TAB 5

KEY PLANNING APPLICATION DOCUMENTS FOR RWE'S DATA CENTRE CAMPUS (REFERENCE P22/V1857/O):

A. APPLICATION FORM
B. SITE LOCATION PLAN
C. DESIGN AND ACCESS STATEMENT
D. PLANNING STATEMENT
E. TRANSPORT ASSESSMENT

Vale of White Horse District Council

135 Eastern Avenue
Milton Park
Milton
OX14 4SB
01235 422600
planning@whitehorsedc.gov.uk

Application for Outline Planning Permission with some matters reserved

Town and Country Planning Act 1990 (as amended)

Publication of applications on planning authority websites

Please note that the information provided on this application form and in supporting documents may be published on the Authority's website. If you require any further clarification, please contact the Authority's planning department.

Site Location

Disclaimer: We can only make recommendations based on the answers given in the questions.

If you cannot provide a postcode, the description of site location must be completed. Please provide the most accurate site description you can, to help locate the site - for example "field to the North of the Post Office".

Number

Suffix

Property Name

Didcot Power Station, Rwe N Power Plc

Address Line 1

Didcot Power Station

Address Line 2

Address Line 3

Oxfordshire

Town/city

Didcot

Postcode

OX11 7HA

Description of site location must be completed if postcode is not known:

Easting (x)

451367

Northing (y)

191917

Description

Land at former Didcot A Power Station

Applicant Details

Name/Company

Title

Mr

First name

Matthew Trigg

Surname

(c/o agent - David Lock Associates)

Company Name

RWE Generation UK plc

Address

Address line 1

Windmill Hill Business Park

Address line 2

Whitehill Way

Address line 3

Town/City

Swindon

Country

Postcode

SN5 6PB

Are you an agent acting on behalf of the applicant?

- [x] Yes
- [ ] No

Contact Details

Primary number

***** REDACTED ******

Secondary number

Fax number

Email address

***** REDACTED ******

Agent Details

Name/Company

Title

Mr

First name

Robert

Surname

Purton

Company Name

David Lock Associates Ltd

Address

Address line 1

50 North Thirteenth Street

Address line 2

Central Milton Keynes

Address line 3

Town/City

Country

Postcode

MK9 3BP

Contact Details

Primary number

***** REDACTED ******

Secondary number

Fax number

Email address

***** REDACTED ******

Description of the Proposal

Please indicate all those matters for which approval is sought as part of this outline application (tick all that apply)

- [x] Access
- [ ] Appearance
- [ ] Landscaping
- [ ] Layout
- [ ] Scale

Note: if this application is approved, the matters not determined as part of this application will need to be the subject of an "Application for approval of reserved matters" before the development may proceed.

Please note in regard to:

- **Fire Statements** - From 1 August 2021, planning applications for buildings of over 18 metres (or 7 stories) tall containing more than one dwelling will require a 'Fire Statement' for the application to be considered valid. There are some exemptions. View government planning guidance on fire statements or access the fire statement template and guidance.
- **Public Service Infrastructure** - From 1 August 2021, applications for certain public service infrastructure developments will be eligible for faster determination timeframes. See help for further details or view government planning guidance on determination periods.

Description

Please describe the proposed development

Hybrid application comprising:
1. Outline planning permission for the erection of up to 197,000m2 Use Class B8 data centre development with ancillary Use Class E office space, together with associated groundworks, utilities, infrastructure, engineering and enabling works. Matters relating to appearance, landscaping, drainage, layout and scale of the development areas reserved for subsequent approval; and
2. Full planning permission for the construction of new and improved site access, new access roads, hard & soft landscaping, creation of SUDS and all associated infrastructure and engineering works

Has the work already been started without planning permission?

- ○ Yes
- ⊘ No

Site Area

What is the measurement of the site area? (numeric characters only).

33.01

Unit

Hectares

Existing Use

Please describe the current use of the site

Operational land associated with the former coal-fired power station and ancillary infrastructure

Is the site currently vacant?

- [x] Yes
- [ ] No

If Yes, please describe the last use of the site

Formerly Didcot A Power Station.

When did this use end (if known)?

Does the proposal involve any of the following? If Yes, you will need to submit an appropriate contamination assessment with your application.

Land which is known to be contaminated

- [x] Yes
- [ ] No

Land where contamination is suspected for all or part of the site

- [x] Yes
- [ ] No

A proposed use that would be particularly vulnerable to the presence of contamination

- [ ] Yes
- [x] No

Pedestrian and Vehicle Access, Roads and Rights of Way

Is a new or altered vehicular access proposed to or from the public highway?

- [x] Yes
- [ ] No

Is a new or altered pedestrian access proposed to or from the public highway?

- [x] Yes
- [ ] No

Are there any new public roads to be provided within the site?

- [ ] Yes
- [x] No

Are there any new public rights of way to be provided within or adjacent to the site?

- [ ] Yes
- [x] No

Do the proposals require any diversions/extinguishments and/or creation of rights of way?

- [ ] Yes
- [x] No

If you answered Yes to any of the above questions, please show details on your plans/drawings and state their reference numbers

Development Framework Plan (without Science Bridge Road) (RWE-ARC-SP-ZZ-DR-A-1002B)

Proposed Access and Movement Parameter Plan (RWE-ARC-SP-ZZ-DR-A-2003B)

Vehicle Parking

Does the site have any existing vehicle/cycle parking spaces or will the proposed development add/remove any parking spaces?

- [x] Yes
- [ ] No

Please provide information on the existing and proposed number of on-site parking spaces

Vehicle Type:
Cars

Existing number of spaces:
416

Total proposed (including spaces retained):
493

Difference in spaces:
77

Vehicle Type:
Cycle spaces

Existing number of spaces:
0

Total proposed (including spaces retained):
197

Difference in spaces:
197

Vehicle Type:
Other

Other (please specify):
HGV

Existing number of spaces:
0

Total proposed (including spaces retained):
15

Difference in spaces:
15

Vehicle Type:
Disability spaces

Existing number of spaces:
0

Total proposed (including spaces retained):
30

Difference in spaces:
30

Materials

Does the proposed development require any materials to be used externally?

- [x] Yes
- [ ] No

Please provide a description of existing and proposed materials and finishes to be used externally (including type, colour and name for each material)

Type:
Vehicle access and hard standing

Existing materials and finishes:

Proposed materials and finishes:
Tarmacadam carriageway construction with kerbing and vehicle runover to heavy duty specification, refer to submitted Development Framework Plan (without Science Bridge Road) and Proposed Access and Movement Parameter Plan. All other details are reserved for subsequent approval.

Are you supplying additional information on submitted plans, drawings or a design and access statement?

- [x] Yes
- [ ] No

If Yes, please state references for the plans, drawings and/or design and access statement

Please refer to the submitted Design and Access Statement for further details.

Foul Sewage

Please state how foul sewage is to be disposed of:

- [x] Mains sewer
- [ ] Septic tank
- [ ] Package treatment plant
- [ ] Cess pit
- [ ] Other
- [ ] Unknown

Are you proposing to connect to the existing drainage system?

- [x] Yes
- [ ] No
- [ ] Unknown

If Yes, please include the details of the existing system on the application drawings and state the plan(s)/drawing(s) references

Indicative Drainage Strategy Plans:
Without Science Bridge Road (BM12113-003 Rev H)
With Science Bridge Road (BM12113-004 Rev G)

Please refer to the submitted Flood Risk Assessment and Drainage Strategy for further details.

Assessment of Flood Risk

Is the site within an area at risk of flooding? (Check the location on the Government's Flood map for planning. You should also refer to national standing advice and your local planning authority requirements for information as necessary.)

◯ Yes
⊘ No

Is your proposal within 20 metres of a watercourse (e.g. river, stream or beck)?

⊘ Yes
◯ No

Will the proposal increase the flood risk elsewhere?

◯ Yes
⊘ No

How will surface water be disposed of?

☑ Sustainable drainage system

☐ Existing water course

☐ Soakaway

☐ Main sewer

☐ Pond/lake

Trees and Hedges

Are there trees or hedges on the proposed development site?

⊘ Yes
◯ No

And/or: Are there trees or hedges on land adjacent to the proposed development site that could influence the development or might be important as part of the local landscape character?

⊘ Yes
◯ No

If Yes to either or both of the above, you may need to provide a full tree survey, at the discretion of the local planning authority. If a tree survey is required, this and the accompanying plan should be submitted alongside the application. The local planning authority should make clear on its website what the survey should contain, in accordance with the current 'BS5837: Trees in relation to design, demolition and construction - Recommendations'.

Biodiversity and Geological Conservation

Is there a reasonable likelihood of the following being affected adversely or conserved and enhanced within the application site, or on land adjacent to or near the application site?

To assist in answering this question correctly, please refer to the help text which provides guidance on determining if any important biodiversity or geological conservation features may be present or nearby; and whether they are likely to be affected by the proposals.

a) Protected and priority species

⊘ Yes, on the development site
◯ Yes, on land adjacent to or near the proposed development
◯ No

b) Designated sites, important habitats or other biodiversity features

◯ Yes, on the development site
◯ Yes, on land adjacent to or near the proposed development
⊘ No

c) Features of geological conservation importance

◯ Yes, on the development site
◯ Yes, on land adjacent to or near the proposed development
⊘ No

Supporting information requirements

Where a development proposal is likely to affect features of biodiversity or geological conservation interest, you will need to submit, with the application, sufficient information and assessments to allow the local planning authority to determine the proposal.

Failure to submit all information required will result in your application being deemed invalid. It will not be considered valid until all information required by the local planning authority has been submitted.

Your local planning authority will be able to advise on the content of any assessments that may be required.

Waste Storage and Collection

Do the plans incorporate areas to store and aid the collection of waste?

⊘ Yes
◯ No

If Yes, please provide details:

These will be detailed at the Reserved Matters stage. Please refer to the submitted Refuse Disposal Statement.

Have arrangements been made for the separate storage and collection of recyclable waste?

⊘ Yes
◯ No

If Yes, please provide details:

These will be detailed at the Reserved Matters stage. Please refer to the submitted Refuse Disposal Statement.

Residential/Dwelling Units

Does your proposal include the gain, loss or change of use of residential units?

◯ Yes
⊘ No

All Types of Development: Non-Residential Floorspace

Does your proposal involve the loss, gain or change of use of non-residential floorspace?
Note that 'non-residential' in this context covers all uses except Use Class C3 Dwellinghouses.

⊘ Yes
◯ No

Please add details of the Use Classes and floorspace.

Following changes to Use Classes on 1 September 2020: The list includes the now revoked Use Classes A1-5, B1, and D1-2 that should not be used in most cases. Also, the list does not include the newly introduced Use Classes E and F1-2. To provide details in relation to these or any 'Sui Generis' use, select 'Other' and specify the use where prompted. Multiple 'Other' options can be added to cover each individual use. View further information on Use Classes.

Use Class:
Other (Please specify)

Other (Please specify):
B8 - Storage/distribution and ancillary Class E - Offices.

Existing gross internal floorspace (square metres):
0

Gross internal floorspace to be lost by change of use or demolition (square metres):
0

Total gross new internal floorspace proposed (including changes of use) (square metres):
197000

Net additional gross internal floorspace following development (square metres):
197000

Totals	Existing gross internal floorspace (square metres)	Gross internal floorspace to be lost by change of use or demolition (square metres)	Total gross new internal floorspace proposed (including changes of use) (square metres)	Net additional gross internal floorspace following development (square metres)
	0	0	197000	197000

Loss or gain of rooms

For hotels, residential institutions and hostels please additionally indicate the loss or gain of rooms:

Employment

Are there any existing employees on the site or will the proposed development increase or decrease the number of employees?

- [x] Yes
- [ ] No

Existing Employees

Please complete the following information regarding existing employees:

Full-time

12

Part-time

0

Total full-time equivalent

12.00

Proposed Employees

If known, please complete the following information regarding proposed employees:

Full-time

Part-time

Total full-time equivalent

Hours of Opening

Are Hours of Opening relevant to this proposal?

- [x] Yes
- [ ] No

Please add details of the of the Use Classes and hours of opening for each non-residential use proposed.

Following changes to Use Classes on 1 September 2020: The list includes the now revoked Use Classes A1-5, B1, and D1-2 that should not be used in most cases. Also, the list does not include the newly introduced Use Classes E and F1-2. To provide details in relation to these or any 'Sui Generis' use, select 'Other' and specify the use where prompted. Multiple 'Other' options can be added to cover each individual use. View further information on Use Classes.

If you do not know the hours of opening, select the Use Class and tick 'Unknown'

Use Class:
Other (Please specify)

Text Field:
B8 - Storage/distribution and ancillary Class E - Offices

Unknown:
No

Monday to Friday:

Start Time:
00:00

End Time:
00:00

Saturday:

Start Time:
00:00

End Time:
00:00

Sunday / Bank Holiday:

Start Time:
00:00

End Time:
00:00

Industrial or Commercial Processes and Machinery

Does this proposal involve the carrying out of industrial or commercial activities and processes?

◯ Yes
⊘ No

Is the proposal for a waste management development?

◯ Yes
⊘ No

Hazardous Substances

Does the proposal involve the use or storage of Hazardous Substances?

◯ Yes
⊘ No

Trade Effluent

Does the proposal involve the need to dispose of trade effluents or trade waste?

◯ Yes
⊘ No

Site Visit

Can the site be seen from a public road, public footpath, bridleway or other public land?

⊘ Yes
◯ No

If the planning authority needs to make an appointment to carry out a site visit, whom should they contact?

⊘ The agent
◯ The applicant
◯ Other person

Pre-application Advice

Has assistance or prior advice been sought from the local authority about this application?

⊘ Yes
◯ No

If Yes, please complete the following information about the advice you were given (this will help the authority to deal with this application more efficiently):

Officer name:

Title

***** REDACTED ******

First Name

***** REDACTED ******

Surname

***** REDACTED ******

Reference

P21/V1356/PEJ

Date (must be pre-application submission)

13/07/2021

Details of the pre-application advice received

The response sets out the Council's general support in relation to the proposals. The Council recommended that the floorspace only be used for data centre uses to mitigate any adverse highway impacts from an umbrella Class Use B8 permission. The Council also requested clarity on matters relating to design, landscaping, visual impact, ecology and climate change. These are addressed in the relevant documents from the submission package.

Please refer to the submitted Planning Statement for further details regarding the pre-application advice received.

Authority Employee/Member

With respect to the Authority, is the applicant and/or agent one of the following:
(a) a member of staff
(b) an elected member
(c) related to a member of staff
(d) related to an elected member

It is an important principle of decision-making that the process is open and transparent.

For the purposes of this question, "related to" means related, by birth or otherwise, closely enough that a fair-minded and informed observer, having considered the facts, would conclude that there was bias on the part of the decision-maker in the Local Planning Authority.

Do any of the above statements apply?

◯ Yes
⊘ No

Ownership Certificates and Agricultural Land Declaration

Certificates under Article 14 - Town and Country Planning (Development Management Procedure) (England) Order 2015 (as amended)

Please answer the following questions to determine which Certificate of Ownership you need to complete: A, B, C or D.

Is the applicant the sole owner of all the land to which this application relates; and has the applicant been the sole owner for more than 21 days?

⊘ Yes
◯ No

Is any of the land to which the application relates part of an Agricultural Holding?

◯ Yes
⊘ No

Certificate Of Ownership - Certificate A

I certify/The applicant certifies that on the day 21 days before the date of this application nobody except myself/ the applicant was the owner* of any part of the land or building to which the application relates, and that none of the land to which the application relates is, or is part of, an agricultural holding**

*** "owner" is a person with a freehold interest or leasehold interest with at least 7 years left to run.**

**** "agricultural holding" has the meaning given by reference to the definition of "agricultural tenant" in section 65(8) of the Act.**

NOTE: You should sign Certificate B, C or D, as appropriate, if you are the sole owner of the land or building to which the application relates but the land is, or is part of, an agricultural holding.

Person Role

◯ The Applicant
⊘ The Agent

Title

Mr

First Name

Robert

Surname

Purton

Declaration Date

21/07/2022

☑ Declaration made

Declaration

I / We hereby apply for Outline planning permission: Some matters reserved as described in this form and accompanying plans/drawings and additional information. I / We confirm that, to the best of my/our knowledge, any facts stated are true and accurate and any opinions given are the genuine options of the persons giving them. I / We also accept that: Once submitted, this information will be transmitted to the Local Planning Authority and, once validated by them, be made available as part of a public register and on the authority's website; our system will automatically generate and send you emails in regard to the submission of this application.

☑ I / We agree to the outlined declaration

Signed

Aya Mohamed

Date

21/07/2022

1 **SITE LOCATION PLAN**
1 : 2500

NOTES :

2. All dimensions shown are in millimetres.
3. This drawing shall be read in conjunction with all Specifications and schedules.
4. All dimensions shall be checked by Contractor prior to any works commencing on site.
5. The contractor shall fully comply with all relevant british standards, regulations, standard codes of practice, methods of working, and good practice.
6. Dimensions shall not be scaled from the drawing and the contractor shall be responsible for obtaining all dimensions and levels on site for the actual setting out of the works.

LEGEND

OWNERSHIP RWE BOUNDARY

BOUNDARY LINE

PLANNING APPICATION

STATUS	DESCRIPTION
S0	FORMAL ISSUE

ARC:MC

140-142 St.John Street, London EC1V 4UB T 020 34112571
REGISTERED IN ENGLAND : COMPANY REG. No. 7083299

CLIENT :

PROJECT : DIDCOT CAMPUS
LAND AT FORMER
DIDCOT 'A' POWER STATION, SUTTON COURTENAY

PROJECT NO : L.3118.00

DESCRIPTION : SITE LOCATION PLAN

SCALE : 1:2500 @ A0

DRAWING No : RWE-ARC-SP-ZZ-DR-A-0001B

REVISION :

DAVID LOCK ASSOCIATES

Didcot **Data Campus**

Design & Access Statement

Prepared by **David Lock Associates**
in conjunction with **ARC:MC**

April 2023

Issue date:	27 April 2023
Project number:	ARC002
Document Status:	Final
Author(s):	AD/CP/AM
Report Design:	NL
Checked by:	AD/CP
Authorised by:	AD

Contents

CHAPTER 1
Introduction

1.1 RWE's Didcot A site, formerly home to its coal-fired Power Station, is well-positioned for further re-development, benefiting from its location close to both electricity and gas transmission grids, availability of cooling water from the River Thames and its proximity to Didcot Railway Station.

1.2 It is unlikely, however, that any future power projects would require a significant proportion of the land available for redevelopment and accordingly RWE has devised a broader redevelopment strategy which considers opportunities for alternative uses.

1.3 Over 18 months the project team has been talking to organisations such as Oxfordshire County Council, the Vale of White Horse District Council and other stakeholders with an interest in the redevelopment of the site to understand the possible scope of redevelopment and the planning requirements to achieve consent.

1.4 A new data centre campus with ancillary office space, together with associated groundworks, utilities, infrastructure, engineering and enabling works will be developed to the immediate east of the operational Didcot B Power Station. The development will have an appropriate visual aspect and fit within the Didcot power station complex. The campus would be accessed via the new Didcot Science Bridge Road (Oxfordshire County Council's strategic distributor road connection to the A4130) which will run to the immediate south of the site.

Document Overview

1.5 This Design and Access Statement (DAS) is prepared by David Lock Associates on behalf of RWE Generation UK in support of a hybrid planning application at the former Didcot A Power Station, comprising:

1. Outline planning permission for the erection of up to 197,000m2 Use Class B8 data centre development with ancillary Use Class E office space, together with associated groundworks, utilities, infrastructure, engineering and enabling works. Matters relating to appearance, landscaping, drainage, layout and scale of the development areas reserved for subsequent approval; and
2. Full planning permission for the construction of new and improved site access, new access roads, hard & soft landscaping, creation of SUDS and all associated infrastructure and engineering works.

Content & Structure

1.6 This DAS is structured as follows:

- **Section 2.0** – provides an overview of the application site's context and constraints;
- **Section 3.0** – sets out the national and local planning policy context for the site;
- **Section 4.0** – details the design and design evolution of the development proposal;
- **Section 5.0** – considers multi-modal access arrangements for the development;
- **Section 6.0** – highlights the landscape proposals envisioned for the development;
- **Section 7.0** – indicates the proposed sustainability measures; and
- **Section 8.0** – summarises the contents of this DAS.

Summary of Proposals

1.7 The overall site development consists of:

- A primary development parcel supporting development up to 35m in height;
- A secondary development parcel supporting development up to 15m in height;
- Strategic Green Infrastructure including landscaped zones and attenuation ponds; and
- Service roads for vehicular access, Fire brigade access and future service ducting.

FIGURE 1: SITE PROPOSALS

CHAPTER 2
Site Context

Context

2.1 The Application Site (the 'Site') shown on the Site Location Plan, Figure 3, is situated on the former Didcot A Power Station and lies wholly within the local authority boundaries of Oxfordshire County Council (OCC) and the Vale of White Horse District Council (VWHDC), although it is proximate to the South Oxfordshire District Council (SODC) authority area to the south.

2.2 The 33.01ha Site consists of brownfield land including a mix of works, buildings and ancillary infrastructures associated with the site's former use. Part of the adjoining power plant at Didcot B provides a combined cycle gas-fired power station powered by natural gas. Since 2014, buildings and structures formerly associated with Didcot A Power Station have been demolished on site and the current programme of demolition works is anticipated to conclude shortly.

2.3 A woodland of around 130sqm owned and managed by the Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust is located to the south-west perimeter of the site.

2.4 Neighbouring land uses to the west of the site include commercial premises. These include SODC and VoWHDC offices, a National Grid facility compound and various warehouses with some retail use. FCC Sutton Courtney, a recycling waste and landfill site, and Sutton Courtenay Quarry are situated to the north of the site.

2.5 The Great Western Main Line railway runs south of the site in between Milton Road and A4130. The nearest station is Didcot Parkway, approximately 2km to the southeast of the Site, which provides frequent passenger services.

2.6 The site has minimal sloping topography from North to South with ground levels varying from approximately 56.0AOD in the north-western corner of the site to approximately 55.0AOD in the south-eastern corner of the site.

2.7 The site is located in Flood Zone 1, the lowest risk of fluvial and coastal flooding.

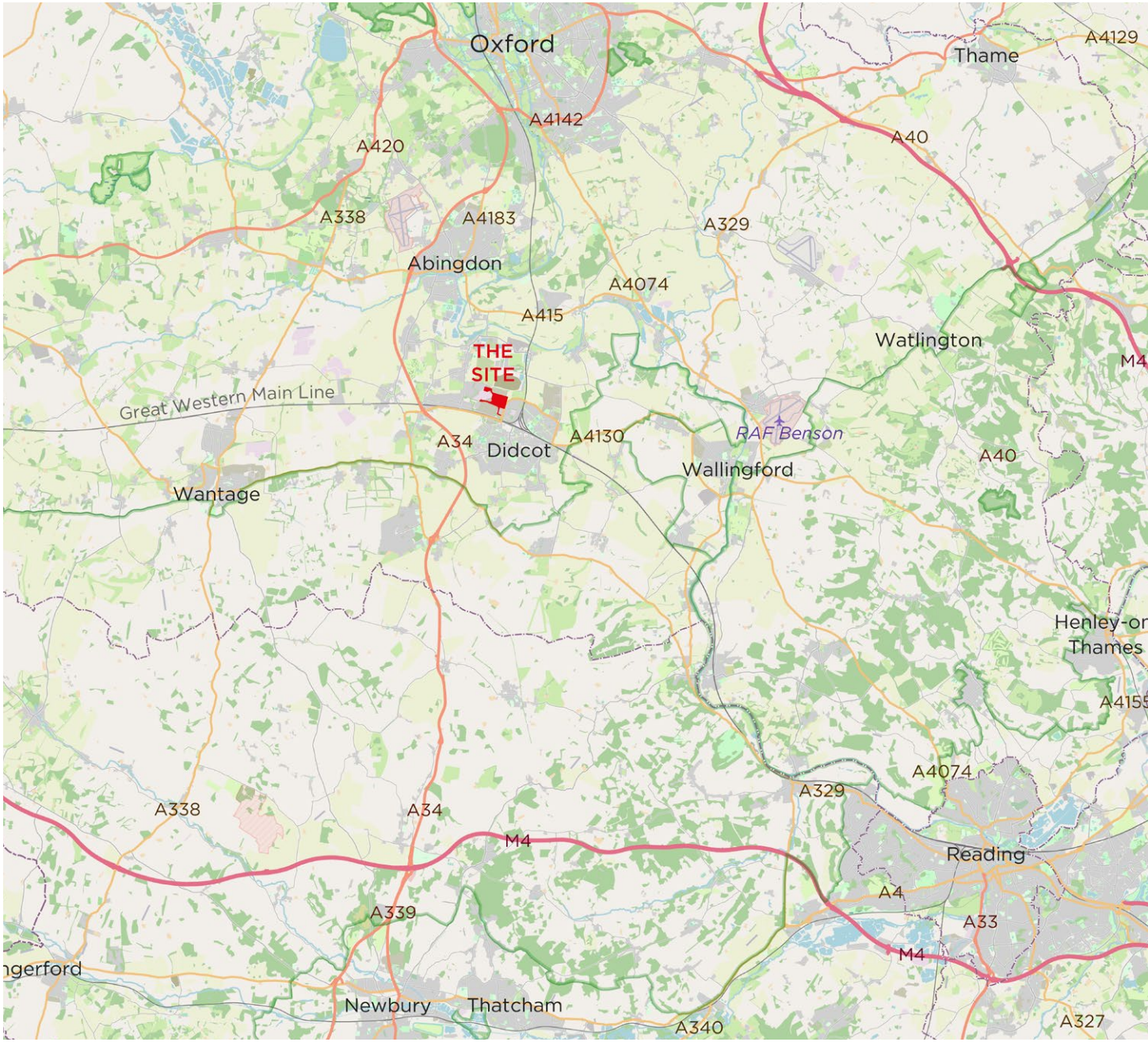


FIGURE 2: SITE CONTEXT

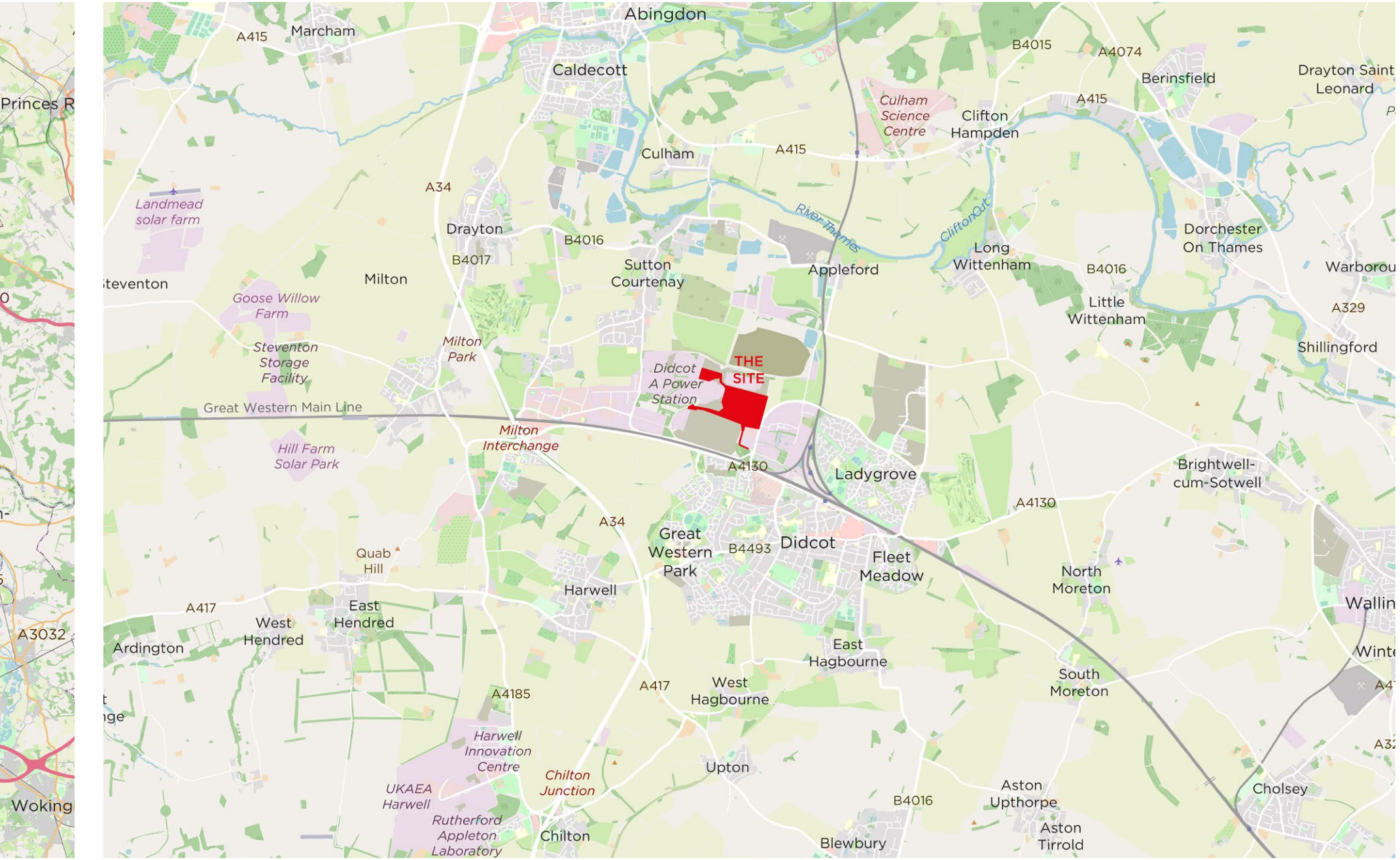


FIGURE 3: SITE LOCATION

Designations

2.8 The core environmental/constraint challenges are presented in Figures 4-8.

2.9 The land is located within the developed settlement area of Didcot, and is not within a Conservation Area or designed Green Belt. The Site is located within the Didcot Garden Town Masterplan area, of which the key document is considered to be the 'Didcot Garden Town Delivery Plan, (October 2017).

2.10 The Site is not subject to any statutory environmental designation (SAC, SSSI, LNR etc.). A Phase 1 Habitat Survey has identified that much of the site comprises large areas of hardstanding, with smaller areas of poor semi-improved grassland, broadleaved woodland, scattered trees, scrub and ruderal vegetation. Two lagoons and Moore Ditch are present in the southeast of the site. Surveys found great crested newts (GCN) to be absent. Therefore, the site is not considered suitable to support GCN. The habitats on site were identified as having the potential to support badgers, reptiles, breeding birds, roosting bats, otter and water vole.

2.11 Whilst the Site is not covered by any landscape designations, it is noted that the North Wessex Downs Area of Outstanding Natural Beauty (AONB) lies within the wider landscape to the east and south.

2.12 There are no designated heritage assets within the Site or in proximity to the proposed development.

2.13 The Site lies within Flood Zone 1, at the lowest risk of fluvial and coastal flooding.

2.14 The Site is in a preferred location for development as it is previously developed land with no material physical or planning constraints. Development in this location complies with and supports VoWHDC's spatial strategy and is appropriate for the surrounding context within a commercial area.

OWNERSHIP RWE BOUNDARY

BOUNDARY LINE

FIGURE 4: TOPOGRAPHICAL SURVEY

- SITE BOUNDARY
- HIF1 SCIENCE BRIDGE APPLICATION BOUNDARY
- AMENTIY GRASSLAND
- BARE GROUND
- POOR SEMI-IMPROVED GRASSLAND
- NEUTARL GRASSLAND - SEMI-IMPROVED
- INTRODUCED SHRUB / ORNAMENTAL PLANTING
- BUILDINGS
- STANDING WATER
- HARD SATNDING
- BROADLEAVED WOODLAND - SEMI-NATUARL
- BROADLEAVED WOODLAND - PLANTATION
- SCRUB - DENSE/CONTINUOUS
- SCRUB - SCATTERED
- TALL RUDEARL
- DRY DITCH
- RUNNING WATER
- SCATTERED TREE - BROADLEAVED
- SCATTERED TREE - CONIFEROUS
- TARGET NOTE

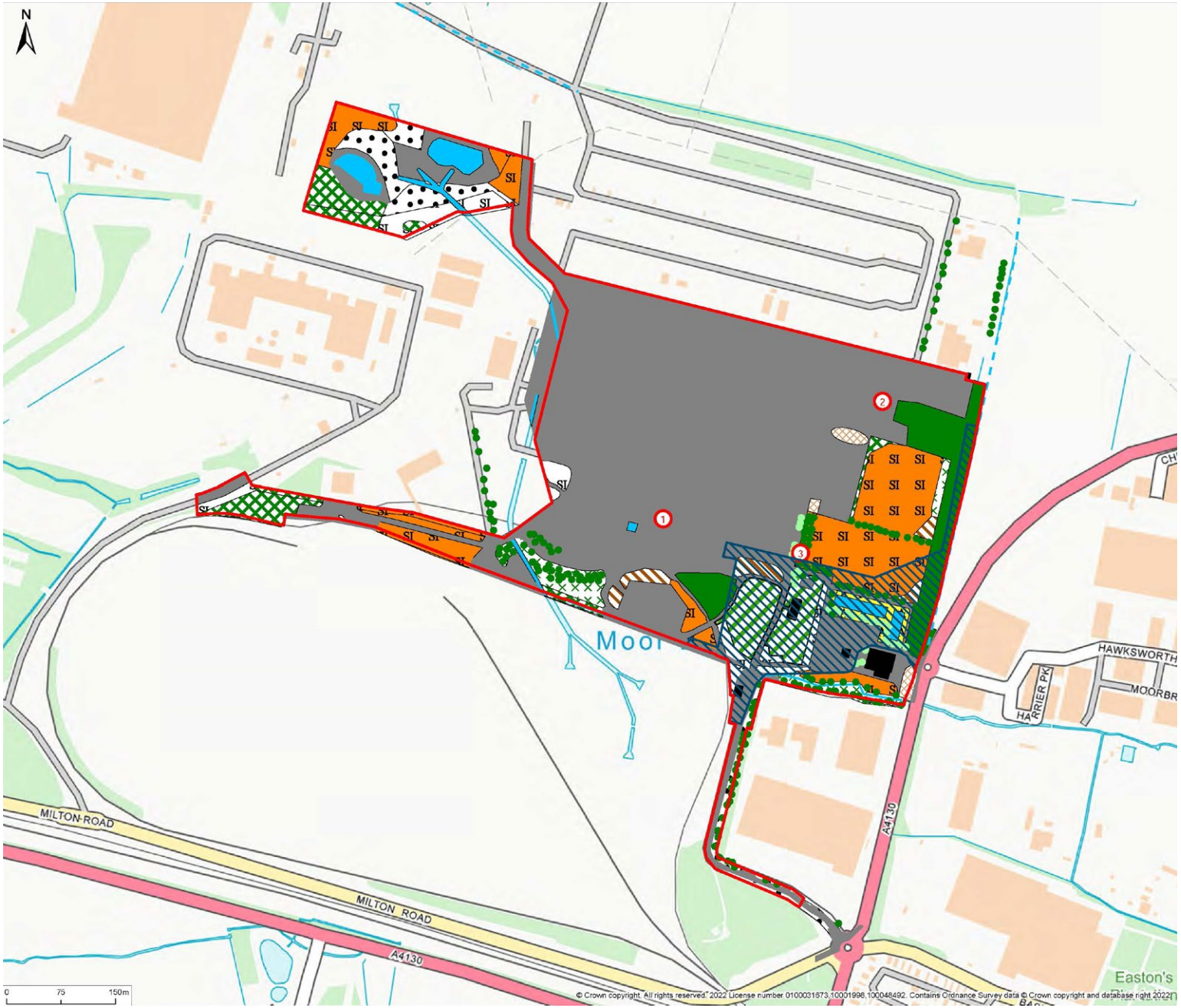


FIGURE 5: CONSTRAINTS - ECOLOGY

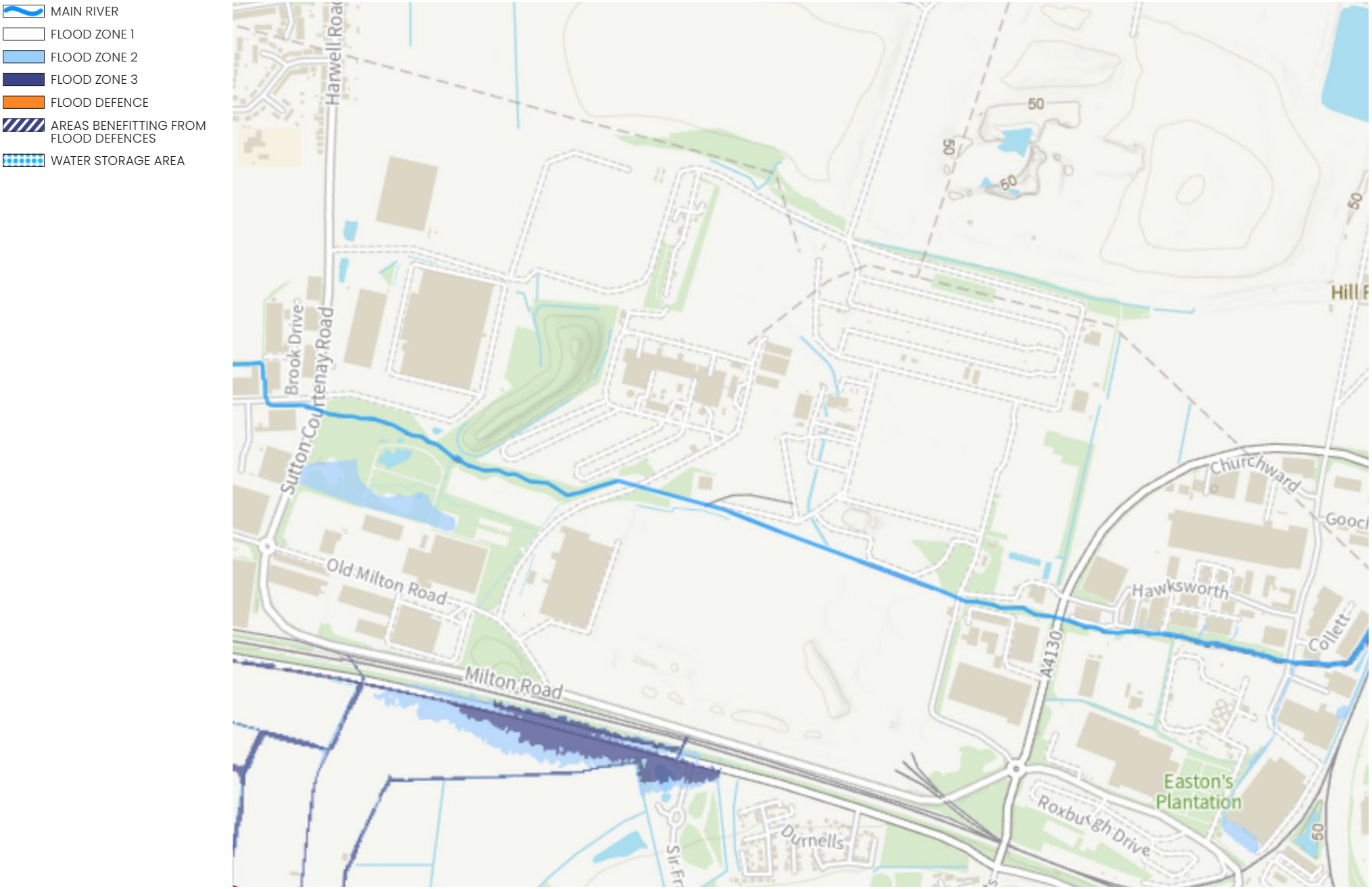


FIGURE 6: CONSTRAINTS - FLOOD RISK

PLANNING APPLICATION BOUNDARY

HEDGE

TREES REMOVED DUE TO CONDITION AND/OR TO ENABLE DEVELOPMENT

EXTENT OF PRUNING

LOCATION OF TREE PROTECTION FENCING FURTHER INVESTIGATION REQUIRED

PROPOSED COPPICING (SEE SURVEY SCHEDULE)

NO DIG PATH LOCATION

TREES

Quality categories based on BS5837:2012 Trees in relation to design, demolition and construction - Recommendations RPA - Root Protection Area.

Where RPA is not visible it extends to the same distance as the canopy.

The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

CATEGORY A CROWN SPREAD

CATEGORY B CROWN SPREAD

CATEGORY C CROWN SPREAD

CATEGORY U CROWN SPREAD

ROOT PROTECTION AREA

VETERAN TREE BUFFER ZONE

T1/G1/ W1/H1 TREE/TREE GROUP/ WOODLAND/HEDGE NUMBER

LEGEND

PROPOSED AMENITY GRASS

PROPOSED GRASSCRETE, SEEDED WITH 'GERMINAL A22 LOW MAINTENANCE' GRASS SEED MIX, OR SIMILAR APPROVED

PROPOSED WET GRASS MIX

PROPOSED WILDFLOWER MIX

PROPOSED TIMBER EDGED HOGGIN FOOTPATH

PROPOSED MOUND 1M HIGH

PROPOSED POND

EXISTING POND TO BE RETAINED

PROPOSED NATIVE SHRUBS

ATTENUATION FEATURES (SUDS)

NEW ROADS & PARKING

EXISTING RWE ROADS

MAXIMUM HEIGHT +72.2 MAOD (15 M)

MAXIMUM HEIGHT +92.2 MAOD (35 M)

EXISTING INFRASTRUCTURE

FIGURE 7: CONSTRAINTS - TREE SURVEY

- SITE BOUNDARY
- EXTRA HIGH-VOLTAGE CABLES (NGET)
- EXTRA HIGH-VOLTAGE CABLES (SSEN)
- LOW-VOLTAGE CABLES
- HIGH-VOLTAGE CABLES
- LOW PRESSURE GAS MAINS
- MEDIUM PRESSURE GAS MAINS
- INTERMEDIATE PRESSURE GAS MAINS
- TRANSMISSION GAS MAINS
- POTABLE WATER MAINS
- PRIVATE WATER NETWORK
- FOUL SEWER
- STORM SEWER
- TELECOMMUNICATIONS (OPENREACH)
- TELECOMMUNICATIONS (NEOS)
- TELECOMMUNICATIONS (VIRGIN MEDIA)
- TELECOMMUNICATIONS (VODAFONE)

FIGURE 8: CONSTRAINTS - UTILITIES

CHAPTER 3
Policy Context

3.1 This section of the DAS assesses the proposals against the most relevant national and local planning policy.

National Planning Policy

3.2 National policy is set out within the National Planning Policy Framework which, at its heart, adopts a presumption in favour of sustainable development, as defined by economic, social and environmental objectives. Paragraph 11 identifies clearly that local planning authorities should approve development proposals that accord with an up-to-date development plan without delay.

3.3 Section 11 seeks to encourage the effective use of land, with Paragraph 120 encouraging local authorities to "support the development of under-utilised land and buildings". Section 12 stresses the importance of achieving well-designed places, including by ensuring that innovative development is sympathetic to local character and that it creates safe, inclusive and accessible places with high amenity for existing and future residents.

3.4 The proposals seek to contribute towards building a strong and competitive economy via the enhancement of employment land to provide better facilities. The development responds to changes in the economic climate by addressing a rise in data centre demand and is situated in an accessible location.

3.5 The proposals are planned to fully utilise and capitalise on the potential of the brownfield site, facilitating a more effective use of land through appropriate site intensification.

3.6 The proposals are fully capable of meeting and exceeding high-quality design standards and contributing to the development of a healthy, inclusive and safe community. Through design and construction, the proposals are also able to respond positively to climate change.

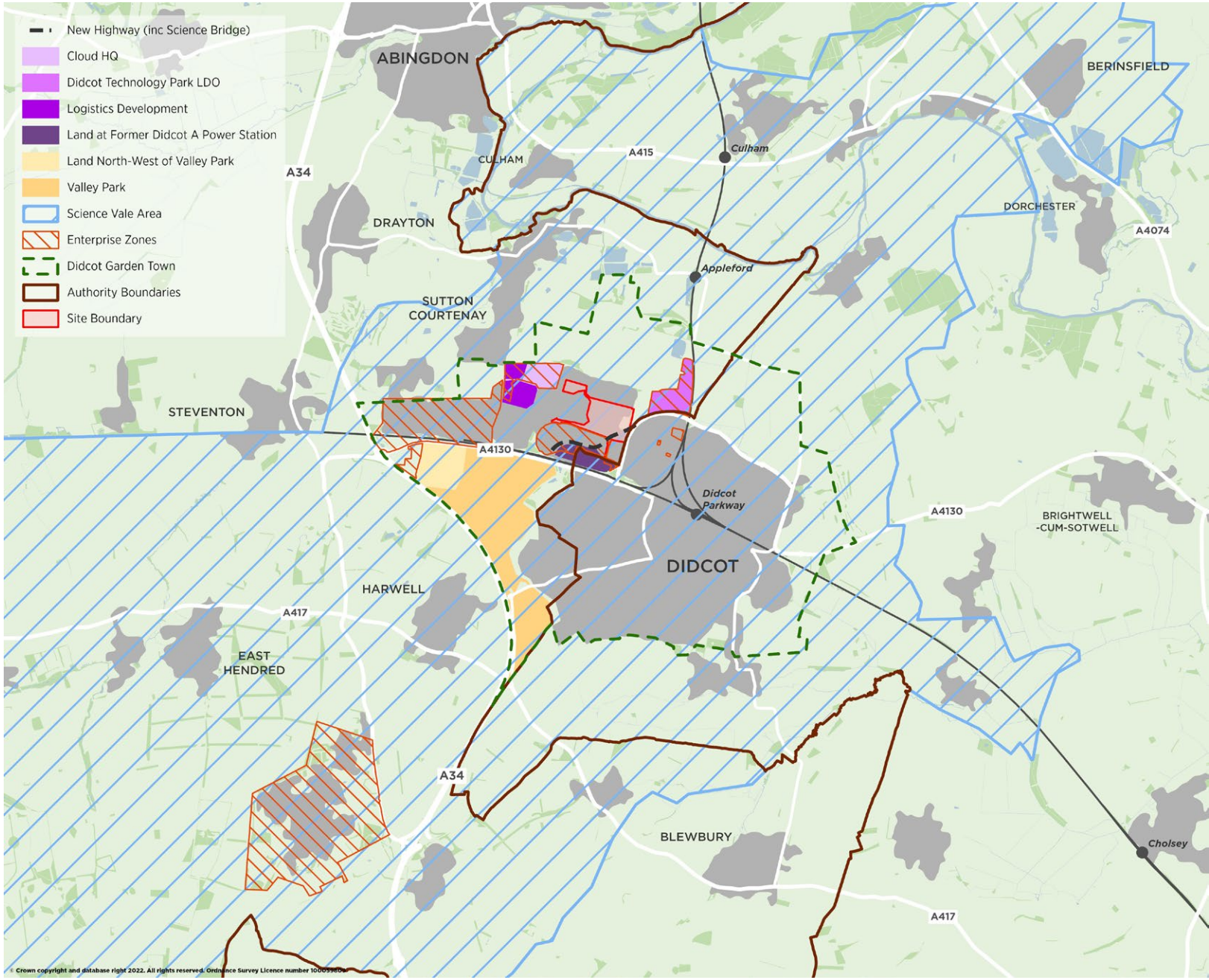


FIGURE 9: DEVELOPMENT CONTEXT

Local Planning Policy

Local Development Plan

3.8 For the purposes of Section 38(6) of the Planning and Compulsory Purchase Act (2004), the relevant components of the Development Plan in the determination of this application are:

- VoWHD Local Plan 2031: Part 1 Strategic Sites and Policies (adopted Dec 2016);
- VoWHD Local Plan 2031: Part 2 Detailed Policies & Additional Sites (adopted Oct 2019).

Part 1 Core Policy 16: Didcot A Power Station

3.9 Under Core Policy 16, VoWHDC supports the redevelopment of the Didcot A site to provide high-quality mixed-use development. The Site is located to the north of land previously part of the Didcot A site which had been reserved, and now benefits from planning permission, for mixed use development.

3.10 Proposals should be developed to be complementary to the retained Didcot B Power Station, appropriate to the site's location and respond to the specific design considerations outlined. In particular, design process should have regard to sensitive views from elevated positions, integrate SuDS and natural landscape features throughout and safeguard land for the new Science Bridge and A4130 re-routing.

Part 1 Core Policies 37 and 38: Design

3.11 The application seeks permission for data centre development and ancillary uses. Occupiers require bespoke solutions to cater for end users' needs. In relation to data centres, this can include:

- hyperscale users (Microsoft and Google, for example, are big data centres storage users with a largely templated design solution);
- colocation data centres consisting of a host provider offering space to hundreds or thousands of other users and so have slightly different design configurations;
- wholesale colocation data centres which include one owner selling space normally to up- to 100 or less end users;
- enterprise data centres that are owned and operated by the company they support and can be built on- or off-site for users; and

- a telecom data centre that is owned and operated by telecom providers (Virgin, BT, etc).

3.12 Matters relating to appearance, layout, landscaping and scale (other than the extent of development areas and height parameters) are proposed to be reserved for subsequent approval.

3.13 However, the design proposals are to be developed in recognition of the need for high design calibre. This includes consideration of high-quality townscape and landscaping that physically and visually integrates with its surroundings. This is to be supported by the incorporation of appropriate green infrastructure as part of a coherent and robust framework for development that clearly sets out the land uses proposed, movement and access and built height.

Part 1 Core Policy 44: Landscape

3.14 A Landscape and Visual Impact Assessment accompanies the planning application and shows that the Site is broadly flat and set within a far wider valley with higher ground notably to the north and south. The Site is in a location away from existing residential receptors and will not be viewed in conjunction with any adjacent houses or buildings. Additionally, because the mature trees and planting which buffer the edges of the Site are planned to be retained and enhanced, the Site will only be readily visible from the planned Science Bridge Road and short stretches of filtered winter views from the A4130 and no other public immediately adjacent vantage point.

3.15 On this basis, and in the context of what previously existed on the site – Didcot A Power Station and its ancillary cooling towers – opportunities for a significant reduction in urbanised views from the surrounding countryside are to be considered to protect the important landscape settings of Didcot including the wider AONB and key views.

Part 1 Core Policies 45 and 46: Green Infrastructure and Biodiversity

3.16 The Site supports habitat potential for a number of protected species. The ecological strategy for the site, including location of habitats within areas proposed for green infrastructure, presents the opportunity to retain or enhance habitats. Appropriate mitigation is to be put in place to ensure the protection, enhancement and, if required, relocation of habitats.

3.17 The Site contains a significant number of mature trees and hedgerows which have been subject to arboricultural survey. The intention is to retain as many hedgerows and trees as possible. However, additional planting and landscaping should be provided where possible to compensate for any proposed loss. The Phase 1 Habitat Survey and appropriate Protected Species Appraisals establish the environmental context and strategies which will include:

- providing a connected network of high-quality green spaces;
- enhancing green infrastructure networks and contact with nature; and
- building sustainably and responsibly.

3.18 As set out in the Ecological Assessment and the Biodiversity Net Gain Assessment, care was given to ensure the landscaping proposals minimise the biodiversity impacts of the scheme. Where this is not possible, the appropriate mitigation measures and opportunities are taken – in line with the emerging Environment Act – to maximise the biodiversity betterment as required under Core Policies 45 and 46.

Part 2 Core Policy 16b: Didcot Garden Town

3.19 The redevelopment of the land at Didcot A to provide a major new data centre facility will strongly support the development and long-term strength of other clustered sites in this area. It will further contribute to the overarching objectives for the Garden Town to accommodate over 15,000 new homes and sustainable provision of 20,000 new local jobs.

3.20 Detailed aspects of the scheme should be developed to contribute positively to the relevant principles for the garden town in respect of design, local character, density, transport, landscape and green infrastructure and social benefits as outlined within Figure 2.7 of VoWHDC Local Plan 2031 Part 2, supporting Core Policy 16b.

Supplementary Planning Guidance

3.21 The Vale of White Horse Design Guide SPD (2015) sets out the Council's design principles and design aspirations with the aim of encouraging a design-led development approach. In respect of commercial or employment-related development, the Guide ascribes the following relevant sections to consider:

- Responding to the site and setting
- Establishing the structure
- Streets and spaces
- Building performance
- Commercial/ employment areas

3.22 These principles establish the elements behind successfully planned employment areas and as such, they underpinned the pre-application discussions and design workshops with both VoWHDC and OCC and have directed the design evolution of the proposed scheme.

CHAPTER 4
The Proposal

Design Evolution

4.1 The initial site appraisals and pre-application discussions with the Council have established the scope for large-format commercial buildings as part of the redevelopment of the brownfield industrial site.

4.2 Various survey reports have informed the site opportunities and constraints and established a number of environmental and energy conservation requirements. These have formed the basis of initial optioneering at project team meetings resulting in the preferred proposals being adapted into this DAS. Public and stakeholder consultations including a public online presentation, consultation leaflet and a number of stakeholder meetings have secured feedback on the proposal. Comments from the local community and stakeholders have been incorporated, where possible.

4.3 In designing the final proposal, a number of key design principles consistent with the design context ensure that the final scheme would provide an environment appropriate to the application site and the surrounding area. These include:

- to create a high quality sustainable development.
- to set development within a strong landscape framework to include quality spaces and strategic Green Infrastructure.
- to enhance the environment along Moor Ditch to create an attractive entrance into the site.
- to adopt a design approach that will sit sympathetically and harmoniously with its surroundings, adopting principles found in relevant commercial precedents where possible.
- to provide streets and connections that support movement by foot and cycle.
- to create a safe and secure layout.

4.4 The focus of the proposed development areas is within the previously developed areas of the site. These predominantly comprise areas of hardstanding retained on site following demolition of buildings and structures associated with the former power station activities at the site, including the 114m hyperbolic cooling towers located within the north western areas of the site which were demolished in 2019. Ecological features such as Broadleaved woodland and dense / continuous scrub within the southern areas are retained and improved with the provision of an enhanced green space, surface water retention ponds and enhanced boundary treatments. The site access and gateway are to align with the detailed design of Oxfordshire County Council's Science Bridge Road scheme which forms part of the HIF1 funded package of local highway improvements planned for Didcot.

FIGURE 10: DEVELOPMENT FRAMEWORK PLAN

4.5 The Development Framework Plan (Figure 10) established the extent of development areas, access and land use principles which form the fixed elements of the proposal. These are supported by Parameter Plans relating to Land Use, Access and Movement and Built Height.

4.6 The Illustrative Masterplan (Figure 11) has been developed to provide an indicative concept scheme showing one way in which the Data Campus could be delivered. This creates a focus towards the office element of the main body of the data centre buildings which address the Green Infrastructure providing a gateway and activity within the southern parts of the site.

FIGURE 11: ILLUSTRATIVE MASTERPLAN

Use

4.7 A Data Centre is a highly serviced building type that provides for the I.T. needs of financial institutions, large corporate entities, governments and small organisations looking to outsource their requirements into state-of-the-art facilities.

4.8 Due to the requirement to be in operation 24/7, Data Centres have large mechanical and electrical infrastructures to provide resilience either on or off the local area network via the various available providers. In parallel with the mechanical and electrical services, they use multiple fibre providers to offer diverse and sustainable connectivity to networks worldwide.

FIGURE 12: PARAMETER PLAN (LAND USE)

Layout and Amount

4.9 Staff work on a shift basis and are afforded facilities to maintain this level of cover. Typically, staff operate on 12-hour shift pattern 7 days a week. Between 2 and 6 times a year, the building will be occupied more intensively for routine and emergency reviews of complete engineering and IT system testing regimes and simulated data storage retrieval events.

4.10 The Parameter Plan (Land Use) indicates the general distribution of proposed uses, including the extent of development parcels for the Data Centre building, ancillary office spaces supporting plant and infrastructure. Areas of existing Green Infrastructure to be enhanced and new strategic Green Infrastructure are proposed. The approximate location of surface water attenuation features (SuDs) are detailed.

4.11 The proposals adopt a landscape-led approach to the layout of the Data Campus. Specifically, the development retains and enhances existing boundary landscaping (including attenuation ponds) along the southern boundary to create a strategic green infrastructure integrating with the Science Bridge Road, the retained Power Station, National Grid facilities and other neighbouring development. This strategic Green Infrastructure also serves to screen the development from the adjacent dwellings in Didcot providing and improved landscaped zone and attenuation ponds.

4.12 The main development area, situated directly to the east of the Didcot B Power Station, will accommodate the proposed Data Centre and ancillary office space and associated works. The north-western edge of the site has the potential to provide a dedicated space for new power infrastructure (transformers and switch yards) needed to support the on-site Data Centre accommodation. A primary development parcel and a secondary development parcel are proposed supporting up to 197,000m2 Use Class B8 data centre development with ancillary Use Class E office space.

Scale & Massing

4.13 The design philosophy adopted in relation to scale is to provide flexibility and efficiency. The upper limit for building heights is 35 metres. This accommodates the typical heights of data centre buildings. The Parameter Plan (Built Height) Figure 13 sets out the proposed building height parameters for the site and shows a maximum proposed height of up to 35m strategically situated away from surrounding residential areas and the future Science Bridge Road. Provision is made for power infrastructure (transformers and switch yards) which will not exceed 15m in height.

FIGURE 13: PARAMETER PLAN (BUILT HEIGHT)

Appearance

4.14 The Site is not in proximity to any potentially sensitive residential uses and the proposed data centre facility will be well related to other commercial development uses adjoining and surrounding the site. Height parameters are proposed to minimise visual intrusion. The maximum massing of the proposed Data Centre campus has been defined in alignment with the Landscape and Visual Impact Assessment (LVIA) and in agreement with VoWHDC at the pre-application stage. Subject to suitable controls under a planning permission, the scheme will be designed at the Reserved Matters stage to ensure no adverse effects on existing or committed neighbouring uses.

4.15 The proposed development height are with reference to above ordnance datum of approximately 55.0-56.0 AOD.

4.16 In principle, the appearance of the development and the design of the individual plots will be informed by appropriate employment precedents. The visual appearance of the development is reserved for subsequent approval. As such, future Reserved Matters applications will set out proposed details for the design of the data centre buildings to be provided within the development parcels together with associated provision for parking and other services to support the campus. Data Centres are typically modern, large format buildings with staff offices and accommodation areas provided separately to the data halls.

4.17 The following provides an indication of the potential appearance of the data centre buildings on an indicative basis, subject to future Reserved Matters applications.

4.18 The buildings are to be set within a secure site with access typically strictly controlled and managed via smaller gatehouse buildings at the site entrance. Security fencing would typically be provided to the perimeter of the site.

FIGURE 14: CGI IMAGERY

4.19 No external building materials have been selected at this stage, though the industrial context allows room for flexibility and betterment within the local context. The service yard and loading bays areas and external roadways typically comprise concrete or tarmacadam hardstanding. There will be scope for pedestrian/cycle connections to be finished with alternative paving materials dependent on the supplier requirements at the detailed design stage.

4.20 External lighting will be installed to key areas such as main entry points, car park and other external areas such as the plant compounds, service yards and around the immediate vicinity of the building.

4.21 The existing boundaries consisting of mature hedgerows trees, shrub, and fencing to be retained and enhanced as required. The landscaping features proposed for the site are covered in further detail at Section 6.0.

Building Operations and Security

Building Operations

4.22 In order to fulfil their primary function of storing information, Data Centre buildings require large uninterrupted spaces to house multiple servers contained in racks. These data halls make up most of the usable floor space within the building. The halls themselves are not habitable spaces and are secure areas where personnel movements are restricted.

4.23 To support the function of these areas, ancillary office spaces are needed for a small number of staff. In the event of a problem with the building or the infrastructure, engineers, I.T technicians and/or consultants will work in the building until the problem is resolved.

4.24 The nature of the buildings function requires significant power to operate, in addition to varying levels of redundancy in the event of a power failure. It is essential that the power supply to the building is maintained and resilient, even in the event of a grid power failure. As such, Data Centre buildings have on-site generation within which power generation will start immediately should any power outage occur.

4.25 Cooling the computer equipment in data halls is a primary requirement for the operation of Data Centres and so the buildings have considerable cooling infrastructure to ensure that the computer equipment is maintained in the optimum temperature conditions. Chillers are typically located at roof level within the proposed acoustically-screened compounds to optimise the chillers' efficiency.

4.26 Internal critical areas (such as escape routes) will be fire protected according to building regulations requirements. The level of fire protection in Data Centres usually exceeds the building regulations due to the insurer's requirements. Several areas within the building will have enhanced fire detection and prevention measures such as gas and/or water mist.

Security

4.27 The nature of buildings and the data stored within requires the site to be completely secure. On-site security staff are employed 24 hours a day, 365 days a year, in addition to electronic security measures such as CCTV and movement detection equipment.

4.28 Provision is to be made for manual / electrically operated security gates and/or traffic barriers provided at vehicle access points. The service yard and loading bays, located adjacent to the main buildings, will be used for service vehicle and fire brigade access.

4.29 The deliveries of goods are anticipated to be infrequent due to the nature of the buildings' operation. However, goods vehicle access for unloading will be required from time to time. All deliveries will be monitored 24/7 with security staff supervision both on-site and within a dedicated security room.

4.30 Data Centres are typically inconspicuous so as to not draw attention to their operations. As a result, external signage is expected to be minimal, in accordance with DDA considerations.

4.31 CCTV cameras are expected to be provided around the campus with enhanced monitoring at points of entry/exit to observe traffic and visitor movement.

FIGURE 15: SECURITY FEATURES (ARC:MC)

CHAPTER 5
Access

Vehicular Access

5.1 The internal road layout involves the minimum infrastructure investment to unlock the site, parcel-by-parcel if required. This requires the most efficient road layout to access all the site and create links across the site.

5.2 The site has a single secure vehicular and pedestrian entrance providing for permanent, emergency and site construction access. This entrance is linked to Purchas Road/Science Bridge. The proposed Science Bridge Link Road will connect with the A4130 Northern Perimeter Road north of the Purchas Road/Hawksworth roundabout, close to the existing Southmead Industrial Estate. The M4 and the M40 are 14 miles (20 mins) 23 miles away (30 mins) respectively.

5.3 An additional internal site road to the north of the site is proposed which will provide connectivity to the existing national grid transformers as well as access into the Didcot 'B power station. Figure 16 details the proposed road infrastructure works for which full planning permission is sought.

FIGURE 16: DETAILED SITE ACCESS PLANS *(STANTEC)*

5.4 The Parameter Plan (Movement and Access) Figure 16 illustrates the site access strategy which has been developed in close dialogue with OCC to allow the scheme to dovetail with the Didcot Science Bridge and ensure no conflicts with the design or delivery requirements for the road improvement proposals.

5.5 The level of parking provision is to be determined at the detailed design stages, to respond to the requirements of the operator, the Local Planning and Local Highway Authorities.

5.6 The design of the proposed buildings will promote access for all users by integrating subtle measured such as;

- Dropped kerbing
- Ambulant disabled designed external steps to the entrances of the buildings
- An external wheelchair-stair lift, where required under Building Control
- Provision for disabled parking spaces on the site
- Disabled toilet facilities are offered within the reception area of the Data Centre buildings

FIGURE 17: PARAMETER PLAN (MOVEMENT AND ACCESS)

Public Transport

5.7 The Great Western Main Line railway also runs south of the site in between Milton Road and A4130. The Didcot Parkway Station is approximately 1.3 miles (10 mins) away from the site, which has frequent direct rail services to and from London Paddington.

5.8 The site lies in close proximity to a number of bus stops, running frequent services for bus 33 and Connector buses X2, 99A, X32 and X36. The relatively low day to day occupation of the buildings means it is not anticipated that there will be any significant increase in traffic to the site.

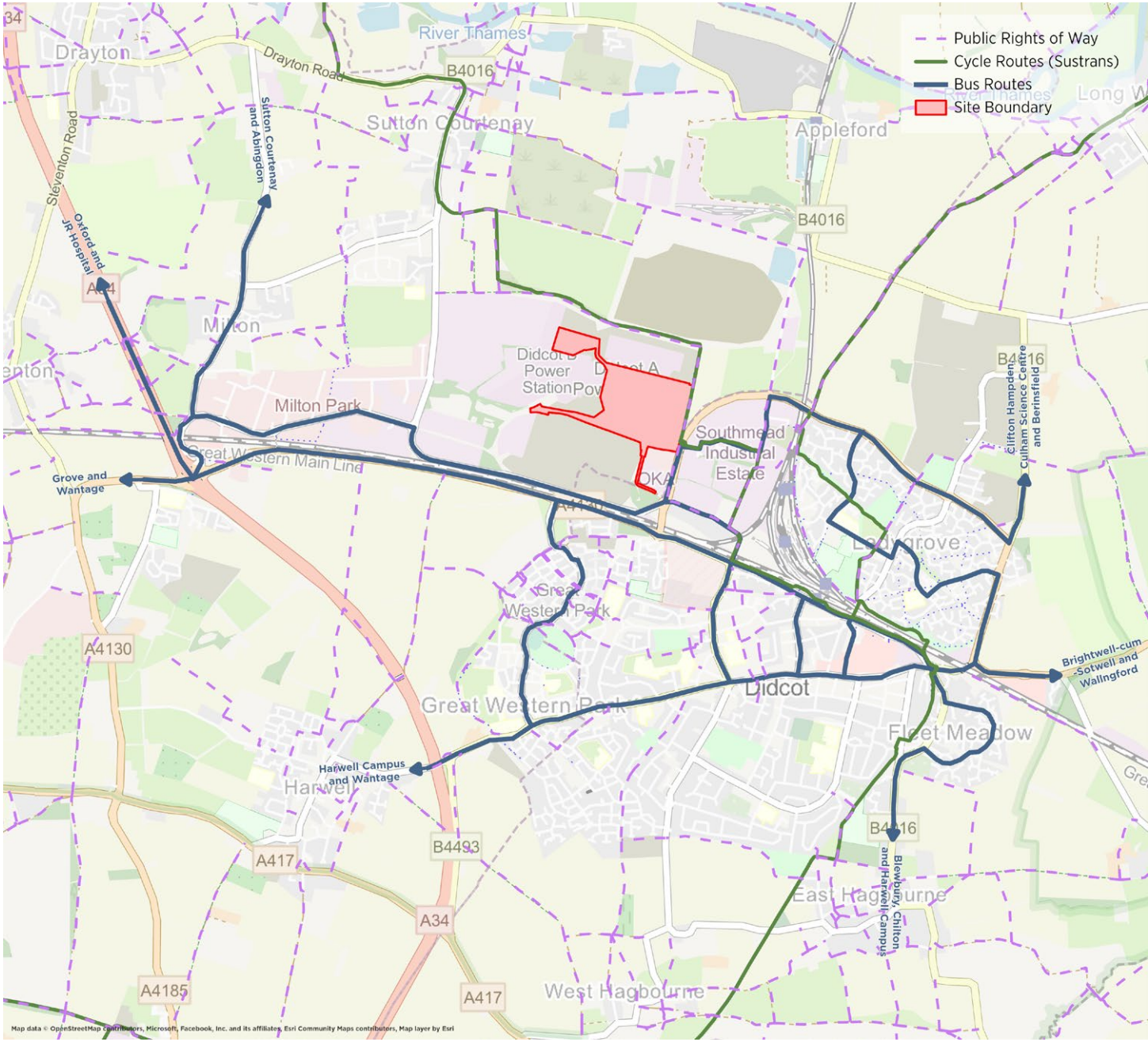


FIGURE 18: ACTIVE TRAVEL

Foot/Cycle Travel

5.9 The relatively low day to day occupation of the buildings means it is not anticipated that there will be any significant increase in traffic to the site. Nonetheless, enhanced cycle and pedestrian connections are to be incorporated to align with equivalent measures to be provided as part of the Science Bridge and associated local enhancements for non-vehicular routes. The requirement to secure on-site bicycle storage and shower/changing facilities are to be considered at the detailed design stage for staff and visitors who wish to cycle to work.

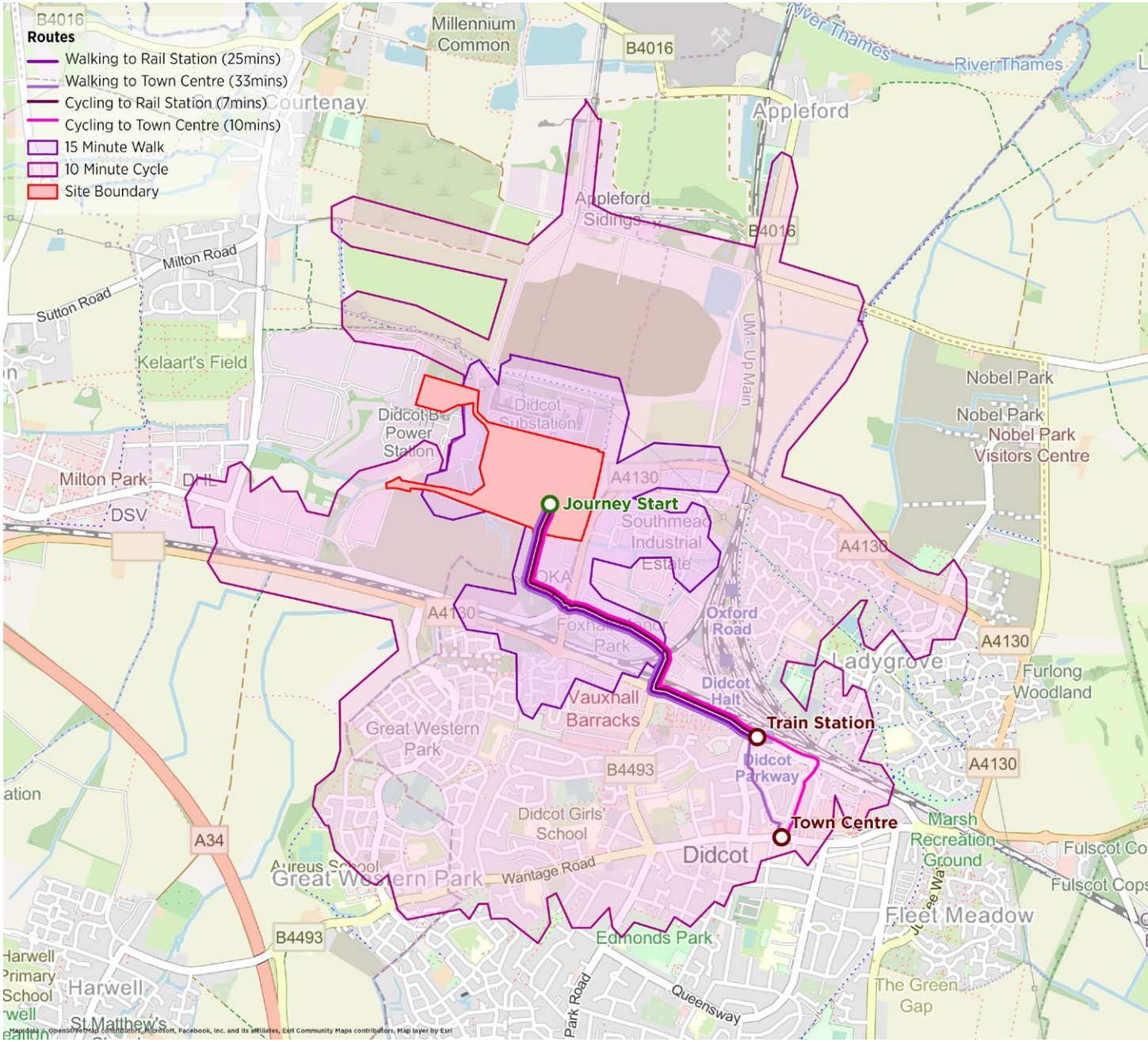


FIGURE 19: SITE PROXIMITY PLAN

CHAPTER 6
Landscape

Proposals/features

6.1 The key principles in relation to landscaping are to retain existing landscape features where appropriate and that both the hard and soft landscaping be designed to help define the boundaries to the data centre campus. In this way, accessibility and legibility is to be enhanced and the relationship with the surrounding area defined.

6.2 The submitted LVIA and Arboricultural Impact Assessment have both guided the design of the landscape proposals as have a series of dedicated design team meetings and workshops. Together, these elements culminated in the development of the Landscape Framework Plan (Figure 21) which defines the boundaries and typologies of the proposed landscaping across the Site.

6.3 Based on the observations and proposals set out in the supporting technical reports and appraisals and an evaluation of the site and its setting, the following design principles were formulated:

- The safeguarding and enhancement of the Moore-ditch water course where this falls within the control of the applicant;
- The retention of existing boundary mature hedgerows and trees, where possible, and the provision of native hedge, woodland and native shrub planting to mitigate any loss of hedgerows or trees and for overall ecological enhancement;
- The introduction of attenuation features to positively manage water retention on site; and
- The establishment of a new secure fenced perimeter to the data centre campus to be set back and screened with landscaping supported by retained and enhanced green areas.

6.4 Sustainable Urban Drainage Systems (SuDS) will be utilised which will concurrently support a diverse ecological habitat. The perimeter fencing will be installed to minimise interruption to the habitats of protected species. Proposed planting will comprise native species that have been selected specifically for their appropriateness to the site, landscape setting, ground conditions and for ecological enhancement.

6.5 Grass areas will be created and managed for ecological diversity and for aesthetic purposes. The extensive grass area around the buildings and within the secure area will be created as a meadow and will be managed by cutting twice a year in June and August.

FIGURE 20: LANDSCAPE PRECEDENTS

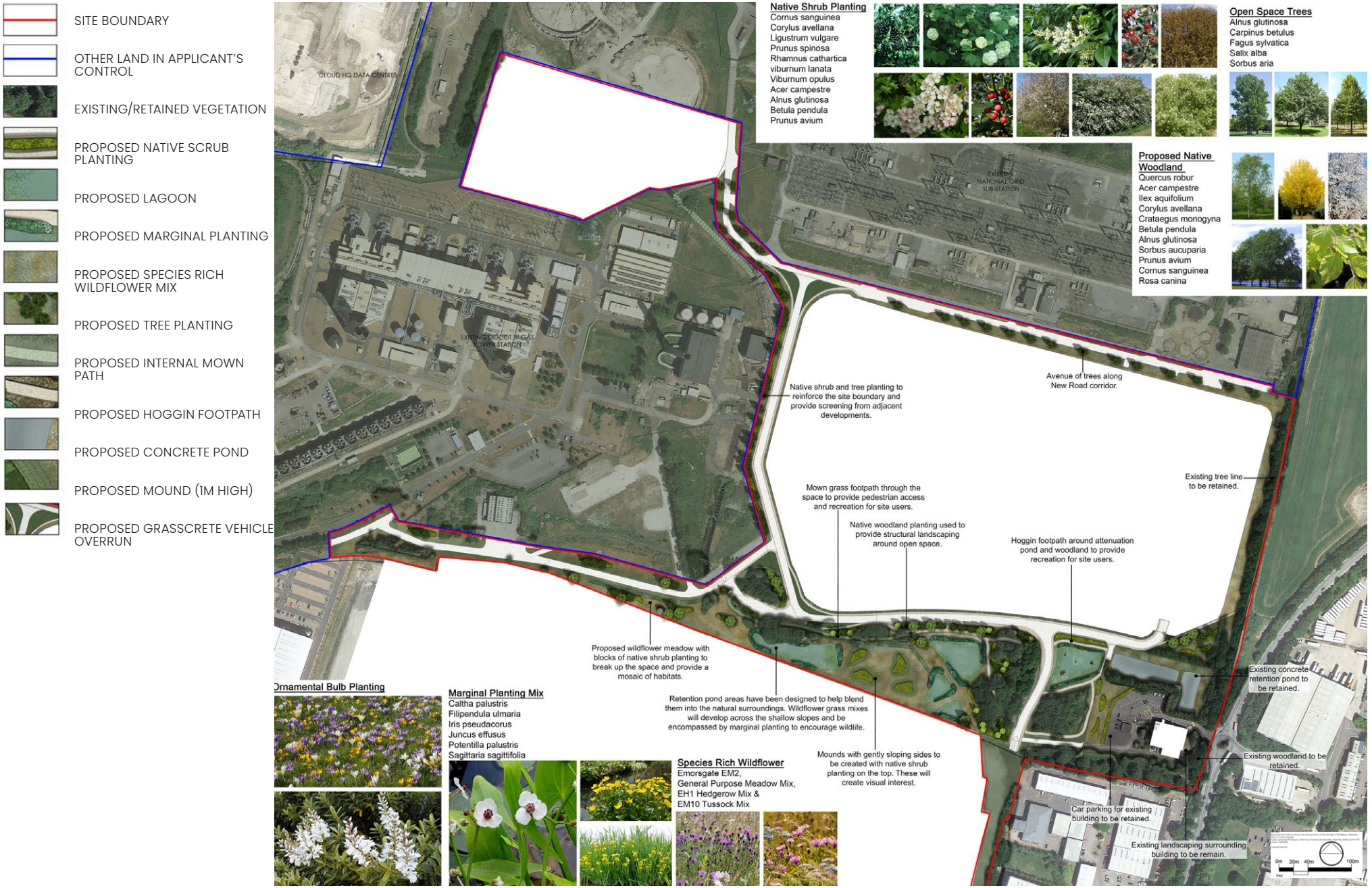


FIGURE 21: LANDSCAPE FRAMEWORK PLAN

CHAPTER 7
Sustainability

Design & Materials

7.1 The design of data centre buildings typically features the extensive use of prefabricated components. Steel structures allow for relatively easy adaptation of the building and cladding panels. These can be interchanged, as necessary, should the building require refurbishment in the future. The future detailed design is expected to minimise the use of 'wet' trades.

Energy

Energy Supply

7.2 The Development will adopt the nationally and locally recognised energy hierarchy of reducing energy demand in the first instance, using energy efficiently and, only then, providing renewable and low carbon energy generation technologies where it is appropriate to do so.

7.3 All systems will be powered by electricity, normally from the utility mains. In the highly unlikely event of full mains failure and in the absence of any sustained power connection, alternative supply measures could include battery storage, reciprocating or small-turbine generators, HVO fuel generators and potentially hydrogen in the future.

7.4 The proposed data campus will be supplied with electricity either via a connection to the National Grid or, subject to regulatory approval, via a private wire connection to RWE's Didcot B power station capable of supplying all of the electricity needed.

7.5 Data Centre buildings generally have significantly greater power consumption than other buildings due to their operational requirements. However, to minimise energy consumption, the following will be specified:

- High efficiency plant
- Free cooling on chillers
- Variable speed drives for motors
- Cooling & heat recovery from ventilation systems
- Building Management System
- Automatic lighting controls to switch lights off when not needed

7.6 Conservation of fuel and power will be achieved by use of a Building Management System which continuously monitors power usage and requirements throughout the building and will enable the optimisation of the building performance.

Emissions

7.7 Any requirement for office heating and domestic hot water will be satisfied from electric or heat recovery from the data halls, thus negating the need for any gas-fired heating across the site and eliminating any associated on-site fossil fuel emissions.

7.8 The relatively low day to day occupation of the buildings means it is not anticipated that there will be any significant increase in traffic to the site and therefore emissions created by traffic to the site is not anticipated to result in any significant impacts.

7.9 Due to the emergency nature of generators, emissions are subject to separate controls with results from the dispersion modelling assessment indicating that the overall impact of the diesel generator array (when operational under testing and/or emergency local area network failures) on local air quality would not be significant.

Building Performance

7.10 At the detailed design stage, the data centres should seek to adopt a “fabric-first” approach to building design (enhancing the performance of the components and materials that make up the building fabric itself, such as improving insulation and reducing cold bridging), before considering the use of mechanical or electrical services systems and renewable/low carbon technologies.

7.11 Measures should be adopted in the detailed design of buildings to reduce energy demands, use energy more efficiently and, where possible, adapt to the predicted impacts of climate change. These measures can be split into ‘passive’ and ‘active’ measures.

7.12 ‘Passive’ measures are design features, which can include building orientation, appropriate internal layouts and building fabric selection, that inherently reduce the buildings’ energy requirements. ‘Active’ measures are building services design features that will increase the efficiency of the energy used, and therefore also reduce the energy demand requirements.

7.13 A combination of ‘passive’ and ‘active’ measures will result in well insulated, air-tight buildings with appropriate and efficient building services. It is important to emphasise the benefits of optimising the long-lasting energy performance of buildings through fabric improvements, before employing low carbon and renewable energy technologies on Site.

CHAPTER 8
Summary

8.1 This Design and Access Statement is prepared in support of a hybrid planning application for a Data Centre facility with ancillary office spaces, infrastructure, landscaping and associated works at the former Didcot A Power Station. The development proposed is required to better utilise the Site and provide commercial development uses in an accessible part of Didcot. The proposed facility is suited to this location and would be considered a key component to the continued growth and economic success of the area.

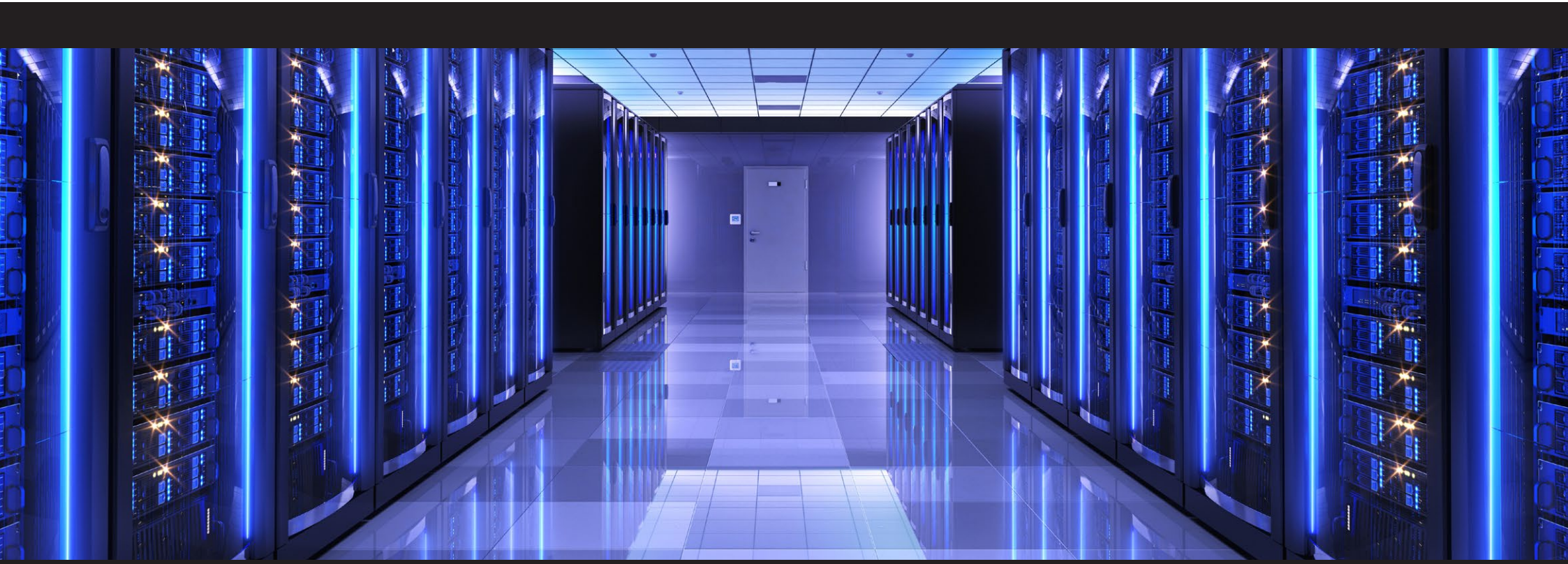
8.2 The Development Framework Plan, Parameter Plans and Landscape Framework Plan have been developed in response to identified site constraints and opportunities to maximise scope for development of the brownfield site whilst retaining and enhancing the established Green Infrastructure assets to provide an improved gateway and interface with the Science Bridge. The Landscape Framework Plan (Figure 21) defines the boundaries and typologies of the proposed landscaping across the Site, which incorporates design principles to enhance on-site landscape and biodiversity and ensure development is well-screened from sensitive surrounding areas.

8.3 The site has a single secure vehicular and pedestrian entrance Purchas Road/ Science Bridge which will connect with the A4130 Northern Perimeter Road north of the Purchas Road/Hawksworth roundabout, close to the existing Southmead Industrial Estate. The relatively low day to day occupation of the buildings means it is not anticipated that there will be any significant increase in traffic to the site.

8.4 In terms of the energy supply strategy, building performance and M&E design a package of sustainability principles have been incorporated as part of the proposal at this stage to be developed further as part of subsequent detailed proposals to support the build-out of the data centre facilities.

8.5 Sustainable Urban Drainage Systems (SuDS) will be utilised throughout the site which will concurrently support a diverse ecological habitat. All proposed planting will be native species that have been selected specifically for their appropriateness to the site, landscape setting, ground conditions and for ecological enhancement.

8.6 The Design and Access Statement and the associated drawings set out the design vision and key principles to be adhered to in the development. The proposed development will provide for the redevelopment of brownfield land to provide a major new data centre facility consistent with well-established objectives for Science Vale and the Enterprise Zones, Didcot Garden Town and to align with and support the delivery of Didcot Science Bridge.



Planning Statement
- incorporating Summary Heads of Terms
Didcot Data Campus

DAVID LOCK ASSOCIATES

CONTENTS

TABLES

APPENDICES

1.0 INTRODUCTION AND SCOPE

Introduction

1.1 This Planning Statement, prepared by David Lock Associates (DLA) on behalf of RWE Generation UK, is submitted in support of the following development;

Hybrid planning application comprising:

1. *Outline planning permission for the erection of up to 197,000m2 Use Class B8 data centre development with ancillary Use Class E office space, together with associated groundworks, utilities, infrastructure, engineering and enabling works. Matters relating to appearance, landscaping, drainage, layout and scale of the development areas reserved for subsequent approval; and*
2. *Full planning permission for the construction of new and improved site access, new access roads, hard & soft landscaping, creation of SUDS and all associated infrastructure and engineering works.*

1.2 The application relates to the development of land at the former Didcot A Power Station, herein referred to as 'the Application Site' or 'the Site'.

1.3 A pre-application request was submitted to Vale of White Horse District Council ('VoWHDC') in May 2021. Their response, received 13th July 2021, sets out the Council's positive stance in relation to the proposals. Oxfordshire County Council was also invited to comment and their response, dated 11th August 2021, highlights their support in principle of the development subject to detailed transport and flood risk assessments to be undertaken by the applicant.

1.4 This Planning Statement provides a description of the proposed development and its context before assessing these proposals against national and local planning policies, as well as other relevant material considerations. Section 2 of this document provides a description of the site and its context; Section 3 defines the proposed development; Section 4 sets out the planning context for the proposals; Section 5 assesses the scheme against relevant policy; and Section 6 concludes the Statement.

Application Documentation

1.5 This Statement forms part of a suite of documents and drawings which are submitted in support of the hybrid planning application. The application comprises the following documents.

*Supporting Documents and Reports**:***

- Cover Letter;

- Planning Statement, incorporating Summary of Heads of Terms (this document);
- Statement of Community Engagement;
- Community Employment Statement;
- Design and Access Statement;
- Transport Assessment;
- Framework Travel Plan;
- Sustainability Statement;
- Energy Statement;
- Air Quality Assessment;
- Noise Assessment;
- Utilities Infrastructure;
- Service, Delivery and Refuse Disposal Statement;
- Lighting Impact Assessment;
- Arboricultural Survey and Assessment;
- Archaeological and Heritage Desk-Based Assessment;
- Phase 1 Desk Study (Contaminated Land);
- Flood Risk Assessment and Drainage Strategy;
- Landscape and Visual Impact Assessment;
- Ecological Assessment; and
- Biodiversity Betterment Calculation.

Outline Application Plans:

- Site Location Plan;
- Existing Block Plan;
- Topographical Plan;
- Existing and Proposed Sections;
- Development Framework Plan (without Science Bridge Road);
- Proposed Parameter Plan – Land Use (without Science Bridge Road);
- Proposed Parameter Plan – Access and Movement (without Science Bridge Road);
- Proposed Parameter Plan – Built Height (without Science Bridge Road); and

- Landscape Framework Plan (without Science Bridge Road).

Full Application Plans and Reports:

- General Arrangement Excluding HIF1 Scheme;
- Proposed Contours Excluding HIF1 Scheme;
- Long Sections Excluding HIF1 Scheme;
- 16.5HGV Swept Path Analysis Excluding HIF1 Scheme;
- Swept Path Analysis Abnormal Vehicle Entry Excluding HIF1 Scheme;
- Representative Lighting Design;
- Planting Plan Overview (without Science Bridge);
- Planting Plans (without Science Bridge);
- Landscape Management Plan;
- Specification for Landscape & Horticultural Works; and
- Construction Environment Management Plan.

1.6 The following plans are also provided for information, demonstrating compatibility between the Data Centre Campus proposals and the HIF1 scheme:

Outline Application Plans

- Development Framework Plan (with Science Bridge Road); and
- Landscape Framework Plan (with Science Bridge Road).

Full (Detailed) Application Plans and Reports

- General Arrangement Including HIF1 Scheme;
- Proposed Contours Including HIF1 Scheme;
- Long Sections Including HIF1 Scheme;
- 16.5HGV Swept Path Analysis Including HIF1 Scheme;
- Swept Path Analysis Abnormal Vehicle Entry Including HIF1 Scheme;
- Planting Plan Overview (with Science Bridge Road); and
- Planting Plans (with Science Bridge Road).

2.0 THE SITE

Site Location and Context

2.1 The Application Site is located within the Vale of White Horse district, in the northern area of the town of Didcot. To the south and east of the site is the Local Authority boundary of South Oxfordshire District Council ('SODC').

2.2 The 33.01ha Site consists of brownfield land including a mix of works, buildings and ancillary infrastructures associated with the site's former use. Part of the adjoining power plant at Didcot B provides a combined cycle gas-fired power station powered by natural gas. Since 2014, several buildings and structures formerly associated with Didcot A Power Station have been demolished on site and the current programme of demolition works is anticipated to conclude shortly.

2.3 A woodland owned and managed by the Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust is located to the north of Basil Hill Road to the south-west perimeter of the site.

2.4 Neighbouring land uses to the west of the site include commercial premises. These include SODC and VoWHDC offices, a National Grid facility and compound and various warehouses with some retail use. FCC Sutton Courtney, a recycling waste and landfill site, and Sutton Courtenay Quarry are situated to the north of the site.

2.5 The Great Western Main Line railway runs south of the site in between Milton Road and A4130. The nearest station is Didcot Parkway, approximately 2km to the southeast of the Site, which provides frequent passenger services.

2.6 The site is located in Flood Zone 1, the lowest risk of fluvial and coastal flooding.

Planning History

2.7 The table below highlights the relevant planning history on the Application Site.

Table 1 – Relevant Planning History

Site Location	Application Reference	Description of Application	Decision/Date
Didcot B and A Power Station	P09/V2005/HS	Proposed storage (Propane & Hydrazine) and industrial process of these hazardous substances.	Permission Granted 09.06.2010

Didcot A Power Station	P21/V0167/FUL P21/S0274/FUL	Hybrid planning application consisting of a) Full Planning Application for the erection of a single storey 8,692 m2 Data Centre building (containing data halls, associated electrical and AHU Plant Rooms, loading bay, maintenance and storage space, office administration areas and screened plant at roof level), emergency generators and emission stacks, diesel tanks and filling area, electrical switchroom, a water sprinkler pump room and storage tanks, a gate house / security building, MV substation, site access, internal access roads, drainage infrastructure, hard and soft landscaping and b) Outline Planning Application for the erection of a two storey 20,800 m2 Data Centre building (containing data halls, associated electrical and AHU Plant Rooms, loading bay, maintenance and storage space, office administration areas and screened plant at roof level), emergency generators and emission stacks, diesel tanks and filling area, electrical switchroom, a water sprinkler pump room and storage tanks; details of appearance will be reserved, along with hard landscaping immediately around the building (as amended by plans and documents received 5th May 2021).	Permission Granted 09.09.2021
	P19/V0913/D	The demolition will include the remaining building and structures associated with Didcot A power station. This includes the stack and 3 remaining cooling towers.	Demolition Consent Granted 14.05.2019
	P15/V1304/O	(Outline Planning Application) Mixed use redevelopment comprising up to 400 dwellings (C3), 110,000ms of Class B2/B8 units, 25,000m2 of Class B1 units, 13,000m2 Class A1 units (includes 1,500m2 convenience food store), 150 bed Class C1 hotel and 500m2 of Class A3/A4 pub/restaurant, including link road, related open space, landscaping and drainage infrastructure, together with reservation of land for link road and Science Bridge. Cross boundary application Vale of White Horse and South Oxfordshire.	Outline Permission Granted 21.02.2019
	P18/V0482/CIA	Certificate of Immunity. Confirms that the building will not be statutorily listed or be served with a Building Preservation Notice (BPN) by the local planning authority, for the succeeding five years.	Certificate Granted 27.02.2018

	P14/V1862/SCR P14/V1863/SCO	EIA Screening and Scoping Opinion Requests Proposals (un-finalised) for up to 400 dwellings, up to 110,000sq.m. B2/B8 units, and up to 45,000 sq.m. of mixed B1 and A1 use. The maximum height of the proposed B8 units will be 22 metres above the existing ground levels.	EIA required, Scoping Opinion Issued 15.09.2014
	P14/V0385/D	Prior notification for proposed demolition of Didcot A Power Station and all associated buildings and structures.	Prior approval required, and submitted details approved 20.03.2014
	P11/V2583/SCO	EIA screening opinion for the demolition of Didcot A power station	EIA not required 09.02.2012
	P95/V0679/DA	Application for consent under Section 36 of the Electricity Act 1989 and Deemed Planning permission for the addition of gas firing to two coal fired boiler and turbine units.	Consent granted 15.02.1996
	P96/V0679/DA	Application for consent for the addition of gas firing to two further units. (Didcot "A")	Consent granted 16.10.1996
Didcot HIF1 Scheme	R3.0138/21	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 north east of the proposed road bridge including the relocation of a lagoon; - Construction of a new road between Didcot and Culham (Didcot to Culham River Crossing) including the construction of three roundabouts, a road bridge over the Appleford railway sidings and 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.	Decision Pending

Contextual Planning Proposals

2.8 The Application Site is surrounded by a number of consented/committed sites which include:

- *CloudHQ* – planning permission for two data centre buildings of 95,273m^2 total (immediate northwest of the site)

- *Logistics development* of 28,907m2 associated with the former Diageo Pensions Trust land (west of the site);

- *Didcot Technology Park LDO* – Emerging LDO providing for B2 General industry, B8 Data centre, B8 Battery storage and/or Ancillary uses (northeast of the site);

- *Didcot A Power Station Coal Yard* – allocated for mixed-use development under VoWHDC adopted Local Plan Part 1 Core Policy 16. Benefits from outline planning permission for mixed use development including employment uses and residential and hybrid planning permission for data centre development;

- *Didcot Science Bridge and associated highway improvements* – part of a committed package of strategic transport improvements for Didcot and the surrounding area with associated local plan reserve designations and HIF1 funding as part of the Didcot Garden Town Housing Infrastructure Fund; and

- *Valley Park and Great Western Park* – strategic urban expansions providing new residential development with community facilities (south of site, beyond Great Western Mainline railway and A4130).

Pre-application advice

2.9 A pre-application request was submitted to VoWHDC in May 2021. Their response, received 13th July 2021, sets out the Council's overall positive stance in relation to the proposals. The Council recommended that the floorspace only be used for data centre uses to mitigate any adverse highway impacts from an umbrella Class Use B8 permission. The Council also requested clarity on matters relating to design, landscaping, visual impact, ecology and climate change. These are addressed in the relevant documents from the submission package.

2.10 OCC was also invited to consult as the Highways and Lead Local Flood Authority and their response, dated 11th August 2021, highlights their support in principle of the development subject to transport, flooding and s106 provisions to be made by the applicant. These include undertaking and/or providing:

- Transport Assessment ('TA') and Travel Plan;

- Site-specific Flood Risk Assessment ('FRA'); and

- Surface Water Management Strategy.

2.11 OCC offered no objections on Archaeology or Minerals & Waste grounds.

2.12 The advice provided in response to the pre-application submission has informed the development of the Hybrid Planning Application.

Public and Stakeholder Engagement

2.13 Engagement and involvement of the community and other stakeholders has supported the development of the planning application. At the pre-application stage, the proposals were publicised within the local press and over 3,000 mailout leaflets were issued to local residents, businesses and stakeholders within the area. This was supported by a bespoke website and online consultation exercise inviting comments on the proposals along with a number of local stakeholder meetings in advance of the planning application being finalised and finally submitted. The consultation commenced in late January and ran throughout February 2022. The outcomes of the consultation exercises are set out within the Statement of Community Engagement supporting the planning application.

3.0 THE PROPOSED DEVELOPMENT

3.1 Planning permission is sought from VoWHDC for the redevelopment of the Site to provide up to 197,000m^2 of Use Class B8 data centre development with ancillary Use Class E office spaces, together with associated groundworks, utilities, infrastructure, engineering and enabling works.

3.2 Matters relating to the layout, landscaping, scale and appearance of the proposed built development reserved for subsequent approval. Such matters would be subject to future Reserved Matters Applications for development within the areas identified as part of the Development Framework Plan and Parameter Plans forming part of the application.

3.3 The proposed built development would be subject to a height parameter of up to 35m on the central site.

3.4 Drainage details for the proposed development are set out in the Flood Risk Assessment and Drainage Strategy, submitted in support of this application.

3.5 [Site access is proposed via the existing accesses at Purchas Road and the A4130, albeit that the proposed development has been designed to align and integrate with the new Didcot Science Bridge once it is delivered by Oxfordshire County Council ('OCC'). The Science Bridge comprises OCC's strategic distributor road connection to the A4130, over the Great Western Mainline, and it is not currently anticipated to be in operation before 2026.]

3.6 Provision is made for power infrastructure to support the proposed accommodation in the north western corner of the site. The new electrical infrastructure will not exceed 15m in height.

3.7 The application has been prepared in response to the scope of requirements provided by VoWHDC and OCC, including in relation to the proposed development uses. In line with the advice from VoWHDC, the application proposes Use Class B8 data centre development only with ancillary uses and supporting infrastructure enabling delivery of the data campus. The Design and Access Statement supporting the planning application details the design development of the proposals.

3.8 Full planning permission is sought for the detailed design of the enabling infrastructure needed to support the delivery of the data centre development. The full element of the hybrid planning application details new and improved site access, new access roads, hard & soft landscaping, creation of SUDS and all associated infrastructure and engineering works.

4.0 CONTEXT FOR THE PLANNING APPLICATION SUBMISSION

Science Vale and the Enterprise Zones

4.1 Science Vale is a significant area of economic growth which will support the creation of a global hotspot for enterprise and innovation across South Oxfordshire and Vale of White Horse District Councils' areas. One of the three strands of the spatial strategy for the Vale of White Horse is to deliver sustainable growth within Science Vale, with almost 75% of the housing growth, and almost 70% of the job growth, planned for this area. The Council has ring-fenced growth in Science Vale to ensure houses are delivered where they can be supported by jobs and infrastructure. The Oxfordshire Knowledge Spine and Science Vale growth areas are a particular emphasis of the Oxfordshire Strategic Economic Plan ('SEP') and a fundamental part of the long-term development of the region and County as well as being key to the local development objectives for the District.

4.2 Enterprise Zones are a key part of the government's plan to support businesses and enable local economic growth. These designated areas offer business rates discounts and government support to encourage business investment. It is home to a significant proportion of the region's scientific, research and development, and high technology businesses.

4.3 These include The Harwell Campus and Milton Park, renowned for its bio-science cluster, and The Didcot Growth Accelerator, which went live in spring 2016. To date, a number of sites in and around the Didcot and Milton areas have been designated, including large areas of Milton Park and the majority of the former Didcot A Power Station site.

4.4 The area is rapidly gaining an international reputation as a renowned location for research and development of Big Data, advanced materials and energy-related technologies which benefits from the strong backing of Government.

4.5 The Science Vale and Enterprise Zones will further benefit from a higher intensity cluster of data centre developments with other technology users/occupiers, thereby boosting the local economy and raising Didcot's profile as a major global business location.

Didcot Garden Town

4.6 The economic development objectives for Science Vale and the Enterprise Zones are closely aligned with Didcot's Garden Town status which was awarded in 2015. The Didcot Garden Town Delivery Plan was published in October 2017 and established the following vision:

> *"Didcot is Oxfordshire's gateway to future science, applied technology, nature and vibrant communities."*

4.7 The vision for the Didcot Garden Town is underpinned by three core pillars:

- *Visionary science and advanced technologies;*
- *Fantastic green space; and*
- *Connected cultural communities.*

4.8 The Didcot Garden Town Delivery Plan also set out seven masterplan priorities[1]:

- *A permeable, connected movement network that supports and future proofs all modes of transport;*
- *Didcot will use Smart principles to introduce new technology;*
- *Designed to facilitate, encourage and support communities through design;*
- *A network of open spaces form the backbone of the garden town;*
- *An extended and enhanced town centre in the heart of Didcot Garden Town;*
- *Range of uses and designs of housing with appropriate density; and*
- *Sustainability embedded in every aspect of decision making.*

4.9 The site is located within the northern part of the defined Masterplan area, closely related to a number of identified development sites and opportunity areas, including key locations outlined in Section 2 above. The redevelopment of the land at Didcot A to provide new storage/distribution development in the form of a new major data centre facility will strongly support the development and long-term strength of other clustered sites in this area. It will further contribute to the Garden Town's overarching objectives to sustainably accommodate over 15,000 new homes and 20,000 new jobs.

4.10 To realise the unique potential of Didcot's Garden Town status and masterplan, it will be critical to deliver support for the local economy via development projects and engagement and an important strand of the delivery programme includes a Business Sounding Board which has been established as part of the wider engagement programme. This is closely aligned with the Council's own priorities and strategic themes under its Corporate Plan 2020 – 2024 which include building stable finances and working in partnership with businesses and residents to support communities. As a major employer, landowner and development

[1] *Didcot Garden Town Delivery Plan* – Figure 1.2

stakeholder within the area, RWE has a significant role to play in the development of Didcot, including through the delivery of new development at the former Didcot A site.

4.11 The proposal provides for extensive redevelopment of the remaining available area of the former power station site, in close proximity to the retained power generation facilities operated by RWE Generation and National Grid. It enables development of data centre uses, which are a key feature of the local commercial context and an asset for the area. The proposal contributes towards the continued success of the local economy for the Vale of the White Horse and strengthens Didcot as an important commercial centre both in the wider region and the country.

Didcot Science Bridge

4.12 The Science Bridge is part of a committed package of strategic transport improvements for Didcot and the surrounding area to support planned growth under the Science Vale transport strategy. It is one of many strategic transport schemes under the VoWHDC's Infrastructure Delivery Plans that will support delivery of future development.

4.13 These strategic improvements, funded in large part by the Didcot Garden Town Housing Infrastructure Fund programme, will be delivered through four separate but interdependent highways proposals, collectively referred to as the HIF1 scheme.

4.14 The scheme will provide a new road link from the new dualled section of the A4130, over the railway, back to the A4130 at Purchas Road, including pedestrian and cycling infrastructure. The project will improve travel for residents, communities and business and significantly improve the transport network in the area. The Science Bridge is a key delivery enabling opportunity for Didcot which is supported by Housing Infrastructure Funding (HIF1) secured for Oxfordshire County Council (OCC) to deliver targeted infrastructure upgrades.

4.15 Anticipated by OCC to be complete in 2026, the project will enable capacity and movement improvements along the A4130 in the vicinity of the site and establish a new strategic access to the RWE site. The proposals for the former Didcot A site have been developed in partnership with OCC to ensure that the intended access strategy can dovetail with the operational Science Bridge, enabling the two projects to be delivered independently without conflict in the design or delivery stages. Therefore, the proposal represents a significant opportunity to support the objectives and transport benefits of the Didcot Science Bridge Road project.

4.16 An application for planning permission to provide these infrastructure improvements around the A4130, including the Science Bridge Road works, was formally submitted in November 2021 on behalf of OCC and is currently pending decision.

Amendments to the Use Class Order

4.17 On the 21st of July 2020, the Government introduced changes to the Use Class Order through the Town and Country Planning (Use Classes) (Amendment) (England) Regulations 2020. These changes, which took effect on the 1st of September 2020, include the creation of three new use classes (E, F1 and F2). The new use classes subsume existing Class A1 (Shops), Class A2 (Financial and professional services), Class A3 (Restaurants and cafes), Class B1 (Business), Class D1 (Non-residential institutions) and Class D2 (Assembly and Leisure).

4.18 The changes have been introduced to provide more flexibility to commercial premises. Uses within each new use class can change to another same-class use without planning consent.

4.19 Although data centre uses under Use Class B8 (Storage and distribution) are not directly affected by the changes, it is important to recognise the Government's focus towards providing flexibility for growth and facilitating the expansion of important commercial sectors to meet demand, particularly in a challenging economic climate where an increased reliance on data centres as critical national infrastructures is anticipated.

Revised National Planning Policy Framework

4.20 On the 20th of July 2021, the Government released the revised National Planning Policy Framework ('NPPF') that supersedes previous versions. This came as a response to the aim of implementing changes to support the 'Building Better, Building Beautiful' Commission report.

4.21 In part, the revisions sought to ensure development is well-designed and of a high quality calibre, particularly as relates to the setting, scale and character of the surrounding area. The implications of this, in terms of the proposed development of a data centre and/or logistics facility, entail an unprecedented emphasis on external appearance and its impact on the surrounding industrial, residential and commercial uses.

4.22 The revised NPPF also underlines the Government's ambitions to deliver more sustainable development that incorporates measures to address the United Nation's 17 Sustainable Development Goals as well as integrated flood risk management, biodiversity enhancement and climate change mitigation.

Economic Factors

4.23 In this context, here is a significant national and local drive to improve digital infrastructure, with key efficiencies targeted towards business support provision, digital connectivity and transport solutions.

4.24 Since the first wave of the Covid-19 pandemic, data and digital infrastructure have become increasingly critical to the economy. Rapidly evolving global changes in the way we learn, shop, interact with each other and work, enjoy our leisure time set against a backdrop of a more digitally aware and reliant population, mean that the demand for data evolves as a result of the digital revolution. These seismic changes will require a significant step change in planning for data and communications infrastructure to satisfy the demands of this critical and expanding, globally important, sector.

4.25 The importance of this sector has been further highlighted by the Government formally recognising data centre workers as critical key workers[2]. The significance of this sector cannot be understated, specifically in the context that it remains one of the only two related growing sectors during the current period of economic uncertainty, the other sector being logistics.

4.26 The above contextual considerations are particularly timely, given the economic climate created by the UK's departure from the EU. Indeed, many economic commentators anticipate that development will continue to slow down as the market reacts to the impacts of Brexit and Covid-19 to provide a once-in-a-generation economic challenge. It is therefore imperative that, where appropriate, development investment is supported to encourage, rekindle and then sustain growth in a time of immense economic uncertainty.

4.27 Didcot is well-positioned (contextually and geographically) to drive growth in this expanding sector. A major new data centre development at the site will support the planned economic growth of Didcot while creating both direct and indirect jobs within the District. The site provides a major opportunity to build on Didcot's developing reputation as a data centre location while expanding what is now acknowledged as a critical sector of the recovery of the local and national economy.

4.28 In this context the proposals will reinforce Didcot as a location of choice for business, creating sustainable growth opportunities for businesses thereby protecting the viability and diversity in the town as a major services centre. This reflects a positive response to the established ambition to deliver economic benefits to the local and wider community.

[2] Cabinet Office Guidance: Critical workers who can access schools or educational settings – Updated 09.03.21

5.0 EVALUATION AGAINST POLICY AND OTHER PLANNING CONSIDERATIONS

Introduction

5.1 Under Section 38(6) of the *Planning and Compulsory Purchase Act (2004),* the starting point for the determination of any planning application is the local Development Plan. Other material considerations then need to be weighed in the overall planning balance.

5.2 This section of the Planning Statement identifies the most relevant national and local planning policy and provides an assessment of the proposals against that policy. It then sets out an assessment of the planning balance.

National Planning Policy Framework (NPPF)

5.3 National policy is set out within the National Planning Policy Framework of July 2021 which, at its heart, contains a presumption in favour of sustainable development.

5.4 Paragraph 7 of the NPPF establishes the purpose of the planning system, which is to contribute to the achievement of sustainable development as defined by economic, social and environmental objectives. Paragraph 11 identifies clearly that local planning authorities should approve development proposals that accord with an up-to-date development plan without delay.

5.5 Section 6 of the NPPF recognises the need to build a strong and competitive economy which entails, as outlined in Paragraph 82(d), that planning policies should be *"flexible enough to accommodate needs not anticipated in the plan [and] to enable a rapid response to changes in economic circumstances"*.

5.6 Paragraph 83 also stipulates that planning policies make provisions for different sectors including data-driven or high technology industries and storage/distribution operations *"at a variety of scales and in suitably accessible locations",* especially where this would support Britain at becoming a global leader in driving innovation (Paragraph 81).

5.7 Section 11 seeks to encourage the effective use of land, with Paragraph 120 encouraging local authorities to *"support the development of under-utilised land and buildings"*.

5.8 The proposals seek to contribute towards building a strong and competitive economy via the enhancement of employment land to provide better facilities. The development responds to changes in the economic climate by addressing a rise in data centre demand and is situated in an accessible location.

5.9 The proposals are planned to fully utilise and capitalise on the potential of the brownfield site, facilitating a more effective use of land through appropriate site intensification.

5.10 The proposals are fully capable of meeting and exceeding high-quality design standards and contributing to the development of a healthy, inclusive and safe community. Through design and construction, the proposals are also able to respond positively to climate change.

The Development Plan

5.11 For the purposes of Section 38(6) of the Planning and Compulsory Purchase Act (2004), the relevant components of the Development Plan in the determination of this application are:

- VoWHD Local Plan 2031: Part 1 Strategic Sites and Policies (adopted Dec 2016);
- VoWHD Local Plan 2031: Part 2 Detailed Policies & Additional Sites (adopted Oct 2019)

5.12 The following section considers key policies which relate to development at the Site. Other local plan policies and guidance, such as the Vale of White Horse Design Guide SPD (2015), will need to be considered during the development of detailed design proposals as they will be assessed during the determination of the planning application.

Local Plan 2031: Parts 1 and Part 2 Policies

Part 1 Core Policy 1: Presumption in Favour of Sustainable Development

5.13 General support is provided for development proposals which accord with the Local Plan. In the absence of specific local policies, consideration will be given as to the balance of any adverse impacts and benefits associated with proposals, having regard to national policy under the NPPF. The proposal is in accordance with the provisions of the Local Plan and NPPF and thus a presumption in favour of the proposal is established under Core Policy 1.

Part 1 Core Policy 6: Meeting Business and Employment Needs

5.14 The proposal will support employment-related development on an established employment site that is not formally allocated for development. The proposal is therefore supported in principle by Core Policy 6, subject to satisfying the requirements under Core Policy 28: New Employment Development on Unallocated Sites.

Part 1 Core Policy 15: Spatial Strategy for South East Vale Sub-Area

5.15 The site is located within the South East Vale Sub-Area where an overarching strategy has been established by the Council to support the delivery of at least 12,450 new homes and 208 hectares of employment land for business and employment growth in the plan period to 2031. The proposal would provide a redevelopment of an established employment site on land at the former Didcot A Power Station and would support the strategic objectives for the Sub-Area, in accordance with Core Policy 15.

Part 1 Core Policy 16: Didcot A Power Station

5.16 The Council supports the redevelopment of the Didcot A site to provide a high-quality mixed-use development. The site is located to the north of land previously part of the Didcot A site which has been reserved, and now benefits from planning permission, for mixed use development.

5.17 The nature of the proposals will be complementary to the retained Didcot B Power Station, appropriate to the site's location and responds to the specific design considerations outlined, which are addressed elsewhere within the application submission.

5.18 The anticipated transport implications are addressed under technical assessments supporting the planning application. The site access strategy has been developed in close dialogue with OCC to allow the scheme to dovetail with the Didcot Science Bridge and ensure no conflicts with design or delivery requirements for the road improvement proposals.

5.19 The scheme therefore satisfies the requirements for Didcot A and is supported in principle by Core Policy 16.

Part 1 Core Policies 17 and 18 and Part 2 Core Policy 18a: Strategic Highway Improvements within the South East Vale Sub-Area

5.20 A key policy driver for the mixed-use land reservation to the south of the site is the location of Didcot A within the Science Vale – which has been established as a nationally and internationally significant area for research and innovation and is the focus for large-scale expansion with the District, supported by a package of strategic road improvements. The southeast part of the site includes Land for Safeguarding for Future Transport Schemes under the Local Plan 2031: Part 1, which will support delivery on the Didcot Science Bridge.

5.21 This scheme follows positive dialogue with OCC to accommodate the proposals for Didcot Science Bridge and A4130 re-routing through the Didcot A site, [to ensure the latter can be delivered without prejudice to the construction or effective operation of the Science Bridge].

Part 1 Core Policy 28: New Employment Development on Unallocated Sites

5.22 The proposal for Use Class B8 storage/distribution uses on unallocated employment sites is supported in principle by the Council provided this is not outweighed by other planning considerations.

5.23 The site is not located in close proximity to potentially sensitive residential uses and would reflect the scale and nature of development surrounding the site and its former use as part of the Didcot A Power Station. The planning application is supported by a suite of associated technical assessments addressing acoustic, visual and other impacts relevant to the consideration of amenity, townscape and landscape character. Subject to detailed design and appropriate parameters, the proposal will not result in any harmful impacts.

5.24 The access proposals have been developed to meet the requirements of OCC and the Local Transport Plan and is supported by a Transport Assessment and Framework Travel Plan as part of the planning application. The scheme is therefore in accordance with Core Policy 28.

Part 1 Core Policy 33, Part 2 Development Policy 16: Access and Part 2 Development Policy 17: Transport Assessments and Travel Plans

5.25 The proposal is likely to lead to a change in the form of traffic flows that previously occurred. However, traffic generation on the highway network in the vicinity of the site will continue to operate within capacity after allowing for background traffic growth and the traffic generated by the proposed development.

5.26 This planning application for the proposed development is accompanied by a full Transport Assessment ('TA') and a Framework Travel Plan ('FTP'), which will assist in minimising the level of peak hour car journeys, particularly single occupancy trips. A Transport Scoping Report was submitted to OCC at the pre-application stage to determine and agree the scope and methodology of the Transport Assessment supporting the planning application.

5.27 The TA and FTP account for established levels of traffic generation associated with the lawful reuse of the land forming part of the Didcot A Power Station site. In addition, this will take into account the existing road network and the changes which will occur if the planned Science Bridge Road is open, as planned by OCC and MHCLG, to the public by 2026.

5.28 Consistent with requirements under the Local Plan, the proposals minimise impacts on the road network and promote sustainable access through travel planning as well as promoting planned improvements associated with the Didcot Science Bridge. Safe and suitable access for a range of modes can be provided in the context of the Didcot Science Bridge and via other travel options including rail, cycle and bus travel.

Part 1 Core Policies 37 and 38: Design

5.29 The application seeks permission for data centre development and ancillary uses. Occupiers require bespoke solutions to cater for end users' needs. In relation to data centres, this can include:

- hyperscale users (Microsoft and Google, for example, are big data centres storage users with a largely templated design solution);
- colocation data centres consisting of a host provider offering space to hundreds or thousands of other users and so have slightly different design configurations;
- wholesale colocation data centres which include one owner selling space normally to up-to 100 or less end users;
- enterprise data centres that are owned and operated by the company they support and can be built on- or off-site for users; and
- a telecom data centre that is owned and operated by telecom providers (Virgin, BT, etc).

5.30 Consequently, matters relating to appearance, layout, landscaping and scale (other than the extent of development areas and height parameters) are proposed to be reserved for subsequent approval.

5.31 However, the Development Framework Plan and Parameter Plans have been developed in recognition of the need for quality design. This includes consideration of high-quality townscape and landscaping that physically and visually integrates with its surroundings.

5.32 This is supported by the incorporation green infrastructure gateway areas within the southern parts of the site and the preliminary parameters which are informed by the Landscape and Visual Impact Assessment supporting the planning application.

5.33 The proposals are assisted by a coherent and robust framework for development that clearly sets out the land uses proposed, movement and access and built height. A detailed Design and Access Statement forms part of the submissions for the application.

Part 1 Core Policy 42: Flood Risk and Part 2 Development Policy 30: Watercourses

5.34 The Environment Agencies flood map for planning and the flood risk assessment show that the Application Site is in Flood Zone 1.

5.35 The Site currently drains into two artificial balancing lagoons after which it is then released under controlled discharge into Moor Ditch at the south edge of the Site. The new Science

Bridge Road will truncate the existing drainage solution and so will need to re-provide it as part of the planned highways works. A new water attenuation system is proposed to serve the data centre development in the form of water bodies adjacent to the site entrance. These will collect runoff from the site and discharge it at a rate to be agreed into Moor Ditch. This solution offers the opportunity for a softer, more ecologically beneficial water attenuation system to be provided which, in turn, provides a significant visual enhancement to what will become a new gateway into the Site.

5.36 The Flood Risk Assessment and Drainage Strategy also shows how flooding impacts can be minimised and managed. These outline appropriate mitigation and management measures, having regard to water quality and biodiversity requirements under the Water Framework Directive, to satisfy Core Policy 42.

Part 1 Core Policy 44: Landscape

5.37 A Landscape and Visual Impact Assessment has been prepared to accompany the planning application. This shows that the Site is broadly flat and set within a far wider valley with higher ground notably to the north and south. The Site is in a location away from existing residential receptors and will not be viewed in conjunction with any adjacent houses or buildings. Additionally, because the mature trees and planting which buffer the edges of the Site are planned to be retained and enhanced, the Site will only be readily visible from the planned Science Bridge and short stretches of filtered winter views from the A4130 and from no other public immediately adjacent vantage point.

5.38 On this basis, and in the context of what previously existed on the site – Didcot A Power Station and its ancillary cooling towers – the scheme offers a significant reduction in urbanisation of views from the surrounding countryside.

5.39 The proposal is therefore designed to protect the important landscape settings of Didcot including the wider AONB and key views which have been agreed with the Council's landscape officer at the pre-application stage.

Part 1 Core Policies 45 and 46: Green Infrastructure and Biodiversity

5.40 The submitted Ecological Appraisal confirms that the site contains habitats for a number of protected species. The ecological strategy for the site, including location of habitats within areas proposed for green infrastructure, presents the opportunity to retain or enhance habitats. Appropriate mitigation will be put in place to ensure the protection, enhancement and, if required, relocation of habitats.

5.41 The Site contains a significant number of mature trees and hedgerows which have been subject to arboricultural survey, which is submitted as part of this application. The intention is to retain as many hedgerows and trees as possible. However, where this is not possible, additional planting and landscaping will occur to compensate for loss.

5.42 A detailed Phase 1 Habitat Survey and appropriate Protected Species Appraisals has been prepared in support of this planning application. These establish the environmental context and strategies which will include:

- providing a connected network of high-quality green spaces;
- enhancing green infrastructure networks and contact with nature; and
- building sustainably and responsibly.

5.43 As set out in the Ecological Assessment and the Biodiversity Net Gain Assessment, care was given to ensure the landscaping proposals minimise the biodiversity impacts of the scheme. Where this is not possible, the appropriate mitigation measures and opportunities are taken – in line with the emerging Environment Act – to maximise the biodiversity betterment as required under Core Policies 45 and 46.

Part 2 Core Policy 16b: Didcot Garden Town

5.44 The Site is located within the northern part of the defined Didcot Garden Town Masterplan area and is closely related to a number of identified development sites and opportunity areas, including key locations outlined above.

5.45 The redevelopment of the land at Didcot A to provide a major new data centre facility will strongly support the development and long-term strength of other clustered sites in this area. It will further contribute to the overarching objectives for the Garden Town to accommodate over 15,000 new homes and sustainable provision of 20,000 new local jobs.

5.46 Detailed aspects of the scheme will contribute positively to the relevant principles for the garden town in respect of design, local character, density, transport, landscape and green infrastructure and social benefits as outlined within Figure 2.7 of VoWHDC Local Plan 2031 Part 2, supporting Core Policy 16b.

Part 2 Development Policy 23: Impact of Development on Amenity

5.47 The Site is not in proximity to any potentially sensitive residential uses and the proposed data centre facility will be well related to other commercial development uses adjoining and

surrounding the site. Height parameters are proposed as part of the scheme, supported by a Landscape and Visual Appraisal, to minimise visual intrusion. Subject to suitable controls under a planning permission, the scheme will be designed at the Reserved Matters stage to ensure no adverse effects on existing or committed neighbouring uses. Appropriate measures and strategies can be secured to reduce the risk of pollution and nuisance to satisfactorily address the individual considerations outlined in Development Policy 23.

Part 2 Development Policies 25 and 26: Noise Pollution and Air Quality

5.48 A Noise Impact Assessment and an Air Quality Assessment are provided in support of this application. With changes in traffic flows, the proposal has the potential to vary local noise and air quality considerations during the construction and operational phases. As was found with the demolition of Didcot A Power Station, these are likely to be of only limited significance when assessed against existing background levels or base conditions. The Application Site is not identified within an Air Quality Management Area and is therefore not considered to be sensitive in air quality terms.

5.49 During construction, mitigation measures (including dust suppression & wheel washing) are to follow and can be further secured through planning conditions. The impacts of construction on the environment will be minimised and controlled to an acceptable level.

5.50 In relation to the operational phase, the submitted Noise and Air Quality Assessments demonstrate the effects of the proposed development are judged to be not significant.

Other Considerations

Emerging Joint Local Plan 2041

5.51 VoWHDC and SODC began work on a Joint Local Plan to 2041, agreed at the VoWHDC meeting on 24th March 2021 and the SODC meeting on 25th March 2021.

5.52 The Councils ran a call for sites exercise for eight weeks during April and May 2020 and have subsequently published a register of the sites put forward. A second call for sites was carried out for six weeks between August and September 2021, the results of which are still being considered by VoWHDC and SODC.

5.53 The *Local Development Scheme* (March 2021) sets out the provisional timetable for the production of new planning policy documents, including any key production and public consultation stages. Further public consultation on the preferred spatial options is currently targeted for July/August 2022, in advance of an Examination in June 2024, towards a target for adoption of the Joint Local Plan in October 2024.

5.54 At this early stage, the Joint Local Plan carries no weight in the consideration of planning applications and so does not have any direct implication for the application proposals, but reflects the requirement to review and, if necessary, update the current local plan at least every five years.

Summary of Key Planning Considerations

5.55 The NPPF dictates that local planning authorities should approve development proposals that accord with an up-to-date development plan without delay.

5.56 The proposed redevelopment also aligns with the NPPF's aim of making more efficient use of land, achieving large-scale regeneration and meeting the demand for employment land. This is particularly important in the current economic climate created by Covid-19 and the UK's departure from the EU and in areas where development has significantly slowed due to market uncertainty. This proposal presents an opportunity to appropriately and sustainably intensify the use of currently under-utilised brownfield land to provide a greatly enhanced facility that will better serve the local economy. Through well-considered design, the proposals are being developed to fully comply with local policies.

5.57 In the national context, including changes introduced to the Use Class Order and the NPPF, there is strong Government support for facilitating the growth of the data and digital infrastructure sector, which has remained a well-performing and expanding sector despite the general economic uncertainty. This sector is key to the continued success of the local economy and planning systems, with demand expected to rise steadily over time.

5.58 As demonstrated through this document, the proposals are in compliance with the Council's strategic planning objectives for the District and Didcot Garden Town. Furthermore, the proposed development responds positively to the requirements of local planning policy under the adopted Development Plan.

5.59 Lastly and importantly, the proposal contributes towards established commercial objectives and economic resilience of the area and strengthens Didcot as an important commercial centre in the wider Science Vale region and the UK.

5.60 The Site is in a preferred location for development as it is previously developed land with no material physical or planning constraints. Development in this location complies with and supports VoWHDC's spatial strategy and is appropriate for the surrounding context within a purely commercial / industrial area.

5.61 The proposed development will deliver a significant package of economic and employment-related benefits while responding to sustainability requirements and climate change within a sustainable and accessible location.

6.0 CONCLUSION

6.1 This Planning Statement outlines a proposal for the redevelopment of land at the former Didcot A Power Station to provide a major new Data Centre Campus. The development proposed is required to better utilise the Site and provide commercial development uses in a well-accessible part of Didcot. The proposed facility is suited to this location and would be considered a key component to the continued growth and economic success of the area.

6.2 The development is in compliance with national and local policies and is supported by an established need to make more efficient use of the land, meet demand and respond to regeneration priorities.

6.3 The proposals should be considered in the context of national priorities, and the current 'once in a lifetime' challenging economic climate.

6.4 Data and digital infrastructure are a major sector of the economy which continues to grow due to the immense growth and reliance on it by reason of the accelerated changes forced upon the economy and society by the global pandemic. Strong local and national support for this expanding sector highlights the essential role it plays in helping to stabilise the economy, and its performance will be key for protecting Didcot's position as a commercial centre. The proposals contribute towards the growth of this critical sector, therefore strengthening the local economy at a critical time.

6.5 Following an extensive series of pre-application discussions, the planning application has been developed to align with and complement OCC's HIF1 scheme in consultation with the County Council and other local stakeholders. The Data Centre Campus and HIF1 developments are consequently entirely compatible, and the proposals do not compromise the delivery of one or the other scheme.

6.6 Having regard to all material considerations, the scheme will provide for a number of broad ranging and substantial planning and economic benefits in support of the published objectives of VoWHDC.

Appendix A

Summary Heads of Terms

DAVID LOCK ASSOCIATES

0.1 Development within the Vale of White Horse District is subject to Community Infrastructure Levy (CIL) Charging under the adopted Community Infrastructure Levy (CIL) Charging Schedule, November 2021 published in accordance with Part 11 of the Planning Act 2008 and the Community Infrastructure Levy Regulations 2010 (as amended). A £0 CIL charge is applicable to development of not comprising residential development, supermarkets and retail warehousing. Accordingly, no CIL charge is payable in respect of the proposed development.

0.2 It is proposed that a S106 Agreement be entered into to address planning obligations. It is anticipated that provision for the following will be required.

- a financial contribution to the HIF1 Science Bridge Road Scheme in relation to foot /cycleway provision along the A4130 to Basil Hill Road (to the Basil Hill Road bus stops);
- a financial contribution, if determined necessary, to a habitat bank;
- a contribution to public art;
- travel plan monitoring by VoWHDC ; and
- s106 monitoring by both VoWHDC and OCC.

0.3 Subject to the provisions of Regulation 122 of the Community Infrastructure Levy Regulations such provisions may be secured in stages, by way of appropriate delivery 'triggers' over the period of development where relevant.

0.4 Other obligations will be considered where evidence of need and impact is submitted, and the terms of Regulation 122 of the Community Infrastructure Levy Regulations 2010 can be demonstrably adhered to.

Didcot Data Campus
Former Didcot A Power Station

Transport Assessment

On behalf of **RWE Generation Plc**

Project Ref: 3321110511/002 | Rev: DRAFT B | Date: February 2023

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Document Control Sheet

Project Name: **Didcot Campus**
Project Ref: **3321110511**
Report Title: **Transport Assessment**
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Prepared by:	Thea Harland Milena Martinez	Assistant Transport Planner Senior Transport Planner	MM	June 2022
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Approved by:	Sarah Matthews	Director Transport Planner	SM	June 2022
For and on behalf of Stantec UK Limited				

Revision	Date	Description	Prepared	Reviewed	Approved
A	11.07.22	Final document for planning submission	TH/ MM	SM	SM
B	15.02.23	Update Drawings	TH	EF	HG

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Appendices

1 Introduction

1.1 Hybrid Planning Application

1.1.1 This Transport Assessment (TA) has been prepared by Stantec UK Ltd on behalf of RWE Generation UK Plc (RWE) in support of a hybrid planning application for the proposed redevelopment of the former Didcot A Power Station site, located to the northwest of Didcot.

1.1.2 The hybrid planning application comprises:

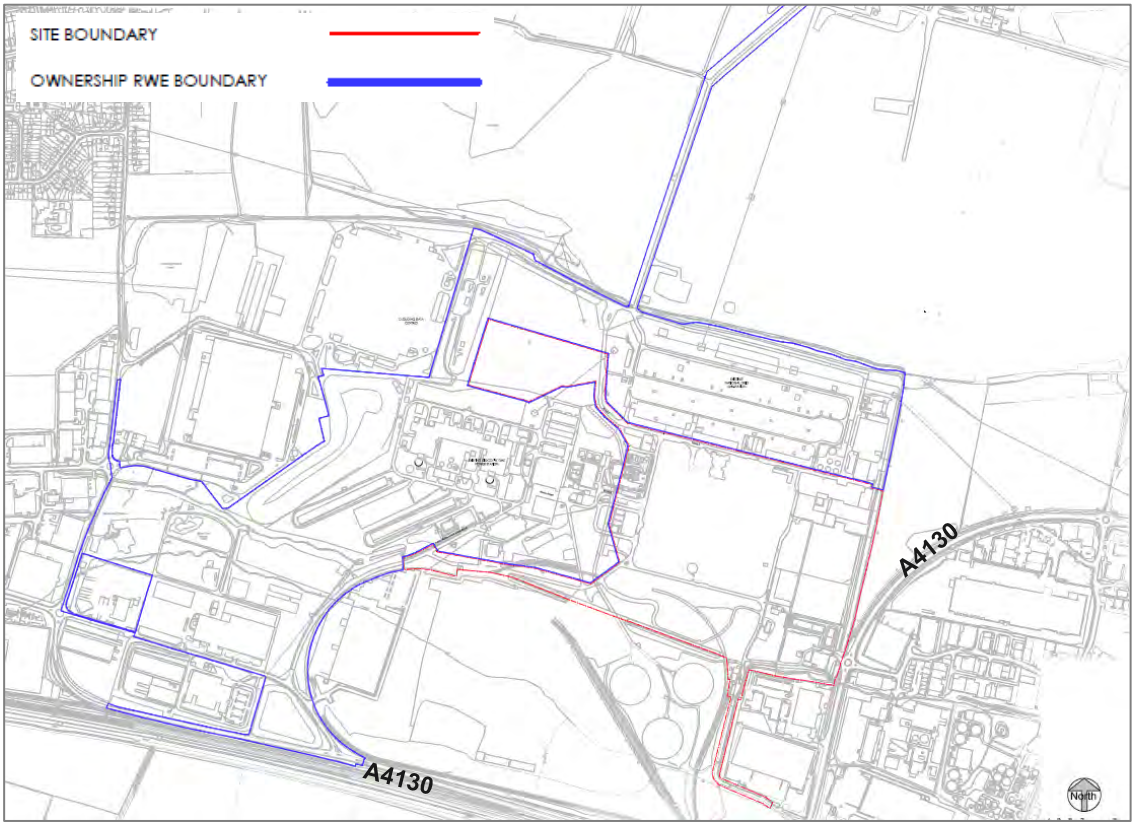
"Outline planning permission for the erection of up to 197,000m2 Use Class B8 data centre development with ancillary Use Class E office space, together with associated groundworks, utilities, infrastructure, engineering and enabling works. Matters relating to appearance, landscaping, drainage, layout and scale of the development areas reserved for subsequent approval; and

Full planning permission for the construction of new and improved site access, new access roads, hard & soft landscaping, creation of SUDS and all associated infrastructure and engineering works."

1.2 Site Context

1.2.1 Didcot Power Station is located to the north of the A4130 and Milton Road, approximately 2.5km northwest of Didcot Town Centre. The application site is 330,085m^2, which is 71.8% of the current 460,009m^2 Didcot A Power Station site within RWE ownership. A plan showing the application site boundary in relation to the RWE ownership boundary and local area is shown below:

Figure 1.1: Site Location Plan



1.2.2 Oxfordshire County Council has been awarded £218M Housing Infrastructure Fund (HIF1) towards these £234M schemes, which are expected to opening to traffic by March 2026. A planning application for the HIF1 Didcot Garden Town Infrastructure project was submitted in November 2021 (planning ref. no. R3.0138/21). Further details are outline at **section 3.7**.

1.3 Methodology

1.3.1 A Scoping Report was prepared in January 2022 and submitted to Oxfordshire County Council (OCC) the local highways authority (LHA), and National Highways (NH) the strategic highways authority, to agree the scope and methodology of the transport documents to be submitted as part of the planning application. South Oxfordshire and Vale of White Horse District Councils have been engaged in this process. Formal response from OCC and NH was received on 18th February 2022, which has been included in **Appendix A** for information.

1.3.2 Following the response received from OCC, a Technical Note (TN) was prepared and issue to OCC in April 2022 to address comments with regard to the methodology of the TA, particularly regarding trip rates of the data centre in relation to potential shift patterns of employees of the site. Changes in the methodology proposed in the TN have been incorporated in this TA, following OCC's response on 21st April 2022 and further clarifications issued by Stantec. The TN has been included in **Appendix B**.

1.3.3 In addition to the assessment of Milton Road/ A4130/Basil Hill Road roundabout and A4130/ Hawksworth roundabout, OCC and NH required the following junctions to be assessed with and without HIF1:

- Milton Interchange;
- A4130 / Sir Frank Williams Avenue;

- A4130 / B4493 / Mendip Heights Roundabout;
- B4493 / Foxhall Road / Station Road Roundabout;
- A4130 / Collet Roundabout; A4130 / Avon Way Roundabout; A4130 / Franklin Gardens / Mersey Way; and
- A4130 / Abingdon Road / Ladygrove.

1.3.4 As originally proposed, the main access on to Science Bridge Road and the new Valley Park Spine Road / Science Bridge and Science Bridge / A4130 junctions have also been tested with the HIF1 in place.

1.3.5 OCC also requested that improvements to the A4130 cycleway were investigated.

1.4 Structure

1.4.1 The remainder of this TA is structured as follows:

- **Section 2: Policy Review and Context –** a review of current and emerging policy relating to transport, at national, regional and local levels
- **Section 3: Existing Transport Conditions and Sustainable Travel Options –** a review of the existing transport conditions around the site, with a focus on sustainable travel options, as well as a review of road safety data
- **Section 4: Development Proposals -** a summary of the proposed development, including a review of the proposed layout in terms of access and parking
- **Section 5: Extant and Future Trip Generation and Distribution** - an assessment of the likely trip generation and distribution of the development
- **Section 6: Highway Impact –** an assessment of the impacts on the local highway network
- **Section 7: Framework Construction Traffic Management Plan**
- **Section 8: Summary and Conclusions –** a summary of the key points raised throughout the report

2 Policy Review and Context

2.1 Introduction

2.1.1 This section summarises the relevant national and local transport policies which sets the policy context of this TA.

2.2 National Policy

National Planning Policy Framework (2021)

2.2.1 The National Planning Policy Framework (NPPF), originally published in 2012 and was most recently updated in July 2021 and sets out national policy for delivering sustainable growth and development. The updated NPPF replaces the previous National Planning Framework published in March 2012, revised in July 2018 and updated in February 2019. The NPPF aims to make the planning system less complex and more accessible. The NPPF sets out the Government's planning policies for England and how these are expected to be applied. In terms of transport the objectives outlined in NPPF are set out in paragraph 104:

"Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:

a) the potential impacts of development on transport networks can be addressed;

b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;

c) opportunities to promote walking, cycling and public transport use are identified and pursued;

d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and

e) *patterns of movement, streets, parking and other transport considerations are integral to the design of schemes and contribute to making high quality places."*

2.2.2 When determining planning applications, Paragraph 110 of the NPPF states that:

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

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

c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code 46; and

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

2.2.3 Paragraph 111 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."

2.2.4 Having regard to the above objectives, the proposed development access and movement will connect to the adjacent community and sustainable travel network.

Planning Practice Guidance: Travel Plans, Transport Assessments and Statements (2014)

2.2.5 Planning Practice Guidance – Travel Plans, Transport Assessments and Statements (PPG) was published in March 2014 and provides a concise report on the use and importance of Transport Assessments / Statements and Travel Plans. With regard to whether to provide a Transport Assessment, Transport Statement or no assessment, the guidance states:

"Local planning authorities, developers, relevant transport authorities, and neighbourhood planning organisations should agree what evaluation is needed in each instance."

2.2.6 The guidance states that Transport Assessments / Statements and Travel Plans can positively contribute to:

- *"encouraging sustainable travel;*
- *lessening traffic generation and its detrimental impacts;*
- *reducing carbon emissions and climate impacts;*
- *creating accessible, connected, inclusive communities;*
- *improving health outcomes and quality of life;*
- *improving road safety; and*
- *reducing the need for new development to increase existing road capacity or provide new roads."*

2.2.7 The guidance states that Transport Assessments / Statements and Travel Plans should be proportionate to the size and scope of the proposed development, be tailored to particular local circumstances and be established at the earliest practicable possible stage of a development proposal.

2.2.8 The guidance continues by stating that these reports should be brought forward through collaborative ongoing working between the Local Planning Authority / Transport Authority, transport operators, Rail Network Operators, Highways Agency and other relevant bodies.

2.2.9 A Transport Assessment has been prepared to consider the transport related effects associated with the proposed development, which has been scoped with OCC and NH.

2.3 County and Local Policy

2.3.1 The role of regional and local government is to develop strategies based on specific local social and spatial requirements, which deliver the national aspirations.

2.3.2 Regional and local strategy with respect to land use and transport is articulated in statutory documents prepared by planning and highway authorities which comprises of:

- Oxfordshire Plan 2050 (Reg 18 Consultation Document) – emerging document, not part of the statutory framework yet (see paragraph 2.3.3)
- Oxfordshire County Council Local Transport Plan;
- Vale of White Horse District Council Local Plan; and
- Science Vale UK Area Transport Strategy.

Oxfordshire Plan 2050 (Regulations 18 Consultation Document)

2.3.3 The Oxfordshire Plan is an emerging policy document being developed as a Joint Statutory Spatial Plan. The results from the consultation (Regulations 18 stage) will be used to help form the draft Oxfordshire Plan 2050 (Regulations 19 stage) ahead of submission to the Government.

2.3.4 The vision of the Oxfordshire Plan (Reg 18 consultation document) is:

2.3.5 *"In 2050 the people of Oxfordshire are living in sustainable communities with a high quality of life and strong sense of community. The integrity and richness of the county's historic character and natural environment are valued and conserved. A wide range of secure and good quality housing options are within reach for all. Existing and new communities are well connected, integrated, distinct, attractive and desirable places to live; their design and layouts facilitate healthy lifestyles and sustainable travel options. Productivity has increased and residents are well-skilled and able to access a wide range of high-value job opportunities and share in wealth creation. The private and public sector continue to have the confidence to invest in the county. Oxfordshire has embraced the technological, demographic and lifestyle changes of recent decades and new developments are fit for the future and resilient to climate change. The wellbeing of residents and workers is enhanced through being part of this special place."*

2.3.6 Theme Four of the Plan 'Planning for Sustainable Travel and Connectivity' looks at the following policy options:

2.3.7 Policy Option 17 'Towards a Net Zero Carbon Transport Network' states:

"All development proposals should be planned to both take account of, and take opportunities to support delivery of an Oxfordshire net zero carbon emissions transport network, including:

- *Supporting delivery of enhanced walking and cycling networks and routes, including those identified as part of Local Cycling and Walking Infrastructure Plans (LCWIPS), and more strategic active travel links between settlements and other key locations such as areas of employment and public transport hubs;*
- *Supporting delivery of enhancements to the bus network, including proposals for bus priority measures and service enhancements;*
- *Supporting delivery of enhancements to the rail network, including linking in with new and improved stations, and supporting service enhancements;*
- *Supporting delivery of improvements to transport interchange, including enhanced transport hubs such as at rail stations that facilitate take up of sustainable travel opportunities, and where relevant link with opportunities for park and ride;*

- *Supporting delivery of measures that improve the efficiency and effectiveness of the freight and logistics network that are consistent with delivering a net zero carbon emissions transport network: and,*

- *Supporting delivery of improvements to the local and strategic road network that are consistent with delivering a net zero carbon emissions transport network."*

2.3.8 Policy Option 18 'Sustainable Transport in New Development' states:

"All development proposals should consider and plan for transport and access against a vision, focussed on enabling people to travel by active and sustainable means. In particular, plans should be considered in a hierarchical way as follows:

1. *Reducing the need to travel - ensuring that high quality digital connectivity is provided to enable working and access to services from home, and that necessary services and facilities are planned and provided in close proximity to new housing areas which can be accessed through safe and direct walking and cycling routes.*

2. *Planning for sustainable travel modes - ensuring that new development is primarily designed to enable movement by active travel and public/shared transport, and that sites are well connected to surrounding sustainable transport networks. The street and movement network should be designed to focus on enabling residents to be able to walk and cycle, and easily access public transport options.*

3. *Providing for zero emission vehicle use - ensuring that any essential vehicle travel for people and goods is prioritised for zero carbon emission vehicles, with adequate charging and other supporting infrastructure provided as per the following standards:*

    a. *For residential development, each new residential unit with an allocated parking space should be provided with an electric vehicle charging point. At least 25% of non-allocated spaces (with a minimum of 2) should be provided with an electric vehicle charging point.*

    b. *For non-residential development, at least 25% of spaces should be provided with electric vehicle charging points.*

    Provision of EV charging infrastructure should be integrated in the masterplanning for new development form the outset, alongside provision for full fibre broadband, 5G mobile networks, and sustainable energy provision."

2.3.9 Policy Option 19 'Supporting Sustainable Freight Management' states the following:

"Development proposals would be supported that enable a move towards more sustainable freight and goods delivery, and which have the potential to improve system efficiency and effectiveness and allow uptake of lower carbon transport choices. Facilities that support uptake of zero-emission freight vehicles such as electric vehicle charging areas should also be supported.

However, such facilities will not be suitable at all locations. The following matters should therefore all be reviewed carefully before considering support:

- *The alignment of any proposals with local, sub-national, and national policy and guidance;*

- *The proximity of proposed facilities to relevant strategic transport corridors;*

- *The ability for facilities to be easily accessed by sustainable transport modes; and,*

- *Any environmental, amenity, or heritage impacts on surrounding areas."*

Oxfordshire County Council Local Transport Plan (2016)

2.3.10 Oxfordshire's Local Transport Plan 4 (Connecting Oxfordshire), 2015 to 2031, focuses on attracting and supporting economic investment and growth, delivering transport infrastructure, tackling congestion and improving quality of life. It supports the Oxfordshire Sustainable Community Strategy, Oxfordshire 2030.

2.3.11 Connecting Oxfordshire builds on an existing programme of highway and transport schemes focused on unlocking economic growth up to 2021. It sets out a new transport strategy for the whole of Oxfordshire, covering the period 2015-2031. The end date of 2031 has been chosen to tie in with the period of most of the Local Plans published or being put in place by Oxfordshire's district councils. Connecting Oxfordshire considers the needs of residents, employers, as well as people travelling to and through Oxfordshire, including tourists.

2.3.12 It has been developed with Oxfordshire's district and city councils in conjunction with the development plan process, to take account of the future location of housing and employment within the county. It also takes account of the transport challenges created by future development outside but close to the county boundary.

2.3.13 The vision for Connecting Oxfordshire is for a transport system that is an engine for economic growth, but one that is also greener, safer and improves quality of life in communities. The set of high-level goals developed from this vision are:

- *"Through transport improvement and innovation across Oxfordshire, our goals are:*
- *To support jobs and housing growth and economic vitality;*
- *To support the transition to a low carbon future;*
- *To support social inclusion and equality of opportunity;*
- *To protect, and where possible enhance Oxfordshire's environment and improve quality of life; and*
- *To improve public health, safety and individual wellbeing"*

2.3.14 To achieve these goals ten objectives have been developed for transport. They are grouped under three themes:

"Theme 1: Supporting growth and economic vitality (Goal 1)

- *Maintain and improve transport connections to support economic growth and vitality across the county;*
- *Make most effective use of all available transport capacity through innovative management of the network;*
- *Increase journey time reliability and minimise end-to-end public transport journey times on main routes; and*
- *Develop a high quality, innovative and resilient integrated transport system that is attractive to customers and generates inward investment.*

Theme 2: Reducing Emissions (Goal 2)

- *Minimise the need to travel;*
- *Reduce the proportion of journeys made by private car by making the use of public transport, walking and cycling more attractive;*
- *Influence the location and layout of development to maximise the use and value of existing and planned sustainable transport investment; and*
- *Reduce per capita carbon emissions from transport in Oxfordshire in line with UK Government targets.*

Theme 3: Improving quality of life (Goals 3, 4 and 5)

- *Mitigate and wherever possible enhance the impacts of transport on the local built, historic and natural environment; and*
- *Improve public health and wellbeing by increasing levels of walking and cycling, reducing transport emissions, reducing casualties, and enabling inclusive access to jobs, education, training and services."*

Oxfordshire County Council Guidance for New Developments: Transport Assessments (2014)

2.3.15 The OCC Guidance for New Developments: Transport Assessments and Travel Plans (March 2014) document sets out the format and requirements of Transport Assessments and Travel Plans associated with new developments throughout Oxfordshire. It sits under the overarching polices set out in the Council's Local Transport Plan.

2.3.16 Appendix 1 of the guidance states that any development proposals generating more than 30 two-way vehicular movements in any hour, or more than 100 two-way vehicular movements in 24 hours, or more than 100 parking spaces, requires a Transport Assessment and Travel Plan.

Vale of White Horse District Council Local Plan 2031 (Part 1 Adopted 2016 / Part 2 Adopted October 2019)

2.3.17 Part 1 'Strategic Sites and Policies' of the Local Plan sets out a vision for how the Vale should develop and grow until the year 2031. It includes how and where new houses should be built, where new jobs should be placed, and what infrastructure, such as schools and roads, will be needed to support them.

2.3.18 The Local Plan includes core policies and sub-area strategies, one of which includes the sub-area of South East Vale where the site is located. It mentions the former Didcot A Power Station, upon a section of which the proposed development is located, as offering significant opportunity for further development.

Core Policy 16: Didcot Power Station

2.3.19 The local plan identifies the former Didcot A Power Station as instrumental in the future place shaping of Didcot. It states that:

"The Council supports the redevelopment of the Didcot A site to provide a high-quality mixed-use development."

2.3.20 The site is located to the north of land previously part of the Didcot A site which has been reserved, and now benefits from planning permission, for mixed use development.

2.3.21 The proposed development is in line with this statement, it includes two data centres which will provide new jobs for the district. Shown in Section 5 it is proposed for up to 50 staff per data centre to be employed at the high-quality development.

2.3.22 The Core Policy also refers to the proposed route of the new Science Bridge and the A4130 rerouting. The aim of the Science Bridge is to reduce congestion on the A4130 through Didcot and reduce severance caused by the railway line. The bridge will also form direct connections with the new housing developments of Great Western Park and Valley Park.

2.3.23 The Core Policy states:

"The proposed route of the new Science Bridge and A4130 re-routing is Safeguarded. Planning permission will not be granted for development that would prejudice the construction or effective operation of this highway infrastructure in accordance with Core Policy 17."

2.3.24 The proposed development complements and therefore safeguards the planned future delivery of the highway infrastructure, in that both the OCC Science Bridge Road HIF scheme and the RWE scheme can be independently implemented without the need the need to vary works other than the precise alignment of the on plot data centre campus access road.

Core Policy 17: Delivery of Strategic Highway Improvements within the South-East Vale Sub-Area

2.3.25 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. All development within the South East Vale Sub-Area will be required to contribute in accordance with Core Policy 7: Providing Supporting Infrastructure and Services. Within the South East Vale Sub-Area this will include contributions towards the infrastructure identified within the Science Vale Area Strategy:

- Access to the strategic road network, for example improvements to the A34 at the Milton and Chilton junctions;
- Backhill Lane tunnel (pedestrian and cycle link) and junction on the A4130;
- A new link road at northeast Wantage between the A338 and A417 (known as the Wantage Eastern Link Road);
- Relief to the road network at Rowstock and Harwell (including an improved junction configuration at Steventon Lights, upgrading Feather bed Lane and Hagbourne Hill);
- Science Bridge and A4130 rerouting through the Didcot A site;
- A4130 dualling between Milton Interchange and Science Bridge;
- A new Harwell Link Road between the B4493 and A417;
- 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;
- Route improvements to the A417 between Wantage and Blewbury;
- Improvement of the strategic cycle network;

- Improvement to the bus network, particularly between the strategic housing and employment growth, including a priority bus system between Harwell Campus and Didcot; and

- West Wantage Link Road.

Core Policy 33: Promoting Sustainable Transport and Accessibility

2.3.26 The Council will work with Oxfordshire County Council and others to:

- Actively seek to ensure that the impacts of new development on the strategic and local road network are minimised;

- Ensure that developments are designed in a way to promote sustainable transport access both within new sites, and linking with surrounding facilities and employment;

- Support measures identified in the Local Transport Plan for the district including the relevant local area strategies;

- Support improvements for accessing Oxford;

- Ensure that transport improvements are designed to minimise any effects on the amenities of the surrounding area; and

- promote and support improvements to the transport network that increase safety, improve air quality and / or make our towns and villages more attractive.

Core Policy 34: A34 Strategy

2.3.27 The Council will continue to work with the Highways Agency, Oxfordshire County Council and other partners to develop and implement a Route Based Strategy for the A34, which enables it to function as a major strategic route there by reducing consequential congestion on the local road network.

2.3.28 The Council will continue to work with the National Highways, Oxfordshire County Council and other partners to develop an air quality monitoring framework associated with the A34 within the Vale of White Horse District to monitor any impact on the Oxford Meadows.

Core Policy 35: Promoting Public Transport, Cycling and Walking:

2.3.29 The Council will work with Oxfordshire County Council and others to:

- Encourage the use of sustainable modes of transport and support measures that enable a modal shift to public transport, cycling and walking in the district;

- Ensure new development is located close to, or along, existing strategic public transport corridors, where bus services can then be strengthened in response to increases in demand for travel;

- Ensure that new development is designed to encourage walking as the preferred means of transport, not only within the development, but also to nearby facilities and transport hubs;

- Ensure that new development encourages and enables cycling not only through the internal design of the site, but also through the provision of cycle friendly infrastructure to link the new residents with nearby services, employment areas, educational facilities and public transport hubs where interchange can be provided for longer distance travel;

- Seek to support the provision of new cycling routes where the proposals are consistent with the other policies of this plan; and
- Ensure proposals for major development.

Science Vale UK Area Transport Strategy

2.3.30 An area strategy has been developed for the Science Vale UK (SVUK) area as part of the fourth Local Transport Plan, Connecting Oxfordshire 2015-2031.

2.3.31 The Science Vale UK area covers the towns of Didcot, Wantage and Grove and the major employment sites at Harwell Science and Innovation Campus, Milton Park and Culham Science Centre.

2.3.32 The Science Vale UK Area Transport Strategy focuses on achieving containment of trips within the SVUK area and builds on previous work, namely the adopted Southern Central Oxfordshire Transport Study (SCOTS) and Delivering a Sustainable Transport System (DaSTS), which are documents that support this strategy.

2.3.33 The key transport objectives for the Science Vale UK area are to establish a transport network that supports economic investment and growth to position Oxfordshire as a world-class economy, enabling people to access jobs and services by sustainable modes of travel. Within the towns there will be high levels of investment in public transport and cycling infrastructure, combined with investment in behavioural change measures and, when there is an identified need, highway infrastructure schemes.

2.3.34 This strategy replaces the Didcot Integrated Transport Strategy - 2004/2005 (DidITS). The new SVUK area strategy incorporates some of the measures previously identified in DidITS. Planning obligation contributions, secured in order to mitigate the impacts of development, towards DidITS will be able to be used on the LTP3 SVUK Area Strategy and be in accordance with the planning obligations.

2.4 Parking Standards

Vehicle Parking

2.4.1 Local (VoWHDC) and county (OCC) on-site parking standards for B8 land uses, as well as emerging national EV parking standards (Building Regulations) which apply to the proposed development, are set out below:

Table 2.1 – B8 Land Use Car Parking Standards

Land Use	Standard
VoWHDC Local Plan Policy DC5 'Parking Standards – Maximum Levels	1 space per 1,000m^2 Parking provision for people with disabilities should be provided in line with BS 8300:2001
OCC Maximum Standard	1 space per 200m^2 6% of parking spaces (OCC Parking Policy Sept. 2014)
The Building Regulations 2010 'Requirement S4 and regulation 44G: New buildings other than residential or mixed-use buildings'*	Active provision: 10% of total parking spaces Passive provision: additional 10%

*Approved document takes effect on 15th June 2022

2.4.2 OCC has advised as part of the Pre-App Response provided and included in **Appendix A**, the following:

- Current OCC parking standards are being reviewed and updated in line with national and local policies aimed at reducing car usage and promoting active travel.
- Appropriate HGV on-site parking for the proposed use will need to be provided for and justified as part of a future transport submission.
- Appropriate parking and turning areas will also need to be provided for and be demonstrated as useable by swept path analysis.

2.4.3 Guidance on Electric Vehicle Charging Provision (EVCP) on site, is provided within the OCC Electric Vehicle Infrastructure Strategy Document. Policy EVI8 within this document states:

"The Councils will benchmark nationally, and between themselves, each seeking to set minimum standards for the quantity of EV charging to be provided in developments in their planning requirements."

2.4.4 The Building Regulations 2010, published in 2021 are to be adopted in June 2022, set out standards for the provision of electric vehicle parking provision within new developments. For non-residential new developments, the requirements are:

"S4. Where a new building which is not a residential building or a mixed-use building has more than 10 parking spaces.

(a) one of those parking spaces must have access to one electric vehicle charge point; and

(b) cable routes for electric vehicle charge points must be installed in a minimum of one fifth of the total number of remaining parking spaces.

2.4.5 44G. (1) The requirements of paragraph S4 of Schedule 1 apply to the erection of a new building which is not a residential building or a mixed-use building ("new building") as follows.

2.4.6 (2) If such a new building has, or will have, within its site boundary, more than 10 parking spaces

(a) if there are or will be any parking spaces situated in a position other than in a covered car park

(i) the requirements of paragraph S4 of Schedule 1 must first be applied in relation to those parking spaces; then

(ii) if the number of parking spaces which are situated in a position other than in a covered car park is insufficient to completely fulfil the requirements of paragraph S4 of Schedule 1, cable routes for electric vehicle charge points must be installed in a sufficient number of parking spaces in the covered car park in order to ensure compliance with the requirements of paragraph S4(b) of Schedule 1;

(b) if all the parking spaces are situated in a covered car park, cable routes for electric vehicle charge points must be installed in a minimum of one fifth of the total number of those parking spaces."

Cycle Parking

2.4.7 Guidance with regard to the design of cycle parking facilities and infrastructure is available within OCC's Cycling Design Standards, published in 2017. OCC cycle parking standards for B8 Land Uses are a minimum of 1 space per 500m^2.

2.5 Policy Summary

2.5.1 This TA demonstrates that the proposals are in accordance with policies relating to transport and highways at the national and local levels since there are walking and cycling facilities to the site as well as public transport services nearby, all of which will be improved either as part of the development or the delivery of the Science Bridge Road, which the development enables (land contribution). Additionally, the site is well located in respect to the strategic highway network.

3 Baseline Transport Conditions and Sustainable Travel Options

3.1 Introduction

3.1.1 This section of the TA provides a review of the existing transport conditions around the application site, in terms of opportunities for walking, cycling and public transport accessibility as well as connectivity with the local highway network.

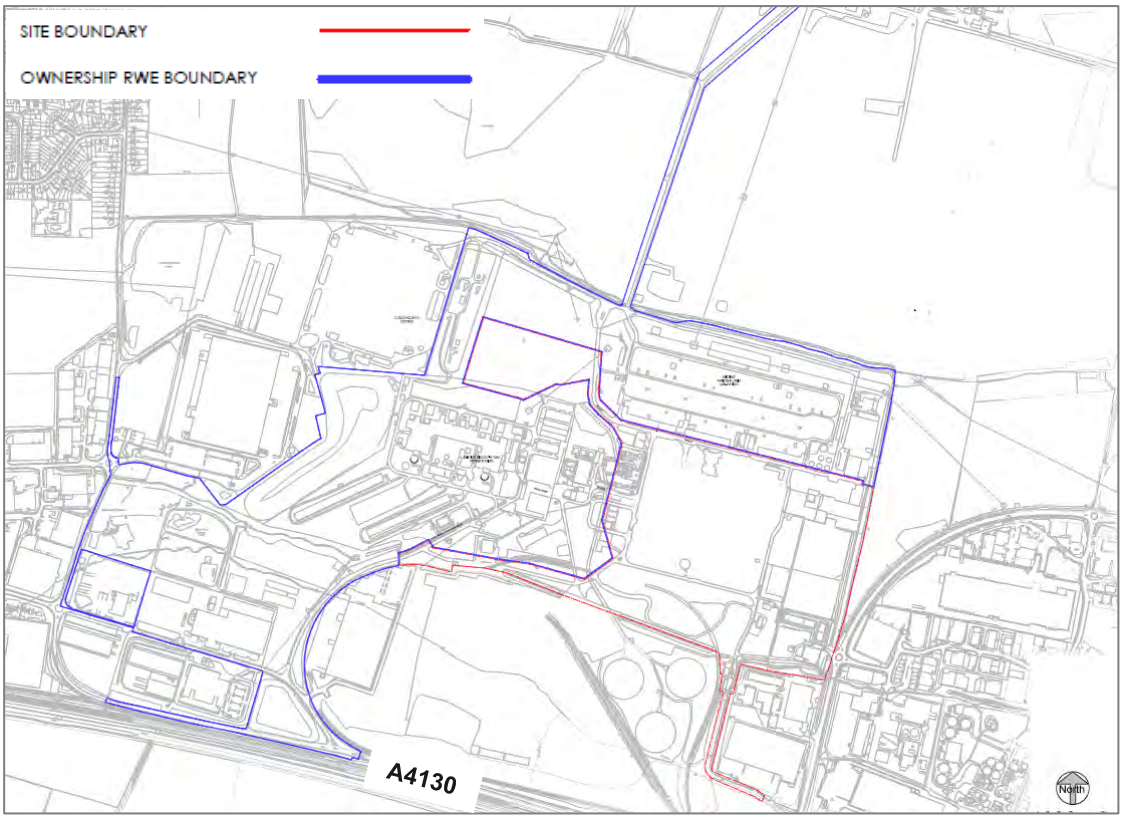
3.2 Site and Surroundings

3.2.1 The site is located to the north-west of Didcot, off the A4130 / Basil Hill Road and A4130/ Hawksworth roundabouts. It comprises an area of 330,085sqm, which is 71.8% of the current 460,009m^2 Didcot A Power Station site within RWE ownership.

3.2.2 The site is bounded by land within RWE ownership, to the north; Didcot B Power Station, to the west; Didcot Power Station old coal plant within the former Didcot A Power Station site, to the south; and the A4130 and greenfield land to the east.

3.2.3 The site lies within the administrative area of Vale of White Horse District Council (VoWHDC). Didcot town centre is located approximately 1.6 km to the southeast and Abingdon is approximately 6.5 km to the north. The location of the project site is illustrated **Figure 3.1**.

Figure 3.1: Site Location Plan



3.3 Local Facilities

3.3.1 The site is located approximately 2.5km northwest of the centre of Didcot, which provides local community, education, health, retail, and entertainment facilities including convenience shops, local supermarkets and restaurants. Didcot contains facilities which provide an opportunity for employees to use them during their breaks or when they travel to / from work (as 'pass-by' trips).

3.4 Active Travel (Pedestrians & Cyclists)

3.4.1 The site can currently be accessed on foot and cycle via:

- Hawksworth/A4130 roundabout
- Milton Road/ Basil Hill Road/ A4130 roundabout

Pedestrians

3.4.2 Pedestrians can access the site at Hawksworth/A4130 roundabout via the footways along the A4130. They can also access the site via Milton Road/ Basil Hill Road/ A4130 roundabout. The combined footway / cycleway along the A4130 provides connection to the bus stops along Basil Hill Road and on to Didcot Parkway Railway Station and town centre. The shared Foot/cycleway along the southern side of Milton Road connects to the pedestrian / cycle network at Milton Park to the west of the site.

3.4.3 No Public Rights of Ways (PRoWs) cross the site; however, there is an existing bridleway along Basil Hill Road (189/4/10) from the Milton Road / A4130 roundabout to the Didcot

Parkway car park access. There is also a Bridleway (189/27/10) along the A4130 north of the Milton Road A4130 roundabout which then continues north west towards Sutton Courtney.

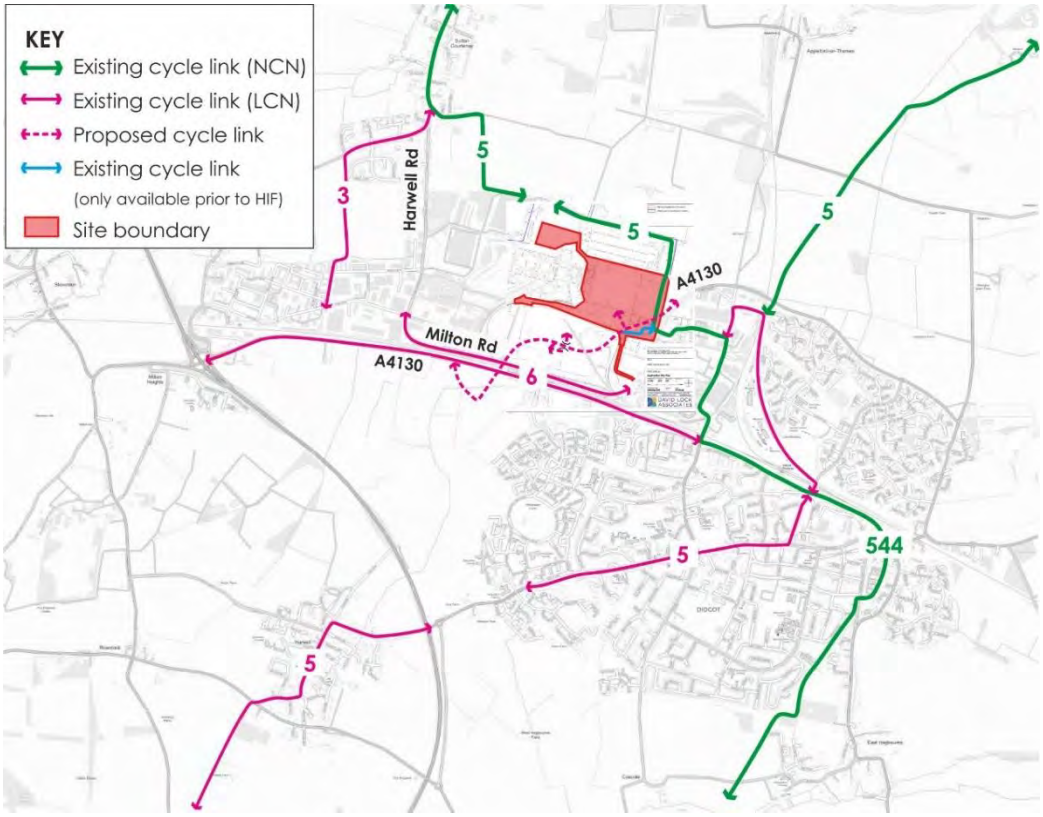
3.4.4 In terms of crossing facilities, the A4130 benefits from dropped kerb pedestrian crossing points at the Milton Road/Basil Hill Road roundabout. In addition to this, there are further drop kerb crossing points on the A4190/A4130 roundabout.

3.4.5 Committed improvement schemes at the Milton Road/Basil Hill Road/A4130 roundabout (Power Station) and Mendip Heights/ BB493/ A4130 Roundabout (Manor Bridge), as part of the Great Western Park development, include providing pedestrian facilities at and between the Manor Bridge roundabouts improving the pedestrian connectivity of the site.

Cyclists

3.4.6 Cycling in the UK has seen a revival in recent decades in regions that have invested in high quality infrastructure. Based on experience in central London and other major cities, investment in high quality cycle routes could unlock huge potential[1]. A plan showing existing and planned cycle links in the vicinity of the site is presented below.

Figure 3.2: Local Cycle Links



Note: The pedestrian route to A4130/Hawksworth roundabout will route available prior to the HIF1 scheme only

[1] Cycle Infrastructure Design (publishing.service.gov.uk)

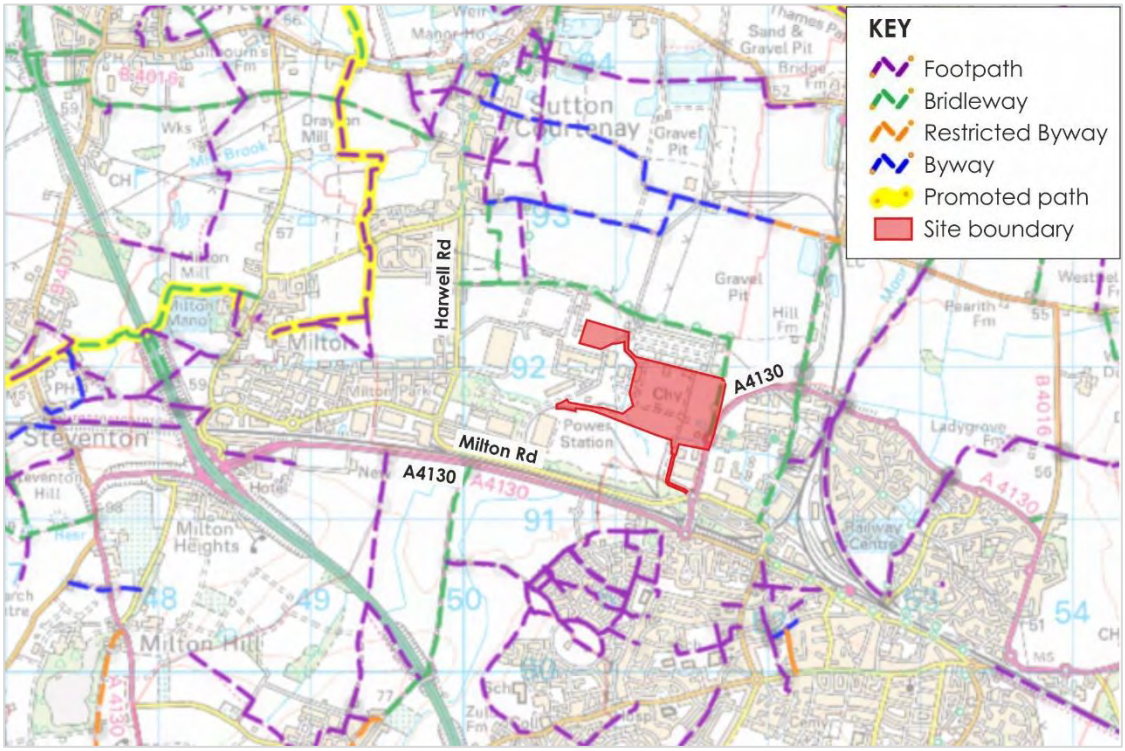
3.4.7 Milton Road facilitates access to the local cycle network and connects the site to the local area of Didcot. There is currently a shared footway / cycleway along the southern side of Milton Road and a bridleway along Basil Hill Road. Cyclists are currently required to cycle on the carriageway to access the wider cycle network.

3.4.8 National Cycle Route 5 runs along the eastern and northern boundaries of the site. This route leads into Didcot via the B4493 and north into Abingdon, while also passing through a variety of towns and villages. Cyclists from the site can access this route via the A4130 and Basil Hill Road.

3.4.9 The entirety of Didcot is within cycling distance of the site (8km) and the topography of the local area suggests that this would not be a limiting factor in people choosing to cycle. Thus, the site is considered accessible to cyclists in the local area.

3.4.10 A plan showing existing PRoWs in the local area around the site is shown in **Figure 3.3**.

Figure 3.3: PRoW Map



3.5 Public Transport

Bus

3.5.1 The nearest bus stops to the site are located on Basil Hill Road approximately 150m east of the Milton Road/ Basil Hill Road/ A4130 roundabout. These stops provide access to the X2, X32/33/X33 connector services, and to the Milton Park Shuttle (M10) bus service which operates throughout the day. These services are all operated by Thames Travel.

3.5.2 These bus stops on Basil Hill Road include seating, cover, timetable information, a bin and a raised kerb for easy boarding and alighting. **Table 3.1** summarises the service, route and frequencies of these bus services.

Table 3.1: Local Bus Services

Service	Route	Hourly Frequency			Time	
		AM	Off-Peak	PM	First service	Last service
X2	Oxford – Abingdon – Didcot	2	2 - 3	3	05:18	00:34
X32	Oxford – Didcot – Harwell – Chilton - Wantage	2	2	2	05:35	21:53
33	Abingdon – Culham – Sutton Courtenay – Didcot - Wallingford	0	1	1	06:47	21:03
91	Didcot Parkway Station – Ladygrove	0	1	0	09:38	15:38
99A 99C	Didcot Parkway Station – Milton Park	0	1	0	10:26	15:59
X36 Connector	Didcot – Milton Park – Steventon – Grove - Wantage	2	2	2	06:31	19:25

Source: Oxford Bus Company, Accessed March 2022

Rail

3.5.3 Didcot Parkway Station is located approximately 1.3 km to the east of the site (measured from the A4130/ Basil Hill Road roundabout), which equates to a 16-min walk or 5-minute cycle ride. A summary of rail service frequencies, all of which are operated by Great Western Railway from Didcot Parkway Station, are provided in **Table 3.2**.

Table 3.2: Local Rail Services

Destination	Hourly services			First Service	Last Service
	AM Frequency	Off-peak Frequency	PM Frequency		
London Paddington	6	5	5	05:45	00:24
Cheltenham Spa	1*	1	1	06:13	22:11
Bristol Temple Meads	2	2	2	06:13*	00:18
Bath Spa	2	2	2	06:13*	00:18
Swindon	3	3	4	06:13	00:18
Reading	7	5-6	6	04:10	01:02
Ealing Broadway	5**	5**	5**	05:12	00:24
Cardiff Central	2*	2*	2*	07:12*	00:18
Banbury	2**	2**	1**	05:20	22:42
Oxford	3	2	2	05:20	01:31

Source: National Rail, Accessed March 2022

Note: information from January 2020, pre pandemic.
*requires 1 change
**multiple services per hour requiring one change with no impact on journey time compared to direct service.

3.6 Local Highway Network

3.6.1 The main vehicular access to the site is via the A4130/ Basil Hill Road roundabout along the eastern boundary of the site leading onto Purchas Road. This is the heavy haul access to Didcot power station and National Grid. A secondary access to the site is currently provided off the A4130/ Hawksworth roundabout, approximately 400m north of the A4130/Basil Hill Road roundabout.

3.6.2 Milton Road is a single carriageway road which has a 40mph speed limit and no parking restrictions. Streetlighting is provided along its length. As mentioned previously, there is also a footway/ cycleway on the southern side of the carriageway which runs for the length of Milton Road.

3.6.3 Milton Road routes from a four-arm roundabout with Park Drive at its western end to a five-arm roundabout with the A4130 in the east. Milton Road provides access to the Milton Park business park to the west and to Didcot, through the A4130 in the east. The Milton Road / A4130 roundabout, referred to as the Power Station Roundabout, has single lane approaches on all arms, apart from the A4130 south arm, which has two entry lanes.

3.6.4 The A4130, south of the Milton Road/Basil Hill Road/A4130 Roundabout, is a single carriageway road with a speed limit of 50mph and no parking restrictions. It has intermittent streetlighting and no footways. The A4130 runs from the

3.6.5 Milton Road/Basil Hill Road/A4130 Roundabout in the north, crosses over the railway lines and connects to the Mendip Heights/ BB493/ A4130 roundabout in the south. The Mendip Heights/ BB493/ A4130 roundabout is a four-arm roundabout where the A4130 continues to the west and connects to the B4493 in the east and Mendip Heights to the south, providing access into Didcot.

3.6.6 Further west from the proposed site the A4130 continues to connect with the strategic road network through the A34, which leads to Oxford in the north and Newbury in the south.

3.7 Planned OCC Improvements

3.7.1 A number of improvements are planned around Didcot including:

- A4130 Capacity Improvement – dualling of the A4130 between the A34 and new Science Bridge, including new pedestrian measures
- Science Bridge – A new road link from the new dualled section of the A4130, over the railway, back to the A4130 at Purchas Road, including pedestrian and cycling infrastructure
- Culham to Didcot River Crossing – a new road between Culham near the Science Centre to Didcot's A4130 perimeter road, including pedestrian and cycling infrastructure
- Clifton Hampden Bypass – a new road between the A415, Abingdon Road, at Culham Science Centre and B4015, Oxford Road, north of Clifton Hampden village

3.7.2 Oxfordshire County Council has been awarded £218M Housing Infrastructure Fund (HIF1) towards these £234M schemes, which are expected to opening to traffic by March 2026. A planning application for the HIF1 Didcot Garden Town Infrastructure project was submitted in November 2021 (planning ref. no. R3.0138/21), which seeks consent for the following:

"Planning application seeking full planning permission for 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); realignment of the A4130 north east of the proposed road bridge including the relocation of a lagoon; construction of a new road between Didcot and Culham (Didcot to Culham River Crossing) including the construction of three roundabouts, a road bridge over the Appleford railway sidings and 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.

At Land in the parishes of Milton, Didcot, Harwell, Sutton Courtenay, Appleford-on-Thames, Culham and Clifton Hampden."

3.7.3 The HIF1 scheme is designed to improve access to future housing and employment growth in the local area, including access by walking, cycling and public transport. As stated in the TA prepared in support of the planning application, HIF1 *"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."*

Science Bridge

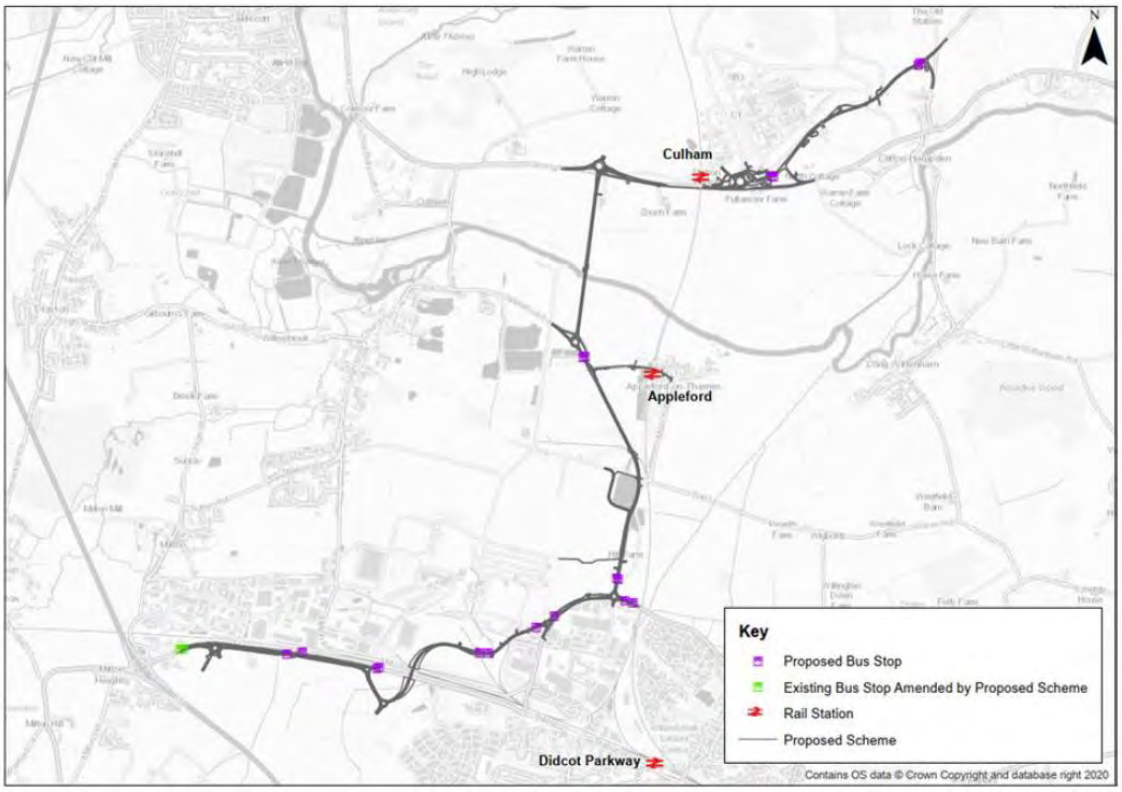
3.7.4 The Science Bridge is a new north-south bridge from the proposed Didcot Science Bridge roundabout, over the existing A4130, the Great Western Railway Mainline, and Milton Road, into the former Didcot A Power Station site. The proposed Science Bridge Link Road (SBLR) will connect the bridge with the A4130 Northern Perimeter Road north of the Purchas Road/ Hawksworth roundabout, close to the existing Southmead Industrial Estate.

3.7.5 The Science Bridge Road will be a single carriageway, with segregated footways and bidirectional cycleways on both sides of the road for most of its length. Various accesses are planned off the road alignment for the proposed development in the power station site, including a new (all modes) access to the east of the crossing of the railway line providing access to the Didcot Campus site. This includes new footways and high-quality cycle paths, making it more attractive for people to cycle and improve journey time reliability for bus passengers due to increased capacity.

3.7.6 A dedicated two-way cycleway and adjacent footway will be provided over the Didcot Science Bridge on the eastern side of the bridge. East of the Science Bridge and northern approach embankment dedicated bi-directional cycleways and adjacent footways are to be provided on both sides of the road.

3.7.7 Four additional bus stops (two eastbound and two westbound) will be provided along the Science Bridge Road as part of the HIF1 Scheme (planning ref. no. R3.0138/21). The location of proposed bus stops and bus stops relocated as part of the wider HIF1 scheme is shown in **Figure 3.4** below:

Figure 3.4: HIF1 Scheme Proposed Bus Stop Locations Plan



3.7.8 Drawings showing highway arrangements of the proposed Science Bridge, submitted as part of the HIF1 planning application (planning ref. no. R3.0138/21) have been included in **Appendix C** for information.

3.8 Potential Off-Site Improvements

3.8.1 During pre-application discussions, OCC requested that potential for cycleway improvements along the section of the A4130 between the Hawksworth roundabout and the Basil Hill Road/ Milton Road roundabout, are considered subject to implementation of the HIF1 scheme.

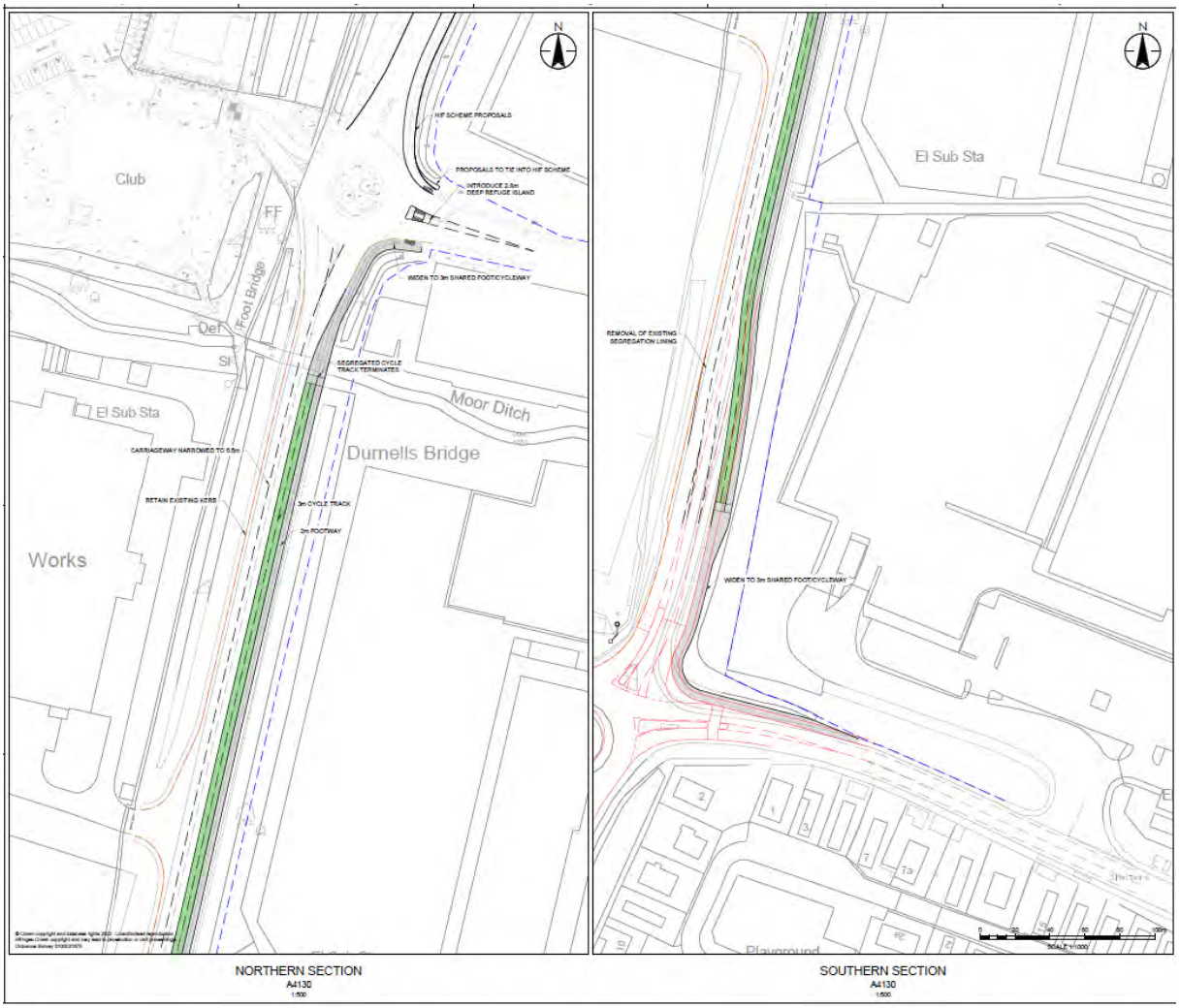
3.8.2 A review of opportunities for walking and cycling along this section of the A4130 has been carried out taking account of the A4130 downgrade and reduction in speed from 50mph to 30mph, improvements to the Basil Hill Road roundabout to be delivered by Taylor Wimpey (see Figure 6.2); and improvements to the approach to Basil Hill Road roundabout on Clowes land.

3.8.3 Contribution could be made to the delivery of the potential cycle improvements or similar shown in Figure 3.5 and plan included in **Appendix D**, which comprise:

- Potential to deliver a segregated 3m cycle track / 2m footway along most of the eastern section of the A4130 between the Hawksworth and Basil Hill Road roundabouts. This would require narrowing the carriageway to 6.5m
- Potential to widen the shared foot/cycleway to 3m near both roundabouts
- Potential to tie into the HIF1 scheme to the north, by introducing a 2.8m deep refuge island at the eastern arm of the Hawksworth roundabout

3.8.4 The above will be further investigated and are subject to topographical survey, utility investigations, discussions with OCC, the delivery of the HIF1 planning application and other considerations, etc.

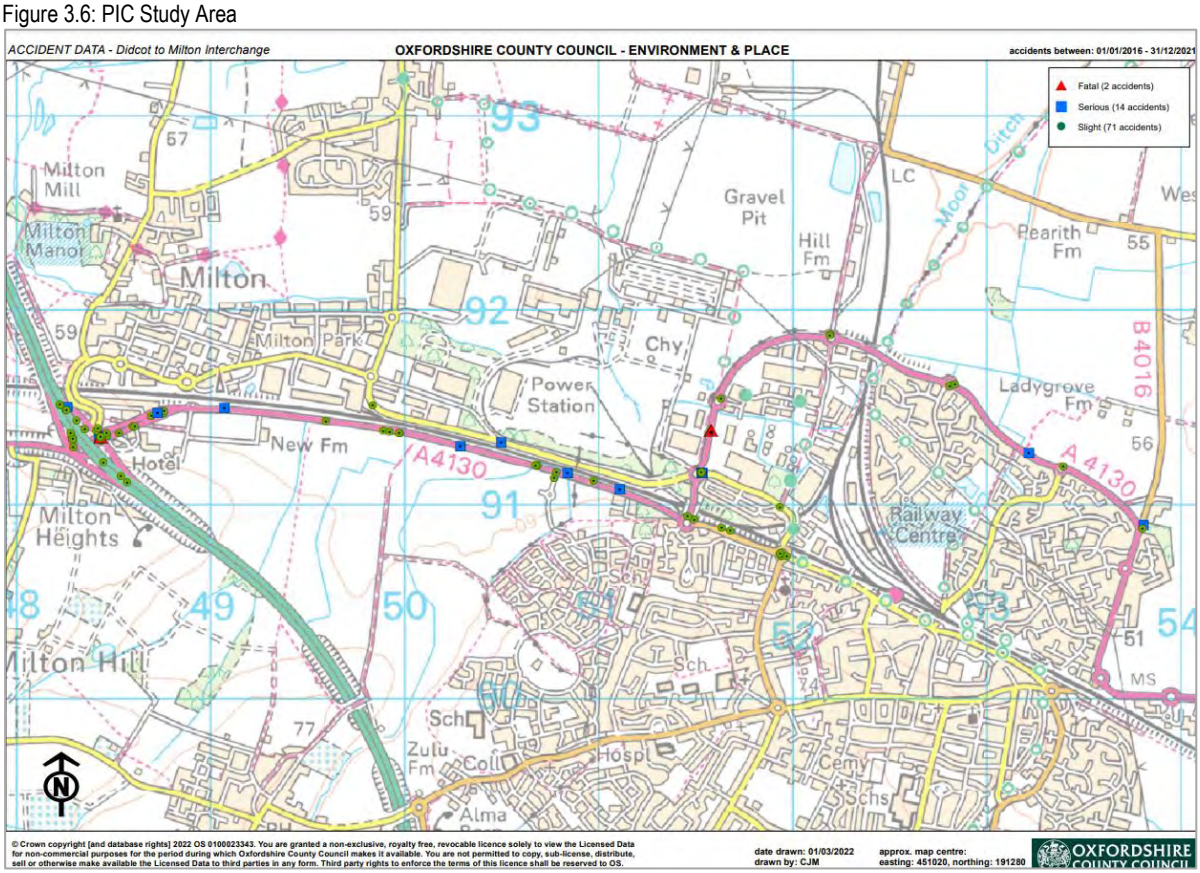
Figure 3.5: Possible A4130 Cycleway Improvements



3.9 Pedestrian Injury Collision Data Review

3.9.1 Personal Injury Collision (PIC) data was obtained from OCC for the most recently available 5-year period which is between 01/01/2016 and 31/12/2021 which is a 72-month timeframe. The study area for this data collection is illustrated in **Figure 3.6**.

Figure 3.6: PIC Study Area



Source: OCC Website

3.9.2 The accidents are classed into three categories: slight, serious, and fatal a definition of which is provided below:

- Slight Injury: Injuries of a minor nature, such as sprains, bruises or cuts not judged to be severe, or slight shock requiring only roadside attention (medical treatment is not a prerequisite for an injury to be defined as slight);
- Serious Injury: Injuries for which a person is detained in hospital, as an in-patient, or any of the following injuries, whether or not a person is detained in hospital; fractures, concussion, internal injuries, severe cuts and lacerations, several general shock requiring medical treatment and injuries which result in death 30 days after the accident. The serious category therefore covers a very broad range of injuries; and
- Fatal Injury: Injuries which cause death either immediately or any time up to 30 days after the accident.

3.9.3 In total, 87 accidents took place within the study area which resulted in 120 casualties, 2 of which were fatal, 16 serious, and 102 slight. These have been summarised in **Table 3.3** below.

Table 3.3: Summary of Accidents by Severity and Year

	Severity	Year						Total
		2016	2017	2018	2019	2020	2021	
All Modes	Fatal	0	0	1	0	0	1	2
	Serious	5	4	1	2	1	1	14
	Slight	14	17	9	12	14	5	71
Total		19	21	11	14	15	7	87
Vulnerable Road users (pedestrian, cyclists)	Fatal	0	0	0	0	0	0	0
	Serious	2	1	1	1	0	0	5
	Slight	4	4	3	1	3	2	17
Total		6	5	4	2	3	2	22

3.9.4 **Table 3.3** shows there has been a reduction in the number of overall collisions involving all modes and vulnerable road users, within the study area between 2016 and 2021.

3.9.5 A review of the serious and fatal accidents has been included below at key junctions within the study area.

Milton Interchange

3.9.6 Several accidents were recorded on the A34, on the slip roads and roundabout of the Milton Interchange, in addition to the A4130 approach to the junction. A cluster of accidents occurred on the eastern arm of the roundabout which consisted of 12 slight, 1 serious, and 1 fatal accident:

- None of the slight accidents involved a pedestrian or cyclist, and only one involved a motorcyclist
- The serious accident resulted from a car driving east to west on the A4130 from the Milton Interchange, and a motorcyclist travelling from the north from Park southbound. They collided resulting in a motorcyclist casualty
- The fatal incident occurred due to a car colliding with a motorcyclist head on when travelling in the north to south direction on the roundabout whilst the motorcyclist was going westbound
- Another serious accident occurred just north of the Milton Interchange junction located on the off slip when a car and motorcyclist were both traveling toward the A4130

3.9.7 A reduction in the number of accidents at this junction has been observed when comparing with collision data presented in the HIF1 TA for the 2014 and 2015 years, before the Milton Interchange improvement scheme was implemented changing the layout of the roundabout to a hamburger roundabout.

A4130 between Milton Interchange and Mendip Heights roundabout

3.9.8 Over the distance of approximately 3km of the A4130 between the Milton Interchange and the junction with Mendip Heights recorded 16 slight and 5 serious accidents. The serious incidents have been detailed further below:

- A goods vehicle was undertaking a U-turn c. 500m west of the A4130 / Sir Frank Williams Avenue and collided with a motorcyclist.
- When travelling in opposite directions, two goods vehicles collided c.50m to the east of the A4130 / Sir Frank Williams junction. One driver sustained slight injury, the other serious.
- One car rear-ended another car c.400m west of the Mendip Heights junction with the A4130 where the car driver and passenger of one car both sustained serious injury.
- Approximately 400m east from Milton Gate, three cars and one goods vehicle collided. Two cars were travelling westbound, and the other car and goods vehicle were travelling eastbound. They collided which resulted in one car driver slight casualty, and another car driver and passenger sustaining serious injury.
- A car was undertaking a U-turn and collided with a motorcycle travelling eastbound along the A4130 c.60m east of Milton Gate. This resulted in a motorcyclist casualty.

Milton Road

3.9.9 One slight and one serious accident was recorded along Milton Road. The serious accident took place when a cyclist a goods vehicle was both travelling in westbound on Milton Road c.1km west of the Milton Road / Basil Hill / A4130. This resulted in a cyclist serious injury.

Milton Road / A4130 / Basil Hill Road Roundabout

3.9.10 A total of 6 slight and 4 serious accidents took place on the Milton Road / A4130 / Basil Hill Roundabout. All of the slight and serious incidents involved cyclists. The serious accidents have been detailed below:

3.9.11 All 4 incidents involved a car and a cyclist who were travelling in opposite directions across the roundabout and seemed to collide due to driver error.

A4130 between Basil Hill Road and Hawksworth

3.9.12 Only one incident has been recorded along the A4130 between the Basil Hill Road roundabout junction, and the Hawksworth junction which was classified as fatal. This occurred when one car travelling northbound collided with a goods vehicle going southbound on the road. This resulted in a fatal car driver casualty.

Abingdon Road / A4130 / Lady Grove

3.9.13 One serious and two slight incident was recorded at the Abingdon Road / A4130 / Lady Grove junction. One of the slight accidents involved a cyclist casualty, and the serious incident resulted in a motorcyclist casualty. This accident occurred when the motorcyclist was travelling northbound on Abingdon Road and collided with a goods vehicle which was turning right out of the A4130.

A4130 between Avon Way and Mersey Way

3.9.14 Two slight incidents occurred at the A4130 / Avon Way roundabout with an addition slight recorded at the Mersey Way roundabout. These accidents did not include any vulnerable road users and appeared to have occurred due to driver error.

3.9.15 Between these junctions, a serious incident was recorded c. 200m northwest of the Mersey Way roundabout. This involved a goods vehicle and 2 cars all traveling in the northbound direction along the A4130 and collided resulting in two slight car passenger casualties, and one serious car passenger.

A4130 / B4493 / Mendip Heights Roundabout to Foxhall Road / Station Road / B4493 Roundabout

3.9.16 Two slight incidents took place on the roundabout with Mendip Heights, one including a cyclist. This incident occurred when a car was travelling in the west to east direction across the roundabout and the cyclist was travelling northbound from Mendip Heights. The collision resulted in a slight cyclist casualty.

3.9.17 At the roundabout with Foxhall Road, there is a cluster of 6 slight accidents which have been recorded, 4 of which involved cyclists and appeared to occur due to driver error.

3.9.18 A further two slight accidents were recorded between the two roundabouts which were both the result of driver error and did not include vulnerable road users.

3.9.19 The full data outputs for the accident data have been included within **Appendix E**.

4 Development Proposals

4.1 Summary of Development

4.1.1 As stated previously, the hybrid planning application comprises:

"Outline planning permission for the erection of up to 197,000m2 Use Class B8 data centre development with ancillary Use Class E office space, together with associated groundworks, utilities, infrastructure, engineering and enabling works. Matters relating to appearance, landscaping, drainage, layout and scale of the development areas reserved for subsequent approval; and

Full planning permission for the construction of new and improved site access, new access roads, hard & soft landscaping, creation of SUDS and all associated infrastructure and engineering works."

Note: the remaining 129,924m^2 of Didcot A Power Station (outside the application site but within RWE ownership) will continue operate for power generation, and access will be via the application site.

4.1.2 A plan showing the latest proposals has been included in **Appendix F** for information.

4.2 Proposed Access Strategy

Sustainable Access Strategy

Current Situation (no new Science Bridge)

4.2.1 The site is currently accessed on foot (and cycle) via:

- Hawksworth/A4130 roundabout
- Milton Road/Basil Hill Road/A4130 roundabout

4.2.2 The closest bus stops are on Basil Hill Road via both these routes.

HIF1/Science Bridge Road (when completed)

4.2.3 As discussed in **Section 3.7**, a number of improvements are planned around Didcot including HIF1/Science Bridge Road, a new road link from the new dualled section of the A4130, over the railway, back to the A4130 at Purchas Road, including pedestrian and cycling infrastructure.

4.2.4 Particularly, users of the Didcot Data Campus site travelling on foot or by cycle would benefit from the following:

- Segregated footways and two-way cycleways are provided continuously along the entire length of the Science Bridge in the vicinity of the site, in both directions
- Raised Copenhagen crossings proposed at junctions off the Science Bridge (including the site access junction), giving priority to pedestrians and cyclists travelling along the link over traffic

- A tiger crossing is proposed approximately 50m east of the proposed site access junction improving accessibility to/ from the wider area to the site for pedestrians and cyclists. Tactile paving is proposed at each end of the crossing

- A toucan crossing is proposed to the east of the new Science Bridge/ old A4130 junction to align with the existing bridleway (373/24/40: Sutton Courtenay) and National Cycle Network route 5

- A raised tiger crossing is proposed (subject to DfT approval) to provide connections between the eastern and western sides of the old A4130, immediately south of the new Science Bridge/ old A4130 priority junction, located approximately 300m northeast of the proposed site access junction

4.2.5 Bus stops are proposed approximately 200 and 300m north east of the site access junction. Bus stops are also proposed to the west of the site access along the Science Bridge, near the new Science Bridge/ Purchas Road junction.

4.2.6 The proposed development complements and therefore safeguards the planned future delivery of the highway infrastructure, in that both the OCC Science Bridge Road HIF scheme and the RWE scheme can be independently implemented without the need the need to vary works other than the precise alignment of the on plot data centre campus access road.

Contribution to A4130 Cycle Improvements

4.2.7 A possible cycle scheme is shown in **Figure 3.5** and explained in section 3.8. A plan is included in **Appendix D**, and it is expected that a contribution will be made to this.

Vehicular Access Strategy

Current Situation (no new HIF1/Science Bridge)

4.2.8 The site is currently accessed, and this would continue without a new science bridge, via:

- Purchas Road on to Milton Road/Basil Hill Road/A4130 roundabout (pedestrians, cyclists and heavy and light vehicle access)

- Purchas Road on to the A4130/Hawksworth roundabout (pedestrians, cyclists and light vehicles only)

HIF1/Science Bridge Road (when completed)

4.2.9 If the OCC HIF1 scheme is delivered, vehicular access to the site is proposed by means of a new road access (the details of which are to be included in the hybrid planning application) off the proposed Science Bridge Road.

4.2.10 The design of the proposed site access has been developed through joint working with RWE's design team and OCC's design team. The agreed access design has been included in the HIF1 planning application. A drawing is also included in the HIF1 TA application and a copy can be found in **Appendix G**.

4.2.11 Swept path assessments have been carried out to inform changes in the design of the site access junction, for the larger vehicles likely to serve the site, which are:

- 76.5m-long abnormal load carrier

- 16.5m-long articulated vehicle

4.2.12 Swept path assessment drawings have been included in **Appendix H**.

Parking

Car Parking Provision

4.2.13 As discussed in **Section 2.4**, OCC maximum vehicle parking standards for B8 Land Uses are 1 space per 200m^2, with 6% of parking spaces for Blue Badge Holders as per OCC Parking Policy published in September 2014.

4.2.14 Based on the above, a maximum of 985 spaces could be provided within the application site. However, it is considered that this provision would exceed the needs of the site given the lower employment density of data centres in comparison with other B8 land uses. The Homes & Community Employment Density Guide published in November 2015 demonstrates this:

Table 4.1 – Data Centre vs Other B8 Land Uses Employment Density

Use Class	Sub-Category	Sub-Sector	2015 Density (sqm)	2010 Density (sqm)
B1a Offices	General Office (NIA)	Corporate	13	12
		Professional Services	12	
		Public Sector	12	
		Tech	11	
		Finance & Insurance	10	
	Call Centres (NIA)		8	8
B1b	R&D Space (NIA)		40-60	n/a
B1c	Light Industrial (NIA)		47	47
B2	Industrial & Manufacturing (GIA)		36	36
B8	Storage & Distribution (GEA)	National Distribution Centre	95	General: 70 Large Scale & High Bay Warehousing: 80
		Regional Distribution Centre	77	
		'Final Mile' Distribution Centre	70	
Mixed B Class	Small Business Workspace	Incubator	30-60	Serviced Office: 10 *Detailed explanation for the changes in this category are provided in Section 3 Para's 3.77-3.82*
		Maker Spaces	15-40	
		Studio	20-40	
		Co-Working	10-15	
		Managed Workspace	12-47	
B8 / Sui Generis	Data Centres	Wholesale	200-950	47 *Detailed explanation for the changes in this category are provided in Section 3 Para's 3.85-3.88*
		Wholesale Dark Site	440-1,400	
		Co-location Facility	180-540	

4.2.15 **Table 4.1** sets out that data centres employment densities range between 1 employee per 180m^2 (high density) and 1,400 (low density), whilst higher densities of between 1 employee per 70m^2 and 95 m^2 usually apply within other B8 land uses. Therefore, it is expected that the employment density of a data centre (high density) will be approximately half of the employment density of other B8 Land Uses, and as such it is considered appropriate to halve maximum vehicle parking standards associated with the proposed data centre as follows:

Table 4.2 – Car Parking Standards for B8 and Data Centre

Land Use	Standard
B8 Land Use	1 space per 200m^2
Data Centre	1 space per 400m^2 (proposed provision)

Electric Vehicle Parking Provision

4.2.16 In line with The Building Regulations 2010, EV parking provision will be provided for 10% of car parking spaces, with additional 10% passive provision to allow for future uptake.

Cycle Parking Provision

4.2.17 OCC minimum cycle parking standards for B8 Land Uses are 1 space per 500m^2. As above, cycle parking provision has been halved to better reflect the employment density of the proposed data centre.

Table 4.3 – Cycle Parking Standards for B8 and Data Centre

Land Use	Standard
B8 Land Use	1 space per 500m^2
Data Centre	1 space per 1,000m^2 (proposed provision)

HGV Parking Provision

4.2.18 Additionally, OCC's pre-app response provided and included in **Appendix A**, stated that *"appropriate HGV on-site parking for the proposed use will need to be provided for and justified as part of a future transport submission."*

4.2.19 The expected HGV parking demand of the proposed data centre has been estimated using the daily profile of HGV trip generation extracted from the Didcot Data Centre application (planning ref. no. P21S0274FUL and P21V0167FUL).

Table 4.4 – HGV Hourly Parking Demand

Time Period	HGV Hourly profile	Arr	Dep	2-W
07:00-08:00	0.00%	0	0	0
08:00-09:00	33.33%	15	15	31
09:00-10:00	0.00%	0	0	0
10:00-11:00	16.67%	8	8	15
11:00-12:00	0.00%	0	0	0
12:00-13:00	16.67%	8	8	15
13:00-14:00	0.00%	0	0	0
14:00-15:00	16.67%	8	8	15
15:00-16:00	0.00%	0	0	0
16:00-17:00	16.67%	8	8	15
17:00-18:00	0.00%	0	0	0
18:00-19:00	0.00%	0	0	0
Daily (07:00 - 19:00)	100.00%	46	46	92

4.2.20 **Table 4.4** shows that it is anticipated that the maximum HGV parking demand will be 15 HGV spaces.

Summary

4.2.21 Based on the above, the proposed vehicle and cycle parking provision of the development is set out below:

Table 4.5 – Proposed Vehicle Provision

Land Use	Proposed Provision
Car parking provision Blue Badge Holder	493 spaces 30 spaces (6% of total 493 spaces)
Cycle parking provision	197 spaces
HGV parking provision	15 spaces

5 Extant and Future Trip Generation and Distribution

5.1 Introduction

5.1.1 This section sets out the proposed methodology to estimate the vehicular trip rates and trip generation of the extant and proposed development, for each land use proposed at the site.

5.1.2 It should be noted that the assessment has been carried out on the basis of the application site being 334,594m^2 (72.7% of the current Didcot A Power Station site), instead of the proposed 330,085 m^2 (71.8% of Didcot A Power Station site). This small difference is due to changes to the application site boundary since the assessment process started. The implication of this is minimal and only affects the assessment of calculation of traffic associated with the continued power generation, which is addressed in **Section 5.3** below.

5.2 Extant Traffic Generation

5.2.1 The extant traffic generation associated with the current permitted development rights associated with power generation is based upon:

- **Power Generation:** The proportion of the site currently owned by RWE against the original Didcot A Power Station site surveyed in 2011, which are the most recent surveys carried out whilst the site was in operation. This approach is preferred over the use of 2020 surveys (available on the HIF1 Didcot Garden Town Infrastructure Transport Assessment submitted as part of the planning application) due to:

  - The demolition programme is still ongoing on the site; therefore, surveys would not be typical or reflect the permitted rights.

  - The 2011 surveys provide the best reflection of traffic flows with the site operating under its permitted development rights. The current permitted development rights on the site allow for the following:

    "RWE Generation UK Plc ("RWE") holds an electricity generation licence under Section 6(1) of the Electricity Act 1989 and is entitled to exercise powers conferred by Schedules 3 and 4 of that Act. As such, RWE is a statutory undertaker as defined in S262(6) of the T&CPA 1990. RWE holds its interest in the site of Didcot A Power Station for the purposes of its statutory undertaking and as such the Didcot A Power Station site is classed as operational land in accordance with S263 of the T&CPA. The site predates 1968 and has been subject of specific planning consents for the purposes of energy generation for several decades. Schedule 2, Part 15, Class B of the T&CP (GPD) (England) Order 2015, as amended, sets out the permitted development rights that exist in relation to RWE's undertaking at Didcot A. These rights are wide ranging and allow for many types of development uses. Consequently, the Didcot A site has the ability to generate traffic movements without the need for planning permission. The 2011 surveys provide a reasonable reflection of traffic flows with the site operating under its permitted use."

  As stated previously, RWE's current land ownership is 51.6% of the original Didcot A Power Station site.

- **Existing office building:** This building has changed its use since 2011 from a social club to its current use as offices. The estimated traffic generated by the existing office building located west of the A4130/ Purchas Road/ Hawksworth roundabout. This has been

estimated using trip rates agreed as part of the planning application for the Clowes Land at Didcot A planning application (LPA ref. no. P16/C1231/FUL).

Power Generation

5.2.2 Table 5.1 provides the derived traffic generation of the extant permission (under the permitted development rights) of the is therefore as follows:

Table 5.1: Extant Power Generation Traffic

Time period	Vehicle Trips								
	Arrivals			Departures			Total		
	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total
08:00 - 09:00	33	3	36	4	3	7	37	6	43
17:00 - 18:00	6	3	9	24	3	26	30	5	35
09:00 - 19:00	**197**	**19**	**216**	**212**	**17**	**229**	**410**	**35**	**445**

Existing Office Building (Old Club House)

5.2.3 Table 5.2 provides the vehicle trips rates associated with the office element. These have been extracted from the Clowes planning application Transport Assessment (ref. no. P/21/S0274/FUL).

Table 5.2: Existing Office Trip Rates

Time period	Vehicle Trip Rates								
	Arrivals			Departures			Total		
	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total
08:00 - 09:00	1.087	0.026	1.113	0.180	0.024	0.204	1.267	0.050	1.317
17:00 - 18:00	0.115	0.000	0.115	0.892	0.001	0.893	1.007	0.001	1.008
09:00 - 19:00	**3.999**	**0.160**	**4.159**	**4.090**	**0.214**	**4.304**	**8.089**	**0.374**	**8.463**

5.2.4 The 1,197m^2 office traffic generation is outlined in Table 5.3.

Table 5.3: Total Office Building (Old Club House) Traffic Generation

Time period	Vehicle Trips								
	Arrivals			Departures			Total		
	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total
08:00 - 09:00	13	0	13	2	0	2	15	1	16
17:00 - 18:00	1	0	1	11	0	11	12	0	12
09:00 - 19:00	**48**	**2**	**50**	**49**	**3**	**52**	**97**	**4**	**101**

5.2.5 The total extant traffic generation associated with the power generation and existing office building is outlined below in Table 5.4.

Table 5.4: Total Existing Traffic Generation

Time period	Vehicle Trips								
	Arrivals			Departures			Total		
	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total
08:00 - 09:00	46	3	49	6	3	10	52	6	59
17:00 - 18:00	8	3	10	34	3	37	42	5	47
09:00 - 19:00	**245**	**21**	**266**	**261**	**19**	**280**	**506**	**40**	**546**

5.3 Future Traffic Generation

Existing Office Building (Old Club House)

5.3.1 Table 5.3 provides the likely traffic generation associated with the continued use of the existing office building.

Continued Power Generation (outside the application red line, but accessed through the development)

5.3.2 The application site is 330,085m^2, which is 71.8% of the current 460,009m^2 Didcot A Power Station site within RWE ownership. The remaining 129,924m^2, which represents 14.6% of the original Didcot A Power Station site surveyed in 2011 (i.e. 129,924m^2 of the original 890,775m^2 Didcot A surveyed in 2011), will continue for continued power generation. It should be noted that National Grid will also continue to access their site via the application site. Any traffic generated was captured within the 2011, but is not expected to be significant, particularly in peak hours. Abnormal load access to replace and remove the transformers is vital through the application site.

5.3.3 The continued power generation is therefore estimated to generate the following traffic levels which are displayed in Table 5.5.

Table 5.5: Continued Power Generation Traffic

Time period	Arrivals			Departures			Total		
	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total
08:00 - 09:00	9	1	10	1	1	2	11	2	12
17:00 - 18:00	2	1	2	7	1	7	8	1	10
09:00 - 19:00	**56**	**5**	**61**	**60**	**5**	**65**	**116**	**10**	**126**

5.3.4 It should be noted that the continued power generation traffic above has been calculated on the basis of the site being 325,580m^2 (70.7% of Didcot A Power Station site), in line with the previous site red line boundary. Although this has changed and is now 330,085m^2 (71.8% of Didcot A Power Station site), the difference is insignificant and has bearing on the results of the overall assessment, with 0-1 vehicle increase in peak periods.

Table 5.6: Continued Power Generation Traffic (Previous Redline and Applied in the Assessment)

Time period	Arrivals			Departures			Total		
	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total
08:00 - 09:00	10	1	10	1	1	2	11	2	13
17:00 - 18:00	2	1	3	7	1	8	9	2	10
09:00 - 19:00	**58**	**5**	**63**	**62**	**5**	**67**	**120**	**10**	**130**

Data Centre

People Trip Generation

5.3.5 People trip rates have been estimated using trip rates set out in the TA submitted as part of the planning application for the proposed Didcot Data Centre site (planning ref. no. P21S0274FUL and P21V0167FUL), trip rates and associated trip generation these are presented below:

Table 5.7: Data Centre Total People Trip Rates and People Trip Generation

Time Period	People Trip Rates			People Trips		
	Arr	Dep	2-W	Arr	Dep	2-W
AM (08:00 - 09:00)	0.058	0.035	0.092	113	68	181
PM (17:00 - 18:00)	0.035	0.035	0.069	68	68	136

Vehicle Trip Generation

Core Test

5.3.6 As agreed with OCC following submission of the Transport Scoping Note in January 2022, a trip generation 'Core Test' has been carried out on the basis of the following staff shift patterns:

- General staff arrive 07:00 – 19:00 (day) and 19:00 to 07:00 (night)
- Security staff 08:00 – 17:00 (day) and 17:00 – 08:00 (night)
- Visiting and maintenance staff 08:00 – 15:00.

5.3.7 Trip rates have been extracted from the TAs prepared in support of planning applications at nearby sites, as follows:

- Car/ LGV trip rates and daily profile: Didcot Data Centre or Amazon site (planning ref. no. P21S0274FUL and P21V0167FUL)
- HGV trip rates: Land West of Didcot B or Cloud HQ site (planning. ref. no. P18/V2277/FUL).

5.3.8 Agreed trips rates for the Core Test are set out below:

Table 5.8 - Proposed Trip Rates (Core Test)

Time Period	Car/LGV			HGV		
	Arr	Dep	2-W	Arr	Dep	2-W
AM (08:00 - 09:00)	0.000	0.035	0.035	0.004	0.003	0.007
PM (17:00 - 18:00)	0.000	0.035	0.035	0.000	0.000	0.000

Sensitivity Test

5.3.9 Following pre-application discussions with OCC and comments received with regards to the proposed methodology to estimate trip rates and trip generation associated with the proposed data centre, it was agreed that a Sensitivity Test would be carried out to account for a higher proportion of trip rates during the AM and PM peak periods. These have been estimated based on a review and selection of additional data centre planning applications, using an average of car/ LGV trip rates extracted from the Chandos Park Estate TA (planning ref. no. 21/0013/OUTOPDC), and the Frogmore site TA (planning ref. no. 21/0182/OUTOPDC), as shown below:

Table 5.9 - Proposed Car/LGV Trip Rates (Sensitivity Test)

Site	Time Period	Arr	Dep	2-W
Chandos	AM (08:00 - 09:00)	0.067	0.015	0.083
Frogmore		0.000	0.026	0.026
Average		**0.034**	**0.021**	**0.054**
Chandos	PM (17:00 - 18:00)	0.015	0.067	0.083
Frogmore		0.000	0.000	0.000
Average		**0.008**	**0.034**	**0.041**

5.3.10 The vehicle trip generation associated with the data centre, under the Core and Sensitivity Tests is presented below:

Table 5.10 - Proposed Data Centre Vehicle Trip Generation (Core Test vs. Sensitivity Test)

Access	Time period	Arrivals			Departures			Two Way		
		Car/ LGV	HGV	Total	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total
Core Test	08:00 - 09:00	**0**	**8**	**8**	**68**	**5**	**73**	**68**	**14**	**82**
	17:00 - 18:00	**0**	**0**	**0**	**68**	**0**	**68**	**68**	**0**	**68**
	09:00 - 19:00	**408**	**46**	**454**	**408**	**46**	**454**	**816**	**92**	**908**
Sensitivity Test	08:00 - 09:00	**67**	**8**	**75**	**41**	**5**	**47**	**108**	**14**	**122**
	17:00 - 18:00	**16**	**0**	**16**	**67**	**0**	**67**	**83**	**0**	**83**
	09:00 - 19:00	**408**	**46**	**454**	**408**	**46**	**454**	**816**	**92**	**908**

5.4 Development People and Vehicle Trip Generation

5.4.1 People and vehicle trips have been calculated based on trip rates outlined in the previous section. The traffic levels predicted, as a result of the proposals, have been distributed, as follows:

- **Current Situation (No Science Bridge Road):** using traffic surveys carried out in 2011 at Didcot A Power Station at the main access (Purchas Road off the Milton Road/ A4130 roundabout) and secondary access (Purchas Road off the A4130/ Hawksworth roundabout). Traffic associated with the office building located west of the A4130/ Purchas Road/ Hawksworth roundabout uses the secondary access

- **Science Bridge Road (when completed):** all traffic uses the proposed access off Science Bridge Road, with the exception of the office building located west of the A4130/ Purchas Road/ Hawksworth roundabout, which uses the secondary access

Net Development Vehicle Trip Generation

5.4.2 The net development vehicle trip generation of the development has been calculated, as follows:

Net Development Vehicle Trip Generation = Office Vehicle Trip Generation (see **Table 5.3)** + Continued Power Generation Traffic (see **Table 5.5**) + Proposed Data Centre Vehicle Trip Generation (see **Tables 5.8** for Core Test and **Table 5.10** for Sensitivity Test) – Extant Traffic Generation, which includes office (see **Table 5.4**).

Table 5.11: Net Development Vehicle Trip Generation

	Time period	Arrivals			Departures			Two Way		
		Car/ LGV	HGV	Total	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total
Core Test	08:00 - 09:00	10	9	19	69	6	76	79	15	94
	17:00 - 18:00	2	1	3	75	1	76	77	2	78
	09:00 - 19:00	**466**	**51**	**517**	**470**	**51**	**521**	**936**	**102**	**1,038**
Sensitivity Test	08:00 - 09:00	77	9	86	43	6	49	119	15	134
	17:00 - 18:00	18	1	18	74	1	75	91	2	93
	09:00 - 19:00	**466**	**51**	**517**	**470**	**51**	**521**	**936**	**102**	**1,038**
Extant	08:00 - 09:00	33	3	36	4	3	7	37	6	43
	17:00 - 18:00	6	3	9	24	3	26	30	5	35
	09:00 - 19:00	**197**	**19**	**216**	**212**	**17**	**229**	**410**	**35**	**445**
Diff Core	08:00 - 09:00	-23	6	-17	65	3	68	42	10	51
	17:00 - 18:00	-4	-2	-6	51	-2	49	47	-4	43
	09:00 - 19:00	**268**	**33**	**301**	**258**	**34**	**292**	**526**	**67**	**593**
Diff Sensitivity	08:00 - 09:00	44	6	50	38	3	42	82	10	92
	17:00 - 18:00	11	-2	10	50	-2	48	62	-4	58
	09:00 - 19:00	**268**	**33**	**301**	**258**	**34**	**292**	**526**	**67**	**593**

Vehicle Trip Distribution

5.4.3 An assessment of the likely distribution of net vehicle trips has been carried as follows:

- Car and LGV extant and development trips have been assigned to the highway network using Census 2011 data for the output area where Milton Park is located (E00146332)
- HGV trips have been assumed to all travel via the A34 to the Milton Interchange, travelling along the A4130 via the Mendip Heights and Basil Hill Road roundabout

5.4.4 Traffic flow diagrams showing distribution of car/LGV and HGV traffic, as well as development and extant traffic for the 'Current Situation' and 'Science Bridge' scenarios have been included in **Appendix I** for information.

6 Highway Impact

6.1 Introduction

6.1.1 This section provides an assessment of the future operational efficiency of local junctions around the site, using local junction assessment software (Junctions 10).

6.2 Methodology

6.2.1 Traffic flows presented in **Section 5** have been input in the software to estimate the likely operation of the following junctions:

1) A4130 / B4493 / Mendip Heights (Improvement Scheme – Committed)
2) A4130 / Milton Road / Basil Hill Road (Improvement Scheme – Committed)
3) Valley Park Spine Road / Science Bridge (Proposed HIF1 Junction)
4) Science Bridge / A4130 (Proposed HIF1 Junction)
5) A4130 / Collet (Existing Junction / Improvement Scheme – Proposed as part of HIF1)*
6) A4130 / Purchase Road / Hawksworth (Existing Junction)
7) B4493 / Foxhall Road / Station Road (Existing Junction)
8) A4130 / Avon Way (Existing Junction)
9) A4130 / Mersey Way (Existing Junction)
10) A4130 / Abingdon Road / Ladygrove (Improvement Scheme – Committed)
11) A4130 / Sir Frank Williams Avenue (Existing Junction)
12) Milton Interchange (Existing Junction)

*Existing junction without HIF1 scheme in place/ Improvement Scheme if HIF1 is delivered.

6.2.2 Junctions proposed as part of HIF1 have only been tested within the 'with HIF' Scenario (see below), these are the Valley Park Spine Road/ Science Bridge, Science Bridge/ A4130 and A4130 Collet (improvement scheme).

Assessment Years

6.2.3 Junction assessments at the above junctions have been carried out for the following assessment years:

- 2020 Baseline, in line with the base year of the HIF1 planning application
- 2026 Reference Case (without HIF1): using traffic flows available in the HIF1 TA for the 2024 and 2034 years (without HIF1), pro-rata to 2026
- 2026 With Development (without HIF1): 2026 Reference Case (without HIF1) + Net Development traffic flows

- 2026 Reference Case (with HIF1): using traffic flows available in the HIF1 TA for the 2024 and 2034 years (with HIF1), pro-rata to 2026

- 2026 With Development (with HIF1): 2026 Reference Case (without HIF1) + Net Development traffic flows

6.3 Baseline Flows

6.3.1 The baseline flows have been derived from the HIF1 planning application (R3/013821) which was published in September 2021. Within this application, it states that the 2020 baseline is the result of the Didcot Paramics microsimulation model, which is maintained and operated, on behalf of OCC, by Systra.

6.3.2 The model includes housing and employment completion trajectories as supplied by the relevant LPAs (VoWHDC and SODC). These were updated in June-August 2020, in preparation for the work to support the HIF1 planning application.

Adjusted Baseline

6.3.3 Land at Didcot A (ref. no. P15/S1880/O) was included in the Transport Assessment for HIF, which included:

- 25,000sqm B1 offices split into:
  - 12,500sqm B1a and
  - 12,500sqm B1b/c units
- 110,000sqm B2/B8 units split into:
  - 85,000sqm B8 units and
  - 25,000sqm B2 units
- 13,000sqm A1 Retail park (including 1,500sqm of convenience retail)
- 150 bed hotel
- 500sqm A3/A4 pub/restaurant
- 400 residential dwellings

6.3.4 The HIF1 TA accounts for all land uses except 150-bed hotel, which is assumed to be excluded due as most of the traffic would arrive/depart outside of the peak periods.

6.3.5 The most recent applications include:

- P16V1231FUL Clowes Land at Didcot A Power Station Phase 1 - 22,488qm gross internal area, comprising of 20,116sqm warehousing and 2,372sqm office

- P21/S0274/FUL and P22/S1216/DIS - Land at Former Didcot A Power Station North of Milton Road Didcot - Hybrid planning application consisting of:

  a) Full Planning Application for the erection of a single storey 8,692 m2 Data Centre building

  b) Outline Planning Application for the erection of a two storey 20,800 m2 Data Centre building

- P22/V1053/RM - Phase A3 & A4 Signia Park Didcot - Erection of four employment unit (Use Class B1(c)/B2/B8) at plot A3/A4 with ancillary offices), including 57,832sqm B8 and 3577sqm B1.

- P20/V2899/RM - Plot A2 Signia Park Didcot - Approval of an employment unit (Use Class B1(c)/B2/B8) with total area of 5,750sqm (5,202sqm warehouse and 557sqm office)

6.3.6 The Transport Assessment for Land at Former Didcot A Power Station North of Milton Road Didcot sets out the changes in traffic generation particularly in relation to this part of the site. This is outlined below:

Type	Period	Previous Application			Recent Application			Diff		
		Arr	Dep	2-W	Arr	Dep	2-W	Arr	Dep	2-W
Total Vehicles	08:00 - 09:00	109	195	304	4	10	14	105	185	290
	17:00 - 18:00	187	135	322	0	6	6	187	129	316
HGvs	08:00 - 09:00	1	1	2	4	4	8	-3	-3	-6
	17:00 - 18:00	0	0	0	0	0	0	0	0	0

6.3.7 Junction assessments have been carried out for the junction operating over capacity without HIF, with these adjustments to the future reference case.

6.4 Net Development Traffic

6.4.1 Net Development Traffic flows (Data Centre Development Traffic and other continued uses – Extant Traffic) presented in **Section 5** and assigned to the wider highway network as presented in **Appendix I**, have informed the junction models in the 'With Development' scenarios set out above.

6.5 Junction Assessments

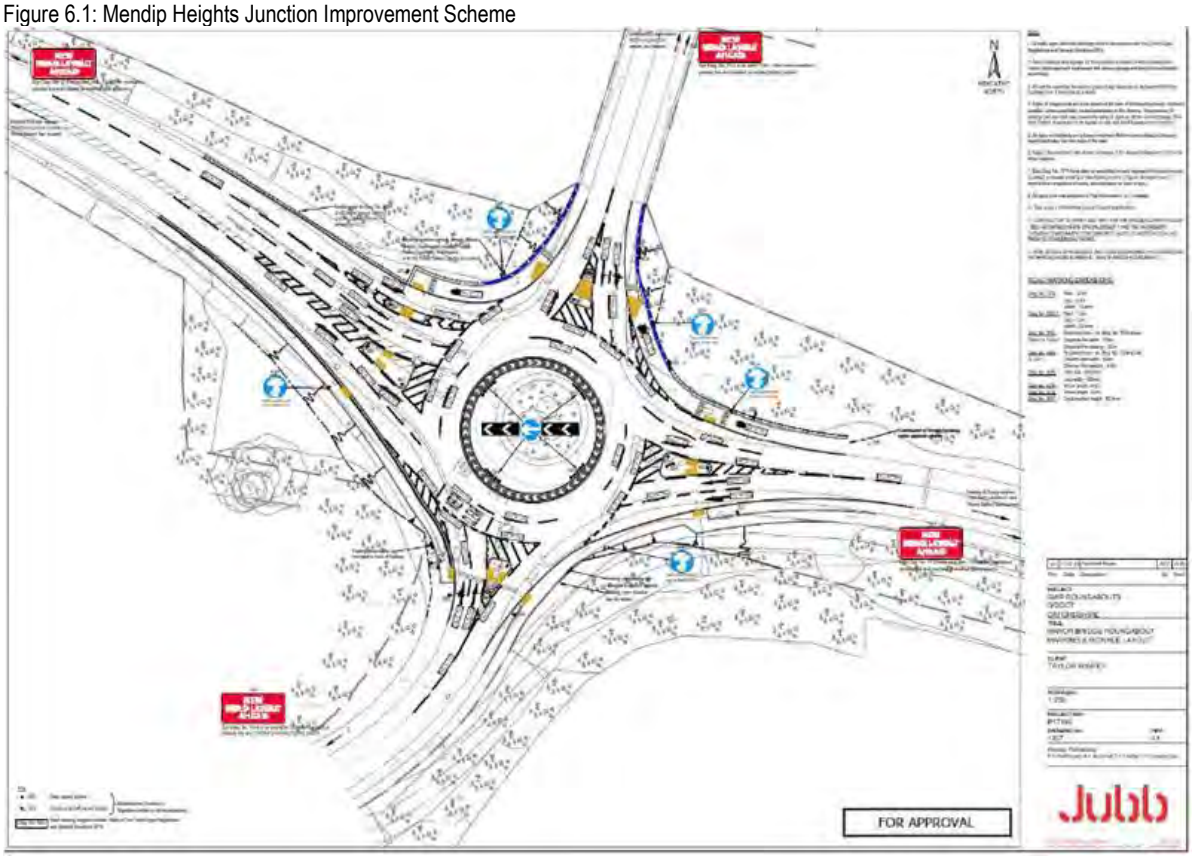
6.5.1 Priority-controlled junctions on the local highway network have been assessed using the industry standard Junctions 10 software.

6.5.2 Signal controlled junctions have been assessed using the industry standard LinSig signal junction assessment software. The LinSig modelling work provides forecasts of queue lengths, the Degree of Saturation (DoS) and the Practical Reserve Capacity (PRC) of the junction. The overall junction performance is considered in terms of the Practical Reserve Capacity (PRC). A positive PRC indicates that a junction has spare capacity and may be able to accept more traffic. A negative PRC indicates that the junction is over capacity.

Junction 1: A4130 / B4493 / Mendip Heights (Improvement Scheme - Committed)

6.5.3 The existing A4130/ B4493/ Mendip Heights junction is subject to S278 improvements to be delivered by the Great Western Park development, following permission in 2008 (planning ref. no. P02/W0848/O). The latest drawing has been extracted from the HIF1 TA, however it is understood that the scheme is currently undergoing review by OCC Road Agreements Team.

Figure 6.1: Mendip Heights Junction Improvement Scheme



6.5.4 This junction has been assessed using industry standard TRL Junctions 10 software, which sets out the RFC, delay, and queue length for the junction. The results for the Core Test have been set out in **Table 6.1**, with **Table 6.4** illustrating the Sensitivity Test.

Core Test

Table 6.1: Junction 1 Core Test Junction Assessment Results

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2020 Baseline							
1 - A4130 (N)	0.6	5.57	0.36	A	1.3	6.65	0.54	A
2 - B4493	0.9	4.26	0.45	A	1.7	6.72	0.62	A
3 - Mendip Heights	0.1	4.56	0.07	A	0.1	6.11	0.09	A
4 - A4130 (W)	1.1	3.35	0.51	A	0.6	2.40	0.36	A
	2026 Reference Case Without HIF							
1 - A4130 (N)	3.3	12.59	0.75	B	8.6	30.53	0.91	D
2 - B4493	44.9	104.21	1.04	F	60.0	135.28	1.07	F
3 - Mendip Heights	0.2	7.17	0.16	A	0.1	6.29	0.10	A
4 - A4130 (W)	1.5	4.92	0.59	A	1.4	4.00	0.57	A
	2026 Reference Case With HIF							
1 - A4130 (N)	0.3	4.13	0.22	A	1.0	5.88	0.50	A
2 - B4493	2.5	7.33	0.71	A	2.2	7.38	0.69	A
3 - Mendip Heights	0.2	6.03	0.14	A	0.1	4.76	0.08	A
4 - A4130 (W)	0.8	3.25	0.42	A	0.4	2.23	0.29	A
	2026 Development Without HIF							
1 - A4130 (N)	4.1	14.84	0.79	B	10.8	37.50	0.93	E
2 - B4493	56.2	127.99	1.06	F	69.0	154.67	1.09	F
3 - Mendip Heights	0.2	7.35	0.17	A	0.1	6.40	0.10	A
4 - A4130 (W)	1.5	4.75	0.58	A	1.4	3.94	0.57	A
	2026 Development With HIF							
1 - A4130 (N)	0.3	4.18	0.23	A	1.0	5.98	0.51	A
2 - B4493	2.4	7.25	0.71	A	2.2	7.36	0.69	A
3 - Mendip Heights	0.2	6.00	0.14	A	0.1	4.76	0.08	A
4 - A4130 (W)	0.8	3.23	0.42	A	0.4	2.22	0.29	A

6.5.5 The results of the Core Test indicate that there are some capacity issues on the B4493 approach of the junction for the scenarios 'without HIF'. The junction operates over capacity in the 2026 Reference Case (without HIF) scenario, with a very small impact associated with the development. It should be noted that traffic flows used in this assessment are extracted from the HIF1 TA, include traffic associated with the previous permission for 400 residential units at the Clowes site, but a data centre has now been delivered on the site, which generates a lower level of traffic than residential. Therefore, this demonstrates a worst-case assessment. If the background flows are adjusted as outlined in section 6.3.3, then **Table 6.2** outlines the results.

6.5.6 The junction operates within capacity with the HIF1 scheme.

Table 6.2: Junction 1 Core Test Junction Assessment Results (Adjusted Base)

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2026 Ref Case (without HIF - Adjusted Baseline)							
1 - A4130 (N)	2.9	11.40	0.72	B	5.1	19.24	0.84	C
2 - B4493	28.7	72.71	1.01	F	45.2	105.96	1.04	F
3 - Mendip Heights	0.2	7.02	0.16	A	0.1	6.02	0.10	A
4 - A4130 (W)	1.2	4.30	0.53	A	1.2	3.67	0.54	A
	2026 With Development (without HIF - Adjusted Baseline)							
1 - A4130 (N)	2.8	11.36	0.72	B	4.9	18.74	0.83	C
2 - B4493	26.9	69.11	1.00	F	44.4	104.44	1.04	F
3 - Mendip Heights	0.2	6.99	0.16	A	0.1	6.02	0.10	A
4 - A4130 (W)	1.2	4.25	0.52	A	1.2	3.65	0.53	A

6.5.7 The results further indicate that the development has insignificant impact on the junction even without the HIF1 scheme.

Sensitivity Test

6.5.8 The results of the Sensitivity Test indicate similar capacity issues along the B4493 approach to the junction for the scenarios ‘without HIF’. Again, the development has limited impact on the junction operation.

6.5.9 The junction operates within capacity with the HIF1 scheme.

Table 6.3: Junction 1 Sensitivity Test Junction Assessment Results

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2020 Baseline							
1 - A4130 (N)	0.6	5.57	0.36	A	1.3	6.65	0.54	A
2 - B4493	0.9	4.26	0.45	A	1.7	6.72	0.62	A
3 - Mendip Heights	0.1	4.56	0.07	A	0.1	6.11	0.09	A
4 - A4130 (W)	1.1	3.35	0.51	A	0.6	2.40	0.36	A
	2026 Reference Case Without HIF							
1 - A4130 (N)	3.3	12.59	0.75	B	8.6	30.53	0.91	D
2 - B4493	44.9	104.21	1.04	F	60.0	135.28	1.07	F
3 - Mendip Heights	0.2	7.17	0.16	A	0.1	6.29	0.10	A
4 - A4130 (W)	1.5	4.92	0.59	A	1.4	4.00	0.57	A
	2026 Reference Case With HIF							
1 - A4130 (N)	0.3	4.13	0.22	A	1.0	5.88	0.50	A
2 - B4493	2.5	7.33	0.71	A	2.2	7.38	0.69	A
3 - Mendip Heights	0.2	6.03	0.14	A	0.1	4.76	0.08	A
4 - A4130 (W)	0.8	3.25	0.42	A	0.4	2.23	0.29	A
	2026 Development Without HIF							
1 - A4130 (N)	3.7	13.87	0.77	B	10.8	37.50	0.93	E
2 - B4493	50.7	116.58	1.05	F	69.0	154.67	1.09	F
3 - Mendip Heights	0.2	7.28	0.16	A	0.1	6.40	0.10	A
4 - A4130 (W)	1.6	5.13	0.60	A	1.4	4.00	0.57	A
	2026 Development With HIF							
1 - A4130 (N)	0.3	4.16	0.23	A	1.0	5.97	0.51	A
2 - B4493	2.5	7.46	0.72	A	2.2	7.41	0.69	A
3 - Mendip Heights	0.2	6.08	0.14	A	0.1	4.77	0.08	A
4 - A4130 (W)	0.8	3.27	0.42	A	0.4	2.25	0.30	A

6.5.10 The results outlined in **Table 6.4** further indicate that the development (sensitivity test) has insignificant impact on the junction with an adjusted base (as outlined in section 6.3.3) even without the HIF1 scheme.

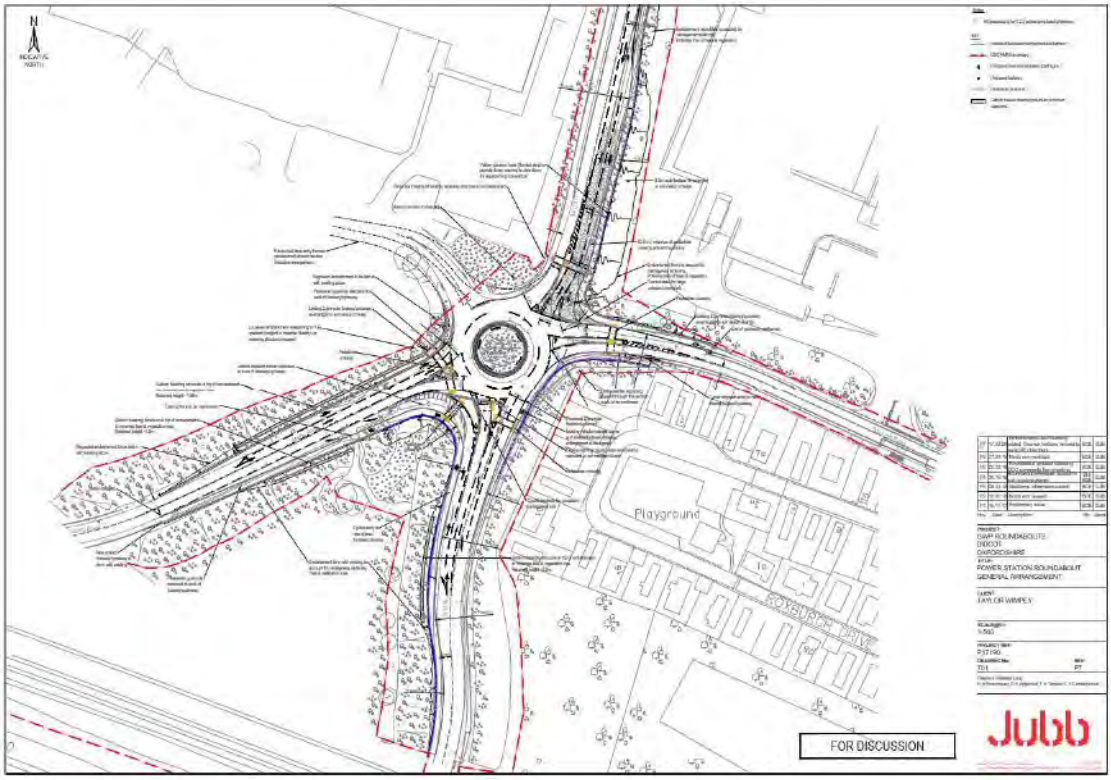
Table 6.4: Junction 1 Sensitivity Test Junction Assessment Results (Adjusted Base)

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2026 Ref Case (without HIF - Adjusted Baseline)							
1 - A4130 (N)	2.9	11.40	0.72	B	5.1	19.24	0.84	C
2 - B4493	28.7	72.71	1.01	F	45.2	105.96	1.04	F
3 - Mendip Heights	0.2	7.02	0.16	A	0.1	6.02	0.10	A
4 - A4130 (W)	1.2	4.30	0.53	A	1.2	3.67	0.54	A
	2026 With Development (without HIF - Adjusted Baseline)							
1 - A4130 (N)	2.8	11.36	0.72	B	4.9	18.74	0.83	C
2 - B4493	26.9	69.11	1.00	F	44.4	104.44	1.04	F
3 - Mendip Heights	0.2	6.99	0.16	A	0.1	6.02	0.10	A
4 - A4130 (W)	1.3	4.50	0.55	A	1.2	3.69	0.54	A

Junction 2: A4130 / Milton Road / Basil Hill Road (Improvement Scheme – Committed)

6.5.11 The existing A4130/ Milton Road/ Basil Hill Road junction is subject to S278 improvements to be delivered by the Great Western Park development, following permission in 2008 (planning ref. no. P02/W0848/O). The latest drawing has been extracted from the HIF1 TA; however it is understood that the scheme is currently undergoing review by OCC Road Agreements Team.

Figure 6.2: Basil Hill Road Junction Improvement Scheme



6.5.12 Junction 10 has been utilised to assess this junction for the various scenarios as set out in **Table 6.5** and **Table 6.6** for the core and Sensitivity Testing, respectively.

Core Test

Table 6.5: Junction 2 Core Test Junction Assessment Results

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2020 Baseline							
1 - A4130 (N)	0.8	3.44	0.44	A	0.6	3.30	0.34	A
2 - Backhill Road	1.5	14.39	0.59	B	0.9	9.80	0.48	A
3 - A4130 (S)	1.3	11.01	0.54	B	0.4	5.21	0.28	A
4 - Milton Road	0.4	3.97	0.28	A	2.0	7.35	0.66	A
5 - Power Station	0.0	3.17	0.03	A	0.1	3.90	0.05	A
	2026 Reference Case Without HIF							
1 - A4130 (N)	2.2	6.09	0.68	A	1.0	4.26	0.48	A
2 - Backhill Road	2.5	44.45	0.71	E	0.4	11.16	0.25	B
3 - A4130 (S)	2.8	16.32	0.72	C	1.3	7.36	0.55	A
4 - Milton Road	0.9	5.86	0.46	A	4.6	16.37	0.83	C
5 - Power Station	0.1	4.42	0.07	A	0.1	5.42	0.11	A
	2026 Reference Case With HIF							
1 - A4130 (N)	0.3	2.48	0.22	A	0.3	2.72	0.21	A
2 - Backhill Road	0.7	7.65	0.41	A	0.4	6.55	0.26	A
3 - A4130 (S)	0.5	5.75	0.31	A	0.2	3.74	0.16	A
4 - Milton Road	0.4	3.53	0.25	A	1.5	5.83	0.59	A
5 - Power Station	0.1	2.84	0.11	A	0.1	3.43	0.10	A
	2026 Development Without HIF							
1 - A4130 (N)	2.3	6.32	0.69	A	1.0	4.28	0.48	A
2 - Backhill Road	2.6	48.14	0.73	E	0.4	11.20	0.25	B
3 - A4130 (S)	2.5	15.19	0.70	C	1.3	7.26	0.54	A
4 - Milton Road	0.9	5.75	0.45	A	4.5	16.07	0.82	C
5 - Power Station	0.1	4.42	0.07	A	0.1	5.42	0.11	A
	2026 Development With HIF							
1 - A4130 (N)	0.3	2.52	0.23	A	0.3	2.76	0.22	A
2 - Backhill Road	0.7	7.75	0.41	A	0.4	6.65	0.26	A
3 - A4130 (S)	0.5	5.71	0.31	A	0.2	3.74	0.16	A
4 - Milton Road	0.3	3.48	0.25	A	1.5	5.83	0.59	A
5 - Power Station	0.1	2.81	0.11	A	0.1	3.44	0.10	A

6.5.13 The results of the Core Test indicate that all arms of the junction operate well within capacity on all scenarios.

Sensitivity Test

Table 6.6: Junction 2 Sensitivity Test Junction Assessment Results

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2020 Baseline							
1 - A4130 (N)	0.8	3.44	0.44	A	0.6	3.30	0.34	A
2 - Basil Hill Road	1.5	14.39	0.59	B	0.9	9.80	0.48	A
3 - A4130 (S)	1.3	11.01	0.54	B	0.4	5.21	0.28	A
4 - Milton Road	0.4	3.97	0.28	A	2.0	7.35	0.66	A
5 - Power Station	0.0	3.17	0.03	A	0.1	3.90	0.05	A
	2026 Reference Case Without HIF							
1 - A4130 (N)	2.2	6.09	0.68	A	1.0	4.26	0.48	A
2 - Basil Hill Road	2.5	44.45	0.71	E	0.4	11.16	0.25	B
3 - A4130 (S)	2.8	16.32	0.72	C	1.3	7.36	0.55	A
4 - Milton Road	0.9	5.86	0.46	A	4.6	16.37	0.83	C
5 - Power Station	0.1	4.42	0.07	A	0.1	5.42	0.11	A
	2026 Reference Case With HIF							
1 - A4130 (N)	0.3	2.48	0.22	A	0.3	2.72	0.21	A
2 - Basil Hill Road	0.7	7.65	0.41	A	0.4	6.55	0.26	A
3 - A4130 (S)	0.5	5.75	0.31	A	0.2	3.74	0.16	A
4 - Milton Road	0.4	3.53	0.25	A	1.5	5.83	0.59	A
5 - Power Station	0.1	2.84	0.11	A	0.1	3.43	0.10	A
	2026 Development Without HIF							
1 - A4130 (N)	2.5	6.83	0.71	A	1.0	4.47	0.49	A
2 - Basil Hill Road	2.9	53.73	0.75	F	0.4	11.97	0.26	B
3 - A4130 (S)	3.7	20.24	0.77	C	1.4	7.51	0.56	A
4 - Milton Road	1.0	6.12	0.47	A	4.7	16.79	0.83	C
5 - Power Station	0.1	4.75	0.10	A	0.2	5.87	0.17	A
	2026 Development With HIF							
1 - A4130 (N)	0.3	2.50	0.22	A	0.3	2.76	0.22	A
2 - Basil Hill Road	0.7	7.77	0.41	A	0.4	6.65	0.26	A
3 - A4130 (S)	0.5	5.85	0.32	A	0.2	3.74	0.16	A
4 - Milton Road	0.3	3.53	0.25	A	1.5	5.82	0.59	A
5 - Power Station	0.1	2.84	0.11	A	0.1	3.43	0.10	A

6.5.14 The results of the Sensitivity Test indicate that all approaches of the junction operate well within capacity on all scenarios.

Junction 3: Valley Park Spine Road/ Science Bridge Junction (Proposed HIF1 Junction)

6.5.15 The proposed Valley Park Spine Road/ Science Bridge junction is a three-arm roundabout that will provide access to the new Didcot Science Bridge to the north, and Valley Park housing development to the south. The proposed general arrangement of the roundabout has been extracted from the HIF1 TA and is presented below:

Figure 6.3: Valley Park Spine Road/ Science Bridge Proposed Junction Layout

6.5.16 The results of the junction assessment carried out with Junctions 10 is presented in **Table 6.5**, for the Core Test, and **Table 6.6**, for the Sensitivity Test.

Core Test

Table 6.7: Junction 3 Core Test Junction Assessment Results

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2026 Reference Case With HIF							
1 - Science Bridge	0.8	3.68	0.41	A	0.7	3.67	0.42	A
2 - Valley Park Spine Road	0.3	4.16	0.23	A	0.2	3.67	0.15	A
3 - Science Bridge Link	0.9	4.54	0.47	A	1.1	4.80	0.51	A
	2026 Development With HIF							
1 - Science Bridge	0.8	3.67	0.41	A	0.7	3.65	0.42	A
2 - Valley Park Spine Road	0.4	4.41	0.28	A	0.2	3.82	0.19	A
3 - Science Bridge Link	0.9	4.49	0.46	A	1.1	4.76	0.51	A

6.5.17 The Core Test shows that the proposed junction will operate within capacity during both the AM and PM peak hours for the reference case and development 2026 scenarios.

Sensitivity Test

Table 6.8: Junction 3 Sensitivity Test Junction Assessment Results

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2026 Reference Case With HIF							
1 - Science Bridge	0.8	3.68	0.41	A	0.7	3.67	0.42	A
2 - Valley Park Spine Road	0.3	4.16	0.23	A	0.2	3.67	0.15	A
3 - Science Bridge Link	0.9	4.54	0.47	A	1.1	4.80	0.51	A
	2026 Development With HIF							
1 - Science Bridge	0.8	3.78	0.42	A	0.7	3.65	0.42	A
2 - Valley Park Spine Road	0.3	4.31	0.26	A	0.2	3.81	0.18	A
3 - Science Bridge Link	1.0	4.74	0.49	A	1.1	4.76	0.51	A

6.5.18 The results from the Sensitivity Test are very similar to the Core Test, showing that the junction operates well within capacity in both scenarios.

Junction 4: Science Bridge / A4130 (Proposed HIF1 Junction)

6.5.19 The proposed Science Bridge / A4130 junction is a priority junction located at the end of the Science Bridge, connecting with the A4130 Northern Perimeter Road to the north of the A4130/ Hawksworth roundabout.

Figure 6.4: Science Bridge/ A4130 Proposed Junction Layout

6.5.20 Both the Core and Sensitivity Tests have been assessed using Junctions 10, the results of which have been set out below in **Table 6.9**, and **Table 6.10**, respectively.

Core Test

Table 6.9: Junction 4 Core Test Junction Assessment Results

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2026 Reference Case With HIF							
Stream C-AB	0.2	12.17	0.17	B	0.1	10.37	0.08	B
Stream B-A	37.2	451.34	1.30	F	88.7	931.26	1.61	F
Stream B-C	6.8	637.55	1.31	F	10.0	1210.86	1.48	F
	2026 Development With HIF							
Stream B-A	40.5	494.91	1.34	F	92.2	968.28	1.65	F
Stream B-C	5.9	717.71	1.35	F	8.1	1335.62	1.49	F
Stream C-AB	0.3	12.92	0.22	B	0.2	10.77	0.12	B

6.5.21 The results illustrate that Stream B-A, and B-C would operate over capacity in both 2026 scenarios during the AM and PM peak hours. The issues increase with the addition of the development traffic, though this is only considered to be a minor increase.

6.5.22 As stated in the HIF1 TA, although the stand-alone junction model indicates this junction would operate over capacity, OCC views this as acceptable due to a number of reasons (as outlined in the HIF1 TA), including:

- The strategy for the Scheme is to prioritise the mainline flow over side arm flows, particularly in this location. The intention is for vehicles coming from the west on the A4130 wishing to travel north on Didcot to Culham River crossing or east on the A4130 Didcot Northern Perimeter Road to use the new Didcot Science Bridge, rather than continue along the old A4130 past Sir Frank Williams Avenue and use the A4130 / B4493 / Mendip Heights roundabout and A4130 / Basil Hill Road / Milton Road roundabout. A level of queuing on the side arm of this junction is likely to help to achieve this by influencing driver behaviour.

- OCC anticipates that a way to discourage traffic from using the existing A4130 between the Mendip Heights and Purchas Road roundabouts by creating a priority T-junction instead of a roundabout where the existing A4130 meets the new A4130, thus giving priority to the peripheral route.

- Stand-alone junction models do not account for breaks in the mainline traffic flow, as a result of junctions or crossings further upstream and downstream. The results are therefore likely to show longer queues on side arms of priority junctions.

6.5.23 Additionally, as mentioned previously, it is expected that background traffic has been overestimated as a result of accounting for a 400-dwelling scheme at the Clowes site, where a data centre has been approved instead.

6.5.24 Contribution is proposed to the improvements to the foot/cycleway along the A4130 to Basil Hill Road (to the Basil Hill Road bus stops). This will provide greater opportunity to travel by non-car means and reduce traffic to/from both the development and the wider local area. The possible scheme is included in **Appendix D**.

Sensitivity Test

Table 6.10: Junction 4 Sensitivity Test Junction Assessment Results

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2026 Reference Case With HIF							
Stream C-AB	0.2	12.17	0.17	B	0.1	10.37	0.08	B
Stream B-A	37.2	451.34	1.30	F	88.7	931.26	1.61	F
Stream B-C	6.8	637.55	1.31	F	10.0	1210.86	1.48	F
	2026 Development With HIF							
Stream B-A	41.7	514.87	1.36	F	92.2	968.28	1.65	F
Stream B-C	9.1	660.33	1.37	F	8.1	1335.62	1.49	F
Stream C-AB	0.3	12.61	0.20	B	0.2	10.77	0.12	B

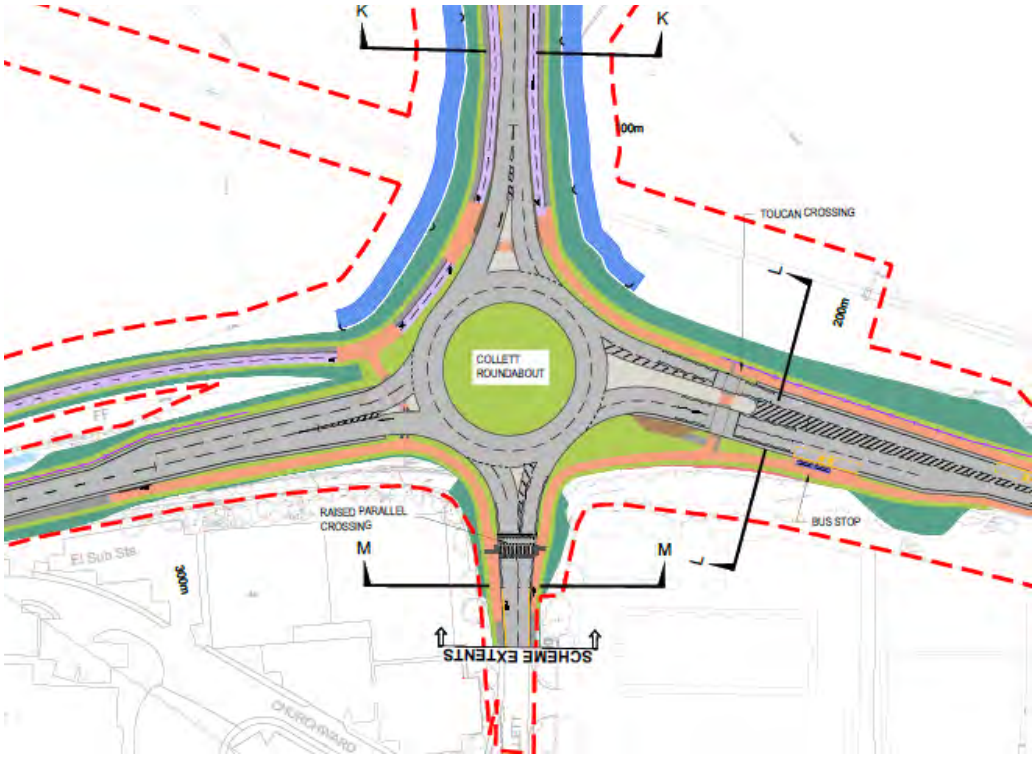
6.5.25 Similarly, the results of the Sensitivity Test indicates that the junction is likely to operate over capacity in both 2026 scenarios during the AM and PM peak periods. The reasons outlined above justify why this is acceptable.

Junction 5: A4130 / Collet (Existing Junction / HIF1 Improvement Scheme)

6.5.26 This junction currently consists of a 4-arm priority-controlled roundabout with the A4130 proving an east – west link around the northern edge of Didcot, a single country lane to the north, and Collet providing a link to industrial units to the south of the roundabout.

6.5.27 As part of HIF1 scheme, the junction would be improved to provide additional capacity, as shown below:

Figure 6.5: A4130/ Collet Proposed Improvement Scheme Layout



6.5.28 The results of the junction assessments for the Core and Sensitivity Tests for the existing (without HIF1 scenarios) and improved junction (with HIF1 scenarios) are presented **Tables 6.11 – 6.14**.

Core Test

Table 6.11: Junction 5 Core Test Junction Assessment Results (Without HIF)

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2020 Baseline							
1 - Farm Access	0.1	5.37	0.06	A	0.2	4.47	0.16	A
2 - A4130 (E)	0.4	2.88	0.27	A	0.9	4.02	0.48	A
3 - Collett	0.0	4.91	0.01	A	0.0	4.18	0.02	A
4 - A4130 (W)	0.9	3.95	0.48	A	0.3	2.68	0.23	A
	2026 Reference Case Without HIF							
1 - Farm Access	0.1	6.38	0.11	A	0.4	5.13	0.26	A
2 - A4130 (E)	0.6	3.25	0.38	A	2.4	7.12	0.71	A
3 - Collett	0.0	3.47	0.01	A	0.0	4.90	0.03	A
4 - A4130 (W)	2.4	6.90	0.70	A	0.5	2.97	0.33	A
	2026 Development Without HIF							
1 - Farm Access	0.1	6.38	0.11	A	0.4	5.13	0.26	A
2 - A4130 (E)	0.6	3.24	0.38	A	2.4	7.12	0.71	A
3 - Collett	0.0	3.47	0.01	A	0.0	4.90	0.03	A
4 - A4130 (W)	2.4	6.92	0.71	A	0.5	2.97	0.33	A

6.5.29 The results of the Core Test junction assessment show that the existing junction is expected to operate within capacity in all scenarios (without HIF).

Table 6.12: Junction 5 Core Test Junction Assessment Results (With HIF)

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2026 Reference Case With HIF							
1 - Farm Access	0.0	2.35	0.03	A	0.1	2.16	0.08	A
2 - A4130 (E)	0.2	1.86	0.18	A	0.5	2.31	0.33	A
3 - Collett	0.0	2.43	0.00	A	0.0	2.44	0.01	A
4 - A4130 (W)	0.5	2.22	0.32	A	0.2	1.76	0.15	A
	2026 Development With HIF							
1 - Farm Access	0.0	2.34	0.03	A	0.1	2.16	0.08	A
2 - A4130 (E)	0.2	1.86	0.18	A	0.5	2.31	0.32	A
3 - Collett	0.0	2.32	0.00	A	0.0	2.42	0.01	A
4 - A4130 (W)	0.5	2.23	0.32	A	0.2	1.77	0.15	A

6.5.30 The results of the Core Test junction assessment show that the improved junction would operate within capacity in all scenarios (without HIF).

Sensitivity Test

Table 6.13: Junction 5 Sensitivity Test Junction Assessment Results (Without HIF)

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2020 Baseline							
1 - Farm Access	0.1	5.37	0.06	A	0.2	4.47	0.16	A
2 - A4130 (E)	0.4	2.88	0.27	A	0.9	4.02	0.48	A
3 - Collett	0.0	4.91	0.01	A	0.0	4.18	0.02	A
4 - A4130 (W)	0.9	3.95	0.48	A	0.3	2.68	0.23	A
	2026 Reference Case Without HIF							
1 - Farm Access	0.1	6.38	0.11	A	0.4	5.13	0.26	A
2 - A4130 (E)	0.6	3.25	0.38	A	2.4	7.12	0.71	A
3 - Collett	0.0	3.47	0.01	A	0.0	4.90	0.03	A
4 - A4130 (W)	2.4	6.90	0.70	A	0.5	2.97	0.33	A
	2026 Development Without HIF							
1 - Farm Access	0.1	6.38	0.11	A	0.4	5.13	0.26	A
2 - A4130 (E)	0.6	3.25	0.39	A	2.4	7.13	0.71	A
3 - Collett	0.0	3.47	0.01	A	0.0	4.90	0.03	A
4 - A4130 (W)	2.4	6.92	0.71	A	0.5	2.97	0.33	A

6.5.31 Similarly to the above, the results of the Sensitivity Test junction assessment show that the existing junction is expected to operate within capacity in all scenarios (without HIF).

Table 6.14: Junction 5 Sensitivity Test Junction Assessment Results (With HIF)

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2026 Reference Case With HIF							
1 - Farm Access	0.0	2.35	0.03	A	0.1	2.16	0.08	A
2 - A4130 (E)	0.2	1.86	0.18	A	0.5	2.31	0.33	A
3 - Collett	0.0	2.43	0.00	A	0.0	2.44	0.01	A
4 - A4130 (W)	0.5	2.22	0.32	A	0.2	1.76	0.15	A
	2026 Development With HIF							
1 - Farm Access	0.0	2.33	0.03	A	0.1	2.15	0.08	A
2 - A4130 (E)	0.2	1.86	0.18	A	0.5	2.31	0.33	A
3 - Collett	0.0	2.32	0.00	A	0.0	2.42	0.01	A
4 - A4130 (W)	0.5	2.23	0.32	A	0.2	1.76	0.15	A

6.5.32 The results of the Sensitivity Test junction assessment show that the improved junction would operate within capacity in all scenarios (with HIF).

Junction 6: A4130 / Purchase Road / Hawksworth (Existing)

6.5.33 This 4-arm priority-controlled roundabout is located to the southeast of the site. A Junctions 10 assessment of the core (**Table 6.15**) and sensitivity (**Table 6.16**) has been undertaken, the results of which have been included below.

Core Test

Table 6.15: Junction 6 Core Test Junction Assessment Results

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2020 Baseline							
1 - A4130 (N)	1.0	4.40	0.47	A	0.4	2.99	0.26	A
2 - Hawksworth	0.0	3.69	0.03	A	0.1	3.12	0.11	A
3 - A4130 (S)	0.5	2.98	0.33	A	0.8	3.38	0.44	A
4 - Purchas Road	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2026 Reference Case Without HIF							
1 - A4130 (N)	2.3	7.46	0.70	A	0.5	3.09	0.33	A
2 - Hawksworth	0.1	4.04	0.06	A	0.2	3.30	0.16	A
3 - A4130 (S)	0.9	3.48	0.47	A	1.3	4.21	0.56	A
4 - Purchas Road	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2026 Reference Case With HIF							
1 - A4130 (N)	0.7	3.70	0.42	A	0.3	2.60	0.21	A
2 - Hawksworth	0.0	3.09	0.03	A	0.1	2.78	0.09	A
3 - A4130 (S)	0.4	2.59	0.29	A	0.6	2.86	0.36	A
4 - Purchas Road	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2026 Development Without HIF							
1 - A4130 (N)	2.3	7.46	0.70	A	0.5	3.09	0.33	A
2 - Hawksworth	0.1	4.04	0.06	A	0.2	3.30	0.16	A
3 - A4130 (S)	0.9	3.48	0.47	A	1.3	4.21	0.56	A
4 - Purchas Road	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2026 Development With HIF							
1 - A4130 (N)	0.7	3.70	0.42	A	0.3	2.60	0.21	A
2 - Hawksworth	0.0	3.05	0.03	A	0.1	2.78	0.09	A
3 - A4130 (S)	0.4	2.59	0.29	A	0.6	2.86	0.36	A
4 - Purchas Road	0.0	0.00	0.00	A	0.0	0.00	0.00	A

6.5.34 The results from the Core Test indicate that for each scenario, this junction operates within capacity.

Sensitivity Test

Table 6.16: Junction 6 Sensitivity Test Junction Assessment Results

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2020 Baseline							
1 - A4130 (N)	1.0	4.40	0.47	A	0.4	2.99	0.26	A
2 - Hawksworth	0.0	3.69	0.03	A	0.1	3.12	0.11	A
3 - A4130 (S)	0.5	2.98	0.33	A	0.8	3.38	0.44	A
4 - Purchas Road	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2026 Reference Case Without HIF							
1 - A4130 (N)	2.3	7.46	0.70	A	0.5	3.09	0.33	A
2 - Hawksworth	0.1	4.04	0.06	A	0.2	3.30	0.16	A
3 - A4130 (S)	0.9	3.48	0.47	A	1.3	4.21	0.56	A
4 - Purchas Road	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2026 Reference Case With HIF							
1 - A4130 (N)	0.7	3.70	0.42	A	0.3	2.60	0.21	A
2 - Hawksworth	0.0	3.09	0.03	A	0.1	2.78	0.09	A
3 - A4130 (S)	0.4	2.59	0.29	A	0.6	2.86	0.36	A
4 - Purchas Road	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2026 Development Without HIF							
1 - A4130 (N)	2.4	7.64	0.71	A	0.5	3.10	0.33	A
2 - Hawksworth	0.1	4.09	0.06	A	0.2	3.31	0.16	A
3 - A4130 (S)	0.9	3.48	0.48	A	1.3	4.21	0.56	A
4 - Purchas Road	0.0	5.41	0.02	A	0.0	6.29	0.01	A
	2026 Development With HIF							
1 - A4130 (N)	0.7	3.70	0.42	A	0.3	2.60	0.21	A
2 - Hawksworth	0.0	3.05	0.03	A	0.1	2.78	0.09	A
3 - A4130 (S)	0.4	2.61	0.30	A	0.6	2.84	0.36	A
4 - Purchas Road	0.0	0.00	0.00	A	0.0	0.00	0.00	A

6.5.35 Similarly, the results from the Sensitivity Test indicate that for each scenario, this junction operates within capacity.

Junction 7: B4493 / Foxhall Road / Station Road (Existing)

6.5.36 This existing junction is a priority-controlled roundabout with four arms. This provides a connection between the A4130 to the west and Didcot Parkway Railway Station to the east, in addition to industrial units to the north and residential areas to the north and south.

6.5.37 Junctions 10 has been used to assess the core and sensitivity scenarios and the results have been included below in **Tables 6.17** and **6.19**.

Core Test

Table 6.17: Junction 7 Core Test Junction Assessment Results

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2020 Baseline							
1 - Foxhall Road (N)	0.3	6.67	0.25	A	3.5	29.57	0.79	D
2 - Station Road	1.6	7.83	0.61	A	2.7	14.08	0.74	B
3 - Foxhall Road (S)	1.6	6.88	0.61	A	0.6	4.28	0.38	A
4 - B4493	1.5	7.26	0.59	A	2.0	7.65	0.67	A
	2026 Reference Case Without HIF							
1 - Foxhall Road (N)	1.0	13.83	0.51	B	267.0	1957.36	2.10	F
2 - Station Road	34.2	104.14	1.04	F	108.0	441.65	1.21	F
3 - Foxhall Road (S)	43.5	115.63	1.05	F	1.5	6.96	0.60	A
4 - B4493	26.3	83.28	1.01	F	57.8	129.81	1.06	F
	2026 Reference Case With HIF							
1 - Foxhall Road (N)	0.3	6.66	0.25	A	2.8	23.76	0.75	C
2 - Station Road	1.6	7.94	0.62	A	2.3	12.30	0.70	B
3 - Foxhall Road (S)	1.6	7.02	0.62	A	0.6	4.12	0.37	A
4 - B4493	1.5	7.29	0.60	A	1.8	7.14	0.65	A
	2026 Development Without HIF							
1 - Foxhall Road (N)	1.0	13.67	0.51	B	268.0	1955.26	2.12	F
2 - Station Road	33.6	102.41	1.03	F	108.2	442.39	1.21	F
3 - Foxhall Road (S)	42.5	113.23	1.05	F	1.5	6.88	0.60	A
4 - B4493	26.1	82.53	1.01	F	55.3	124.96	1.06	F
	2026 Development With HIF							
1 - Foxhall Road (N)	0.3	6.63	0.25	A	2.8	23.75	0.75	C
2 - Station Road	1.6	7.92	0.62	A	2.3	12.30	0.70	B
3 - Foxhall Road (S)	1.7	7.19	0.63	A	0.6	4.17	0.37	A
4 - B4493	1.6	7.50	0.61	A	1.9	7.31	0.66	A

6.5.38 The junction operates within capacity with the HIF1 scheme.

6.5.39 The results of the Core Test indicate that this junction would operate over capacity in all future year scenarios without HIF. This shows that the development has limited impact on the operation.

6.5.40 As mentioned previously, traffic flows used in this assessment, as extracted from the HIF1 TA, include traffic associated with the previous permission for 400 residential units at the Clowes site, but a data centre has now been delivered on the site, which generates a lower level of traffic than residential. Therefore, this demonstrates a worst-case assessment. If the background flows are adjusted as outlined in section 6.3.3, the results are shown in **Table 6.18**.

Table 6.18: Junction 7 Core Test Junction Assessment Results (Adjusted Base)

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2026 Ref Case (without HIF - Adjusted Baseline)							
1 - Foxhall Road (N)	0.9	13.16	0.49	B	233.3	1679.85	2.04	F
2 - Station Road	22.0	73.40	1.00	F	104.7	423.52	1.21	F
3 - Foxhall Road (S)	32.0	89.40	1.03	F	1.4	6.80	0.59	A
4 - B4493	21.0	69.59	0.99	F	41.1	98.04	1.03	F
	2026 With Development (without HIF - Adjusted Baseline)							
1 - Foxhall Road (N)	1.0	13.54	0.50	B	242.5	1755.19	2.06	F
2 - Station Road	19.7	67.12	0.99	F	101.8	410.30	1.20	F
3 - Foxhall Road (S)	31.0	86.87	1.02	F	1.4	6.77	0.59	A
4 - B4493	24.2	77.70	1.01	F	45.3	105.98	1.04	F

6.5.42 The results show that the development has insignificant impact on the operation of the junction.

Sensitivity Test

Table 6.19: Junction 7 Sensitivity Test Junction Assessment Results

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2020 Baseline							
1 - Foxhall Road (N)	0.3	6.67	0.25	A	3.5	29.57	0.79	D
2 - Station Road	1.6	7.83	0.61	A	2.7	14.08	0.74	B
3 - Foxhall Road (S)	1.6	6.88	0.61	A	0.6	4.28	0.38	A
4 - B4493	1.5	7.26	0.59	A	2.0	7.68	0.67	A
	2026 Reference Case Without HIF							
1 - Foxhall Road (N)	1.0	13.83	0.51	B	267.0	1957.36	2.10	F
2 - Station Road	34.2	104.14	1.04	F	108.0	441.65	1.21	F
3 - Foxhall Road (S)	43.5	115.63	1.05	F	1.5	6.96	0.60	A
4 - B4493	26.3	83.28	1.01	F	57.8	129.81	1.06	F
	2026 Reference Case With HIF							
1 - Foxhall Road (N)	0.3	6.66	0.25	A	2.8	23.76	0.75	C
2 - Station Road	1.6	7.94	0.62	A	2.3	12.30	0.70	B
3 - Foxhall Road (S)	1.6	7.02	0.62	A	0.6	4.12	0.37	A
4 - B4493	1.5	7.29	0.60	A	1.8	7.14	0.65	A
	2026 Development Without HIF							
1 - Foxhall Road (N)	1.1	14.09	0.52	B	272.5	2034.89	2.12	F
2 - Station Road	38.6	114.73	1.05	F	107.3	437.58	1.21	F
3 - Foxhall Road (S)	45.2	119.99	1.06	F	1.5	6.99	0.60	A
4 - B4493	28.8	89.50	1.02	F	62.9	139.53	1.07	F
	2026 Development With HIF							
1 - Foxhall Road (N)	0.3	6.75	0.26	A	3.0	25.67	0.76	D
2 - Station Road	1.7	8.20	0.64	A	2.4	12.44	0.71	B
3 - Foxhall Road (S)	1.7	7.16	0.63	A	0.6	4.13	0.37	A
4 - B4493	1.6	7.45	0.61	A	1.9	7.31	0.66	A

6.5.43 Similarly, the results of the Sensitivity Test junction assessment indicate that the junction would operate over capacity in all future scenarios without HIF, but the development has a limited impact. The junction operates within capacity with the HIF1 scheme.

6.5.44 **Table 6.20** shows that with the adjusted base the development has insignificant impact on the operation of the junction.

Table 6.20: Junction 7 Sensitivity Test Junction Assessment Results (Adjusted Base)

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2026 Ref Case (without HIF - Adjusted Baseline)							
1 - Foxhall Road (N)	0.8	11.95	0.44	B	183.1	1378.84	1.91	F
2 - Station Road	10.6	39.52	0.93	E	100.7	396.25	1.20	F
3 - Foxhall Road (S)	16.5	51.80	0.97	F	1.4	6.52	0.58	A
4 - B4493	13.9	49.38	0.96	E	22.6	60.75	0.99	F
	2026 With Development (without HIF - Adjusted Baseline)							
1 - Foxhall Road (N)	0.8	12.25	0.46	B	192.1	1443.10	1.94	F
2 - Station Road	9.7	36.65	0.93	E	98.0	383.27	1.20	F
3 - Foxhall Road (S)	15.8	49.62	0.97	E	1.3	6.49	0.58	A
4 - B4493	15.6	54.25	0.97	F	25.2	66.27	1.00	F

6.5.45 Contribution is proposed to the improvements to the foot/cycleway along the A4130 to Basil Hill Road (to the Basil Hill Road bus stops). This will help encourage walking and cycling, as well as bus use. The possible scheme is included in **Appendix D**.

Junction 8: A4130 / Avon Way (Existing)

6.5.46 This junction consists of the A4130 for the eastern and western arms which form the boundary of the northern edge of Didcot. Avon Way travels in the north – south direction providing access to residential dwellings to the south of the junction.

6.5.47 **Tables 6.21** and **6.22** below consist of the Junctions 10 assessment results from the core and Sensitivity Tests.

Core Test

Table 6.21: Junction 8 Core Test Junction Assessment Results

	AM								PM							
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
	2020 Baseline															
1 - A4130 (E)	D1	0.9	5.13	0.47	A	4.85	A	62 % [2 - Avon Way]	D2	0.6	4.65	0.37	A	3.97	A	96 % [3 - A4130 (W)]
2 - Avon Way		0.7	6.87	0.42	A					0.1	3.89	0.12	A			
3 - A4130 (W)		0.3	2.67	0.24	A					0.9	3.63	0.48	A			
4 - Farm Access		0.0	0.00	0.00	A					0.0	0.00	0.00	A			
	2026 Reference Case Without HIF															
1 - A4130 (E)	D3	2.3	8.92	0.70	A	9.10	A	12 % [2 - Avon Way]	D4	1.3	6.95	0.57	A	6.32	A	36 % [3 - A4130 (W)]
2 - Avon Way		2.4	16.36	0.72	C					0.2	4.51	0.18	A			
3 - A4130 (W)		0.5	3.04	0.35	A					2.3	6.25	0.70	A			
4 - Farm Access		0.0	0.00	0.00	A					0.0	0.00	0.00	A			
	2026 Reference Case With HIF															
1 - A4130 (E)	D5	0.7	4.54	0.42	A	4.31	A	80 % [2 - Avon Way]	D6	0.5	4.16	0.33	A	3.60	A	119 % [3 - A4130 (W)]
2 - Avon Way		0.6	6.07	0.37	A					0.1	3.77	0.10	A			
3 - A4130 (W)		0.3	2.44	0.21	A					0.8	3.29	0.43	A			
4 - Farm Access		0.0	0.00	0.00	A					0.0	0.00	0.00	A			
	2026 Development Without HIF															
1 - A4130 (E)	D7	2.3	8.92	0.70	A	9.10	A	12 % [2 - Avon Way]	D8	1.3	6.95	0.57	A	6.32	A	36 % [3 - A4130 (W)]
2 - Avon Way		2.4	16.36	0.72	C					0.2	4.51	0.18	A			
3 - A4130 (W)		0.5	3.04	0.35	A					2.3	6.25	0.70	A			
4 - Farm Access		0.0	0.00	0.00	A					0.0	0.00	0.00	A			
	2026 Development With HIF															
1 - A4130 (E)	D9	0.7	4.54	0.42	A	4.31	A	80 % [2 - Avon Way]	D10	0.5	4.16	0.33	A	3.60	A	119 % [3 - A4130 (W)]
2 - Avon Way		0.6	6.07	0.37	A					0.1	3.77	0.10	A			
3 - A4130 (W)		0.3	2.44	0.21	A					0.8	3.29	0.43	A			
4 - Farm Access		0.0	0.00	0.00	A					0.0	0.00	0.00	A			

6.5.48 The results from the Core Test junction assessment indicate that the junction would operate within capacity in all scenarios.

Sensitivity Test

Table 6.22: Junction 8 Sensitivity Test Junction Assessment Results

	AM								PM							
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
	2020 Baseline															
1 - A4130 (E)	D1	0.9	5.13	0.47	A	4.85	A	62 % [2 - Avon Way]	D2	0.6	4.65	0.37	A	3.97	A	96 % [3 - A4130 (W)]
2 - Avon Way		0.7	6.87	0.42	A					0.1	3.89	0.12	A			
3 - A4130 (W)		0.3	2.67	0.24	A					0.9	3.63	0.48	A			
4 - Farm Access		0.0	0.00	0.00	A					0.0	0.00	0.00	A			
	2026 Reference Case Without HIF															
1 - A4130 (E)	D3	2.3	8.92	0.70	A	9.10	A	12 % [2 - Avon Way]	D4	1.3	6.95	0.57	A	6.32	A	36 % [3 - A4130 (W)]
2 - Avon Way		2.4	16.36	0.72	C					0.2	4.51	0.18	A			
3 - A4130 (W)		0.5	3.04	0.35	A					2.3	6.25	0.70	A			
4 - Farm Access		0.0	0.00	0.00	A					0.0	0.00	0.00	A			
	2026 Reference Case With HIF															
1 - A4130 (E)	D5	0.7	4.54	0.42	A	4.31	A	80 % [2 - Avon Way]	D6	0.5	4.16	0.33	A	3.60	A	119 % [3 - A4130 (W)]
2 - Avon Way		0.6	6.07	0.37	A					0.1	3.77	0.10	A			
3 - A4130 (W)		0.3	2.44	0.21	A					0.8	3.29	0.43	A			
4 - Farm Access		0.0	0.00	0.00	A					0.0	0.00	0.00	A			
	2026 Development Without HIF															
1 - A4130 (E)	D7	2.3	8.97	0.70	A	9.14	A	12 % [2 - Avon Way]	D8	1.3	6.96	0.57	A	6.34	A	36 % [3 - A4130 (W)]
2 - Avon Way		2.5	16.44	0.72	C					0.2	4.52	0.18	A			
3 - A4130 (W)		0.5	3.05	0.35	A					2.3	6.27	0.70	A			
4 - Farm Access		0.0	0.00	0.00	A					0.0	0.00	0.00	A			
	2026 Development With HIF															
1 - A4130 (E)	D9	0.7	4.54	0.42	A	4.31	A	80 % [2 - Avon Way]	D10	0.5	4.16	0.33	A	3.60	A	119 % [3 - A4130 (W)]
2 - Avon Way		0.6	6.07	0.37	A					0.1	3.77	0.10	A			
3 - A4130 (W)		0.3	2.44	0.21	A					0.8	3.29	0.43	A			
4 - Farm Access		0.0	0.00	0.00	A					0.0	0.00	0.00	A			

6.5.49 The results from the Sensitivity Test junction assessment indicate that the junction would operate within capacity in all scenarios.

Junction 9: A4130 / Mersey Way / Franklin Gardens (Existing)

6.5.50 Junction 9 comprises of a four-arm priority-controlled roundabout located to the east of Junction 8. Mersey Way and Franklin Gardens provide access to residential areas to the south and north, respectively which are bisected by the A4130 which travel in the east – west direction.

6.5.51 Junctions 10 has been used to test the core and sensitivity scenarios to assess this junction (**Tables 6.23** and **6.24**).

Core Test

Table 6.23: Junction 9 Core Test Junctions Assessment Results

	AM								PM							
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
	2020 Baseline															
1 - A4130 (E)	D1	0.4	2.50	0.26	A	3.06	A	136 % [2 - Mersey Way]	D2	0.4	2.73	0.28	A	3.06	A	153 % [3 - A4130 (W)]
2 - Mersey Way		0.3	4.89	0.22	A					0.1	3.97	0.07	A			
3 - A4130 (W)		0.3	2.85	0.25	A					0.6	3.23	0.37	A			
4 - Franklin Gardens		0.0	0.00	0.00	A					0.0	0.00	0.00	A			
	2026 Reference Case Without HIF															
1 - A4130 (E)	D3	0.6	2.95	0.38	A	3.71	A	64 % [2 - Mersey Way]	D4	0.7	3.42	0.42	A	3.98	A	75 % [3 - A4130 (W)]
2 - Mersey Way		0.6	6.71	0.36	A					0.1	4.54	0.10	A			
3 - A4130 (W)		0.6	3.21	0.36	A					1.2	4.39	0.54	A			
4 - Franklin Gardens		0.0	0.00	0.00	A					0.0	0.00	0.00	A			
	2026 Reference Case With HIF															
1 - A4130 (E)	D5	0.3	2.34	0.24	A	2.83	A	163 % [2 - Mersey Way]	D6	0.3	2.51	0.25	A	2.85	A	181 % [3 - A4130 (W)]
2 - Mersey Way		0.2	4.54	0.19	A					0.1	3.77	0.06	A			
3 - A4130 (W)		0.3	2.61	0.22	A					0.5	3.03	0.34	A			
4 - Franklin Gardens		0.0	0.00	0.00	A					0.0	0.00	0.00	A			
	2026 Development Without HIF															
1 - A4130 (E)	D7	0.6	2.95	0.38	A	3.71	A	64 % [2 - Mersey Way]	D8	0.7	3.42	0.42	A	3.98	A	75 % [3 - A4130 (W)]
2 - Mersey Way		0.6	6.71	0.36	A					0.1	4.54	0.10	A			
3 - A4130 (W)		0.6	3.21	0.36	A					1.2	4.39	0.54	A			
4 - Franklin Gardens		0.0	0.00	0.00	A					0.0	0.00	0.00	A			
	2026 Development With HIF															
1 - A4130 (E)	D9	0.3	2.34	0.24	A	2.83	A	163 % [2 - Mersey Way]	D10	0.3	2.51	0.25	A	2.85	A	181 % [3 - A4130 (W)]
2 - Mersey Way		0.2	4.54	0.19	A					0.1	3.77	0.06	A			
3 - A4130 (W)		0.3	2.61	0.22	A					0.5	3.03	0.34	A			
4 - Franklin Gardens		0.0	0.00	0.00	A					0.0	0.00	0.00	A			

6.5.52 The results from the Core Test junction assessment indicate that the junction would operate within capacity in all scenarios

Sensitivity Test

Table 6.24: Junction 9 Sensitivity Test Junction Assessment Results

	AM								PM							
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
	2020 Baseline															
1 - A4130 (E)	D1	0.4	2.50	0.26	A	3.06	A	136 % [2 - Mersey Way]	D2	0.4	2.73	0.28	A	3.06	A	153 % [3 - A4130 (W)]
2 - Mersey Way		0.3	4.89	0.22	A					0.1	3.97	0.07	A			
3 - A4130 (W)		0.3	2.85	0.25	A					0.6	3.23	0.37	A			
4 - Franklin Gardens		0.0	0.00	0.00	A					0.0	0.00	0.00	A			
	2026 Reference Case Without HIF															
1 - A4130 (E)	D3	0.6	2.95	0.38	A	3.71	A	64 % [2 - Mersey Way]	D4	0.7	3.42	0.42	A	3.98	A	75 % [3 - A4130 (W)]
2 - Mersey Way		0.6	6.71	0.36	A					0.1	4.54	0.10	A			
3 - A4130 (W)		0.6	3.21	0.36	A					1.2	4.39	0.54	A			
4 - Franklin Gardens		0.0	0.00	0.00	A					0.0	0.00	0.00	A			
	2026 Reference Case With HIF															
1 - A4130 (E)	D5	0.3	2.34	0.24	A	2.83	A	163 % [2 - Mersey Way]	D6	0.3	2.51	0.25	A	2.85	A	181 % [3 - A4130 (W)]
2 - Mersey Way		0.2	4.54	0.19	A					0.1	3.77	0.06	A			
3 - A4130 (W)		0.3	2.61	0.22	A					0.5	3.03	0.34	A			
4 - Franklin Gardens		0.0	0.00	0.00	A					0.0	0.00	0.00	A			
	2026 Development Without HIF															
1 - A4130 (E)	D7	0.6	2.96	0.39	A	3.72	A	64 % [2 - Mersey Way]	D8	0.7	3.41	0.42	A	3.99	A	75 % [3 - A4130 (W)]
2 - Mersey Way		0.6	6.72	0.36	A					0.1	4.54	0.10	A			
3 - A4130 (W)		0.6	3.21	0.36	A					1.2	4.41	0.54	A			
4 - Franklin Gardens		0.0	0.00	0.00	A					0.0	0.00	0.00	A			
	2026 Development With HIF															
1 - A4130 (E)	D9	0.3	2.34	0.24	A	2.83	A	163 % [2 - Mersey Way]	D10	0.3	2.51	0.25	A	2.85	A	181 % [3 - A4130 (W)]
2 - Mersey Way		0.2	4.54	0.19	A					0.1	3.77	0.06	A			
3 - A4130 (W)		0.3	2.61	0.22	A					0.5	3.03	0.34	A			
4 - Franklin Gardens		0.0	0.00	0.00	A					0.0	0.00	0.00	A			

6.5.53 The results illustrate that Junction 9 operates within capacity for each scenario within both of the core and Sensitivity Tests.

Junction 10: A4130 / Abingdon Road / Lady Grove (Committed Improvement Scheme)

6.5.54 This junction is subject to a committed improvement scheme, which would replace the existing priority junction with a three-arm roundabout. Geometries for the improved roundabout have been extracted from the HIF1 TA, where the junction is known as 'OFF12'.

6.5.55 The Core and Sensitivity Test results from Junctions 10 have been set out in the respective tables, based on the improvement scheme.

Table 6.25: Junction 10 Core Test Junction Assessment Results

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	2026 Reference Case Without HIF									
1 - Abingdon Road	D1	1.2	5.53	0.55	A	D2	0.7	4.65	0.41	A
2 - A4130		0.4	4.35	0.31	A		0.4	3.73	0.29	A
3 - Lady Grove		0.4	3.26	0.31	A		1.1	4.69	0.52	A
	2026 Reference Case With HIF									
1 - Abingdon Road	D3	1.3	5.41	0.57	A	D4	0.9	4.60	0.46	A
2 - A4130		1.1	6.61	0.53	A		0.9	5.41	0.48	A
3 - Lady Grove		0.2	2.92	0.13	A		0.4	3.50	0.29	A
	2026 Development Without HIF									
1 - Abingdon Road	D5	1.2	5.55	0.55	A	D6	0.7	4.66	0.41	A
2 - A4130		0.5	4.36	0.31	A		0.4	3.74	0.29	A
3 - Lady Grove		0.4	3.27	0.31	A		1.1	4.70	0.52	A
	2026 Development With HIF									
1 - Abingdon Road	D7	1.3	5.28	0.56	A	D8	0.8	4.39	0.45	A
2 - A4130		1.0	6.11	0.51	A		0.9	5.53	0.49	A
3 - Lady Grove		0.2	2.97	0.14	A		0.4	3.59	0.30	A

6.5.56 The results of the Core Test junction assessment show that the improved junction would operate within capacity in all scenarios.

Sensitivity Test

Table 6.26: Junction 10 Sensitivity Test Junction Assessment Results

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	2026 Reference Case Without HIF									
1 - Abingdon Road	D1	1.2	5.53	0.55	A	D2	0.7	4.65	0.41	A
2 - A4130		0.4	4.35	0.31	A		0.4	3.73	0.29	A
3 - Lady Grove		0.4	3.26	0.31	A		1.1	4.69	0.52	A
	2026 Reference Case With HIF									
1 - Abingdon Road	D3	1.3	5.41	0.57	A	D4	0.9	4.60	0.46	A
2 - A4130		1.1	6.61	0.53	A		0.9	5.41	0.48	A
3 - Lady Grove		0.2	2.92	0.13	A		0.4	3.50	0.29	A
	2026 Development Without HIF									
1 - Abingdon Road	D5	1.2	5.55	0.55	A	D6	0.7	4.66	0.41	A
2 - A4130		0.5	4.36	0.31	A		0.4	3.74	0.29	A
3 - Lady Grove		0.4	3.27	0.31	A		1.1	4.70	0.52	A
	2026 Development With HIF									
1 - Abingdon Road	D7	1.3	5.28	0.56	A	D8	0.8	4.39	0.45	A
2 - A4130		1.0	6.11	0.51	A		0.9	5.53	0.49	A
3 - Lady Grove		0.2	2.97	0.14	A		0.4	3.59	0.30	A

6.5.57 The results of the Sensitivity Test junction assessment show that the improved junction would operate within capacity in all scenarios.

Junction 11: Sir Frank Williams Avenue / A4130 (Existing)

6.5.58 A LinSig model has been developed to undertake the junction assessment for junction 11, a signalised T-junction where Sir Frank Williams Avenue is the minor arm travelling in the north – south direction.

6.5.59 The results of the Core Test and Sensitivity Test junction assessments carried out in LinSig are presented and discussed below.

Core Test

Table 6.27: Junction 11 Core Test Junction Assessment Results

Arm	AM			PM		
	DoS (%)	Av. Delay per PCU (s/pcu)	Mean Max Queue (pcu)	DoS (%)	Av. Delay per PCU (s/pcu)	Mean Max Queue (pcu)
Baseline 2020						
A4130 (east) left turn / ahead	67.8%	17.9	13.7	81.7%	27.4	18.0
Sir Frank Williams Av left turn	60.6%	44.3	5.8	77.3%	86.8	4.5
Sir Frank Williams Av right turn	68.0%	47.3	6.9	59.7%	66.9	3.0
A4130 (west) right turn / ahead	61.5%	13.6	10.7	82.1%	15.6	10.2
2026 Reference Case Without Scheme						
A4130 (east) left turn / ahead	99.6%	68.8	43.3	120.0%	356.0	138.9
Sir Frank Williams Av left turn	88.8%	71.7	11.4	113.8%	345.4	19.3
Sir Frank Williams Av right turn	99.7%	125.6	18.8	87.9%	113.0	6.2
A4130 (west) right turn / ahead	90.3%	26.4	28.1	120.8%	349.0	197.4
2026 With Development Without Scheme						
A4130 (east) left turn / ahead	99.5%	68.0	43.0	119.9%	354.6	138.3
Sir Frank Williams Av left turn	88.8%	71.1	11.4	113.8%	345.4	19.3
Sir Frank Williams Av right turn	99.7%	125.6	18.8	87.9%	113.0	6.2
A4130 (west) right turn / ahead	91.1%	27.6	29.1	120.9%	350.2	198.7
2026 Reference Case with Scheme						
A4130 (east) left turn / ahead	68.5%	18.1	14.1	81.6%	27.4	18.0
Sir Frank Williams Av left turn	61.1%	44.5	5.9	77.3%	86.8	4.5
Sir Frank Williams Av right turn	68.8%	47.7	7.1	59.7%	66.9	3.0
A4130 (west) right turn / ahead	62.2%	13.7	10.9	82.1%	15.6	10.2
2026 with Development with Scheme						
A4130 (east) left turn / ahead	68.5%	3.9	14.1	81.5%	27.3	17.9
Sir Frank Williams Av left turn	61.1%	2.8	5.9	77.3%	86.8	4.5
Sir Frank Williams Av right turn	68.8%	3.4	7.1	59.7%	66.9	3.0
A4130 (west) right turn / ahead	63.0%	3.3	11.3	82.2%	15.6	10.6

6.5.60 The junction operates within capacity with the HIF1 scheme.

The assessment shows that although the junction operates over capacity without the HIF1 scheme, the development has insignificant impact. With the adjusted base, the operation of the junction improves as shown in **Table 6.28**.

Table 6.28: Junction 11 Core Test Junction Assessment Results (Adjusted Base)

Arm	AM			PM		
	DoS (%)	Av. Delay per PCU (s/pcu)	Mean Max Queue (pcu)	DoS (%)	Av. Delay per PCU (s/pcu)	Mean Max Queue (pcu)
2026 Reference Case without HIF Adjusted Base						
A4130 (east) left turn / ahead	94.7	41.7	31.6	115.7%	299.2	110.7
Sir Frank Williams Av left turn	84.2%	62.4	9.9	106.1%	252.3	13.7
Sir Frank Williams Av right turn	95.2%	94.9	14.8	80.4%	91.9	5.0
A4130 (west) right turn / ahead	84.9	21.4	22.7	116.6	292.2	166.9
2026 with Development without HIF Adjusted Base						
A4130 (east) left turn / ahead	98.9%	63.1	40.9	116.6%	310.5	117.6
Sir Frank Williams Av left turn	84.2%	62.4	9.9	106.1%	252.3	13.7
Sir Frank Williams Av right turn	95.2%	94.9	14.8	80.4%	91.9	5.0
A4130 (west) right turn / ahead	84.2%	20.9	22.1	118.3%	315.1	176.5

Sensitivity Test

Table 6.29: Junction 11 Sensitivity Test Junction Assessment Results

Arm	AM			PM		
	DoS (%)	Av. Delay per PCU (s/pcu)	Mean Max Queue (pcu)	DoS (%)	Av. Delay per PCU (s/pcu)	Mean Max Queue (pcu)
Baseline 2020						
A4130 (east) left turn / ahead	67.8%	17.9	13.7	81.7%	27.4	18.0
Sir Frank Williams Av left turn	60.6%	44.3	5.8	77.3%	86.8	4.5
Sir Frank Williams Av right turn	68.0%	47.3	6.9	59.7%	66.9	3.0
A4130 (west) right turn / ahead	61.5%	13.6	10.7	82.1%	15.6	10.2
2026 Reference Case without Scheme						
A4130 (east) left turn / ahead	99.6%	68.8	43.3	120.0%	356.0	138.9
Sir Frank Williams Av left turn	88.8%	71.7	11.4	113.8%	345.4	19.3
Sir Frank Williams Av right turn	99.7%	125.6	18.8	87.9%	113.0	6.2
A4130 (west) right turn / ahead	90.3%	26.4	28.1	120.8%	349.0	197.4
2026 with Development without Scheme						
A4130 (east) left turn / ahead	102.1%	96.4	54.5	120.8%	365.0	145.8
Sir Frank Williams Av left turn	88.8%	71.7	11.4	113.8%	345.4	19.3
Sir Frank Williams Av right turn	99.7%	125.6	18.8	87.9%	113.0	6.2
A4130 (west) right turn / ahead	92.9%	30.7	31.6	122.7%	374.6	210.0
2026 Reference Case with Scheme						
A4130 (east) left turn / ahead	68.5%	18.1	14.1	81.6%	27.4	18.0

Arm	AM			PM		
	DoS (%)	Av. Delay per PCU (s/pcu)	Mean Max Queue (pcu)	DoS (%)	Av. Delay per PCU (s/pcu)	Mean Max Queue (pcu)
Sir Frank Williams Av left turn	61.1%	44.5	5.9	77.3%	86.8	4.5
Sir Frank Williams Av right turn	68.8%	47.7	7.1	59.7%	66.9	3.0
A4130 (west) right turn / ahead	62.2%	13.7	10.9	82.1%	15.6	10.2
2026 with Development with Scheme						
A4130 (east) left turn / ahead	68.8%	18.1	14.2	81.4%	27.2	17.9
Sir Frank Williams Av left turn	61.1%	44.5	5.9	77.3%	86.8	4.5
Sir Frank Williams Av right turn	68.8%	47.7	7.1	59.7%	66.9	3.0
A4130 (west) right turn / ahead	62.2%	13.7	10.9	82.1%	15.6	10.2

6.5.61 The junction operates within capacity with the HIF1 scheme.

6.5.62 The operation of the junction slight worsens without the HIF1 scheme with the sensitivity test, although with the adjusted base (**Table 6.30**) the operation of the junction improves with the development only having a very slight impact on the junction operation.

Table 6.30: Junction 11 Sensitivity Test Junction Assessment Results (Adjusted Base)

Arm	AM			PM		
	DoS (%)	Av. Delay per PCU (s/pcu)	Mean Max Queue (pcu)	DoS (%)	Av. Delay per PCU (s/pcu)	Mean Max Queue (pcu)
2026 Reference Case without HIF Adjusted Base						
A4130 (east) left turn / ahead	94.7%	41.7	31.6	115.7%	299.2	110.7
Sir Frank Williams Av left turn	84.2%	62.4	9.9	106.1%	252.3	13.7
Sir Frank Williams Av right turn	95.2%	94.9	14.8	80.4%	91.9	5.0
A4130 (west) right turn / ahead	84.9%	21.4	22.7	116.6%	292.2	166.9
2026 with Development without HIF Adjusted Base						
A4130 (east) left turn / ahead	97.3%	52.7	36.6	116.5%	309.1	117.1
Sir Frank Williams Av left turn	84.2%	62.4	9.9	106.1%	252.3	13.7
Sir Frank Williams Av right turn	95.2%	94.9	14.8	80.4%	91.9	5.0
A4130 (west) right turn / ahead	87.5%	23.4	25.0	118.4%	317.4	178.8

Junction 12: Milton Interchange (Existing)

6.5.63 The results of the Milton Interchange junction assessment have been carried out with Transyt 15 modelling software and presented in **Appendix J**, together with all junction outputs.

6.5.64 The results show that the Milton Interchange would operate within capacity in all scenarios of the Core Test and Sensitivity Test.

6.6 Summary

6.6.1 Without the HIF1 scheme (planned to be complete by March 2026), the A4130 / Sir Frank Williams Avenue junction; A4130 / B4493 / Mendip Heights Roundabout; and B4493 / Foxhall Road / Station Road Roundabout are forecast to operate over capacity both with and without

the Didcot Data Campus development. The impact of the development is however considered insignificant and particularly when the base is adjusted with the lower levels of traffic associated with the (P21/S0274/FUL) Land at Former Didcot A Power Station North of Milton Road Didcot.

6.6.2 With the HIF1 scheme, all junctions operate within capacity, except the Science Bridge / A4130 junction. It is understood that the strategy for the Scheme is to prioritise the mainline flow over side arm flows, particularly in this location. This is proposed to discourage traffic from using the existing A4130 between the Mendip Heights and Purchas Road roundabouts, and therefore it is not anticipated that capacity improvements will be accepted in this location.

7 Framework Construction Traffic Management Plan

7.1 Construction Phasing and Access

7.1.1 The site will be developed within a 'Considerate Contractor Framework' which will include the development of a construction method statement. The statement will illustrate a construction routing strategy, areas of protection and management practices such as noise, dust and times of operation.

7.1.2 A construction method statement will be required to be prepared for each phase of the development.

7.2 Contractor's Amenities and Provisions

7.2.1 The Contractor will be requested to provide the following amenities and provisions during the construction of all phases.

Times and Duration

7.2.2 Construction vehicle movements would take place during a typical day shift of 12 hours on weekdays (07:00-19:00) and five hours on Saturdays (08:00-13:00). Construction vehicles would not access the site outside of these shift hours referred to above unless agreed in advance with OCC.

7.2.3 There would be no construction vehicle movements at the site on Sundays or Bank Holidays.

Hoardings

7.2.4 Construction hoardings are likely to be placed around the construction boundary site with the exact location and layout to be determined by the appointed Contractor. Hoardings will be a requirement under the construction contract to provide a secure working environment for office staff/visitors and members of the public, this might be within the existing building footprint.

Site Crane

7.2.5 It is anticipated that site cranes will be located within the site area. These may be provided by either using a traditional tower crane with a fixed jib, or by using a luffing jib crane.

Wheel Wash

7.2.6 The Contractor will be requested to provide suitable vehicle washing facilities to prevent material being deposited onto the public highways.

7.3 Routing

7.3.1 All construction vehicles will travel to/from the strategic network via the A34. Construction vehicles will use exit the Milton Interchange junction via the eastern arm and travel along the A4130 along the Mendip Heights and Basil Hill Road junctions. The existing primary access to the site off the A4130/ Basil Hill Road roundabout will be used for all construction vehicles to enter/ exit the site.

7.4 Statutory Requirements

7.4.1 The Contractor shall be required to comply with all Statutory Requirements regarding the control of pollution (including noise pollution), during the construction phase.

7.4.2 The Contractor will be required to obtain all necessary Local Authority, Police, and all other necessary approvals in respect of access to the sites and any necessary diversions and traffic control systems. It will be the responsibility of the Contractor to obtain any necessary consent for means of access, loading/unloading and diversions.

7.5 Highways, Footpaths and Crossovers

7.5.1 During the construction of each phase the Contractor will be required to make allowance for any restrictions that may be placed on his work in respect of maintaining traffic and pedestrian access.

7.5.2 The Contractor will not obstruct public thoroughfares without the approval of the appropriate Authority and will be responsible for the payment of any charges in connection with such closures.

7.6 Site Deliveries

7.6.1 The Contractor will be required to operate suitable booking systems and site management controls for controlling the delivery of construction materials.

7.7 Site Storage

7.7.1 The exact location of site storage will be the responsibility of the Contractor, but this will need to be on site.

7.7.2 The Contractor will be required to co-operate with the Local Authority and comply with any requirements relating to the delivery of materials to the sites.

7.8 Existing Services

7.8.1 The Contractor will be required to identify existing services and shall protect and maintain service pipes, cables, ducts and the like during the execution of the project.

7.9 Adjacent Occupiers

7.9.1 The Contractor will be required to take precautions to protect occupiers of adjacent land or buildings and the general public from any danger, discomfort, disturbance, trespass or nuisance arising by reason of the project. Such precautions shall include the provision of temporary screens, notices and the like, as necessary.

7.10 Site Offices, Toilets, Washing and Welfare Facilities

7.10.1 The Contractor will be required to provide all necessary temporary site accommodation and welfare facilities to properly undertaken the works.

7.10.2 The Contractor will determine the location of such accommodation and will clear away all accommodation on completion of the works before making good any damage. All huts shall be of a good standard. Caravans, mobile homes and the like will not be allowed on site.

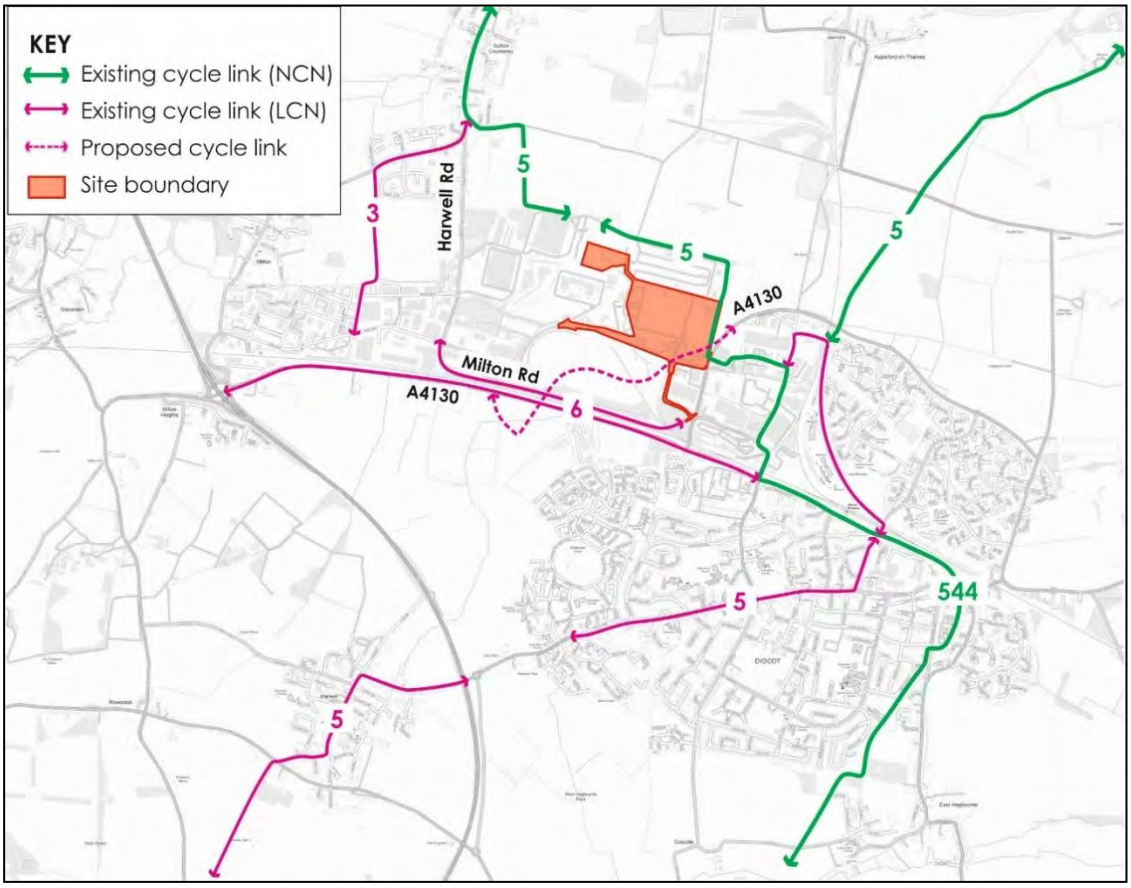
8 Summary and Conclusions

Context

8.1.1 The site is located within the Science Vale UK area, which is supported with the Science Vale UK Area Transport Strategy which focuses on achieving containment of trips within the area.

8.1.2 The site is located approximately 2.5km northwest of the centre of Didcot, which provides local community, education, health, retail, and entertainment facilities including convenience shops, local supermarkets and restaurants. Didcot contains facilities which provide an opportunity for employees to use them during their breaks or when they travel to / from work. There are a range of foot and cycleways in place or are planned, as showed in **Figure 8.1**.

Figure 8.1: Local Cycle Links



Existing Transport Conditions

8.1.3 The nearest bus stops to the site are located on Basil Hill Road approximately 150m east of the Milton Road/ Basil Hill Road/ A4130 roundabout. These stops provide access to the X2, X32/33/X33 connector services, and to the Milton Park Shuttle (M10) bus service which operates throughout the day. These services are all operated by Thames Travel.

8.1.4 Didcot Parkway Station is located approximately 1.3 km to the east of the site (measured from the A4130/ Basil Hill Road roundabout), which equates to a 16-min walk or 5-minute cycle ride. A summary of rail service frequencies, all of which are operated by Great Western Railway from Didcot Parkway Station.

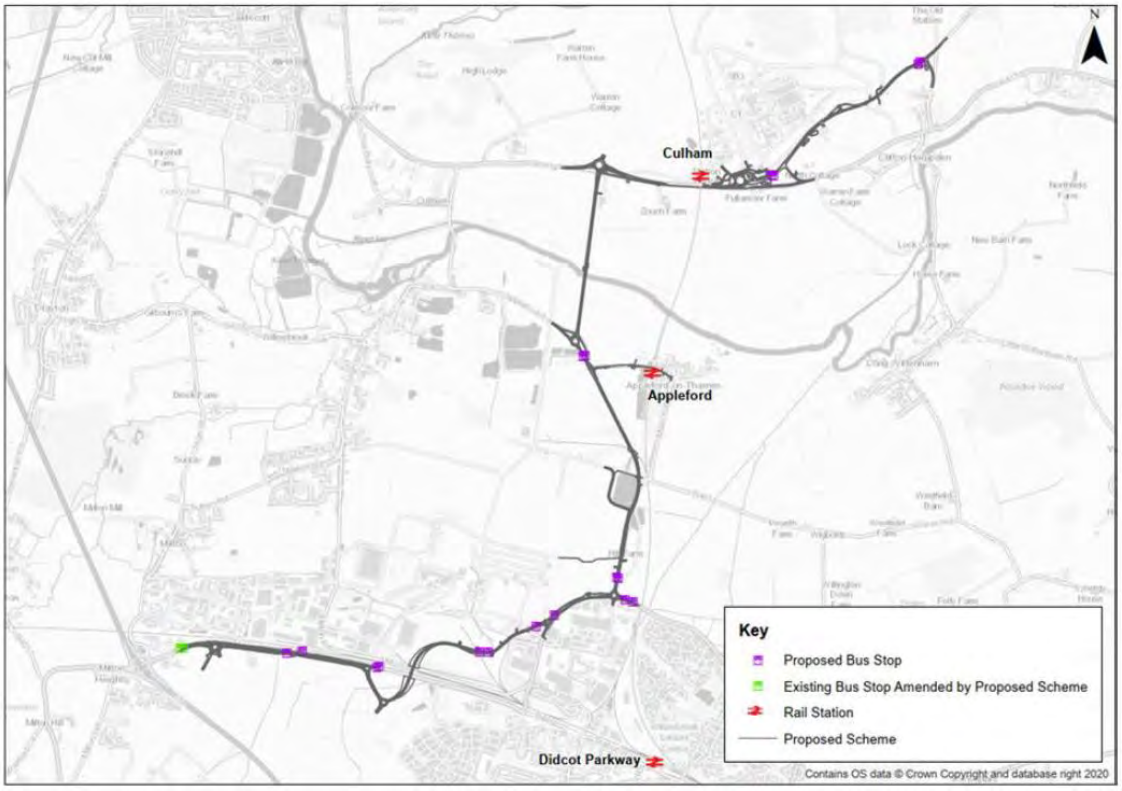
8.1.5 The main vehicular access to the site is via the A4130/ Basil Hill Road roundabout along the eastern boundary of the site leading onto Purchas Road, see **Figure 8.2**. This is the heavy haul access to Didcot A and National Grid. A secondary access to the site is currently provided off the A4130/ Hawksworth roundabout, approximately 400m north of the A4130/Basil Hill Road roundabout.

Figure 8.2: Access Without HIF1

8.1.6 OCC Council has been awarded £218M Housing Infrastructure Fund (HIF) towards these £234M schemes, which are expected to open for traffic by March 2026. A planning application for the HIF1 Didcot Garden Town Infrastructure project was submitted in November 2021 (planning ref. no. R3.0138/21), which seeks consent for the following:

"Planning application seeking full planning permission for 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); realignment of the A4130 north east of the proposed road bridge including the relocation of a lagoon; construction of a new road between Didcot and Culham (Didcot to Culham River Crossing) including the construction of three roundabouts, a road bridge over the Appleford railway sidings and 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. At Land in the parishes of Milton, Didcot, Harwell, Sutton Courtenay, Appleford-on-Thames, Culham and Clifton Hampden."

Figure 8.3: HIF1 Scheme Proposed Bus Stop Locations Plan



8.1.7 The HIF1 is generally described in four parts:

- A4130 Capacity Improvement – dualling of the A4130 between the A34 and new Science Bridge, including new pedestrian measures
- Science Bridge – A new road link from the new dualled section of the A4130, over the railway, back to the A4130 at Purchas Road, including pedestrian and cycling infrastructure
- Culham to Didcot River Crossing – a new road between Culham near the Science Centre to Didcot's A4130 perimeter road, including pedestrian and cycling infrastructure
- Clifton Hampden Bypass – a new road between the A415, Abingdon Road, at Culham Science Centre and B4015, Oxford Road, north of Clifton Hampden village

8.1.8 The science bridge alignment routes through the application site (see **Figure 8.3**) and one of the aims of this new bridge is to help reduce congestion on the A4130 through Didcot in addition to offering a link to housing developments. The scheme includes high quality segregated active travel links. The main vehicular access to the site will be via the Science Bridge Road, see **Figure 8.2**.

Figure 8.3: Access With HIF1

Assessment

8.1.9 A significant number of junctions have been tested in order to meet Oxfordshire County Council (OCC) and National Highways requirements at the scoping stage, covering: Milton Road/ A4130/Basil Hill Road roundabout; A4130/ Hawksworth roundabout; Milton Interchange; A4130 / Sir Frank Williams Avenue; A4130 / B4493 / Mendip Heights Roundabout; B4493 / Foxhall Road / Station Road Roundabout; A4130 / Collet Roundabout; A4130 / Avon Way Roundabout; A4130 / Franklin Gardens / Mersey Way; and A4130 / Abingdon Road / Ladygrove.

8.1.10 The main access on to Science Bridge Road and the new Valley Park Spine Road / Science Bridge and Science Bridge / A4130 junctions have also been tested with the HIF1 in place.

8.1.11 Without the HIF1 scheme (planned to be complete by March 2026), the A4130 / Sir Frank Williams Avenue; A4130 / B4493 / Mendip Heights Roundabout; and B4493 / Foxhall Road / Station Road Roundabout are forecast to operate over capacity with and without the Didcot Data Campus development.

8.1.12 Without the HIF1 scheme, the A4130 / Sir Frank Williams Avenue junction; A4130 / B4493 / Mendip Heights Roundabout; and B4493 / Foxhall Road / Station Road Roundabout are forecast to operate over capacity both with and without the Didcot Data Campus development. The impact of the development is however considered insignificant and particularly when the base is adjusted with the lower levels of traffic associated with the changes to the (P21/S0274/FUL) Land at Former Didcot A Power Station North of Milton Road Didcot (see section 6.3.3).

8.1.13 With the HIF1 scheme (planned 2026), all junctions operate within capacity, except the Science Bridge / A4130 junction. It is understood that the strategy for the Scheme is to prioritise the mainline flow over side arm flows, particularly in this location. This is proposed to discourage traffic from using the existing A4130 between the Mendip Heights and Purchas Road roundabouts, and therefore it is not anticipated that capacity improvements will be accepted in this location.

Conclusions

8.1.14 In keeping with ethos within the Contribution to the HIF1 scheme and of promoting sustainable patterns of movement an off-site contribution is proposed from the RWE scheme improvements to the foot/cycleway along the A4130 to Basil Hill Road (to the Basil Hill Road bus stops) are proposed. This will provide greater opportunity to travel by non-car means and reduce traffic to/from both the development and local area. This, along with travel planning measures, are expected to mitigate the development impacts at these junctions.

8.1.15 The Travel Plan will annually monitor the development traffic during the network peak periods (08:00-09:00 and 17:00 – 18:00). Measures to discourage single occupancy car use to the site will be implemented, such as travel information, events, taster tickets, cycle loans/discounts, personalised travel planning, cycle mileage expense for business travel, car share spaces, car club/pool car (dependent on the needs of the staff and visitors to the site). If these initial measures are not effective and OCC raise concern regarding local traffic congestion, a parking management system has been identified as an enforcement measure. This will require staff and visitors to book parking and the available parking spaces will be limited at certain times to minimise arrivals and departures in the peak periods. It should be noted that parking will be designated for infrequent urgent emergencies. The parking booking system/App will provide information on alternative travel options (walk, cycle, bus, rail and life share) before allowing parking to be booked.

8.1.16 The development proposals, along with the proposed measures and contributions are not considered to pose a severe impact on the transport networks.

Appendix A Pre-App Response (OCC/ NH)

District: Vale of White Horse
Application no: P21/V0010/PreApp
Proposal: Hybrid planning application for the erection of up to 197,000m2 Use Class B8 data centre development with ancillary Use Class E office space together with associated groundworks, utilities, infrastructure, engineering and enabling works. Built height parameters providing for development of up to 35m in height. Site access via the Didcot Science Bridge (Oxfordshire County Council's strategic distributor road connection to the A4130, over the Great Western Mainline) and construction of internal site spur road from the proposed Science Bridge Road into the site together with ancillary groundworks, utilities engineering and enabling works
Location: Land at Former Didcot A Power Station, Purchas Road, Didcot

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Transport Development Control

As you may be aware, Oxfordshire County Council (OCC) is a consultee of the Local Planning Authority(s) and provides advice on the likely transport and highways impact of development where necessary.

It should be noted that the advice below represents the informal opinion of an Officer of the Council only, which is given entirely without prejudice to the formal consideration of any planning application, which may be submitted. Nevertheless, the comments are given in good faith and fairly reflect an opinion at the time of drafting given the information submitted.

Due to the size of the development proposal a Transport Assessment with an accompanying Travel Plan is recommended to be provided with any future planning submission. General advice and guidance on preparing these documents may is contained in the County Council's Guidance on Transport Assessments and Travel Plans:

https://www2.oxfordshire.gov.uk/cms/sites/default/files/folders/documents/roadsandtransport/transportpoliciesandplans/newdevelopments/Transport%20assessments%20and%20travel%20plans.pdf

Other documents that may be of assistance are listed below:

Connecting Oxfordshire (including a link to Local Transport Plan 4: 2015-2031).
https://www.oxfordshire.gov.uk/residents/roads-and-transport/connecting-oxfordshire

County Council Transport Policy and Plans
https://www.oxfordshire.gov.uk/residents/roads-and-transport/transport-policies-and-plans

County Council Transport Guidance for new developments
https://www.oxfordshire.gov.uk/residents/roads-and-transport/transport-policies-and-plans/transport-new-developments

County Council Walking Design Standards
walkingstandards (oxfordshire.gov.uk)

County Council Cycling Design Standards
cyclingstandards (oxfordshire.gov.uk)

Vale of White Horse
Vale of White Horse Design Guide SPD - Vale of White Horse District Council

There are also references on these websites to other documentation and advice which may assist you in formulating a viable proposal.

Oxfordshire County Council Pre-Application advice provided by Lead Local Flood Authority.

Please be aware that since 1st April 2021, OCC now provide a separate chargeable pre-application service for providing advice as Lead Local Flood Authority (LLFA).

https://www.oxfordshire.gov.uk/residents/roads-and-transport/street-mainteance-z/flooding/pre-application-flood-advice

Oxfordshire County Council Pre-Submission Advice service provided by Road Agreements Team.

Due to the significant size of the development proposal and the associated transport infrastructure involved it is recommended that the land promoter, at the appropriate time, considers approaching OCC's Road Agreements Team to utilise the chargeable Pre-Submission Advice service that is now available. This service may be utilised for developments, at any stage and discussions will not prejudice the planning process nor any other authorisations that may be applicable (such as drainage approval or traffic calming).

Parameters of the meetings will be bespoke to specific developments and can cover the areas noted below. A request for this service should be sent to roadagreements@oxfordshire.gov.uk, a response will detail the payment mechanisms, timeframes, and required information to be submitted in advance of the scheduled meeting. The service topics covered included, engineering specifics, adoptability requirements, process and legalities, potential land issues, finances and safety concerns.

https://www.oxfordshire.gov.uk/residents/roads-and-transport/transport-policies-and-plans/section-38-and-s278

Key issues:

- A comprehensive Transport Assessment and Travel Plan will be required.

- Study area of the Transport Assessment will be dependent upon estimated trip generation and distribution of proposed / committed development in and around Didcot alongside an assessment of traffic movements using existing base line survey data. Transport Assessment to include assessment of Milton Interchange, A4130 / B4493 junction, Milton Road / A4130/ Basil Hill Road roundabout junction as well as other junctions along the A4130 and within Didcot. Sensitivity testing of future conditions will also need to be considered.

- Access to the development site and internal design requirements including parking and delivery provisions.

- The development proposal put forward must consider and accommodate the Housing Infrastructure Funding (HIF) highway works that are being delivered by OCC within the vicinity of the site.

- Section 106 obligations from the development proposal will include contributions towards the delivery of HIF in the form of land transfer / dedication / easements and a financial contribution as well as other off-site mitigation requirements.

Comments:

1. An updated Transport Assessment Scoping Report, dated January 2022 (ref 50464/3321110511), prepared by Stantec has been submitted for comments following a meeting on 21st December 2021 between council officers and the applicants project team. The scoping report has been reviewed and the following comments are provided below:

2. The development proposal is for the redevelopment of 334,594m^2 of the current Didcot A Power Station site (460,009m^2). The redevelopment of the site is to include a 197,000m^2 Use Class B8 Data Centre and a new electrical gear / transformer covering a 39,999m^2 area to the northwest of the development site. The remaining area of the Didcot A Power Station site will continue to operate as now. Access to the site will continue to be via the existing arrangements or via the future Science Bridge Link Road that is being delivered as part of the Housing Infrastructure Funding scheme (HIF) being delivered by OCC.

3. Such a developments proposal is considered acceptable in principle by OCC but must be supported by a robust transport submission and contribute towards the delivery of OCC's HIF scheme and promote active and sustainable journeys to / from the site.

   Access arrangements

4. Section 2.2 of the submitted scoping report confirms that the development site will continue to utilise its existing access arrangements via Milton Road / Basil Hill Road / A4130 roundabout junction, Purchas Road and Harley Road onto

Old Milton Rad. Such arrangements will remain in place until OCC's HIF scheme is delivered. Such a proposal is considered acceptable but is subject to delivery programmes and will require detailed discussions with OCC officers as the development proposal evolves. It may be the case that a phased access strategy is agreed between the site promoter and OCC while HIF is being built out and the redevelopment of the site once it is permitted.

5. With regard to the design / form of the vehicular access to serve the development proposal onto the Science Bridge Link Road. This must be designed with formal agreement from the HIF delivery team and must be designed not have a detrimental impact on the priority of the pedestrian / cycle provisions being provided and safety for all highway users along the Science Bridge Link Road. This design issue is identified in paragraphs 2.2.10 and 2.2.11 within the scoping report.

6. A swept path analysis of all vehicle types expected to use the site access arrangements (including abnormal loads for when a transformer is replaced / removed is required) will be required as part of a future transport submission.

Walking and cycling

7. Pedestrian and cycling infrastructure will be expected to be designed in accordance with Local Transport Note 1/20 (LTN 1/20) to provide high quality facilities and ensure permeability and connectivity for active modes within the site and between the site and its vicinity. This should include direct connections to the adjacent National Cycle Network (NCN) Route 5. A financial contribution towards improvements to the NCN Route 5 may also be required.

8. It is welcomed that the scoping report states in paragraph 4.1.1 that, *"As requested by OCC, RWE will give consideration to improvements along the North-South section of the A4130, as [the] main route to town centre, bus stops and station"*. This will form an important part of ensuring that the proposed development is in compliance with the policy and guidance set out in the final section of this response.

9. As part of any formal planning application submission, the applicant must clarify which infrastructure will be offered for adoption as publicly maintained highways. If it is the intention for the developer to offer elements of the layout for adoption, then suitable scaled plans indicating extent of adoption should be forwarded for approval as part of the planning application.

On-site parking provisions

10. The development proposal will be expected to provide a high level of cycle parking provisions, designed to be sheltered and secure in prominent locations near main building entrances, with appropriate changing facilities on site. The current standards for cycle parking for a B8 land use is 1 stand per 500m^2 of gross floor area (visitor spaces also set at the same level). These standards are set at a minimum standard and are currently being reviewed. It is recommended that any such facilities are provided on site to a higher level to

meet the Didcot Garden Town ambitions and also encourage sustainable travel patterns to / from the site.

11. On-site car parking will need to be considered and is to be provided in accordance with current parking standards. For a B8 use this is set at a maximum standard of 1 space per 200m^2 gross floor area. Appropriate HGV on-site parking for the proposed use will need to be provided for and justified as part of a future transport submission. Appropriate parking and turning areas will also need to be provided for and be demonstrated as useable by swept path analysis. Please note the current OCC parking standards are being reviewed and updated in line with national and local policies aimed at reducing car usage and promoting active travel. Any future planning submission will need to consider this and justify any on-site car parking that is to be provided.

12. Electrical Vehicle charging provisions on-site will be required to be provided at a specific level for new developments. This is confirmed in the recently approved County Council Electric Vehicle Infrastructure Strategy document (Appendix A). There are several policies within this document to note. For this pre-application response, Policy EVI 8 is of most relevance as it is likely to influence the development site's master plan as it evolves.

Public Transport services and bus stop access

13. The proposed development will be expected to contribute towards improving the frequency of bus services serving the site. The provision of the HIF infrastructure, notably the Didcot to Culham River Crossing, is expected to facilitate the routeing of new bus services to be funded by growth associated with the Vale of White Horse Local Plan 2031 and the South of Oxfordshire Local Plan 2035. Accordingly, this site will be expected to provide / contribute towards new bus stop infrastructure on the A4130 in order to enable employees to access these services within a suitable walking distance of the site.

Transport Assessment study area

14. Given the scale of the development and its associated traffic generation noted in the 'Scoping Report for Transport Assessment' (dated January 2022), in order to have adequately assessed its impact on the local highway network the transport assessment will need to include a number of additional junction capacity assessments in the Didcot area than currently proposed. The additional junctions required are:

    - Milton Interchange.
    - A4130 / Sir Frank Williams Avenue.
    - A4130 / B4493 / Mendip Heights roundabout.
    - B4493 / Foxhall Road / Station Road roundabout.
    - A4130 / Collet roundabout junction (and other two junctions along this route; and
    - A4130 / Abingdon Road / Ladygrove.

15. If the site is to be occupied prior to the completion of the Science Bridge, the transport assessment will need to demonstrate through different scenarios the ability of the local highway network to accommodate the impact of the site with and without the infrastructure in place. The scope of the transport assessment, including future year scenarios, will need to be agreed with OCC highways officers. Please beware the delivery programme for the Science Bridge and associated link road has changed. It is now programmed for construction between March 2024 and March 2026. The scenarios proposed in paragraphs 4.4 will have to reflect this in any future transport submission.

16. The traffic generation figures shown in Tables 1, 2 and 3 appear acceptable in principle. However, it is noted in paragraphs 3.2.1 and 3.4.1 of the submitted scoping report that 2011 traffic survey data has been utilised. This data is 10 years old, the highway network and Didcot A Power Station site itself has significantly changed since this data was collected. It is recommended this data is reviewed and new data is collected for any development proposal coming forward where possible. If new data is not available a robust justification within a future transport submission will need to be provided.

17. In terms of using the estimated trip rates that were accepted for planning permissions P18/V2277/FUL, P21/V0167/FUL and P21/S0247/FUL. This is considered acceptable in principle as both sites (Didcot A site and Cloud HQ) used first principles data to support their data centre development proposals. It should be noted each end user of these sites did differ and it is recommended appropriate sensitivity scenarios should be undertaken of the individual trip rates to ensure a robust assessment is undertaken and provided as part of a future planning submission.

18. Given the uncertainties around the potential future occupiers and, as a consequence, unknowable potential shift patterns, as the proposed trip generation shown in Tables 12 and 13 (p.11) assumes the vast majority of movements taking place in the inter-peaks, alternative scenarios should be modelled with much greater proportions of trips in the AM/PM peaks to reflect this uncertainty and to ensure that the potential impacts of the proposed development have been adequately assessed and therefore the extent of potential requirements for mitigation and connectivity improvements properly understood and suitably identified.

19. This section of a future TA will be expected to take into consideration existing and proposed facilities within the area of the development site, making it clear what the extant trip generation is and if any netting off of extant trips is being proposed, what the net increase in trip generation associated with this development proposal will be. A multi-modal trip rate will be appropriate to use subject to existing infrastructure and public transport services.

20. Vehicle distribution patterns are to be based on the County Council's Transport Assessment submitted for the delivery of HIF / Science Bridge (ref R3.0138/21). Such a proposal is considered acceptable in principle, although it should be noted the transport submission for R3.0138/21 is currently being assessed as part of the planning process.

21. Speed surveys will be required to support any new vehicular access points proposed to serve the development as will appropriate traffic survey collection data. As the national lock down restrictions have been eased, OCC is accepting new traffic data collected in neutral months. Officers may be approached nearer the time to confirm agreement on appropriate survey times and locations.

22. Construction traffic and its impact on both the local and strategic network is expected and how this is managed will form an essential part of any future planning submission. Issues such as traffic management, working hours, construction traffic management plans and routeing / delivery restrictions will require careful consideration – as proposed in paragraph 4.1 of the submitted scoping report.

Strategic transport infrastructure contribution

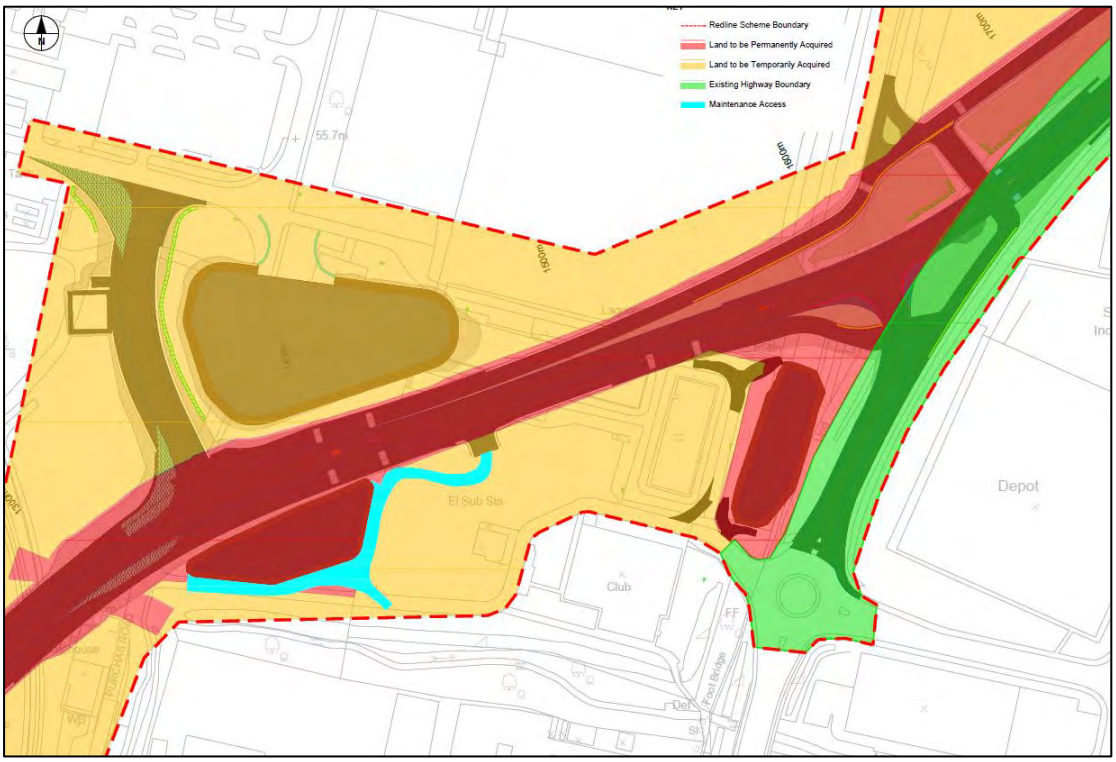
23. As the traffic associated with the proposed development is likely to have a significant impact on the local highway network and the development itself is unlikely to be able to mitigate this impact directly, it is expected that this site will need to make a financial contribution towards strategic transport infrastructure in the vicinity.

24. Such a financial contribution will be based upon the same B8 floor area rate that is within the S106 Agreement associated with planning permissions P16/V1231/FUL, P21/V0167/FUL and P21/SV0274/FUL on the Didcot A site. For assistance the agreed contirbution B8 land use rate (at December 2020 prices) is currently £28.21 per m^2. Such a contribution requirement is considered to meet all the following National Planning Policy Framework (NPPF) tests (paragraph 57):

i) Necessary to make the development acceptable in planning terms
ii) Directly related to the development; and
iii) Fairly and reasonably related in scale and kind to the development.

25. Land will also be required from the development site to enable OCC to deliver the Science Bridge Link Road (part of HIF works). Below is an indicative drawing of these requirements. For clarity the land marked in red is required on a permanent basis (to be transferred to OCC as part of a S106 obligation) to deliver the HIF works. The yellow land is required on a temporary basis during the construction period of the scheme. The cyan coloured land is required by OCC for future maintenance and will require easement rights to be agreed as part of a future legal agreement.

S106 Land requirements from development proposal



Policy and guidance documents

26. The policy review described in the submitted scoping report should demonstrate how the proposed development accords with a number of documents and associated policies including (but not limited to) the following:

27. Vale Local Plan 2031 Part Two. Core Policy 16b: Didcot Garden Town (see p.54) states that, "Proposals for development within the Garden Town Masterplan Area will be expected to demonstrate how they positively contribute to the achievement of the Didcot Garden Town Masterplan Principles". These principles include the following (see p.55).

28. Climate Action for a Thriving Oxfordshire. In April 2019 the County Council publicly acknowledged a climate emergency and made a call for action. In response to the climate emergency OCC has published a declaration entitled, Climate Action for a Thriving Oxfordshire. This document identifies some of the means by which OCC intends to take action, this includes investing in cycle paths and safe walking routes and reprioritising road space for low carbon travel. OCC has since approved in October 2020 the 2020 Climate Action Framework, which sets out the guiding principles that will inform the organisation's work on climate action.

29. OCC Corporate Plan 2020-24. Amongst a number of strategic aims, this sets out our commitment that we will, "Design places that encourage healthy and active lives." and "Reduce carbon emissions to tackle climate change and improve air quality." (see p.4)

30. OCC Draft Local Transport and Connectivity Plan (January 2022) Local Transport and Connectivity Plan | Let's Talk Oxfordshire. This draft document provides outlines the long term-vision for transport in the county and the emerging policies required to deliver a zero-carbon transport system for Oxfordshire. The development proposal will need to consider this emerging policy document and demonstrate how it will discourage private vehicle journeys and promote walking, cycling and public transport usage to the site.

31. OCC Cycling Standards, OCC Walking Standards, and Cycle Infrastructure Design (LTN 1/20) The development proposals we be expected to demonstrate how it accords with these policies and standards.

Summary

32. Overall, the development proposal is considered acceptable in principle but will need to robustly demonstrate the traffic impact it will have on the network, how it will be mitigated, assist in the delivery of the Science Bridge (and associated link road) and how it accords with the climate change and active travel requirements set out in the above policy documents.

Officer's Name: Michael Deadman
Officer's Title: Transport Development Control Lead Officer
Date: 17th February 2022

Oxfordshire Electric Vehicle Infrastructure Strategy

1. Executive summary

All six of Oxfordshire's councils have declared climate emergencies. Supporting a transition to zero emission road transport is a key component in Oxfordshire's councils achieving their net zero carbon targets, and this has been reinforced by Oxfordshire County Council and Oxford City Councils' commitment to delivering the UK's first ZEZ in Oxford to reduce air pollution levels, tackle the climate emergency, and improve the health of residents, workers and visitors in Oxford and beyond.

Comprehensive, accessible and efficient charging infrastructure is essential in enabling the rapid adoption of electric vehicles, accelerated by the 2030 date for the end of petrol and diesel car sales in the UK.

In keeping with Oxfordshire's status as a centre of innovation, the Councils are at the forefront of delivering new solutions and sustainable models for EV charging across the county. Drawing on partnerships with Oxford's academic institutions and technology firms Oxfordshire is delivering projects at the cutting edge of zero emissions mobilities. The Energy Superhub Oxford project will see large scale battery storage technology supporting a super-rapid EV charging hub in Oxford, while Local Energy Oxfordshire is exploring how local renewable energy generation can support decentralisation of the grid, and how EVs can play a part in new energy systems. Oxfordshire's V2GO project has examined the potential for EV fleets to support the grid through acting as energy storage units, and the ongoing Go Ultra Low Oxford and Park and Charge projects are examining new technologies and models to support EV drivers without access to off-road parking and charging.

This pipeline of projects across the county already is delivering up to 432 charging points by June 2022 in partnership with Government and the private sector.

The Oxfordshire Electric Vehicle Infrastructure Strategy (OEVIS) sets out the policies and plans to realise our vision for EV charging in Oxfordshire, whereby:

- *Residents, businesses and visitors in Oxfordshire will be confident they can recharge EVs conveniently, and in a manner appropriate for their needs.*
- *Oxfordshire's EV charging provision will develop to meet the needs of users now and in the future, and in doing so support Oxfordshire's transition to decarbonising transport and improving air quality.*

It has been a true collaborative piece of work between the County, City and District Councils and has been informed through the lessons learnt from the innovative EV charging projects already being delivered.

The Oxfordshire Electric Vehicle Infrastructure strategy will put Oxfordshire's councils in a strong position to ensure that those wishing to purchase an EV can access convenient charging; providing an operational approach to enabling and deploying charging infrastructure in Oxfordshire, and laying the foundations for future projects.

1.1. Policies at a glance:

Policy Area	Policy
Targets for EV charging	**Policy EVI 1:** The Councils will collaborate to enable and encourage deployment of public EV chargepoints in Oxfordshire towards meeting predicted demand by 2025 in line with national targets and with reference to European directives.
Funding public EV chargers	**Policy EVI 2:** The Councils will collaborate to seek funding for EV infrastructure and support the development of a self-sustaining EV charging network for Oxfordshire which relies less heavily on continuing public finance support in the future and minimises the impact on existing and future Council budgets
Public Charging in local authority car parks	**Policy EVI 3:** The Councils will aspire to reach or exceed a target of converting 7.5% of local authority managed public car park spaces, to fast or rapid EV charging by 2025.
	Policy EVI 4: The Councils will manage parking bays for EV charging in local authority car parks to encourage both destination and overnight EV charging and for all types of EV ownership, including private vehicles, shared or car club vehicles, and business vehicles where appropriate
Charging at Council sites	**Policy EVI 5:**The Councils will support staff and visitors to access electric vehicle charging at Council premises where appropriate
Charging without off-road parking	**Policy EVI 6:** Recognising that lack of off-road parking may be a significant barrier to EV take-up, Oxfordshire County Council will promote a hierarchy of solutions to EV charging for residents, businesses and shared vehicles without access to off-road parking, which prioritises off-street charging hubs, and other solutions which avoid generating additional street clutter or surrounding maintenance and management challenges.
Charging in New Developments	**Policy EVI 7:** The Councils will seek to include statements and policies supportive of EV charging infrastructure and, where appropriate, references to the Oxfordshire Electric Vehicle Infrastructure Strategy in their planning standards and guidance
	Policy EVI 8: The Councils will benchmark nationally, and between themselves, each seeking to set minimum standards for the quantity of EV charging to be provided in developments in their planning requirements
	Policy EVI 9: The Councils will seek to provide support and guidance on EV charging provision to Town and Parish Councils, and other groups writing Neighbourhood Plans

EV Charging in Historic Areas	**Policy EVI 10:** In order to manage the impact of EV chargers without restricting access to EV charging, the Councils will define and communicate the design features of EV chargers which will have the most positive impact on the character of our cities towns and villages, and ensure that where there are specific heritage conservation needs, these are met by the charging equipment deployed
Commercial car parks	**Policy EVI 11:** The Councils will seek opportunities to encourage organisations, businesses and other owners of commercial public and customer car parks to deploy public EV charging infrastructure where it is appropriate
Communal residential car parks	**Policy EVI 12:** The Councils will explore opportunities to encourage owners and managers of housing stock of all types of tenure to deploy EV charging infrastructure for residents where it is appropriate
Workplace Charging	**Policy EVI 13:** The Councils will explore opportunities to encourage uptake of EV charging at workplaces and business premises where it is appropriate
Rapid charging on strategic roads	**Policy EVI 14:** The Councils will seek to improve the availability of rapid and ultra-rapid EV charging on and near the strategic road network and important link roads across Oxfordshire
Charging standards for Oxon	**Policy EVI 15:** The Councils will encourage the deployment of a high quality, reliable, open, value for money, future-proofed and truly instant access EV charging network for Oxfordshire by setting high standards which seek to reach 'above and beyond' minimum legal requirements
Managing Energy Impacts	**Policy EVI 16:** The Councils will seek to increase the emissions reduction benefits of electric vehicles, and mitigate the impact of EV charging infrastructure on the local and national grid by encouraging and promoting the use of renewable energy for EV charging, encourage 'off-peak' use of EV chargers, and exploring technical options to manage grid demand from EV charging infrastructure.
Promoting EVs & Infrastructure	**Policy EVI 17:** The Councils will promote information about public EV charging in Oxfordshire, and awareness of the benefits of EVs to the public through their online and other communications channels

2. Introduction and context

2.1. Introduction

2.1.1. Fossil fuels are the principal source of carbon emissions driving the anthropogenic climate change that will create devastating impacts for our living world. Recognising the critical importance of keeping global warming to 1.5 degrees C in line with the 2015 Paris Climate Agreement, all of Oxfordshire's Councils have recognised the climate emergency. Supporting a transition to zero emission road transport is a key component in Oxfordshire's Councils achieving their net zero carbon targets. Comprehensive, accessible and efficient charging infrastructure is essential in enabling the rapid adoption of electric vehicles. This strategy sets out the policies and plans to realise this goal.

2.1.2. Oxfordshire is a place of real innovation – the county is home to Europe's largest concentration of multi-million-pound science research facilities, underpinning our leading position in advanced engineering and manufacturing, energy systems, and vehicle and mobility technologies. Oxfordshire is also growing. The Oxfordshire Growth Board, through the emerging Joint Statutory Spatial Plan (JSSP), is planning for 100,000 new homes to be built in our county by 2031. An expected 86,500 new jobs are also being created. The Local Industrial Strategy for Oxfordshire sets out Oxfordshire's ambitions to be a pioneer for clean and sustainable growth driven by our science and innovation.[i]

2.1.3. Oxfordshire is home to the University of Oxford, the global number one ranked university and Oxford Brookes University, one of the UK's leading modern universities. Oxford University's School of Geography and the Environment and Department of Engineering Science host research centres with world-leading expertise in EV and battery production, energy and future mobilities systems. The Energy and Power Group are experts in the impact of EVs on the grid. The Transport Studies Unit (TSU) has expertise in understanding EV driving and charging patterns. Oxford Brookes' Sustainable Vehicle Engineering Centre is training next generation EV engineers, with strong links to the county's motorsports and vehicle industries.

2.1.4. Williams Advanced Engineering, based in Oxfordshire, create high-performance batteries in the Formula E programme, at the cutting edge of battery performance and management. Oxford is home to the BMW mini plant, where the all-electric MINI is built for the UK and European market. The Faraday Institution on the Harwell Campus is the independent institute for electrochemical energy storage science, research and technology. The institute and Oxford University are leading projects which could revolutionise the way EV batteries are manufactured.

2.1.5. Drawing on partnerships with Oxford's academic institutions and technology firms Oxfordshire is delivering projects at the cutting edge of zero emissions mobilities, hosting world-firsts for battery storage for EV charging, and EV infrastructure delivery. The Energy Superhub Oxford project will see large scale

battery storage technology supporting a super-rapid EV charging hub in Oxford, while Local Energy Oxfordshire is exploring how local renewable energy generation can support decentralisation of the grid, and how EVs can play a part in new energy systems. Oxfordshire's V2GO project examines the potential for EV fleets to support the grid through acting as energy storage units. The ongoing Go Ultra Low Oxford and Park and Charge projects are examining in depth the technologies available to support EV drivers without access to off-road parking and charging.

2.1.6. Oxfordshire is also leading the country in policy making to reduce urban transport emissions; in the pipeline is the UK's first Zero Emission Zone in Oxford from 2021, championed by Oxfordshire County Council and Oxford City Council.

2.1.7. The Oxfordshire Electric Vehicle Infrastructure strategy has been a true collaborative piece of work between the County, City and District Councils. It has taken the lessons learnt from all these, and other, innovative EV charging projects, to provide an operational approach to enabling and deploying charging infrastructure in Oxfordshire, and lay the foundations for future projects.

2.2. What is the Oxfordshire EV Infrastructure Strategy about?

2.2.1. Clean Growth is at the heart of the UK Industrial strategy, and the government sees growth in the EV industry as essential to the UK's clean industrial future and National Infrastructure Strategy[ii]. The Road to Zero strategy sets out the governments ambitions to end the sales of internal combustion engine (ICE) vehicles, which has recently been brought forward by 10 years to 2030, and its ambitions for a world-class EV charging network for the UK.

Figure 1 - EV Charging in national policy

The Road to Zero Strategy (2018)

The Government's Road to Zero Strategy outlines how the government will support the transition to zero emission road transport and reduce emissions from conventional vehicles during the transition. The document includes a target to end the sale of new conventional petrol and diesel vehicles by 2040. The UK government has since brought this date forward to 2030.

A key part of the Road to Zero Strategy focusses on measures to support the development of world class EV charging infrastructure network through;

- The Automated and Electric Vehicles Act (2018) which provide a legislative basis for provision of, and standards in EV charging infrastructure.
- Ensuring that new developments are EV ready, and that all new homes, where appropriate, should have a charging point available, through changes to Buildings Regulations, and the now revised National Planning Policy Framework (NPPF) (revised February 2019) to support local authorities in writing local planning policies which incorporate facilities for charging EVs

2.2.2. In this document we use the term EV to refer to all 'plug-in' vehicles including pure Battery Electric Vehicles (BEVs), Plug-in Hybrid Electric Vehicles, and Extended Range Electric Vehicles (REEVs) as all require charging to travel using their zero emissions capabilities.

2.2.3. Car use in Oxfordshire is high; over 4 billion miles were travelled by car or taxi in Oxfordshire in 2019[iii]. Road transport emissions contribute around 33% of carbon emissions nationally[iv] and generate significant issues for air quality; in 2019, 68% of NO_x emissions in Oxford were caused by road traffic[v] and 22 places in Oxfordshire found to be breaching air pollution limits.

2.2.4. The current Connecting Oxfordshire[vi] Local Transport Plan 4 shapes our transport policy and sets out Oxfordshire County Council's policy and strategy for developing the transport system in Oxfordshire to 2031. It has been developed with these over-arching transport goals:

- *To support jobs and housing growth and economic vitality;*
- *To reduce transport emissions and meet our obligations to Government;*
- *To protect, and where possible enhance Oxfordshire's environment and improve quality of life;*
- *To improve public health, air quality, safety and individual wellbeing.*

2.2.5. The Oxfordshire Electric Vehicle Infrastructure Strategy (OEVIS) has strong ties with the Oxfordshire Energy Strategy[vii] which seeks to integrate EVs into a smart and zero carbon energy infrastructure, and the Oxfordshire 2050 Plan to promote future-proofed development in the planned growth across Oxfordshire. The strategy also links closely with each of the collaborating Councils' Climate Emergency declarations and net zero carbon targets, and Oxfordshire County Council's Climate Action Framework, where it will act as a supporting strategy to facilitate delivery of recommended actions, and support the drive to meet local and national emissions reductions targets.

2.2.6. The OEVIS has further strong links with the development of the emerging Connecting Oxfordshire Local Transport and Connectivity Plan, which sets out a vision for a net-zero Oxfordshire transport system that enables the county to thrive as one of the world's leading innovation economies, whilst supporting clean growth, protecting our rich and varied natural and historic environment and being better for health and well-being, social inclusivity and education. This EV Infrastructure Strategy aims to compliment and support this vision, by reducing emissions from shared transport through promoting EV infrastructure for shared transport, and reducing emission from private road transport where active and public transport is not an option.

2.2.7. Oxfordshire's Councils have an opportunity to encourage uptake of EVs by working together to enable the development of a high quality EV charging network. The Oxfordshire EV Infrastructure Strategy draws on significant expertise

and experience across Oxfordshire to further enable reduction in transport emissions through enabling quality EV charging provision.

2.2.8. Through our Oxfordshire Electric Vehicle Infrastructure Strategy, we identify:

- *The opportunities and challenges for the EV charging network in Oxfordshire*
- *The likely uptake of EVs across Oxfordshire and the centres of demand for EV charging in Oxfordshire*
- *How we will contribute to and accelerate local deployment of EV charging infrastructure to ensure high quality EV charging is accessible in our county*
- *A framework of EV charging options for residents without access to private off-road parking*
- *Opportunities to work with landowners and businesses to further increase EV charging provision*
- *Opportunities to further support the decarbonisation of road transport and manage the impact of EV charging on the grid.*
- *How we will increase awareness of public EV charging infrastructure and promote uptake of EVs*

2.2.9. The strategy will inform our operational policies and processes, to ensure that EV charging is accessible and convenient in Oxfordshire. It will set a foundation for project development, establish a consistent approach to delivering and enabling EV charging across Oxfordshire, and support the developing EV market, and local businesses in the EV sector.

2.3. Our vision and objectives

2.3.1. Our vision for EV charging in Oxfordshire is:

- *Residents, businesses and visitors in Oxfordshire will be confident they can recharge EVs conveniently, and in a manner appropriate for their needs.*
- *Oxfordshire's EV charging provision will develop to meet the needs of users now and in the future, and in doing so support Oxfordshire's transition to decarbonising transport and improving air quality.*

2.3.2. The OEVIS will provide an operational approach to enabling and deploying charging infrastructure in Oxfordshire. In the short-term (2020-2025), our objectives are to:

- *Enable and deliver public EV charging across Oxfordshire*
- *Adopt a common approach to managing EV charging in Council car parks*
- *Enable residents without access to private off-road parking to access a range of options for EV charging*

- *Encourage new developments to include high quality EV charging infrastructure*
- *Set standards for the quality of public EV charging in Oxfordshire which supports development of a network which is high quality, open and accessible*

2.4. The development of the Oxfordshire EV Infrastructure Strategy

2.4.1. This strategy has been developed collaboratively with significant subject matter expert input from each of Oxfordshire's five District and City Councils, and a steering board of members from each. We have also engaged with external stakeholder groups including Parish and Town Councils and the EV charging industry. A full list of our steering group and workshop attendees can be found in Annex 1: Stakeholders.

2.5. The scope of the Oxfordshire EV Infrastructure Strategy

2.5.1. This strategy covers the administrative area of Oxfordshire County Council and includes the administrative areas of each of the five District Councils. It focusses on EV charging for cars, car-based vans, and taxis (hackney carriage and private hire vehicles) for three user groups with differing needs for EV charging:

- *Oxfordshire residents*
- *Local businesses, their employees, taxis, logistics operations and car clubs*
- *Visitors to Oxfordshire*

2.5.2. The strategy does not cover EV charging for buses or large goods and service vehicles. Large EVs such as buses and medium/large trucks are still in development, and charging requirements are currently uncertain. At the time of writing, Oxford's expression of interest in becoming Britain's first All-Electric Bus Town has been shortlisted by the Department for Transport and we anticipate that EV Bus charging infrastructure will be further developed as part of this project, if funded. As uptake of these vehicle types is likely to be low in the short term, they are not deemed a priority for this strategy. At this time charging for e-bikes and other micro-mobility solutions are not included in this strategy but like trucks and buses may form the basis for future consideration.

2.6. Delivering the strategy

2.6.1. This strategy includes many measures which will require dedicated resourcing, funding and the collaboration of external partners to complete delivery. Key actions for delivery are outlined under each policy. While budgets are constrained and future budgets are uncertain, especially in light of the Covid-19 pandemic, and our targets and commitments must be considered aspirational, Oxfordshire's Councils will use their best endeavours to deliver on the commitments made in this document, using existing project funding, future

Government funding opportunities and partnerships with the private sector which deliver an EV charging network for Oxfordshire with minimal impact on existing Council budgets.

3. EV charging background

3.1. Types of EV charging infrastructure

3.1.1. EV charging infrastructure can be broadly split into 4 types: slow, fast, rapid and ultra-rapid, based on power output and speed of charging. Each have factors which make them suitable for different charging settings and use cases; home, workplace, on-street, destination and en-route.

- **Slow:** up to 3kW AC – between 6-12 hours to fully charge a battery EV, less for a plug-in hybrid
- **Fast:** 7 to 22kW AC power outputs, and typically fully charge a battery EV in 3-4 hours. Frequently these are 'smart' chargers; able to communicate with a CPMS or back office to manage time and rate of charging[viii]
- **Rapid:** Typically, rapid AC chargers are rated at 43kW, while rapid DC are typically 50kW. Will typically charge a BEV to 80% in around 30-40 minutes.
- **Ultra-rapid:** Superchargers and high-powered charging at 100-350kW DC are becoming increasingly relevant for battery EV drivers, though current EV models may be limited in the charging power they can accept. Will typically charge an EV to 80% in 15 to 25 minutes dependent on power output.

3.1.2. Further details on types of EV charging and where they are most suitably deployed can be found in annex 3.

Chargers and Chargepoints

3.1.3. In this document we refer to an EV charging unit as an EV charger. EV chargers may have one or more sockets which allow connection to an EV to charge. These sockets are referred to in this document as EV chargepoints.

3.2. Challenges and opportunities for EV charging

3.2.1. In general, EVs and the charging infrastructure needed to support them present a series of challenges and opportunities to EV drivers and landowners. As local authorities, the County and District Councils can work together to support EV growth.

3.2.2. Table 1 summarises factors which were considered in developing our county-wide EV Infrastructure Strategy.

Table 1 - Opportunities and challenges for developing a public EV charging network

General	
Opportunities	**Challenges**
• Encouraging drivers to switch from petrol/diesel to EV will benefit local air quality, and decarbonise transport as energy generation progresses from fossil fuels to renewable sources. • Demand for chargers in Oxfordshire is likely to be higher than other regions • Chargers may attract EV users to an area and stimulate nearby shops and the local economy • Increased EV usage will stimulate the EV technology sector in Oxfordshire. • Charge Point Operators (CPOs) offer concession contracts for chargers at little or no cost to local authorities and which may provide a revenue opportunity in the future. • District Councils own car parks located in urban centres close to both businesses and residential properties which have limited off road parking.	• Available power capacity on the electricity network varies across the county and is limited in some areas. • Costs of upgrading the local electricity network for charging capacity are often high. • Some charger sites can be constrained by planning/heritage restrictions. • Access to working public EV charging is a key concern for EV drivers. • Instant access to EV charging networks often requires use of apps, roaming across charger networks is limited. • Owning and operating chargers generates costs for local authorities at a time when funding is constrained. • Management of EV charger contracts can be an additional resource burden for councils. • The business case for CPOs remains challenging whilst demand for EVs is still growing.
On the Highway	
Opportunities	**Challenges**
• Oxfordshire County Council has control of highways land assets on major roads which could provide opportunities for rapid charging stops. • On-street charging infrastructure at appropriate locations may offer locations for users to charge where there is no off-road alternative.	• Over 30% of households in Oxfordshire have limited or no access to home EV charging as they park on the street. • On-street chargers require space on the public highway. Some locations may present an obstruction to pedestrians. • Some operators are reluctant to offer concessions in on-street settings where usage is low, and cost of maintenance is high. • On-street parking bays are limited in certain areas. Reserving bays for EV users may increase pressure on parking and require resources for the traffic order.

4. This is Oxfordshire

4.1. EV uptake in Oxfordshire

4.1.1. To support the drive to reach net zero carbon emissions by 2050, the UK government has set out its ambitions to end the sale of new petrol and diesel cars by 2030, bringing the end date forward by 10 years from that proposed in the Road to Zero.

4.1.2. At the end of August 2020, there were 4,381 ultra-low emissions vehicles (ULEVs)[1] in Oxfordshire[ix], 2,200 of which were BEVs. Socio-economic factors mean Oxfordshire is likely to have faster growth in EV sales than the national average; research from the University of Oxford indicates that EV sales are likely to reach approximately 70% of new vehicle sales by 2025 (Figure 2). In absolute numbers, the university's predictions mean that by 2025 by 2025 there could be over 25,000 EVs on Oxfordshire's roads, and over 44,000 by 2027.

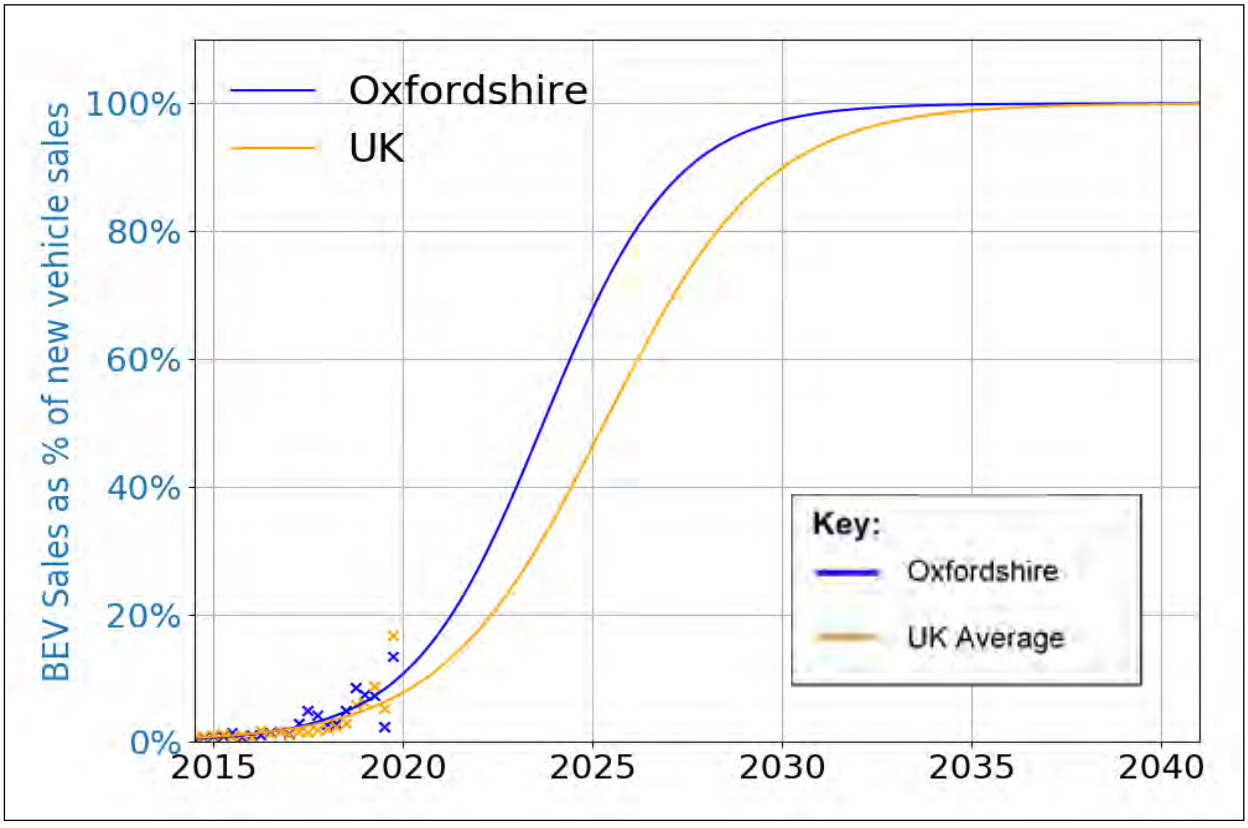


Figure 2 - Predicted Growth of EVs as a percentage of new vehicle sales in Oxfordshire. Based on DfT vehicle licensing data from Q4 2011- Q3 2020[x]. *Qualifications: Based on historic data; external influences & policy changes may affect growth. DfT has split the Ultra Low Emission Vehicle Data into Battery Electric Vehicles (BEV) and Plug-in hybrids (PHEV). As regulation now promotes BEV over PHEV, it was felt appropriate to use BEV data to forecast EV growth.*

[1] ULEVs emit less than 75g of carbon dioxide (CO2) from the tailpipe per km travelled; typically refers to battery electric, plug-in hybrid electric and fuel cell EVs

4.2. Current EV charging provision

4.2.1. Public EV charging infrastructure in Oxfordshire is currently limited and patchy, with most centred in urban areas and little provision in smaller market towns or more rural areas. While the network across the UK is growing rapidly, Oxfordshire is in danger of falling behind in infrastructure provision which could inhibit the forecast speed of transition.

4.2.2. The county has 448 public EV chargepoints, distributed over 123 charging sites. Numbers of chargers at sites range from a single chargepoint to over 40, and sites may contain chargepoints of different speeds.

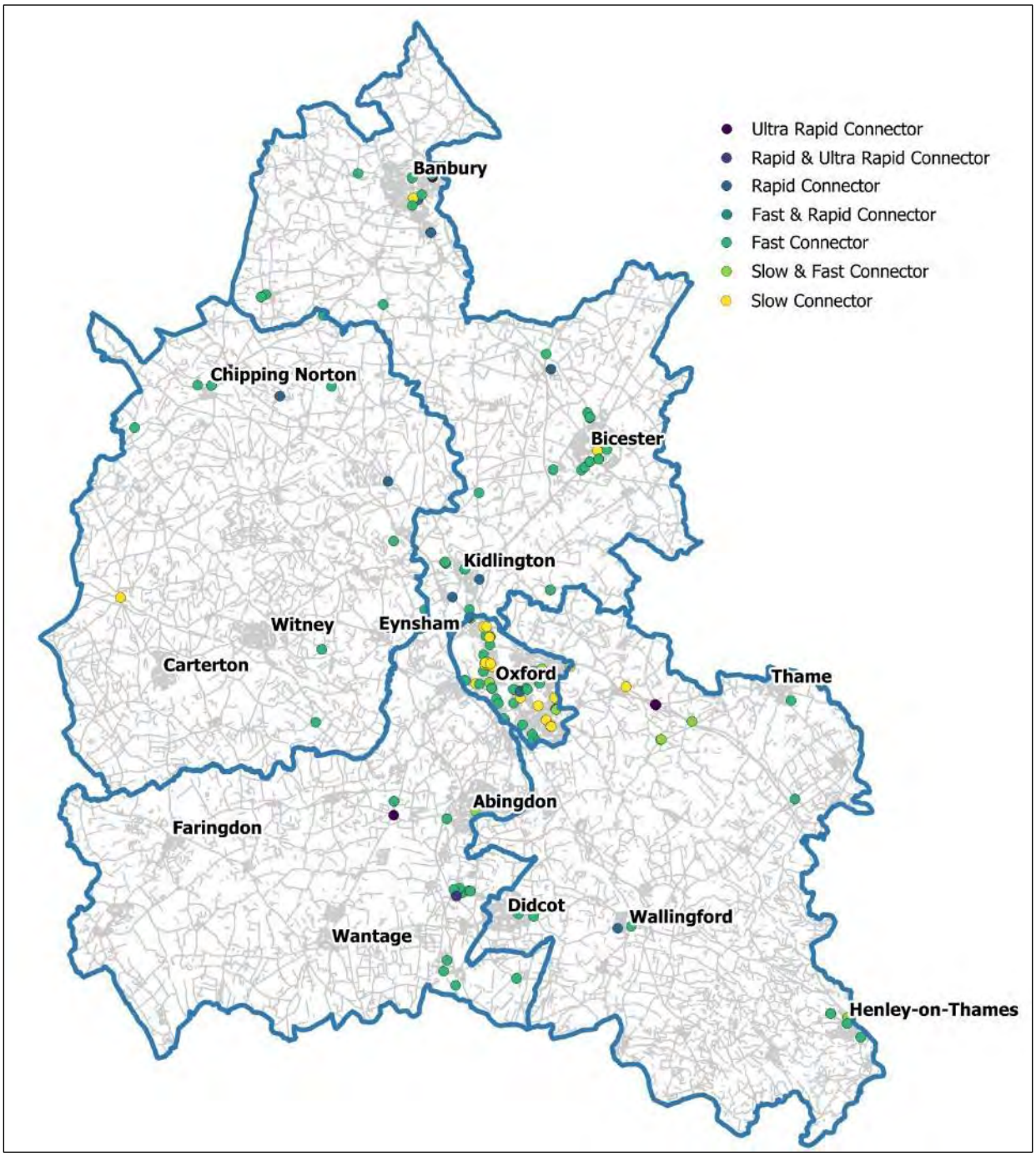


Figure 3 - EV Charging infrastructure in Oxfordshire. Source: Zap-Map (2020).

4.2.3. Large areas of the county have little or no public EV charging provision. Oxford City Council's administrative area is the most densely covered, reflecting the work Oxford City Council undertook, in partnership with Oxfordshire County Council, on the Go Ultra Low Oxford On-street Project. The project installed over 30 fast on-street EV chargers in a trial of charging solutions for residents without access to off-road parking.

4.2.4. There are EV chargers in only 8 of Oxfordshire's 98 local authority owned and managed public car parks, with the remaining chargers hosted by commercial entities; including supermarkets and retail parks, hotels and car dealerships.

4.2.5. Public rapid charging is dispersed around the county, with four charging sites at service stations adjacent strategic road network, and the remaining rapid charging sites again found at hotels and car dealerships. Ultra-Rapid charging is limited to 5 sites, the largest of which is the Tesla Charging hub at the Milton interchange, which hosts 32 ultra-rapid chargepoints available only to Tesla Drivers.

Chargepoint speed	Number of sites	Number of chargepoints
Ultra-Rapid	5	55
Rapid	20	60
Fast	85	281
Slow	35	52
Total	N/A	448

Table 2 - Public EV chargers in Oxfordshire by speed

4.3. The Oxford Zero Emission Zone

4.3.1. Oxfordshire County Council and Oxford City Council are proposing to create a Zero Emission Zone (ZEZ) pilot in Oxford city centre, starting in August 2021, and based on a road user charging scheme. This pilot, and any future implementation and expansion, may generate additional need and demand for EV charging for road user groups, not just within the zone, but also across the county, from where journeys into the zone may originate.

4.4. Taxis: Hackney Carriage and Private Hire Vehicles

4.4.1. In addition to the requirements for vehicles travelling in Oxford's Zero Emission Zone, from 2022 all newly licensed Hackney Carriage Vehicles licenced by Oxford City Council must be Ultra Low Emissions Taxis (ULEVs) meeting the UK government's definition which typically refers to battery electric, plug-in hybrid electric and fuel cell EVs. Across the county EVs are already starting to enter the Hackney Carriage and Private Hire Vehicle fleet. The usage patterns of both forms of taxi mean that access to Rapid and Ultra-Rapid charging are important in allowing drivers to maximise their productive work time, and that charging infrastructure at company premises, and close to popular routes or ranks are beneficial to supporting the EV taxi business case. While it is not within the scope of this strategy to define specific locations for charging for electric taxis, the strategy aims to ensure that public EV charging is available to all user types, including taxis.

4.5. Social inclusion

4.5.1. While many areas of Oxfordshire are affluent, and likely to be among the first to see early mass adoption of EVs, there are significant areas of Oxfordshire where income is low. Lower income households are often disproportionately affected by poor air quality, and also the sector of society least able to adopt EVs early.

4.5.2. While the Councils are limited in the actions they can take to support low income households with the purchase of EVs, action can be taken to ensure equitable access to EV charging. Car club vehicles may also provide a more affordable alternative to private EV ownership, with the potential to give wider access to clean vehicles, and support reductions in private vehicle ownership in line with the aims of Connecting Oxfordshire. Electric car clubs and the chargers needed to power them are therefore included as a valuable measure to improve social inclusion in Oxfordshire's EV ready future.

4.6. On-street parking

4.6.1. Over 34% of households in Oxfordshire are unlikely to have private off-road parking, and as such have limited or no access to home charging. Not everyone without off-road parking has a vehicle, but there are indications that around 25% of all cars nationally are parked on streets overnight[xi]. Most on-street parking in Oxfordshire can be seen in the city of Oxford and other urban centres, where terraced properties and high-density housing are key features of the urban landscape, and where air quality concerns are most acute. However, this situation is also seen in many more rural areas such as historic market towns (Figure 4).

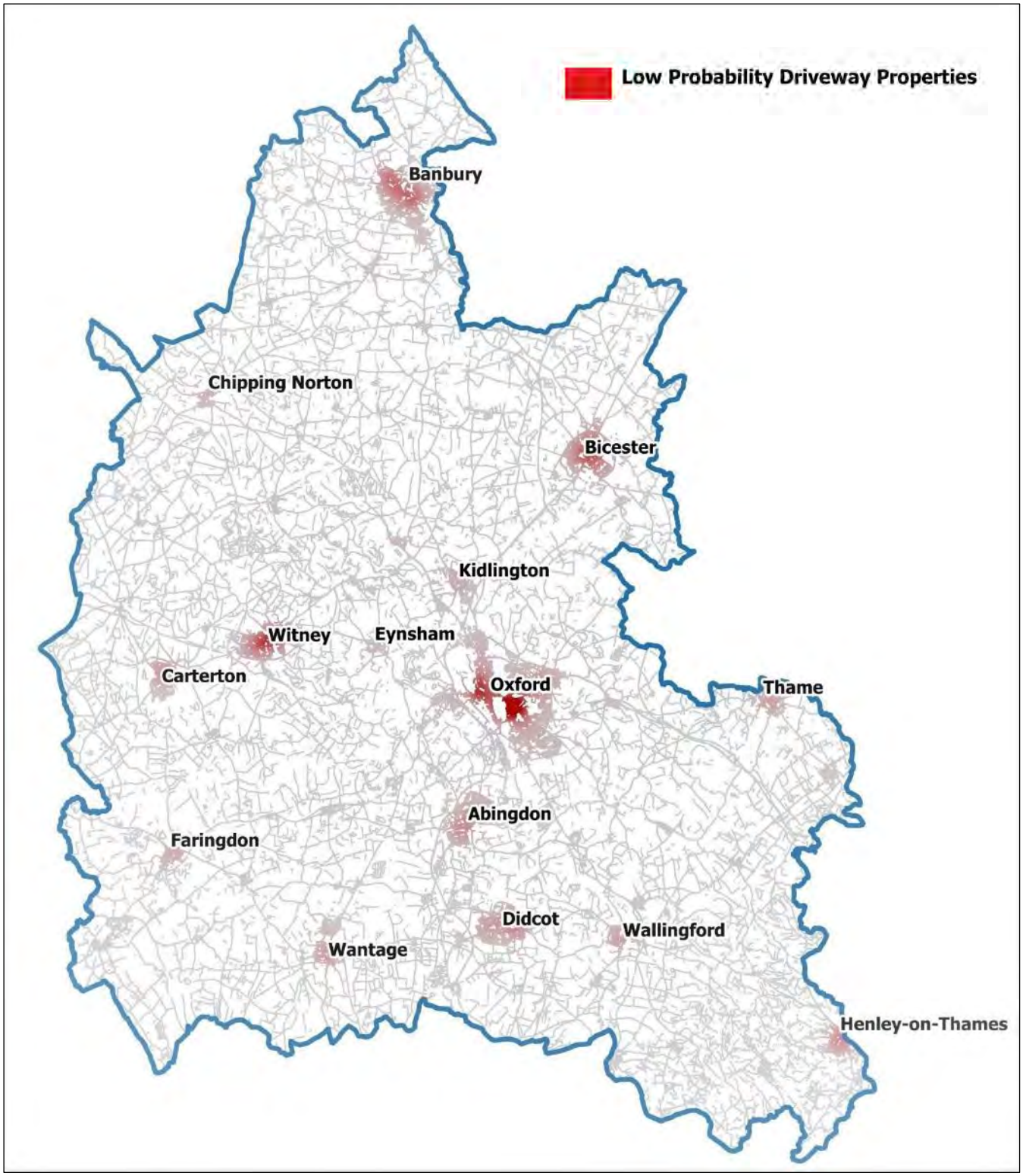


Figure 4 - Oxfordshire hotspots for properties with low probability of a driveway. Source: Energeo 2020 & EMU 2018. *Higher colour intensity indicates higher density of occurrence. Properties with low probability of a driveway are defined as those with less than or equal to 3 metres distance between the front elevation of the property and the nearest edge of the public highway, inclusive of the pedestrian footway where this is present.*

5. Where are chargers needed first?

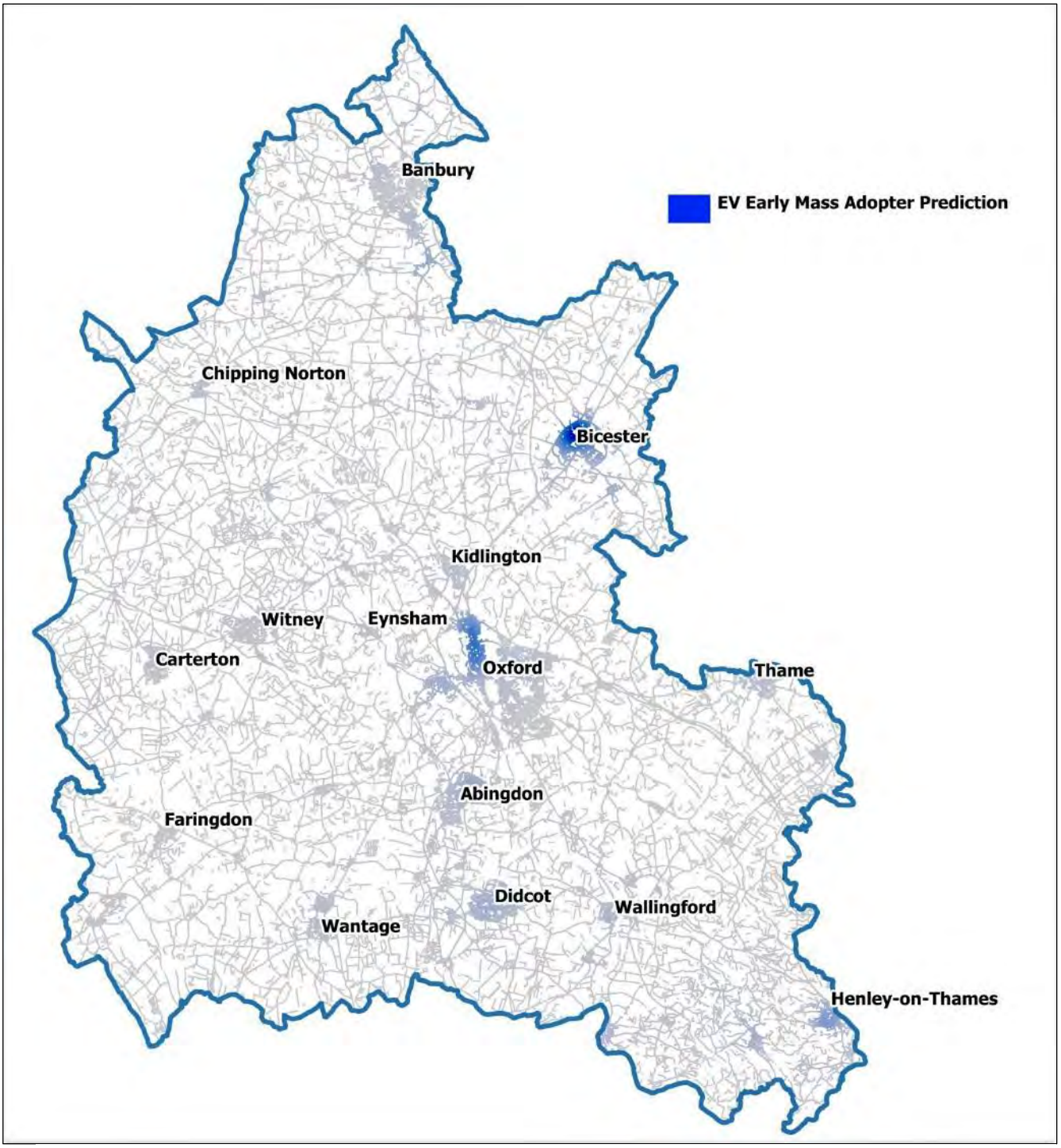


Figure 5 - Oxfordshire hotspots for predicted early mass EV adoption. Sources: Energeo 2020, ACORN 2020, DfT 2020. *Higher colour intensity indicates higher density of occurrence. Households likely to be early mass adopters were defined as households in categories 1-10,15-16,18,22-24,26&29, located proximate to an existing ULEV registration.*

5.1. Analysing demand

5.1.1. While most EV charging is done at home (around 80%)[xii], a network of public chargers is essential for drivers who do high mileage, travel long distances and/or have no access to chargers at home or work. The UK is home to around 19,500 public chargepoints and has one of the largest, and most comprehensive rapid networks in Europe, but more is needed to meet demand.

5.1.2. Chargers must be located in areas which are convenient to drivers, and have the space, energy and network connections to make installations feasible. In this section we examine where demand is likely to grow fastest, and where support is needed to help residents on lower incomes adopt cleaner vehicles.

5.1.3. Analysis of likely centres of EV adoption as uptake in Oxfordshire moves from 'early adoption' to 'early mass adoption' has been carried out using demographic characterisations of people likely to be in these groups across Oxfordshire, and combined with data on existing electric vehicle registrations, which are used as a predictor of 'neighbourhood influence' to give a picture of the hotspots for likely uptake over the coming 5 years (Figure 5).

5.1.4. The outputs show dense areas of likely uptake in Bicester, the North and West of Oxford, and larger market towns such as Abingdon, Didcot and Henley. Likely uptake in and around Banbury is more diffuse, and further investigation may be required to understand the likely cause of slower uptake.

5.1.5. When EV uptake hotspots are overlaid with areas of high on-street parking, the councils can begin to identify key areas for early action on EV charging infrastructure (Figure 6).

5.1.6. More detailed heatmaps of EV uptake hotspots for each of the districts and key towns can be seen in Annex 4: Geospatial Analysis.

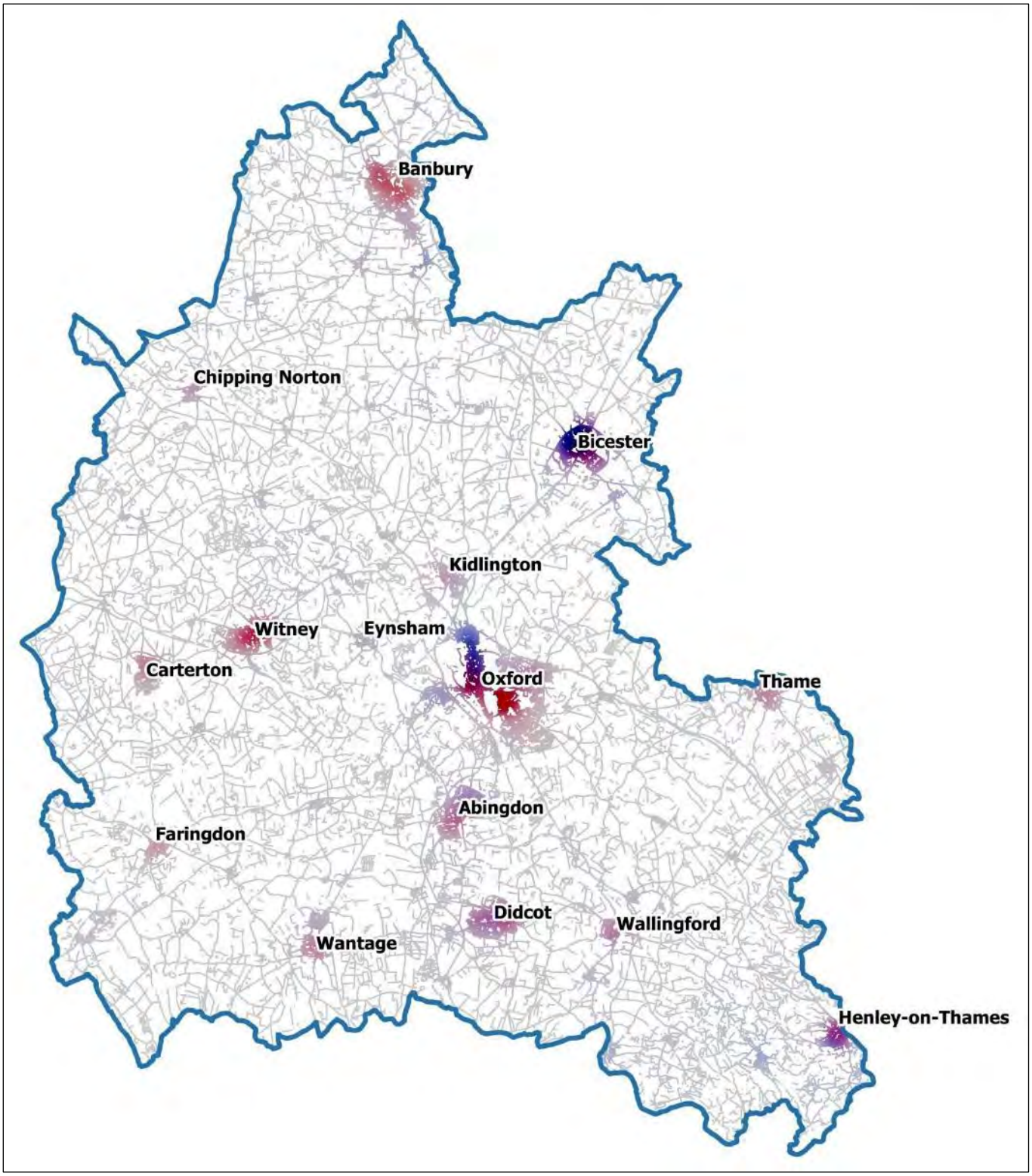


Figure 6 - Oxfordshire hotspots for predicted early mass EV adoption & low driveway probability. Sources: Energeo 2020, EMU 2018, ACORN 2020, DfT 2020. *Higher colour intensity indicates higher density of occurrence.*

5.2. The Councils' influence (where can we act?)

5.2.1. The Oxfordshire Electric Vehicle Infrastructure Strategy will focus on the measures and policies the Councils can either carry out directly or influence:

- **Direct control** – measures to improve EV infrastructure provision on the Council's own estate defined as the Council's own operational buildings or at Council owned or managed public parking, and through the procurement or licensing of EV charging infrastructure.

5.2.2. The Councils also have extensive direct and indirect spheres of influence:

- **Direct influence** – measures that will have a direct impact on the EV infrastructure provided by others through planning and infrastructure policies;
- **Wider influence** – through partnerships, advice, lobbying and leadership.

5.2.3. Viewing the challenges for EV charging infrastructure through these three lenses gives us an indication of what actions the Councils can take, how they can be prioritised, and what impact they are likely to have on the development of EV charging infrastructure over the coming five years.

6. Quantity of EV charging

6.1. Targets for EV charging in Oxfordshire

6.1.1. Predicting the absolute number of EV chargers that will be needed in the future is highly complex; rapidly changing vehicle and charging technologies, economic factors and dependence on public behaviour change means there is a great deal of uncertainty.

6.1.2. A European directive[xiii] on the deployment of alternative fuels infrastructure recommended in 2014 that "the appropriate average number of recharging points should be equivalent to at least one recharging point per 10 cars". This ratio applies to public chargers and does not include home chargers. Using this ratio, we would need at least 2,500 to 3,000 public charge points across the county in order to meet the charging need for the 25,000 to 30,000 EVs on Oxfordshire roads by 2025 predicted by the University of Oxford[xiv].

6.1.3. This simple metric does not differentiate between the different speeds of chargers, or how accessible they are. A rapid 50kW charger may serve 4 to 5 times the number of EVs in a day that a standard 3-7kW charger can, and a charger which is open to the public for 12 hours of the day, can notionally serve half as many vehicles as one which is available 24/7. However, the higher costs of rapid and ultra-rapid EV charger installation can often be passed on to the end user in higher tariffs, and so this must be taken into consideration when designing a strategy for EV Infrastructure which promotes value for money. The assumptions upon which the original metric was based may no longer be relevant; the number of chargers needed may not require the same level of increase in line

with projected increases in EV uptake, given longer battery ranges, new charging technologies and a greater proportion of EVs able to use faster rapid charging technologies[xv]. For these reasons, campaign groups are calling for the metric to be reviewed as part of the review of the Alternative Fuels Infrastructure directive in 2020. It is recommended that when establishing the number of new chargers required in Oxfordshire to meet future demand, the Councils' approach follows the weighting method proposed by T&E.

Figure 7 - The Transport & Environment Charger Weighting Metric

Transport & Environment (T&E), a European clean transport campaign group, has designed a new metric. Instead of simply counting each charger as one, this metric weighs the energy they can provide to the EV fleet and how available they are to the public. The T&E ratio model proposed gives each different charging speed a weighting:

- 1 for single phase 3-7 kW Slow Charger
- 2 for tri-phase 7-22 kW Fast Charger
- 4 for 43 kW AC Rapid Charger
- 5 for 50 kW DC Rapid Charger
- 10 for 150 kW and above Ultra-rapid Charger

If we accept the EU's recommended ratio of 1 charger per 10 cars as a base line for 3-7kW chargers, then higher power chargers can be weighed against the target according to the equivalent number of 3-7kW chargers they represent. For example, if Oxfordshire were to rely solely on rapid charging at 50kW per hour, the equivalent of the recommended EU ratio could be met by 800 rapid charge points.

6.1.4. With the current public EV charging provision providing the equivalent of approximately 1,464 3-7kW chargepoints, and the pipeline of the Council's EV charging projects planned over the next two years providing the equivalent of over 900 3-7kW chargepoints, the equivalent of **1,636** further 3-7kW public chargepoints could be required to meet potential demand.

Table 3 – Oxfordshire's planned pipeline of EV charger installations

Project	Number of chargepoints	Chargepoint Speed	T&E Weighting	3-7kW chargepoint equivalents
Park and Charge	280	7-22kW	2	560
Go Ultra Low Oxford: On-street	100+	Up to 7kW	1	100
Energy Superhub Oxford	18 4 20	150kW+ 50kW 22kW	10 5 2	180 20 40
West Oxfordshire EV Charger project	10	7kW	1	10
Total	**432**	**N/A**	**N/A**	**910**

Policy EVI 1: The Councils will collaborate to enable and encourage deployment of public EV chargepoints in Oxfordshire towards meeting predicted demand by 2025 in line with national targets and with reference to European directives.

Key actions:

- ✓ The Councils will use their best endeavours to enable a geographically and socially inclusive EV charging network which promotes equal access to EV charging for those in rural and remote locations and areas of deprivation based on available evidence of EV charging need.
- ✓ The Councils will collaborate to share project learnings, access to charging demand and charger locations data and tools amongst themselves where legally permitted to do so with each other.
- ✓ New data agreements will be developed to allow data sharing and tools access between the two tiers in regard to charging demand and locations data.
- ✓ The Councils will continue the collaborative approach used in the development of the Oxfordshire EV Infrastructure Strategy through regular meetings of a Working Group of officers involved in EV infrastructure and other EV related projects.

6.2. Funding public EV chargers

6.2.1. EV charging is a developing market, and business models for successful operation of charging networks are evolving rapidly.

6.2.2. The costs of installing and operating EV charging equipment require both upfront capital and ongoing revenue funding. The bulk of capital funding is spent in the connection of the EV charger to the energy network, and remains fairly static, while chargers themselves have significantly reduced in cost as technology has developed and demand increased. Ongoing and essential inspection and maintenance of chargers represent the bulk of revenue costs, with back-office and data connection fees taking a smaller part.

6.2.3. Local authorities have taken various approaches to the funding and ownership of EV charging infrastructure. During the first wave of infrastructure deployment, several authorities, including Bristol City Council and Transport for London, invested in procuring EV chargers which were owned and operated by the authorities, who received revenue from the chargers, and committed ongoing funding to support the contract management, maintenance and operation of the charging network. This approach saw local authorities acting as Charge Point Operators (CPOs) and required significant resourcing to manage the network.

6.2.4. A financial model developed for the Councils, based on owning and operating EV charging in house, demonstrates that in car parks Councils could reach

breakeven on operating costs for fast chargers after 4 years (including potential loss of income from parking fees, where they apply) if charger utilisation is high at 6 charging events per day. However, if utilisation drops below this point to levels more usually indicated by market engagement, the ongoing revenue losses will be considerable, leaving the Councils with significant ongoing funding commitments for several years.

6.2.5. The high cost of installing and managing EV charging equipment in house means that it is unlikely that Councils will be able to fund this without ongoing government funding and private investment.

6.2.6. CPOs frequently offer investment via a concession model, whereby local authorities can 'host' chargers operated and managed by the CPO at little or no cost to the local authority, while revenue from charging is retained by the operator or shared with the host. The larger scale of the networks operated by commercial businesses allow them to benefit from savings in operating costs which are not readily accessible to Councils running smaller networks in-house. This model has been successfully used around the country, including Oxfordshire, in areas where usage and turnover are high, such as in car parks or charging hubs, where the investment can be recouped relatively quickly.

6.2.7. In instances where usage and turnover of EV chargers are low, particularly on-street EV charging in residential areas, the business case for operators is more challenging. The government's On-Street Residential Chargepoint Scheme (ORCS) provides capital match funding for local authorities up to £6,500 per charger, but as it does not provide revenue funding for the ongoing operation and maintenance of the chargers. Therefore, the business case for operators may still be less attractive where return on investment is uncertain.

6.2.8. This may lead to challenges for Councils in encouraging CPOs to install in less economically viable areas without funding aspects of operation and maintenance, or entering into very long agreements, which limits their ability to request charger upgrades or seek new providers if the incumbent is under-performing.

6.2.9. The economics for on-street residential charging will continue to be challenging until the tipping point for EV adoption is closer, and analysis of and improvements in deployment costs, commercial models and actual asset utilisation can be assessed and addressed more fully. This may continue to require government grant funding to help de-risk EV charger deployment. Government has committed funding to support the development of new business models for 'on-street' residential EV charging; Oxfordshire's Councils are involved in three projects which explore new business models for delivering EV charging access by lowering costs, avoiding the higher costs of charging at the roadside, developing new models of asset ownership and opportunities for alternative funding streams.

6.2.10. In order to facilitate deployment of a high quality EV charger network for Oxfordshire, we need to continue to be at the forefront of working with the private sector and exploring funding models for EV charging while the market is still evolving.

Policy EVI 2: The Councils will collaborate to seek funding for EV infrastructure and support the development of a self-sustaining EV charging network for Oxfordshire which relies less heavily on continuing public finance support in the future and minimises the impact on existing and future Council budgets.

Key Actions:

- ✓ The Councils will collaborate to seek government and other funding for, and private investment in, Oxfordshire's public EV charging network
- ✓ Oxfordshire County Council's EV Integration team, working in partnership with industry and the District & City Councils where appropriate, will continue to seek project or other funding to explore sustainable business models for EV charging

7. Delivering EV charging

7.1. Public charging in local authority car parks

Setting targets for EV charging spaces

7.1.1. Oxfordshire's local authorities have direct control of over 90 off-road car parks and 'Park and Ride' sites located across the county, in addition to other car parking at leisure and community centres. The County Council also manages larger areas of on-street parking laid out in car park style at Broad Street and St. Giles in Oxford, which for the purposes of target setting in this document we will include under the definition of car parks.

7.1.2. Car parks controlled by the six local authorities provide over 14,000 car parking spaces to local residents, businesses, visitors and travellers in Oxfordshire. As discussed in section 6.1, to meet destination charging demand from the expected number of EVs on Oxfordshire's roads by 2025, the recommended number of 3-7kW equivalent chargepoints calculated using the T&E metric is 2,500 – 3,000.

7.1.3. Charging in public car parks and park and ride sites can be a valuable resource for users charging their vehicles while visiting other amenities in the local area – known as destination charging - but can also have great value for local residents without access to a private driveway or garage where they can charge from their home power supply. This dual use helps to maximise usage of the chargers and supports the business case for charger deployment as discussed in section 6.2.

7.1.4. Oxfordshire's local authorities therefore have an opportunity to make a large contribution to the public EV charging network by introducing EV charging into their own public car parks and park and ride sites.

7.1.5. If 7.5% of Oxfordshire's local authority-controlled car park spaces were provided with EV charging, this would total over 1100 spaces dedicated to EV charging. If the chargers provided were all 7-22kW 'fast' chargers or greater, this would meet all of Oxfordshire's likely destination charging needs for 2025 and over 70% of the predicted need up to the end of 2027. If carefully located, these chargers can also be used to support residents without off-road parking.

7.1.6. Oxfordshire's Councils are already actively deploying EV charging in their car parks across the county. Here we show how many charging spaces will be made available. The Councils' two major car park based EV charging projects will enable the Councils to reach over 40% of the 710-space target by June 2022.

Project	EV charging spaces	Expected completion
Park and Charge	280	March 2022
Energy Superhub Oxford	42	June 2022
Total	312	

Policy EVI 3: The Councils will aspire to reach or exceed a target of converting 7.5% of local authority managed public car park spaces, to fast or rapid EV charging by 2025.

This target will apply across each Council's entire parking estate to allow for challenges in very small or isolated car parks, and include some of Oxfordshire County Council's 'car park style' on-road public car parking where appropriate.

Key Actions:

- ✓ The Park and Charge project will be completed by March 2022 and will deliver up to 280 charging spaces
- ✓ The Energy Superhub Oxford Project will be completed by June 2022 and will deliver up to 42 charging spaces
- ✓ The Councils will collaborate to deliver further EV charging projects to reach or exceed the target by end of 2025
- ✓ The Councils will continue to monitor plug-in vehicle uptake in Oxfordshire and usage of the Councils' EV charger network annually to assess if the 7.5% chargepoint target is appropriate. The target will be formally reviewed in 2023

Managing EV charging in our car parks

7.1.7. In order to ensure that EV drivers have a consistent and positive experience of using EV chargers, the Councils also have the opportunity to align policies for the management and deployment of EV charging at their sites.

7.1.8. EV drivers frequently report that EV chargers are blocked by petrol or diesel cars inappropriately using EV charging bays (known as ICE-ing). Drivers also report frustration at finding EV charging bays blocked by EVs which have finished charging, but which have not been moved. Reservation of bays adjacent to EV chargers, setting maximum stay times which are appropriate to the speed of charging and use of the car park, and appropriate and regular enforcement of the car park rules can all help to improve the customer experience and increase usage of charging points.

Policy EVI 4: The Councils will manage parking bays for EV charging in local authority car parks to encourage both destination and overnight EV charging and for all types of EV ownership, including private vehicles, shared or car club vehicles, and business vehicles where appropriate

Key Actions:

- ✓ The Councils will use enforceable Parking Orders to reserve parking bays with EV chargers for charging EVs or specific car club vehicles only in order to prevent and enforce against their misuse
- ✓ The Councils will embed charging time limits for EV charging bays during peak hours in enforceable parking orders to maximise user access to chargers. These will be appropriate to the type of charging and usage of the car park. To encourage overnight use of EV chargers for drivers without home charging access these charging time limits will not apply during night-time or off-peak hours
- ✓ The Councils will ensure that where these requirements are implemented, enforcement officers will be well briefed on how EV bays are to be enforced, and where appropriate the Councils will consider the use of technical options to support enforcement i.e. bay sensors, cameras or ANPR cameras
- ✓ To encourage overnight use of EV chargers for drivers without home charging access, those Councils which charge an over-night parking fee will seek ways to remove or reduce parking fees for those unable to charge at home. Parking fees at other times of day will continue to apply (where appropriate) when vehicles are charging
- ✓ To ensure customers are confident in using EV charging bays across Oxfordshire the Councils may seek to agree consistent EV charging bay markings in line with UK government and industry standards

7.2. Visitor and workplace charging at Council sites

7.2.1. The Councils have direct control over the provision of EV charging at their own premises, including workplace parking at Council offices. This section addresses the Councils' approach to providing workplace charging for visitors and staff. This strategy will not seek to set out the Councils' approach to fleet vehicle charging as this is covered by Council fleet managers within the different organisations.

7.2.2. Commuter traffic contributes significantly to carbon and NO_x emissions in Oxfordshire, as well as generating significant issues of congestion around major centres of employment. A key aim for the Oxfordshire Local Transport and Connectivity Plan 5: Connecting Oxfordshire, is to reduce harmful emissions from commuter traffic by supporting sustainable alternatives such as public and active transport.

7.2.3. The Councils are each encouraging the reduction of workplace parking and actively promoting the use of public and active transport for staff and visitors. Parking is limited at many Council sites, in particular those in Oxford. Where public and active transport are not an option, the Councils have an opportunity to set an example to businesses around the county by providing EV charging for staff and visitors, where parking is already provided.

7.2.4. The Government's Workplace Charging Scheme provides a grant to support charging infrastructure at workplaces of 75% of the purchase and installation costs of a charger capped at a maximum of £350 per socket (a maximum of 40 sockets per organisation), which hundreds of companies across the UK have used to install EV chargers for their employees and fleets. The government has also legislated so that no benefit in kind liability arises for employees who charge their own electric and plug-in hybrid vehicles at work.

7.2.5. Where feasible, workplace charging installed at Council premises could also act as EV charging hubs if accessible to the public overnight – this is being considered at WODCs Council premises as part of the Park and Charge project. In this case, it may also be possible to attract investment from CPOs into concession contracts.

Policy EVI 5: The Councils will support staff and visitors to access electric vehicle charging at Council premises where appropriate

Key Actions:

- ✓ Where visitor parking is provided at Council sites, the Councils will explore options to license or deploy EV charging
- ✓ The Councils will monitor demand for staff and contractor EV charging and seek options to provide access where necessary

7.3. Charging without off-road parking

7.3.1. As shown in section 4.6, many households in Oxfordshire have no access to private off-road parking, and subsequently have limited or no access to home charging. This is a significant barrier to EV uptake for many households.

7.3.2. Without support, some drivers may attempt their own fixes; we have seen examples of EV drivers trailing cables across the public footway to charge vehicles from their homes. This presents a significant trip hazard, is detrimental to inclusive mobility and may contravene the Highways Act (1980).

7.3.3. Providing safe alternative access to EV charging for people who must park their car on the street is therefore critical to the UK's transition to EVs, and the protection of inclusive mobility for road users with additional needs.

7.3.4. Oxfordshire County Council, as the local highways authority, recognises the need to enable safe access to EV charging for residents who must park their car on the public highway, and will seek to enable the market to provide charging access to these users in a safe and responsible manner.

7.3.5. Oxford and Oxfordshire have led the UK in attempting to address this challenge; the Go Ultra Low Oxford Project led by Oxford City Council in partnership with Oxfordshire County Council was a world first, piloting technical solutions to the challenges of on-street EV charging. The Park and Charge Project (Figure 9) has enabled Oxfordshire County Council and several of Oxfordshire's District Councils to explore an alternative to roadside EV charging; the use of public car parks in residential areas to provide access to EV charging for local people without a home EV charger.

Table 4 – Feasibility of EV charging options for residents without off-road parking

Option	Impact on streetscape & mobility	Complexity & cost	Commercial Sustainability	Scalability
Off-road fast charging hubs	Nil	Medium	High	High
Cable Gullies	Low	Low	High	High
Off-road rapid & super-rapid hubs	Nil	High	Medium	Low
Street-light charging	Low	Medium	Medium	Medium
Free-standing on-street chargers	High	High	Low	Low
Rising bollards	Medium	High	Low	Low

7.3.6. Experience from these and other Oxfordshire projects provides valuable learning, which has been instrumental in designing the approach described in this strategy. Table 4 summarises performance of different charging options for those who park on the street against four key feasibility factors.

7.3.7. Key learnings from the Go Ultra Low Oxford On-street (O-GULO) project demonstrate that installing electrical on-street EV charging infrastructure is complex, time consuming and costly to install and manage. Costly electrical/data connections and maintenance create a challenging business case for investment and limited choice for local authorities and consumers, as discussed in section 6.2. The installation of EV chargers on the public highway, if not carefully managed, may also generate street clutter and create negative impacts for road users; in particular, pedestrians and those with disabilities, potentially compromising the Council's commitment to inclusive mobility.

7.3.8. Our learnings give a strong indication that where it is possible to avoid on-street electrical infrastructure by creating off-road fast charging hubs, this is desirable, and can support better use of infrastructure and a stronger case to attract private investment. The potential to provide safe access to charge an EV with a home charger using a 'cable gully' as piloted in the O-GULO project may help us to support on-street EV charging at mass scale, simply and cost effectively.

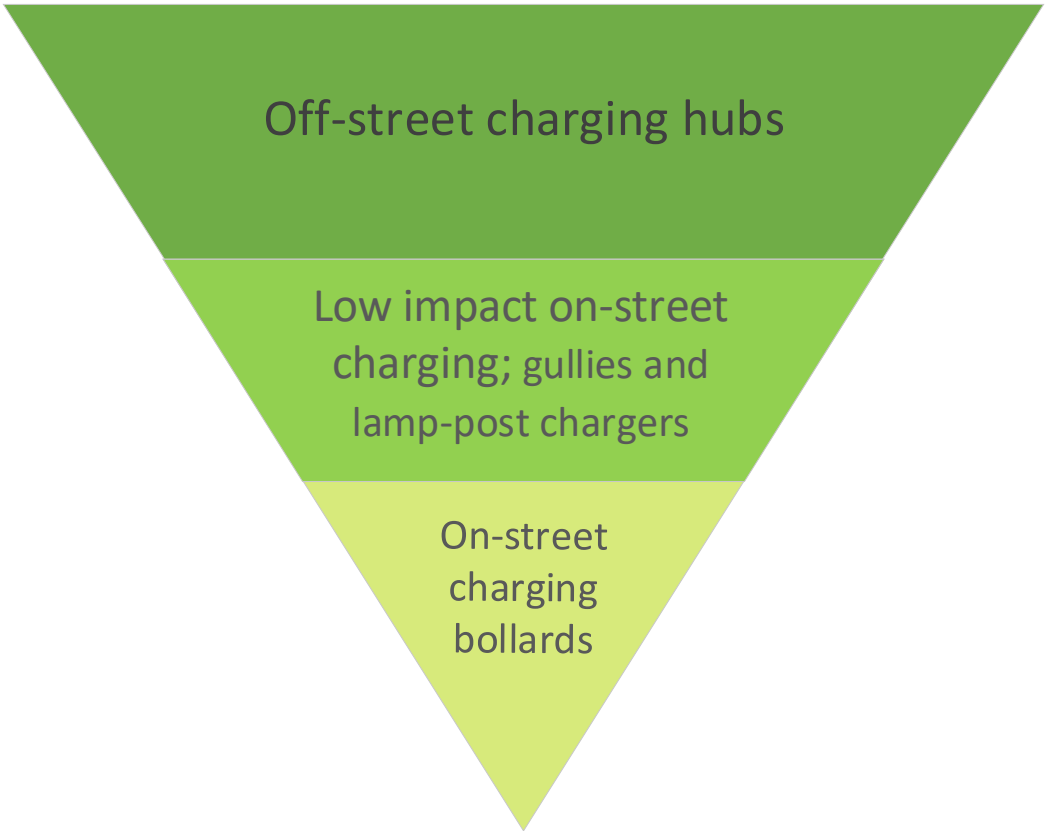


Figure 8 - Priorities for supporting charging without off-street parking

7.3.10. The Councils therefore consider that in the framework of options for supporting drivers without off-street parking, these opportunities are key priorities for deployment (Figure 8). The Councils also recognise that in some cases, there may be no alternative to providing on-street EV charger installations, and will continue to support these installations where necessary due to;

- Lack of suitable land for off-road EV charging hubs in the local area
- Disability status which would preclude an individual user from accessing an off-road charging hub.

7.3.11. A recent study by specialists in geo-spatial mapping indicates that where on-street EV charging is deployed, appropriate siting in areas of high need can reduce the number of on-street EV chargers required[xvi]. Funding for the Ox Gul-e project (Figure 10), which is investigating the feasibility of cable gullies, will enable Oxfordshire County Council to develop tailored site analysis tools to support staff making decisions on appropriate locations for on-street EV charging.

Policy EVI 6: Recognising that lack of off-road parking may be a significant barrier to EV take-up, Oxfordshire County Council will promote a hierarchy of solutions to EV charging for residents, businesses and shared vehicles without access to off-road parking, which prioritises off-street charging hubs, and other solutions which avoid generating additional street clutter or surrounding maintenance and management challenges.

Key actions:

- ✓ Develop and publish detailed policy for the deployment of safe, convenient and accessible chargepoints on the public highway for residents, businesses, and shared vehicles where there is no option to avoid on-street chargepoints, while considering inclusive mobility and the needs of pedestrians and other road users.
- ✓ Develop a scheme to license the deployment of on-street EV charging infrastructure and its ongoing management, maintenance and future-proofing, which meets the requirements of this policy by appropriate and competent organisations
- ✓ Develop a customer service process for the management of requests for on street EV charging, and implement a centralised database of requests to inform future deployment of EV charging hubs and on-street EV charging
- ✓ Work with partners to fund and deliver specific projects exploring new technologies, business models and opportunities to enable access to EV charging for residents and businesses without access to private off-road parking, for example Park and Charge, Ox Gul-e, Go Ultra Low Oxford On-street and other future opportunities

Figure 9 - Park & Charge Oxfordshire

The Park and Charge Project is an Innovate UK funded partnership involving SSE Utilities, Zeta Group and others, designed to explore a new model of providing EV charging for those without off-street parking at local 'over-night charging hubs.'

This project aims to demonstrate the potential for the over-night hub model with a pilot to install up to 280 chargepoints in Council car parks in areas where demand for on-street charging is likely to be high.

Local people will be able to use the over-night hubs at a discounted rate, before moving their car the following day, freeing up the charger for use by other drivers.

The Electric Vehicle Supply Equipment (EVSE) used will be 'fast' 7-22kWh chargers enabling them to be used at higher power during peak hours if the necessary power is available.

The model has the advantage of reducing the need for local authorities to install more chargers on the public highway, and the greater risk, cost and complexity associated with this approach.

Figure 10 - Spotlight on Ox Gul-e

Ox Gul-e is a £160,000 Innovate UK funded industrial research and feasibility project which will in will enable Oxfordshire County Council and Oxford Direct Services to build on the cable gully concept originally piloted in Oxford as part of the Go Ultra Low Oxford Project led by Oxford City Council and Oxfordshire County Council.

Current on-street EV charging infrastructure is complex, costly to install and manage. Visually unappealing, current charging points tend to clutter streets and costly electrical and data connections coupled with constant maintenance creates a weak business case for investment. This has led to limited choice for local authorities and consumers.

The project will deliver a prototype design for a purpose-built cable gully, explore how new EV charging solutions can be funded sustainably in the future, and develop the processes and policies to roll the new solution out across Oxfordshire and further afield.

8. Using the planning system

8.1. EV charging in new developments

8.1.1. Local planning policies in England are guided by the National Planning Policy Framework (NPPF)[xvii] which plays an important role in future proofing new developments. The planning system should help to shape places in ways that contribute to radical reductions in greenhouse gas emissions, and infrastructure to mitigate climate impacts and support renewable and low carbon energy and infrastructure. The NPPF states in paragraph 105.e that:

> *"If setting local parking standards for residential and non-residential development, policies should take into account: a) the accessibility of the development; b) the type, mix and use of development; c) the availability of and opportunities for public transport; d) local car ownership levels; and e) the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles."*

8.1.2. And in 110.e that applications for development should:

> *"be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations"*

8.1.3. Through the planning system, the Councils have the opportunity to use their direct influence on developments to improve provision of EV charging via strategic infrastructure and transport planning, local plans, guidance and conditions.

8.1.4. The Oxfordshire District Councils currently have a variety of planning policy requirements covering climate change, air quality and zero and ultra-low emission transport. All the District Councils include statements supportive of sustainable transport and some specifically encourage improved EV charging provision. Oxford City Council's recently adopted Oxford Local Plan 2016-2036 and the emerging Area Action Plan for the Salt Cross development in West Oxfordshire also set out planning conditions for the quantity of EV chargers to be provide in new developments. These standards are set out in Policy EVI 8: below.

8.1.5. South Oxfordshire District Council's recently adopted Local Plan 2035 (Policy Trans 5) requires proposals for all types of development to be designed to enable the charging of plug-in and low emission vehicles and to provide facilities to support the take up of electric and/or low emission vehicles. Further guidance will be provided in the District's forthcoming Design Guide (Supplementary Planning Document). The Cherwell District Council Local Plan and Vale of White Horse District Council Local Plan are due for or in the process of review and the Councils are currently considering options.

8.1.6. The government has consulted on proposed changes to the English Building Regulations regarding EV charging provision in new developments, which it is believed will serve as the national minimum acceptable standard. Further details of the proposed changes can be seen in Figure 11.

Figure 11 - The Governments Proposed Changes to Buildings Regulations

In July 2019 the government launched a consultation on its proposals to set minimum requirements for EV charging infrastructure in new and existing residential and non-residential buildings. The consultation proposed the creation of a new part to the English Building Regulations requiring EV charging infrastructure in new buildings and buildings undergoing material change of use and major renovation.

Policy position: Residential Buildings
The government proposes requiring every new residential building or residential building undergoing major renovation with more than 10 car parking spaces to have cable routes for EV chargers in every car parking space.

Policy position: Non-Residential Buildings
The government proposes every new non-residential building and every non-residential building undergoing a major renovation with more than 10 car parking spaces to have one charger and cable routes for an EV charger for one in five spaces. The government proposes a requirement of at least one charger in existing non-residential buildings with more than 20 car parking spaces from 2025.

8.1.7. The quantity of EV charging proposed by the government fall below those set locally by Oxford City Council and other local authorities in the UK in their local plans. The Councils have a desire to stretch beyond these base standards to ensure new developments are future proofed for the predicted rapid uptake of EVs in Oxfordshire.

8.1.8. The Councils recognise that the quality of EV charging for residents and businesses in Oxfordshire is also critically important for EV charging infrastructure to function as desired. In section we set out the Councils' ambitions for a high quality EV charging network for Oxfordshire, and the standards we will set to enable this.

8.1.9. In some cases, developers may lack the resourcing or expertise to understand how EV charging could be implemented or funded in communal car parks. The problem may be particularly acute for registered social landlords, where budgets are constrained.

8.1.10. In order to ensure that new developments also reach these standards consistently across Oxfordshire, it is vital to provide developers and planning

officers and developers with clear and concise information on best practice and the quality standards we expect for EV charging across the county. In addition, it is important to signpost to national and local organisations which can provide guidance on low or zero capex options for EV charging deployment and provide low cost access to clean electric vehicles through electric car clubs.

8.1.11. The policies below set out the Councils' ambitions to stretch beyond the Governments proposed changes to the English Buildings Regulations, align planning policy requirements for EV charging infrastructure in local plans, and support the local planning system through development of clear guidelines on EV charging for both developers and planning officers.

Policy EVI 7: The Councils will seek to include statements and policies supportive of EV charging infrastructure and, where appropriate, references to the Oxfordshire Electric Vehicle Infrastructure Strategy in their planning standards and guidance.

Key Actions:

- ✓ Oxfordshire County Council will include statements and policies supportive of EV charging infrastructure in:
  - o The Oxfordshire Plan 2050
  - o Connecting Oxfordshire: Local Transport and Connectivity Plan
  - o Highways Asset Management Plan and Network Management Plan
  - o Other relevant planning documents
- ✓ The Councils will collaborate to develop a Technical Advice Note for developers and planning officers which will;
- ✓ Share knowledge of best practise and promote the Oxfordshire Standards for EV charging deployment, on-going management, and maintenance, and future-proofing
- ✓ Signpost to organisations who can provide guidance on funding and delivering EV charging
- ✓ Promote electric car clubs in new developments

Policy EVI 8: ***The Councils will benchmark nationally, and between themselves, each seeking to set minimum standards for the quantity of EV charging to be provided in developments in their planning requirements.***

The standards set will seek to meet or exceed those set in the Oxford City Council Local Plan (2016-2036) which state that;

- ***Where parking is to be provided, planning permission will only be granted for developments if:***
  - ***Provision is made for EV charging points for each residential unit with an allocated parking space; and***
  - ***Non-allocated spaces are provided with at least 25% (with a minimum of 2) having electric charging points installed.***
- ***Planning permission will only be granted for non-residential development that includes parking spaces if a minimum of 25% of the spaces are provided with electric charging points.***

Key Actions:

- ✓ Oxfordshire County Council will include minimum standards on the quantity of EV charging points to be provided in new developments in the Oxfordshire County Council Street Design Guide and Oxfordshire Parking Standards.
- ✓ The District and City Councils will include minimum standards on the quantity of EV charging points to be provided in Local Plans when these are reviewed; and Supplementary Planning Documents and Air Quality Action Plans if appropriate to provide additional detail.

Policy EVI 9: ***The Councils will seek to provide support and guidance on EV charging provision to Town and Parish Councils, and other groups writing Neighbourhood Plans***

Key Actions:

- ✓ Oxfordshire County Council will include guidance on EV charging and links to the OEVIS and on-street EV charging policy in the Oxfordshire County Council Neighbourhood Planning Guide
- ✓ The Councils will respond to queries from those preparing Neighbourhood Plans in order to share knowledge of best practice for EV charging infrastructure.

8.2. EV charging in historic areas

8.2.1. Installing an EV charger at an existing private property or in car parks, is generally classed as permitted development under the General Permitted Development Order[xviii]. For on-street parking, the General Permitted Development Order grants planning permission to development by local authorities including EV charging[xix].

8.2.2. These permitted development rights can be suspended in designated conservation areas by means of an Article 4 Direction, and do not apply in the curtilage of a listed building or Scheduled Monument. Those wishing to install an EV charger at a listed building or in a designated conservation area may need to apply for listed building consent. If restrictive Article 4 directions were introduced in Oxfordshire, this could impact significant areas of the county (see Table 5 below) potentially creating significant challenges for:

- Residents wishing to install home EV chargers
- The deployment of on-street EV charging infrastructure, and EV charging in public car parks.

Table 5 - Listed buildings and conservation areas in Oxfordshire

Local Authority Area	Listed Buildings	Conservation Areas
Cherwell	2300	60
Oxford	1500	18
South Oxfordshire	3500	72
Vale of White Horse	2000	52
West Oxfordshire	3254	51
Oxfordshire Total	12554	253

8.2.3. There are no current Article 4 directions specific to EV chargers in conservation areas in Oxfordshire. However, management of street furniture is noted as an important factor in several of Oxfordshire's conservation areas. As charger infrastructure becomes more common, there may be a need or desire to manage EV charging in historic areas in order to protect their appearance and character. In response to the needs of local authorities, the market is developing more varied and elegant designs, some specifically tailored to blend in with a historic environment; in Oxford the GULO project piloted a charging socket installed into a heritage style bollard[xx].

Policy EVI 10: ***In order to manage the impact of EV chargers without restricting access to EV charging, the Councils will define and communicate the design features of EV chargers which will have the most positive impact on the character of our cities towns and villages, and ensure that where there are specific heritage conservation needs, these are met by the charging equipment deployed.***

Key Actions:

- ✓ The Councils will collaborate to develop an information sheet for officers and the public giving examples of EV charging equipment used around the UK in conservation areas and on or near listed buildings, and signposting to guidance from organisations such as Historic England.
- ✓ Where there are any local heritage concerns for the Councils, the proposals for the EV Infrastructure will be carefully assessed in relation to its immediate setting and surroundings and its impact on streetscape quality. Any harm will be weighed against public benefit in accordance with local planning policies and the NPPF
- ✓ Where Article 4 directions in conservation areas are introduced to manage EV charger installation, Oxfordshire County Council will require all EV charging infrastructure deployed on the public highway to meet local planning requirements for heritage conservation.

9. Influencing others

9.1. Commercial car parks

9.1.1. As identified in section 7.1, the have a pipeline of planned EV charging projects, and will commit to convert 7.5% of the county's 14,000 local authority owned/managed off-road car park spaces to EV charging spaces with 7-22kW chargers. This will make a significant contribution towards providing for Oxfordshire's EV charging needs, but will still leave more EV charging point equivalents required to future-proof for the demand predicted in section 6.1.

9.1.2. Using the EU recommended ratio of chargers as a benchmark, we can see that to meet the predicted demand for over owners and managers of other car parks also need to deliver EV charging.

9.1.3. Public car parking at large retailers, supermarkets, shopping centres and transport hubs such as railway stations present an opportunity to provide EV charging for users of these amenities, and like car parks owned by local authorities, could provide vital support with EV charging for those unable to charge an EV at home or off-road at business premises. Across the UK, commercial organisations are installing rapid and fast charging at many of their

sites[xxi], including a large scale EV charging hub with 50 fast EV chargers at the Westgate Centre in Oxford. A review of EV charging at UK supermarkets from 2017 indicated that on-site EV charger deployment was increasing amongst supermarket retailers[xxii], since then several large companies have announced plans to boost EV charging at their stores across the country in the last 3 years[xxiii]. Other commercial organisations such as pub and restaurant chains and hotels are also beginning to offer EV charging to customers[xxiv]. However, many smaller, locally based companies are equally well located to provide EV charging, but lack the resourcing or funds to take up the opportunity.

9.1.4. The Councils also have established relationships with organisations such as OXLEP, the Low Carbon Hub and Oxfordshire Greentech, which could be leveraged to encourage workplace EV charging in Oxford and more widely across Oxfordshire. The latter two organisations already work with commercial organisations across Oxfordshire to deliver low carbon infrastructure and renewables projects and have established relationships with many organisations keen to support EV charging.

9.1.5. Funding opportunities from the government may enable future projects to take place in partnership with businesses and landowners which could support resourcing at the Councils to deliver this engagement and the potential projects.

9.1.6. EV charging provided by commercial organisations for their customers is a useful step towards supporting those drivers who already have access to a charger at home, but significantly greater benefits could be realised if those charger assets were made available to local people without access to off-road EV charging at home.

9.1.7. As discussed in section 7, the Park and Charge project is piloting the dual use of EV charging hubs in car parks for both destination charging and as overnight EV charging hubs, providing evidence which could help to influence owners or managers of private car parks to provide more public EV charging, and to open it up to local users outside of regular customer hours.

Policy EVI 11: The Councils will seek opportunities to encourage organisations, businesses and other owners of commercial public and customer car parks to deploy public EV charging infrastructure where it is appropriate

Key Actions:

- ✓ The Councils will seek opportunities to signpost commercial organisations and businesses to local and national partner organisations to promote the deployment of EV charging in commercially owned car parks.
- ✓ The Councils will seek funding opportunities to support resourcing of engagement with commercial organisations to encourage EV charging in privately owned car parks.
- ✓ Oxfordshire County Council will disseminate learning from the Park and Charge project to encourage the suitable development of overnight EV charging hubs in commercially owned car parks.
- ✓ EV charging infrastructure in commercial car parking at new developments will be required through the development planning process as per Policy EVI 8

9.2. Communal residential car parks

9.2.1. Existing high-density housing developments often have communal parking areas for residents. These are usually separated from individual households, preventing residents installing home EV chargers or accessing the governments home charging grant. Residents who have contacted the Councils for support with EV charging indicate that in some cases housing management companies or landowners may lack the resourcing or expertise to understand how EV charging could be implemented or funded in communal car parks. The problem may be particularly acute for registered social landlords, where budgets are constrained.

9.2.2. As described in section 4.5, car clubs offer an opportunity to give wider access to clean vehicles, and reduce private car ownership in residential areas, which applies equally to both new and existing development.

9.2.3. Through our established relationships with OXLEP, the Low Carbon Hub, Oxfordshire Greentech and others, the Councils could encourage and signpost owners and managers of housing stock to available and affordable options to support tenants and leaseholders with EV charging and affordable access to clean vehicles in Oxfordshire.

9.2.4. Funding opportunities from the government may also enable future projects to take place in partnership with owners and managers of housing stock which could support resourcing at the Councils to deliver this engagement and potential future projects.

Policy EVI 12: The Councils will explore opportunities to encourage owners and managers of housing stock of all types of tenure to deploy EV charging infrastructure for residents where it is appropriate

Key Actions:

- ✓ The Councils will seek opportunities to signpost owners and managers of housing stock to our existing partner organisations to promote the deployment of EV charging and electric car clubs in communal residential car parks across all types of tenure.
- ✓ The Councils will seek funding opportunities to support resourcing of engagement with owners and managers of housing stock to encourage EV charging in privately owned car parks and electric car clubs in communal residential car parks across all types of tenure.
- ✓ EV charging infrastructure in residential car parking at new developments will be required through the development planning process as per Policy EVI 8

9.3. Workplace & business charging

9.3.1. As discussed in section 7.2, workplace EV charging, provided where public and active transport is not an option, can support commuters to switch to EVs. Workplace charging can also support businesses to switch their fleets to EVs.

9.3.2. The Councils have committed to take steps to support EV charging for visitors and staff at their own sites, but as some Councils provide very limited parking for staff, other employers across Oxfordshire must act on commuter emissions.

9.3.3. In order to further support reduction in commuter transport emissions, the Councils can act to encourage employers across Oxfordshire who provide workplace parking to offer EV charging for their staff and visitors; Workplace charging can support drivers without off-street parking at home, and can enable plug-in hybrid and range extender drivers to travel further within the electric zero emissions capability of their vehicle.

9.3.4. Oxford is the largest employment centre in Oxfordshire, attracting 45,000 private cars to the morning rush hour daily[xxv]. As part of Connecting Oxfordshire, Oxfordshire County Council and Oxford City Council are working together to develop and implement Connecting Oxford, a plan to transform public transport, walking and cycling in Oxford, including better connectivity to places of work. This will be achieved by reducing traffic levels in Oxford, prioritising bus movements and investing in new services, and freeing up more road space for pedestrians and cyclists. Less traffic and more people using public transport and active travel modes will also have air quality benefits. Included in this is improved air quality, by reducing the number of cars travelling into and around the city and encouraging more people to travel by public transport, and active transport. The proposals

include traffic filters across the city and a workplace parking levy (WPL) in the city's Eastern Arc - an area outside the city centre that links parts of north Oxford, Marston, Headington and Cowley. Those affected by the proposed WPL, including employers and their employees, could directly benefit from investment in new bus services, grants for onsite sustainable travel improvements, parking management, discounts on bus fares, park & ride buses and parking.

9.3.5. The Oxfordshire County and Oxford City Councils are currently developing a business case required to assess the full impacts of the proposals. Extensive public and stakeholder engagement and consultation is also planned to help develop and refine the Connecting Oxford proposals, with implementation currently programmed from 2023. have endorsed a full feasibility study for the introduction of the Connecting Oxford transport proposals. This feasibility study and the proposals of Connecting Oxfordshire presents direct opportunities to engage employers and encourage more workplace EV charging infrastructure in the city.

9.3.6. As described above in section 9.1, the Councils also have relationships with organisations such who are well equipped to encourage and provide support for businesses wishing to install EV charging for staff and visitors.

Policy EVI 13: The Councils will explore opportunities to encourage uptake of EV charging at workplaces and business premises where it is appropriate

Key Actions:

- ✓ Oxfordshire County Council will explore opportunities to encourage uptake of EV charging at workplaces through the developing transport plans for Oxfordshire, including through engagement with employers on the Connecting Oxford plan.
- ✓ The Councils will seek opportunities to signpost commercial organisations and businesses to our existing partner organisations engage to promote the deployment of EV charging in workplace car parks.
- ✓ The Councils will seek funding opportunities to support resourcing of engagement with commercial organisations to encourage EV charging in workplace and business premises car parks.
- ✓ EV charging infrastructure in workplace car parking at new developments will be required through the development planning process as per Policy EVI 8

9.4. Rapid charging on the strategic road network

9.4.1. The UK has one of the largest, and most comprehensive rapid networks in Europe including more than 3,500 rapid chargers [xxvi,xxvii]. The government wants to encourage and leverage private sector investment to build and operate a self-sustaining public network including rapid charging. To meet long-distance, en-route rapid charging requirements, and maximise carbon emission reductions, the number of rapid chargers located near the major roads network needs to expand to 1,170 by 2030[xxviii].

9.4.2. Highways England are the responsible authority for managing the deployment of rapid EV charging at sites on the strategic road network, including Oxfordshire's strategic road network such as the A34 and M40. The organisation has recently been awarded funding from the government and announced its commitment to ensure 95% of its motorways and major 'A' roads are within 20 miles of a charge point by the end of 2020.

9.4.3. However, there are still few public rapid or ultra-rapid chargers at sites on the strategic road network in Oxfordshire: as shown in section 4.2, only 8 are located at service or fuel stations close to major roads in the county.

9.4.4. Oxford City Council are developing a rapid and ultra-rapid charging hub at the Redbridge Park and Ride site, close to the A34 in Oxford, which will significantly boost access to high-speed EV charging for users in the county travelling via Oxford. Further rapid charging close to major roads is still required to support more rural communities and travellers in other parts of the county (see Figure 12).

9.4.5. Oxfordshire County Council has an established relationship with Highways England as the highway authority for the A34 and M40 in Oxfordshire, and with the Office for Low Emission Vehicles, and may be able to make the case for encourage deployment of rapid and ultra-rapid EV charging funded by Highways England at sites in Oxfordshire.

9.4.6. As the Highway authority for Oxfordshire, Oxfordshire County Council also has responsibility for highways land assets, including important link roads across the county and their associated lay-bys. Some of these lay-bys are large and underutilised, giving them potential for use as rapid charging stops where grid connections and space allow.

Policy EVI 14: The Councils will seek to improve the availability of rapid and ultra-rapid EV charging on and near the strategic road network and important link roads across Oxfordshire

Key Actions:

- ✓ The Oxford City Council ESO project will be delivered to meet the need for rapid and super-rapid charging for residents, businesses and travellers in and around Oxford.
- ✓ The Councils will engage with HM Government departments and agencies responsible for the roll out of EV charging infrastructure on the strategic road network.
- ✓ Oxfordshire County Council will explore options to engage the market in assessing the potential use of large laybys and other highways land assets such as Park & Rise sites for rapid and ultra-rapid EV charging across Oxfordshire.

Figure 12 - Spotlight on Energy Superhub Oxford

Oxford City Council is part of **Energy Superhub Oxford (ESO)** a £41m project to trial the world's largest hybrid battery technology in the city to support rapid and ultra-rapid EV charging, and low-carbon heat networking.

The project will see the trialling of the 50MW hybrid battery system, connected to the Cowley substation in Oxford, and will both store and re-supply electricity directly back to the grid. The battery will store and deliver power to electricity suppliers and will help to balance the local requirements for National Grid by storing electricity at times of low demand and re-supplying at peak demand. The technology will be able to shift the demand to periods of low prices, minimise bills and overcome local network constraints.

The project will enable the use of spare capacity energy to power an EV 'superhub' at the Redbridge Park and Ride site, helping to minimise the impact of large scale rapid and ultra-rapid charging on the grid. Technology from the battery will optimise time-of-day charging, with capabilities for overnight charging.

Public chargers to be installed under the project include:

- Over 20 rapid and ultra-rapid EV chargers
- At least 10 fast (22kW) chargers at the Redbridge site and another 10 at Seacourt Park and Ride.

The funding will also support the Council to work with a partner offering a 'Trial before you Buy' programme for Hackney Carriage Vehicle drivers in Oxford, and support the council in converting its fleet to electric.

10. Securing open, accessible and reliable EV charging

10.1. National legislation, standards and quality challenges

10.1.1. National and European standards give minimum quality and safety standards for EV chargers, their installation and the interface with customers.

10.1.2. The standards are set out in European and UK legislation, regulations and standards, and are adhered to by professional manufacturers, installers and operators of EV charging infrastructure. Table 6 gives a high-level description of some of the key standards, and a comprehensive review can be seen in Annex 3.

10.1.3. Any chargers funded by OLEV On-street Residential Charging Scheme (ORCS), or Workplace Charging Scheme must also meet further specific requirements.[xxix,xxx]

10.1.4. These are the minimum baselines which all EV charging must meet. However, reliability, ease of use and access, and the customer experience continue to be a concern for users.

10.2. Reliability

10.2.1. Reliability of EV charging has improved since the first wave of EV infrastructure funding saw first-generation chargers installed under the governments plugged-in places schemes, but consumers still rate reliability as their overriding consideration[xxxi], and 21% of public EV charging network users have had negative experiences when using the charging network[xxxii].

10.2.2. Technical standards for equipment which reach above and beyond those set at the European or national minimum levels can help to increase the reliability of EV charging equipment. Chargers which enable remote fixes to technical failures reduce the need for engineer callouts and thus 'downtime' for EV chargers, and modular design which allows a section of the charger unit to be replaced, rather than a small component or the entire unit, can speed up repairs when an engineer is needed.

10.2.3. Reliability of EV chargers is also strongly linked to their operation and maintenance. To ensure that chargers function as desired, they must be operated and regularly maintained by a competent contractor. Experience from GULO projects show that where this is not the case, incidence of charger failure and safety breaches are high.

10.2.4. Well-designed and thorough contractual arrangements for maintenance and operation of charging points by a competent contractor are necessary to meet customer needs and avoid poor reliability of charging networks. Resources for the management of contracts or licences to operate EV charging equipment are also essential to ensure that operators meet their obligations[xxxiii].

10.2.5. A plan for the renewal of assets at the end of their lifetime is also critical to ensuring the reliability of the network continues as technology changes and improves.

Table 6 - Key Regulations & Standards

Legislation, regulation standard	High-Level Description
The Alternative Fuels Infrastructure Regulations 2017	Key requirements which are not already captured in other standards: • Infrastructure operators must provide to any person ad-hoc access to charge • Equipment must incorporate an intelligent metering system
Autonomous and Electric Vehicles Act 2018	Gives the government powers to impose regulations on: • Public charging or refuelling points: access, standards and connection • Provision of specific information for users of public charging or refuelling points • Transmission of data relating to charge points
OCPP Open Charge Alliance Open Charge Point Protocol	Open industry standard that enables charger sellers and network operators to "mix and match" interoperable hardware and software: • Compliant hardware can be used across a range of different cloud based back end software. • All chargers should be OCPP 1.6+ compliant.
Electricity Safety, Quality and Continuity Regulations (ESQCR)	Statutory legislation that governs the supply of electricity to users: • All installations must comply. • Relevant elements for the EV charger installer are interpreted into BS7671.
BS7671:2018 (+A1:2020) Electrical Installations (IET Wiring Regulations)	The UK standard to which all electrical installations must conform. • The 18th Edition IET Wiring Regulations contains important new information for all electrical installers and engineers. • Section 722 relates specifically to the installation of EV supply equipment.
IET Code of Practice for EV Charging Equipment Installation 4th Edition	An overview of EV charging equipment installation considerations on: • Physical installation requirements • Relevant electrical installation requirements of the updated BS 7671:2020 • Specific requirements when installing EV chargers in locations such as dwellings, on-street, commercial and industrial premises.
BS 8300: 2018 Design of an accessible and inclusive built environment.	Standards for accommodating users with the widest range of characteristics and capabilities: • Defines the height from the ground of the socket outlet (also stated in BS7671 & IET CoP) • Includes clearances for wheelchairs around street furniture.

10.3. Instant access

10.3.1. The early development of the UK public EV charging market led to the creation of 'closed' EV charging networks, where access to charge was limited to subscribers or members. In the United Kingdom, EV drivers carry on average 3.19 charging network cards. Open access to roam across networks with a single card is seen as an important point for future improvements to the EV charging network by consumers[xxxiv].

10.3.2. The government has taken steps to increase access to EV charging on an 'ad hoc' basis via the Alternative Fuels Directive which demands that infrastructure operators provide to any person ad-hoc access to charge without need for a membership. The easiest interpretation of this is to allow credit/debit card payments, and some operators are now enabling contactless or NFC payment (Apple Pay, Google Pay etc.), but many other charging networks are slow to deploy these technologies unless they are specifically requested. Some operators have made the case that if their App can be downloaded at any time and a driver can then immediately access the charger once they have setup up the App, then this can be considered ad-hoc access. However, this requires access to a smart phone and makes ad hoc charging more time consuming and complex than many consumers prefer.

10.4. Charging standards for Oxfordshire

10.4.1. Oxfordshire's ambitions for an EV charging network include creating a truly open network, which ensures easy, consistent access to anyone wishing to use a charge-point across Oxfordshire. To achieve the high quality EV charging network we are striving for, the Councils have collaborated to develop a set of minimum standards for EV charging equipment deployed on-street and in local authority car parks, which will also form the basis of advice for advice on EV charging in new developments.

Policy EVI 15: The Councils will encourage the deployment of a high quality, reliable, open, value for money, future-proofed and truly instant access EV charging network for Oxfordshire by setting high standards which seek to reach 'above and beyond' minimum legal requirements

Key Actions:

- ✓ Procure, license or otherwise deploy only EV charging which meets or exceeds the national standards and the Oxfordshire EV Charging Standards detailed in Annex 3: EV Charging Standards
- ✓ Review the Oxfordshire EV Charging Standards on a regular basis and as technologies and business models develop.
- ✓ Seek the best value for users by using the procurement and licensing processes to encourage CPOs to offer opportunities to benefit target groups, such as those

who must park on the street, taxi drivers and operators, or other businesses through different rates for EV charging over-night and during daytime hours, or other measures which incentivise take up amongst target groups.

- ✓ Encourage developers, and other stakeholders to meet or exceed the same standards when deploying EV charging infrastructure through planning guidance and wider engagement.

11. Powering EV charging for the future: Managing energy impacts

11.1. Impacts on the grid

11.1.1. EV charging relies on energy supply through connection to networks or lighting circuits, generating challenges in connecting EV chargers and providing sufficient power to operate.

11.1.2. Rapid charging hubs and ultra-rapid charging take huge amounts of energy out of the grid at busy times, which can lead to expensive upgrading of the local electrical grid, including new substations or transformers. Neither rapid or ultra-rapid charging can be considered truly 'smart'; the chargers are controlled by and communicate with a back office, but due to their nature of delivering large amounts of energy very quickly there is limited opportunity to manage the delivery of energy across off-peak hours in order to protect the grid. Even fast charger installations can require upgrades or reinforcement of networks in areas where the local network can only support small increases. The cost of these works can be prohibitive.

11.1.3. The My Electric Avenue report for SSE concluded that without managed charging, EVs could cost £2.2 billion in UK grid infrastructure[xxxv]. Traditionally, these findings would mean the replacement of underground cables in the public highway.

11.1.4. However, the government has recognised that the previous system of centralised generation of electricity transported through to the end user is changing to a more decentralised system[xxxvi] with increasing levels of low carbon and renewable generation, often connected at the local distribution network and behind the meter.

11.1.5. EVs necessarily reduce CO_2 and other harmful emissions from the tailpipe, positively benefitting the drive to reduce transport emissions. These environmental benefits can be increased if upstream carbon emissions are also tackled when EVs are charged from renewable sources.

11.1.6. To enable these changes in generation and minimise the need for conventional network reinforcement, the system is adapting to become more flexible and smarter in order to better manage the new flows in power. The

Oxfordshire Energy Strategy[xxxvii], developed by OxLEP in partnership with all local Councils, University of Oxford, Low Carbon Hub, the Distribution Network Operator and other stakeholders, and endorsed by the Growth Board in November 2018, sets objectives to:

- secure a smart, modern, clean energy infrastructure which will support planned housing, industrial and commercial growth.
- Lead nationally and internationally to reduce countywide emissions by 50% by 2030, on 2008 levels, and set a pathway to achieve zero carbon growth by 2050

11.1.7. EVs could offer new opportunities for the power system as part of this smarter, cleaner and more flexible energy system for Oxfordshire system. Projects such as the Energy Superhub Oxford, Local Energy Oxfordshire and Vehicle to Grid Oxfordshire are already examining the part EVs could play in Oxfordshire. The EV Infrastructure Strategy has a role in ensuring that our EV infrastructure supports the aims of the Energy Strategy, minimises negative impacts on the electrical grid and is ready to respond to the learning generated in the county.

11.2. Smart EV charging

11.2.1. Smart charging, during off-peak periods and when demand and network congestion is otherwise low, means consumers can potentially benefit from cheaper pricing when charging, avoid triggering future network reinforcement, use their EVs to power their homes or businesses or sell energy back to the grid [xxxviii].

11.2.2. Since 2019 all government funded charger installations must have smart functionality. The Automated and Electric Vehicles Act (2018) also gave government the powers to ensure that all chargers sold or installed in the UK will have smart functionality.

11.2.3. In deploying or licensing privately funded EV charging infrastructure in Oxfordshire, the Councils have opportunities to require charger operators to meet the same standards set by government for smart charging. The Councils also have the opportunity to guide developers deploying EV charging to opt for smart chargers though planning advice and the proposed technical advice note to be developed.

11.3. Renewable energy, on-site renewable generation and storage

11.3.1. As the UK energy network continues to decarbonise, and charge point operators increasingly commit to buying energy from renewable sources, these upstream carbon emissions will naturally reduce. The ESO project demonstrates the potential for large scale storage to support the grid, but other projects across the UK have also made use of smaller scale battery storage, stand-alone or combined with on-site photo-voltaic generation to support EV charging.

11.3.2. The Councils could increase the use of renewables in the EV charging network, and mitigate against challenges in energy supply, by promoting the installation of on-site renewable generation and storage where EV chargers are deployed in significant numbers.

11.3.3. Designing developments with sufficient and appropriately located lower power EV charging equipment from the outset, with sufficient energy capacity to meet predicted future demand, will help to manage grid impact, meeting the EV charging infrastructure needs of residents and businesses now and in the future, efficiently and cost effectively.

11.3.4. Where properties have access only to unallocated parking on the public highway, the government wishes to encourage the use of integrated street-lighting and EV charging to avoid street clutter. Historically, street lighting circuit designs and power capacity have not been required to take into account the need for additional load from EV charging. New developments using traditional processes to design street lighting without consideration of EV charging will require costly and complex retrofitting to meet the energy demand of EV charging. This can be avoided by designing in and ensuring adequate power capacity for EV charging from the outset. Exemptions to the above requirements may be made for specific sites where planning restrictions apply.

Policy EVI 16: The Councils will seek to increase the emissions reduction benefits of electric vehicles, and mitigate the impact of EV charging infrastructure on the local and national grid by encouraging and promoting the use of renewable energy for EV charging, encourage 'off-peak' use of EV chargers, and exploring technical options to manage grid demand from EV charging infrastructure.

Key Actions:

- ✓ The Oxfordshire Standards set by the Councils for EV charger quality will include requirements for EV chargers to have smart functionality in line with government funding standards.
- ✓ Where it is feasible, the Councils will explore technical options to support grid management and greater reductions in transport emissions such as on-site renewable generation and energy storage.
- ✓ The Councils will encourage developers to consider the use of on-site generation and storage to support EV charging through the jointly developed Technical Advice note on EV charging in new developments.
- ✓ The Councils will set parking policies which encourage use of EV charging infrastructure in Council car parks and on the highway over-night and at other 'off-peak' times as per Policy EVI 4:

12. Promoting EVs and infrastructure

12.1.1. Given that EVs are still a relatively new phenomenon, a broader challenge beyond public charger infrastructure is the level of information and general understanding that people have regarding EVs. The Councils recognise that they are able to contribute towards information provision to help overcome this.

12.1.2. Increasing knowledge, understanding and experience of EVs can help break down the barriers to EV ownership, challenge perceptions, and give people the encouragement and reassurance they need to make the shift to a cleaner vehicle[xxxix]. Awareness of available EV charging infrastructure is also a factor in driving EV adoption[xl]. The Councils have opportunities to use their existing online presence to signpost current and potential EV drivers toward existing sources of information on chargers, and to use resources from our projects to promote EVs and a cleaner transport choice.

12.1.3. As part of the Park and Charge project, Oxfordshire County Council is spending £150,000 on a county-wide communications and education package to engage Oxfordshire residents as well as visitors and commuters to the area. This communications campaign will go beyond simply promoting the Park and Charge project and charging hubs, and will communicate much more widely about Oxfordshire's transition to EVs as a lower-carbon and cleaner way to travel. Oxfordshire County Council will work very closely with the district councils, as well as with other local initiatives such as Energy Super Hub Oxford, EV car clubs, car dealerships and local community action groups to promote the local initiatives and resources that are combining to make EVs more accessible within Oxfordshire.

12.1.4. In October 2020, Oxfordshire County Council launched an online survey to gain a greater understanding of local people's knowledge, experiences, attitudes and intentions around the use of electric vehicles and charging facilities in the area. This has provided essential insights to help effectively target communications and create the impactful messaging needed to unlock barriers and successfully steer people towards choosing electric vehicles in Oxfordshire. The survey will be repeated in late 2021 to evaluate success of the Park and Charge communications activities and inform future messaging to maintain/gather momentum in the future.

Policy EVI 17: The Councils will promote information about public EV charging in Oxfordshire, and awareness of the benefits of EVs to the public through their online and other communications channels

Key Actions:

- ✓ The Councils will promote EVs and awareness of EV infrastructure in Oxfordshire through the Park and Charge project public communications and engagement campaign, ensuring communications regarding other current EV infrastructure projects are closely linked.
- ✓ The Councils will seek to provide the public with information on public EV charging in Oxfordshire via their online communications channels, signposting to national sources of information where relevant (i.e. zap-map and government information sources).
- ✓ The Councils will seek opportunities to promote their activities around EVs and EV charging infrastructure where appropriate through project communications and other appropriate channels.

13. Annex 1: Stakeholders

13.1. The Oxfordshire Energy Strategy Steering Group Members

A member steering board made up of representatives from each of the Council's has been engaged in the development of this strategy:

Name	Council Role
Cllr Yvonne Constance	Oxfordshire County Council Cabinet Member for Environment (including Transport)
Cllr Dan Sames	Cherwell District Council Lead Member for Clean and Green
Cllr Tom Hayes	Oxford City Council Cabinet Member for Zero Carbon Oxford
Cllr Caroline Newton	South Oxfordshire District Council Climate Emergency Advisory Committee Member
Cllr Catherine Webber	Vale of White Horse District Council Cabinet Member for the Climate Emergency and the Environment
Cllr David Harvey	West Oxfordshire District Council Cabinet Member for Climate Change

13.2. External organisations represented at workshops

Town Councils, Parish Councils and Community Groups		
Adderbury Parish Council	Eynsham Parish Council	Souldern Parish Council
Bampton Parish Council	Faringdon Town Council	South Oxford Community Association
Banbury Town Council	Garsington Parish Council	Thame Green Living
Bicester Town Council	Henley-on Thames Town Council	Thame Town Council
Charlbury Town Council	Kennington Parish Council	Wallingford Town Council
Deddington Parish Council	Kidlington Parish Council	Witney Town Council
Didcot Town Council	Little Coxwell Parish Council	

Charging Industry Stakeholders
EB Charging
EZ Charge
JojuSolar
Urban Electric

14. Annex 2: Evaluation of charging options for residents without private off-road parking

Option	Streetscape & Mobility Impact	Complexity & cost of deployment	Commercial Sustainability	Scalability
Off-road fast charging hubs	**Nil** ▪ Avoids street clutter	**Medium** ▪ High density installations enable efficiencies ▪ Reduced interaction with utilities and parking regulations: deployment less complex	**High** ▪ Multiple charger installations enable cost savings ▪ ORCS funding can be accessed ▪ Use by residents and car park visitors generates higher usage and income ▪ Opportunities for private investment and concession agreements	**High** ▪ Opportunities to deploy in publicly or privately owned car parks
Cable Gullies	**Low** ▪ Integrates well into existing streetscape	**Low** ▪ Low tech and simple: reduces costs of installation significantly	**High** ▪ Potential for self-funding by residents ▪ Low maintenance requirements mean very low ongoing costs	**High** ▪ Very few limitations on where cable gullies can be deployed
Off-road rapid and super-rapid charging hubs	**Nil** ▪ Avoids street clutter entirely	**High** ▪ Multiple charger installations can enable efficiencies in deployment ▪ Reduced interaction with utilities and parking regulations makes deployment process less complex ▪ High power needs of rapid and super-rapid charging can create complexities and significant costs in securing power supply	**Medium** ▪ Higher usage across groups generates greater income for operator ▪ This is balanced by significant upfront costs for installation ▪ Opportunities for private investment and concession or hosting agreements with landowners	**Low** ▪ Suitable sites with appropriate power supplies are challenging to secure ▪ High numbers of rapid and super-rapid chargers generate significant challenges for local and national electrical grid

Street-light integrated charging	**Low** ▪ Integrates well into existing streetscape	**Medium** ▪ Relatively simple installation ▪ ORCS funding can be accessed.	**Medium** ▪ Low cost of technology and installation ▪ CPOs moving away from concession models including maintenance	**Medium** ▪ Deployment limited to areas where street-light position is at leading edge of footway ▪ Deployment limited by lighting network capacity
Free-standing on-street charger bollards	**High** ▪ Generates street clutter from charger pillar and electrical supply cabinet	**High** ▪ Dedicated electrical supply is required ▪ Low density installations: cost savings cannot be realised ▪ ORCS funding can be accessed	**Low** ▪ Higher costs of installation and low utilisation mean that residential on-street locations are less commercially viable in the near term (5-10 years) ▪ CPOs moving away from concession models including maintenance	**Low** ▪ Deployment limited by grid capacity and pavement width ▪ Lack of commercial sustainability means operators by be reluctant to install in areas likely to see low usage without subsidy
Rising bollards	**Medium** ▪ Stored below pavement surface when not in use. ▪ Some clutter impact when in use	**High** ▪ Deep excavation required, generating complexity with existing utilities and archaeological sites ▪ Dedicated electrical supply is required ▪ Costs are higher for installation. ▪ ORCS funding can be accessed	**Low** ▪ Higher costs of installation and low utilisation mean that residential on-street locations are less commercially viable in the near term (5-10 years) ▪ Charger operators moving away from concession models including maintenance	**Low** ▪ Deployment limited by grid capacity, pavement width and underground utilities ▪ Lack of commercial sustainability means operators by be reluctant to install in areas likely to see low usage without subsidy

15. Annex 3: EV charging standards

15.1. EV charger types

Slow charging at 2.4-3kW AC is most useful in home or workplace settings, where the user can charge over a longer period, and can be carried out with a standard 3-pin plug. However, it is not recommended for regular use as the UK domestic plug and socket connection was not designed for continuous loads of 10-13 amps as used by an electric car. Charger sockets of up to 5kW can also be integrated into existing electrical assets on the street, such as lighting columns.

Fast charging can range from 7.4 kW to 22kW AC is the most common type of EV charging, suitable for home, workplace, destination and on-street EV charging. Most public EV charging infrastructure is 7.4 kW though more modern chargers may be able to achieve 22kW. It should be noted that domestic household chargers are only able to deliver the lower end of this range as higher rates require 3-phase energy supply. Fast chargers can be wall or floor mounted, and most are 'smart'; able to communicate with a charger management system or 'back office' and manage the time and rate of charging to minimise the impact of EV charging on the electrical grid[xli].

Rapid charging occurs at 43kW and 50kW, and typically provides an 80% charge in 30 to 60 minutes. Units can usually supply AC (43kW) or DC (50kW) energy but not always both at the same time. Rapid charger units are most often floor mounted, larger than fast chargers and have tethered cables for each of the three vehicle input sockets used for rapid charging EVs. Rapid charging is most suitable for en-route charging and workplace charging where rapid delivery of energy is required to complete a journey or enable continued use of commercial vehicles such as delivery vans or taxis. It can also provide a useful back up for domestic users when EV charging at a slower speed is not available or feasible. Rapid charging is often seen at motorway service stations.

Ultra-Rapid charging occurs at rates above 50kW, and is only provided via DC. Ultra-rapid charging is limited by the small number of EVs in the UK which can accept charging at this level of power, however it is likely that in the future, ultra-rapid charging will replace rapid charging as the most suitable for en-route and business needs. Tesla provided the first ultra-rapid charging in the UK and others are now providing chargers which can supply energy at up to 350kW though the range of 100-150kW is more typical. Most manufacturers use one of two standard input sockets; CCS or CHAdeMO.

Table 7 gives details of EV charging types, connection types and site suitability (adapted from UK EVSE Procurement Guide, UK EVSE 2019)

Table 7- EV charging types, connection types and site suitability (adapted from UK EVSE Procurement Guide, UK EVSE 2019

Charging Type	Power Output (Kw)	Approximate time to full charge*	Miles of range per 20 minutes of charging**	Charger Socket Type	Suitable Locations
Slow	2.4-3.4 kW AC	16 Hours	2.4-3	Standard Three Pin Plug	Home*** and workplace (adhoc/emergency use)
	3.7-5 Kw AC	13.5 hours	2.7-7	Seven Pin 'Type 2' Plug	Specialist lamp column charging – on street
Fast	7-11Kw AC	5-7.5 hours	3.7-11	Seven Pin 'Type 2' Plug or tethered lead with Five Pin 'Type 1/J1772' Plug or Seven Pin 'Type 2' Plug	Home***, workplace, on street, public car parks
	11-22 Kw AC	2.5-4.5 hours	11-22		
Rapid	43Kw AC	45 minutes (to 80%)	43	Tethered lead with Seven Pin "Type 2" Plug	Workplace, en-route at motorway service stations, charging hubs, public car parks, on-street for specific use cases.
	50 Kw DC	35 minutes (80%)	20-50	Tethered lead with Heavy Duty 'JEVS G105' Plug or Heavy Duty 'Combo 2 CCS' Plug	
Ultra-Rapid	120-147 Kw DC	25 minutes (to 80%)	120-147	Tethered lead with Tesla adapted 'Type2' Plug	En-route at motorway service stations, charging hubs, public car parks
	150 Kw DC	25 minutes (to 80%)	150	Tethered lead with Heavy Duty 'JEVS G105' Plug or Heavy Duty 'Combo 2 CCS' Plug	
	350 Kw DC	15 minutes (to 80%)	350	Tethered lead with Heavy Duty 'Combo 2 CCS' Plug	

* Based on a typical EV with a 50kWh battery

**Range added per 20 minutes of charging calculated assuming a 3 mile/kWh vehicle efficiency.

*** Up to 7kW single phase only at 32 Amps AC output from a typical household single phase AC energy supply

15.2. Standards, regulations and best practice

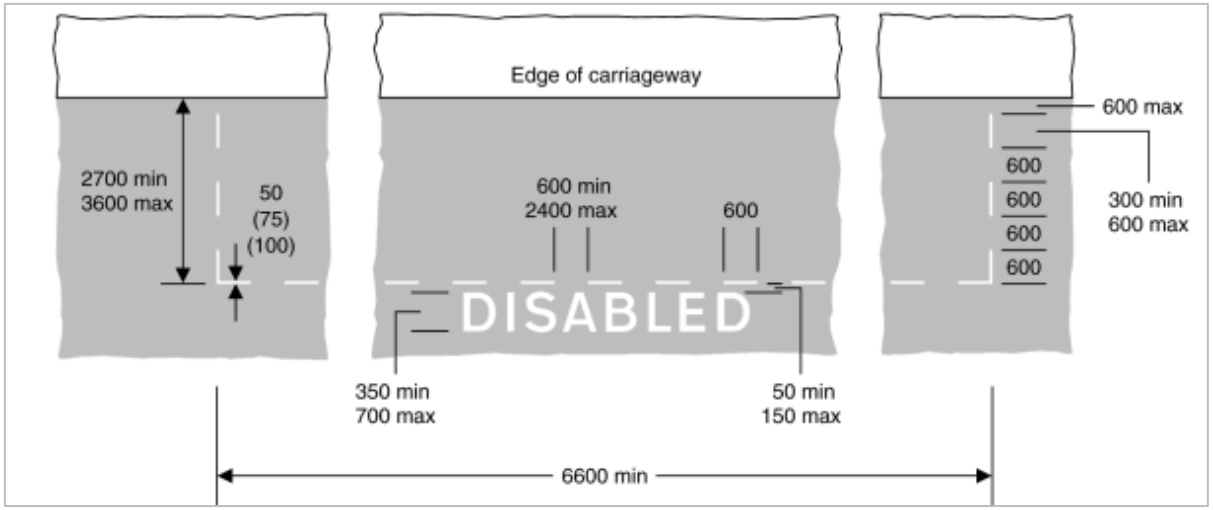
Relevant regulations: Overall deployment (2020)

Standard or Requirement	Formal Description	Commentary	Review Date
The Alternative Fuels Infrastructure Regulations 2017	Regulates alternative fuels (electricity and hydrogen) to ensure the way they are supplied to vehicles is consistent across the EU. This will reduce dependence on oil and the environmental impact of transport, while contributing to a low carbon economy. Specific standards will be mandatory for electrical vehicle recharging points. In effect, this will provide electrical and hydrogen vehicle users the ability to connect and recharge throughout Europe.	• All equipment installed must meet these high-level requirements which form a pan EU policy. Key requirements not already captured in other standards: • Equipment must incorporate an intelligent metering system – in general this is interpreted as the inclusion of a MID compliant revenue grade meter and a data collection system (Cellular/Wi-Fi/Ethernet) to send meter data to back end software for billing and presentation to the driver, generally via a smart phone App. • Infrastructure operators must provide to any person ad-hoc access – easiest interpretation of this is to allow credit/debit card payments. • Many operators are now enabling contactless or NFC (Apple Pay, Google Pay). However, some operators have made the case that if their App can be downloaded and any time and a driver can then immediately access the charger once they have setup up the App then this can be considered ad-hoc access. Generally, drivers don't see this as an ideal solution.	2022
Electricity Safety, Quality and Continuity Regulations (ESQCR)	Regulates quality and supply continuity as well as specifying safety standards. Compliance to ESQCR is a statutory requirement for distribution network operators (DNO's).	• This is the statutory legislation that governs the supply of electricity to users in the UK. All installations must to comply. In practice, relevant elements for the installer are interpreted into BS7671.	N/A
Traffic Signs Regulations and General Directions 2016-2018	Prescribes the designs and conditions of use for traffic signs to be lawfully placed on or near roads in England, Scotland and Wales.	Where there are designated EV charging bays, signage may be required: • Bays should be marked with TSRGD sign 660.9 with the permitted variant "Electric vehicle recharging point only" • Bays should also be marked, taking account of TSRGD sign 1028.3/ 1028.4/ 1032 with permitted variations "ELECTRIC VEHICLES", "ELECTRIC VEHS ONLY" or "ELECTRIC VEHS" for on road bays. • Bays in car parks should be painted green, where appropriate.	TBC

Relevant regulations: Overall deployment

660.9
Parking place with facilities for charging electric vehicles reserved for permit holders

Other



Relevant standards & legislation

Standard or Requirement	Formal Description	Commentary	Review Date
Local Planning Requirements	Specific regulation varies from one regional planning authority to next and so would need to be considered at a regional level across the UK.	• Experience of deployment by local authorities is that planning issues associated with conservation / heritage areas are often encountered. • This may result in special solutions to suit local area, e.g. all the charging equipment being coloured black.	N/A

Autonomous and Electric Vehicles Act 2018	The purpose of this legislation is both to amend the existing compulsory third party insurance framework by extending it to cover the use of automated vehicles and deal with electric and hydrogen powered vehicle charging infrastructure	• The act gives the government powers to impose regulations on the following relevant topics:
		  • Public charging or refuelling points: access, standards and connection
		  • Large fuel retailers etc: to require provision of public charging or refuelling point
		  • Provision of specific information for users of public charging or refuelling points
		  • Transmission of data relating to charge points
			N/A

Relevant standards & best practice: EV charging equipment technical standards (2020)

Standard or Requirement	Formal Description	Commentary	Review Date
IEC/EN 61851-1:2017 Electric vehicle conductive charging system - Part 1: General requirements* ***EV charging equipment must be CE marked, meeting IEC/EN 61851 can be used to demonstrate this**	Applies to EV supply equipment for charging electric road vehicles, with a rated supply voltage up to 1000V AC. The aspects covered in this standard include: • characteristics and operating conditions of the EV supply equipment; • specification of the connection between the EV supply equipment and the EV • requirements for electrical safety for the EV supply equipment. All requirements from IEC 61851-22 have been moved to this standard.	• EV supply equipment manufacturers typically claim compliance with these standards in their product literature. • Ideally products should be third party certified, but is not widespread; it's likely that many don't fully comply. • Products that show compliance with BS EN 60335-1 for Household and similar electrical appliances, rather than IEC/EN 61851, have debatable compliance. This BS does not cover all aspects of the equipment for EV charging. • Certification would include product safety (LVD) and EMC compliance to support CE marking. • The standard also defines the basic communication protocol between the vehicle and charging equipment.	2021
IEC/EN 62196-1:2014 Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of EVs	Applicable to plugs, socket-outlets, vehicle connectors, vehicle inlets and cable assemblies for EVs intended for use in conductive charging systems which incorporate control means, with a rated operating voltage not over 690V AC 50 Hz to 60 Hz, at a rated current not exceeding 250A.	• All Type 1 and Type 2 EV plugs and sockets used in EV supply equipment, cables and accessories should show compliance with this standard. • EV supply equipment products will not achieve certification to IEC/EN 61851-1:2017 if the plug/socket used does not meet this standard.	2020

Relevant standards & best practice: EV charging equipment technical standards (2020)

Standard or Requirement	Formal Description	Commentary	Review Date

ISO 15118-1:2019 Road vehicles — Vehicle to grid communication interface — Part 1: General information and use-case definition	This document replaces ISO/EN 15118-1:2013 Road vehicles - Vehicle to grid communication interface
	
	The document specifies terms and definitions, general requirements and use cases as the basis for the other parts of ISO 15118
	
	Specifies the communication between EVs, including Battery EVs and Plug-In Hybrid EVs, and the Electric Vehicle Supply Equipment (EVSE).
	Describes the communication between the EV Communication Controller (EVCC) and the Supply Equipment Communication Controller (SECC).
		• This relates to future Plug and Charge and AC V2G features.
		• This standard defines the high-level powerline communication protocol used for Plug and Charge and V2G applications. It operates alongside the basic communication protocol used to manage the charging session.
		• Plug and Charge removes the need for driver authentication (RFID, QR codes etc).
		• The Basic IEC/EN 61851-1 protocol can operate on its own but the high-level ISO/EN 15118-1 protocol requires both protocols to be in operation.
		• The main changes from the previous document are:
		  • New use cases and requirements for wireless communication, wireless power transfer, automatic connection devices and bidirectional power transfer have been added; and
		  • As usage of private data and cyber security are becoming an important concern for users, requirements for more traceability and data privacy have also been added
		• Car communicates with charger using ISO15118-1 protocol to identify itself and handle driver billing automatically – functionality that is not possible with the basic protocol. Mercedes, BMW and VW already support this technology.
		• Links to specific standard documents in the series which form requirements of part 1:
		  • ISO 15118-2:201: Network & application protocol requirements
		  • ISO 15118-3:2015- Physical and data link layer requirements
		  • ISO 15118-8:2018 - Physical layer and data link layer requirements for wireless communication
		  • ISO 15118-20: 2nd generation network and application protocol requirements
			2024

OCPP Open Charge Alliance Open Charge Point Protocol – OCPP 1.6 or higher	Freely available open standard that enables component vendors and network operators to "mix and match" interoperable hardware and software. New versions of OCPP are collaboratively defined within an open industry alliance to ensure that the protocol continues to meet evolving market requirements. Charging network operators and service providers in more than 50 countries rely on OCPP to manage more than 10,000 charging stations.	• All hardware should be OCPP 1.6+ compliant. • This is the industry agreed standard API that allows flexibility for hardware to be used across a range of different cloud based back end software. Both hardware and back end need to be OCPP compliant. • OCPP handles all the control, driver authentication and billing processes between the charging equipment and the back end. It can also handle some advanced features for load management and V2G.	TBC
ISO/IEC 14443-1:2018 Cards and security devices for personal identification - Contactless proximity objects - Part 1: Physical characteristics	Defines the physical characteristics of proximity cards and is intended to be used in conjunction with other parts of ISO/IEC 14443.	• General standard that defines RFID and NFC applications.	2023

Relevant standards & best practice: Overall installation (2020)

Standard or Requirement	Formal Description	Commentary	Review Date
BS 7671:2018 (+A1:2020) Requirements for Electrical Installations (IET Wiring Regulations)	The national standard to which all UK electrical installations should conform. The 18th Edition IET Wiring Regulations contains important new information for all electrical installers and engineers. The international standard, IEC 60364 forms the basis of this UK regulation. Section 722 relates specifically to the installation of EV supply equipment.	• Installations will be required to meet all general requirements of BS7671 & the IET CoP. • The 2020 amendment to section 722 modifies the general requirements for protection against electric shock and includes specific requirements for PME systems socket outlets and connectors, external influences, isolation and switching and RCD protection. • BS7671 Section 722 states special requirements that will need to be noted, specifically: • Earthing arrangements – Regulation 722.411.4.1 concerning the use of protective multiple earthing (PME) supply has been changed to increase the ability for an installer to use PME on EV charging equipment installations. • Does not allow PME to be used to supply an EV charging point unless one of the methods described in the regulation is used. • Equipment should include 6mA DC leakage protection allowing installations to use a lower cost Type A RCD. Without this a costly dedicated Type B RCD will be required for every outlet. • To reliably charge all vehicles, high immunity RCDs should be used that are tolerant to the harmonics in some vehicle types. • Installers must ensure adequacy of supply - without load management no diversity can be applied. This means that the site supply must always be able to supply 100% of the load, irrespective of all the socket outlets being in use or otherwise. Using load management will overcome this concern by varying the charge rates based on usage. • For 3-phase installations, consideration should be made to ensure load balancing to maintain neutral current at close to zero. Phase rotation of charging outlets should be employed at 3-phase outlets.	TBC
IET Code of Practice for Electric Vehicle Charging Equipment Installation 4th Edition	Provides an overview of EV charging equipment, considerations needed prior to installation. This includes physical installation requirements, relevant electrical installation requirements of the updated BS 7671:2020 and specific requirements when installing EV charging equipment in locations such as dwellings, on-street locations, commercial and industrial premises.		

Relevant standards & best practice: Overall installation (2020)

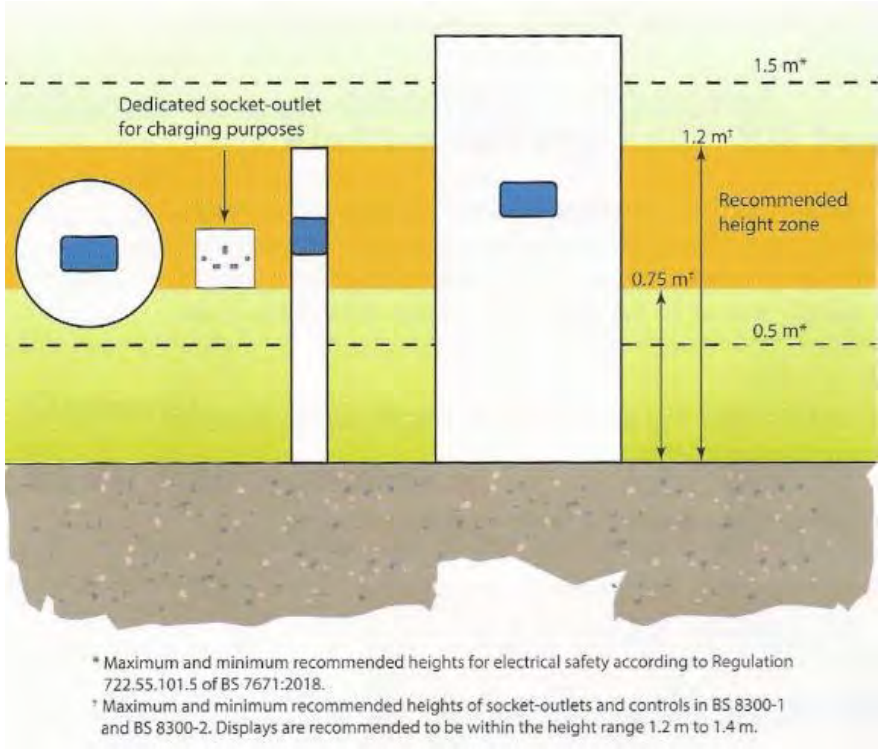


Figure 1: Recommended Heights for Socket Outlets, Payment Terminals and Displays

Source: IET Code of Practice

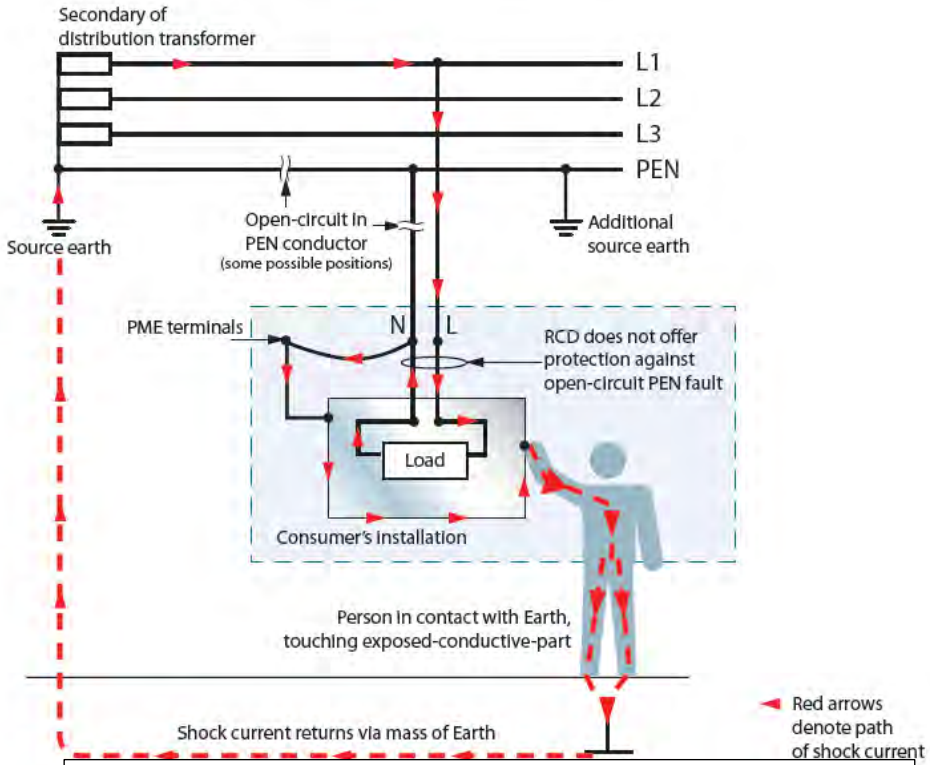


Figure 2: Electric Shock Risk Due to Open Circuit Fault in the Supply Neutral PEN Conductor

Source: NICEIC

Relevant standards & best practice: Overall installation (2020)

Standard or Requirement	Formal Description	Commentary	Review Date
IEC 62955:2018 Residual direct current detecting device (RDC-DD) to be used for mode 3 charging of EVs	Applies to residual direct current detecting devices (RDC-DD) for permanently connected AC EV charging stations referred to as RDC-MD (residual direct current monitoring device) or RDC-PD (residual direct current protective device), for rated voltages not exceeding 440 V AC with rated frequencies of 50 Hz, 60 Hz or 50/60 Hz and rated currents not exceeding 125 A.	• Defines the device requirements for the 6mA DC leakage protection feature needed to meet the requirements of BS7671 installation requirements where a Type A RCD can be used.	2020
IEC 61008-1:2010+AMD1:2012+AMD2:2013 CSV - Consolidated version Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) -Part1: General rules	Applies to residual current operated circuit-breakers functionally independent of, or functionally dependent on, line voltage, for household and similar uses, not incorporating overcurrent protection (hereafter referred to as RCCBs), for rated voltages not exceeding 440V AC. with rated frequencies of 50 Hz, 60 Hz or 50/60 Hz and rated currents not exceeding 125 A, intended principally for protection against shock hazard. This consolidated version consists of the third edition (2010), its amendment 1 (2012), its amendment 2 (2013) and the corrigendum of January 2014.	• Includes definitions, requirements and tests, covering all types of RCCBs. For the applicability to a specific type this part applies in conjunction with the relevant part, as follows: • Part 2-1: Applicability of the general rules to RCCBs functionally independent of line voltage. • Part 2-2: Applicability of the general rules to RCCBs functionally dependent online voltage. • Defines the device requirements for the Type A or Type B RCD earth leakage protection needed to meet BS7671 installation requirements.	2020

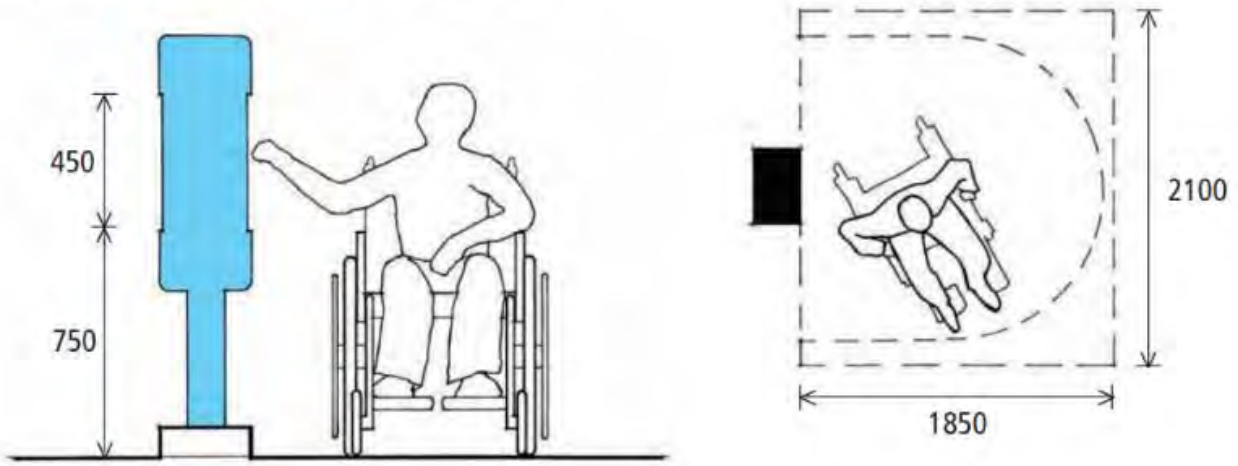
Relevant standards & best practice: Overall installation (2020)

Standard or Requirement	Formal Description	• Commentary	Review Date
BS EN 61009-1:2012+A12:2016 Residual current operated circuit-breakers with integral overcurrent protection (RCBOs).	Applies to residual current operated circuit breakers with integral overcurrent protection functionally independent of, or functionally dependent on, line voltage for household and similar uses (RCBOs), for rated voltages not exceeding 440 V AC with rated frequencies of 50 Hz, 60 Hz or 50/60 Hz and rated currents not exceeding 125 A and rated short circuit capacities not exceeding 25 000 A for operation at 50 Hz or 60 Hz.	• Defines the device requirements for the Type A or Type B RCBO earth leakage protection combined with over current protection suitable to meet BS7671 installation requirements.	TBC
ENA ER G12 Issue 4 Requirements for the Application of Protective Multiple Earthing to Low Voltage Networks	Sets out the requirements to be adopted when Protective Multiple Earthing (PME) is applied to DNO overhead and underground low voltage distribution systems and to other public distribution systems connected to those systems under the Distribution Code. These requirements may be supplemented by each Company's own PME code of practice in respect of the detailed engineering and technical requirements of PME application. The document also considers situations where PME should not normally be used.	• Specifically, section 6.2.15. • Defines UK DNO recommendations for connecting to the low voltage network and includes specific requirements for EV charging. • Note that some DNOs have their own specific guidance that should be referenced (WPD, UKPN). • Largely these documents duplicate BS7671 in content but clearly set out areas of concern for DNOs with regard to EV charging. •	TBC

Relevant standards & best practice: Overall Installation (2020)

Standard or Requirement	Formal Description	Commentary	Review Date
BS 8300: 2018 Design of an accessible and inclusive built environment. External environment.	Recommendations on designing buildings to accommodate users with the widest range of characteristics and capabilities. It applies to: • External features of a building or group of buildings, such as entrances, outward opening doors and windows, where they affect external access routes, and • Interiors of buildings such as entrances and reception facilities, horizontal and vertical movement, and facilities in the building	• Defines the height from the ground of the socket outlet (also stated in BS7671 & IET CoP) • Includes clearances for wheelchairs around street furniture - should be considered for physical layout of equipment on the footway and for wheelchair access to the socket outlets for disabled drivers. • See below for diagrams	TBC

Accessible ticket-dispensing machines



15.3. EV charging standards for Oxfordshire

Standard area	Background	National regulations and standards	Oxfordshire 'above and beyond' standard
Technical standards for charger hardware	• There are minimum standards set out in legislation by central govt on charger hardware. • National and European standards give minimum quality and safety standards for EV chargers • Any chargers funded by OLEV On-street Residential Charging Scheme (ORCS), or Workplace Charging Scheme must meet more detailed standards.	Charger hardware should meet all relevant regulations and standards; • The Alternative Fuels Infrastructure Regulations 2017, • Automated and Electric vehicles Act (2018), • IEC/EN 61851-1:2017 , • IEC/EN 62196-1:2014; • OCPP Open Charge Alliance Open Charge Point Protocol – OCPP 1.6 or higher; • ISO/IEC 14443-1:2018	• Free-standing charging equipment should allow full servicing and replacement without disturbance of the pavement or hardstanding surface; no civil work should be required • Charger units should be modular in design: in the event of equipment failure the design should allow a module or section to be replaced, rather than a discrete component or the entire unit. • Charger design should make the most efficient use of available space per installation: where feasible all free-standing chargers should be double units capable of charging two vehicles simultaneously to their full rated power output. • Equipment with an independent power supply should be fitted with auto-resetting RCDs: Standard RCDs will need to be manually reset in the cabinet, should any vehicle cause a trip. Auto resetting RCDs could reduce maintenance visits just to reset RCDs. • Exemptions to the above standards may be made for specific sites where planning restrictions apply.
Technical Standards for Installation	• National and European standards give minimum quality and safety standards for EV charger installations. • Evidence from local and national projects indicates that where chargers are installed, additional cable	Installations of chargers and related electrical supply equipment must meet all relevant regulations and standards for installation; • BS 7671:2018 (+A1:2020) Requirements for Electrical Installations (IET Wiring Regulations); • IET Code of Practice for Electric Vehicle	• Installation of chargers should be designed to minimise the requirement for disruption should additional chargers be required in the future. • Where chargers with a dedicated power supply are installed, cable routes to supply support future installations should be considered to future-proof installations for additional chargers as demand increases.

	ducting to support further EV chargers is useful in reducing disruption caused by additional future installations.	• Charging Equipment Installation 4th Edition; • IEC 62955:2018; • IEC 61008-1:2010+AMD1:2012+AMD2:2013 CSV, • BS EN 61009-1:2012+A12:2016, • ENA ER G12 Issue 4 ; • BS 8300: 2018 Design of an accessible and inclusive built environment.	• Exemptions to the above standards may be made for specific sites where planning restrictions apply.
Technical Standards for Back Office and User interface	• National law demands open access to all public chargers without need for subscription. • Research shows that users find multiple subscriptions to EV charger networks, with multiple RFID cards and apps unappealing. • Some CPOs claim to meet open access using apps which can be downloaded; however, this is unappealing to customers – Roaming across multiple networks or credit/debit card access is preferred • Roaming access currently limited in UK, although Automated and Electric vehicles act gives govt. powers to require this if market does not develop.	All chargers must be operated a Charge Point Management System or 'back office' which meets all national relevant regulations and standards; • The Alternative Fuels Infrastructure Regulations 2017, • Automated and Electric vehicles Act (2018) • OCPP Open Charge Alliance Open Charge Point Protocol – OCPP 1.6 or higher;	Payment options for customers should include: • Provides users with instant access via credit/debit card payment • Permits users to 'roam' across charger networks
Management & Maintenance of	• There are no current national standards for the	All EVCPS and associated electrical supply equipment must be subject to an ongoing routine	• All chargers must be operated and maintained by a competent contractor. A competent

EV charging Networks	overall management of EV charging networks • National standards for the maintenance and inspection of electrical equipment, including EV chargers are detailed in the British Standards and the IET wiring regulations (18th edition)	and responsive maintenance plan which meets all relevant standards & regulations. This must include periodic electrical safety inspection • Under BS:7671 'condition reporting', electrical equipment must be tested periodically. The period of inspections is subject to review of the previous inspection and test results to determine the rate of degradation, if any, of the electrical equipment, • Testing of EV charging must be carried out in accordance with the IET wiring regulations (18th edition) and at least annually for untethered chargers and 6-monthly for tethered chargers. • All operatives carrying out maintenance and testing of on-street EVCPs and associated electrical or other equipment must be competent to carry out works in the highway and hold relevant training and certification, including NRWSA training certification, HERS registration and with an Electrotechnical Certification Card (ECS).	contractor should hold as a minimum: • Proof of membership of an Electricians' Association. • Proof of public liability insurance. • Proof that staff are trained to install and maintain electric vehicle chargers. • Proof that the contractor is approved to install and maintain the chargers by the manufacturer. • Proof that the contractor holds the relevant licences to operate the charger CPMS or back-office. • The routine and responsive maintenance plan must include an emergency response plan with appropriate response times and action procedures to remove risk to life, person or property. • The routine and responsive maintenance plan must include SLAs which define a minimum of 3 levels of fault severity, with appropriate response and fault rectification times for each (see Table 8 for best practice routine and responsive maintenance SLAs). • The CPO must have appropriate measures in place for asset renewal or removal at the end the life of the EVCP.

Table 8 - Recommended Best Practice Maintenance SLAs

Service	Action	Response and Remedy Time
Annual/Biannual inspection	Including physical inspection of the charger unit, feeder pillar, their wiring, weather seals, circuit protection devices and earth continuity to British Standard BS7671. Visual check for sticker and signage issues. Report from inspection to include description of the units checked including serial number, full address, date of installation and last test and pass or fail status with itemised fail list if the unit has failed.	Annual, within 15 Working Days of anniversary.
Remote monitoring	Remote monitoring service for identification of faults to be linked with ticketing system for equipment faults and error reporting.	Seven (7) days per week, fifty-two (52) weeks a year, twenty-four (24) hour remote monitoring is essential.
Remote reboot and restart facilities	Remote reboot and restart facilities to be used where appropriate for issues reported by the remote monitoring system, charger engineers, the Council or Customers.	Seven (7) days per week, fifty-two (52) weeks a year, twenty-four (24) hour availability is essential.
Attend equipment & resolve severity one incident. *Definition: Requires emergency isolation to prevent risk to life, person, or property.*	Investigate, call the emergency services and make safe. Carry out emergency isolation and rectification works.	Call emergency services immediately after identification of severity one incident. Attend and complete isolation within one (1) hour from notification. Once isolated and made safe, incident is moved to Severity Two
Attend equipment & resolve severity two incident. *Definition: Requires action to make the charger/s operational: i.e. component failure*	Investigate and carry out operational rectification works.	Incident rectified and charger/s operational within twenty-four (24) hours from notification.
Attend equipment & resolve severity three incident. *Definition: Requires cosmetic action: i.e. graffiti, soiling etc.*	Carry out cosmetic rectification works.	Incident rectified within five (5) days from notification.
Customer and Council issue telephone and/or app-based helpline. *Definition: First line response for customer issues whilst customer is at Charger*	Answer calls from the customer and guide them through possible remedies that do not require an engineer at site (e.g. trapped plug or other error). Includes remote reboot and restart facilities.	Seven (7) days per week, fifty-two weeks a year, twenty-four (24) hour helpline is essential

16. Annex 4: Geospatial Analysis

16.1. Spatial analysis of residential properties in Oxfordshire with low probability of a driveway

Figure 13 - Oxfordshire hotspots for properties with low probability of a driveway. Source: Energeo 2020 & EMU 2018. Higher colour intensity indicates higher density of occurrenceto Figure 18 illustrate hotspots for on-street parking in Oxfordshire indicated by the number of properties with low probability of a driveway on which a vehicle can be parked. Properties with low probability of a driveway were defined as those with less than or equal to 3 metres distance between the front elevation of the property and the nearest edge of the public highway, inclusive of the pedestrian footway where this is present.

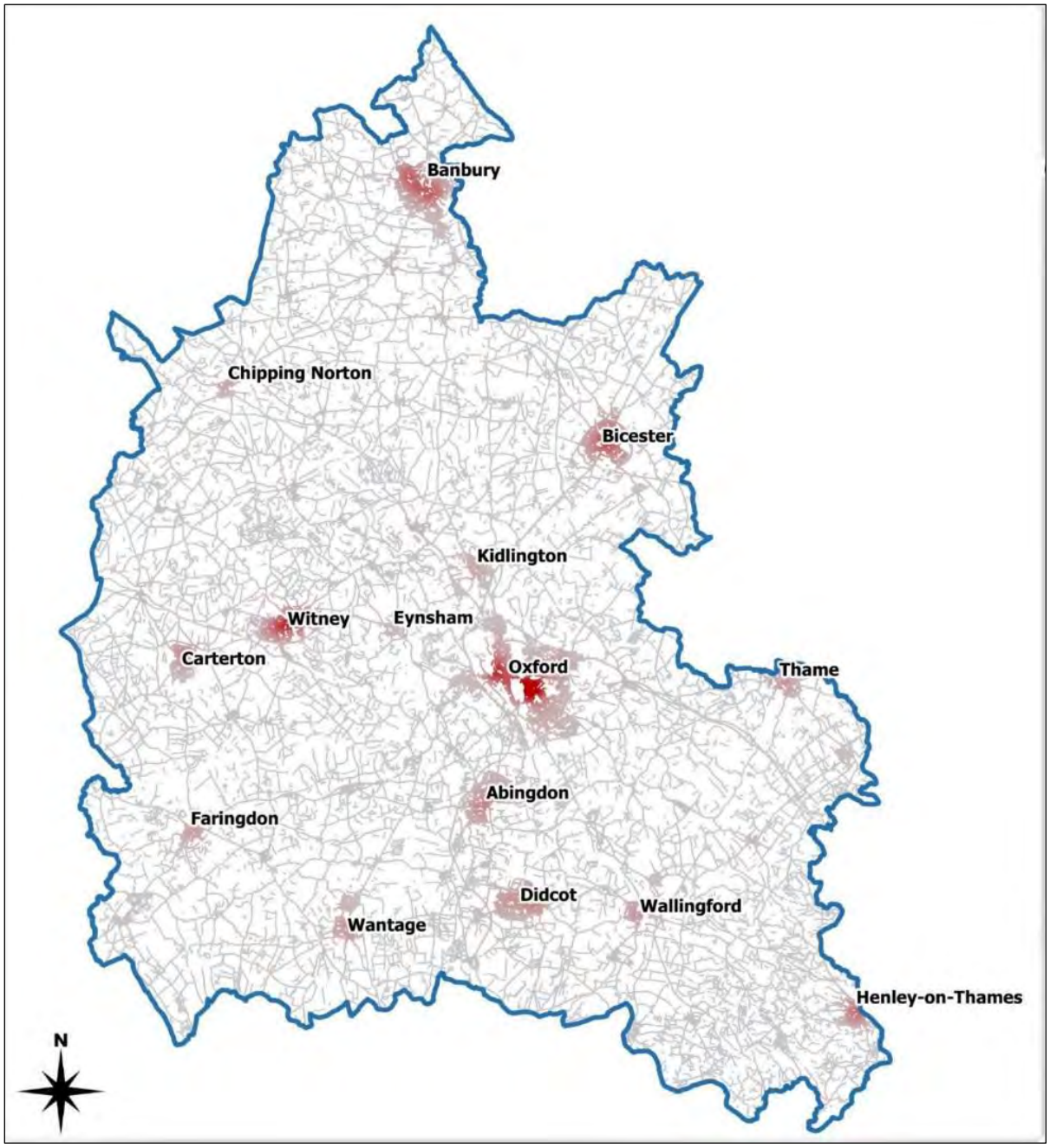


Figure 13 - Oxfordshire hotspots for properties with low probability of a driveway. Source: Energeo 2020 & EMU 2018. Higher colour intensity indicates higher density of occurrence

Figure 14 - Cherwell District hotspots for properties with low probability of a driveway. Higher colour intensity indicates higher density of occurrence.

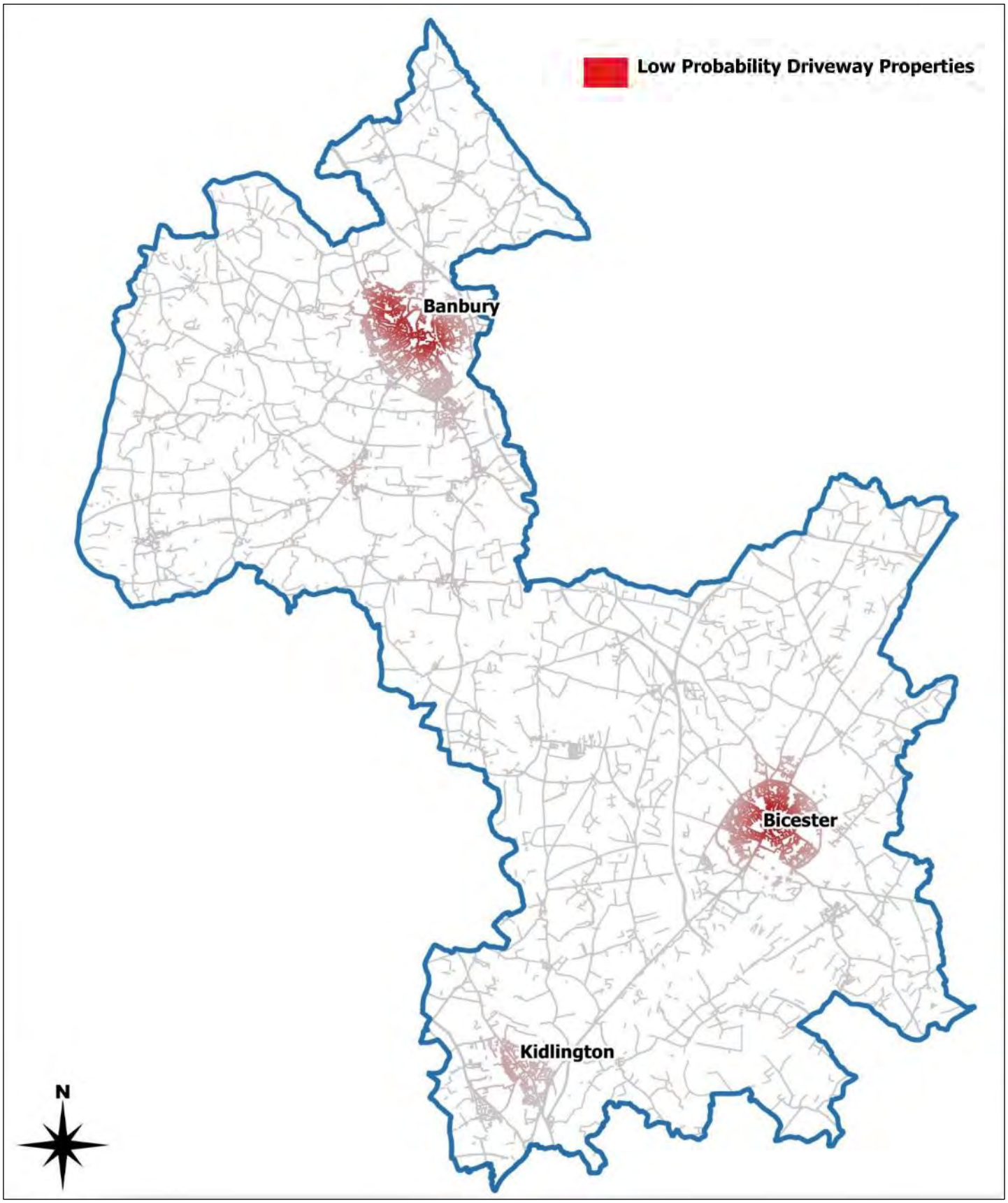


Figure 15 - Oxford City hotspots for properties with low probability of a driveway. Higher colour intensity indicates higher density of occurrence.

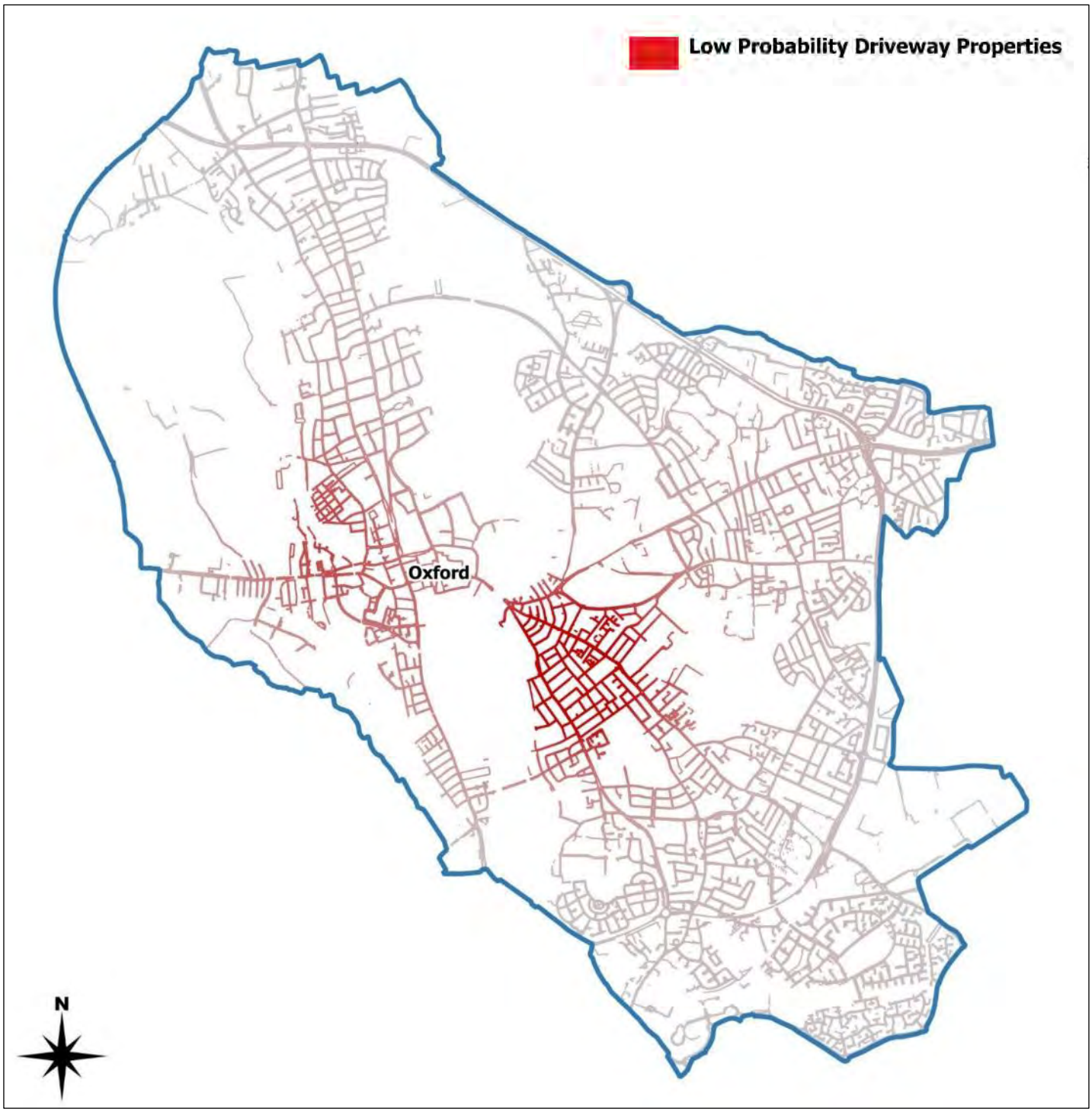


Figure 16 - South Oxfordshire hotspots for properties with low probability of a driveway. Higher colour intensity indicates higher density of occurrence.

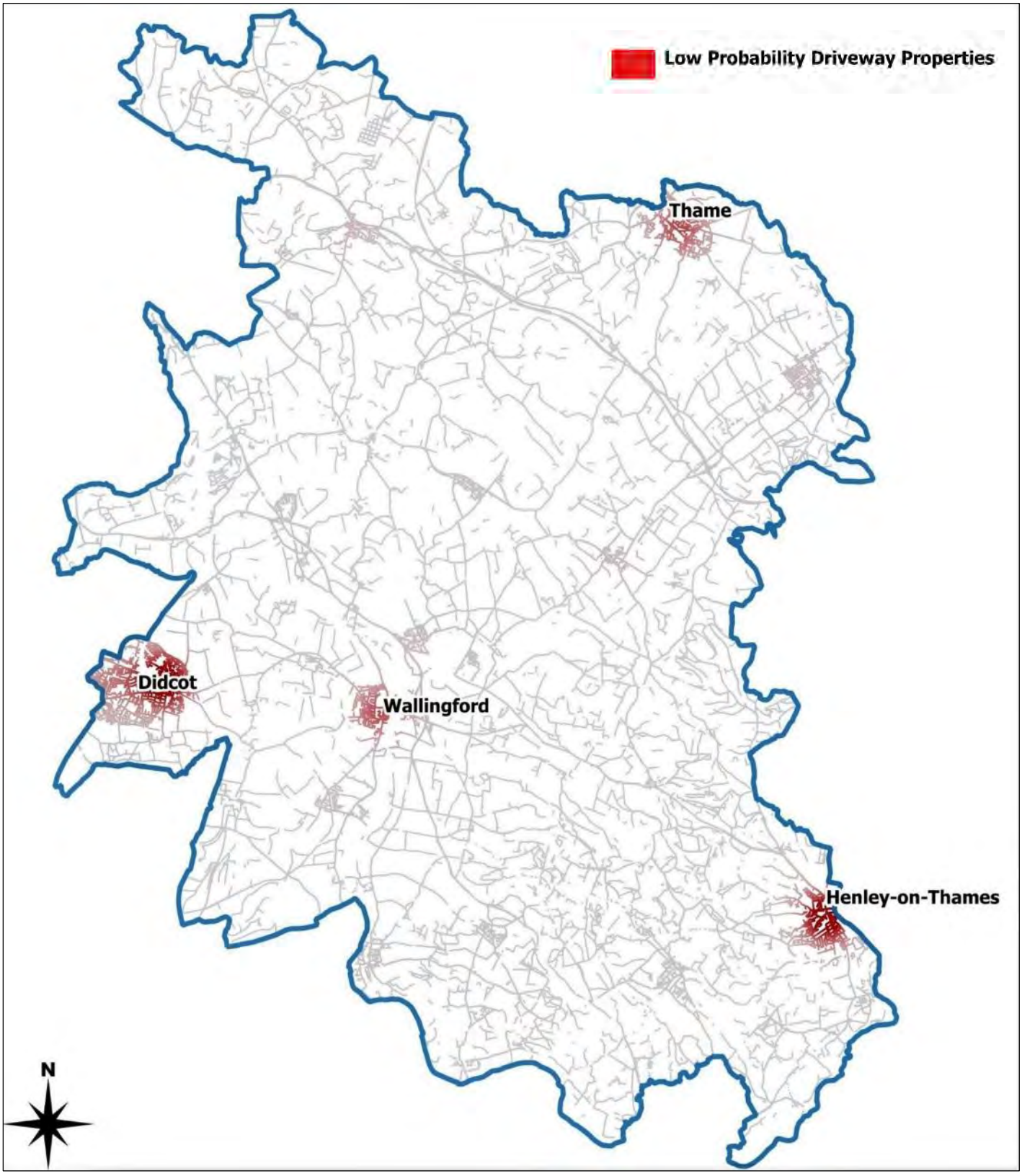


Figure 17 - Vale of White Horse hotspots for properties with low probability of a driveway. Higher colour intensity indicates higher density of occurrence

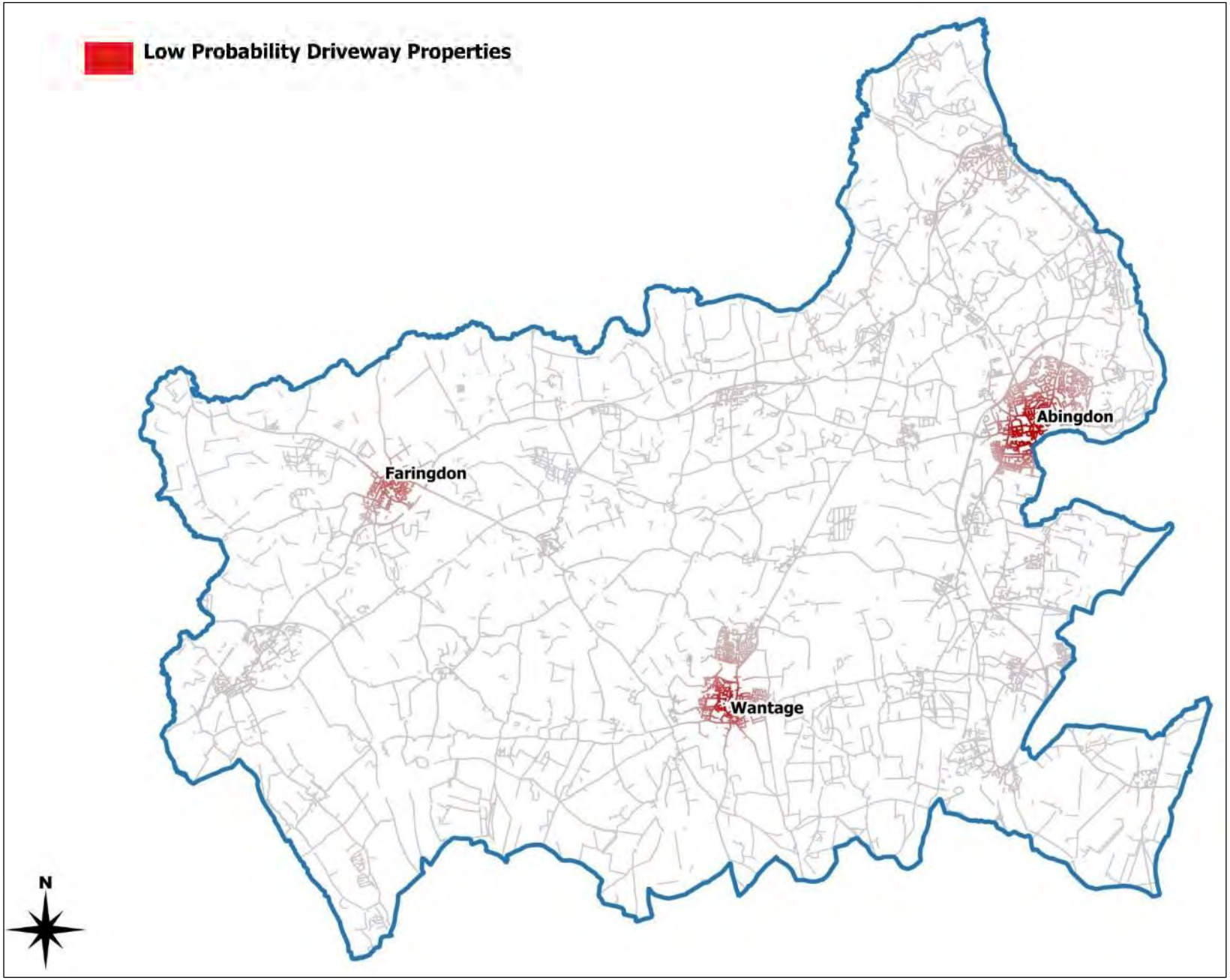
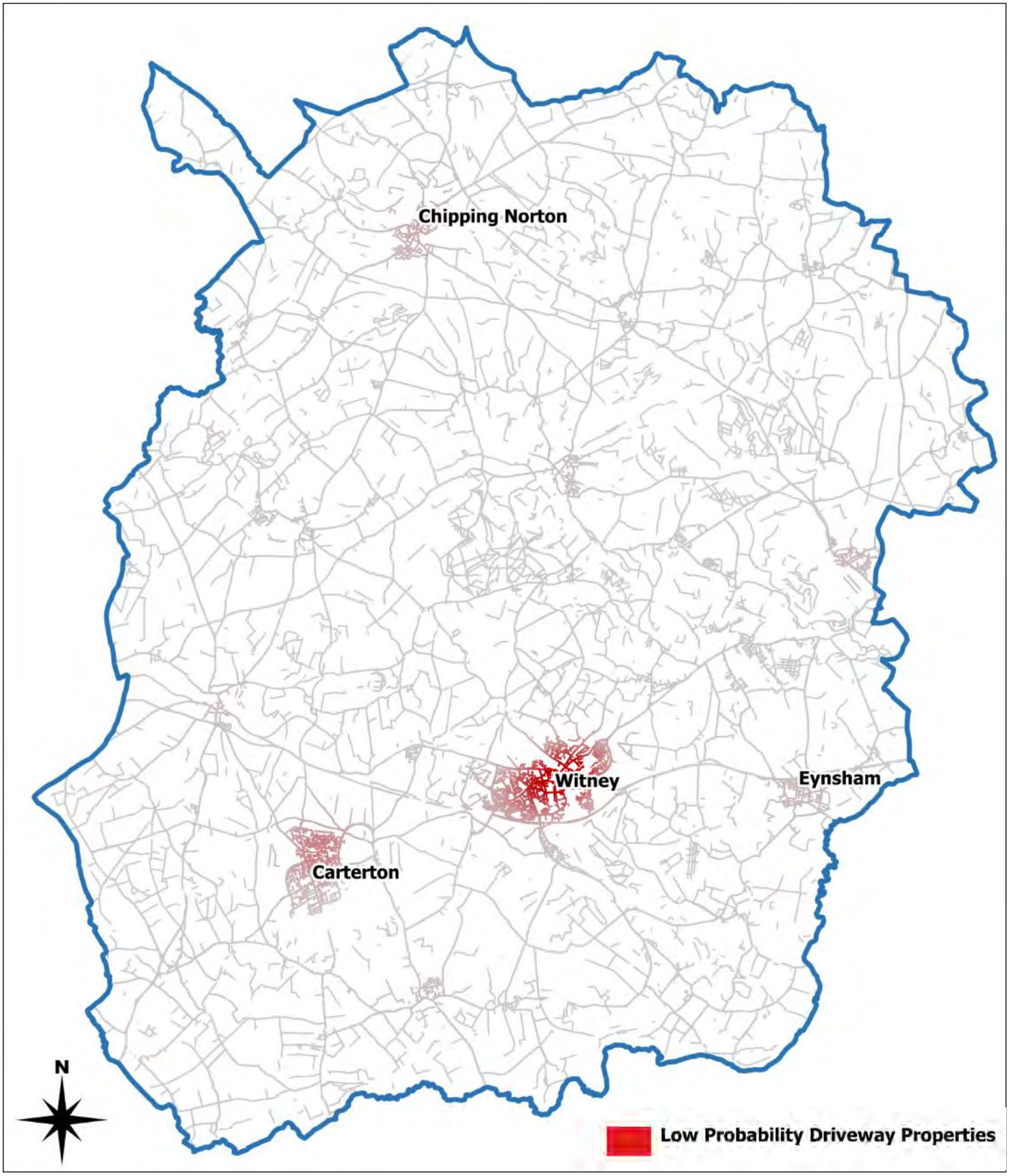


Figure 18 - West Oxfordshire hotspots for properties with low probability of a driveway. Higher colour intensity indicates higher density of occurrence



16.2. Spatial analysis of predicted early mass EV adoption in Oxfordshire

Figure 19 to Figure 24 illustrate hotspots for early mass adoption of EVs in Oxfordshire. Households likely to be early mass adopters were defined as households in categories 1-10,15-16,18,22-24,26&29, located proximate to an existing ULEV registration.

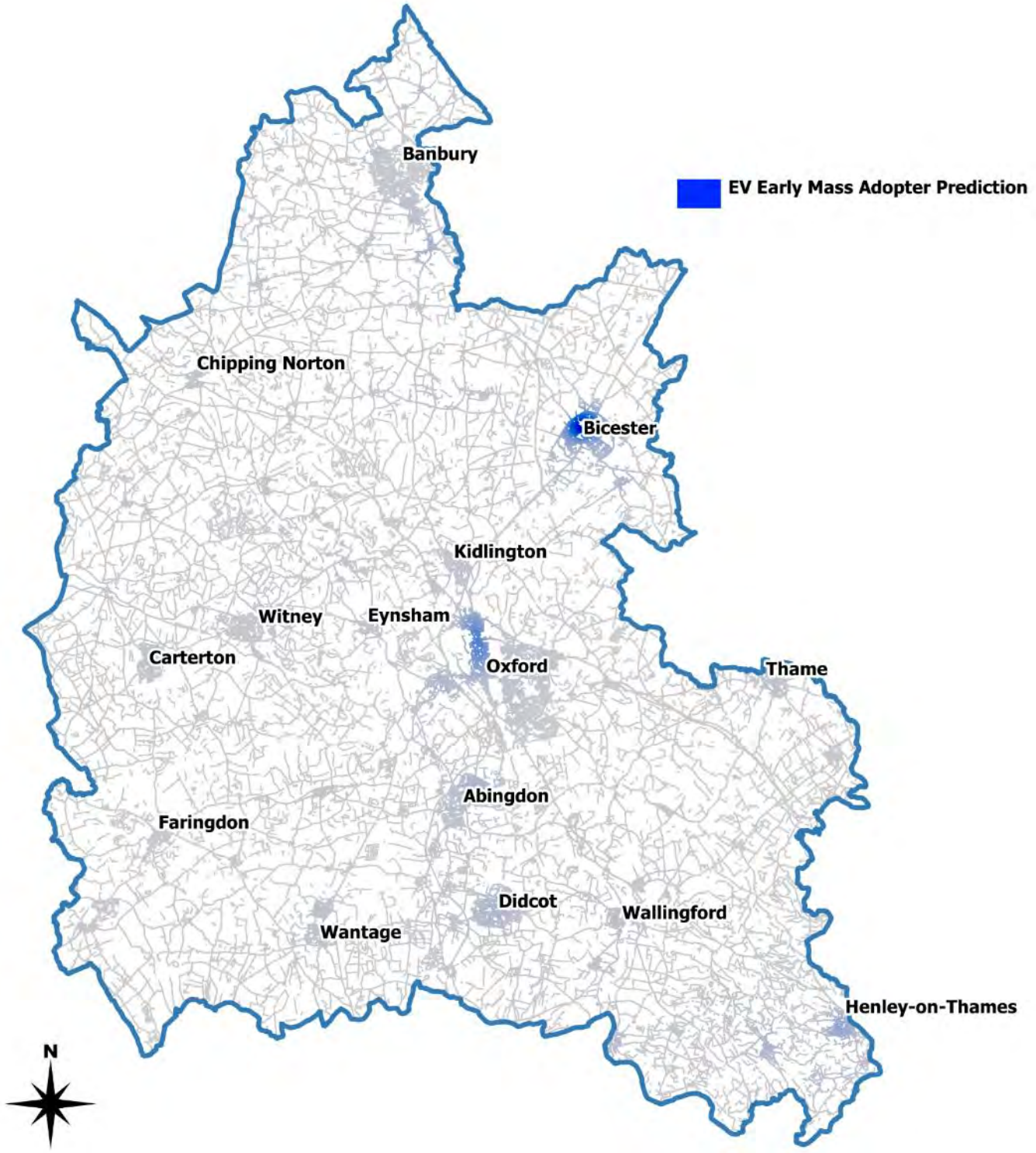


Figure 19 - Oxfordshire hotspots for predicted early mass EV adoption. Sources: Energeo 2020, ACORN 2020, DfT 2020. Higher colour intensity indicates higher density of occurrence.

Figure 20 - Cherwell hotspots for predicted early mass EV adoption. Sources: Energeo 2020, ACORN 2020, DfT 2020. Higher colour intensity indicates higher density of occurrence.

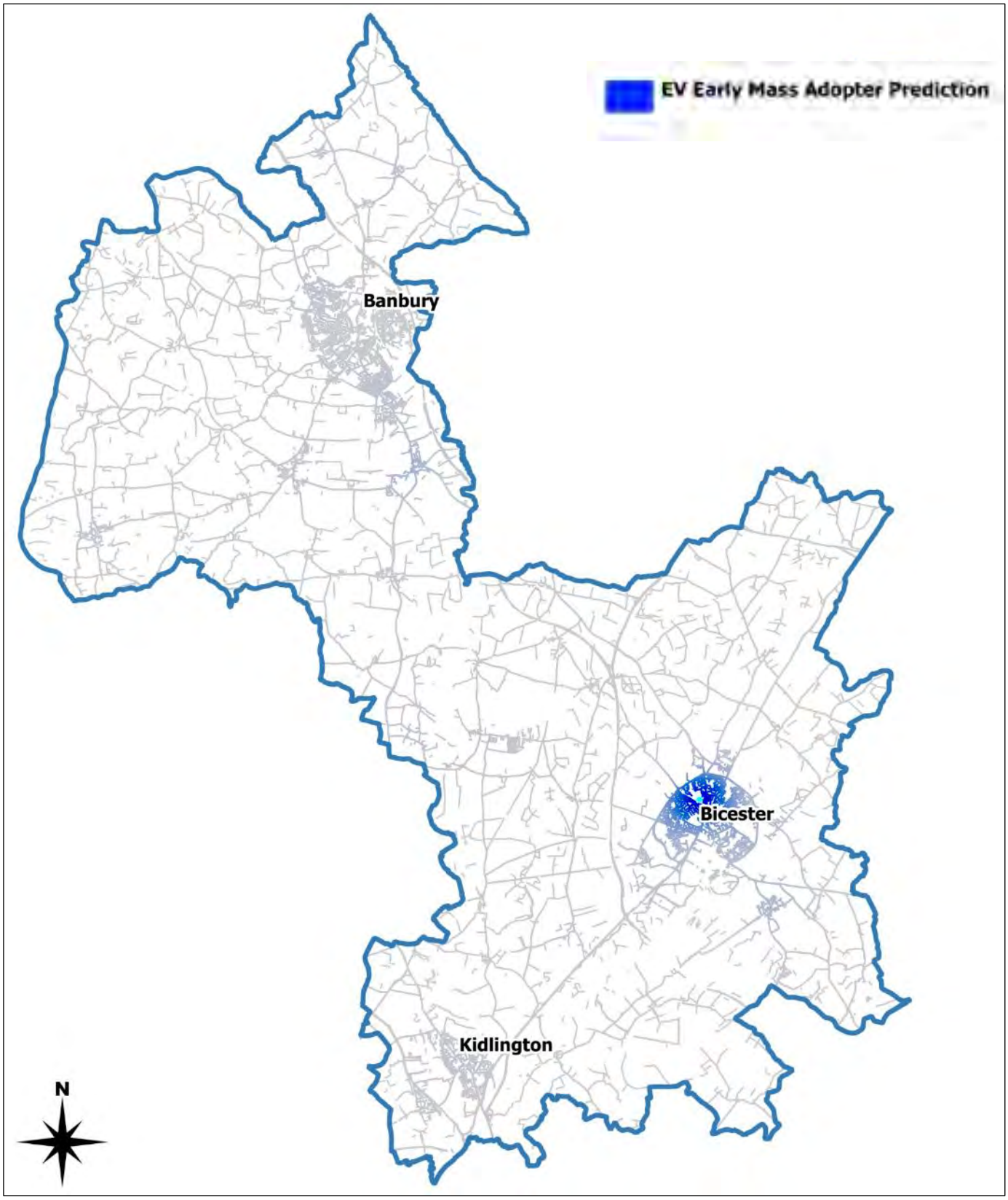


Figure 21 - Oxford hotspots for predicted early mass EV adoption. Sources: Energeo 2020, ACORN 2020, DfT 2020. Higher colour intensity indicates higher density of occurrence.

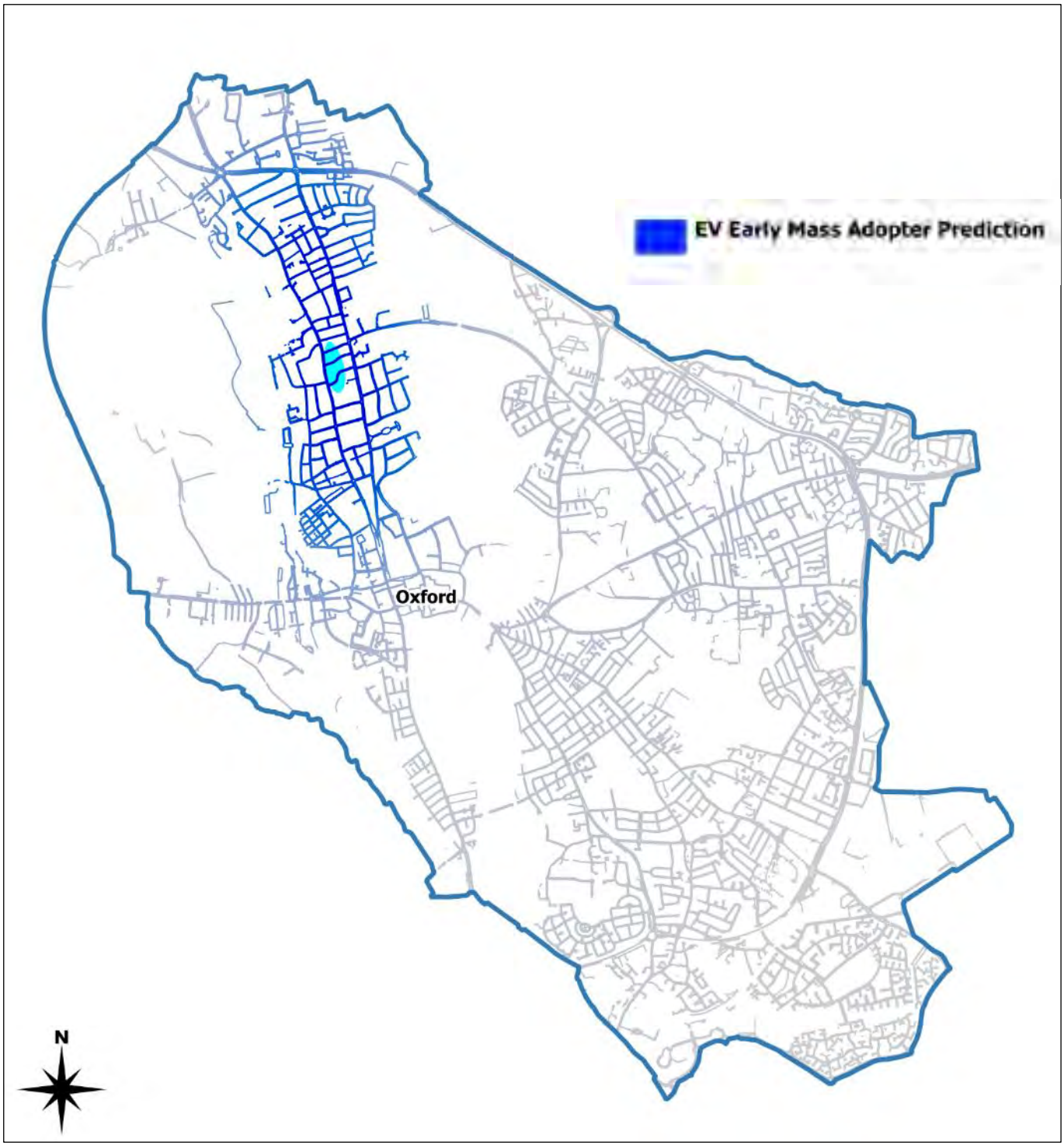


Figure 22 - South Oxfordshire hotspots for predicted early mass EV adoption. Sources: Energeo 2020, ACORN 2020, DfT 2020. Higher colour intensity indicates higher density of occurrence.

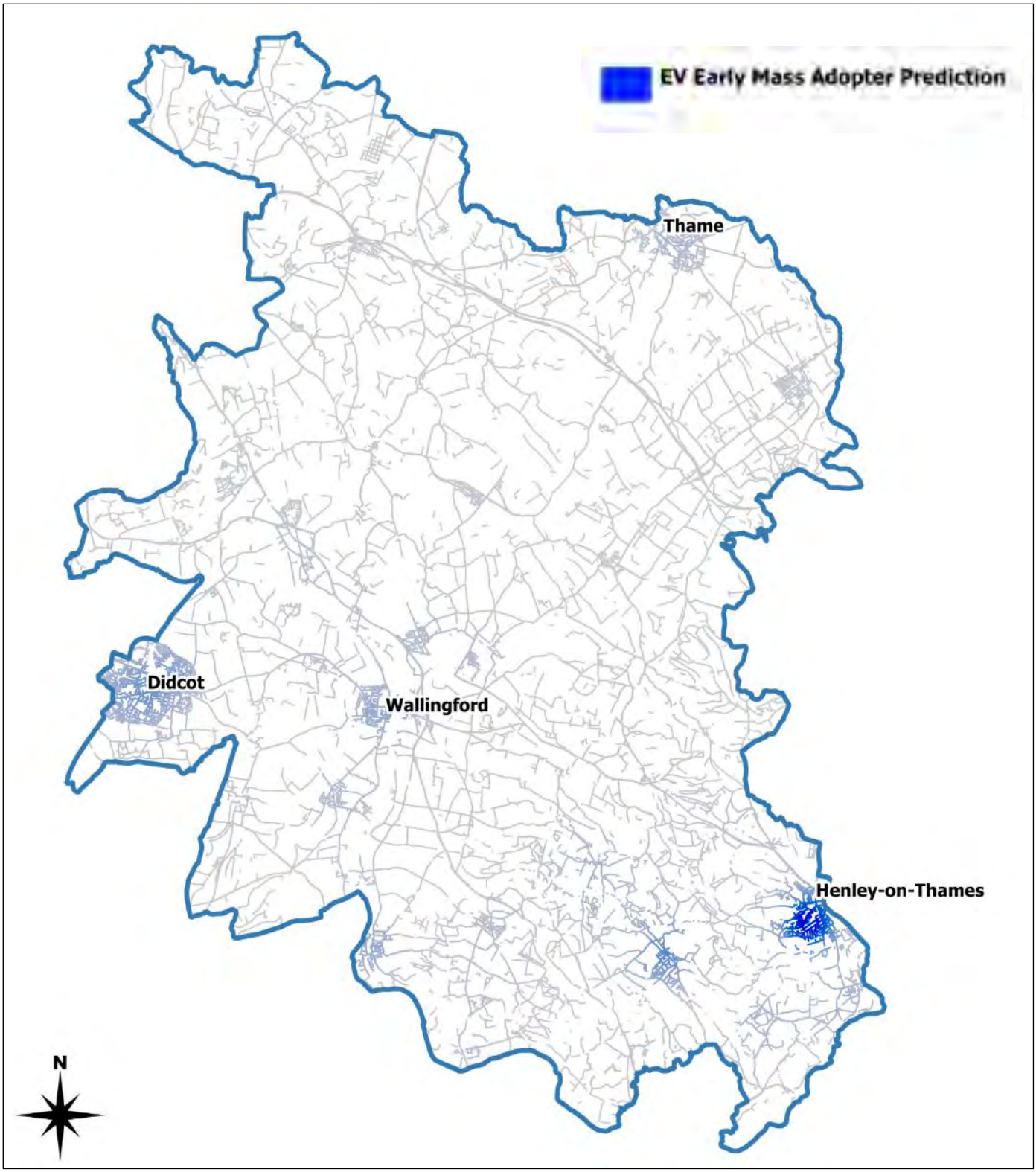


Figure 23 - Vale of White Horse hotspots for predicted early mass EV adoption. Sources: Energeo 2020, ACORN 2020, DfT 2020. Higher colour intensity indicates higher density of occurrence.

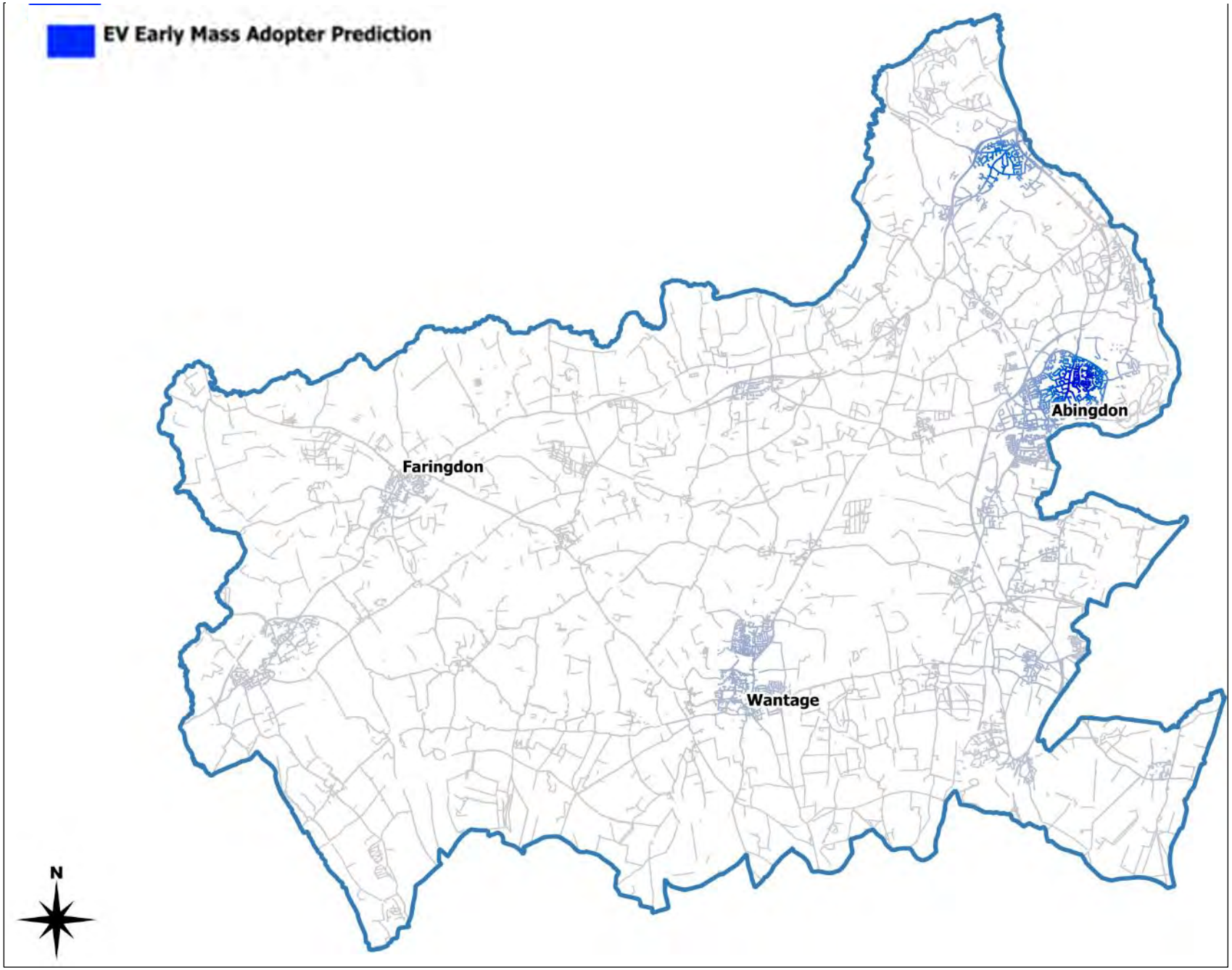
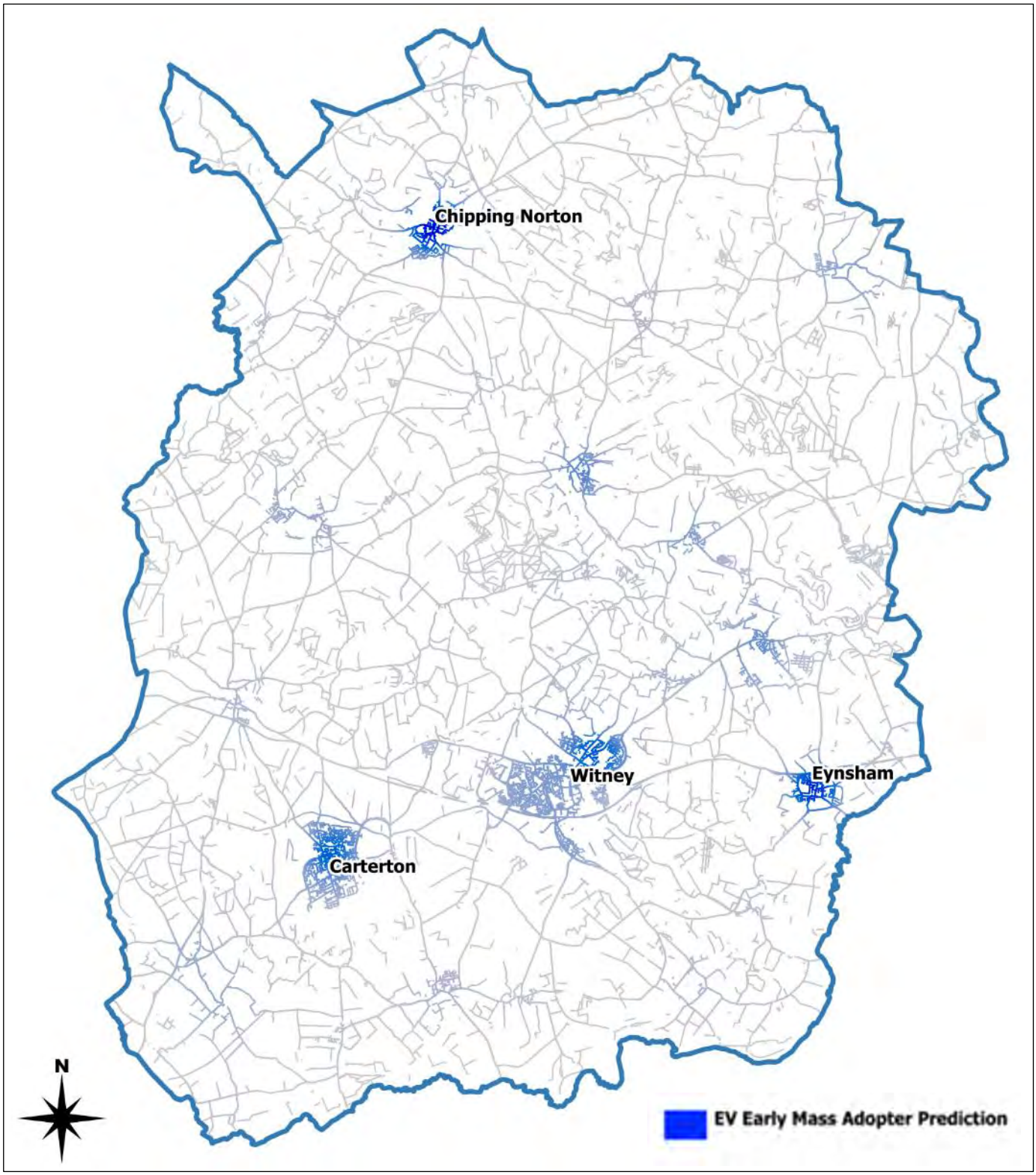


Figure 24 - West Oxfordshire hotspots for predicted early mass EV adoption. Sources: Energeo 2020, ACORN 2020, DfT 2020. Higher colour intensity indicates higher density of occurrence.



16.3. Co-incidence of low driveway probability households with early mass adoption

Figure 25 to Figure 30 illustrate the co-incidence of hotspots for low driveway probability households and early mass adoption predictions of EVs in Oxfordshire. Where the two types of hotspot overlap the colour purple in the figures indicates areas for early action to support potential EV drivers without access to home charging.

Figure 25 - Oxfordshire hotspots for predicted early mass EV adoption & low driveway probability. Sources: Energeo 2020, EMU 2018, ACORN 2020, DfT 2020. Higher colour intensity indicates higher density of occurrence.

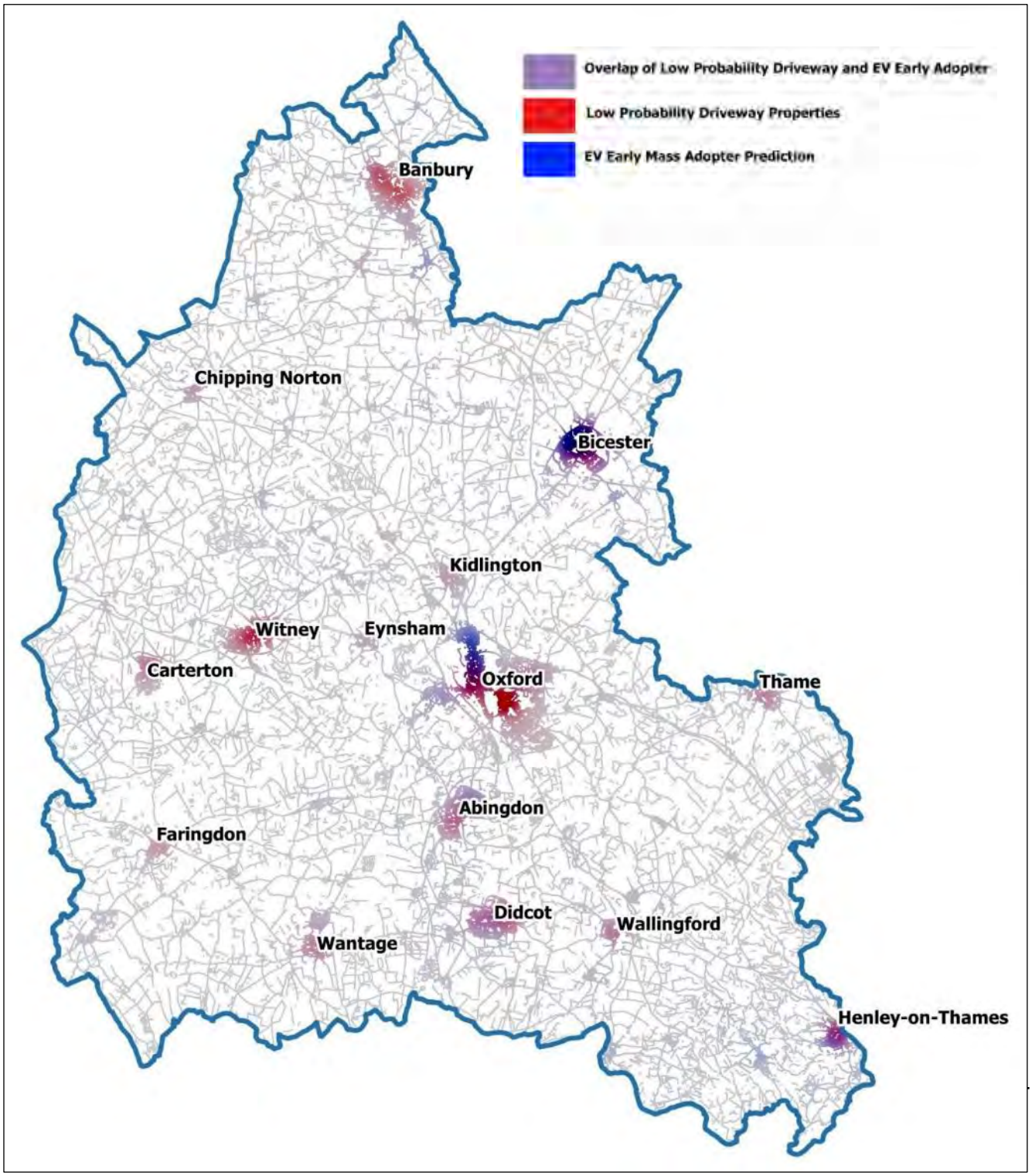


Figure 26 - Cherwell hotspots for predicted early mass EV adoption & low driveway probability. Sources: Energeo 2020, EMU 2018, ACORN 2020, DfT 2020. Higher colour intensity indicates higher density of occurrence.

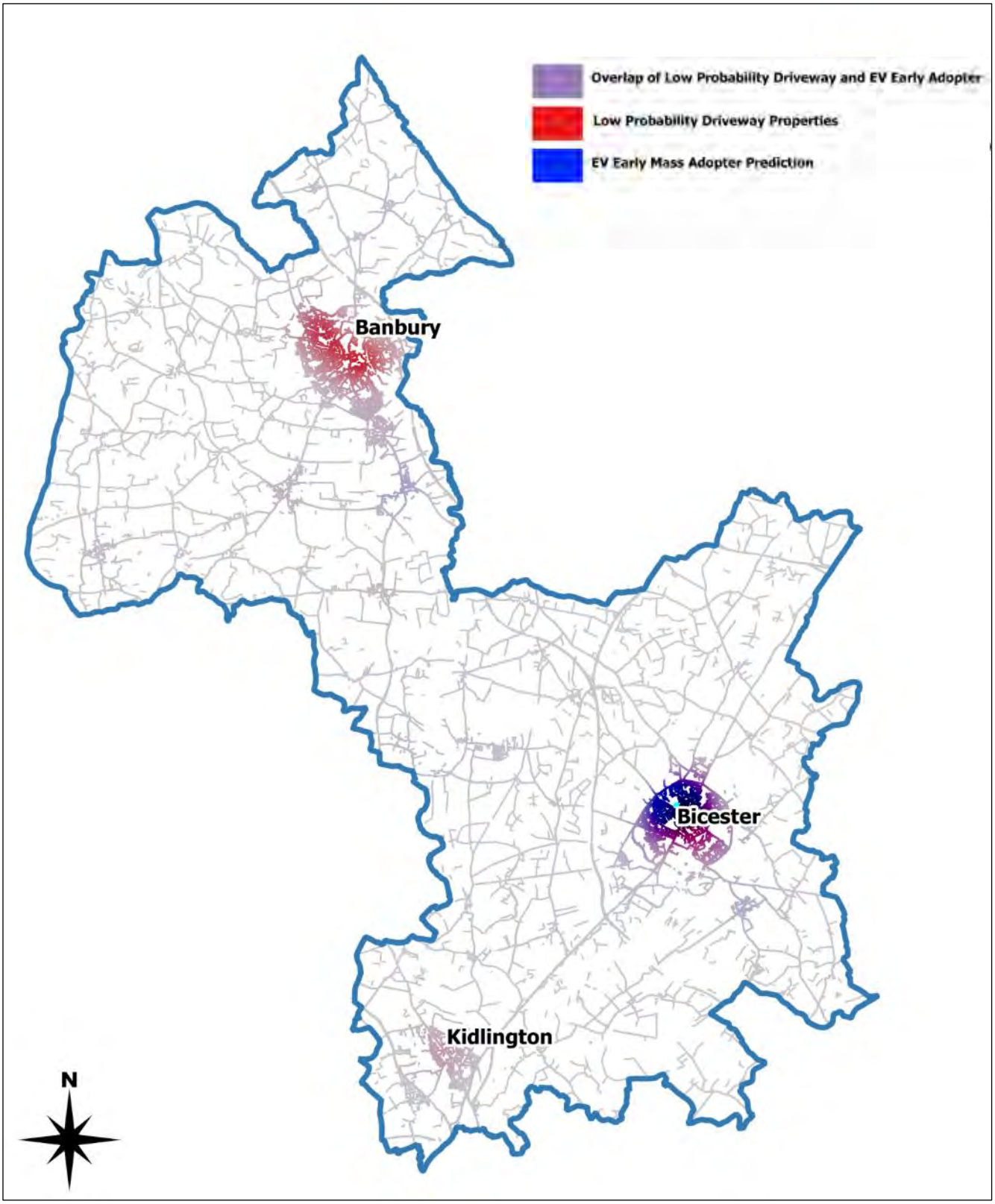


Figure 27 – Oxford hotspots for predicted early mass EV adoption & low driveway probability. Sources: Energeo 2020, EMU 2018, ACORN 2020, DfT 2020. Higher colour intensity indicates higher density of occurrence.

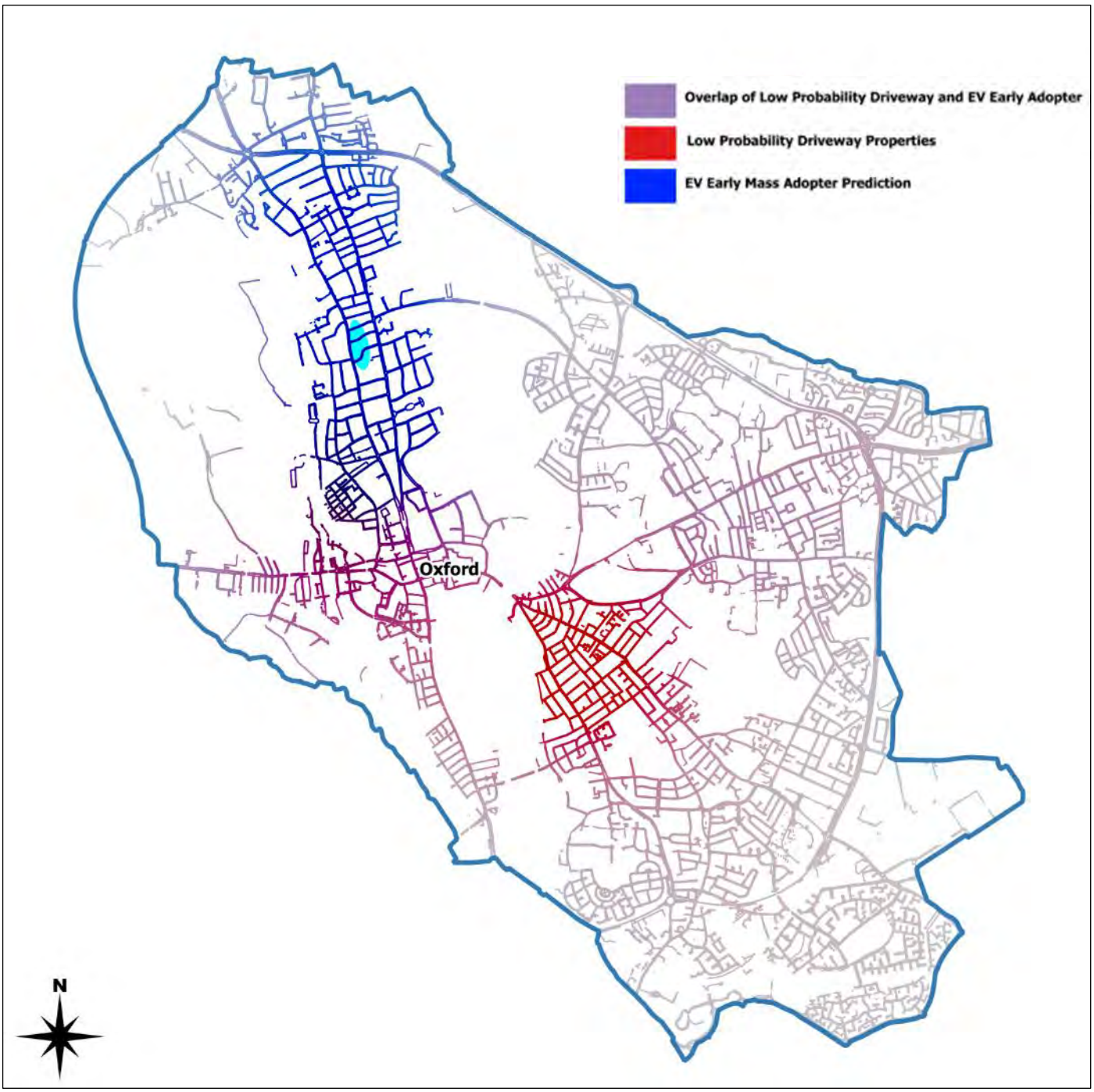


Figure 28 - South Oxfordshire hotspots for predicted early mass EV adoption & low driveway probability. Sources: Energeo 2020, EMU 2018, ACORN 2020, DfT 2020. Higher colour intensity indicates higher density of occurrence.

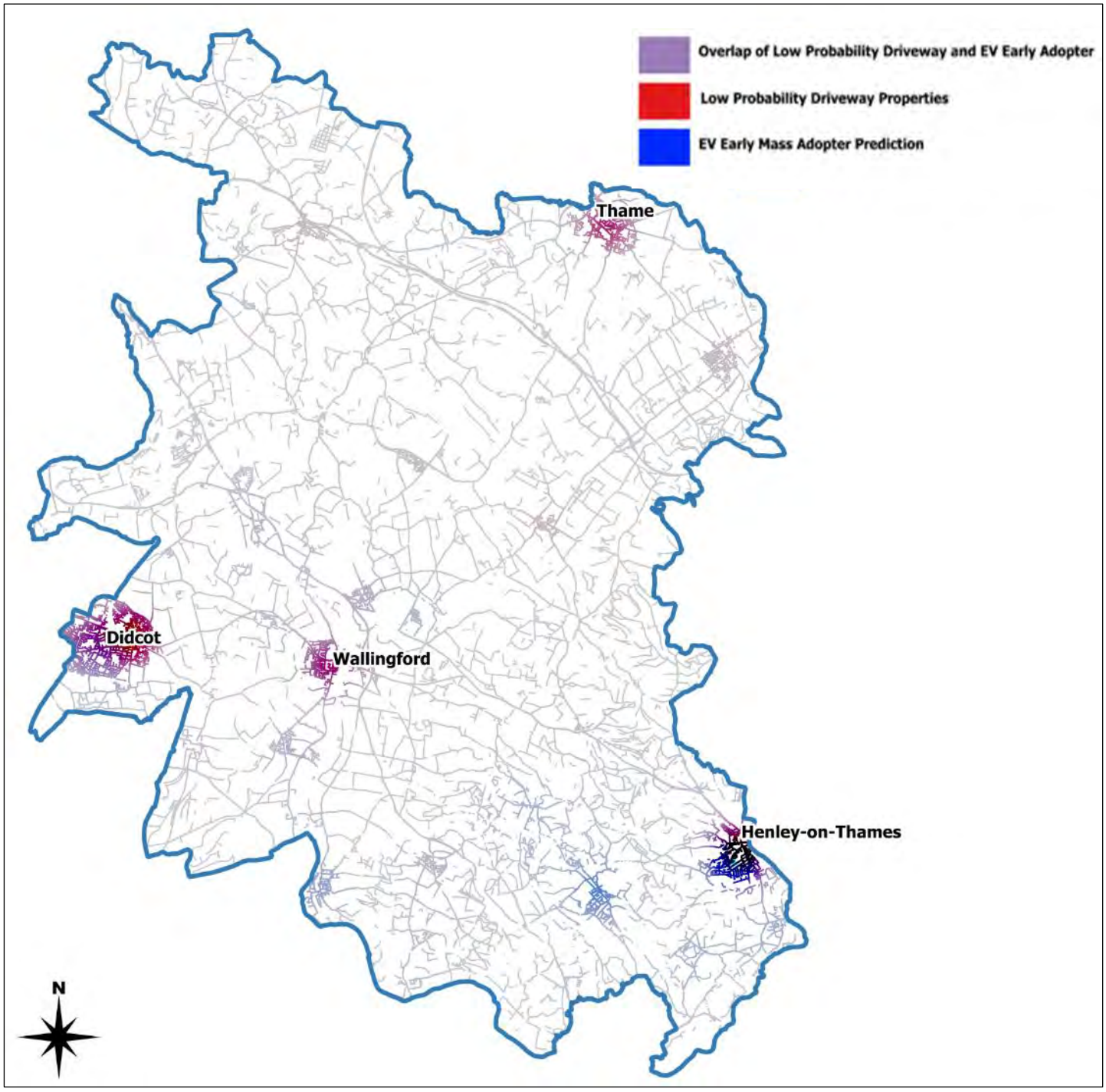


Figure 29 - Vale of White Horse hotspots for predicted early mass EV adoption & low driveway probability. Sources: Energeo 2020, EMU 2018, ACORN 2020, DfT 2020. Higher colour intensity indicates higher density of occurrence.

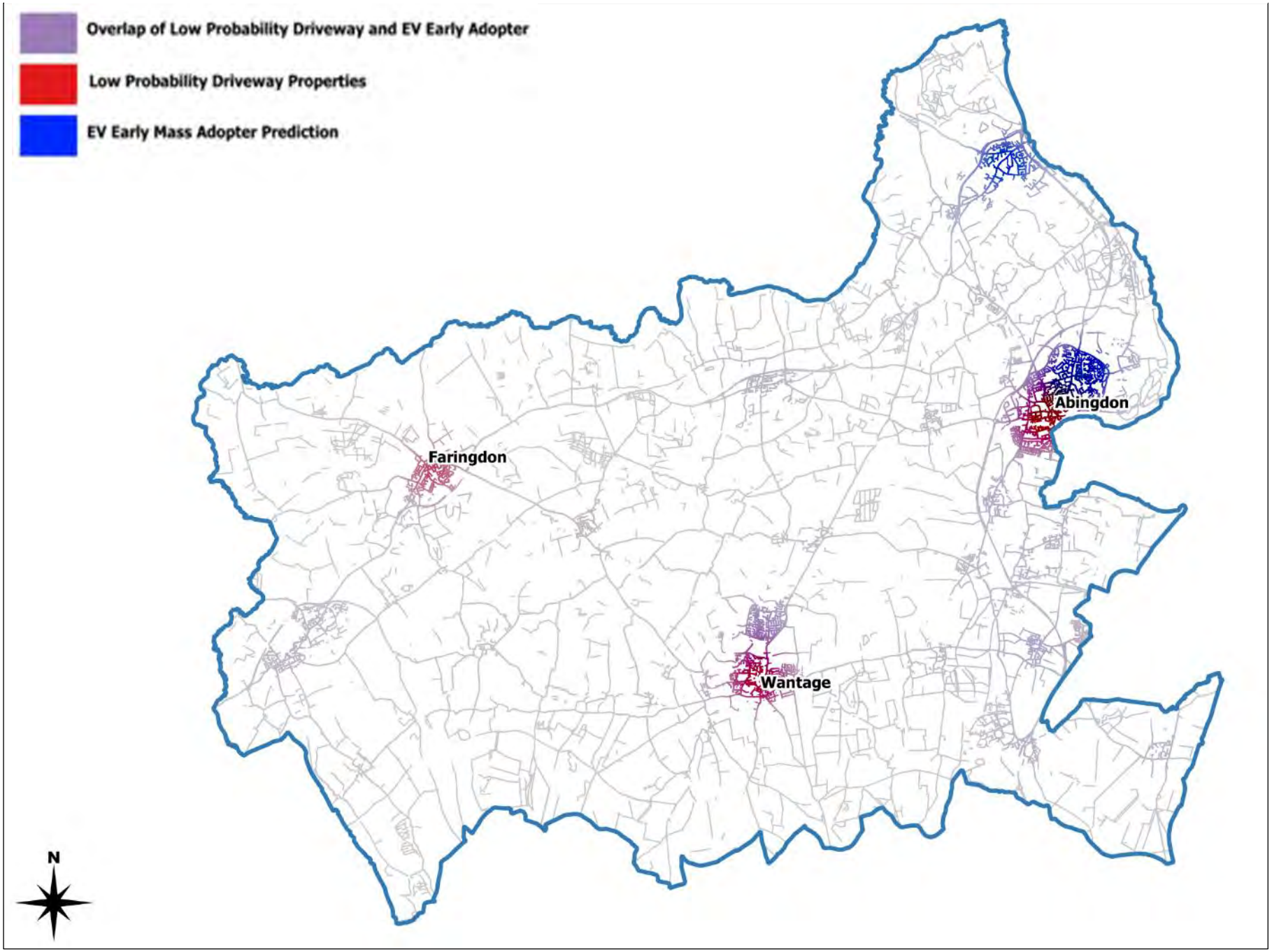
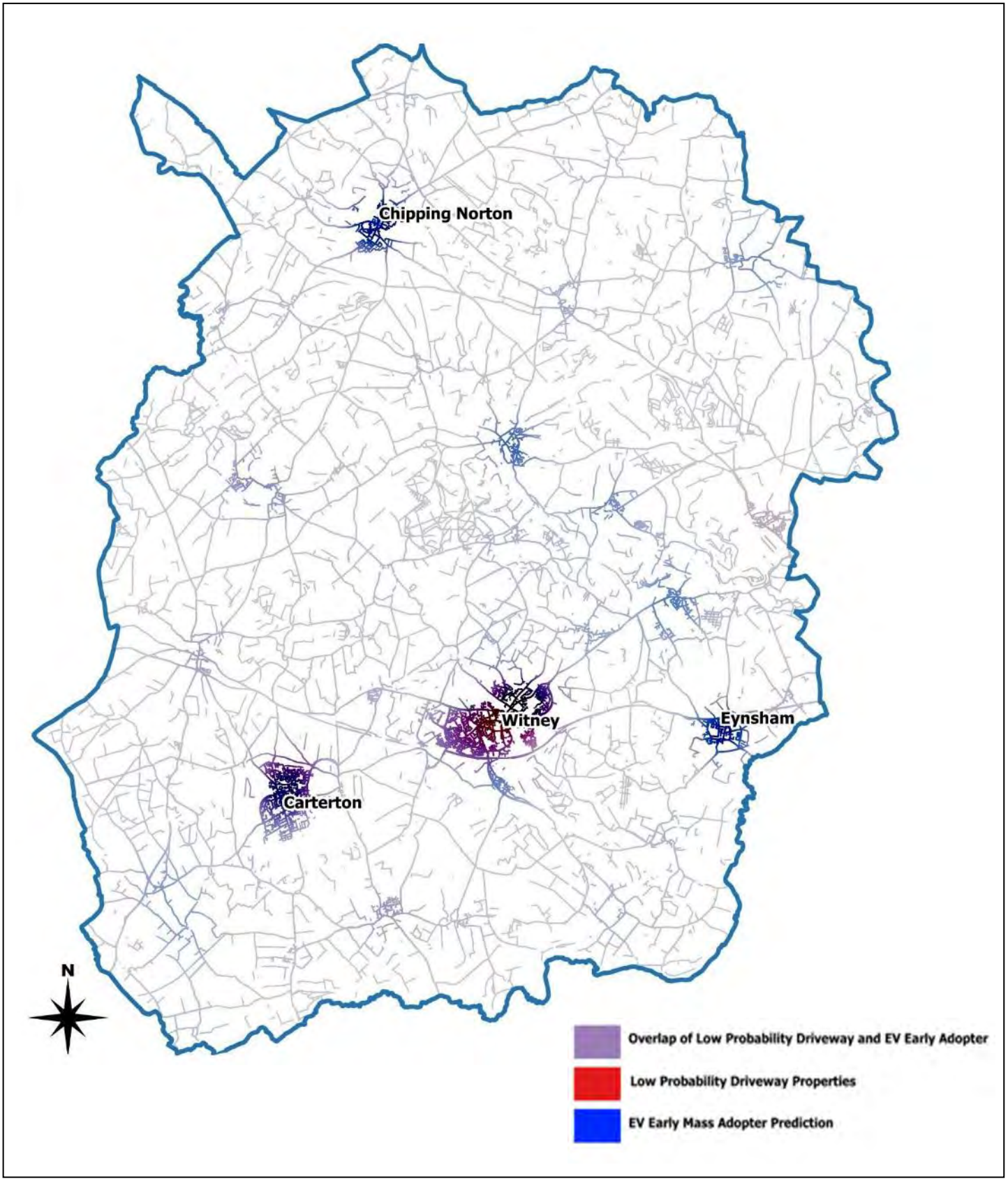


Figure 30 - West Oxfordshire hotspots for predicted early mass EV adoption & low driveway probability. Sources: Energeo 2020, EMU 2018, ACORN 2020, DfT 2020. Higher colour intensity indicates higher density of occurrence.



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ii The UK National Infrastructure Strategy, HM Treasury, 2020

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v Air Quality Annual Status Report 2019, Oxford City Council, 2020

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vii Oxfordshire Energy Strategy

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ix DfT, 2020

x *The image is licensed under Creative Commons ShareAlike International license 4.0. It is attributed to Sivapriya M. Bhagavathy, Constance Crozier and Malcolm McCulloch, University of Oxford and was developed for an internal report of the Park and Charge project.*

xi National Travel Survey Table NTS0908 DfT (2015)

xii Electric Vehicle Charging in Residential and Non-Residential Buildings, DfT 2019

xiii Directive 2014/94/EU of the European Parliament and of the Council 22/10/2014

xiv https://epg.eng.ox.ac.uk/our-research/park-and-charge/

xv Plugging the gap: An assessment of future demand for Britain's electric vehicle public charging network

xvi On-Street Households: The next EV Challenge and Opportunity. Field Dynamics. 2020

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xviii The Town and Country Planning (General Permitted Development) Order 2015, Schedule 2, Part 2

xix The Town and Country Planning (General Permitted Development) Order 2015, Schedule 2, Part 12

xx X-Last EV Charging Bollard, Oxford

xxi EV charging points to installed at 10 major shopping hubs, Edie.net

xxii Supermarkets analysis, Zap-Map

xxiii Thousands of free EV charge points to be installed at Tesco sites, Fleet News

xxiv EV charging at Greene King Pubs, The Independent

xxv Connecting Oxford Brochure (2020) Connecting Oxford Brochure (2020)

[xxvi] European Alternative Fuels Observatory (2018). Electric vehicle charging infrastructure

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[xxviii] The Road to Zero (2018)

[xxix] On-street Residential Chargepoint Scheme guidance for local authorities

[xxx] Workplace Charging Scheme: guidance for applicants, chargepoint installers and manufacturers

[xxxi] https://www.zap-map.com/zap-map-user-survey-reveals-top-10-ev-charging-networks/

[xxxii] REA/Zap-Map finds 21% of public EV charging network users experience issues, Fleet News, 2020

[xxxiii] https://www.tsu.ox.ac.uk/pubs/2019-GULO-Phase-1-Final-Report.pdf

[xxxiv] https://assets.ctfassets.net/ulfvrpf1itxm/3gNS3F5NPiiU2W7tA62QqH/f6269e4852bb147bc7e29709e2383989/EV_driver_survey_report_2020_EN.pdf

[xxxv] My Electric Avenue

[xxxvi] Upgrading our Energy system: Smart Systems and Flexibility Plan (July 2017), BEIS

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[xxxviii] Part 3, Road to Zero Strategy (2018), DfT

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[xli] Part 3, Road to Zero Strategy (2018), DfT

Appendix B Potential Shift Patterns and Justification of Trip Rates - Technical Note

TECHNICAL NOTE

Job Name: **Didcot Data Campus**

Job No: **332110511**

Note No: TN003

Date: April 2022

Prepared By: Milena Martinez/ Sarah Matthews

Subject: **Potential Shift Patterns and Justification of Trip Rates**

1. Introduction

1.1. This note has been prepared in relation to the proposed redevelopment of the former Didcot A Power Station site, located to the northwest of Didcot. RWE is seeking to submit a hybrid planning application for:

"the erection of up to 197,000m2 Use Class B8 data centre development with ancillary Use Class E office space together with associated groundworks, utilities, infrastructure, engineering and enabling works. Built height parameters providing for development of up to 35m in height. Site access via the Didcot Science Bridge (Oxfordshire County Council's strategic distributor road connection to the A4130, over the Great Western Mainline) and construction of internal site spur road from the proposed Science Bridge Road into the site together with ancillary groundworks, utilities engineering and enabling works."

1.2. Following the scoping response from Oxfordshire County Council (OCC) received on 17th February 2022, and further meeting with OCC and National Highway (NH) on Thursday 31st March, this note has been prepared to address comment 17 of OCC's response (see **Appendix A** for full response):

"17. In terms of using the estimated trip rates that were accepted for planning permissions P18/V2277/FUL, P21/V0167/FUL and P21/S0247/FUL. This is considered acceptable in principle as both sites (Didcot A site and Cloud HQ) used first principles data to support their data centre development proposals. It should be noted each end user of these sites did differ and it is recommended appropriate sensitivity scenarios should be undertaken of the individual trip rates to ensure a robust assessment is undertaken and provided as part of a future planning submission."

2. Potential Shift Patterns

Data Centre Common Operations

2.1. A review of other data centre planning applications has been carried out, in parallel with discussions about shift patterns with potential occupiers. This has found that most operate:

DOCUMENT ISSUE RECORD

Technical Note No	Rev	Date	Prepared	Checked	Reviewed (Discipline Lead)	Approved (Project Director)
332110511/TN002	-	April 2022	MM	SM	SM	SM

T: E:

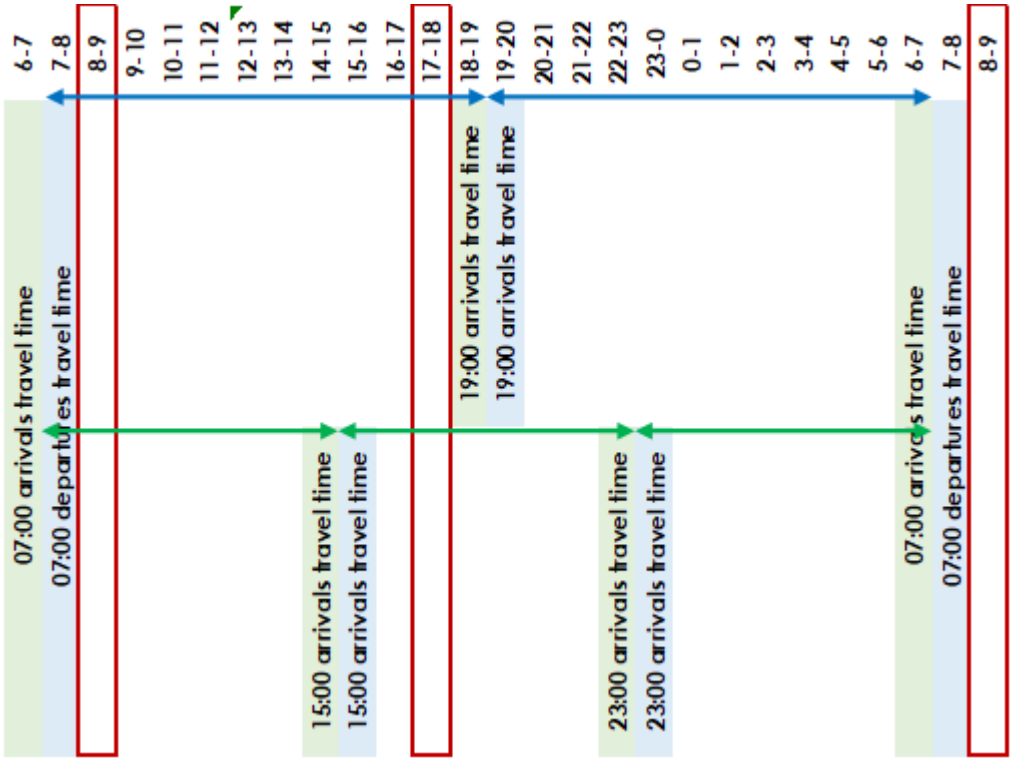
- A two shift pattern - 07:00 – 19:00 / 19:00 – 07:00; or
- A two shift pattern - 08:00 – 20:00 / 20:00 – 08:00

2.2. In addition, we have considered a three-shift pattern as well to demonstrate that this does not result in any further impacts on the AM and PM peaks:

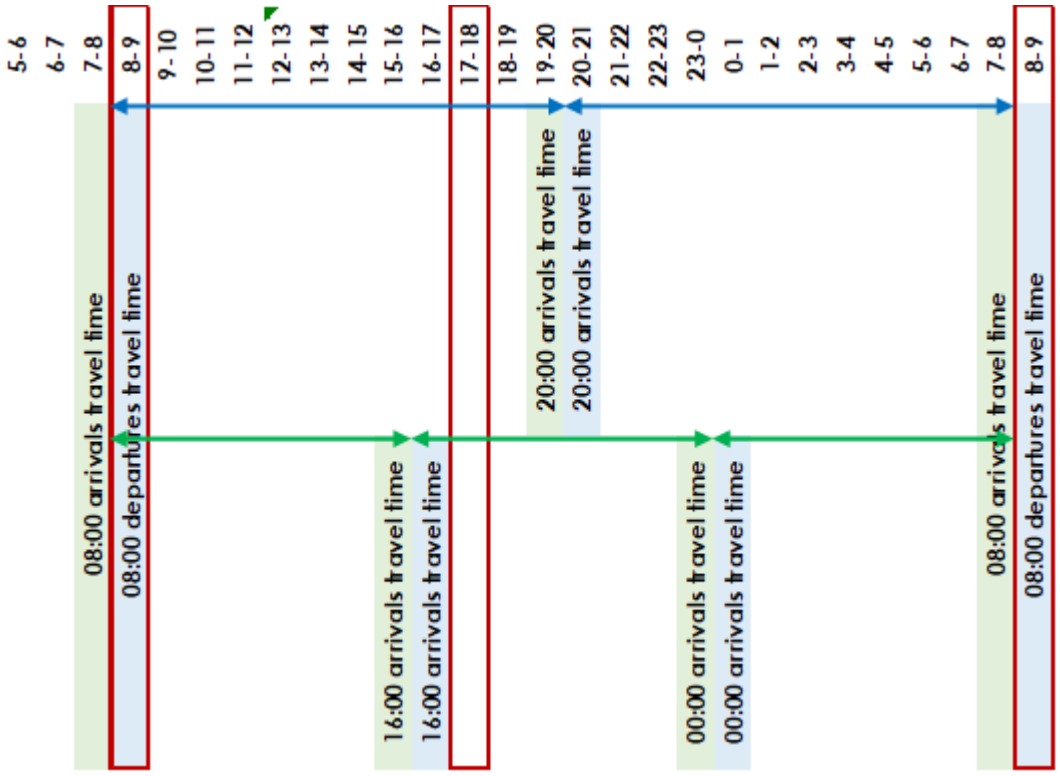
Peak Hour Effect

2.3. The two potential shift pattern scenarios outlined above have been further investigated, in order to understand the likely effect on peak hour trip rates associated with the data centre proposals.

- Two or three-shift patterns following 07:00 – 19:00 / 19:00 – 07:00, or 07:00 – 15:00/ 15:00 – 23:00 / 23:00 – 07:00 shifts, respectively. This pattern avoids peak hour travel by staff undertaking shift work, as morning shift staff (07:00 – 19:00 or 07:00 – 15:00) are expected to arrive/ depart in the morning before the AM peak period, and arrive/ depart in the evening before (three-shift pattern) or after (two-shift pattern) the PM peak period. Peak travel associated with this shift patterns would be generated by non-regular activities, such as deliveries and emergencies. This is illustrated below:



- Two or three-shift patterns following 08:00 – 20:00 / 20:00 – 08:00, or 08:00 – 16:00 / 16:00 – 00:00 / 00:00 – 08:00. These shift patterns are likely to generate departures of night shift staff (20:00 – 08:00 or 00:00 – 08:00) leaving the data centre during the AM peak period. No other peak travel by staff undertaking shift work is expected, as these would arrive in the morning before the AM peak period. This is illustrated below:



Data Centre Sites Review and Selection

2.4. The following table provides a review of information extracted from different data centre planning applications and surveys publicly available, including justification if they have been discounted.

Table 2.1 – Data Centres Site Selection

Site Name	Size (sqm)	General Staff Shift Pattern	Reason to include or discount
Cloud HQ	72,744	Unknown, assumed same operation as Diageo Realty Woking and Diageo Realty Redhill	Surveys show significant arrivals in AM peak but no departures, which does not match shift pattern
Amazon	8,692	07:00 – 19:00 and 19:00 to 07:00	SELECTED (SHIFT PATTERN A)
Maxwell Farm	62,200	Based on same data as Cloud HQ (see above)	

Bull Bridge	16,918	08:30 – 17:30	Trip rates from TRICS based on office, considered inappropriate for data centre
Coriander Avenue	27,637	No shift pattern information provided	Trip rates based on existing hotel (it uses hotel, food and drink TRICS sites), considered inappropriate for data centre
East India Dock House/ Global Switch	26,323	Three-shift pattern starting 08:00, 13:00, 18:00	Has insignificant traffic generation in peaks
Link Park Heathrow	up to 55,000	Based on office profile	Discounted as based upon TRICS office traffic generation per staff
NTT Communication Corporation Data Centre	23,753	No shift pattern information provided	Discounted as based upon TRICS B8 traffic generation per staff
Chandos Park Estate	52,000	08:00 – 20:00 / 20:00 – 08:00	SELECTED (Sensitivity Test)
Frogmore	35,000	08:00 – 20:00 / 20:00 – 08:00	SELECTED (Sensitivity Test)
Tudor Works Beaconsfield	39,359	Assumed 55% of staff arrive/ depart during peak periods. Justification for this percentage is not clear.	Trip rates are calculated on the basis of high proportion of AM and PM travel, which does not match shift pattern

Proposed Methodology

2.5. As agreed with OCC following submission of the Transport Scoping Note prepared by Stantec UK Ltd in January 2022, we will base our core test on the Amazon site (car/LGV trip rates) and Cloud HQ (HGV trip rates), on the basis of the following shift patterns:

- General staff arrive 07:00 – 19:00 (day) and 19:00 to 07:00 (night)
- Security staff 08:00 – 17:00 (day) and 17:00 – 08:00 (night)
- Visiting and maintenance staff 08:00 – 15:00.

2.6. Agreed trips rates for the core scenario are set out below:

Table 2.2 - Proposed Trip Rates (Core Test)

Time Period	Car/LGV			HGV		
	Arr	Dep	2-W	Arr	Dep	2-W
AM (08:00 - 09:00)	0.000	0.035	0.035	0.004	0.003	0.007
PM (17:00 - 18:00)	0.000	0.035	0.035	0.000	0.000	0.000

2.7. In addition, we will carry out a sensitivity test using:

- Average car/LGV trip rates extracted from the Chandos Park Estate and Frogmore planning application documents.
- HGV trip rates will be based upon the Cloud HQ Transport Assessment – HGV trip rates used in the Chandos Transport Assessment were based upon 'industrial estate' survey sites from the TRICS database, which is considered inappropriate to estimate HGV trips generated by a data centre. No HGV trip rates were provided as part of the Frogmore Transport Assessment.

2.8. Average car/LGV peak hour trip rates have been calculated based on the selected sites, this is presented below:

Table 2.3 - Proposed Car/LGV Trip Rates (Sensitivity Test)

Site	Time Period	Arr	Dep	2-W
Chandos	AM (08:00 - 09:00)	0.067	0.015	0.083
Frogmore		0.000	0.026	0.026
Average		**0.034**	**0.021**	**0.054**
Chandos	PM (17:00 - 18:00)	0.015	0.067	0.083
Frogmore		0.000	0.000	0.000
Average		**0.008**	**0.034**	**0.041**

From: Blake, Patrick <Patrick.Blake@highwaysengland.co.uk>
Sent: 18 February 2022 09:59
To: Matthews, Sarah <sarah.matthews@stantec.com>
Cc: Martinez, Milena <Milena.Martinez@stantec.com>; Planning SE <planningse@nationalhighways.co.uk>; Doyle, Simon/LON <Simon.Doyle@jacobs.com>; Ginn, Beata <Beata.Ginn@highwaysengland.co.uk>; Colclough, Joseph <Joseph.Colclough@jacobs.com>; Tarbuck, Tom <Tom.Tarbuck@jacobs.com>
Subject: 7169 Pre App Advice - Didcot Power Station - Data Centre proposal

For the attention of: Sarah Matthews, Stantec

Reference: Transport Assessment Scoping Report, January 2022 (50464/3321110511/100)

Our reference: 7169

Location: Didcot A Power Station, Didcot

Proposal: Hybrid planning application for - the erection of up to 197,000m2 Use Class B8 data centre development with ancillary Use Class E office space together with associated groundworks, utilities, infrastructure, engineering and enabling works. Built height parameters providing for development of up to 35m in height. Site access via the Didcot Science Bridge (Oxfordshire County Council's strategic distributor road connection to the A4130, over the Great Western Mainline) and construction of internal site spur road from the proposed Science Bridge Road into the site together with ancillary groundworks, utilities engineering and enabling works.

Pre-Application Response

Dear Sarah,

Thank you for consulting National Highways in regard to the Transport Assessment Scoping Report for the proposed Didcot Power Station - Data Centre extension.

National Highways has been appointed by the Secretary of State for Transport as strategic highway company under the provisions of the Infrastructure Act 2015 and is the highway authority, traffic authority and street authority for the strategic road network (SRN). The SRN is a critical national asset and as such National Highways works to ensure that it operates and is managed in the public interest, both in respect of current activities and needs as well as in providing effective stewardship of its long-term operation and integrity.

We will therefore be concerned with proposals that have the potential to impact the safe and efficient operation of the SRN, in this case the A34.

We have reviewed the provided Transport Assessment Scoping Note (SN), dated January 2022 (50464/3321110511/100).

You propose to produce a Transport Assessment (TA) including a review of:-

- the site context and surrounding highway network and a review of personal injury accidents;
- the appropriateness of the local pedestrian, cycle and public transport networks with reference to opportunities for potential staff to travel via sustainable transport modes as a genuine alternative to single occupancy vehicle trips;
- a detailed description of the development proposals. This will include details relating to the proposed parking, access and servicing arrangements;
- an assessment of forecast vehicular trips generated by the site. This is anticipated to be carried out with reference to trip rates from alternative development sites and similar permitted data centre sites on the Didcot site; and
- a broad summary of key national and local transport planning policies applicable to the scheme and how the scheme accords with these policies.

It is understood that the site has existing use with historic permitted development rights allowing for a wide range of uses. The extant uses are noted as power generation and office.

The SN states that the extant traffic generation associated with the current permitted development rights associated with power generation is based on 2011 survey data at the Didcot A Power Station Site whilst the Office use is based on trip rates from the Clowes Land, Didcot A planning application (LPA ref. no. P16/C1231/FUL). Resulting in the total extant traffic generation shown below.

Table 3 – Total Extant Traffic Generation

Time period	Vehicle Trips								
	Arrivals			Departures			Total		
	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total
08:00 - 09:00	46	3	49	6	3	10	52	6	59
17:00 - 18:00	8	3	10	34	3	37	42	5	47
09:00 - 19:00	**245**	**21**	**266**	**261**	**19**	**280**	**506**	**40**	**546**

The proposed Office land use uses vehicle trip rates from planning application P16/C1231/FUL. Whilst the Data Centre uses vehicle trip rates from the proposed Didcot Data Centre site (LPA ref. no. P21/S0274/FUL) with HGV trip rates extracted from a TA submitted for the Cloud HQ Transport Assessment submitted as part of the Land West of Didcot B planning application (LPA ref. no. P18/V2277/FUL). Resulting in a total proposed trip generation shown below.

Table 13 – (Science Bridge Road) Vehicle Trip Generation

Access	Time period	Arrivals			Departures			Total		
		Car/ LGV	HGV	Total	Car/ LGV	HGV	Total	Car/ LGV	HGV	Total
Science Bridge Road Access	AM	22	9	31	71	7	78	93	16	109
	PM	3	1	4	85	1	86	88	1	90
	Daily	510	52	564	515	53	568	1,025	105	1,132

Based on the above information, the proposals indicate an increase in trip making compared to the extant use.

We are not content that the trip rates proposed compile to form a worse case for the application. We suggest that trip rates for the highest trip generating land use under B8 (B8 parcel distribution) are used, as per the development description as this will form the lawful permission at the site in perpetuity and whilst a bespoke B8 trip rate may be relatable to the 'Data Centre' use, the occupier of the site may change in the future.

The TA should seek to develop a traffic distribution to demonstrate and quantify the number of trips anticipated to impact the SRN at peak times. The trip distribution methodology is proposed to be based on data included in the HIF1 Didcot Garden Town Infrastructure Transport Assessment (planning ref. no. R3.0138/21). The distribution on the highway network should be fully evidenced and explained in the TA, with a highway diagram showing distribution percentages by link during the peak hours.

Once trip rates have been confirmed and on the basis of a proposed net trip increase, additional data collection and junction impact assessment may be required at:

- A34 Milton Interchange; and
- A34 Marcham Interchange.

This would require a year of opening with all development traffic assessment to be undertaken, as per DfT Circular 02/13.

Following agreement of the above parameters the TA should clearly set out the assessment methodology, data sources and any assumptions made.

In addition to the above the Applicant should consider a Construction Environment Management Plan (CEMP) as part of their TA. This should include; construction traffic routes, trip numbers, parking and turning provision to be made on site, measures to prevent debris from being deposited on the highway, delivery times and a programme for construction.

Based upon the information submitted, we would welcome a meeting to discuss the proposals and the potential impact on the SRN. It is essential that matters are agreed

with Oxfordshire County Council who are responsible for roads in the vicinity of the proposed site, therefore a joint meeting maybe helpful.

Kind Regards

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TECHNICAL NOTE

Appendix B – Data Centre Sites Location and Planning Application Reference

Site Name	LA and App Ref
Cloud HQ	VoWHDC P18/V2277/FUL
Amazon	VoWHDC/SODC P21S0274FUL and P21V0167FUL
Maxwell Farm	Broxbourne 07/18/1181/O
Bull Bridge	Hillingdon 75111/APP/2020/1955
Coriander Avenue	Tower Hamlets PA/18/03089
East India Dock House/ Global Switch	Tower Hamlets PA/21/02777/A1
Link Park Heathrow	Hillingdon 73420/APP/2021/4388
NTT Communication Corporation Data Centre	Dagenham 18/00161/FUL
Chandos Park Estate	Ealing 21/0013/OUTOPDC
Frogmore	Ealing 21/0182/OUTOPDC
Tudor Works Beaconsfield	Hillingdon 38421/APP/2021/4045

TECHNICAL NOTE

Job Name: **Didcot Data Campus**

Job No: **332110511**

Note No: TN002

Date: April 2022

Prepared By: Milena Martinez/ Sarah Matthews

Subject: **Potential Shift Patterns and Justification of Trip Rates**

1. Introduction

1.1. This note has been prepared in relation to the proposed redevelopment of the former Didcot A Power Station site, located to the northwest of Didcot. RWE is seeking to submit a hybrid planning application for:

"the erection of up to 197,000m2 Use Class B8 data centre development with ancillary Use Class E office space together with associated groundworks, utilities, infrastructure, engineering and enabling works. Built height parameters providing for development of up to 35m in height. Site access via the Didcot Science Bridge (Oxfordshire County Council's strategic distributor road connection to the A4130, over the Great Western Mainline) and construction of internal site spur road from the proposed Science Bridge Road into the site together with ancillary groundworks, utilities engineering and enabling works."

1.2. Following the scoping response from Oxfordshire County Council (OCC) received on 17th February 2022, and further meeting with OCC and National Highway (NH) on Thursday 31st March, this note has been prepared to address comment 17 of OCC's response (see **Appendix A** for full response):

"17. In terms of using the estimated trip rates that were accepted for planning permissions P18/V2277/FUL, P21/V0167/FUL and P21/S0247/FUL. This is considered acceptable in principle as both sites (Didcot A site and Cloud HQ) used first principles data to support their data centre development proposals. It should be noted each end user of these sites did differ and it is recommended appropriate sensitivity scenarios should be undertaken of the individual trip rates to ensure a robust assessment is undertaken and provided as part of a future planning submission."

2. Potential Shift Patterns

Data Centre Common Operations

2.1. A review of other data centre planning applications has been carried out, in parallel with discussions about shift patterns with potential occupiers. This has found that most operate:

DOCUMENT ISSUE RECORD

Technical Note No	Rev	Date	Prepared	Checked	Reviewed (Discipline Lead)	Approved (Project Director)
332110511/TN002	-	April 2022	MM	SM	SM	SM

T: E:

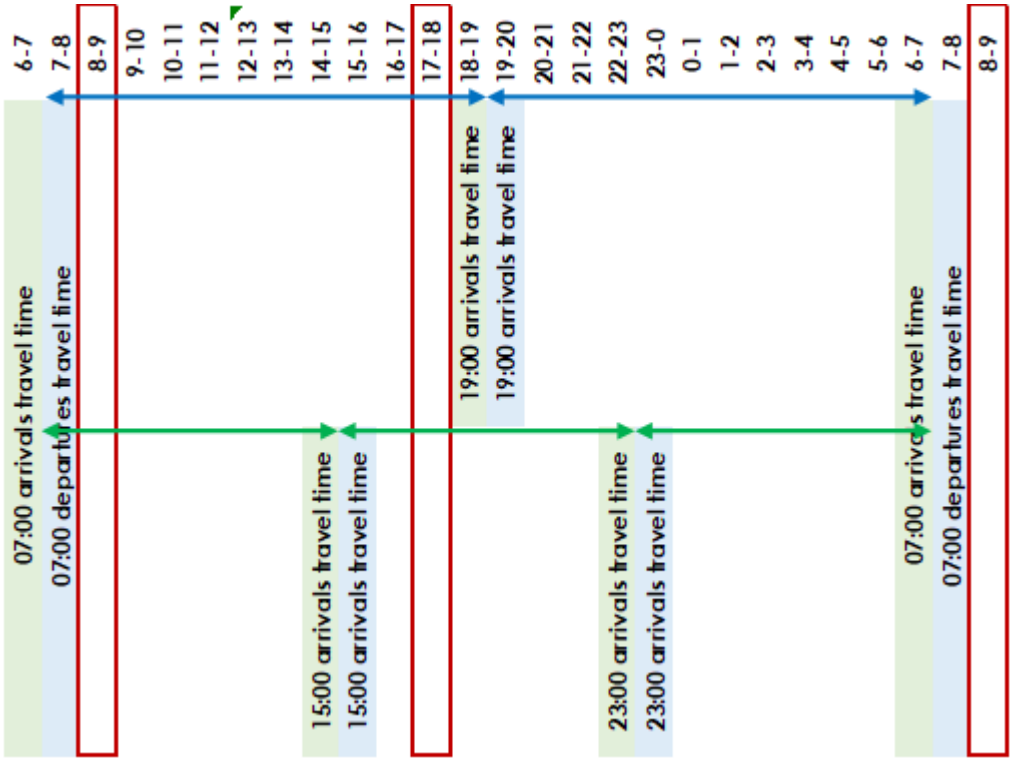
- A two shift pattern - 07:00 – 19:00 / 19:00 – 07:00; or
- A two shift pattern - 08:00 – 20:00 / 20:00 – 08:00

2.2. In addition, we have considered a three-shift pattern as well to demonstrate that this does not result in any further impacts on the AM and PM peaks:

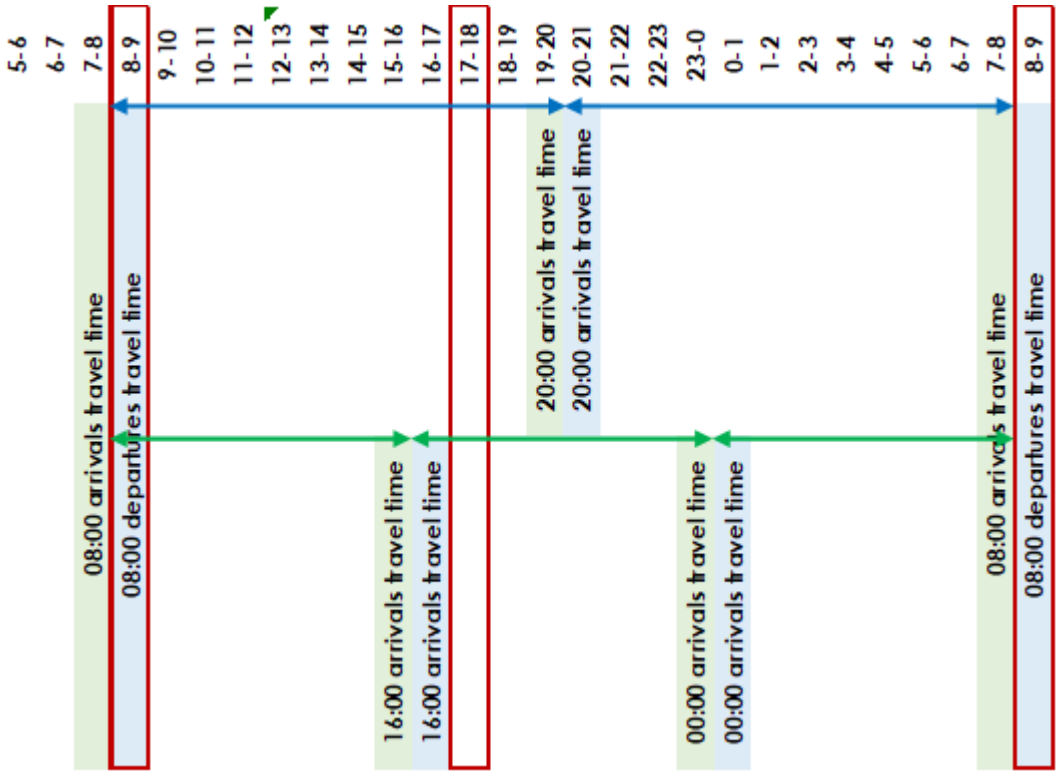
Peak Hour Effect

2.3. The two potential shift pattern scenarios outlined above have been further investigated, in order to understand the likely effect on peak hour trip rates associated with the data centre proposals.

- Two or three-shift patterns following 07:00 – 19:00 / 19:00 – 07:00, or 07:00 – 15:00/ 15:00 – 23:00 / 23:00 – 07:00 shifts, respectively. This pattern avoids peak hour travel by staff undertaking shift work, as morning shift staff (07:00 – 19:00 or 07:00 – 15:00) are expected to arrive/ depart in the morning before the AM peak period, and arrive/ depart in the evening before (three-shift pattern) or after (two-shift pattern) the PM peak period. Peak travel associated with this shift patterns would be generated by non-regular activities, such as deliveries and emergencies. This is illustrated below:



- Two or three-shift patterns following 08:00 – 20:00 / 20:00 – 08:00, or 08:00 – 16:00 / 16:00 – 00:00 / 00:00 – 08:00. These shift patterns are likely to generate departures of night shift staff (20:00 – 08:00 or 00:00 – 08:00) leaving the data centre during the AM peak period. No other peak travel by staff undertaking shift work is expected, as these would arrive in the morning before the AM peak period. This is illustrated below:



Data Centre Sites Review and Selection

2.4. The following table provides a review of information extracted from different data centre planning applications and surveys publicly available, including justification if they have been discounted.

Table 2.1 – Data Centres Site Selection

Site Name	Size (sqm)	General Staff Shift Pattern	Reason to include or discount
Cloud HQ	72,744	Unknown, assumed same operation as Diageo Realty Woking and Diageo Realty Redhill	Surveys show significant arrivals in AM peak but no departures, which does not match shift pattern
Amazon	8,692	07:00 – 19:00 and 19:00 to 07:00	SELECTED (SHIFT PATTERN A)
Maxwell Farm	62,200	Based on same data as Cloud HQ (see above)	

Bull Bridge	16,918	08:30 – 17:30	Trip rates from TRICS based on office, considered inappropriate for data centre
Coriander Avenue	27,637	No shift pattern information provided	Trip rates based on existing hotel (it uses hotel, food and drink TRICS sites), considered inappropriate for data centre
East India Dock House/ Global Switch	26,323	Three-shift pattern starting 08:00, 13:00, 18:00	Has insignificant traffic generation in peaks
Link Park Heathrow	up to 55,000	Based on office profile	Discounted as based upon TRICS office traffic generation per staff
NTT Communication Corporation Data Centre	23,753	No shift pattern information provided	Discounted as based upon TRICS B8 traffic generation per staff
Chandos Park Estate	52,000	08:00 – 20:00 / 20:00 – 08:00	SELECTED (Sensitivity Test)
Frogmore	35,000	08:00 – 20:00 / 20:00 – 08:00	SELECTED (Sensitivity Test)
Tudor Works Beaconsfield	39,359	Assumed 55% of staff arrive/ depart during peak periods. Justification for this percentage is not clear.	Trip rates are calculated on the basis of high proportion of AM and PM travel, which does not match shift pattern

Proposed Methodology

2.5. As agreed with OCC following submission of the Transport Scoping Note prepared by Stantec UK Ltd in January 2022, we will base our core test on the Amazon site (car/LGV trip rates) and Cloud HQ (HGV trip rates), on the basis of the following shift patterns:

- General staff arrive 07:00 – 19:00 (day) and 19:00 to 07:00 (night)
- Security staff 08:00 – 17:00 (day) and 17:00 – 08:00 (night)
- Visiting and maintenance staff 08:00 – 15:00.

2.6. Agreed trips rates for the core scenario are set out below:

Table 2.2 - Proposed Trip Rates (Core Test)

Time Period	Car/LGV			HGV		
	Arr	Dep	2-W	Arr	Dep	2-W
AM (08:00 - 09:00)	0.000	0.035	0.035	0.004	0.003	0.007
PM (17:00 - 18:00)	0.000	0.035	0.035	0.000	0.000	0.000

2.7. In addition, we will carry out a sensitivity test using:

- Average car/LGV trip rates extracted from the Chandos Park Estate and Frogmore planning application documents.
- HGV trip rates will be based upon the Cloud HQ Transport Assessment – HGV trip rates used in the Chandos Transport Assessment were based upon 'industrial estate' survey sites from the TRICS database, which is considered inappropriate to estimate HGV trips generated by a data centre. No HGV trip rates were provided as part of the Frogmore Transport Assessment.

2.8. Average car/LGV peak hour trip rates have been calculated based on the selected sites, this is presented below:

Table 2.3 - Proposed Car/LGV Trip Rates (Sensitivity Test)

Site	Time Period	Arr	Dep	2-W
Chandos	AM (08:00 - 09:00)	0.067	0.015	0.083
Frogmore		0.000	0.026	0.026
Average		**0.034**	**0.021**	**0.054**
Chandos	PM (17:00 - 18:00)	0.015	0.067	0.083
Frogmore		0.000	0.000	0.000
Average		**0.008**	**0.034**	**0.041**

TECHNICAL NOTE

Appendix A – OCC PreApp Response

District: Vale of White Horse
Application no: P21/V0010/PreApp
Proposal: Hybrid planning application for the erection of up to 197,000m2 Use Class B8 data centre development with ancillary Use Class E office space together with associated groundworks, utilities, infrastructure, engineering and enabling works. Built height parameters providing for development of up to 35m in height. Site access via the Didcot Science Bridge (Oxfordshire County Council's strategic distributor road connection to the A4130, over the Great Western Mainline) and construction of internal site spur road from the proposed Science Bridge Road into the site together with ancillary groundworks, utilities engineering and enabling works

Location: Land at Former Didcot A Power Station, Purchas Road, Didcot

Transport Development Control

As you may be aware, Oxfordshire County Council (OCC) is a consultee of the Local Planning Authority(s) and provides advice on the likely transport and highways impact of development where necessary.
It should be noted that the advice below represents the informal opinion of an Officer of the Council only, which is given entirely without prejudice to the formal consideration of any planning application, which may be submitted. Nevertheless, the comments are given in good faith and fairly reflect an opinion at the time of drafting given the information submitted.
Due to the size of the development proposal a Transport Assessment with an accompanying Travel Plan is recommended to be provided with any future planning submission. General advice and guidance on preparing these documents may is contained in the County Council's Guidance on Transport Assessments and Travel Plans:
https://www2.oxfordshire.gov.uk/cms/sites/default/files/folders/documents/roadsandtransport/transportpoliciesandplans/newdevelopments/Transport%20assessments%20and%20travel%20plans.pdf
Other documents that may be of assistance are listed below:
Connecting Oxfordshire (including a link to Local Transport Plan 4: 2015-2031).
https://www.oxfordshire.gov.uk/residents/roads-and-transport/connecting-oxfordshire
County Council Transport Policy and Plans
https://www.oxfordshire.gov.uk/residents/roads-and-transport/transport-policies-and-plans

County Council Transport Guidance for new developments
https://www.oxfordshire.gov.uk/residents/roads-and-transport/transport-policies-and-plans/transport-new-developments

County Council Walking Design Standards
walkingstandards (oxfordshire.gov.uk)

County Council Cycling Design Standards
cyclingstandards (oxfordshire.gov.uk)

Vale of White Horse
Vale of White Horse Design Guide SPD - Vale of White Horse District Council
There are also references on these websites to other documentation and advice which may assist you in formulating a viable proposal.

Oxfordshire County Council Pre-Application advice provided by Lead Local Flood Authority.
Please be aware that since 1st April 2021, OCC now provide a separate chargeable pre-application service for providing advice as Lead Local Flood Authority (LLFA).
https://www.oxfordshire.gov.uk/residents/roads-and-transport/street-mainteance-z/flooding/pre-application-flood-advice

Oxfordshire County Council Pre-Submission Advice service provided by Road Agreements Team.
Due to the significant size of the development proposal and the associated transport infrastructure involved it is recommended that the land promoter, at the appropriate time, considers approaching OCC's Road Agreements Team to utilise the chargeable Pre-Submission Advice service that is now available. This service may be utilised for developments, at any stage and discussions will not prejudice the planning process nor any other authorisations that may be applicable (such as drainage approval or traffic calming). Parameters of the meetings will be bespoke to specific developments and can cover the areas noted below. A request for this service should be sent to roadagreements@oxfordshire.gov.uk, a response will detail the payment mechanisms, timeframes, and required information to be submitted in advance of the scheduled meeting. The service topics covered included, engineering specifics, adoptability requirements, process and legalities, potential land issues, finances and safety concerns.
https://www.oxfordshire.gov.uk/residents/roads-and-transport/transport-policies-and-plans/section-38-and-s278

Key issues:

- A comprehensive Transport Assessment and Travel Plan will be required.

- Study area of the Transport Assessment will be dependent upon estimated trip generation and distribution of proposed / committed development in and around Didcot alongside an assessment of traffic movements using existing base line survey data. Transport Assessment to include assessment of Milton Interchange, A4130 / B4493 junction, Milton Road / A4130/ Basil Hill Road roundabout junction as well as other junctions along the A4130 and within Didcot. Sensitivity testing of future conditions will also need to be considered.

- Access to the development site and internal design requirements including parking and delivery provisions.

- The development proposal put forward must consider and accommodate the Housing Infrastructure Funding (HIF) highway works that are being delivered by OCC within the vicinity of the site.

- Section 106 obligations from the development proposal will include contributions towards the delivery of HIF in the form of land transfer / dedication / easements and a financial contribution as well as other off-site mitigation requirements.

Comments:

1. An updated Transport Assessment Scoping Report, dated January 2022 (ref 50464/3321110511), prepared by Stantec has been submitted for comments following a meeting on 21st December 2021 between council officers and the applicants project team. The scoping report has been reviewed and the following comments are provided below:

2. The development proposal is for the redevelopment of 334,594m2 of the current Didcot A Power Station site (460,009m2). The redevelopment of the site is to include a 197,000m2 Use Class B8 Data Centre and a new electrical gear / transformer covering a 39,999m2 area to the northwest of the development site. The remaining area of the Didcot A Power Station site will continue to operate as now. Access to the site will continue to be via the existing arrangements or via the future Science Bridge Link Road that is being delivered as part of the Housing Infrastructure Funding scheme (HIF) being delivered by OCC.

3. Such a developments proposal is considered acceptable in principle by OCC but must be supported by a robust transport submission and contribute towards the delivery of OCC's HIF scheme and promote active and sustainable journeys to / from the site.

Access arrangements

4. Section 2.2 of the submitted scoping report confirms that the development site will continue to utilise its existing access arrangements via Milton Road / Basil Hill Road / A4130 roundabout junction, Purchas Road and Harley Road onto

Old Milton Rad. Such arrangements will remain in place until OCC's HIF scheme is delivered. Such a proposal is considered acceptable but is subject to delivery programmes and will require detailed discussions with OCC officers as the development proposal evolves. It may be the case that a phased access strategy is agreed between the site promoter and OCC while HIF is being built out and the redevelopment of the site once it is permitted.

5. With regard to the design / form of the vehicular access to serve the development proposal onto the Science Bridge Link Road. This must be designed with formal agreement from the HIF delivery team and must be designed not have a detrimental impact on the priority of the pedestrian / cycle provisions being provided and safety for all highway users along the Science Bridge Link Road. This design issue is identified in paragraphs 2.2.10 and 2.2.11 within the scoping report.

6. A swept path analysis of all vehicle types expected to use the site access arrangements (including abnormal loads for when a transformer is replaced / removed is required) will be required as part of a future transport submission.

Walking and cycling

7. Pedestrian and cycling infrastructure will be expected to be designed in accordance with Local Transport Note 1/20 (LTN 1/20) to provide high quality facilities and ensure permeability and connectivity for active modes within the site and between the site and its vicinity. This should include direct connections to the adjacent National Cycle Network (NCN) Route 5. A financial contribution towards improvements to the NCN Route 5 may also be required.

8. It is welcomed that the scoping report states in paragraph 4.1.1 that, *"As requested by OCC, RWE will give consideration to improvements along the North-South section of the A4130, as [the] main route to town centre, bus stops and station"*. This will form an important part of ensuring that the proposed development is in compliance with the policy and guidance set out in the final section of this response.

9. As part of any formal planning application submission, the applicant must clarify which infrastructure will be offered for adoption as publicly maintained highways. If it is the intention for the developer to offer elements of the layout for adoption, then suitable scaled plans indicating extent of adoption should be forwarded for approval as part of the planning application.

On-site parking provisions

10. The development proposal will be expected to provide a high level of cycle parking provisions, designed to be sheltered and secure in prominent locations near main building entrances, with appropriate changing facilities on site. The current standards for cycle parking for a B8 land use is 1 stand per 500m$_2$ of gross floor area (visitor spaces also set at the same level). These standards are set at a minimum standard and are currently being reviewed. It is recommended that any such facilities are provided on site to a higher level to

meet the Didcot Garden Town ambitions and also encourage sustainable travel patterns to / from the site.

11. On-site car parking will need to be considered and is to be provided in accordance with current parking standards. For a B8 use this is set at a maximum standard of 1 space per 200m2 gross floor area. Appropriate HGV on-site parking for the proposed use will need to be provided for and justified as part of a future transport submission. Appropriate parking and turning areas will also need to be provided for and be demonstrated as useable by swept path analysis. Please note the current OCC parking standards are being reviewed and updated in line with national and local policies aimed at reducing car usage and promoting active travel. Any future planning submission will need to consider this and justify any on-site car parking that is to be provided.

12. Electrical Vehicle charging provisions on-site will be required to be provided at a specific level for new developments. This is confirmed in the recently approved County Council Electric Vehicle Infrastructure Strategy document (Appendix A). There are several policies within this document to note. For this pre-application response, Policy EVI 8 is of most relevance as it is likely to influence the development site's master plan as it evolves.

Public Transport services and bus stop access

13. The proposed development will be expected to contribute towards improving the frequency of bus services serving the site. The provision of the HIF infrastructure, notably the Didcot to Culham River Crossing, is expected to facilitate the routeing of new bus services to be funded by growth associated with the Vale of White Horse Local Plan 2031 and the South of Oxfordshire Local Plan 2035. Accordingly, this site will be expected to provide / contribute towards new bus stop infrastructure on the A4130 in order to enable employees to access these services within a suitable walking distance of the site.

Transport Assessment study area

14. Given the scale of the development and its associated traffic generation noted in the 'Scoping Report for Transport Assessment' (dated January 2022), in order to have adequately assessed its impact on the local highway network the transport assessment will need to include a number of additional junction capacity assessments in the Didcot area than currently proposed. The additional junctions required are:

- Milton Interchange.
- A4130 / Sir Frank Williams Avenue.
- A4130 / B4493 / Mendip Heights roundabout.
- B4493 / Foxhall Road / Station Road roundabout.
- A4130 / Collet roundabout junction (and other two junctions along this route; and
- A4130 / Abingdon Road / Ladygrove.

15. If the site is to be occupied prior to the completion of the Science Bridge, the transport assessment will need to demonstrate through different scenarios the ability of the local highway network to accommodate the impact of the site with and without the infrastructure in place. The scope of the transport assessment, including future year scenarios, will need to be agreed with OCC highways officers. Please beware the delivery programme for the Science Bridge and associated link road has changed. It is now programmed for construction between March 2024 and March 2026. The scenarios proposed in paragraphs 4.4 will have to reflect this in any future transport submission.

16. The traffic generation figures shown in Tables 1, 2 and 3 appear acceptable in principle. However, it is noted in paragraphs 3.2.1 and 3.4.1 of the submitted scoping report that 2011 traffic survey data has been utilised. This data is 10 years old, the highway network and Didcot A Power Station site itself has significantly changed since this data was collected. It is recommended this data is reviewed and new data is collected for any development proposal coming forward where possible. If new data is not available a robust justification within a future transport submission will need to be provided.

17. In terms of using the estimated trip rates that were accepted for planning permissions P18/V2277/FUL, P21/V0167/FUL and P21/S0247/FUL. This is considered acceptable in principle as both sites (Didcot A site and Cloud HQ) used first principles data to support their data centre development proposals. It should be noted each end user of these sites did differ and it is recommended appropriate sensitivity scenarios should be undertaken of the individual trip rates to ensure a robust assessment is undertaken and provided as part of a future planning submission.

18. Given the uncertainties around the potential future occupiers and, as a consequence, unknowable potential shift patterns, as the proposed trip generation shown in Tables 12 and 13 (p.11) assumes the vast majority of movements taking place in the inter-peaks, alternative scenarios should be modelled with much greater proportions of trips in the AM/PM peaks to reflect this uncertainty and to ensure that the potential impacts of the proposed development have been adequately assessed and therefore the extent of potential requirements for mitigation and connectivity improvements properly understood and suitably identified.

19. This section of a future TA will be expected to take into consideration existing and proposed facilities within the area of the development site, making it clear what the extant trip generation is and if any netting off of extant trips is being proposed, what the net increase in trip generation associated with this development proposal will be. A multi-modal trip rate will be appropriate to use subject to existing infrastructure and public transport services.

20. Vehicle distribution patterns are to be based on the County Council's Transport Assessment submitted for the delivery of HIF / Science Bridge (ref R3.0138/21). Such a proposal is considered acceptable in principle, although it should be noted the transport submission for R3.0138/21 is currently being assessed as part of the planning process.

21. Speed surveys will be required to support any new vehicular access points proposed to serve the development as will appropriate traffic survey collection data. As the national lock down restrictions have been eased, OCC is accepting new traffic data collected in neutral months. Officers may be approached nearer the time to confirm agreement on appropriate survey times and locations.

22. Construction traffic and its impact on both the local and strategic network is expected and how this is managed will form an essential part of any future planning submission. Issues such as traffic management, working hours, construction traffic management plans and routeing / delivery restrictions will require careful consideration – as proposed in paragraph 4.1 of the submitted scoping report.

Strategic transport infrastructure contribution
23. As the traffic associated with the proposed development is likely to have a significant impact on the local highway network and the development itself is unlikely to be able to mitigate this impact directly, it is expected that this site will need to make a financial contribution towards strategic transport infrastructure in the vicinity.

24. Such a financial contribution will be based upon the same B8 floor area rate that is within the S106 Agreement associated with planning permissions P16/V1231/FUL, P21/V0167/FUL and P21/SV0274/FUL on the Didcot A site. For assistance the agreed contirbution B8 land use rate (at December 2020 prices) is currently £28.21 per m^2. Such a contribution requirement is considered to meet all the following National Planning Policy Framework (NPPF) tests (paragraph 57):

i) Necessary to make the development acceptable in planning terms
ii) Directly related to the development; and
iii) Fairly and reasonably related in scale and kind to the development.

25. Land will also be required from the development site to enable OCC to deliver the Science Bridge Link Road (part of HIF works). Below is an indicative drawing of these requirements. For clarity the land marked in red is required on a permanent basis (to be transferred to OCC as part of a S106 obligation) to deliver the HIF works. The yellow land is required on a temporary basis during the construction period of the scheme. The cyan coloured land is required by OCC for future maintenance and will require easement rights to be agreed as part of a future legal agreement.

Policy and guidance documents
26. The policy review described in the submitted scoping report should demonstrate how the proposed development accords with a number of documents and associated policies including (but not limited to) the following:

27. Vale Local Plan 2031 Part Two. Core Policy 16b: Didcot Garden Town (see p.54) states that, “Proposals for development within the Garden Town Masterplan Area will be expected to demonstrate how they positively contribute to the achievement of the Didcot Garden Town Masterplan Principles”. These principles include the following (see p.55).

28. Climate Action for a Thriving Oxfordshire. In April 2019 the County Council publicly acknowledged a climate emergency and made a call for action. In response to the climate emergency OCC has published a declaration entitled, Climate Action for a Thriving Oxfordshire. This document identifies some of the means by which OCC intends to take action, this includes investing in cycle paths and safe walking routes and reprioritising road space for low carbon travel. OCC has since approved in October 2020 the 2020 Climate Action Framework, which sets out the guiding principles that will inform the organisation’s work on climate action.

29. OCC Corporate Plan 2020-24. Amongst a number of strategic aims, this sets out our commitment that we will, “Design places that encourage healthy and active lives.” and “Reduce carbon emissions to tackle climate change and improve air quality.” (see p.4)

30. OCC Draft Local Transport and Connectivity Plan (January 2022) Local Transport and Connectivity Plan | Let's Talk Oxfordshire. This draft document provides outlines the long term-vision for transport in the county and the emerging policies required to deliver a zero-carbon transport system for Oxfordshire. The development proposal will need to consider this emerging policy document and demonstrate how it will discourage private vehicle journeys and promote walking, cycling and public transport usage to the site.

31. OCC Cycling Standards, OCC Walking Standards, and Cycle Infrastructure Design (LTN 1/20) The development proposals we be expected to demonstrate how it accords with these policies and standards.

Summary

32. Overall, the development proposal is considered acceptable in principle but will need to robustly demonstrate the traffic impact it will have on the network, how it will be mitigated, assist in the delivery of the Science Bridge (and associated link road) and how it accords with the climate change and active travel requirements set out in the above policy documents.

Officer’s Name: Michael Deadman
Officer’s Title: Transport Development Control Lead Officer
Date: 17th February 2022

TECHNICAL NOTE

Appendix B – Data Centre Sites Location and Planning Application Reference

Site Name	LA and App Ref
Cloud HQ	VoWHDC P18/V2277/FUL
Amazon	VoWHDC/SODC P21S0274FUL and P21V0167FUL
Maxwell Farm	Broxbourne 07/18/1181/O
Bull Bridge	Hillingdon 75111/APP/2020/1955
Coriander Avenue	Tower Hamlets PA/18/03089
East India Dock House/ Global Switch	Tower Hamlets PA/21/02777/A1
Link Park Heathrow	Hillingdon 73420/APP/2021/4388
NTT Communication Corporation Data Centre	Dagenham 18/00161/FUL
Chandos Park Estate	Ealing 21/0013/OUTOPDC
Frogmore	Ealing 21/0182/OUTOPDC
Tudor Works Beaconsfield	Hillingdon 38421/APP/2021/4045