CDN.7), and explained throughout this Proof of Evidence.
- 13.8 POETS highlight Sophia Antipolis, a technology park in France, as a case study whereby POETS claim that this kind of strategy has already been tried and tested, and leads to serious traffic congestion.
- 13.9 POETS has only provided a small amount of information in relation to Sophia Antipolis. For the Inspector's benefit, it is a technology park located between the major towns and cities of Valbonne (population 12,754 – Jan 2021), Antibes (population 75,130 – Jan 2021), Nice (population 348,085 – Jan 2021) and Cannes (population 73,255 – Jan 2021). Dual carriageways, large complex junctions and toll roads connect these settlements with the technology park. POETS claim that this has generated traffic that has led to congestion in the area but that a new approach has allowed for a multi-modal transport system to be developed and further expanded to tackle this congestion. Currently, according to Google, a frequent bus service is being operated with 13 buses between 4:30pm and 6:30pm noted at a bus stop located in the technology park.
- 13.10 What POETS does not highlight is that it is only possible to offer this level of bus service if the road capacity is available that allows bus journey time reliability necessary to be successful in driving patronage. This always needs to be the starting position and, similar to most cities around the world, is only possible by having capacity for all modes. This is the main difference to the Science Vale area – there is not the available road space to prioritise non-car modes in the Science Vale without significantly constraining all other road traffic. It is unclear from mapping software what bus priority is provided in an around Sophia Antipolis (see Figures 48 and 49). It is assumed that POETS is not suggesting that the Applicant builds dual carriageways to access houses and employment to build in appropriate capacity for public transport as in Sophia Antipolis. POETS is not using an example with sufficiently comparable characteristics to the Science Vale area.



Figure 48: A birds eye view Sophia Antipolis and surround highway network.



Figure 49: Existing dual-carriageway provisions accessing the Sophia Antipolis technology park.

- 13.11 POETS has stated that its second example would create a world-leading form of transport and land-use planning fit for the future which could be implemented by using Create Streets. POETS does not provide any substantive explanation of this concept.
- 13.12 To assist the Inquiry, Create Streets is a design consultancy. Its website portfolio highlights master planning, design codes, urban design and a communities' platform. In a publication, 'Computer Says Road', February 2022 (Appendix AW2.9) Create Streets state (my emphasis):

*"...Instead of assuming wider roads are always the answer, we should tackle the problem of how people travel around **by using a full toolbox of solutions, from investing in a range of transport options** to putting the services we use at the heart of new developments. This would not only keep people moving but also support happier, healthier and better towns and cities at lower cost. This means that, instead of spending tens of millions of pounds on one junction or on*

*widening a few miles of road, we should instead design better places where more journeys are by foot, bike or public transport. We can do this by siting amenities we want to visit in the heart of new developments, not their perimeters..."*

The report also states:

*"...Issue 1: The wrong models Existing traffic modelling, so called 'Predict and Provide' is outdated and based on flawed, oversimplified solutions. We have outsourced the responsibility for this crucial area of designing and planning our cities to spreadsheets. **It's right to prioritise infrastructure but we are too focussed on a single solution that is not extracting value for money.** Decisions are made by outdated models based on old data and even older human assumptions rather than by designers and engineers planning for the health, happiness and environmental outcomes we want from new developments. These models rely on compound assumptions such as predictions on how we will move around for decades into the future. They assume growth in car use, growth in car ownership and poor network conditions. These models, compounding many assumptions over multiple decades, have repeatedly proved inaccurate, as can be seen by comparing the Department for Transport's own forecasts with actual results..."*

The report continues to highlight the solution to the above issue:

*"...Solution 1: Dispense with 'Predict and Provide' traffic modelling and adopt the 'Vision and Validate' methodology for all schemes. Plan for the traffic and place your residents want. We need to start with the vision and desired outcomes. What does the community want their place to look and feel like? Do they want cleaner air in the centre and around the schools? How many neighbours would you like to know? What are the climate targets in the town? Once you know the desired outcomes, work back from this by planning the travel we want and need to meet our health, happiness and environmental goals. This change of approach was endorsed by the recent No Place Left Behind Commission into levelling up England set up by the Create Streets Foundation..."*

- 13.13 First and foremost, the concept seems to relate to towns and cities. As I have stated throughout this Proof of Evidence, the Science Vale is a dispersed area, largely across a rural area with significant constraints in the highway network. Create Streets advocate a range of transport options, and as can be seen from my Proof of Evidence, this is exactly what the Scheme sets out to achieve (but over a dispersed rural area).
- 13.14 It has been established that the Applicant has used a 'decide and provide' approach which has been addressed in detail in the 'decide and provide' sections of both Mr Disley's and Ms Currie's Proofs of Evidence. The 'vision and validate' is a similar concept to 'decide and provide'.
- 13.15 Appleford Parish Council (APC) and Appleford residents have proposed alternatives and these have been comprehensively addressed in paragraphs 8.80 to 8.105 of this Proof of Evidence. However, in the NPC-JC Statement of Case (CDL.6), it states that Sutton Courtenay Parish Council (SCPC) requested no junction on to the new Didcot to Culham River Crossing (albeit SCPC previously requested a T-Junction). This is covered in Ms Currie's Proof of Evidence. Interestingly, and quite the opposite to Sutton Courtenay, APC requested a roundabout to access the Didcot to Culham River Crossing from Appleford as APC is concerned that Appleford residents will not be able to efficiently access the new road in their private vehicles. The Applicant has used highway modelling and professional opinions using transport planning principles to determine the design of junctions providing, wherever possible, junctions that assist active travel such as T-junctions with side road priority for active travel.
- 13.16 CPRE made representations (CDM.8) proposing an alternative route alignment for two PROWs. The alternative route alignment for the Bridleway, known as BR3 on the proposed Didcot to Culham River Crossing, is not required. Firstly, the existing alignment does not, as claimed in CPRE's representation, "follow a relatively quiet private road". This road is the haul road for all the HGVs accessing Hanson's and FCC's sites. A considerable number of large vehicles use this route on a fairly narrow road without



segregation. This is possibly the main reason why not many walkers, cyclists or horse riders use it. Additionally, the alternative proposal would sterilise land which is subject to a Local Development Order known as DTech. This site has a well-developed masterplan that is currently under consideration with the local planning authority. The area in question is currently proposed as an ecological buffer zone and with land also safeguarded for potential active travel bridge from the North East Didcot development site to DTech and towards Milton Park. Furthermore, the Scheme provides a segregated provision for walkers, cyclists and horse riders which also links seamlessly with the Didcot Science Bridge active travel infrastructure; this is a vast improvement on what is currently provided.

- 13.17 CPRE's second alignment proposal affects the (PROW) footpath 6 on the Clifton Hampden component of the Scheme. Whilst this proposal may have merits, it is not deemed necessary due to the provision of the realigned footpath as per the Scheme proposals. The area in question is proposed as landscaping, it may, therefore, still be possible to walk in this area but it would not be surfaced. This is not uncommon on the PROW network whereby most footpaths are not surfaced. The counts at this location show that over a 7-day period, 42 walkers and 3 cyclists used this network which equates to just over 6 users a day (Appendix A of the Transport Assessment, CDA.7).
- 13.18 Mr Jones (CDN.19) proposed extending the dualling of the A4130, an alternative route alignment for the Didcot Science Bridge and an alternative for the Didcot to Culham River Crossing. I respond to these proposed alternatives as follows:
- 13.19 Mr Jones' proposed extension to the A4130 widening and the alternative alignment for the Didcot Science Bridge over the Great Western Mainline would not provide the relief to the Great Western Park signalised junction and would not provide direct access for all modes between Valley Park and Didcot A development sites. Additionally, the land safeguarded between Manor Bridge roundabout and the Didcot Science Bridge is safeguarded for a sustainable travel corridor. Mr Jones' proposal to extend the A4130 Widening would create additional environmental issues due to the potential loss of trees/hedgerows to the southwest of Manor Bridge roundabout. This is a well-established woodland that is currently subject to a Tree Preservation Order (TPO number 23/2006).
- 13.20 The Didcot Science Bridge option as proposed by Mr Jones was considered during the optioneering process. Details of this element of optioneering can be found in paragraphs 8.62 to 8.63 of this Proof of Evidence.
- 13.21 The Didcot to Culham River Crossing option is similar to Appleford's alternatives and would not be deliverable largely because the alignment would require land from FCC's working landfill site and would require RWE's 'Corridor Road'. Full details regarding this element of optioneering can be found in paragraphs 8.80 to 8.105 of this Proof of Evidence.
- 13.22 Furthermore, Mr Jones' proposed route alignment from Collett roundabout westwards towards FCC's active landfill site would sterilise land which is the subject of a Local Development Order site (DTech). This site has a well-developed masterplan that is currently under consideration with the local planning authority.
- 13.23 Mr Jones' representation states that he has been "told" that the cycle infrastructure is a bad design and proposes an alternative at the same location. In my Proof of Evidence at Section 12 (paragraphs 12.14-12.32) I demonstrate how the cycling infrastructure is in accordance LTN 1/20 and will provide infrastructure on a par with some of the best in Europe.
- 13.24 It appears that Mr Jones does not disagree with the need for the Scheme, per se, given his representation. He also states that he has "thought for many years that an alternative route to the east of Oxford and the hospitals was needed" but just challenges the alignment of some components or the design.
- 13.25 Mr Mockler has provided representations (CDN.4) which included a masterplan proposal for the allocated site known as Northwest of Valley Park. I will respond to the alternatives proposed as follows:

- 13.26 Section 2.6 of Mr Mockler's masterplan notes that the development will have direct access to public transport. Whilst this is required in local plan policy, as detailed in paragraphs 4.20-4.21 of this Proof of Evidence, Oxford Bus Group (CDN.07) have made it abundantly clear that with the expected level of housing and employment growth, on top of existing congestion, public transport will not operate efficiently without intervention.
- 13.27 Additionally, Mr Mockler's masterplan claims it is only a 20-minute walk from his proposed site to Didcot Parkway. This is incorrect, Figure 50 shows that from the edge of his proposed development to Didcot Parkway, it would take nearly 50 minutes to walk. It is widely accepted that for multi-modal journeys, the acceptable walking time is no more than 20 minutes. This is generally less when accessing bus stops. When this is considered against driving to, say, Oxford from the site (which has direct access to the A34), it is not a competitive option. The distance, time and attractiveness of the current route would not be appropriate for most journeys on foot.

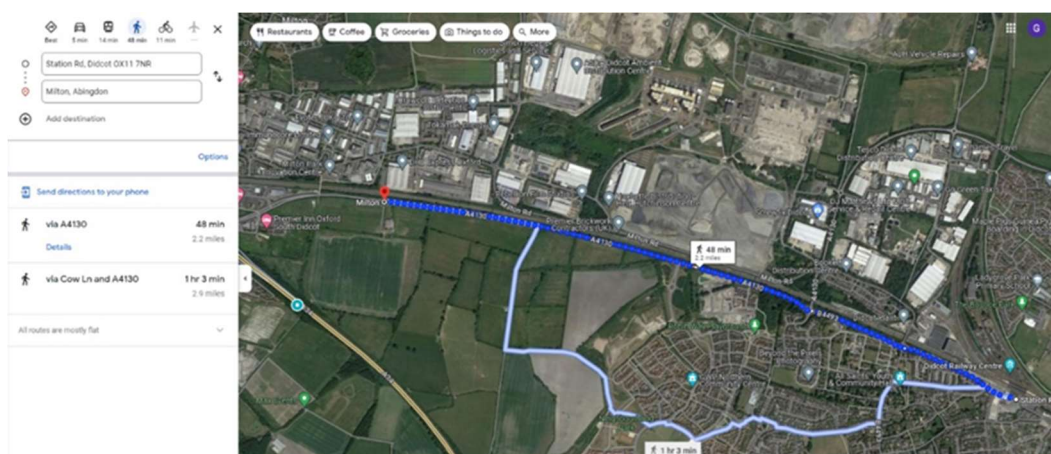


Figure 50: Walking distance and time from Northwest of Valley Park to Didcot Parkway

- 13.28 Mr Mockler's masterplan notes that Dublin and Paris are reintroducing light rail and trams. Comparing capital cities (one being a mega city) with that of the Didcot area is not comparable given the notable differences in urban form and population (and therefore critical mass) to support such interventions, as discussed in paragraph 8.47 of this Proof of Evidence.
- 13.29 Mr Mockler's masterplan proposes a car-free development and gives examples of car-free developments both in Europe and Clovelly in the UK. Whilst this is not an alternative option, per se, Mr Mockler contends that the infrastructure is not required because his site will be car-free. However, the Northwest of Valley Park site is only 800 new homes. Given the scale of the challenge (see Figure 3), this is only a small proportion of the expected development in the area that would be 'car-free'. This includes the neighbouring site at Valley Park (4,254 dwellings), of which Mr Mockler was a member of the land-owning consortium and is not car-free. Additionally, Clovelly is a historic fishing village with a visitor centre and large car/coach park a short walk from the car free historic village. It is not comparable to a modern development of 800 dwellings remote from a town centre but close to the strategic road network.
- 13.30 Mr Owen proposes an alternative solution for the Didcot to Culham River Crossing. This is shown in his representation (CDN.9). Mr Owen's alternative solution is to build a new railway station to the south of Appleford village. However, Mr Owen has not provided any further details on the location and how users would access his proposal. Notwithstanding the absence of information including details of the proposed location, improvements to the railway stations in the Science Vale area were assessed in the OAR. Paragraphs 8.13, 8.30, 8.31, 8.39, 8.40, 8.50 and 8.52 of this Proof of Evidence sets out the reasons why improving this infrastructure was not considered as the preferred option but that railway station upgrades did have merit in their own right.
- 13.31 Additionally, passenger numbers at Appleford Station are very low as highlighted in paragraph 4.24 of this Proof of Evidence. Appleford has a relatively small population (351

according to 2021 census data). Patronage at Appleford Station is unlikely to increase significantly given Appleford is not allocated for new homes and with Didcot Parkway and Culham Station in close proximity. This does not make Appleford attractive for non-Appleford residents in competition with other stations. Appleford Station does not have the facilities and services to those at Didcot Parkway (or Culham) including an absence of car parking, cycle parking and poor access to the platforms including the absence of a footway to access the station from the highway. Therefore, if non-Appleford residents need to travel to access the station, they would be more likely to travel to other stations in the area. Therefore, it is highly unlikely that a business case for a new station at Appleford would be successful without private funding.

- 13.32 Mr Owen has stated in his representation that there may be merit in the dualling of the A4130 between Milton and Didcot and the bypassing of Clifton Hampden as standalone projects but this Proof of Evidence has explained that the four elements that constitute the Scheme need to be delivered in their entirety to work cohesively and effectively.

#### Conclusion

- 13.33 Alternatives assessed have been fully addressed in the Option Assessment Report (CDA.19 Appendix A) and summarised in this Proof of Evidence. I have explained above the reasons for a number of options being discounted but that measures being suggested as alternatives have been designed into the Scheme (in terms of active travel and bus efficiency) and the bus industry has confirmed that this multi-modal approach is the correct approach (CDN.7).
- 13.34 The alternative alignments associated with the Didcot to Culham River Crossing have been considered and discounted for a plethora of reasons. This is adequately covered in CDA.19 and in Section 8 of this Proof of Evidence as have alternatives associated with Didcot Science Bridge.
- 13.35 CPRE has suggested revised alignments related to two PROWs. The first relating to the Didcot to Culham River Crossing component of the scheme is not required and not possible due to other conflicting proposals. The revised alignment on the Clifton Hampden Bypass component is not necessary given the alternative provided, the area in question is set aside for landscaping as part of the Scheme, so it is expected to be accessible (if not dedicated as PROW) to those on foot, and the relatively low existing usage of the PROW does not warrant multiple routes.
- 13.36 Whilst relocating Appleford Station has not specifically been covered in CDA.19, the principle of improving station facilities at stations with higher patronage than Appleford was considered but did not meet the objectives albeit some improvements are expected to be made at Culham as part of the neighbouring strategic development site. Additionally, given the current and future patronage at Appleford Station and the alternatives available to rail users, any new station would be unlikely to be a key priority.
- 13.37 Some representations agree with the Scheme by inference but challenge the details of certain components of the Scheme. Through this Proof of Evidence (and as detailed in the Options Assessment report), I have demonstrated that all reasonable alternatives have been explored and, as proposed, is the best multi-modal solution to meet the objectives of the Scheme and address the challenges faced.

## 14 RESPONSES TO CONCERNS RAISED

### Introduction

- 14.1 In this section, I will respond to specific concerns in the objector statements and call-in representations and address. Whilst much has already been addressed in preceding sections this Proof of Evidence, I will briefly explain how specific objections have been addressed by referencing to sections in this Proof of Evidence and/or cross referencing with Proofs of Evidence of other witnesses and/or cross referencing with core documents.

### Responses to concerns raised

- 14.2 A number of representations and statements of case (including Adrian Wear in CDN22, Vicky Johnson in CDN08, and East Hendred Parish Council in CDL.9) have noted that there are limitations to the scope of the Scheme. Notably, it is identified that the Scheme excludes active travel infrastructure at its southern extent, including the active travel bridge over the A34 at Milton Heights and the upgrade to the cinder track between Steventon and Milton Park. Also noted is the absence of mitigation provided at the Golden Balls roundabout. It is important to recognise that the Scheme is not presented as a panacea for all transport and connectivity matters in the area and thus there are limitations to its scope. Rather, the Scheme is part of a wider strategy as articulated in paragraphs 3.5, 3.25, 5.33, and 5.35 of this Proof of Evidence. The three elements described above are all the subject of ongoing activity to progress their delivery in due course. Furthermore, the Scheme was devised to address the set of objectives detailed in Section 7 of this Proof of Evidence and it was considered that the Scheme adequately addresses these objectives; see also Section 8 on the optioneering process.
- 14.3 Various representations and statements of case (including East Hendred Parish Council in CDL.9, the Neighbouring Parish Councils Joint Committee (NPC-JC) in CDL.6 and Councillor Charlie Hicks in CDN30) stated that in their view the traffic modelling assessment of the Scheme did not take account of induced demand. This is addressed in detail in Ms Currie's Proof of Evidence.
- 14.4 The same parties referenced in the paragraph above also stated, in their view, that the Scheme is an example of the 'predict and provide' transport planning approach, when it ought to be following a 'decide and provide' approach, as set out in Policy 36 of the LTCP (CDG.4). This is addressed in considerable detail in Mr Disley's Proof of Evidence and Ms Currie's Proof of Evidence.
- 14.5 Some representations and statements of case (including Oxfordshire Roads Action Alliance in CDN26, Victoria Shepherd in CDN23, and Ian Palmer in CDN14) have stated that they believe the optioneering process for the Scheme has been inadequate and in some cases it is asserted that the optioneering process did not include the consideration of how the objectives of the Scheme could be met through enhancements to the provision of only non-car modes. The substantial optioneering process that was undertaken, which did consider the feasibility of enhancements only to non-car modes, is detailed in Section 8 of this Proof of Evidence. The NPC-JC in CDL.6 also asserts that the optioneering process does not meet the Department for Transport's (DfT) Transport Analysis Guidance (TAG or WebTAG). CDA.19 and Section 8 in this Proof of Evidence confirms the process did follow TAG as does the Statement of Case from the Applicant (Section 6 in CDL.1).
- 14.6 A number of representations and statements of case (including Oxford Friends of the Earth (CDN24), East Hendred Parish Council (CDL.9), and the NPC-JC (CDL.6)) assert that the Scheme does not fully comply with various policy documents, including the VOWHDC Local Plan 2031 (Parts 1 and 2), the SOLP 2035, the LTCP, and the NPPF. The Scheme's compliance with local policy is discussed in Section 5 of this Proof of Evidence, its compliance with LTCP is discussed in Mr Disley's Proof of Evidence, and its compliance with local and national policy is discussed in Mr Greep's Proof of Evidence, concluding that the benefits of the Scheme outweigh the harm in the context of the planning balance (see paragraph 6.8.1 of Mr Greep's Proof of Evidence).

- 14.7 Some representations and statements of case (including POETS' in CDL.7, Gregory O'Broin on behalf of the NPC-JC and Appleford-on-Thames Parish Council in CDN21) are critical of the geographic scope of the Transport Assessment which accompanies the Planning Application for the Scheme. CDO.1, the Applicant's Technical Note concerning the Environmental Statement (dated 14 December 2023) sets out in paragraphs 2.11-2.31 the reasons for excluding various locations from the assessment. Further to this, some representations assert that Didcot has been omitted from the Transport Assessment. This is incorrect; the results of the assessment of impacts on Didcot are outlined in Section 11 of this Proof of Evidence and are discussed throughout the Transport Assessment (CDA.07) notably in Section 6 and Appendices E, F, and G provide further detail of the assessment of impacts in Didcot, utilising the Didcot Paramics microsimulation model. Figure 5.1 (p.66) in the Transport Assessment shows the extents of the model, which covers the whole town of Didcot in substantial detail.
- 14.8 The Statement of Case submitted by POETS (CDL.7) states on p.5 that:
- "As the current VoWHLP becomes increasingly outdated, and the SODCLP becomes outdated, the emerging Joint Local Plan should be given similar or greater weight than either those Local Plans, according to the state of progress of the Draft Joint Local Plan."*
- 14.9 However, as noted in Mr Greep's Proof of Evidence in paragraph 3.4.5, given its very early stage, very limited weight can be given to it. Further to this, it is worth noting in the Joint Local Plan: Preferred Options Consultation (Regulation 18 Part 2, dated January 2024) that the proposed draft policy SP3 (Appendix AW2.10) – The Strategy for Didcot Garden Town states:
- "Within the Didcot Garden Town Masterplan area development proposals will be required to address the following ...*
- e) support active travel and multi-modal sustainable infrastructure as well as alignment with planned infrastructure schemes including the Didcot Garden Town Local Cycling and Walking Infrastructure Plan (LCWIP); the Science Vale Active Travel Network; the Strategic Active Travel Network (SATN); the Didcot Garden Town Wayfinding Strategy; Didcot Garden Town Housing Infrastructure Fund (HIF) schemes; the Didcot Central Corridor infrastructure schemes and Placemaking Strategy; and Northern Perimeter Road Phase 3 (NPR3)."*
- 14.10 As such, it is demonstrated that the emerging Joint Local Plan identifies the Scheme as planned infrastructure with which development proposals need to align. Furthermore, the Scheme is key to enabling the Didcot LCWIP, the SATN, and the Didcot Central Corridor scheme, as noted in paragraphs 5.39, 5.35, and 3.24 respectively in this Proof of Evidence. Additionally, as noted in Mr Greep's Proof of Evidence, draft policy IN3 Transport Infrastructure and Safeguarding proposes to safeguard land for the four elements of the Scheme.
- 14.11 In the section on Emerging Plans (pp.6-8) in the statement of case submitted by the NPC-JC (CDL.6), it states that:
- "It was also noted in our previous interim objection that the VoWHDC has reviewed its housing figures resulting in a 32% reduction across the district. SODC is due to review its housing figures in 2025.*
- A substantial reduction in housing over the plan period will have significant bearing on the purported justification for HIF1 and the calculations upon which the Transport 8 Assessment (TA) are based. A 32% reduction in housing across the scheme area significantly reduces the need for the scheme, whilst simultaneously increasing the 5 year housing land supply in both districts, enabling the district authorities to more easily meet housing targets without the scheme.*
- Any reduction in housing figures will also have impacts on the traffic modelling of the scheme. 32% less new dwellings should result in a pro rata reduction in vehicle movements. This reduction has not been factored into the TA, which is*



*clearly out-of-date in any event. At the very least the model should be re-run using the new housing figures available.”*

- 14.12 However, notwithstanding the comments noted above which indicate that the emerging Joint Local Plan should be given very limited weight, the Joint Local Plan: Preferred Options Consultation (Regulation 18 Part 2, dated January 2024) only identifies changes to two sites in the immediate vicinity of the Scheme that impact on proposed housing numbers. These are Draft Policy AS6 – Rich’s Sidings and Broadway, Didcot (p.296, formerly known as Orchard Centre Phase Two), which is proposed to be reduced from 300 homes to 100 homes, and Draft Policy AS7 – Didcot Gateway, Didcot (p.298) which is proposed to be reduced from 300 homes to 200 homes (found in Appendix AW2.11). These reductions will not have a substantive effect on the need for the scheme, given the relative insignificance of the numbers, i.e. a total reduction of 300 homes, when considered in the context of the total growth in the area, and considering the severity of the current highway conditions (as detailed in Section 4 of this Proof of Evidence).

- 14.13 The representation from Graham Smith in CDN29 states that:

*“OCC has effectively refused to adopt a street layout design guidance that would achieve: reduced car use, would enable better public transport use, and effectively – by proximity et cetera – would enable active travel. “*

It goes on to criticise the Oxfordshire Street Design Guide, stating that active travel and public transport will be less convenient than car use, and concludes by stating that:

*“All this is in spite of the publication of Manual for Streets in 2007 and 2010, documents which were and are sidelined by county engineers and planners too.”*

However, the *Manual for Streets* states on p.5 (found in Appendix AW2.12) in the ‘Status and application’ section that:

*“MfS focuses on lightly-trafficked residential streets, but many of its key principles may be applicable to other types of street, for example high streets and lightly-trafficked lanes in rural areas. It is the responsibility of users of MfS to ensure that its application to the design of streets not specifically covered is appropriate.”*

- 14.14 As such, it should not be considered to be the definitive and sole consideration when designing all new schemes but should nevertheless be taken into account amongst other design considerations. Furthermore, the Applicant has not ‘sidelined’ the *Manual for Streets*, which is explicitly referenced in the Oxfordshire Street Design Guide (Appendix AW2.13 section 1.1, p.8) as needing to be read alongside it.
- 14.15 Additionally, it should be noted that as reported in 4.21 and 12.38 in this Proof of Evidence that the main bus operator in the area considers the Scheme as critical to enabling better bus provision, it will help facilitate better access to the rail network, and that the active travel provision, which is an integral part of the entire scheme, is designed in accordance with the latest national guidance, LTN 1/20.
- 14.16 The statement of case from East Hendred Parish Council (CDL.9), along with representations from others, expresses some concern about the potential for traffic to be diverted away from the A34, potentially resulting in congestion issues on the local road network. This is addressed in Ms Currie’s Proof of Evidence and in response to Query A, p.2 of the Joint Parish Council Comments – Response Note produced by AECOM (CDB.09).
- 14.17 The representation from Oxford Friends of the Earth in CDN.24 and the statement of case from the NPC-JC in CDL.6 raise concern in paragraph 2.7 about the design of the Didcot Science Bridge element of the Scheme. These concerns are addressed in the LPA’s technical note in respect of the design of Didcot Science Bridge (CDO.3).

#### Conclusion

- 14.18 To conclude, the Scheme has a defined scope and is part of a wider strategy to deliver significant development growth in the area. As demonstrated in this Proof Evidence, this

is a genuine multi-modal modal strategy over a largely rural area to use all the tools available to Applicant to mitigate traffic growth.

- 14.19 The implication of induced demand and a 'predict and provide' approach has been robustly rebutted in the Proofs of Evidence of Ms Currie and Mr Disley. The scale of the issues faced have also been fully explained and why the solution requires a multi-modal approach. This has been corroborated by the main bus operator in the area.
- 14.20 Claims that optioneering was somehow inadequate or did not consider non-car modes are untrue. This is demonstrated by inclusion of the Design and Access Statement Appendix A: Option Assessment Report (CDA.19) which describes a lengthy and robust optioneering exercise. For the avoidance of doubt, I summarise CDA.19 in Section 8 of this Proof of Evidence but, given the length, complexity and robust nature of the optioneering, this is also a relatively detailed and long section. I felt that this was necessary for ease of reference at the Inquiry.
- 14.21 Claims that the Scheme is not in accordance with adopted policy are not the case. The Scheme is in accordance with all relevant adopted policy. This has been evidenced in this Proof of Evidence as well as those of Mr Disley and Mr Greep.
- 14.22 The scope of the Transport Assessment has also been challenged. This has been clarified by Technical Note concerning Environmental Statement (dated 14 December 2023) which states the Scheme does not materially change flows in Abingdon, that the Scheme is part of wider strategy to deliver growth in the wider area (with developers expected to fund part of the strategy), and that the Scheme should not be seen as a panacea for all transport issues across VOWHDC and SODC. The full strategy can only be delivered over time.
- 14.23 The assertion concerning Manual for Streets is being used in the wrong context. The Scheme will not be lightly-trafficked so this objection is largely redundant. However, the Scheme has been designed with pedestrians and cyclists at the forefront of its design. This is demonstrated by the infrastructure being on a par with European best-practice, in accordance with LTN 1/20, with priority given to active travel wherever possible and safe to do so.
- 14.24 The Technical Note with regards to the design of the Science Bridge (CDO.3) addresses the concerns of a number of objections and representations.
- 14.25 Finally, representations made concerning reassignment of traffic from the A34 are unfounded and rebutted in Ms Currie's Proof of Evidence and in response to Query A, p.2 of the Joint Parish Council Comments – Response Note produced by AECOM (CDB.09).
- 14.26 The Scheme promoted has been through a thorough process following all relevant regulations, guidance and policy and is shown to promote the best multi-modal option, that is deliverable, to meet objectives and the Scheme and the significant challenges that are unique to the Science Vale area.

## **15. SUMMARY PROOF OF EVIDENCE AND CONCLUSION**

- 15.1. In this section, I will summarise the main themes and conclusions in my Proof of Evidence. This will help to assist the Inquiry by highlighting the key points from each section given the detailed evidence given.

### LOCAL CONTEXT (Section 3)

- 15.2. As detailed in Section 3, this part of Oxfordshire is vitally important to the Oxfordshire and national economy playing a key role in the UK's scientific research and development with an additional 20,000 new jobs expected to be created. This is coupled with approximately 15,825 new homes expected to be built by 2034 in the immediate vicinity of the Scheme and many more on the periphery. In short, the population of Didcot area is expected to double in the next 10 years. This unprecedented level of growth is added to a highway network that is already under significant strain due to years of housing and employment growth but with, in some cases, nineteenth-century infrastructure. The Scheme fully aligns with local transport plan policy and local plan policies, across two districts, as well as supporting new homes for Oxford's unmet need. The Scheme also helps to support Didcot Garden Town aspirations. The Scheme works hand-in-glove with other schemes that will provide a multi-modal solution to the challenges. In short, the Scheme is vital to ensuring the continued prosperity of the area whilst providing much needed new homes for its existing and new residents.

### CURRENT AND FUTURE HIGHWAY ISSUES (Section 4)

- 15.3. As explained in Section 4, the Science Vale area is a popular place to live and work. However, it has been a victim of its own success because the infrastructure has not kept pace with the growth in housing and jobs. This has led to severe congestion across the network as demonstrated by multiple planning appeals for single house developments being dismissed. This is almost unique in the planning world and truly highlights the transport challenges the area faces. This congestion does not only hinder the private car but also those wishing to travel by bus, on foot or cycling. These challenges are exacerbated by the fact that this is largely a rural area which makes it harder to convince people to walk and cycle especially in the dark winter months. The challenges of congestion and a rural area is also an issue for buses. This is underlined by representations made by the Oxford Bus Group, whereby Mr Marion is clear that the only solution to the current issues for bus services is the Scheme as submitted.
- 15.4. The congestion also has an impact on the haulage industry with Didcot also being a centre for logistics. The absence of alternative routes to the A4130 creates challenges related to reassigning existing roads for bus priority due to the need to maintain access to Didcot and the surrounding area for other modes including private cars and logistics vehicles. The sheer level of growth, doubling the population in the area with a similar number of new jobs, means no one mode can be seen as a solution. Only a multi-modal option will meet the challenges without harming the economic viability of Science Vale. The attractiveness and opportunity that the area offers must be met with the right transport solution.

### POLICY CONTEXT (Section 5)

- 15.5. As stated in Section 5, the Scheme is entirely consistent with all relevant and adopted policy documents. It meets a number of core policies in the VOWHLP Part 1 including identifying the strategic highway improvements required to support the plan including all four components of the Scheme. It safeguards land for the Scheme and sets out that strategic site allocations should not prejudice delivery whilst also contributing financially towards the Scheme.
- 15.6. The VOWHLP Part 2 goes even further by bringing the Didcot Garden Town principles into a core policy with the Scheme being fundamental to achieving its objectives. The

Part 2 plan also refines the earlier safeguarding of the Didcot to Culham River Crossing from Part 1 to reflect the latest design work at that time. The Scheme is therefore in line with the Part 2 document.

- 15.7. The Scheme is also fundamental to the delivery of the SOLP. It is unequivocal in its position that allocated development sites cannot proceed without the Scheme. All components of the Scheme are included in key policies and safeguarded so as not to prejudice the Scheme's delivery. The plan identifies the need for strategic allocations at Berinsfield Garden Village and Land Adjacent to Culham Science Centre to make financial contributions towards the Scheme.
- 15.8. It is clear from this key policy document, recently adopted and examined in public, that not only is the Scheme policy compliant but the cornerstone of the transport strategy to deliver the ambitious housing and employment growth and the continued prosperity of the Science Vale area.
- 15.9. The Scheme is compliant with the Local Transport Plan 4, the key policy document when the Planning Application was submitted, but also in line with the Local Transport and Connectivity Plan (adopted in 2022).
- 15.10. The Scheme is also fundamental to the delivery of aspirations within the Didcot LCWIP.

#### IDENTIFICATION OF NEED FOR THE SCHEME (Section 6)

- 15.11. The need for the Scheme has been identified and established across multiple policy and evidence documents including being confirmed by planning inspectors in local plan processes on numerous occasions. The housing and employment growth map at Figure 3 illustrates the scale of the challenge. The concentration and level of growth cannot be solved by small interventions and will require the delivery of the Science Vale Area Strategy, including the Scheme, given the level of current and severe congestion. The main bus operator in the area is unequivocal in the need for scheme for continued and improved bus services and that whilst some feel that additional road capacity will lead to more traffic growth, the 'do nothing' scenario will entrench private car use even further due to the issues with the current highway network preventing the successful operation of bus services.
- 15.12. The lack of river crossing options and constrained capacity on existing routes, railway crossing capacity and connections to the A34 have become serious enough that they may make proposed developments less attractive, exacerbate existing traffic-related and highway safety issues and lead to more traffic congestion. This will then disrupt local aspirations to use this growth as the catalyst to transform Didcot into a more coherent and cohesive Garden Town community. In addition, it is imperative to encourage use of sustainable travel throughout Science Vale to reduce health impacts and improve air quality.
- 15.13. Thus, intervention is required to:
  - Reduce congestion on the routes to, around and within Didcot;
  - Enable modal shift across Science Vale including enhancing existing and new bus services;
  - Improve accessibility across the River Thames and the Great Western Mainline in Didcot;
  - Improve resilience of the transport network; and
  - Enable sustainable housing and employment growth within Science Vale.
- 15.14. Improving the transport network within the area by addressing the issues identified above will also help to ensure that the Science Vale remains a world-leading research location.
- 15.15. There are 5 key issues the Scheme will address:
  - The poor existing highway network performance;
  - The under-provision of active travel in the area;
  - Improvements in public transport;

- The need for adequate network resilience; and
  - The delivery of housing and employment growth.
- 15.16. It is clear that the current highway network cannot accommodate any further increases in traffic without having a severe impact on highway performance. This has been confirmed by numerous planning appeal decisions as well as planning inspectors examining Local Plans. This is equally the case for active travel and public transport – existing congestion and the absence of infrastructure (or poor-quality infrastructure in terms of active travel) creates an environment that is not conducive to encouraging use of these modes of transport. This is clear from the low mode shares for these modes and also confirmed by the main bus operator in the area.
- 15.17. Flooding in recent years has highlighted poor network resilience and created major issues for accessibility (especially by bus) in the area. This is not just personal mobility but for those that provide key services (e.g. care and healthcare professionals, refuse collections, postal/delivery/logistics services etc). As a result, only very limited development can be allowed without certainty of intervention to solve these issues. This results in not being able to provide the housing people require, a key national priority, but even more so for those that rely on affordable housing (cramped living conditions has been shown to have a detrimental effect on young people's lives and education). Furthermore, economic development will be stunted in a time when the country is recovering from the COVID pandemic and experiencing a cost of living crisis. In short, the need for the Scheme has been soundly justified.

#### OBJECTIVES OF THE SCHEME (Section 7)

- 15.18. As Section 7 demonstrates, there have been a number of objective setting exercises, with the objectives having evolved over a long period of time.
- 15.19. The Scheme meets all of the objectives by unlocking the delivery of new homes and jobs whilst supporting economic growth, it provides additional resilience for the transport network which will be flexible to cope with future uncertainties and it provides and enables opportunities for sustainable travel. The final objectives were:
- Objectives 1, 2 and 3 – Support housing development
  - Objectives 4 and 5 – Support economic growth
  - Objective 6 - Future-proofing (network resilience)
  - Objectives 7 and 8 – Sustainable travel

#### THE OPTIONEERING PROCESS (Section 8)

- 15.20. A robust and thorough optioneering process was undertaken over a long period of time. In order to provide additional robustness and a 'belt and braces' approach. All optioneering undertaken between 2014 and 2020 was reviewed in a combined manner using all previous objectives, including new objectives to take account of revised policy and strategy. This was undertaken with all available information which was proportionate to the stage of development and followed the DfT Transport Appraisal Guidance (TAG) as well as all other relevant regulations and guidance.
- 15.21. The optioneering process utilised optioneering as part of Local Plan processes with three separate OAR processes being undertaken by the Applicant.
- 15.22. The optioneering process demonstrated that the Scheme, as a multi-modal scheme, met the most objectives. It should be noted that there will be some of the best cycling and walking infrastructure in Oxfordshire implemented as part of the Scheme. It will also provide significant advantages to public transport as outlined by the Oxford Bus Group (CDN.7).



#### CONSULTATION (Section 9)

- 15.23. As detailed in Section 9, a long period of consultation and engagement has been undertaken that has informed the Scheme design and outcomes. This started in 2014 with local plan consultations and Examinations in Public through to public consultations in 2018 and 2020. In the 2020 consultation, more than twice as many people supported the Scheme than objected. As demonstrated by the preceding paragraphs, many changes have been made as a result of consultation and engagement. A final series of consultations were held as part of the planning submission that included several Regulation 25 consultations.

#### SCHEME SELECTION (Section 10)

- 15.24. The Scheme selection was informed by a lengthy and multi-phase optioneering process using as much information as was available at each stage. Throughout the process, the objectives were tweaked to maximise the benefits and minimise the risks/harm. The preferred scheme meets the objectives as a multi-modal scheme that can deliver unprecedented growth whilst also providing enhancements for walking, cycling and public transport in a rural setting. Whilst it has some environmental constraints, these have been minimised and mitigated.

#### HIGHWAY PERFORMANCE WITH THE SCHEME (Section 11)

- 15.25. It is without doubt that the highway network performs better in future years with all development and the Scheme in place than without the Scheme. This is true for private cars, buses, pedestrians and cyclists alike as well as businesses in the area that rely on an efficient network to operate.
- 15.26. The Scheme will provide significant enhancements to the walking and cycling environment. This is not just on the full length of the Scheme but enabling further network enhancements to create a safe, convenient and connected network from Harwell Campus to Oxford. This will create a step-change in pedestrian and cycle infrastructure to encourage more people to make more trips by these modes. Without the scheme, the network is fragmented and indirect with little hope of improving the mode shares from the current low bases.

#### SCHEME BENEFITS (Section 12)

- 15.27. The Scheme benefits, as set out in Section 12, are considerable. They far outweigh any disbenefits. The Scheme will unlock approximately 15,825 new homes and support many more new homes and jobs in the VOWHDC and SODC areas. Many of the future strategic development sites in the vicinity of Didcot Garden Town will have direct access from the Scheme (Berinsfield Garden Village aside).
- 15.28. The active travel benefits have been described in detail in this Proof of Evidence. The walking and cycling provision is approximately 20km in length and segregated from motor vehicles and each other. The Scheme enables a comprehensive network of walking and cycling routes.
- 15.29. The benefits to bus services have also been very well articulated but, with the Scheme, the bus provides a real and attractive alternative to the private car with faster and more reliable services across the network.
- 15.30. Without the Scheme, it will be difficult to deliver the strategic sites that do not yet have planning permissions. This includes Land adjacent to Culham Science Centre. Coupled with employment growth at Culham Science Centre, there is a real prospect of increasing services at Culham Station and Didcot Parkway Station. This will have a much wider benefit across the Science Vale area and beyond. The Land adjacent to Culham Science Centre site also proposes to update station facilities at Culham.

- 15.31. The Scheme will assist current and future employment sites by providing additional highway capacity as well as pedestrian, cycle, bus and rail improvements. This will assist the “clustering” approach so crucial in the high-tech sector. The Scheme will also support the already allocated Enterprise Zones which will generate business rates for the local authorities to invest back into the local area. The importance of the Scheme to growth and the economic vitality of the area is supported by UKAEA, the Secretary of State for Energy and Net Zero, VOWHDC and SODC, Oxford Bus Group, and Didcot Town Council, to name a few.
- 15.32. The Scheme should not be seen as only providing car-borne benefits. As this Proof of Evidence demonstrates, that is a very narrow view and a misunderstanding of the Scheme objectives, aims and goals.
- 15.33. In short, the benefits of the Scheme are wide-ranging and meet the objectives set out by delivering the growth whilst providing genuine alternatives to the private car. The provision of high-quality and segregated pedestrian and cycle provision is a step change for Oxfordshire to encourage people to choose active and healthier forms of travel. Coupled with the opportunities for bus services, the Scheme is a genuine multi-modal and balanced approach and the only option that delivers the aims and goals of the local area.

#### ALTERNATIVES (Section 13)

- 15.34. As described in Section 8, the Applicant went through an extensive and robust exercise assessing the reasonable alternatives. The optioneering exercise assessed schemes related to public transport and active travel. The alternatives to the Didcot to Culham River Crossing, as suggested by Appleford (Parish Council and residents), have been shown to have deliverability issues and have therefore been ruled out. It should be noted that the Applicant, where possible, has realigned the Didcot to Culham River Crossing further away from Appleford, north of the level crossing.

#### RESPONSES TO CONCERNS (Section 14)

- 15.35. Section 14 responds to objector statements and call-in representations and concludes that none of the concerns advanced provide reasons for not pursuing the Scheme.

**16. STATEMENT OF TRUTH AND DECLARATION**

- 16.1. I confirm that, insofar, as the facts stated in my proof evidence are within my own knowledge, I have made clear what they are and I believe them to be true and that the opinion I have expressed represent my true and complete professional opinion.
- 16.2. I confirm that my Proof of Evidence includes all facts that I regard as being relevant to the opinions that I have expressed and that attention is to drawn to any matter which would affect the validity of those opinions.
- 16.3. I confirm that my duty to the Inquiry as an expert witness overrides any duty to those instructing or paying me, and I have understood this duty and complied with it in giving my evidence impartially and objectively, and I will continue to comply with that duty as required.
- 16.4. I confirm that, in preparing this Proof of Evidence, I have assumed that same duty that would apply to me when giving my expert opinion in a court of law under oath or affirmation. I confirm that this duty overrides any duty to those instructing or paying me, and I have understood this duty and complied with it in giving my evidence impartially and objectively, and I will continue to comply with that duty as required.
- 16.5. I confirm that I have no conflicts of interest of any kind other than those already disclosed in this Proof of Evidence.

**ARON LESLIE WISDOM**

**30 January 2024**