South East Strategic Reservoir Option

Preliminary Environmental Information Report

# Preliminary Transport Assessment Report

Date: October 2025

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# 1 Introduction

## 1.1 Overview

1.1.1 This Preliminary Transport Assessment Report (PTAR) has been prepared to set out preliminary information on the likely transport impacts of the South-East Strategic Reservoir Option (SESRO) (hereafter referred to as the 'Project'), based on the Preliminary Environmental Information (PEI) Report Chapter 2: Project description provided at the statutory consultation stage.

## 1.2 Background to the Project

1.2.1 The Project would provide a new reservoir to the south-west of Abingdon in Oxfordshire, which would be the second largest reservoir in England and the first major reservoir built for a decade.

1.2.2 The Project would play a crucial role in protecting local and regional public water supplies during drought. The reservoir would be filled from the River Thames during winter months when there is surplus water. When river levels drop or demand for water increases, water would be released from the reservoir back into the river for re-abstraction downstream. The new reservoir would supply water to local customers, as well as homes and businesses across London and the South East region.

1.2.3 As well as providing a resilient water supply for the South East, the reservoir would also provide opportunities to create new habitats and increase biodiversity, as well as providing new leisure and recreation facilities.

1.2.4 A Preliminary Environmental Information (PEI) Report has been submitted for statutory consultation and includes a Traffic and transport chapter, which outlines the anticipated environmental impacts of the Project on the transport network.

1.2.5 An application for a Development Consent Order (DCO) will be accompanied by an Environmental Statement (ES), including a Traffic and transport chapter, and a detailed Transport Assessment (TA).

## 1.3 Report purpose

1.3.1 This PTAR forms part of a suite of documents that support the statutory consultation by providing an overview of how the Project may influence the operation of the highway, public transport, and active travel networks, as well as outlining any proposed enhancements or modifications in response to identified impacts.

1.3.2 The assessment in this document will be refined and updated, prior to the DCO application, to reflect further analysis and any changes made to the Project description following statutory consultation.

## 1.4 Structure of the PTAR

1.4.1 This report is structured as follows:

- Section 2: Provides details of the relevant transport policies, guidance and standards at national, regional and local levels
- Section 3: Provides a description of the Project
- Section 4: Provides a description of the existing and future baseline transport conditions
- Section 5: Outlines the approach to assessment of modelling and traffic network conditions
- Section 6: Outlines the anticipated construction travel demand
- Section 7: Sets out the preliminary construction impacts
- Section 8: Outlines the anticipated operational travel demand
- Section 9: Sets out the preliminary operation impacts
- Section 10: Provides a summary and conclusions to this report

# 2 Transport policy and planning context

## 2.1 Introduction

2.1.1 This section lists the policies, guidance, and standards that are being, and will be, taken into account in the preparation of the Transport Assessment for the DCO application.

## 2.2 Policies and guidance

2.2.1 This section provides an overview of the key policy documents and guidance, which set the context within which the Project should be considered. Policies and guidance documents considered when developing the assessment are listed in Table 2.1 with a summary describing their contents, purpose, and relevance to the Project.

Table 2.1 National, regional, and local policies and guidance – planning and transport

| Policy / guidance level | Document title | Description / Relevance to the Project |
|---|---|---|
| National | National Policy Statement (NPS) for Water Resources Infrastructure (Defra, 2025) | Sets out the government's policies for the development of nationally significant infrastructure projects for water resources in England, aiming to provide clear national planning policy that assists the examination of applications.<br><br>Regarding traffic and transport matters for such projects, Section 4.14 of the document details requirements for assessment and mitigation of impacts (if required), and outlines decision making criteria including grounds for approval or rejection. |
| | National Planning Policy Framework (NPPF) (Ministry of Housing, Communities & Local Government, 2024) | Sets out the Government's planning policies for England, providing a framework within which locally prepared plans can provide for new developments in a sustainable manner. The principles set out in the NPPF are also relevant for the promoters of specific developments as they inform the range of matters which may be considered by planning authorities in determining an application. |

| Policy / guidance level | Document title | Description / Relevance to the Project |
|---|---|---|
| | | Of most relevance to transport matters for the Project is the 'Promoting sustainable transport' chapter, particularly the section on consideration of development proposals. This section states that developments must: prioritise sustainable transport modes; ensure safe and suitable access for all users; adhere to design standards and guidance including the National Design Guide; and mitigate any significant impacts on the transport network or on highway safety to an acceptable degree with a vision-led approach (NPPF paragraph 115).<br><br>The NPPF stipulates the need for a travel plan and vision-led transport statement / assessment if '*significant amounts of movement'* are generated (NPPF paragraph 118).<br><br>It further states that development '*should only be prevented or refused on highways grounds if they would cause an unacceptable impact on highway safety or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios*'.[1] (NPPF paragraph 116) |
| | Gear Change: A bold vision for cycling and walking (Department for Transport, 2020) | 'Gear Change' outlines an ambitious vision to transform the role active travel can play in transport systems, focusing on making walking and cycling a priority for journeys, with an aim of '*half of all journeys in towns and cities being cycled or walked by 2030*'. |

[1] NPPF, paragraph 116

| Policy / guidance level | Document title | Description / Relevance to the Project |
|---|---|---|
| | | The principles set out in 'Gear Change' are relevant to the Project given that the design seeks to provide a network of paths for use by walkers and cyclists as part of the operational phase. Theme 2 of the document highlights the importance of placing cycling and walking at the centre of transport, place-making, and health policy, emphasising that new developments must integrate cycling into all levels of planning and design. |
| | Second Cycling and Walking Investment Strategy (CWIS2) (Active Travel England, 2023) | CWIS2 outlines the government's ambition to make active travel the natural choices for journeys by making active travel more inclusive and accessible.<br>The inclusion of active travel provision within the design of the Project means that CWIS2 is also relevant as it provides guidance on priorities and approaches to increase the use of active travel modes. |
| | Inclusive Mobility Guide (Department for Transport, 2021) | The guidance promotes best practices for making pedestrian and transport infrastructure accessible to all by addressing barriers, leveraging technology, and engaging with disabled people to create inclusive environments that support full societal participation. It is therefore relevant to the design of the operational phase of the Project, particularly around the network of paths, internal roads, buildings and parking facilities. |
| Regional | Swindon-Didcot-Oxford Connectivity Study, England Economic Heartlands (England Economic Heartland, 2023) | This study supports a set of interventions aligned with the 2021 "Connecting People, Transforming Journeys" strategy, aiming to meet key objectives through a transport framework focused on Net Zero by 2050, inclusivity, connectivity, and efficient movement. |

| Policy / guidance level | Document title | Description / Relevance to the Project |
|---|---|---|
| | | Recommended interventions include improving freight efficiency through private sector partnerships, developing an integrated and cost-effective transport network with better urban bus and cycle routes, and exploring a new station near Wantage and Grove to boost accessibility. These are relevant considerations for the Project when examining how any impacts caused by the Project might be mitigated, or considering whether there are opportunities presented by the Project to support initiatives in the Connectivity Study. |
| Local | Local Plan 2031 Part 1: Strategic Sites and Policies (Vale of White Horse District Council, 2016) | The Local Plan sets out a framework for sustainable development across the district up to 2031. It provides a range of policies with which new development proposals should seek to align and forms a basis against which planning applications are considered.<br>In relation to transport matters for the Project, the Local Plan aims to encourage sustainable transport, reduce the need to travel, and improve accessibility. It includes Core Policy 33, which focuses on promoting sustainable transport and accessibility by ensuring new developments minimise their impact on road networks and support sustainable travel, and Core Policy 35, which promotes public transport, cycling, and walking by requiring developments to be designed for active travel and to include cycle-friendly infrastructure that connects to services and transport hubs. |
| | Local Plan 2031 Part 2: Detailed Policies and Additional Sites (Vale of White Horse District Council, 2019) | The Local Plan 2031: Part 2 builds on Part 1 by providing detailed development management policies, including guidance to ensure transport impacts are properly assessed and safe, and suitable access is |

| Policy / guidance level | Document title | Description / Relevance to the Project |
|---|---|---|
| | | provided. Development Policy 16 outlines requirements for access within proposals, such as accommodating necessary vehicle movements and making off-site improvements to highways, cycleways, public rights of way, and public transport where needed. Development Policy 17 requires major developments to be supported by Transport Assessments and Travel Plans, in line with Oxfordshire County Council and national guidance, with the scope agreed with the County Council as the highway authority. |
| | South Oxfordshire Local Plan 2011-2035 (South Oxfordshire District Council, 2020) | The Local Plan for South Oxfordshire outlines how development, including transport infrastructure, will be planned and delivered, supported by eight strategic objectives covering areas such as housing, economy, infrastructure, and climate change. It is therefore a relevant framework for the design and assessment for the Project.<br>It includes policies aimed at promoting sustainable transport by locating new development near public transport corridors and encouraging walking and cycling, requiring Transport Assessments, Transport Statements, and Travel Plans in line with Oxfordshire County Council guidance, and ensuring that any increase in lorry movements is only permitted where it can be accommodated without causing environmental harm. |
| | Joint Local Plan 2041 (Publication Version, Reg 19) (South Oxfordshire and Vale of White Horse District Councils, 2024) | The Joint Local Plan, currently at the Examination stage, combines policies from both districts' Local Plans to provide a unified approach to sustainable development through to 2041. Like the existing Local Plans, the Joint Local Plan will become the policy basis against which planning applications will be considered |

| Policy / guidance level | Document title | Description / Relevance to the Project |
|---|---|---|
| | | and it is therefore relevant for the Project to consider the themes in the Joint Local Plan.<br>Of particular relevance to transport, Policy IN2 requires development proposals to prioritise active and sustainable travel, minimise car use, and deliver any necessary improvements before occupation, with major developments expected to align with local, regional, and national policies while addressing impacts on road safety, air quality, and transport mode prioritisation. Policy IN3 outlines that new developments must contribute to appropriate transport schemes, including walking and cycling infrastructure, improvements to the Public Rights of Way network, and enhancements to rail and bus connectivity, while also safeguarding land for future transport infrastructure and preventing any reduction in walking and cycling provision. |
| | Local Transport and Connectivity Plan (LTCP) (Oxfordshire County Council (OCC), 2022) | The LTCP sets out a vision for achieving a net-zero and safe transport system in Oxfordshire by 2050, focusing on reducing the need to travel and prioritising walking, cycling, public, and shared transport. It has particular relevance for the design of transport infrastructure and connections for the Project, as it provides context for the longer-term objectives of the County Council.<br>Policy 36 introduces a "decide and provide" approach, where desired outcomes are identified first and then delivered through planning and infrastructure. The LTCP also emphasises early-stage planning aligned with national and local design standards, enhancing walking and cycling infrastructure for seamless connectivity, designing roads |

| Policy / guidance level | Document title | Description / Relevance to the Project |
|---|---|---|
| | | and junctions to prioritise active and sustainable travel, and ensuring convenient links to wider transport systems such as rail stations and park and ride hubs. |
| | Didcot Local Cycling and Walking Infrastructure Plan (LCWIP) (South Oxfordshire and Vale of White Horse District Councils, 2023)<br><br>Abingdon Local Cycling and Walking Infrastructure Plan (LCWIP) (Oxfordshire County Council, 2023) | These plans identify walking and cycling infrastructure improvements for future investment in the short term (to be completed within 3 years), medium term (3-5 years), and long term (over 5 years). It is relevant to the design of the new network of walking and cycling facilities within the Project and the connections between that network and the surrounding area.<br>The LCWIPs prioritise active travel in local planning and transport strategies, aims to reduce reliance on single-occupancy motor vehicles, and supports securing future funding for walking and cycling infrastructure. |
| | Oxfordshire Rail Corridor Study (ORCS) (Network Rail, 2021) | This study evaluates how growth in jobs and housing impacts Oxfordshire's rail network, drawing heavily on local planning documents to shape its projections for rail demand and necessary infrastructure upgrades. The study emphasises the need for improved connectivity between key growth hubs in the County to ensure seamless travel for both commuters and freight traffic. It provides useful context for the considerations about using rail transport for construction materials for the Project. |

## 2.3 Standards

2.3.1 This section lists the key design standards of most relevance to transport which have been, and will be, taken into account and referenced as part of the Project, particularly as part of

proposed new transport infrastructure or changes to existing infrastructure. The standards most directly referenced are listed in Table 2.2.

Table 2.2 Transport standards

| Standards level | Document title |
|---|---|
| National standards | Design Manual for Roads and Bridges (National Highways, various dates) |
| Local standards | Cycling Design Standards (Oxfordshire County Council, 2017a) |
| | Walking Design Standards (Oxfordshire County Council, 2017b) |
| | Parking Standards for New Developments (Oxfordshire County Council, 2022) |
| | Street Design Guide (Oxfordshire County Council, 2021) |
| | Highway Standard Details (Oxfordshire County Council, 2024) |

## 2.4 Guidance

2.4.1 This section lists the key guidance of most relevance to transport which have been, and will be, taken into account and referenced as part of the Project, particularly as part of proposed new transport infrastructure or changes to existing infrastructure. The guidance most directly referenced is listed in Table 2.3.

Table 2.3 Transport guidance

| | Document title |
|---|---|
| National guidance | Local Transport Note (LTN): Cycle Infrastructure Design (Department for Transport, 2020) |
| | Manual for Streets (Department for Transport, 2007) |
| | Manual for Streets 2 (Chartered Institution of Highways and Transportation, 2010) |
| Local guidance | Implementing 'Decide and Provide': Requirements for Transport Assessments (Oxfordshire County Council, 2022) |
| | Road Safety Audits protocol for developer-led schemes (Oxfordshire County Council, date unknown) |

# 3 The Project

## 3.1 Introduction

3.1.1 This section provides an overview of the Project, the known details at this stage and the key transport-related aspects. Further details of the Project are provided within the PEI Report Chapter 2: Project description. Design development is ongoing based on the outcomes from the technical assessments and will also consider feedback from statutory consultation to inform the final designs and support the DCO application. Reasonable alternatives that have been considered are reported in PEI Report Chapter 3: Assessment of alternatives.

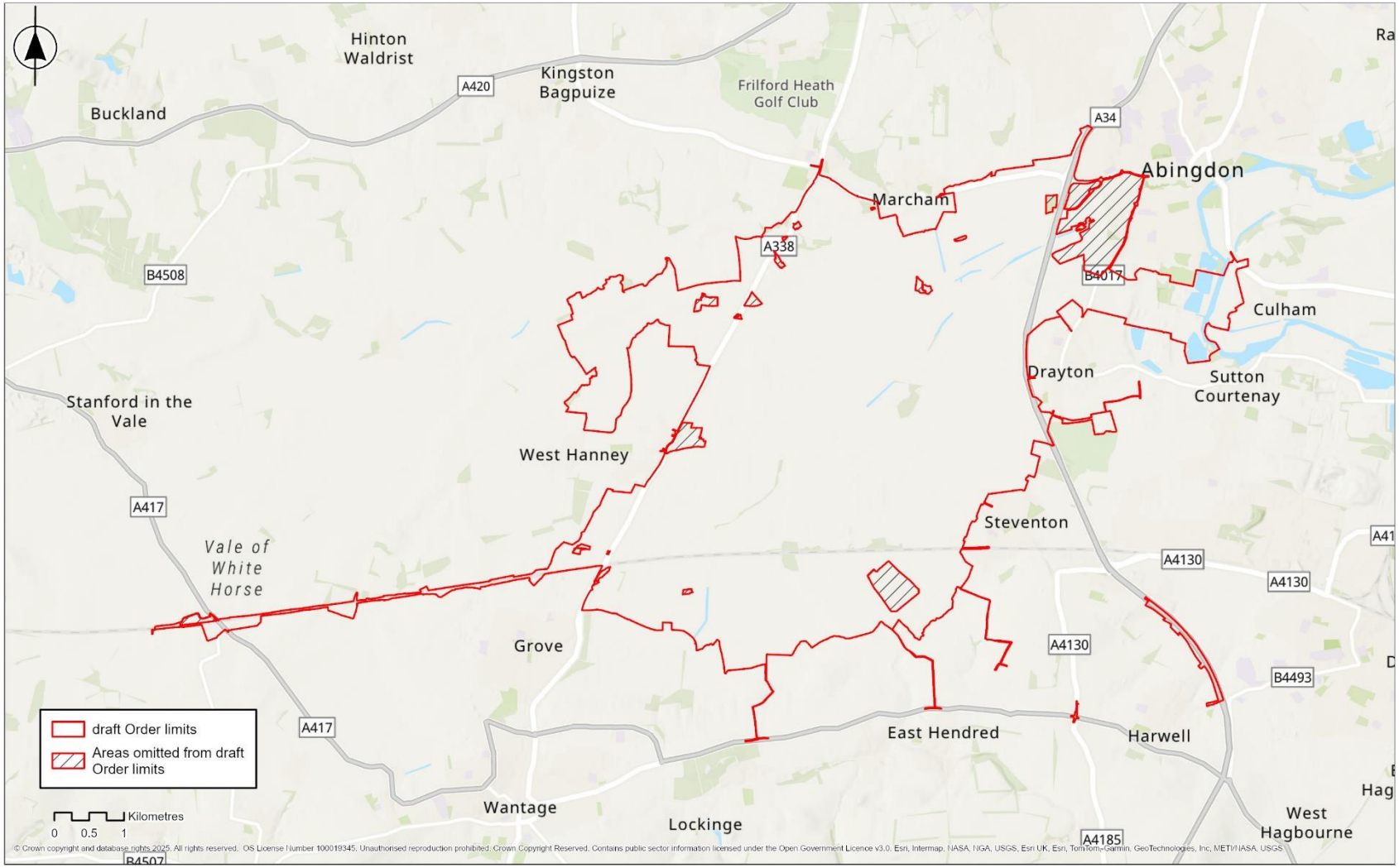
## 3.2 The Site

3.2.1 The proposed location of the Project (referred to as the 'Site') is to the south-west of Abingdon-on-Thames. Other settlements near the Site are Marcham to the north; East and West Hanney to the west; Grove and Wantage to the south-west; and Steventon and Drayton to the east.

3.2.2 The draft Order limits for the Project, shown in Plate 3.1 are mainly within the Vale of White Horse District, with the exception of the far eastern extent on the eastern bank of the River Thames, which falls within the South Oxfordshire District. The Project is situated wholly within the county of Oxfordshire and the highway authority for local roads is Oxfordshire County Council (OCC).

3.2.3 The reservoir and the associated infrastructure would mostly be situated within an area bounded by the A415 and the village of Marcham to the north, the A34 and the village of Steventon to the east, the Great Western Main Line (GWML) railway to the south and the A338 and village of East Hanney to the west. The draft Order limits extend east of the A34 for the intake/outfall tunnel and structure on the River Thames and to the south and west for habitat provision.

Plate 3.1 Draft Order limits



## 3.3 The Project

3.3.1 The purpose of the Project would be to provide a strategic water resource to secure water supply for Thames Water, Affinity Water and Southern Water customers.

3.3.2 PEI Report Chapter 2: Project description provides details of the Project and a summary of the water-related infrastructure as follows:

- Provision of a fully bunded 150 million cubic metres ($Mm^3$) raw (untreated) water storage reservoir.
- A pumping station at the base of the proposed reservoir embankment on the north-east side of the reservoir.
- The river tunnel to transfer flows between the pumping station and the River Thames via intake / outfall structures near Culham.
- The reservoir tunnels to transfer flows between the reservoir and the pumping station.
- Thames to Southern Transfer (T2ST) water treatment works (WTW).
- Sections of pipeline to facilitate transfers from the reservoir to Southern Water via T2ST and Farmoor, and infrastructure to allow connection to future transfer projects.

3.3.3 The proposed non-water resources infrastructure includes:

- Main access road into the Site from A415 Marcham Road.
- Diversion of the existing Steventon to East Hanney Road.
- Public access and parking.
- Minor improvements to highways outside of the Core Project Area, including the A34 Marcham Interchange.
- Two recreational lakes.
- Recreational facilities, including a Recreational Lakes Centre, Water Sports Centre on the reservoir embankment, Nature Education Centre and active travel provision.
- A network of project Priority Areas for Biodiversity (PAB) to provide habitat creation, enhancement or species relocation.
- Watercourse diversions to both the east and the west of the reservoir.
- Provision for the Wilts and Berks Canal, this would be provided as a water channel to allow for future provision of operational features such as locks.
- Additional floodplain conveyance on the east bank of the River Thames and adjacent to the diverted watercourses in the Ock catchment.
- A groundwater drain encircling the reservoir.
- Provision of renewable energy infrastructure including floating solar, solar on structures and hydro-electric turbines. In addition, potential for ground mounted solar is being considered (but for the purposes of the PEI Report is assumed to be included) to replace three existing solar farms that would be lost as a result of the Project.
- Utility diversions, including the diversion of an existing 132kV overhead electricity cable, diversion of an existing gas main near Drayton Road and diversion of an existing gas main to the south of the reservoir embankment which would conflict with the proposed alignment of the Steventon to East Hanney Road diversion.
- Temporary rail sidings will also be required during construction and removed upon completion. Some assets associated with the rail sidings may be adopted by Network

rail for ongoing use and maintenance during operation. An embanked area will be retained to provide landscape and habitat creation.

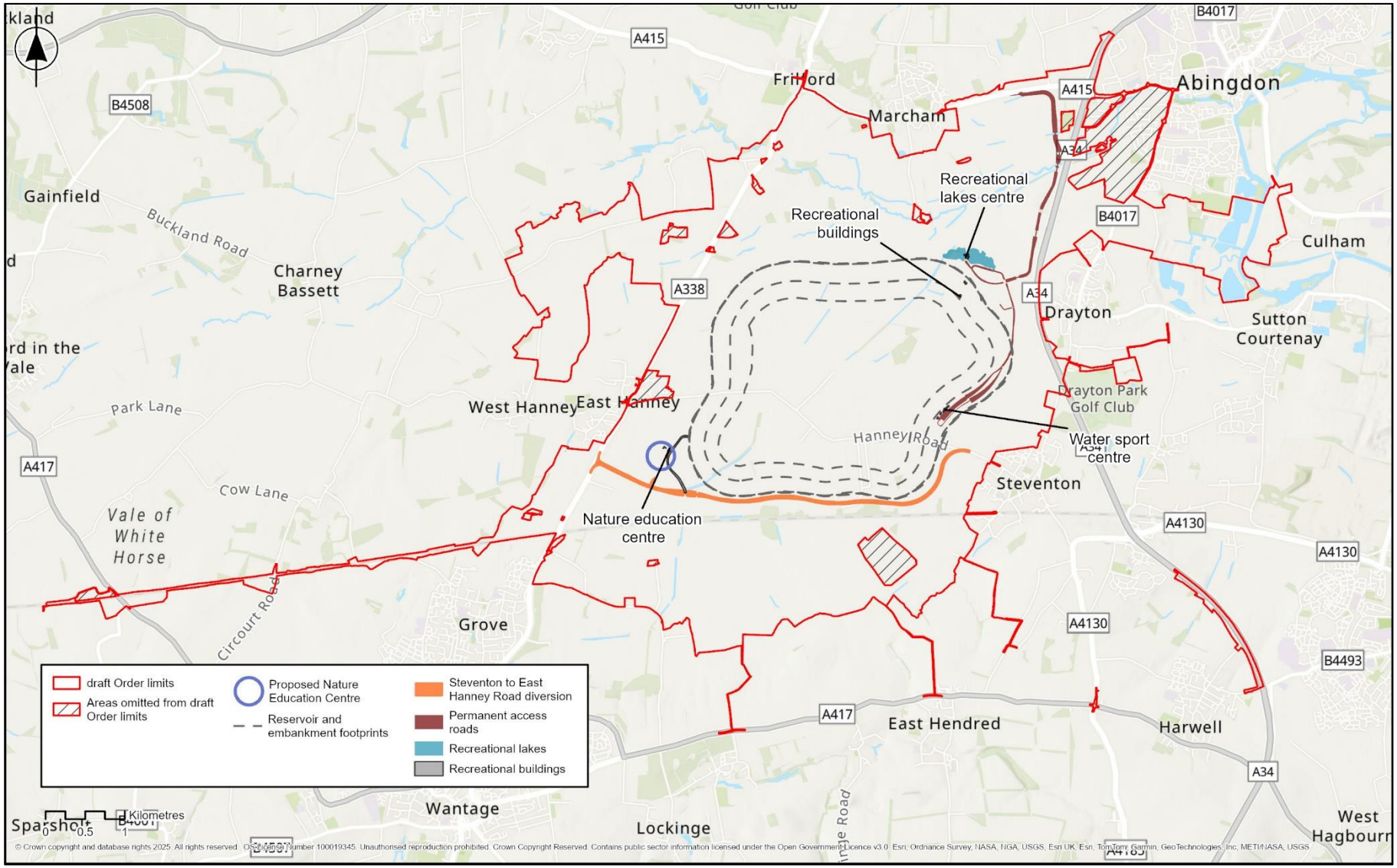
3.3.4 Alongside the Project's functional requirements, the Project vision, together with the design principles, set out a broader vision and strategic design framework that serve to deliver a holistic, coherent design approach, aiming to deliver more than a reservoir; embracing the reservoir's potential as a space for nature and a place for people. The intent behind the latter two aims is summarised below.

3.3.5 As a space for nature, the Project aims to be integrated and sympathetic to local landscape character, connecting buildings with a common architectural style and incorporating planting to create a cohesive, functional, and visually appealing environment. This will include a network of Project PABs that will provide a blend of habitats in alignment with the Local Nature Recovery Strategy (Defra, 2023). The Project PABs will support the movement and survival of protected and priority species, fostering biodiversity and ecological resilience.

3.3.6 As a place for people, the Project aims to support diverse activities that include sailing, water sports, bird watching and active travel. A placemaking and architectural strategy will help to ensure the Project offers inclusive, accessible, and multifunctional recreational spaces for both local residents and visitors, offering opportunities for nature and recreation, contributing to an improved quality of life: a destination with a lasting legacy.

3.3.7 Key recreational areas are arranged into three locations, which are indicated in Plate 3.2:

Plate 3.2 Proposed recreational areas



### Proposed access strategy

3.3.8 The main access to the reservoir for public and workforce vehicles would be via a new road that would tie into the A415 to the West of the A34 Marcham interchange at a new proposed three-arm roundabout.

3.3.9 An additional access would also be provided from the realigned Steventon to East Hanney Road at the south-west corner to serve the Nature Education Centre and associated facilities.

3.3.10 The Project would also provide for internal circulation and movements, including cycle and car parking within the Site and space for deliveries and servicing.

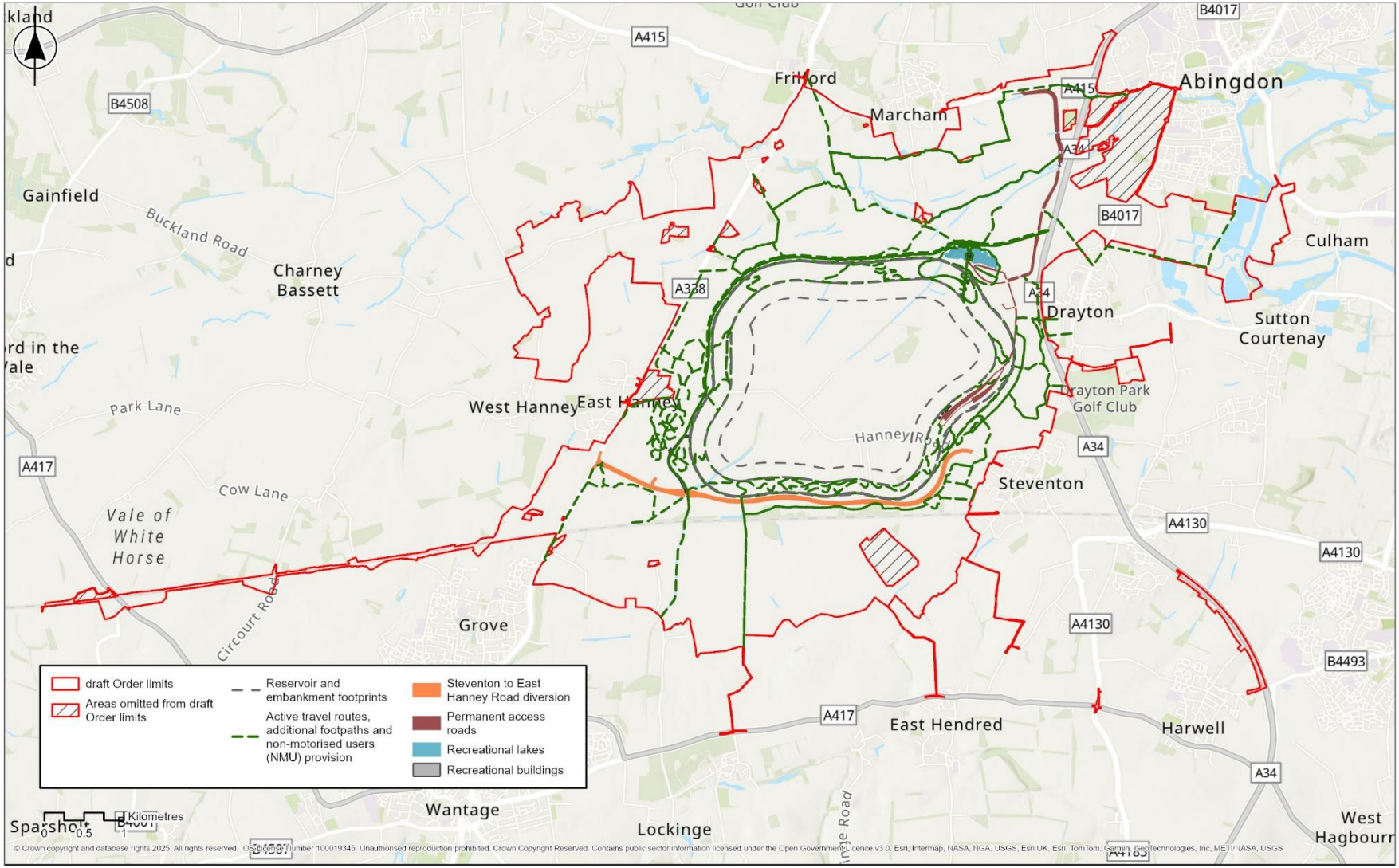
3.3.11 The proposed access strategy is shown in Plate 3.3.

### Public Rights of Way / permissive paths network

3.3.12 The Project would include reprovision of paths for pedestrians, cyclists and horse riders where existing routes are displaced by the reservoir. Temporary diversions would be necessary during the construction of the Project.

3.3.13 The detail of the route and timing of diversions of Public Rights of Way (PRoW) during construction and the PRoW and active travel network during operation will be refined further for the DCO application.

Plate 3.3 Proposed access strategy



### Highways and roads

3.3.14 With the exception of the replacement Steventon Road to East Hanney , there would be no vehicular through-route through the draft Order limits between the A415 and the realigned East Hanney to Steventon Road for the public. Public access into the water sports and recreational lake centres would be via the main access road which would tie into the A415 to the west of the A34 Marcham Interchange. Public access would also be available from the diverted East Hanney to Steventon Road into the Nature Education Centre.

#### *Steventon to East Hanney Road diversion*

3.3.15 The existing Steventon to East Hanney Road is made up of the Steventon Road (to the west) and Hanney Road (to the east). This would be realigned to the north of the Great Western Main Line to ensure connectivity between East Hanney, Steventon and beyond is maintained during construction and operation of the Project. This route alignment was chosen to reduce effects on surrounding sensitive environmental receptors including the North Wessex Downs National Landscape, agricultural land, the historic environment and aquatic receptors.

3.3.16 The route would consist of approximately 5km of new highway with a proposed 3-arm roundabout connecting to the A338 at the western end and merging into the existing alignment on the approach to Steventon village at the eastern end. Noise bunds approximately 4m in height would be provided on the southern side of the new road, as close to the road alignment as possible, in order to mitigate noise from the road to existing receptors including Bradfield Barn (near East Hanney) and residents in Steventon.

3.3.17 The newly diverted road would come into operation whilst the reservoir is under construction and remain in place following completion of the works. It is assumed that the proposed highway would be in full operation prior to any works within the draft Order limits impacting the existing road.

#### *Steventon Road (West)*

3.3.18 Parts of Steventon Road would be lost under the footprint of the Project. The remaining portion of the existing Steventon Road towards the western extent of the draft Order limits, near to the junction with the A338, would be retained to provide access to adjoining properties and residential streets. A turning head would be provided at the point of stopping-up.

3.3.19 The section of the road beyond residential properties would be reinstated on a revised alignment, providing onward walking, cycling and horse riding provision into the Site. A small car park of approximately 25 spaces is to be provided near the point of stopping-up. Two structures would be required to carry the alignment over the western watercourse diversion and Wilts & Berks Canal.

3.3.20 To restrict antisocial parking a traffic regulation order for parking restrictions along the retained section of Steventon Road and potentially surrounding residential street entrances would be applied; they are not proposed to apply to local residents. Other measures could include CCTV, lighting and access control to the proposed car park, increasing security and avoid dark spaces which may provide space for anti-social behavior.

3.3.21 The existing footway close to existing bus stop provision would be extended between the new entrance into the Site and the junction with the A338.

*Railway sidings*

3.3.22 A temporary rail siding would be required to facilitate the delivery of certain materials by rail freight and therefore reduce the total volume of material imported and exported by road. This would incorporate an adjacent material handling area for the loading and offloading of materials.

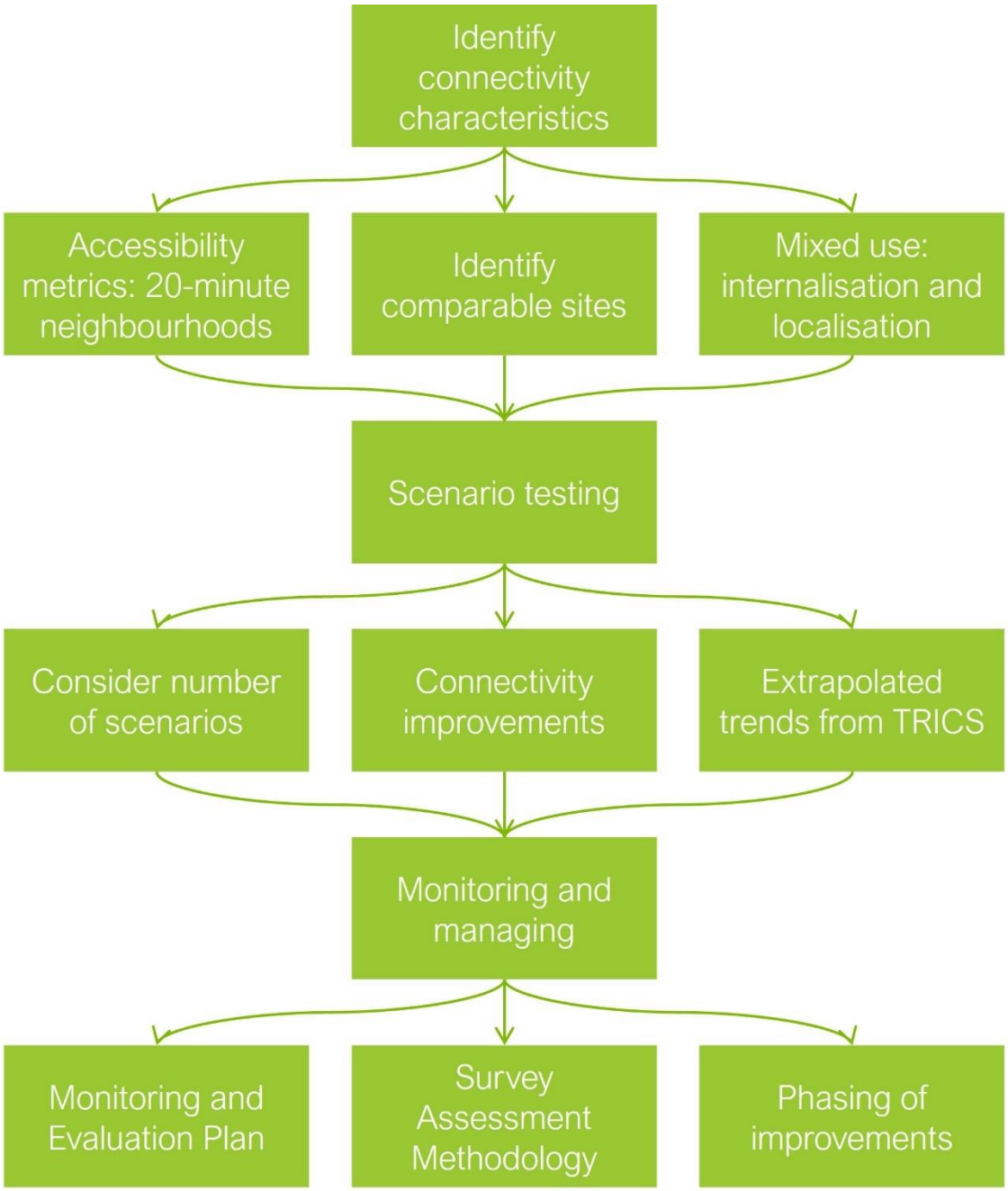
3.3.23 This approach aims to reduce the volume of heavy goods vehicle (HGV) traffic on the surrounding highway network significantly.

## 3.4 Approach to a sustainable transport strategy

3.4.1 A comprehensive sustainable transport strategy is under development and will be further defined for the DCO application.

3.4.2 In keeping with OCC's 'Decide and Provide: Requirements for Transport Assessments' (2022) (see extract in Plate 3.4), the connectivity characteristics of the Site have been examined, including the likely walking and cycling catchments for the Site (taking into account the likely access points and PRoW improvements) and the opportunities to deliver bus improvements to improve overall public transport connectivity.

Plate 3.4 Extract from OCC's Decide and Provide: Requirements for Transport Assessments




3.4.3 The proposed key themes and principles of the transport vision for the Site are summarised in Plate 3.5. These have been discussed with OCC.

Plate 3.5 Proposed themes and principles of transport vision


### Active travel network (walkers, cyclists and horse-riders)

3.4.4 The active travel proposals aim to connect the recreational amenities and reservoir to local villages and the existing PRoW network, and to maintain through routes.

3.4.5 Several PRoW currently run through the Site which cater for a wide range of users (see Section 4.2 and Plate 4.1). Existing routes and, in particular, existing points of access, would be retained where possible.

3.4.6 The majority of active travel routes would be accessible to all users regardless of mobility needs; alternative paths would be available where topographical constraints could render a route unsuitable for inclusive access.

3.4.7 Active travel provision would include:

- An access track around the crest for public recreational use (walking and cycling only) and maintenance and inspection, with multiple accesses to this from approximately each 'corner' of the reservoir.
- Provision for walkers, wheelers and cyclists alongside the Steventon to East Hanney road diversion and horse riders within the main carriageway.
- Provision on the canal towpath for walkers and cyclists, and horses associated with pulling narrow boats if the canal is reinstated for navigation in the future.
- Footway improvements connecting to the Site along Hanney Road in Steventon.

- Improvements to active travel facilities at the A34 Marcham interchange and alongside the A415.
- A range of paths for walking, wheeling, cycling and horse riding connecting into the existing PRoW network surrounding the Project.
- An access track around the crest for public recreational use (walking and cycling only) and maintenance and inspection, with multiple accesses to this from approximately each 'corner' of the reservoir.
- Walking and cycling provision as part of junction designs to ensure safe movement along key routes between nearby settlements and the Project.

3.4.8 Taken together, the network of new pathways would deliver some 90km of active travel routes within the Site. Typically, a 5m maximum width is assumed for pathways, subject to the particular location and intended use of each route. The 5m maximum width allows for overgrowth of planting adjacent to paths as it matures, future boat access/mooring alongside the canal if it is reinstated for navigation, or for additional width adjacent to a vertical feature.

*Canal and watercourse crossings*

3.4.9 New crossings of watercourses will be avoided where practicable, with a preference to use existing crossing points and structures wherever possible.

3.4.10 The access network does however include several crossings of watercourses, together with the canal and towpath. Bridges or culverts would be provided where pathways cross watercourse diversions, canals and ditches. Bridges would be provided on main rivers and watercourses covered by the Water Framework Directive (WFD) Regulations, whereas culverts would be provided across ditches.

3.4.11 Boardwalks would create a network of paths though the wetlands area on the western side of the Site. Most of these would be for pedestrians but further design development may lead to some catering for cyclists and for horse-riders as well due to potential demand from equestrians in East Hanney.

3.4.12 Design of the approach ramps to crossings would take account of inclusive access for wheelchair users and other mobility impairments, access for cyclists and, in some locations, access for horse-drawn carriages. The working assumption is a gradient of 4.5% (1:22) with landings at appropriate intervals to provide users with an opportunity to rest.

*Active travel in road corridors*

3.4.13 The Steventon to East Hanney Road diversion would have a shared cycle track on one side. The new cycle track has a 30kph design speed aimed at road cyclists rather than the slower cycling that would be seen from recreational users on routes around the reservoir area.

3.4.14 A two-way cycle track would also be provided alongside the main access road to the north-east of the reservoir, tying into the shared footway/cycleway that runs along the A415. Table 3.1 below summarises the dimensions for active travel alongside highways, including the distance and separation from the carriageway.

Table 3.1 Dimensions for active travel facilities alongside highways

| Facility | Width | Distance and separation from carriageway |
|---|---|---|
| Footway | 2.0m | 5.0m adjacent to swale<br>8.0m adjacent to cycle track |
| Two-way cycle track | 3.0m | 5.0m adjacent to swale |
| Bridleway | 3.0m | 5.0m adjacent to swale |

### Public transport

3.4.15 Possible improvements to bus services and public transport accessibility are being developed for the operational phase. These may include the extension or diversion of existing bus routes into the Site; new routes to serve the Site and surrounding areas; or improvements to bus service frequencies.

3.4.16 Public transport proposals could aim to connect the Site with key origins and destinations nearby. These include local communities such as Wantage and Grove, the Hanneys, Frilford, Marcham, Drayton, Steventon and the Hendreds, larger urban areas such as Abingdon, Didcot and Oxford, and railway stations such as Didcot Parkway for wider connections.

3.4.17 Provision for pick-up and set-down (and layover if necessary) within the Site could be made for buses and coaches. The possibility of providing an internal public transport service, such as a land train or shuttle bus, could also be investigated. This could help connect people to different amenities within the Site and provide accessibility for people with lower mobility levels.

### Permanent car parking

3.4.18 Two main car parks are proposed to be located to the south-west and north-east of the reservoir (as part of the Nature Education Centre and Recreation Lakes Centre). A further car park would be associated with the Water Sports Centre together with smaller areas of parking distributed around the recreational lakes area (which would be accessed from the main access road) and at the two 'trailheads' at each end of the closed alignment of the Steventon to East Hanney Road.

3.4.19 Table 3.2 identifies the locations of car parks and the number of spaces assigned to each. These numbers are subject to further refinement as the design is developed for the DCO application. Electric vehicle charging would be provided at the main car parks.

Table 3.2 Locations of car parks and the number of spaces assigned

| Location | Approximate number of spaces |
|---|---|
| Recreation Lakes Centre main car park | 400 permanent spaces<br>400 Overflow |
| Recreation Lakes Centre lakeside area | 50 permanent spaces (distributed around the rec. lakes) |

| Location | Approximate number of spaces |
|---|---|
| Water Sports Centre | 200 permanent spaces, overflow accommodated in the boat parking area |
| Nature Education Centre | 100 permanent spaces<br>100 Overflow |
| Trailhead at Steventon | 25 |
| Trailhead at East Hanney | 25 |

# 4 Existing and future baseline transport conditions

## 4.1 Introduction

4.1.1 This section summarises the existing transport conditions surrounding the Site, including pedestrian accessibility, cycle infrastructure, public transport provision and the local highway network.

## 4.2 Active travel

### Walking and Public Rights of Way

4.2.1 The existing PRoW network is shown in Plate 4.1.

4.2.2 A six-day survey in April 2025 captured movements along the PRoW network surrounding the Site at 18 discrete locations and shown in Plate 4.2. The surveys were conducted between the 18th and 23rd April 2025 and coincided with Easter school and bank holidays to reflect a typically busy period for leisure use. The user groups captured in the surveys were:

- Walkers
- Joggers
- Cyclists
- Horse riders
- Farm vehicles
- Motorbikes
- Mobility scooters
- E-scooters

Plate 4.1 Public Rights of Way Map (PRoW)

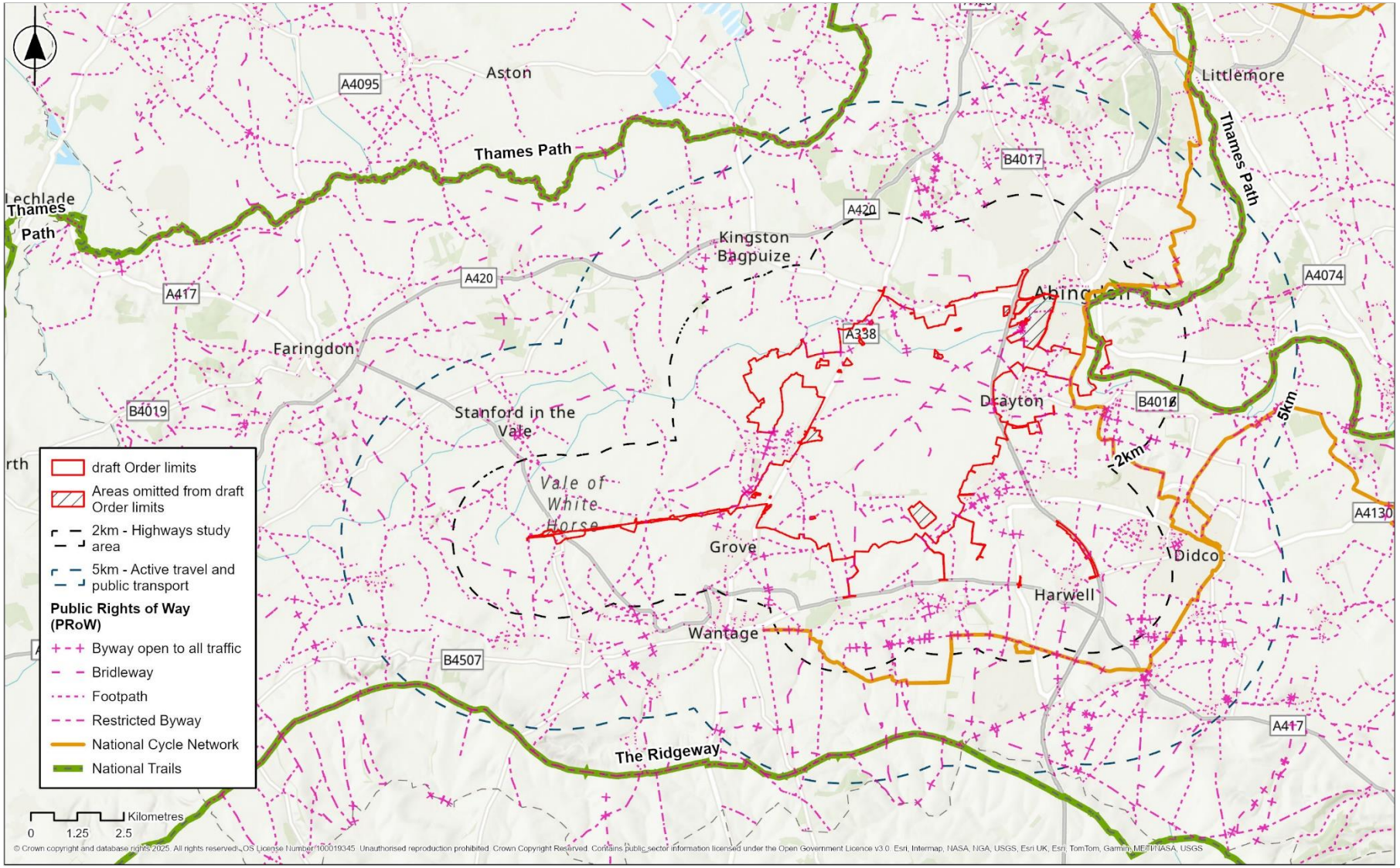
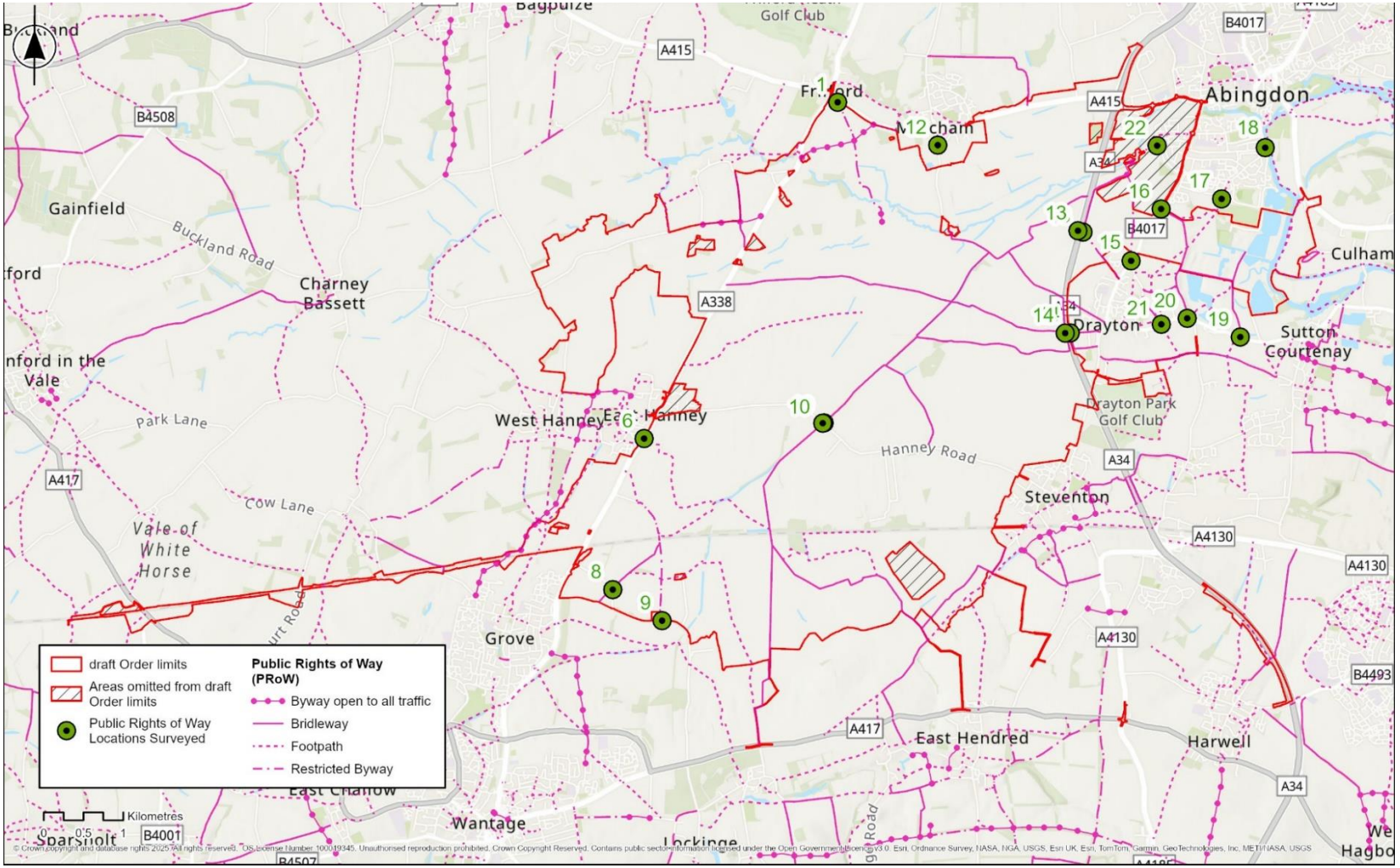


Plate 4.2 PRoW survey locations




Note: Numbered locations missing from the Plate above (locations 2, 3, 4, 5, 7 and 11) were locations originally identified but where data was not actually collected, for example because data could be inferred from other locations or because site conditions precluded data collection.

4.2.3 Table 4.1 summarises the levels of activity observed around the Easter weekend in 2025. Usage was highest during the Easter bank holiday weekend and lower during the week.

4.2.4 The Thames Path (Site 18) was recorded to be the most heavily used of the surveyed sites, with over 480 movements in total on the busiest day and an average of almost 350 users per day across the Easter weekend, indicating high levels of leisure use. Site 19 (NCN5 at Drayton Road) recorded an average of over 200 users per day. Average weekend levels of activity between 100 and 200 users a day were seen at Site 12 (Mill Road south of Marcham), Site 16 (Stonehill Lane at Drayton Road), Site 22 (Mill Road west of Abingdon), Site 17 (close to Abingdon Lawn Tennis Club) and Site 14 (Kiln Lane overbridge at Drayton). Lower levels of usage were recorded at other sites with Sites 6 and 8 recording the lowest levels of use overall with fewer than ten daily users observed.

Table 4.1 PRoW activity, April 2025

| Ref | Location | Average weekday | Average weekend (incl Bank Hols) | Maximum |
|---|---|---|---|---|
| 1 | Restricted byway 293/16/10 | 16 | 25 | 33 |
| 6 | Footpath 198/15/20 | 3 | 3 | 8 |
| 8 | Bridleway 235/9/20 | 0 | 5 | 7 |
| 9 | Restricted byway 285/21/30 | 14 | 9 | 20 |
| 10 | Bridleway 366/4/10 crossing Hanney Road | 5 | 5 | 10 |
| 10 | Hanney Road (east-west movement) | 27 | 82 | 82 |
| 12 | Mill Road (Marcham) | 124 | 193 | 225 |
| 13 | A34 overbridge, restricted byway 192/6/10 | 50 | 77 | 93 |
| 14 | Kiln Lane A34 overbridge, bridleway 192/2/20 (west of bridge, east/west) | 41 | 82 | 103 |
| 14 | Kiln Lane A34 overbridge, bridleway 192/3/30 (west of bridge, north-west / south) | 17 | 31 | 38 |
| 14 | Kiln Lane A34 overbridge, bridleway 192/4/20 (south-west of bridge, north / south) | 10 | 20 | 28 |
| 14 | Kiln Lane A34 overbridge, bridleway 192/2/40 (east of bridge, east / west) | 44 | 99 | 116 |
| 14 | Kiln Lane A34 overbridge, bridleway 192/4/40 (east of bridge, north / south) | 13 | 26 | 33 |
| 15 | Restricted byway 192/7/10 | 13 | 31 | 42 |
| 16 | Bridleway 192/8/10 | 167 | 189 | 195 |
| 17 | Footpath 100/3/20 | 115 | 156 | 174 |
| 18 | Thames Path | 76 | 346 | 484 |
| 19 | National Cycle Network Route 5 | 228 | 227 | 281 |
| 20 | Bridleway 192/8/60 | 20 | 37 | 64 |
| 21 | Bridleway 192/9/40 | 38 | 76 | 115 |
| 22 | Mill Road (Abingdon) | 145 | 181 | 195 |

4.2.5 The area surrounding the Site is covered by a network of strategically significant highway links and local roads connecting towns and settlements including Abingdon, Marcham,

East Hanney and Steventon. Generally, walking networks of footways and pedestrian crossings are provided within the towns to facilitate mostly local, short-distance trips.

4.2.6 On the local highway links connecting the towns and villages, the walking network is more limited and is not comprehensive with some links such as the A338 – directly west of the Site, connecting Frilford, Garford, East Hanney and Grove – having little or no footway provision at all.

4.2.7 With the surrounding highway network being characterised by comparatively high levels of traffic, and the limited provision of walking infrastructure in some places, there are therefore challenges to making trips on foot, particularly between settlements.

4.2.8 However, it is considered likely that there is little existing demand for walking trips between settlements in the areas where footway infrastructure is not provided because of the distances involved. There is no footway provision on Hanney Road across the Site for example, which connects East Hanney with Steventon, but the walking distance between those villages is approximately 75 minutes.

4.2.9 There are several PRoW within and around the Site. A bridleway runs through the centre of the Site, crossing the GWML in the south-west, before heading north- east, crossing Hanney Road and continuing towards the A34 Marcham interchange.

4.2.10 A bridleway runs through the site in the east-west direction providing connection between East Hanney and Drayton. Other public footpaths, bridleways and pathways are located within the Site at the western boundary and within the south-west corner. Two bridleways connect the Site with Drayton to the east via a bridge over the A34 located on Kiln Lane and Barrow Road.

4.2.11 To the east of the Site, on the eastern bank of the River Thames, the Thames Path follows the river from its source in the Cotswolds to London. The trail runs through Abingdon, passing Culham and heading towards London.

4.2.12 A national trail known as The Ridgeway runs several kilometres south of the GWML. Although it does not lie within the Site, it does pass through the North Wessex Downs National Landscape and the Site would be visible from it.

### Cycling

4.2.13 The Abingdon LCWIP (Oxfordshire County Council, 2023) outlines a network of cycling routes within the town, categorised into several types. These include main routes for both walking and cycling that connect key origin and destination locations, routes of local importance that typically link trip generators such as educational institutions and employment centres, and routes that are currently not accessible for walking and cycling.

4.2.14 The Abingdon LCWIP includes several primary and secondary routes within Abingdon itself. Additionally, a primary route is situated north of the Site, extending along Frilford Road.

4.2.15 Much of the cycle network in the area surrounding the Site is dictated by the bridleways crossing the Site. The bridleways crossing the Site connect to a restricted byway, a public byway and the B4017 to the east of the A34, and Ardington Lane and the A417 and cycle route 544 to the south of the railway lines.

4.2.16 Several established cycleways are situated to the east of the Site, providing a connection between the surrounding towns and villages such as the link between Abingdon and Didcot via the B4017 Abingdon Road and Abingdon to Berinsfield and Dorchester-on-Thames via the A415 Abingdon Road. Future cycle routes are also planned, as outlined in the Abingdon LCWIP.

4.2.17 The Didcot LCWIP (South Oxfordshire and Vale of White Horse District Councils, 2023 2024) identifies a network of walking and cycling routes across Didcot and its surrounding areas. These include strategic corridors that connect key destinations such as employment hubs, schools, and transport interchanges, as well as local routes that support neighbourhood-level access.

4.2.18 The Didcot LCWIP outlines several primary and secondary routes within Didcot, including connections to the town centre, Didcot Parkway railway station and key residential and employment areas.

4.2.19 The National Cycling Network (NCN) Route 5 runs north to south connecting Oxford to Didcot and passes to the east and south of Abingdon, close to the river east of Drayton and onwards to Milton. This includes a cycle route connection to Didcot Parkway railway station. Beyond this point, NCN 5 extends towards Reading, while Route 544 heads in an east-west direction towards Wantage. There is also a shared path along the southern edge of the A415, running east-west from Abingdon to Marcham.

## 4.3 Public transport

### Rail

#### *Existing*

4.3.1 There are a number of existing railway stations located to the east of the Site with the potential to provide access by passenger rail. Radley, Culham and Appleford stations are on the Cherwell Valley line and are each approximately five to six kilometres to the east of the Site boundary.

4.3.2 A map of the railways and passenger rail stations in the vicinity of the Site is shown in Plate 4.3

4.3.3 The Cherwell Valley line runs between Banbury and Didcot Parkway via Oxford, which is an important interchange on the GWML, linking services from London to Reading and Oxford, as well as routes to the south-west of England and South Wales. Great Western Railway (GWR) services run in the east-west direction, with the nearest stations being Culham and Didcot Parkway which provides services connecting London, Bristol, Wales and the South West.

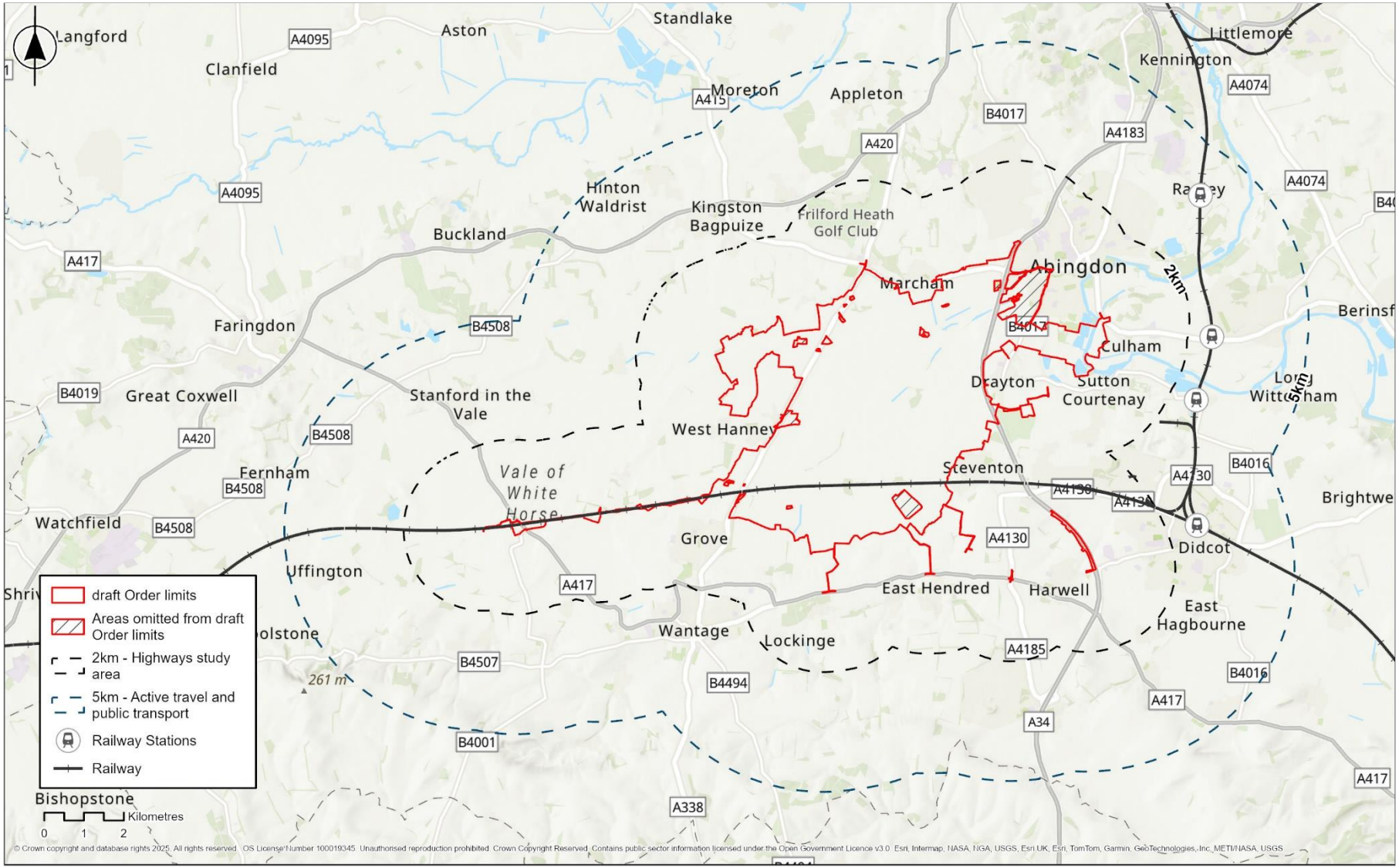
4.3.4 Culham Station is the nearest railway station to the proposed main visitor centre by road, at an approximate distance of 11km. Radley Station lies approximately 12km away, followed by Appleford Station at 13km, and Didcot Parkway at approximately 14.5km.

4.3.5 A summary of the services frequencies at the nearest stations is shown in Table 4.2.

Table 4.2 National rail services and frequencies (July 2025 National Rail timetable)

| Station | Weekday AM 08:00-09:00 Frequency (train / hour) | Weekday PM 17:00-18:00 Frequency (train / hour) | Saturday 12:00- 13:00 Frequency (train / hour) | Sunday 12:00-13:00 Frequency (train / hour) | Main destinations |
|---|---|---|---|---|---|
| Radley | 2 | 2 | 1 | 1 | Oxford, Banbury |
| | 2 | 2 | 1 | 2 | Didcot Parkway (some services extend to London Paddington) |
| Didcot Parkway | 2 | 3 | 2 | 2 | Oxford |
| | 5 | 6 | 7 | 5 | Reading and London Paddington |
| | 1 Chel'ham<br>1 Bristol TM | 1 Chel'ham<br>1 Bristol TM<br>1 Bristol PW | 1 Chel'ham<br>1 Bristol TM<br>1 Bristol PW | 1 Bristol TM<br>1 Bristol PW | Cheltenham, Bristol Temple Meads, Bristol Parkway (for Wales) |
| Culham | 2 | 2 | 1 | 0 | Oxford |
| | 2 | 2 | 1 | 0 | Didcot Parkway |
| Appleford | 2 | 2 | 0 | 0 | Oxford |
| | 1 | 2 | 0 | 0 | Didcot Parkway |

Plate 4.3 Existing railways and passenger rail stations



*Future baseline*

4.3.6 The Oxfordshire Rail Corridor Study 2021 (ORCS) outlined a prospective rail strategy suggesting the need for enhancements in service frequency at certain stations and the need for new stations, including at Grove, although no firm proposals are yet available for such a station. The potential location for Grove Station is to the southwest of the Site, north of the settlement of Grove around the area where the A338 crosses the railway lines.

4.3.7 No other changes to local stations are known at this time. Although rail services may change over time, it is assumed that the current level of service to the nearby stations would remain in place.

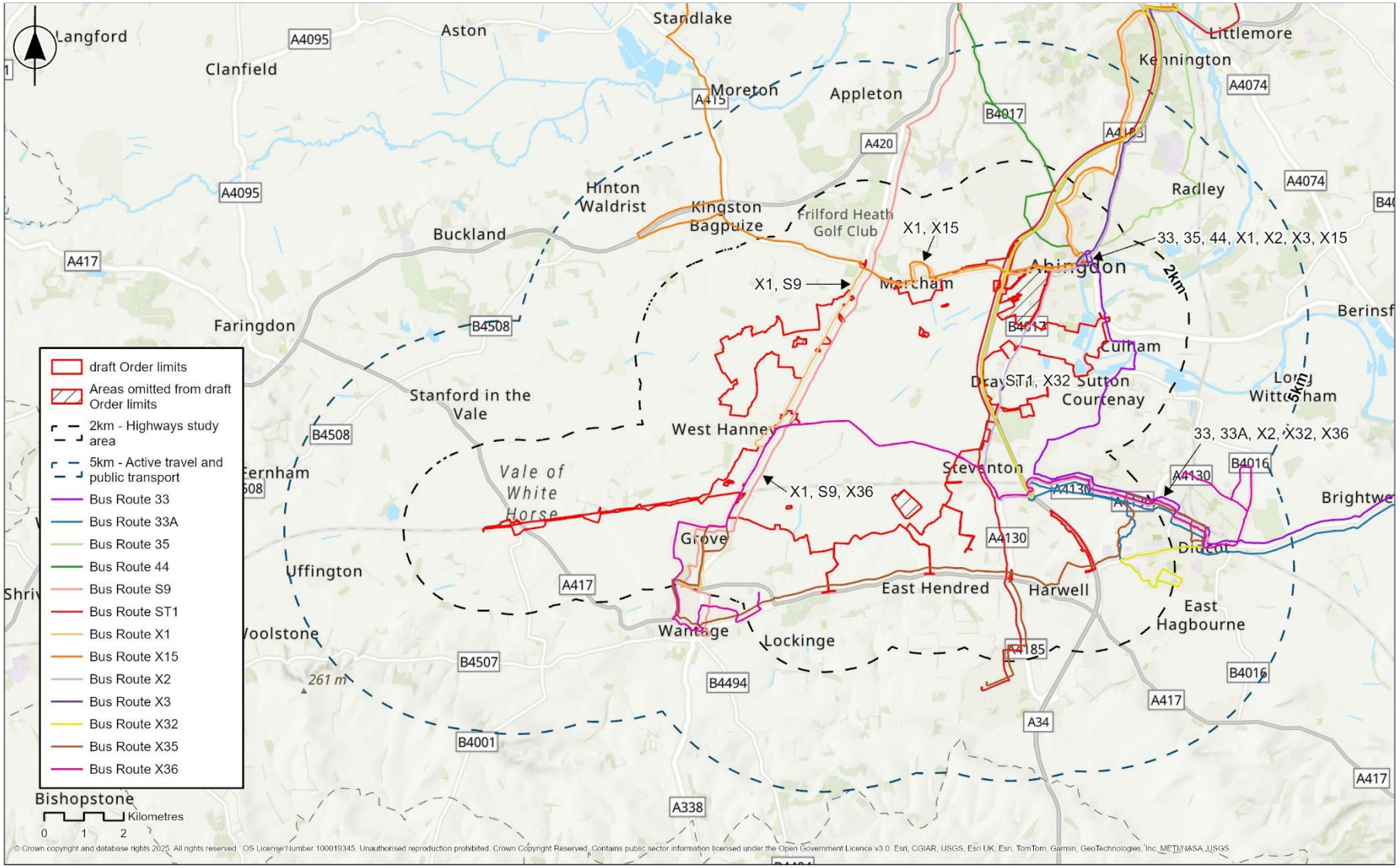
### Bus

4.3.8 Bus services are available near the Site, with routes covering the A415, A338, and B4017, as shown in Plate 4.4. These provide connections locally through Marcham, East Hanney, Grove, Wantage, Rowstock, Steventon, Drayton, Didcot and Abingdon and at a regional level to Oxford and surrounding locations. A summary of the bus services and their frequencies is provided in Table 4.3.

Table 4.3 Bus services and frequencies (July 2025 timetable)

| Route | Route | Days of operation | Weekday frequencies |
|---|---|---|---|
| 15 | Oxford - Witney | Monday to Saturday | One per hour |
| 33 | Abingdon – Milton Park – Didcot – Wallingford – Henley | Monday to Saturday | 1-3 services per hour |
| 34 | Didcot – Chilton – Newbury | Monday to Saturday | 1-2 services per hour |
| X1 | Oxford – Abingdon – Marcham – Wantage | Monday to Sunday | 1 service per hour |
| X2 | Express route connecting towns like Oxford – Abingdon -Didcot | Monday to Saturday | 3 services in the AM and PM peak hours<br>2 services per hour outside of peak hours |
| X32 | John Radcliffe Hospital – Oxford City Centre – Didcot | Monday to Sunday | 1-2 services per hour |
| X36 | Didcot – Steventon – East Hanney – Wantage | Monday to Saturday | 1-2 services per hour |
| 43 | Abingdon – Steventon – Wantage | Monday to Friday | 2 services morning and 2 services afternoon |
| ST1 | Oxford city centre – Rowstock – Harwell | Monday to Friday | 1 regular service per hour; different timetable during school days |
| S9 | Stagecoach connecting Oxford city centre – East Hanney – Wantage Market | Monday to Sunday | 3 services between 08:00-15:00<br>1-2 services per hour outside those hours |

Plate 4.4 Existing bus routes near the Site



## 4.4 Highway network

4.4.1 The Site is surrounded by a comprehensive road network. This includes parts of the Strategic Road Network (SRN) managed by National Highways, such as the M4, M40, and A34 which are high-capacity roads with grade separated junctions. Other regionally significant roads for which OCC is the highway authority include the A420, A40, A415 and A338, which are lower capacity roads with lower capacity at-grade junctions facilitating connectivity within the region.

4.4.2 The existing highway network is shown in Plate 4.5.

### *A415*

4.4.3 The A415 is a primary route in Oxfordshire, connecting Abingdon-on-Thames to Ducklington, near Witney. For its length, the A415 is a single carriageway road, providing a connection between several towns and villages, as well as linking to key regional routes, including the A34 and A40.

4.4.4 Key junctions on the A415 include its intersections with the A34 at Marcham interchange near Abingdon, facilitating north-south travel, and the A40 at Ducklington, providing access to Oxford and Cheltenham. The route also passes through Marcham, with the signal controlled junction at Frilford where the A415 meets the A338 with connections to Oxford, Wantage and further south.

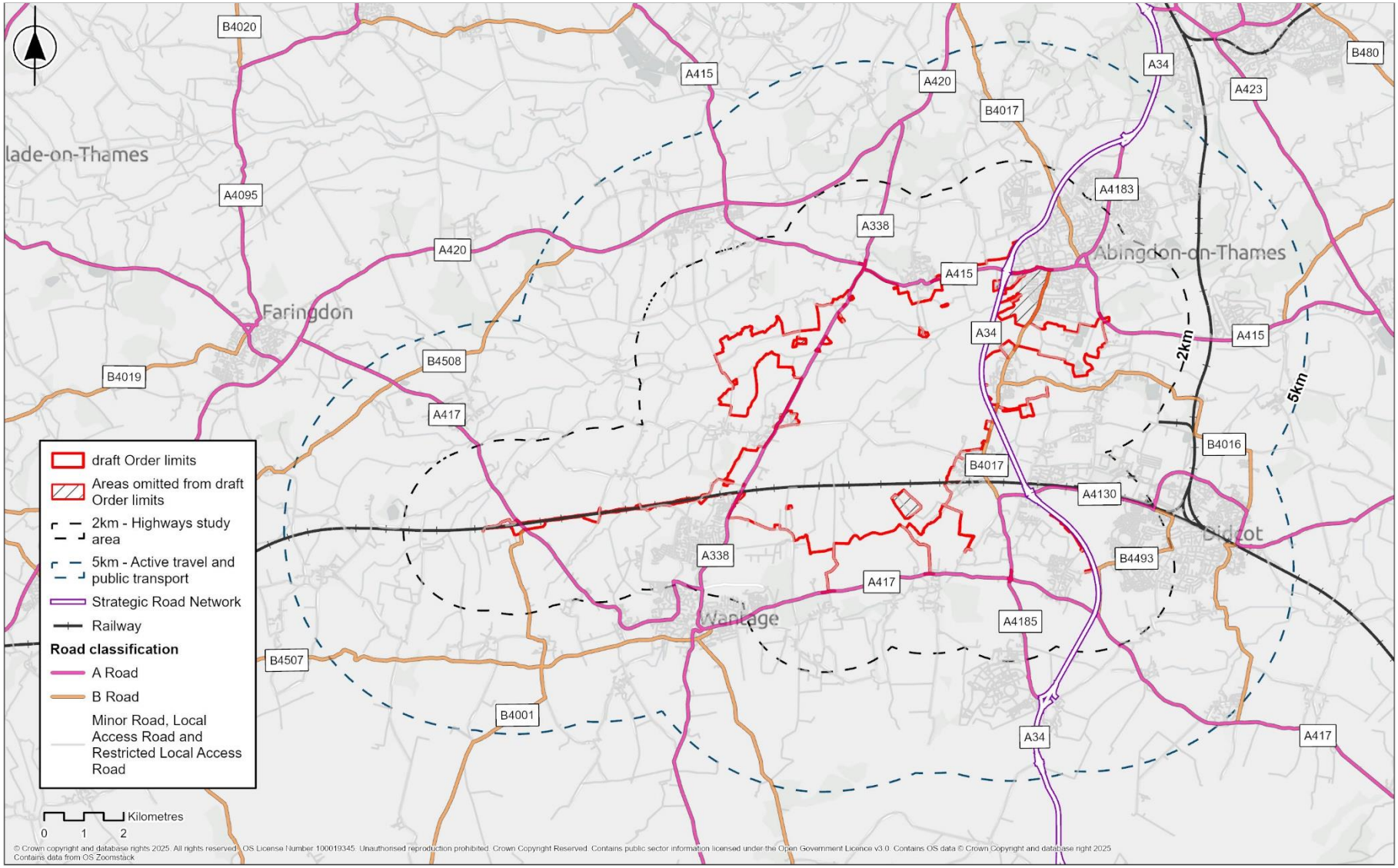
### *A34*

4.4.5 The A34 is a major road that runs from the M3 motorway at Winchester in Hampshire to the A6 at Salford near Manchester, forming a key part of the strategic route between the south coast and the Midlands. Stretching for 209km, the A34 serves as an essential north-south route, providing access to Birmingham, Oxford, Reading, and Winchester. Key junctions along the A34 include Junction 9 at the M40 Wendlebury interchange near Bicester and Junction 13 at the M4 Chieveley interchange near Newbury, which serve as important links to surrounding areas and other motorways. Closer to the Site, the A34 connects with the A415 at the Marcham interchange to the north-west and the A4130 at Milton interchange to the south-east, both of which serve as a primary access points.

### *A338*

The A338 is a significant road through southern England, connecting Bournemouth to Oxford. With a length of approximately 145km, the A338 provides a key route through the counties of Dorset and Hampshire. Important junctions along the A338 include its intersection with the A417 at Grove, which provides access to Wantage and the signal-controlled junction with the A415 at Frilford, as well as connections to major roads like the A31 and the M3, facilitating access to local areas and wider motorway networks.

Plate 4.5 Highway network surrounding the Site



### *A417*

4.4.6 The A417 between Rowstock and Wantage is a single carriageway road, serving as a key link in southern Oxfordshire. It connects Streatley outside Reading to Cirencester and Gloucester, and locally provides connections to residential and employment areas and local villages including Rowstock, East Hendred, West Hendred and Wantage.

### *B4017*

4.4.7 The B4017 between Steventon and Abingdon is a single carriageway road serving as a local distributor route in south Oxfordshire. It connects the village of Steventon to the town of Abingdon via Drayton, providing access to residential areas and linking with the A415 and A34. The route accommodates local traffic and public transport services, with speed limits typically ranging from 30 mph in built-up areas to 50 mph in rural sections.

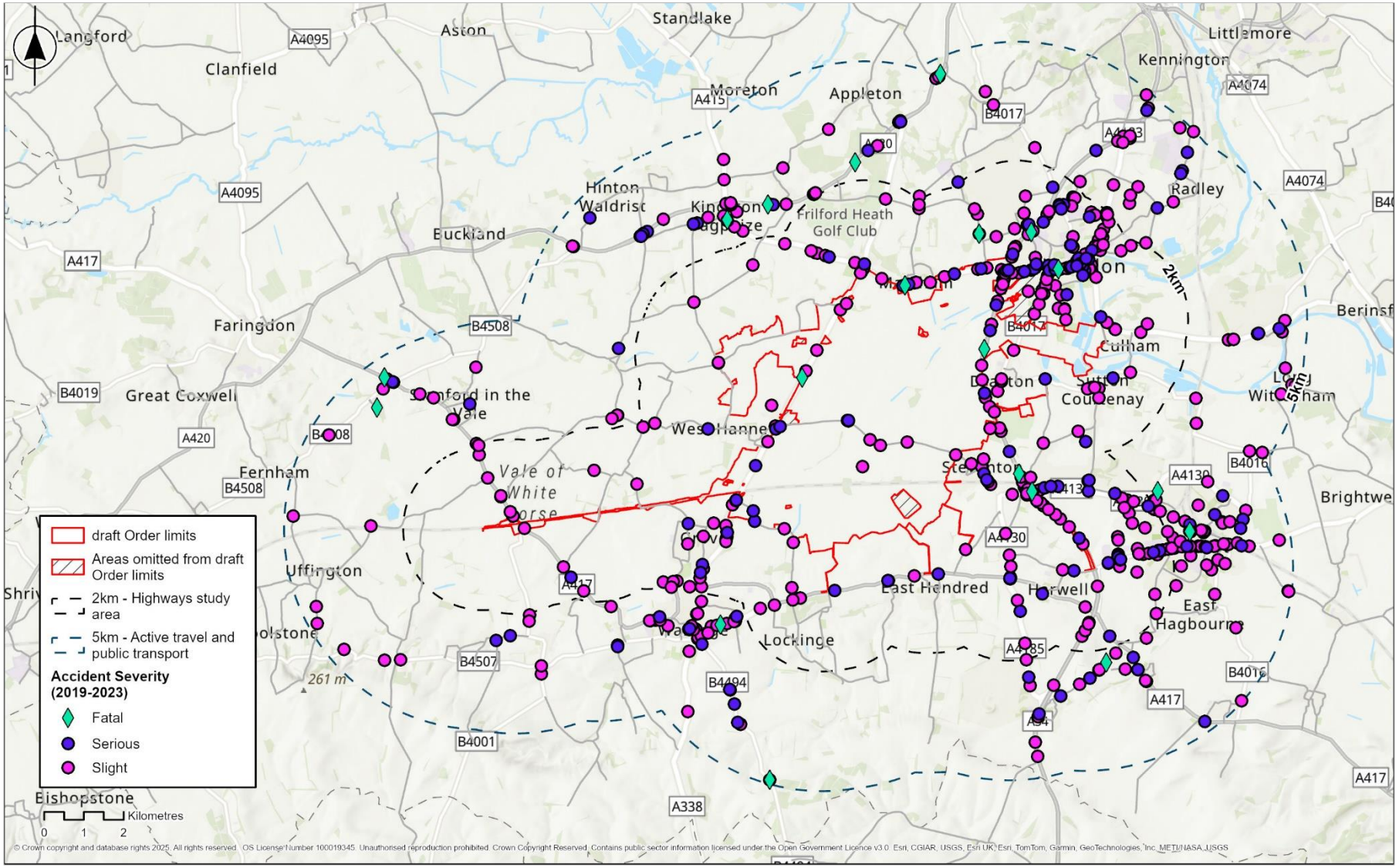
### *Hanney Road*

4.4.8 Hanney Road is a local road which connects the villages of Steventon and East Hanney via a rural single carriageway. It primarily serves local traffic and provides access to surrounding agricultural land and dispersed residential properties.

## Accident analysis

4.4.9 Department for Transport STATS19 road safety data has been examined for the study area for the latest available five years (2019 to 2023). The study area for the reviewed accident data included a 5km radius around the Site and is shown in Plate 4.6.

Plate 4.6 Accidents by severity



4.4.10 The total number of accidents per year within a 5km radius around the Site is summarised in Table 4.4 and the annual average data is shown in Table 4.5.

Table 4.4 Summary of accidents

| Year | 2019 | 2020 | 2021 | 2022 | 2023 | Total |
|---|---|---|---|---|---|---|
| Fatal | 3 | 6 | 2 | 4 | 4 | 19 |
| Serious | 19 | 24 | 35 | 39 | 20 | 137 |
| Slight | 129 | 105 | 91 | 93 | 101 | 519 |
| Total | 151 | 135 | 128 | 136 | 125 | 675 |

Table 4.5 Accident data (average per year)

| Severity | Fatal | Serious | Slight | Total |
|---|---|---|---|---|
| Average per year | 4 | 27 | 104 | 135 |

4.4.11 This shows that on average, 135 accidents per year occurred within the study area over the five-year period. Of these, 104 resulted in slight injuries (77%), 27 resulted in serious injuries (20%) and approximately 4 resulted in fatalities (3%).

4.4.12 The location of accidents suggests that junctions tend to have a higher risk of accidents because of potential conflicts and sensitivity to human error. In particular, Milton interchange near Didcot, the Stratton Way / Stert Street / High Street gyratory in Abingdon, and the Market Place junction in Wantage have higher concentrations of slight and serious accidents.

4.4.13 Accidents are typically clustered in urban areas due to higher vehicle movements and a higher concentration of junctions.

4.4.14 Weather does not seem to be a contributing factor to accidents. Most accidents (84%) within 5km of the Site occurred in fine conditions, 12% occurred during rain, and 1% during fog or mist conditions (the weather conditions for the remaining 3% of accidents were classified as 'Other' or 'Unknown').

4.4.15 Light conditions may be a contributing factor: 23% of accidents within 5km of the Site occurred in darkness, including 14% with street lighting and 9% without.

## 4.5 River Thames navigation

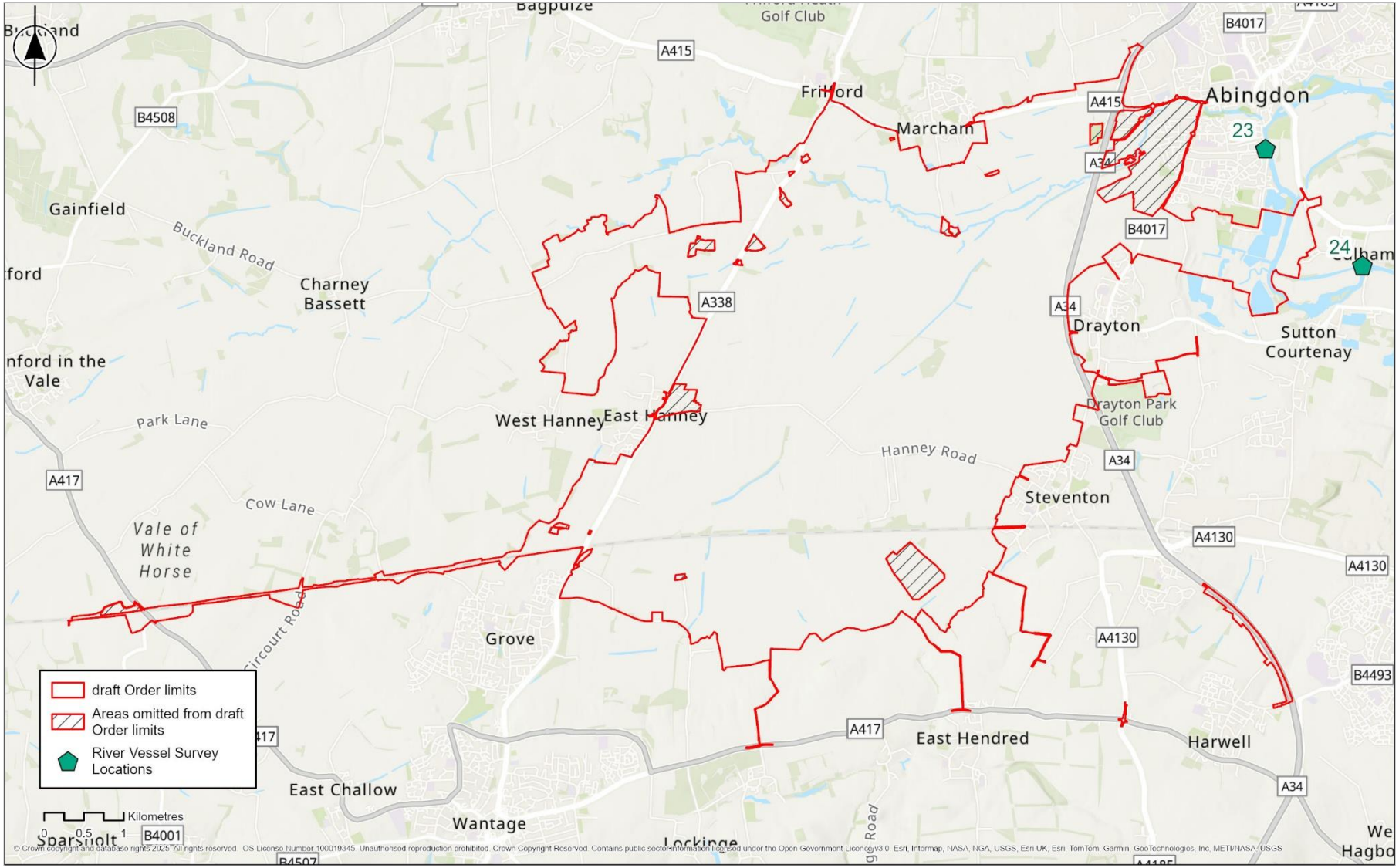
4.5.1 The River Thames is the most prominent navigable river route in the area surrounding the proposed intake/outfall infrastructure for the Project, which lies to the south of Abingdon Marina, where the river measures approximately 40m across.

4.5.2 The River Thames in the area surrounding the Site supports a diverse range of recreational activities, with vessels such as cruisers, barges, streamers, narrowboats, and smaller powered boats.

4.5.3 To understand the volume and frequency of river vessel movements along sections of the Thames close to the proposed Site, surveys were carried out at two locations in April 2025 for six consecutive days (Friday-Wednesday) including the Easter bank holiday weekend, between 07:00 and19:00. One survey was taken between the Abingdon Marina and Nag's

Head Island, and the other survey location was to the east of Culham Lock next to the Tollgate Road bridge, as shown in Plate 4.7.

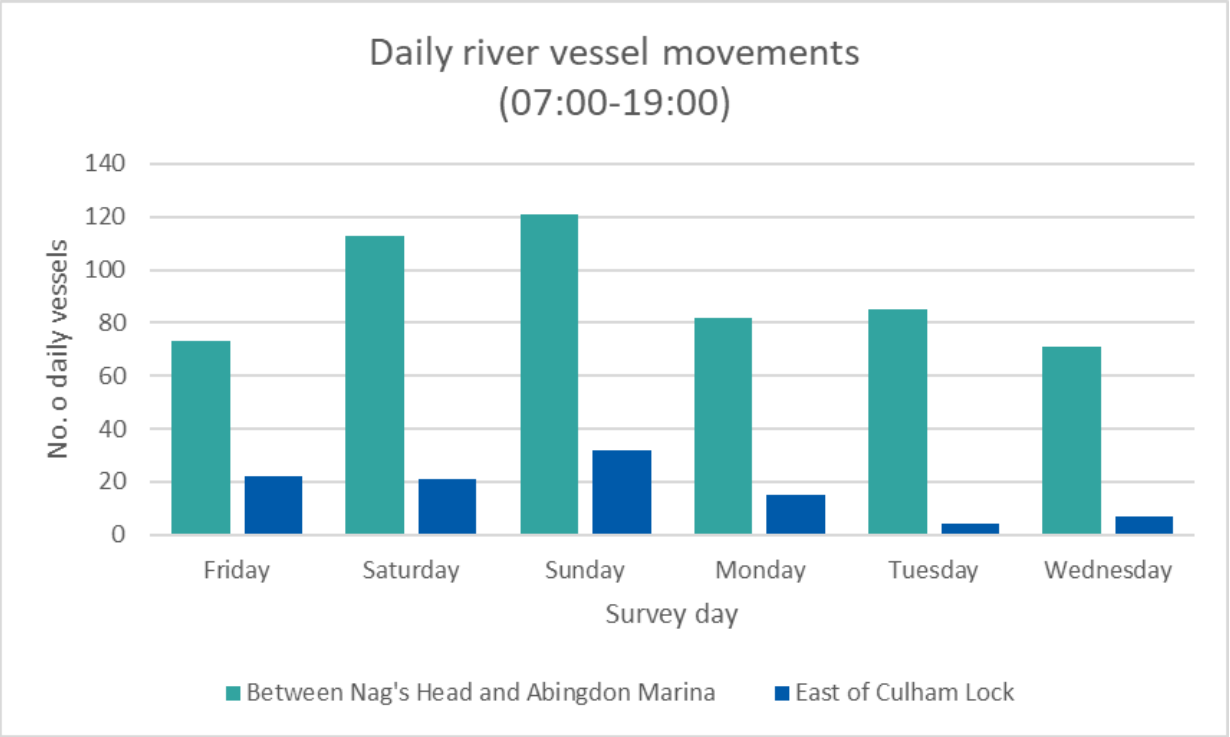
Plate 4.7 River vessel survey locations



4.5.4 Analysis of the two surveys suggests that, in terms of timing, there is a varying daily profile of river vessel movements across the survey days when aggregated by hour, with peaks in the early morning on some days and at midday or in the late afternoon on other days.

4.5.5 In terms of volume of river vessel movements, Plate 4.8 shows the daily river vessel movements captured at the two survey locations between 07:00 and 19:00. The hourly count for each day was calculated on a rolling basis and compared with other survey days to determine the peak of demand. Across the six survey days, the peak hourly count recorded was 49 movements between Abingdon Marina and Nag's Head Island (Wednesday 15:00 to 16:00) and seven movements east of Culham Lock (Saturday 12:30 to 13:30 and Sunday 14:00 to 15:00).

Plate 4.8 Surveyed daily river vessel movements




4.5.6 This analysis of river vessel movements is considered to be representative of a typical week during the spring months, which is likely to be greater than demand during the darker winter months and less than the demand during the summer months.

4.5.7 Other than the River Thames, there are a number of other waterways and rivers in the vicinity of the proposed infrastructure, such as the River Ock, but these are understood not to be navigable for most river vessels.

# 5 Existing traffic network conditions

## 5.1 Introduction

5.1.1 This section outlines the approach to the assessment of traffic conditions, the collection of survey data, the development of future year flows and the forecast conditions on the existing highway network in the future baseline (i.e. the future without the Project).

## 5.2 Highway modelling approach

5.2.1 A two-stage approach is proposed for modelling the assessment of the impacts of the Project on the surrounding highway network. In all cases, multi-modal forecasts will be made of the likely number of trips associated with the construction and operational phases of the Project.

5.2.2 For the assessment of highway operation, a staged approach is proposed, as set out in Table 5.1.

Table 5.1 Highway modelling twin-track approach

| PTAR (statutory consultation) | TA (DCO application) |
|---|---|
| Excel static distribution model | SATURN strategic highway assignment model |
| Junction assessment (Junctions 10 and LinSig) | VISSIM microsimulation model |
| | Junction assessment (Junctions 10 and Linsig) |

5.2.3 This report sets out the results of the junction assessments based on the PTAR approach outlined above.

## 5.3 Modelling approach for DCO application

5.3.1 In discussion with OCC and National Highways both authorities have requested that the assessment is supported by strategic transport modelling. Work to develop a strategic model has commenced and a Model Specification Report has been shared with both OCC and National Highways.

5.3.2 Work to prepare the strategic highway assignment model and the microsimulation model has taken place in parallel with the preparation of the modelling for the PTAR, so that the more detailed models are available for use in the TA which will accompany the DCO application.

5.3.3 For the DCO application the active travel and public transport study areas in the TA are expected to be the same as those in the PTAR. The extent of the highway study area in the TA is expected to be larger than in the PTAR.

5.3.4 The proposed extent of the strategic model is shown in Plate 5.1. The Region of Focus (RoF) will have the highest level of detail, reducing away from this in the Fully Modelled Area (FMA). The external areas of the model will include a representation of the whole of the England road network.

5.3.5 Alongside the strategic model for the DCO application, a VISSIM microsimulation model is proposed along the A415 Marcham Road corridor. The VISSIM study area is shown in Plate 5.2.

Plate 5.1 Strategic model study area for the TA to support DCO application

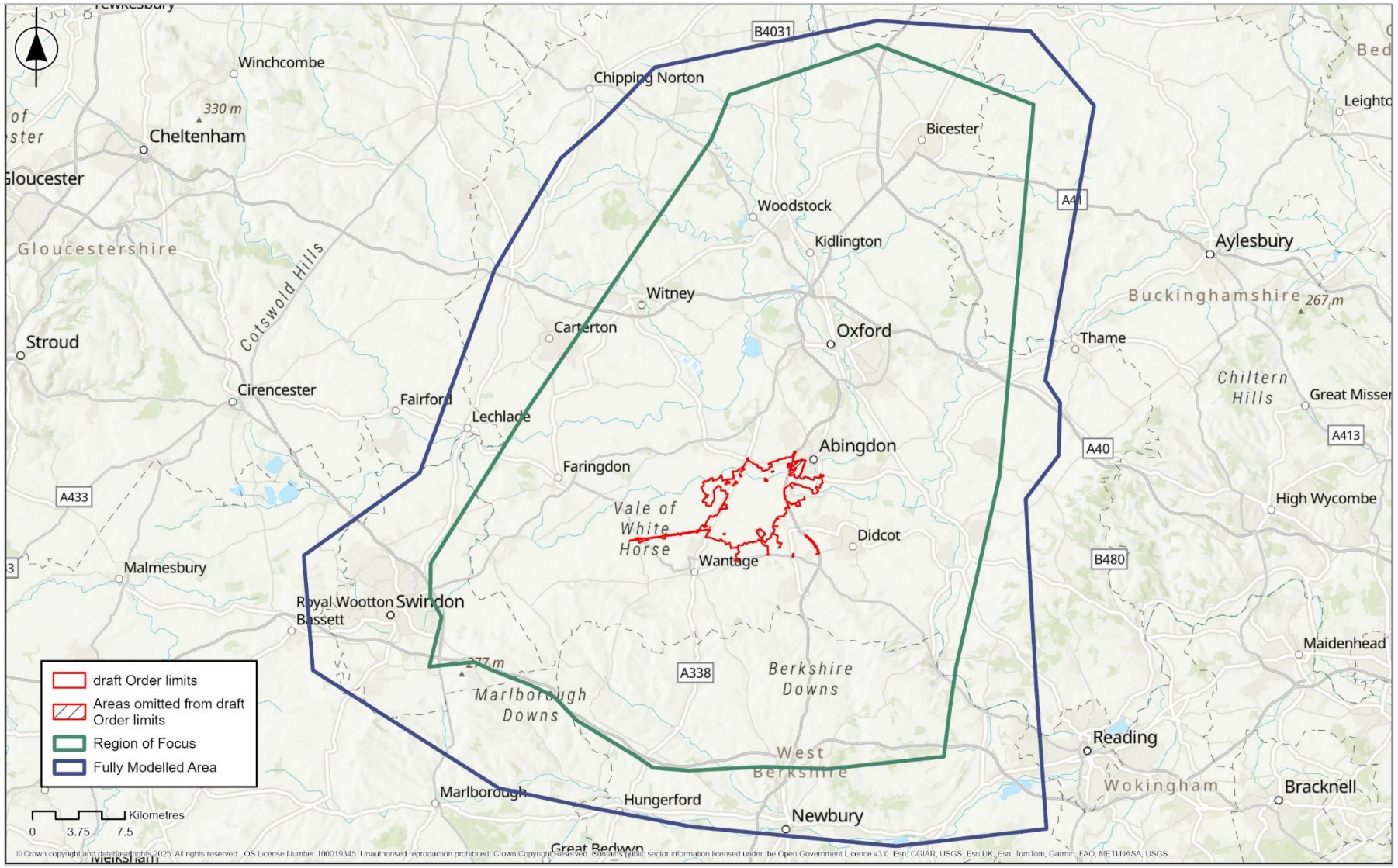
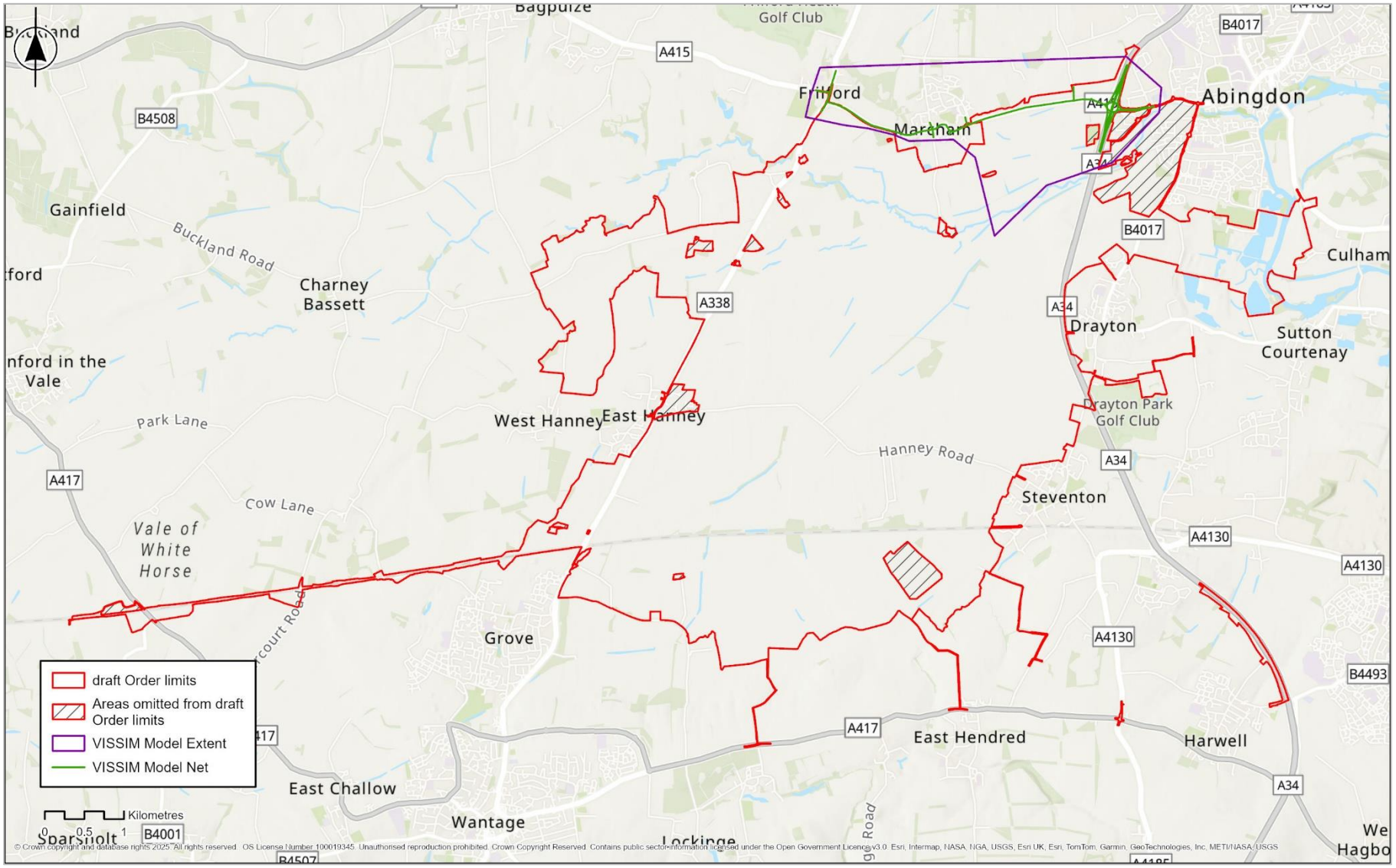


Plate 5.2 VISSIM model study area for the TA to support DCO application



## 5.4 Study area and data collection

5.4.1 Based on the local and strategic highway network and forecast construction and operational trip distribution, for the PTAR the study area is approximately 2km around the draft Order limits boundary, where the effects of additional trips arising from the Project are likely to be the greatest. The study area is shown in Plate 5.3.

5.4.2 Traffic surveys of the sites identified were undertaken in November 2024 at the sites shown in Plate 5.4.

5.4.3 Further traffic and active travel data collection was undertaken in July 2025 to support the development of the strategic and microsimulation models. The scope of the further surveys is shown in Plate 5.5.

Plate 5.3 Highways study area (2km)

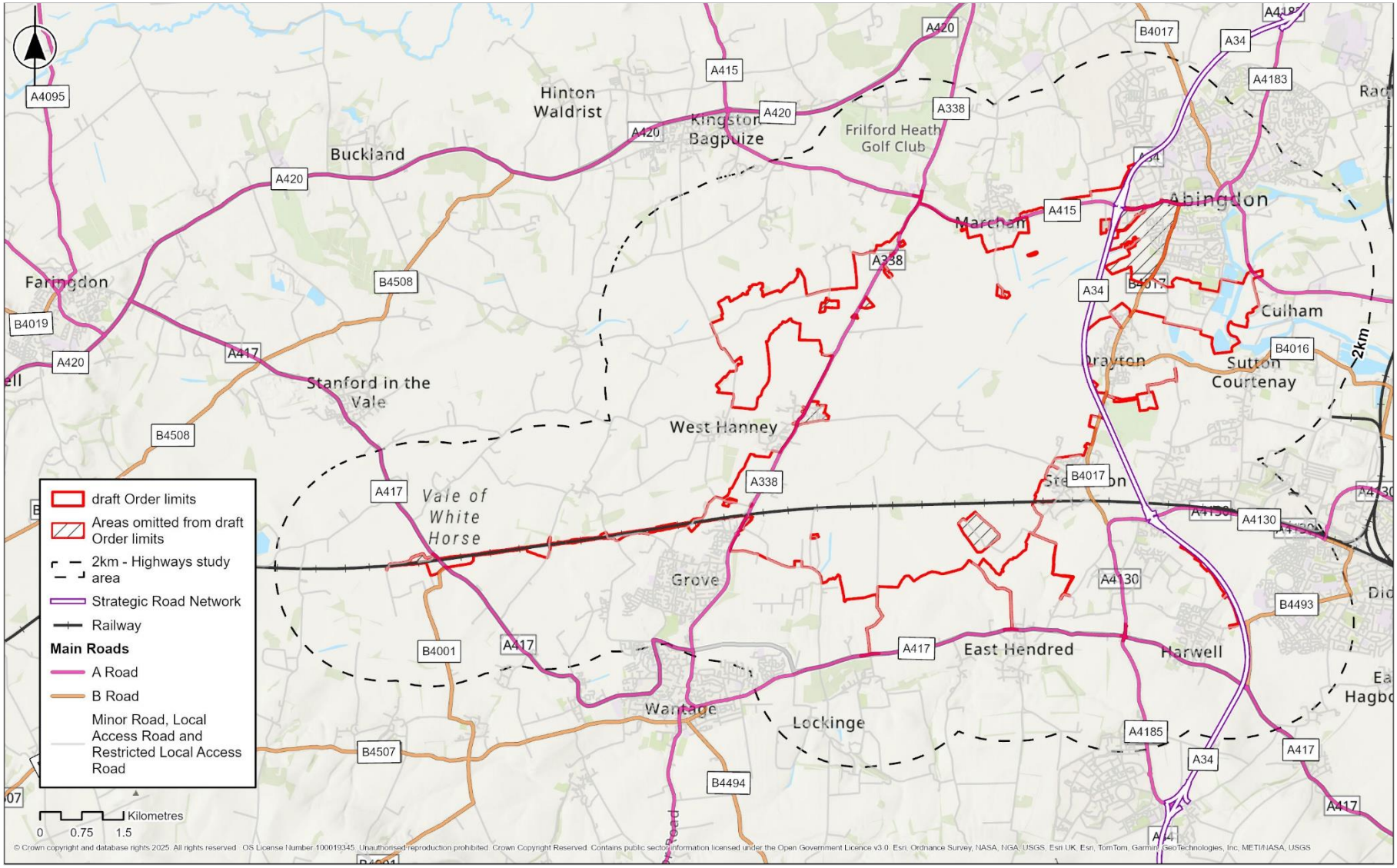


Plate 5.4 Traffic survey sites November 2024

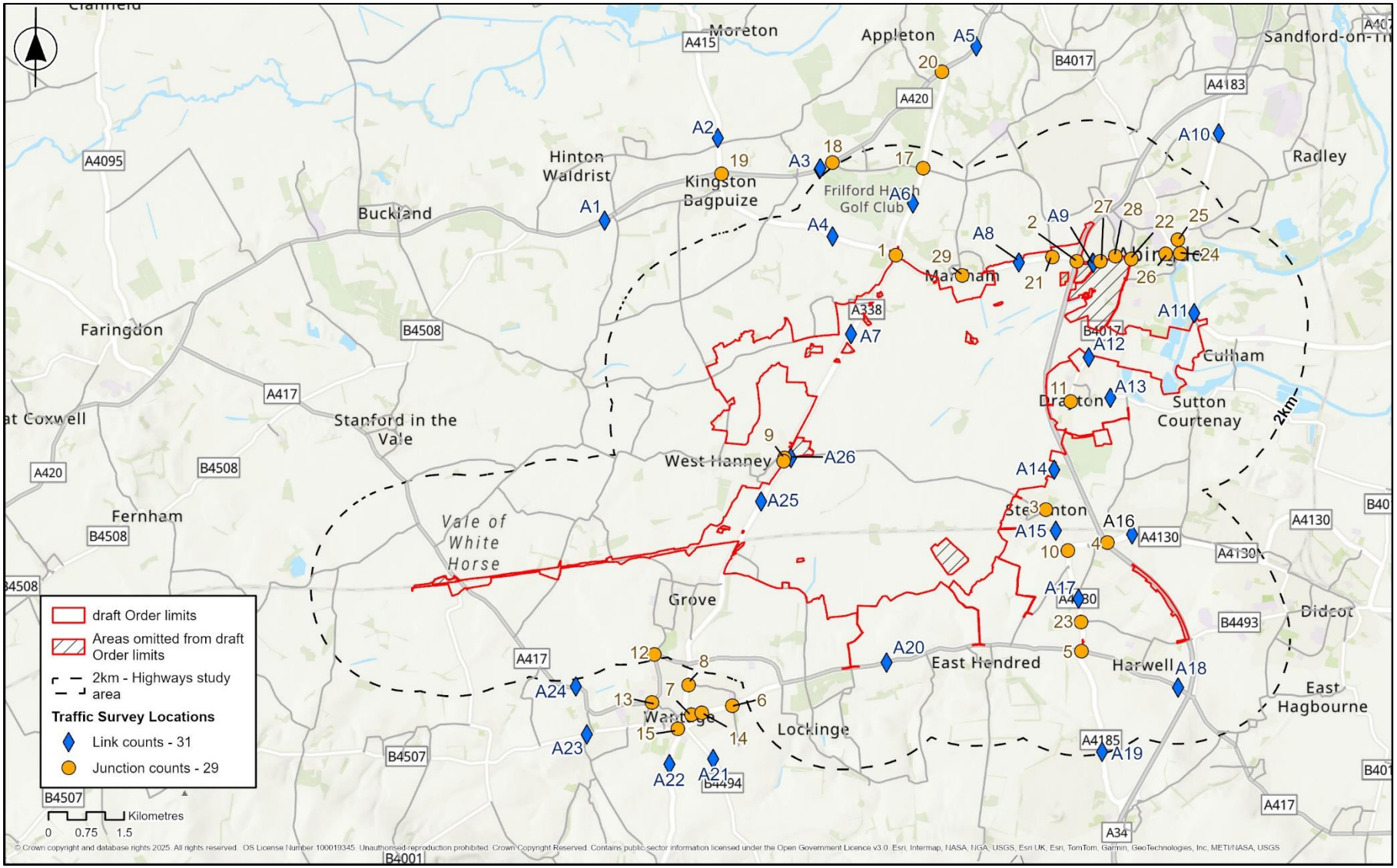
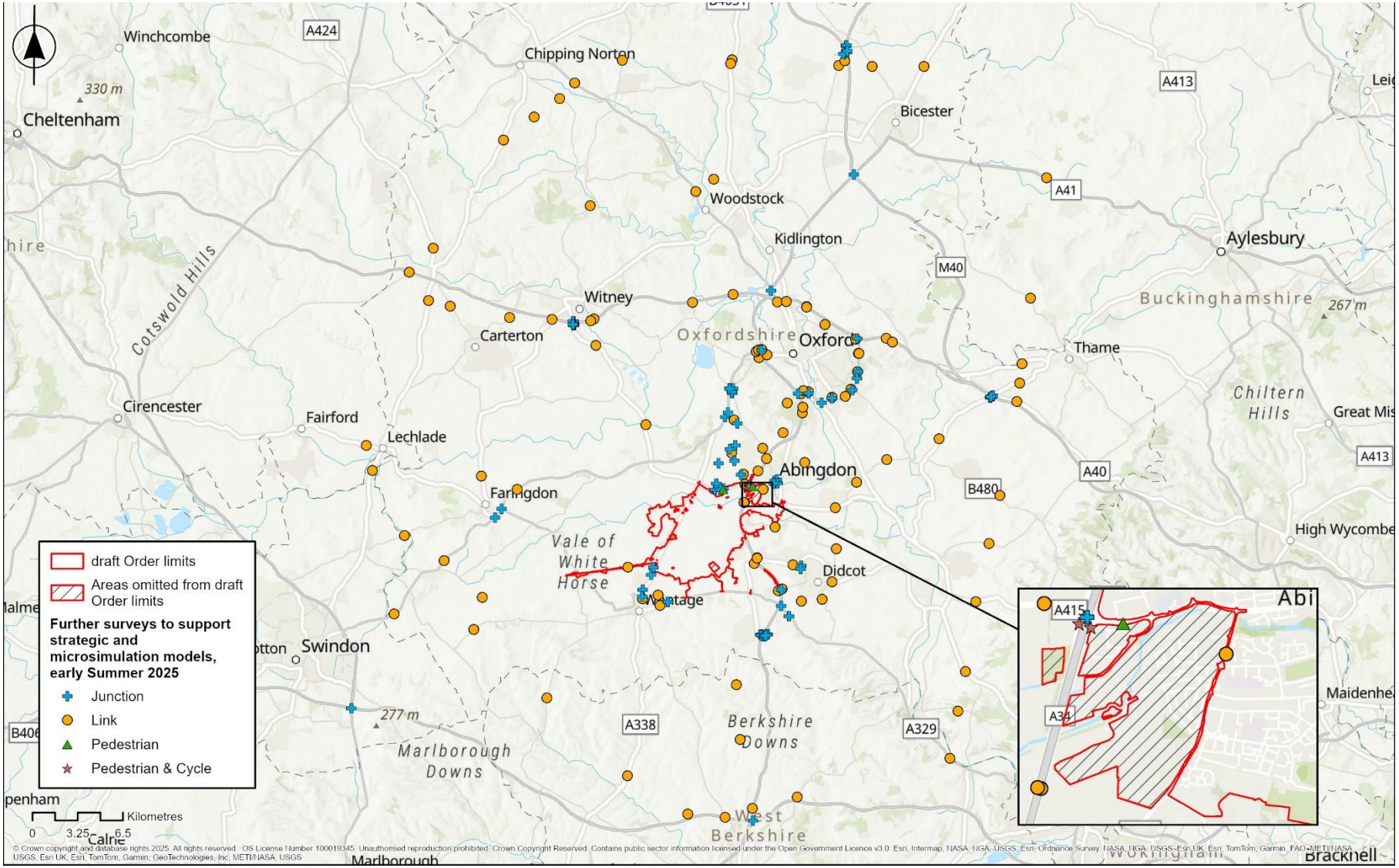


Plate 5.5 Further surveys to support strategic and microsimulation models, July 2025



## 5.5 Assessment years and scenarios

### PTAR

5.5.1 The assessment scenarios for the PTAR examine:

- The anticipated peak year of construction activity (in terms of construction traffic generation), which is currently expected to be 2036.
- The first year in which the full annual visitor numbers are achieved, which is expected to be in 2043, three years after the 'Water Available for Use' date is expected to be achieved.

5.5.2 The scenarios tested in the PTAR are therefore:

- Existing baseline 2024
- Future baseline 2036
- Future baseline 2036 + peak project construction
- Future baseline 2043
- Future baseline 2043 + project operation

5.5.3 The peak hours for the assessments are set out below, based on the observed highway network peaks from the November 2024 traffic surveys:

- Weekday AM peak: 07.30 to 08.30
- Weekday PM peak: 16.15 to 17.15
- Saturday peak: 11:30 to 12:30

## 5.6 Junction modelling parameters

5.6.1 Traffic flow data was entered into junction capacity models in Passenger Car Units (PCUs), a measure used to represent highway capacity for modelling purposes. Different vehicles are assigned different PCU values related to the volume of road space they occupy, as shown in Table 5.2.

Table 5.2 PCU factors

| Vehicle type | PCU value |
|---|---|
| Pedal Cycle | 0.2 |
| Motorcycle | 0.4 |
| Car | 1.0 |
| Medium Goods Vehicle | 1.5 |
| Heavy Goods Vehicle | 2.3 |
| Bus/PSV/Coach | 2.0 |

5.6.2 Signalised junctions were modelled using LinSig which is industry standard software for the modelling of signalised junctions and junction groups. The software replicates the operation of traffic signals to predict capacity. Peak hours are modelled with results in the form of

Degree of Saturation (DoS, %), Mean Maximum Queue (PCUs) and average delay per vehicle (seconds). The DoS value provides a measure of how close to capacity the junction is operating;

5.6.3 Priority controlled junctions (roundabouts, mini-roundabouts, T-junctions and crossroads) were modelled using Junctions 11, which is industry standard software for the modelling of priority controlled intersections. The software uses geometric parameters to predict capacity. The results are in the form of Ratio of Flow to Capacity (RFC, %), Queue (PCUs) and average delay per vehicle (seconds).

5.6.4 In each case, the RFC or DoS value provides a measure of how close to capacity the junction is operating; a value of less than 100% indicates that traffic flows are within the capacity of the junction to accommodate them.

## 5.7 Existing (2024) traffic modelling

5.7.1 Based on the November 2024 traffic surveys, baseline junction models were produced.

5.7.2 The worst performing arm (RFC or DoS) at each site has been reported for each time period as an indication of junction reserve capacity (i.e. unused capacity). The results are contained in Table 5.3.

5.7.3 With reference to the locations shown on Plate 5.4, Junction 13 was not included in the base modelling scenarios as the initial assessment indicated that no Project construction or operational traffic was likely to use this junction. The Junction 16 reference was not used and is therefore omitted from the list. Junction 21 is included in the base case but would be replaced by the proposed access junction in the future scenarios with the Project.

Table 5.3 Existing traffic model results, greatest RFC or DoS per time period

| Ref (see Plate 5.4) | Description | Existing (RFC / DoS): 2024 | | |
|---|---|---|---|---|
| | | AM Peak | PM Peak | Saturday |
| J1 | A338 Oxford Road / A415 Frilford Road, Frilford | 82% | 74% | 73% |
| J2 | A415 / A34 Marcham interchange | 72% | 69% | 51% |
| J3 | B4017 High Street / Hanney Road, Steventon | 41% | 35% | 35% |
| J4 | A4130 / A34 Milton interchange | 73% | 85% | 64% |
| J5 | A4130 Abingdon Road / A417 Reading Road, Rowstock | 62% | 62% | 29% |
| J6 | Charlton Village Road / A417 Reading Road , Charlton | 101% | 79% | 79% |
| J7 | Seesen Way / A417 Wallingford Street, Wantage | 51% | 84% | 62% |
| J8 | A338 Grove Street north / Harcourt Way, Wantage | 78% | 81% | 63% |
| J9 | Crown Meadow (A338) / The Green and Main Street, East Hanney | 50% | 39% | 54% |
| J10 | A4130 Abingdon Road / B4017 High Street, Steventon | 76% | 75% | 56% |
| J11 | B4107 Abingdon Road / High Street, Drayton | 65% | 59% | 58% |
| J12 | Malby Way / Denchworth Road, Wantage | 53% | 60% | 29% |

| Ref (see Plate 5.4) | Description | Existing (RFC / DoS): 2024 | | |
|---|---|---|---|---|
| | | AM Peak | PM Peak | Saturday |
| J14 | Garston Lane / Charlton Rd, Wantage | 85% | 84% | 88% |
| J15 | A338 Newbury Street / B4507 Ormond Road, Wantage | 93% | 64% | 57% |
| J17 | A338 Oxford Road / Abingdon Road, Frilford Heath | 84% | 70% | 59% |
| J18 | A420 / Abingdon Road, Tubney | 52% | 53% | 33% |
| J19 | A420 / A415 Witney Road, Kingston Bagpuize | 66% | 72% | 40% |
| J20 | A420 / A338 roundabout, Tubney Wood | 76% | 66% | 40% |
| J21 | A415 Marcham Road / Faringdon Road | 77% | 69% | 56% |
| J22 | Spring Rd / Ock Street, Abingdon | 80% | 98% | 82% |
| J23 | A4130 Abingdon Road / Grove Road, Rowstock | 61% | 34% | 26% |
| J24N | High Street / Stert Street, Abingdon | 16% | 19% | 22% |
| J24S | Stert Street / Bridge Street, Abingdon | 26% | 13% | 16% |
| J25 | A415 Stratton Way / A4183 Vineyard, Abingdon | 54% | 40% | 38% |
| J26 | A415 Stratton Way / A415 Ock Street, Abingdon | 95% | 88% | 84% |
| J27 | A415 Marcham Road / Nuffield Way, Abingdon | 59% | 68% | 78% |
| J28 | A415 Marcham Road / Colwell Drive, Abingdon | 87% | 76% | 90% |
| J29 | A415 Frilford Road / Mill Road, Marcham | 12% | 17% | 12% |

5.7.4 Seven of the sites above include one or more peak hours with saturation levels of 85% or greater. These sites have been reported below in more detail.

### J4: A4130 / A34 Milton interchange (traffic signals)

5.7.5 At this five-arm, grade separated signalised junction Park Drive was approaching capacity in the PM peak hour at 85% saturated while the A4130 east and the A34 southbound off-slip were both 84% saturated in the same PM peak hour.

Table 5.4 Basline modelling results: Milton interchange

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | DoS | Queue | DoS | Queue | DoS | Queue |
| 1 | Park Drive | 73% | 11 | 85% | 19 | 39% | 5 |
| 2 | A4130 east | 73% | 17 | 84% | 21 | 64% | 17 |
| 3 | A34 NB offslip | 55% | 13 | 55% | 7 | 44% | 5 |
| 4 | A4130 west | 71% | 13 | 52% | 9 | 45% | 9 |
| 5 | A34 SB offslip | 71% | 19 | 84% | 27 | 63% | 18 |

### J6: Charlton Village Road / A417 Reading Road, Charlton (dual mini-roundabout)

5.7.6 This dual mini-roundabout was operating at capacity in the AM peak hour with the A417 Charlton Road operating with an RFC of 101%. Capacity was available on other arms of the junction at that time.

Table 5.5 Basline modelling results: Charlton Village Road / A417

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | Charlton Village Road | 46% | 1 | 28% | 0 | 30% | 0 |
| 2 | A417 Reading Road | 52% | 1 | 79% | 4 | 79% | 4 |
| 3 | Lark Hill | 9% | 0 | 6% | 0 | 6% | 0 |
| 4 | A417 Charlton Road | 101% | 22 | 61% | 2 | 74% | 3 |

### J14: Garston Lane / Charlton Road, Wantage (dual mini-roundabout)

5.7.7 In the Saturday peak hour this site was approaching capacity on Ormond Road which had an RFC of 88%. In the AM peak hour, Wallingford Street had an RFC of 85% while Charlton Road was also approaching capacity in the PM peak hour at 84% saturated.

Table 5.6 Basline modelling results: Garston Lane / Charlton Road

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | Garston Lane | 24% | 0 | 13% | 0 | 11% | 0 |
| 2 | Charlton Rd | 61% | 2 | 84% | 5 | 52% | 1 |
| 3 | Ormond Rd | 82% | 4 | 82% | 5 | 88% | 7 |
| 4 | Wallingford St | 85% | 6 | 70% | 2 | 72% | 3 |

### J15: A338 Newbury Street / B4507 Ormond Road, Wantage (traffic signals)

5.7.8 In the AM peak hour at this signalised staggered crossroads the B4507 Ormond Road was approaching capacity with a DoS of 90% and the B4507 Ickleton Road indicated a DoS of 93%. Greater residual capacity was available in the other peak hours.

Table 5.7 Basline modelling results: A338 Newbury Street / B4507 Ormond Road

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | DoS | Queue | DoS | Queue | DoS | Queue |
| 1 | A338 Newbury Street north | 69% | 4 | 60% | 6 | 35% | 4 |
| 2 | B4507 Ormond Road | 90% | 10 | 64% | 13 | 57% | 9 |

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | DoS | Queue | DoS | Queue | DoS | Queue |
| 3 | A338 Newbury Street south | 82% | 6 | 64% | 6 | 57% | 7 |
| 4 | B4507 Ickleton Road | 93% | 13 | 63% | 11 | 57% | 10 |

### J22: Spring Rd / A415 Ock Street, Abingdon (dual mini-roundabout)

5.7.9 In the PM peak hour both Ock Street and Marcham Road were approaching capacity with RFCs of 98% and 95% respectively at this four-arm roundabout.

Table 5.8 Basline modelling results: Spring Road / A415 Ock Street

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | Spring Rd | 58% | 1 | 64% | 2 | 64% | 2 |
| 2 | Ock Street | 80% | 4 | 98% | 15 | 81% | 4 |
| 3 | Drayton Rd | 78% | 3 | 76% | 3 | 67% | 2 |
| 4 | Marcham Rd | 80% | 4 | 95% | 13 | 82% | 4 |

### J26: A415 Stratton Way / A415 Ock Street, Abingdon (traffic signals)

5.7.10 In the AM peak hour both Ock Street east and Ock Street west were approaching capacity with DoS of 94% and 95% respectively at this signalised junction.

Table 5.9 Basline modelling results: A415 Stratton Way / A415 Ock Street

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | DoS | Queue | DoS | Queue | DoS | Queue |
| 1 | A415 Stratton Way | 32% | 5 | 48% | 10 | 84% | 11 |
| 2 | A415 Ock Street east | 94% | 26 | 88% | 25 | 82% | 23 |
| 3 | A415 Ock Street west | 95% | 23 | 82% | 17 | 61% | 12 |

### J28: A415 Marcham Road / Colwell Drive, Abingdon (roundabout)

5.7.11 In the Saturday peak hour at this three-armed roundabout, Colwell Drive was approaching capacity with an RFC of 90%.

Table 5.10 Basline modelling results: A415 Marcham Road / Colwell Drive

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | A415 Marcham Road (east) | 87% | 9 | 76% | 4 | 90% | 11 |
| 2 | A415 Marcham Road (west) | 51% | 2 | 55% | 2 | 54% | 2 |
| 3 | Colwell Drive | 67% | 2 | 60% | 2 | 69% | 3 |

## 5.8 Future baseline conditions

5.8.1 In line with the Planning Inspectorate guidance in Advice Note Seventeen (Planning Inspectorate, 2019), transport modelling for future years takes account of expected growth in transport use resulting from employment and population change in the affected area. As such, cumulative traffic and transport effects are inherently included in the future baseline scenarios.

### Committed highway improvements

5.8.2 Any committed transport infrastructure likely to be delivered in the assessment period (consented and funded or under construction) has been taken into account in the future baseline.

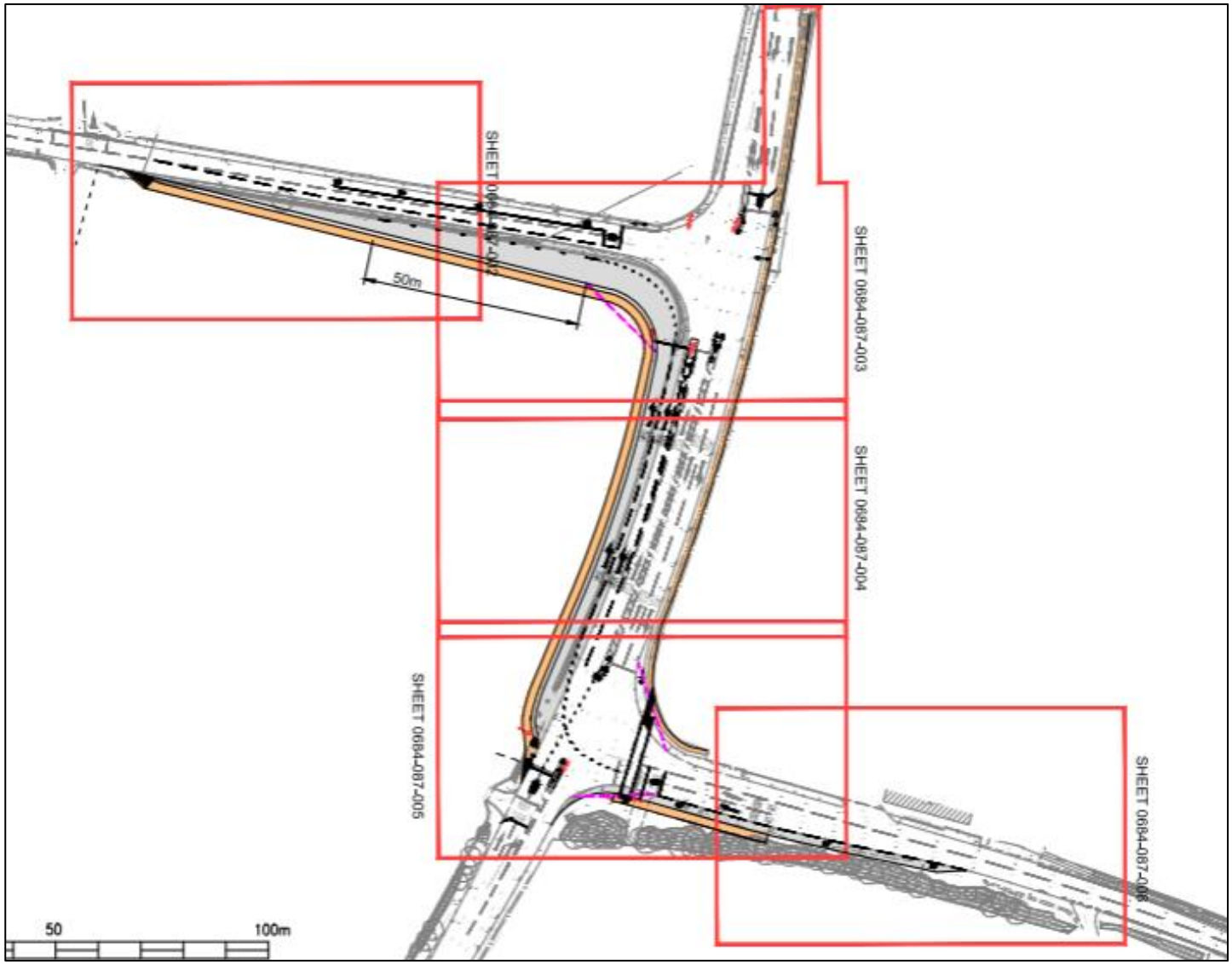
*J1: A338 Oxford Road / A415 Frilford Road, Frilford*

5.8.3 The signalised junction of the A338 and A415 at Frilford is subject to a planned improvement scheme as part of consented development on 'Land East of Kingston Bagpuize' development (planning application reference P22/V0248/O). The development will provide 660 homes and supporting uses.

5.8.4 The associated highway scheme (planning application referenced P22/V1757/FUL) is shown in Plate 5.6 and would provide an additional lane northbound through the junction mid-section. This would enable two lanes of traffic to proceed from the A415 Frilford Road (to the east) to the A415 Kingston Road (to the west).

5.8.5 The Section 106 agreement for this development requires the highway works to be in place by the time that 200 residential units on the site are occupied. It is therefore reasonable to assume that this would have occurred before 2036 (the first of the two assessment years). This improved layout is therefore assumed to be in place when assessing future year performance at the A338 / A415 junction.

Plate 5.6 Proposed Frilford junction improvements (by others)



### Public transport – bus services

5.8.6 For this PTAR it is assumed that there are no changes to the existing bus services in the future baseline scenarios. In practice, bus operators may choose to vary service patterns or frequencies in response to changes in demand resulting from development unrelated to the Project, but as this is uncertain, the assumption that existing services persist is considered a reasonable approach.

### Future development

5.8.7 To account for future development, the DfT's Trip End Presentation Program (TEMPro) (V8.0) has been used to source the National Trip End Model (NTEM) assumptions to forecast background traffic growth. These assumptions set out the expected national travel demand growth for each local authority area based on a set of planning assumptions covering employment and housing projections. TEMPro factors for this area are shown in Table 5.11.

Table 5.11 TEMPro factors uplift to 2036 and 2043

| Scenario | AM peak | PM peak | Saturday peak |
|---|---|---|---|
| Construction 2024-2036 | 1.108 | 1.113 | 1.123 |
| Operation 2024-2043 | 1.155 | 1.158 | 1.172 |

### Dalton Barracks

5.8.8 The planned development at Dalton Barracks already has an allocation in the Vale of White Horse District Council Local Plan for 1,200 homes. As such, trip-making associated with this additional population is included in the TEMPro growth factors, although these provide a generalised uplift rather than traffic changes on specific routes servicing specific developments.

5.8.9 The Dalton Barracks promoters are seeking an allocation for 2,750 homes in the new Joint Local Plan.

5.8.10 The Dalton Barracks development is currently relatively early in its planning process and no significant planning application has yet been submitted. Nevertheless, it is recognised that given the proximity of the development to the Project, there is potential for trips from both developments to use the same parts of the highway network.

5.8.11 Since there is, as yet, no planning application for the Dalton Barracks scheme, no detailed assumptions are available from the promoter of that development in relation to anticipated trip generation. The TEMPro growth factors will include a contribution from the existing allocation in the Local Plan and therefore the assumed traffic growth inherently includes some allowance for development at Dalton Barracks.

5.8.12 However, at this stage an initial sensitivity test has been examined which includes the assumed trip generation from the Dalton Barracks proposals based on typical trip rates. This test is reported on briefly at the end of section 7 and section 9, to consider the combined impact of both developments on the highway network.

5.8.13 It is anticipated that, through joint engagement, the strategic highway modelling for the TA and DCO application will be based on more detailed assumptions agreed with the Dalton Barracks promoters, so that there is consistency between the assessment of impacts for the Project and any assessment which accompanies a planning application for Dalton Barracks.

## 5.9 Future baseline (2036) traffic modelling

5.9.1 The November 2024 traffic surveys were uplifted using Tempro factors to 2036, the expected peak construction activity year. Future baseline junction models for 2036 were produced using those factors.

5.9.2 The worst performing arm (RFC or DoS) at each site has been reported for each time period as an indication of junction reserve capacity (i.e. unused capacity). The results are contained in Table 5.12.

Table 5.12 2036 traffic model results, greatest RFC or DoS per time period

| Ref (see Plate 5.4) | Description | Future Base (RFC or DoS): 2036 | | |
|---|---|---|---|---|
| | | AM Peak | PM Peak | Saturday |
| J1 | A338 Oxford Road / A415 Frilford Road, Frilford | 90% | 80% | 82% |
| J2 | A415 / A34 Marcham interchange | 82% | 82% | 60% |
| J3 | B4017 High Street / Hanney Road, Steventon | 76% | 40% | 41% |
| J4 | A4130 / A34 Milton interchange | 81% | 93% | 72% |
| J5 | A4130 Abingdon Road / A417 Reading Road, Rowstock | 71% | 71% | 33% |
| J6 | Charlton Village Road / A417 Reading Road, Charlton | 112% | 79% | 83% |
| J7 | Seesen Way / A417 Wallingford Street, Wantage | 57% | 95% | 70% |
| J8 | A338 Grove Street north / Harcourt Way, Wantage | 86% | 90% | 71% |
| J9 | Crown Meadow (A338) / The Green and Main Street, East Hanney | 60% | 46% | 65% |
| J10 | A4130 Abingdon Road / B4017 High Street, Steventon | 84% | 84% | 63% |
| J11 | B4107 Abingdon Road / High Street, Drayton | 73% | 68% | 66% |
| J12 | Malby Way / Denchworth Road, Wantage | 60% | 67% | 44% |
| J14 | Garston Lane / Charlton Rd, Wantage | 97% | 94% | 99% |
| J15 | A338 Newbury Street / B4507 Ormond Road, Wantage | 85% | 71% | 65% |
| J17 | A338 Oxford Road / Abingdon Road, Frilford Heath | 100% | 83% | 69% |
| J18 | A420 / Abingdon Road, Tubney | 59% | 87% | 60% |
| J19 | A420 / A415 Witney Road, Kingston Bagpuize | 75% | 81% | 46% |
| J20 | A420 / A338 roundabout, Tubney Wood | 85% | 74% | 46% |
| J22 | Spring Rd / Ock Street, Abingdon | 90% | 109% | 93% |

| Ref (see Plate 5.4) | Description | Future Base (RFC or DoS): 2036 | | |
|---|---|---|---|---|
| | | AM Peak | PM Peak | Saturday |
| J23 | A4130 Abingdon Road / Grove Road, Rowstock | 72% | 41% | 30% |
| J24N | High Street / Stert Street, Abingdon | 18% | 22% | 25% |
| J24S | Stert Street / Bridge Street, Abingdon | 29% | 15% | 17% |
| J25 | A415 Stratton Way / A4183 Vineyard, Abingdon | 55% | 45% | 42% |
| J26 | A415 Stratton Way / A415 Ock Street, Abingdon | 105% | 99% | 95% |
| J27 | A415 Marcham Road / Nuffield Way, Abingdon | 67% | 86% | 91% |
| J28 | A415 Marcham Road / Colwell Drive, Abingdon | 97% | 87% | 100% |
| J29 | A415 Frilford Road / Mill Road, Marcham | 15% | 21% | 14% |

5.9.3 Five of the sites above include one or more peak hours with saturation levels of 100% or greater. In addition to these five junctions the Marcham and Milton interchanges and Frilford traffic signals have been reported below in more detail.

### J1: A338 Oxford Road / A415 Frilford Road, Frilford (traffic signals)

5.9.4 At this four-arm, signalised staggered crossroads, the A415 Kingston Road would be approaching capacity in the 2036 AM peak hour at 90% saturated.

Table 5.13 2036 with Project (construction) modelling results A338 Oxford Road / A415 Frilford Road

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | DoS | Queue | DoS | Queue | DoS | Queue |
| 1 | A338 Oxford Road | 66% | 7 | 79% | 9 | 75% | 6 |
| 2 | A415 Frilford Road | 43% | 6 | 67% | 7 | 48% | 7 |
| 3 | A338 Wantage Road | 89% | 18 | 80% | 7 | 80% | 10 |
| 4 | A415 Kingston Road | 90% | 17 | 80% | 14 | 82% | 14 |

### J2: A415 / A34 Marcham interchange (roundabout)

5.9.5 At this four-arm, grade separated junction the A34 northbound off-slip would be within capacity in the 2036 AM and PM peak hours at 82% saturated.

Table 5.14 Future baseline 2036 modelling results: Marcham interchange

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | A34 SB Off-slip | 64% | 2 | 50% | 1 | 35% | 1 |
| 2 | A415 Marcham Road east | 57% | 1 | 67% | 2 | 57% | 1 |
| 3 | A34 NB Off-slip | 82% | 5 | 82% | 4 | 60% | 2 |

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 4 | A415 Marcham Road west | 71% | 3 | 56% | 1 | 58% | 1 |

### J4: A4130 / A34 Milton interchange (traffic signals)

5.9.6 At this five-arm, grade separated signalised junction Park Drive would be approaching capacity in the 2036 PM peak hour at 93% saturated while the A4130 east and the A34 southbound off-slip would both also be 93% saturated in the PM peak hour.

Table 5.15 Future baseline 2036 modelling results: Milton interchange

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | DoS | Queue | DoS | Queue | DoS | Queue |
| 1 | Park Drive | 81% | 15 | 93% | 24 | 41% | 5 |
| 2 | A4130 east | 80% | 20 | 93% | 27 | 72% | 20 |
| 3 | A34 NB offslip | 59% | 15 | 57% | 8 | 47% | 5 |
| 4 | A4130 west | 80% | 15 | 57% | 9 | 59% | 11 |
| 5 | A34 SB offslip | 80% | 23 | 93% | 37 | 70% | 20 |

### J6: Charlton Village Road / A417 Reading Road , Charlton (dual mini-roundabout)

5.9.7 The A417 Charlton Road dual mini-roundabout would be operating over capacity in the AM peak hour with an RFC of 112%, although conditions would be within capacity in other peak hours.

Table 5.16 Future baseline 2036 modelling results: Charlton Village Road / A417

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | Charlton Village Road | 47% | 1 | 29% | 0 | 32% | 1 |
| 2 | A417 Reading Road | 52% | 1 | 79% | 4 | 79% | 4 |
| 3 | Lark Hill | 9% | 0 | 6% | 0 | 7% | 0 |
| 4 | A417 Charlton Road | 112% | 57 | 68% | 2 | 83% | 5 |

### J17: A338 Oxford Road / Abingdon Road, Frilford Heath (staggered priority crossroads)

5.9.8 In the 2036 AM peak hour this staggered crossroads would operate above capacity on Abingdon Road which indicates an RFC of 100%. In the AM peak hour, Farringdon Road would also be approaching capacity at 90% saturated.

Table 5.17 Future baseline 2036 modelling results A338 Oxford Road / Abingdon Road, Frilford Heath

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | A338 Oxford Road (south) | 82% | 6 | 24% | 0 | 25% | 1 |
| 2 | Abingdon Road | 100% | 00 | 58% | 1 | 55% | 1 |
| 3 | A338 Oxford Road (north) | 1% | 0 | 2% | 0 | 2% | 0 |
| 4 | Farringdon Road | 90% | 10 | 83% | 6 | 69% | 3 |

### J22: Spring Rd / A415 Ock Street, Abingdon (dual mini-roundabout)

5.9.9 In the 2036 PM peak hour both Ock Street and Marcham Road would operate over capacity with RFCs of 109% and 107% respectively at this four-arm roundabout.

Table 5.18 Future baseline 2036 modelling results: Spring Road / A415 Ock Street

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | Spring Rd | 69% | 2 | 75% | 3 | 81% | 4 |
| 2 | Ock Street | 90% | 8 | 109% | 42 | 91% | 8 |
| 3 | Drayton Rd | 90% | 7 | 85% | 5 | 78% | 3 |
| 4 | Marcham Rd | 89% | 7 | 107% | 48 | 93% | 10 |

### J26: A415 Stratton Way / A415 Ock Street, Abingdon (traffic signals)

5.9.10 In the 2036 AM peak hour both Ock Street east and Ock Street west would operate over capacity with DoS of 104% and 105% respectively at this signalised junction.

Table 5.19 Future baseline 2036 modelling results: A415 Stratton Way / A415 Ock Street

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | DoS | Queue | DoS | Queue | DoS | Queue |
| 1 | A415 Stratton Way | 35% | 6 | 53% | 12 | 95% | 16 |
| 2 | A415 Ock Street east | 104% | 41 | 99% | 36 | 92% | 28 |

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | DoS | Queue | DoS | Queue | DoS | Queue |
| 3 | A415 Ock Street west | 105% | 41 | 91% | 22 | 69% | 14 |

### J28: A415 Marcham Road / Colwell Drive, Abingdon (roundabout)

5.9.11 In the 2036 Saturday peak hour at this three-arm roundabout, Colwell Drive would be at capacity with an RFC of 100%. Similar performance would be observed in the 2036 AM peak hour when the same link would be 97% saturated.

Table 5.20 Future baseline 2036 modelling results: A415 Marcham Road / Colwell Drive

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | A415 Marcham Road (east) | 97% | 30 | 87% | 7 | 100% | 54 |
| 2 | A415 Marcham Road (west) | 57% | 2 | 61% | 2 | 60% | 3 |
| 3 | Colwell Drive | 77% | 4 | 69% | 3 | 80% | 4 |

## 5.10 Future baseline (2043) traffic modelling

5.10.1 The November 2024 traffic flows were uplifted to 2043, the assessment year for operation, using Tempro factors. Future baseline junction models for 2043 were produced using those factors.

5.10.2 The worst performing arm (RFC or DoS) at each site has been reported for each time period as an indication of junction reserve capacity (i.e. unused capacity). The results are contained in Table 5.21.

Table 5.21 2043 traffic model results, greatest RFC or DoS per time period

| Ref (see Plate 5.4) | Description | Future Base (RFC or DoS): 2043 | | |
|---|---|---|---|---|
| | | AM Peak | PM Peak | Saturday |
| J1 | A338 Oxford Road / A415 Frilford Road, Frilford | 94% | 84% | 85% |
| J2 | A415 / A34 Marcham interchange | 87% | 87% | 64% |
| J3 | B4017 High Street / Hanney Road, Steventon | 66% | 44% | 43% |
| J4 | A4130 / A34 Milton interchange | 84% | 97% | 75% |
| J5 | A4130 Abingdon Road / A417 Reading Road, Rowstock | 74% | 76% | 35% |
| J6 | Charlton Village Road / A417 Reading Road , Charlton | 117% | 79% | 87% |
| J7 | Seesen Way / A417 Wallingford Street, Wantage | 60% | 99% | 74% |

| Ref (see Plate 5.4) | Description | Future Base (RFC or DoS): 2043 | | |
|---|---|---|---|---|
| | | AM Peak | PM Peak | Saturday |
| J8 | A338 Grove Street north / Harcourt Way, Wantage | 90% | 94% | 74% |
| J9 | Crown Meadow (A338) / The Green and Main Street, East Hanney | 65% | 50% | 69% |
| J10 | A4130 Abingdon Road / B4017 High Street, Steventon | 88% | 87% | 66% |
| J11 | B4107 Abingdon Road / High Street, Drayton | 76% | 71% | 69% |
| J12 | Malby Way / Denchworth Road, Wantage | 63% | 71% | 46% |
| J14 | Garston Lane / Charlton Rd, Wantage | 102% | 98% | 103% |
| J15 | A338 Newbury Street / B4507 Ormond Road, Wantage | 88% | 74% | 68% |
| J17 | A338 Oxford Road / Abingdon Road, Frilford Heath | 110% | 89% | 74% |
| J18 | A420 / Abingdon Road, Tubney | 63% | 94% | 41% |
| J19 | A420 / A415 Witney Road, Kingston Bagpuize | 79% | 85% | 48% |
| J20 | A420 / A338 roundabout, Tubney Wood | 89% | 77% | 48% |
| J22 | Spring Rd / Ock Street, Abingdon | 90% | 109% | 93% |
| J23 | A4130 Abingdon Road / Grove Road, Rowstock | 72% | 41% | 30% |
| J24N | High Street / Stert Street, Abingdon | 18% | 22% | 25% |
| J24S | Stert Street / Bridge Street, Abingdon | 29% | 15% | 17% |
| J25 | A415 Stratton Way / A4183 Vineyard, Abingdon | 55% | 45% | 42% |
| J26 | A415 Stratton Way / A415 Ock Street, Abingdon | 105% | 99% | 95% |
| J27 | A415 Marcham Road / Nuffield Way, Abingdon | 67% | 86% | 91% |
| J28 | A415 Marcham Road / Colwell Drive, Abingdon | 97% | 87% | 100% |
| J29 | A415 Frilford Road / Mill Road, Marcham | 15% | 21% | 14% |

5.10.3 Five of the sites above include one or more peak hours with saturation levels of 100% or greater. In addition to these five junctions the Marcham and Milton Interchanges have been reported below in more detail.

### J2: A415 / A34 Marcham interchange (roundabout)

5.10.4 At this four-arm, grade separated junction the A34 northbound off-slip would be approaching capacity in the 2043 AM and PM peak hours at 87% saturated.

Table 5.22 Future baseline 2043 modelling results: Marcham interchange

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | A34 SB Off-slip | 73% | 3 | 55% | 1 | 38% | 1 |
| 2 | A415 Marcham Road east | 60% | 2 | 71% | 2 | 60% | 2 |
| 3 | A34 NB Off-slip | 87% | 7 | 87% | 7 | 64% | 2 |

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 4 | A415 Marcham Road west | 75% | 3 | 59% | 2 | 62% | 2 |

### J4: A4130 / A34 Milton interchange (traffic signals)

5.10.5 At this five-arm, grade separated signalised junction Park Drive would be approaching capacity in the 2043 PM peak hour at 97% saturated while the A4130 east and the A34 southbound off-slip would be 94% and 96% saturated respectively in the same peak hour.

Table 5.23 Future baseline 2043 modelling results: Milton interchange

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | DoS | Queue | DoS | Queue | DoS | Queue |
| 1 | Park Drive | 84% | 16 | 97% | 31 | 44% | 6 |
| 2 | A4130 east | 83% | 22 | 94% | 31 | 75% | 21 |
| 3 | A34 NB offslip | 62% | 15 | 59% | 8 | 52% | 6 |
| 4 | A4130 west | 84% | 16 | 58% | 10 | 52% | 11 |
| 5 | A34 SB offslip | 83% | 24 | 96% | 43 | 73% | 22 |

### J6: Charlton Village Road / A417 Reading Road, Charlton (dual mini-roundabout)

5.10.6 The A417 Charlton Road would be operating over capacity in the 2043 AM peak hour with an RFC of 117%. The same approach would be nearing capacity in the Saturday peak hour with an RFC of 87%.

Table 5.24 Future baseline 2043 modelling results: Charlton Village Road / A417

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | Charlton Village Road | 47% | 1 | 30% | 0 | 33% | 14 |
| 2 | A417 Reading Road | 52% | 1 | 79% | 4 | 79% | 4 |
| 3 | Lark Hill | 10% | 0 | 6% | 0 | 7% | 0 |
| 4 | A417 Charlton Road | 117% | 76 | 70% | 2 | 87% | 6 |

### J14: Garston Lane / Charlton Road, Wantage (dual mini-roundabout)

5.10.7 In the 2043 Saturday peak hour this site would operate above capacity on Ormond Road which would have an RFC of 103%. In the 2043 AM peak hour, Wallingford Street would have an RFC of 102% while Charlton Road would be approaching capacity in the 2043 PM peak hour at 98% saturated.

Table 5.25 Future basline 2043 modelling results: Garston Lane / Charlton Road

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | Garston Lane | 32% | 1 | 16% | 0 | 15% | 0 |
| 2 | Charlton Rd | 71% | 3 | 98% | 25 | 62% | 2 |
| 3 | Ormond Rd | 95% | 14 | 95% | 14 | 103% | 44 |
| 4 | Wallingford St | 102% | 44 | 83% | 5 | 86% | 6 |

### J17: A338 Oxford Road / Abingdon Road, Frilford Heath (staggered priority crossroads)

5.10.8 In the 2043 AM peak hour this staggered crossroads would operate over capacity on Abingdon Road which would have an RFC of 110%. In the 2043 AM peak hour, Farringdon Road would also be over capacity at 105% saturated.

Table 5.26 Future baseline 2043 modelling results: A338 Oxford Road / Abingdon Road, Frilford Heath

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | A338 Oxford Road (south) | 94% | 15 | 26% | 1 | 27% | 1 |
| 2 | Abingdon Road | 110% | 53 | 62% | 2 | 58% | 1 |
| 3 | A338 Oxford Road (north) | 1% | 0 | 2% | 0 | 2% | 0 |
| 4 | Farringdon Road | 105% | 28 | 89% | 10 | 74% | 3 |

### J22: Spring Rd / A415 Ock Street, Abingdon (dual mini-roundabout)

5.10.9 In the 2043 PM peak hour both Ock Street and Marcham Road would operate above capacity with RFCs of 113% and 112% respectively at this four-arm roundabout. Conditions would also be approaching capacity in the 2043 AM peak and Saturday peak hours.

Table 5.27 Future baseline 2043 modelling results: Spring Road / A415 Ock Street

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | Spring Rd | 74% | 3 | 78% | 3 | 88% | 6 |
| 2 | Ock Street | 94% | 10 | 113% | 57 | 95% | 12 |
| 3 | Drayton Rd | 95% | 11 | 88% | 7 | 82% | 4 |
| 4 | Marcham Rd | 93% | 11 | 112% | 70 | 97% | 16 |

### J26: A415 Stratton Way / A415 Ock Street, Abingdon (traffic signals)

5.10.10 In the 2043 AM peak hour both Ock Street east and Ock Street west would operate over capacity with DoS of 108% and 109% respectively at this signalised junction. In the 2043 PM peak hour Ock Street east would be 102% saturated.

Table 5.28 Future baseline 2043 modelling results: A415 Stratton Way / A415 Ock Street

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | DoS | Queue | DoS | Queue | DoS | Queue |
| 1 | A415 Stratton Way | 37% | 7 | 56% | 12 | 99% | 19 |
| 2 | A415 Ock Street east | 108% | 52 | 102% | 43 | 96% | 32 |
| 3 | A415 Ock Street west | 109% | 52 | 95% | 25 | 72% | 15 |

### J28: A415 Marcham Road / Colwell Drive, Abingdon (roundabout)

5.10.11 In the 2043 Saturday peak hour at this three-arm roundabout, Colwell Drive would operate over capacity with an RFC of 101%. In the AM peak hour the same link would be 99% saturated.

Table 5.29 Future baseline 2043 modelling results A415 Marcham Road / Colwell Drive

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | A415 Marcham Road (east) | 99% | 56 | 91% | 10 | 101% | 80 |
| 2 | A415 Marcham Road (west) | 60% | 2 | 64% | 3 | 63% | 3 |
| 3 | Colwell Drive | 82% | 5 | 73% | 4 | 85% | 7 |

# 6 Construction travel demand

## 6.1 Introduction

6.1.1 This section outlines the anticipated trip generation associated with the construction phase of the Project, including movements by construction personnel and materials vehicles.

## 6.2 Construction trip generation

6.2.1 Initial forecasts have been made of the nature and volume of construction materials that would be required during the whole of the construction period. These forecasts provide information on the amount of material expected to require shipment to or from the Site in each month of the construction programme.

6.2.2 The materials volumes have been converted into weights of material transported using appropriate bulking factors and density assumptions. These weights have then been converted into train or lorry loads in order to determine the number of rail and road trips required.

### Transport of materials

6.2.3 The assessment is based on the use of the Rail Sidings and Materials Handling Facility to transport suitable construction materials by rail instead of by road. It is noted that the Planning Inspectorate has expressed a wish to understand the potential impacts of the Project should rail transport be unavailable. An “all by road” scenario has not been assessed in the PTAR, but will be addressed as part of the work for the DCO application.

6.2.4 It is assumed that materials which are capable of being transported by rail are imported riprap rock; bedding and granular material; and exported topsoil.

6.2.5 The amount of material capable of being transported by rail has been based on the assumptions shown in Table 6.1, which apply once the Rail Sidings and Materials Handling Facility has been completed.

Table 6.1 Rail transport assumptions

| Attribute | Assumptions |
|---|---|
| Train paths | 3 arrivals, 3 departures per day, 5 days per week<br>47 operating weeks per year (allowing for rail network possessions) |
| Train characteristics | 20-wagon train plus locomotive<br>The same train can be used to import and export different materials |
| Train load | Approximate maximum payload of 1,500 tonnes |

6.2.6 The amount of material to be transported by rail has been maximised as far as possible within these parameters and the characteristics of the construction programme. All remaining materials are assumed to be transported by road.

6.2.7 The assumptions influencing road transport are shown in Table 6.2

Table 6.2 Road transport assumptions

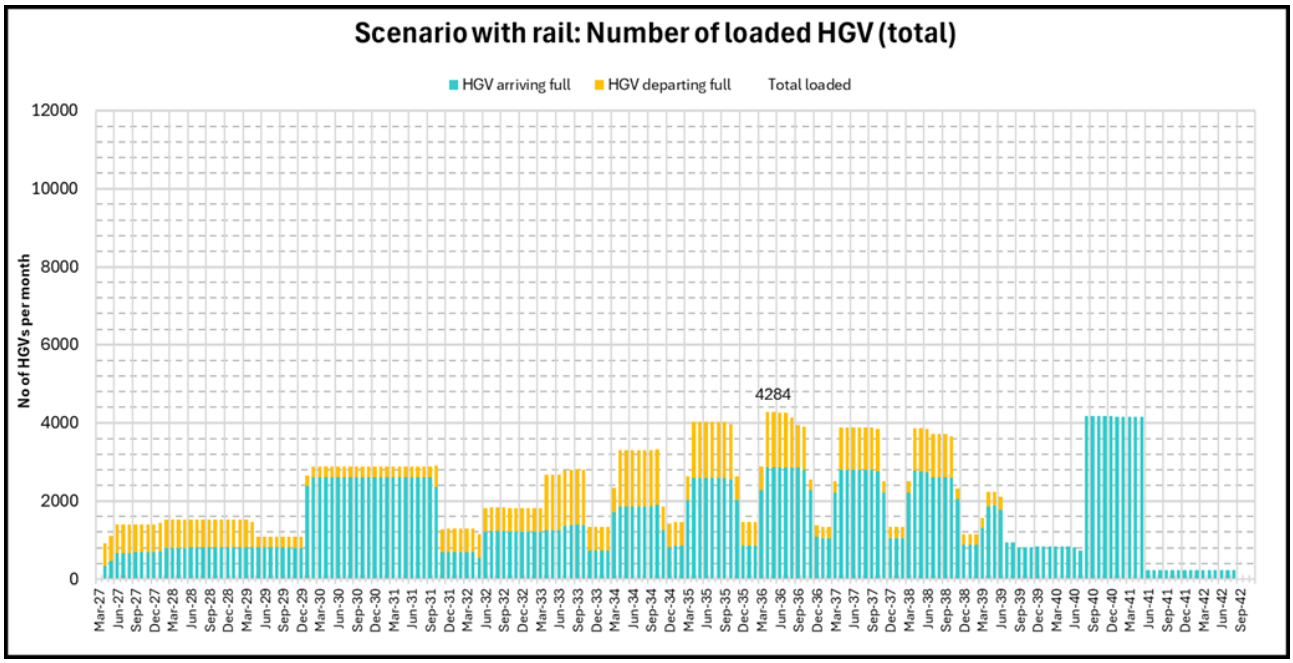
| Attribute | Assumptions |
|---|---|
| Hours of operation | 22 operating days per month<br>10 hour delivery window (08:00 – 18:00) |
| Vehicle characteristics | Average 18 tonnes load per HGV<br>The same lorry cannot be used to import one material and export a different material |

6.2.8 The monthly estimate of HGV numbers has been used to derive an average hourly figure for construction HGV arrivals and departures. The 22 operating days assumed reflects no weekend working and therefore the hourly estimate of HGV movements is likely to be slightly higher than might occur in practice. It should be noted that there is some Saturday working planned, and so for the assessment of traffic impacts on a Saturday, it has been assumed that the same hourly levels of HGV flow would occur as for the midweek days.

6.2.9 Based on these assumptions the number of loaded HGV trips across the construction period has been projected as shown in Plate 6.1. The year 2036 has been identified as the peak construction year associated with the Project. As such, this year has been adopted as the assessment year for assessing construction-related transport impacts in the PTAR.

6.2.10 The highest forecast monthly number of loaded HGV journeys is approximately 4,280 HGV per month. This is equivalent to a total of 8,560 HGV movements per month, since each HGV would make two movements (one arrival and one departure) for each journey.

Plate 6.1 Monthly loaded HGV trips



6.2.11 Based on a total of 8,560 HGV movements per month and 22 working days, there would be an average of some 390 daily HGV movements in total, and 39 hourly movements in total, associated with the Site as a whole during the peak period of construction activity.

## HGV trip distribution

### *Construction site layout*

6.2.12 The current proposal for construction activity is to have six points of access to the site. These are shown in Figure 2.2 Construction elements of the PEI Report and are proposed to enable construction of the main reservoir elements. The main focus of activity would be access point A1 on the A415 between Marcham and the A34.

6.2.13 An estimate of the proportion of the total number of HGVs at each access point has been produced and is shown in Table 6.3. At this stage this split has been applied to both HGV numbers and staff numbers on the assumption that the level of activity is similar for both types of vehicle.

Table 6.3 Activity distribution by access point

| Access | % of HGV / staff trips per access point |
|---|---|
| A1 | 72% |
| A2 | 6% |
| A3 | 9% |
| A4 | 6% |
| A5 | 4% |
| A6 | 3% |
| Total for all accesses | 100% |

6.2.14 Based on the activity projects per compound in Table 6.3, the resultant HGV demand per compound is shown in Table 6.4.

Table 6.4 Projected HGV movements: 2036 peak construction month

| Site | % Split by Site | Total movements | | | Inbound | | | Outbound | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Daily | AM | PM | Daily | AM | PM | Daily | AM | PM |
| **A1** | 72% | 280 | 28 | 28 | 140 | 14 | 14 | 140 | 14 | 14 |
| **A2** | 6% | 23 | 2 | 2 | 12 | 1 | 1 | 12 | 1 | 1 |
| **A3** | 9% | 35 | 4 | 4 | 18 | 2 | 2 | 18 | 2 | 2 |
| **A4** | 6% | 23 | 2 | 2 | 12 | 1 | 1 | 12 | 1 | 1 |
| **A5** | 4% | 16 | 2 | 2 | 8 | 1 | 1 | 8 | 1 | 1 |
| **A6** | 3% | 12 | 1 | 1 | 6 | 1 | 1 | 6 | 1 | 1 |
| **Total** | 100% | 389 | 39 | 39 | 195 | 19 | 19 | 195 | 19 | 19 |

*Note: although HGV flows are based on a ten hour delivery window starting at 8AM, the full hourly proportion of HGVs has been tested in the modelled AM peak hour (starting at 7.30 AM). This is to ensure that, if the hour selected for modelling alters as a result of further data collection or the outputs of the strategic highway model, the assessment below is still robust.*

### *Construction HGV routes*

6.2.15 It is assumed where possible, construction HGV would use the strategic or primary road network. The primary arrival and departure route would therefore be the A34. It is also assumed that local routes for construction HGV would be mandated in the Code of Construction Practice and would focus on reducing, as far as possible, the number of HGV passing through local settlements. Generally, therefore, construction traffic would be directed not to pass through local villages unless this is necessary to reach a specific access location.

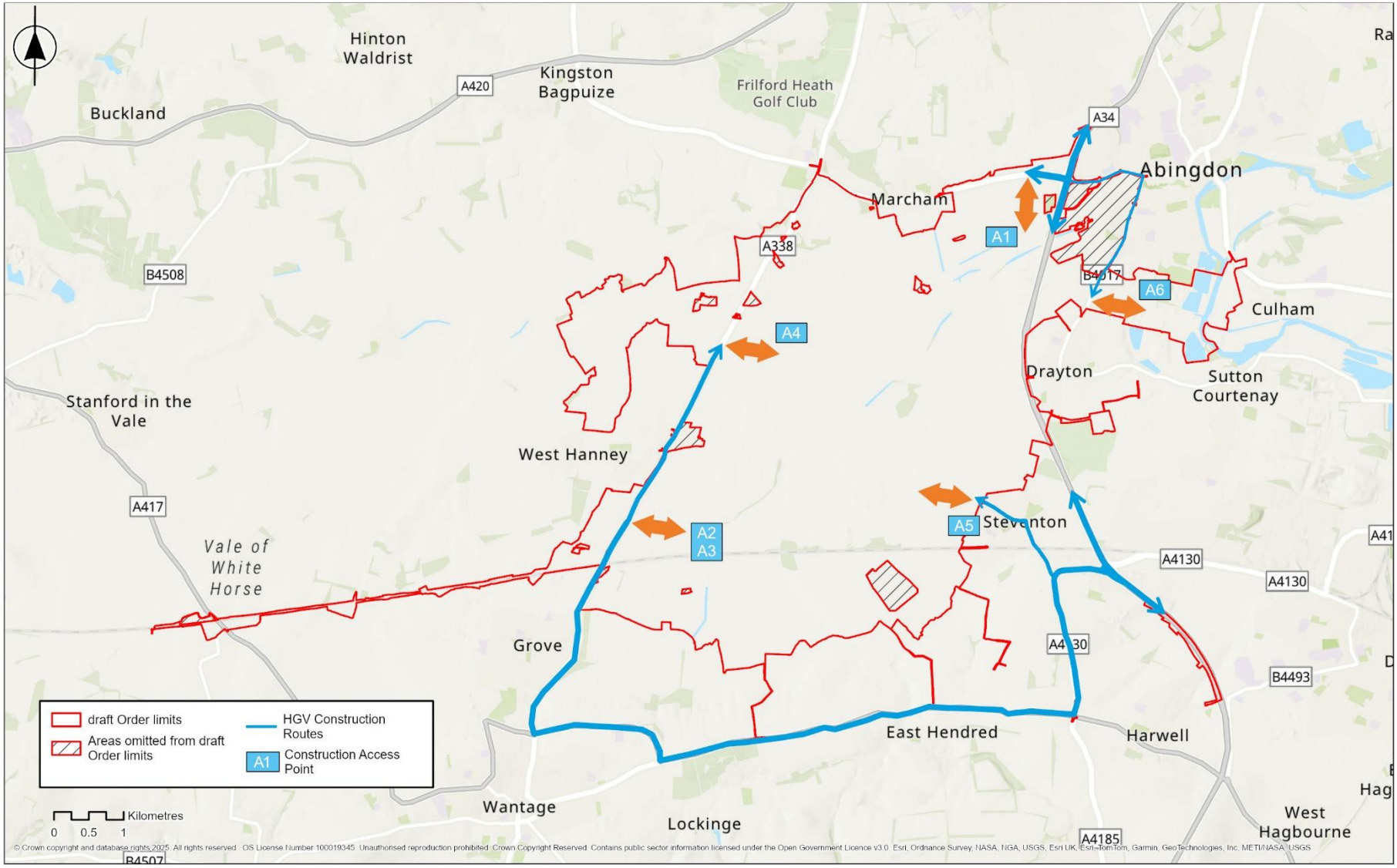
6.2.16 At this stage, the sources of materials supply for the Project are not known. It is therefore assumed that 60% of construction traffic arrives on the A34 from the north and 40% arrives on the A34 from the south. This assumption will be refined in future modelling as more information becomes available about likely sources of supply and disposal.

6.2.17 From the A34 the assumed routes to each of the construction access points are shown in Table 6.5 and Plate 6.2.

Table 6.5 Routes between A34 and construction access points

| Access | Route |
|---|---|
| A1 | via A34 Marcham interchange and A415 |
| A2, A3, A4 | via A34 Milton interchange, A4130, A417, King Alfred Way, and A338, passing Rowstock, the Hendreds, Charlton and Grove (and traffic to A4 also passing the Hanneys) |
| A5 | via A34 Milton interchange, A4130 and B4017 through Steventon |
| A6 | via A34 Marcham interchange, A415 and the B4017 through Caldecott. |

Plate 6.2 Construction HGV routes to Site accesses



### Construction workers travel demand

6.2.18 It is estimated that the greatest number of workers on Site at any one time would be around 1,800 workers. During the peak period for materials movement (in 2036), around 1,500 workers are projected to be on Site on a given day. However, given the potential for future adjustment of the programme of activities on site, 1,800 workers have been assumed as the worst case for this assessment, coincident with the peak of materials movements by road.

6.2.19 For trip generation purposes the following assumptions have been made:

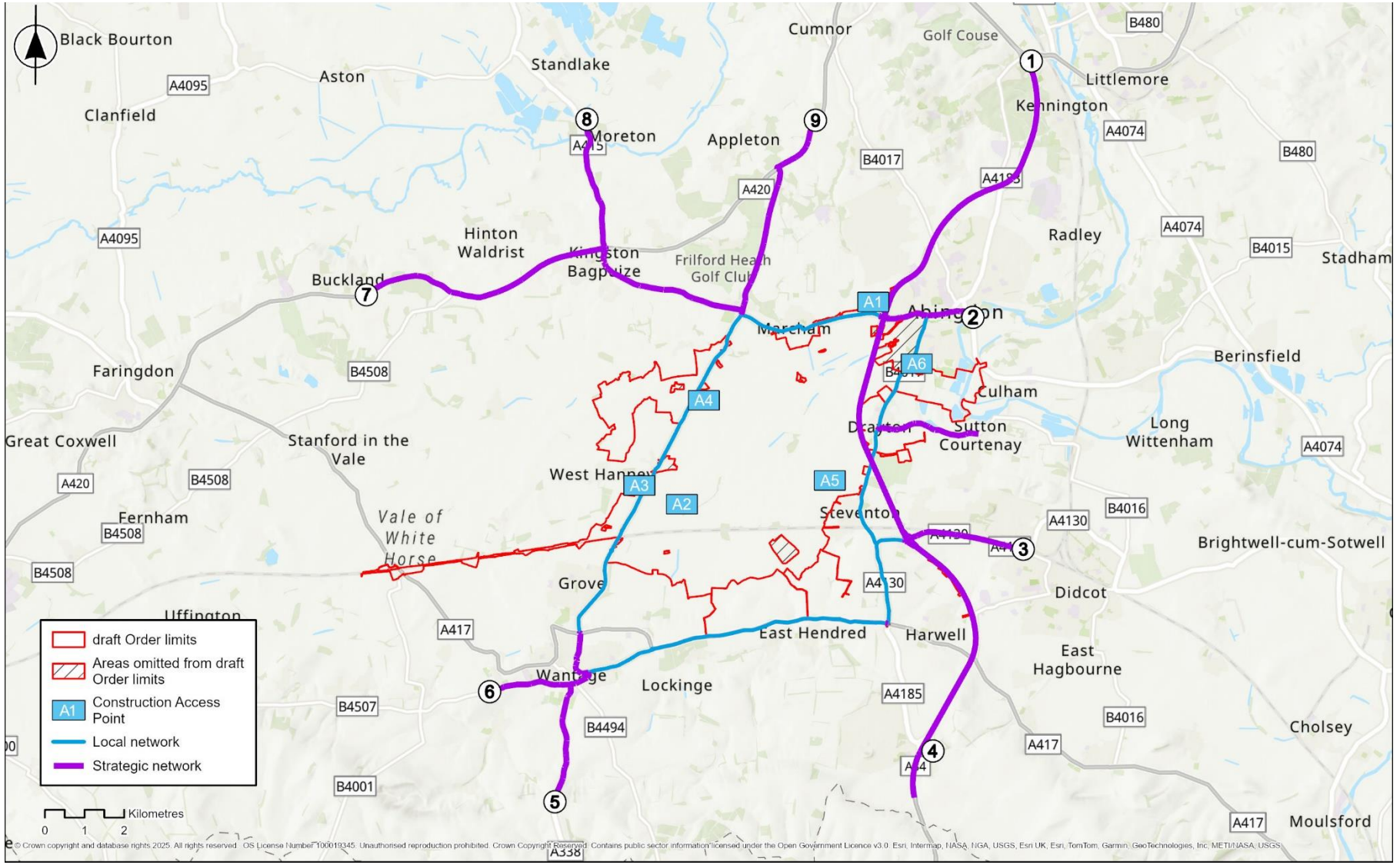
- There is no on-site accommodation for workers and therefore all workers would travel from beyond the Site boundary.
- Shifts arrive and depart over 90-minute periods and that 75% of the shift would arrive in a 60-minute period.
- Workers arriving and departing for shifts would do so coincident with the highway peak hours. This provides a precautionary approach, as in practice the departure times for workers might be later than the usual evening highway peak hour.
- Workers would use access points in the same proportions as assumed for construction HGV and shown in Plate 6.3.
- The average vehicle occupancy would be 2.5 workers. Further work is continuing to determine where workers may travel from and this occupancy assumption reflects the potential that some workers would travel alone in a car, some may share a car from the same location and others may be able to use public transport or transport provided by the contractor from larger local settlements such as Abingdon and Didcot, which may accommodate larger numbers of workers and provide wider public transport connections.

6.2.20 With 1,800 workers on Site on any day, some 720 worker vehicles can be expected. Of these, around 540 are assumed to arrive or depart in one hour.

#### *Construction worker vehicle routes*

6.2.21 At this stage and in the absence of more detailed information on likely accommodation locations for workers, the origin and destination of these staff trips has been developed based on population data within a one-hour drive time of the Site. Nine key routes have been identified as possible route choices to the Site, which are shown in Plate 6.3.

Plate 6.3 Construction worker routes to access points



6.2.22 The population areas served by each of these routes have been assessed and trips assigned to the most appropriate route in the proportions shown in Table 6.6.

Table 6.6 Projected construction worker trips: 2036 peak month distribution by population

| Routes | Population (60mins) | % distribution |
|---|---|---|
| 1 | 1,120,500 | 34% |
| 2 | 54,450 | 2% |
| 3 | 44,950 | 1% |
| 4 | 1,584,500 | 48% |
| 5 | 19,200 | 1% |
| 6 | 14,300 | 0% |
| 7 | 202,650 | 6% |
| 8 | 213,050 | 7% |
| 9 | 14,050 | 0% |
| Total | 3,267,650 | 100% |

Note: Population rounded to nearest 50

6.2.23 The 720 worker cars have been assumed to make 2.5 trips per day; one inbound (at the start of shift), one outbound (at the end of shift) and a further 0.5 trips in the course of the day to allow for workers moving between sites or undertaking other local business in the area. As such the total number of daily worker car trips associated with the Site amounts to 1,800 trips.

6.2.24 The distribution of worker vehicle arrivals around the Site access points is as shown in Table 6.7.

Table 6.7 Projected construction worker vehicle trips: 2036 peak month by access point

| Site | % Split by Site | Total movements | | | Inbound | | | Outbound | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Daily | AM peak hour | PM peak hour | Daily | AM peak hour | PM peak hour | Daily | AM peak hour | PM peak hour |
| **A1** | 72% | 1296 | 389 | 389 | 648 | 389 | 0 | 648 | 0 | 389 |
| **A2** | 6% | 108 | 32 | 32 | 54 | 32 | 0 | 54 | 0 | 32 |
| **A3** | 9% | 162 | 49 | 49 | 81 | 49 | 0 | 81 | 0 | 49 |
| **A4** | 6% | 108 | 32 | 32 | 54 | 32 | 0 | 54 | 0 | 32 |
| **A5** | 4% | 72 | 22 | 22 | 36 | 22 | 0 | 36 | 0 | 22 |
| **A6** | 3% | 54 | 16 | 16 | 27 | 16 | 0 | 27 | 0 | 16 |
| **Total** | 100% | 1800 | 540 | 540 | 900 | 540 | 0 | 900 | 0 | 540 |

6.2.25 It has been assumed that workers would be encouraged to use or avoid certain routes locally, but it would not be possible to restrict them to prescribed routes in the same way as HGV. It has been assumed that they would arrive via the key routes shown in Plate 6.3,

and then route to their designated compound by the most direct (shortest) route on the local road network. The strategic level and local level routes are shown in Plate 6.3.

6.2.26 For example, while HGVs to access A4 (Construction Access Point on Plate 6.3) would be mandated to approach from the south via A34 Milton interchange and A417 / A338 via Wantage, workers travelling from the A34 (routes 1 or 2) to access A4 have been assumed to use A34 Marcham interchange and the A415 / A338 via Marcham.

6.2.27 The resultant number of worker vehicle trips using each of the nine key routes are shown in Table 6.8.

Table 6.8 Projected construction worker trips: 2036 peak month vehicle trips

| Routes | Total daily movements | AM peak hour (Inbound) | PM peak hour (Outbound) |
|---|---|---|---|
| 1 | 617 | 185 | 185 |
| 2 | 30 | 9 | 9 |
| 3 | 25 | 7 | 7 |
| 4 | 873 | 262 | 262 |
| 5 | 11 | 3 | 3 |
| 6 | 8 | 2 | 2 |
| 7 | 112 | 33 | 33 |
| 8 | 117 | 35 | 35 |
| 9 | 8 | 2 | 2 |
| Total | 1800 | 540 | 540 |

# 7 Construction impacts

## 7.1 Introduction

7.1.1 This section sets out the preliminary impacts on the transport network associated with the construction of the Project.

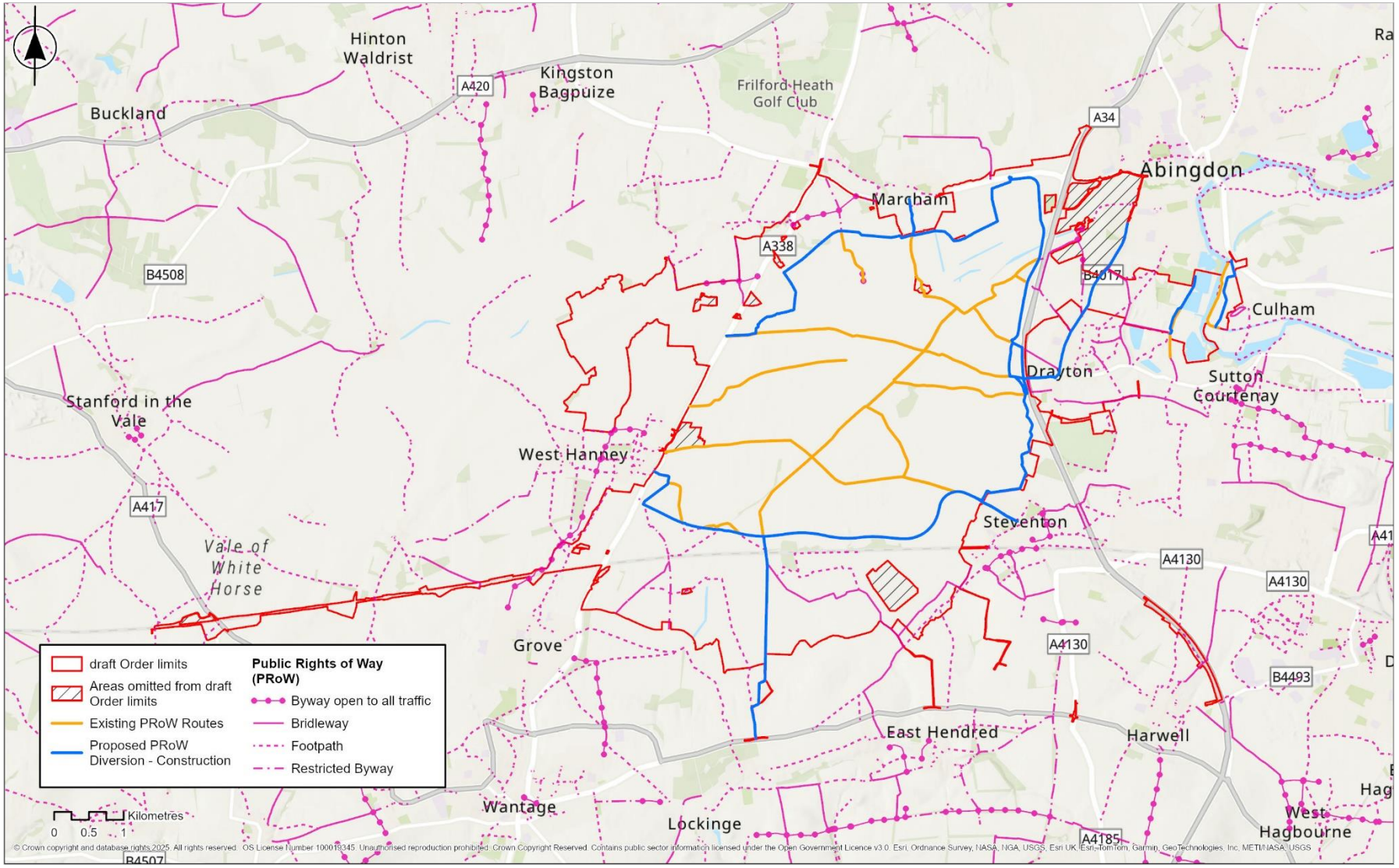
## 7.2 Walking, cycling and horse-riding

7.2.1 During construction, the existing PRoW network would be changed to accommodate the works associated with creating the reservoir. At this stage, it is proposed that routes across the Site would be closed and an alternative route around the perimeter of the Site would be provided. The detail of the route and timing of PRoW diversions during construction will be further refined for the DCO application. The proposed PRoW network within the vicinity of the reservoir during construction is shown in the dark green dashed line in Plate 7.1.

7.2.2 It should be noted that the realigned Steventon to East Hanney Road would be constructed and completed before the existing road is closed.

7.2.3 Plate 7.1 shows that there would therefore be some significant diversion routes for existing PRoW users, particularly those using east-west routes across the northern part of the Site. The east-west route between Steventon and East Hanney would be maintained, on the new alignment of the Steventon to East Hanney Road, which would provide enhanced walking and cycling facilities compared to the existing provision.

Plate 7.1 PRoW diversion during construction, based on emerging design



7.2.4 Plate 7.2 to Plate 7.13 show existing routes between different destinations around the Site, using PRoW, together with the diverted route that would be in place during the construction period.

7.2.5 These diversions would lead to the following changes in journey distance:

- Between Abingdon and A417 Reading Road (route 1) an increase of 5.7km from the existing length of 8.4km
- Between Marcham and Drayton (route 2) an increase of 3.1km from the existing length of 4.1km
- Between the A338 and Drayton (route 3) an increase of 4.9km from the existing length of 9.7km
- Between East Hanney and the GWML (route 4) an increase of 0.4km from the existing length of 2.5km
- Between Marcham and Steventon (route 5) an increase of 1.6km from the existing length of 8.4km
- Between East Hanney and Steventon (route 6) an increase of 0.6km from the existing length of 5.4km

7.2.6 Changes to NCN Route 5 in the vicinity of the intake / outfall works would increase journey length by around 70m. Changes to the Thames Path on the opposite bank of the river would increase journey length by around 25m.

7.2.7 Where the diversion routes cross site access points, measures would be taken to ensure the safety of PRoW users crossing those access points, as part of the arrangements for managing construction traffic and safety within the Code of Construction Practice.

Plate 7.2 Existing PRoW route 1 - Abingdon to the A417 Reading Road

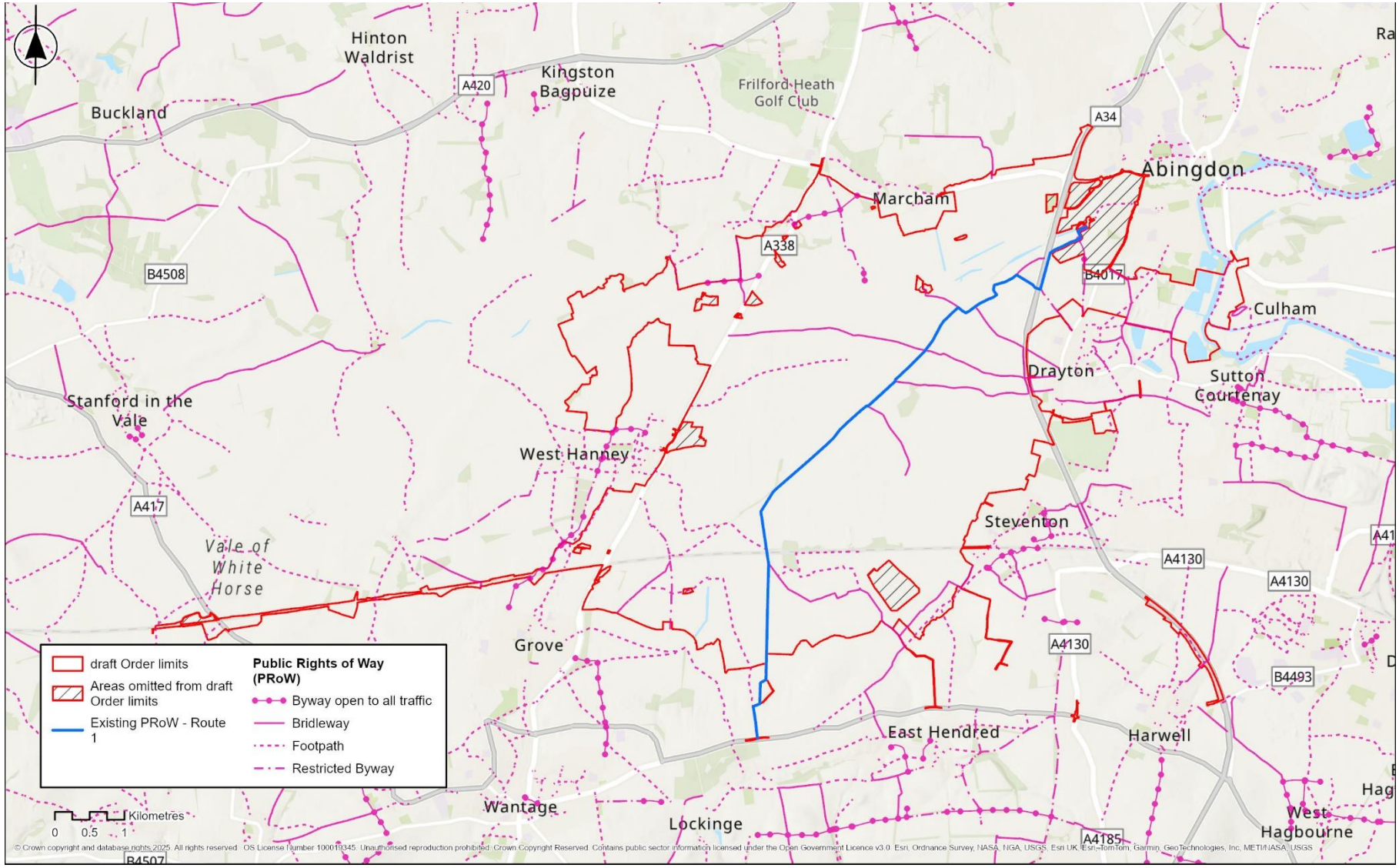


Plate 7.3 Diverted PRoW route 1 - Abingdon to the A417 Reading Road, during construction, based on emerging design

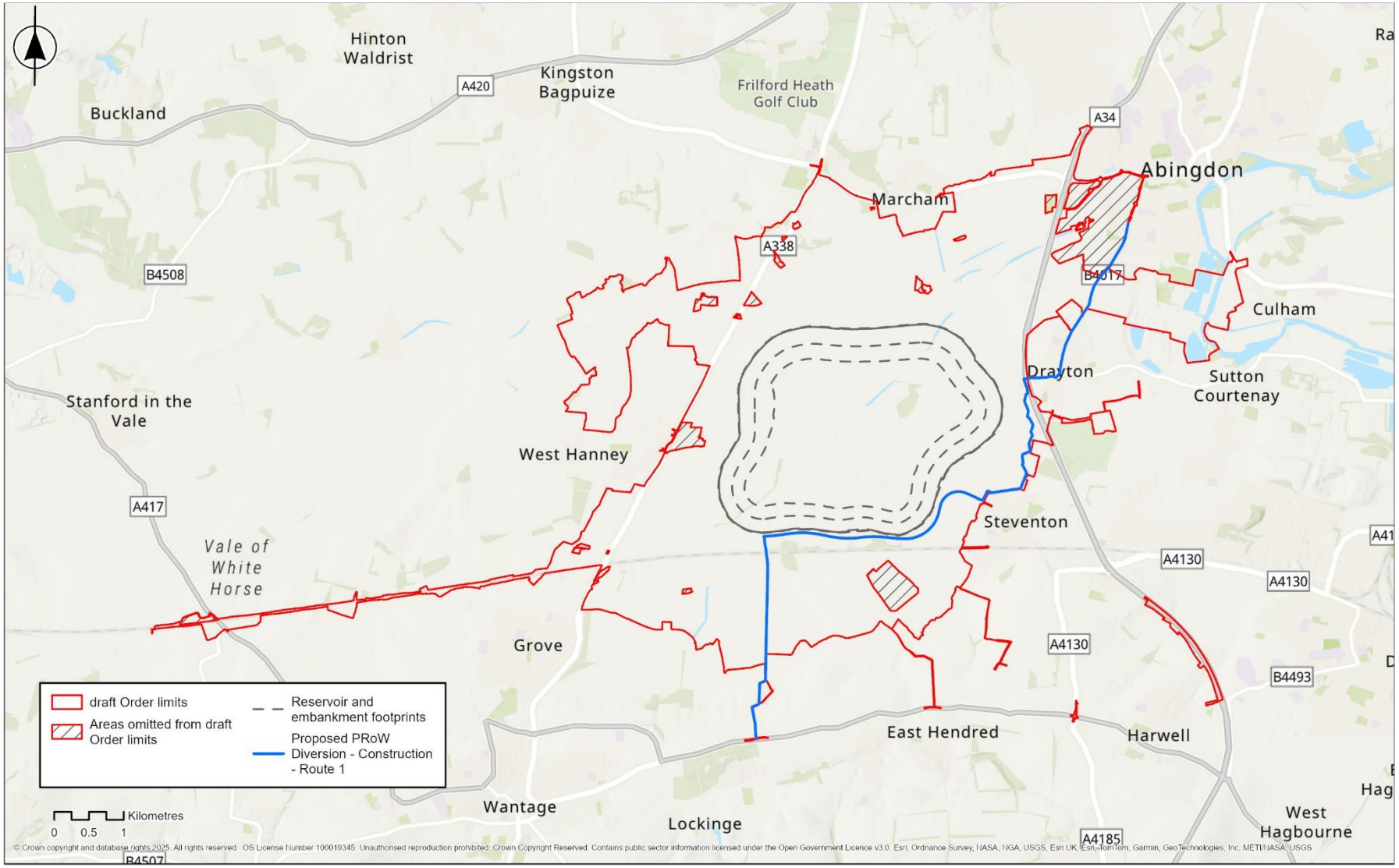


Plate 7.4 Existing PRoW route 2 - Marcham to Drayton

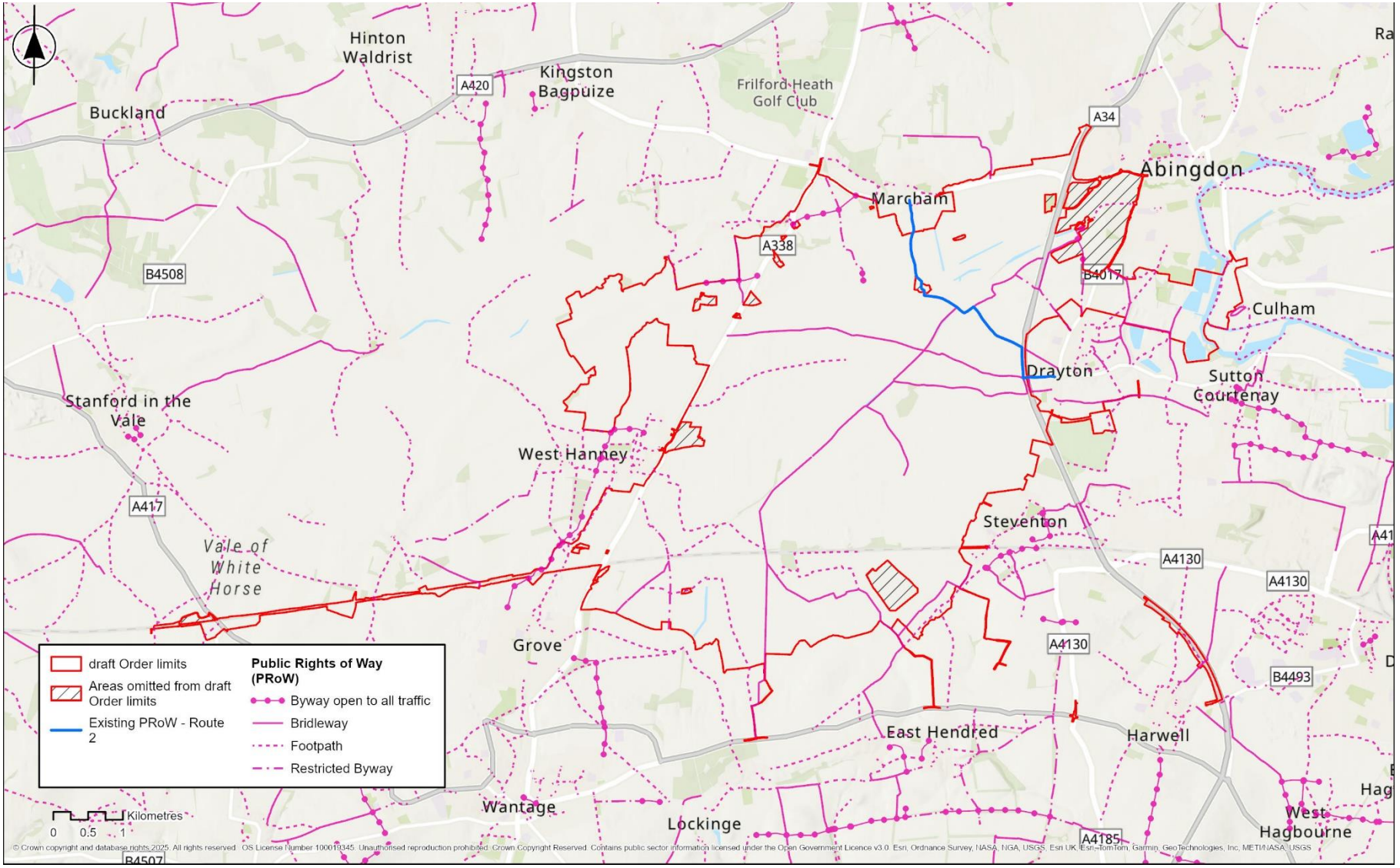


Plate 7.5 Diverted PRoW route 2 - Marcham to Drayton, during construction, based on emerging design

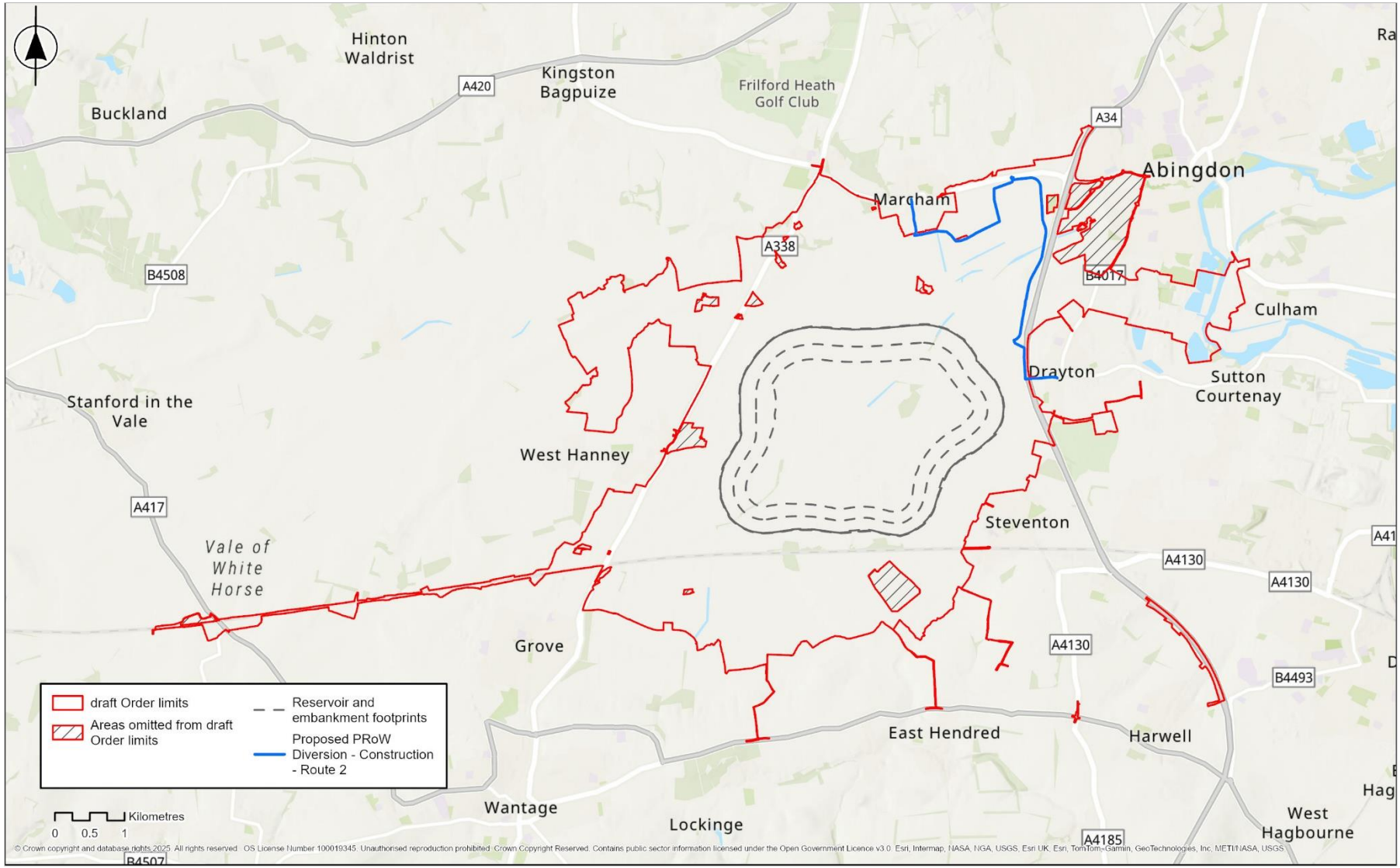


Plate 7.6 Existing PRoW route 3 - A338 to Drayton

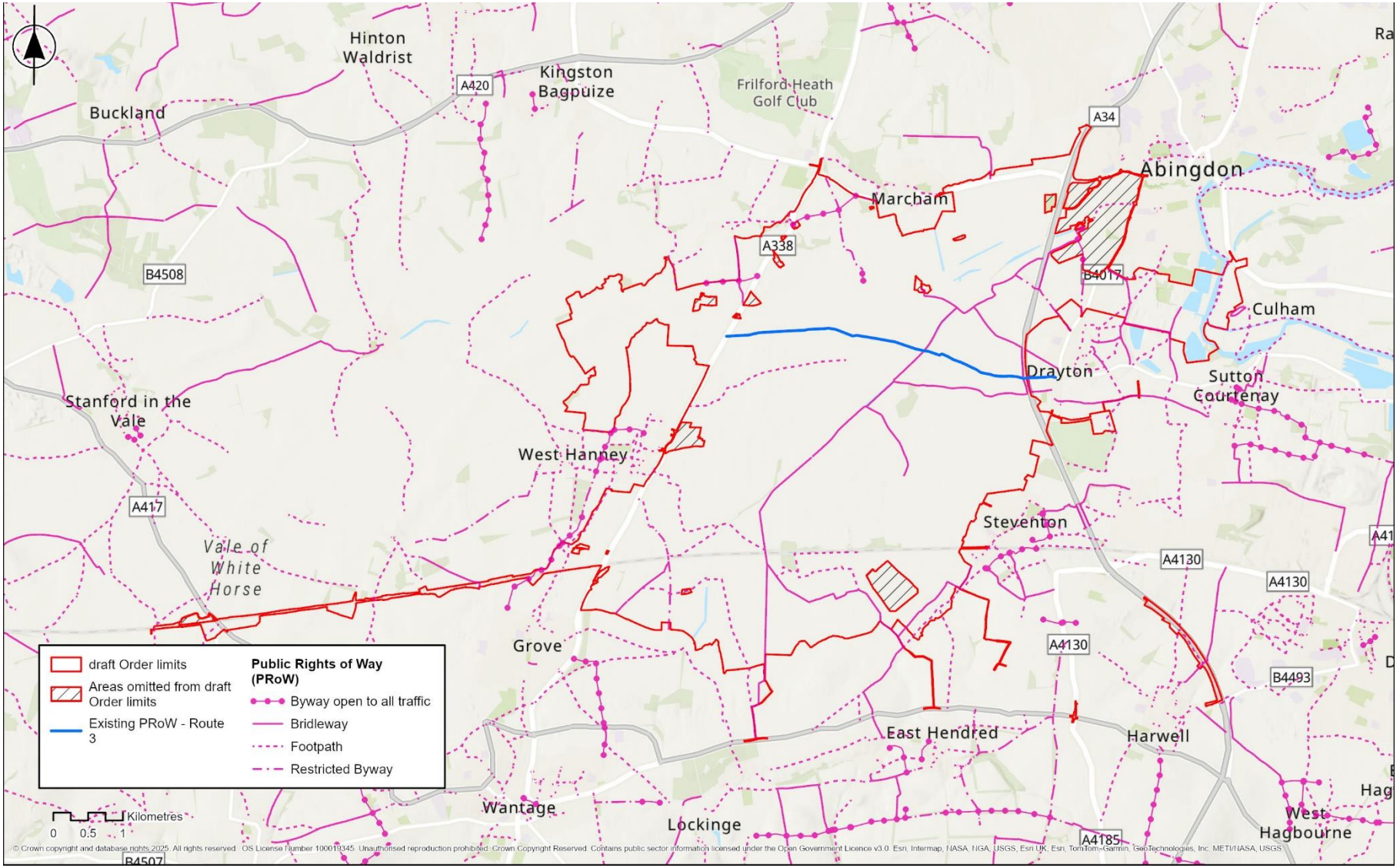


Plate 7.7 Diverted PRoW route 3 - A338 to Drayton, during construction, based on emerging design

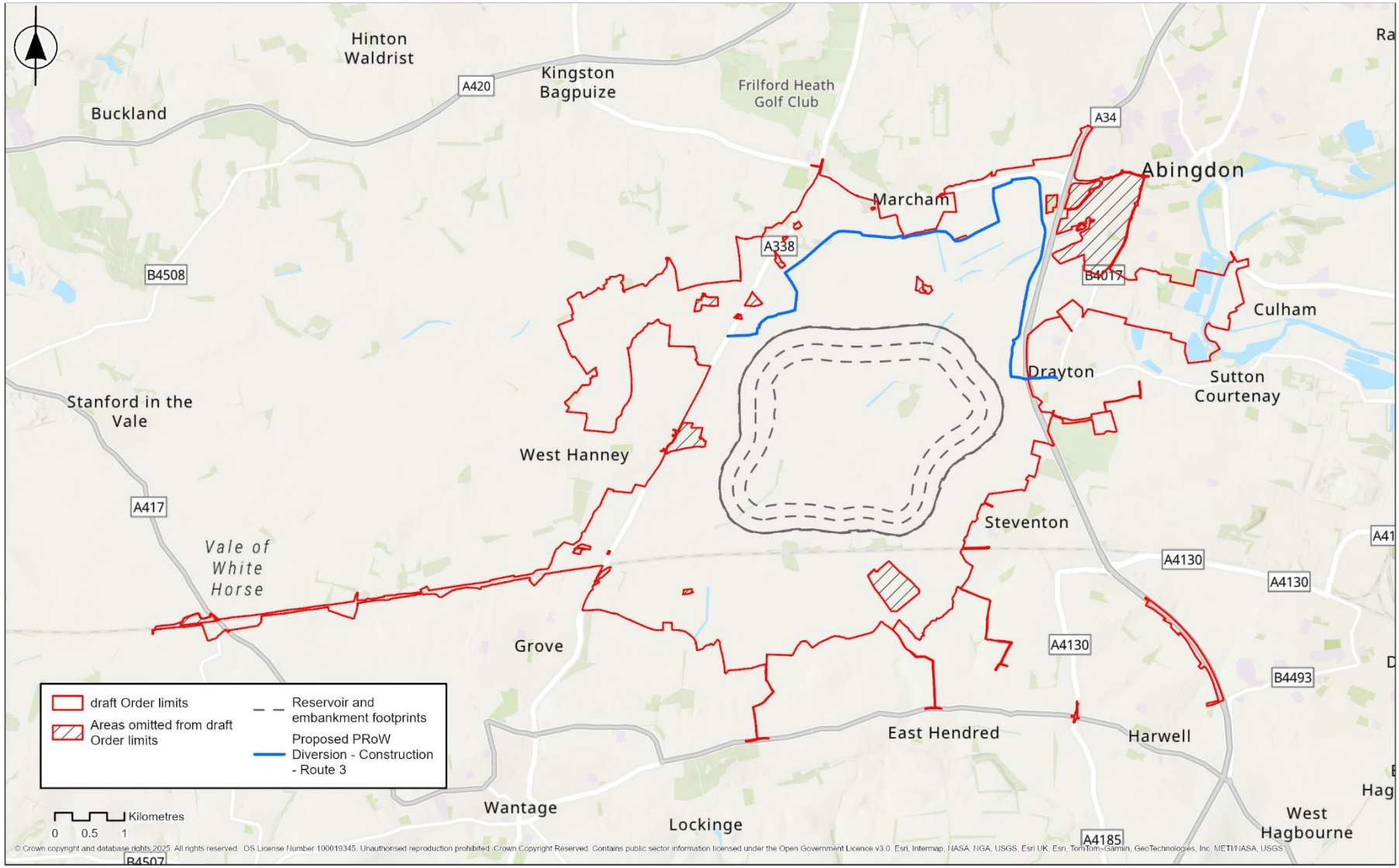


Plate 7.8 Existing PRoW route 4 - East Hanney to the railway line

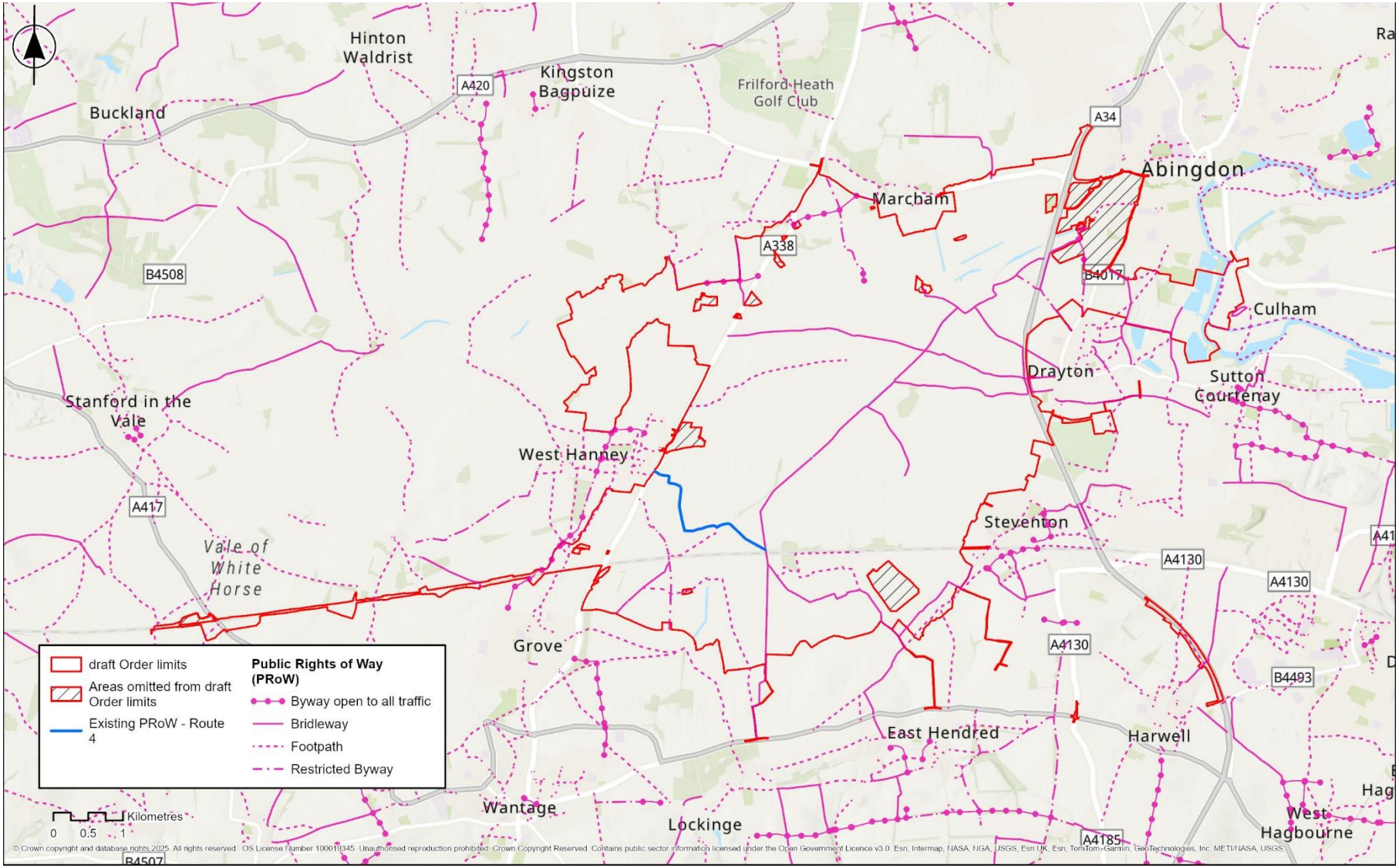


Plate 7.9 Diverted PRoW route 4 - East Hanney to the railway line, during construction, based on emerging design

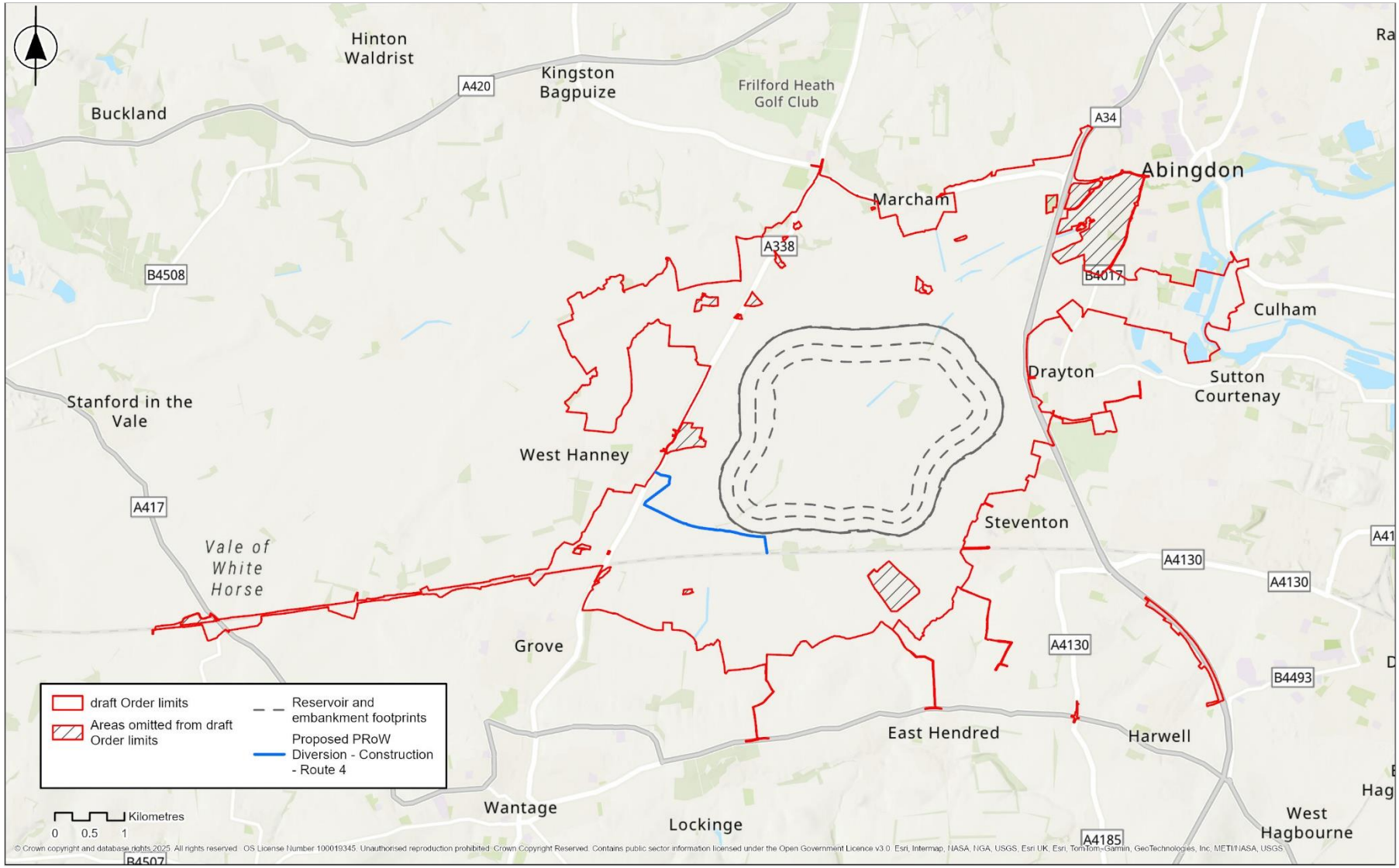


Plate 7.10 Existing PRoW route 5 - Marcham to Steventon

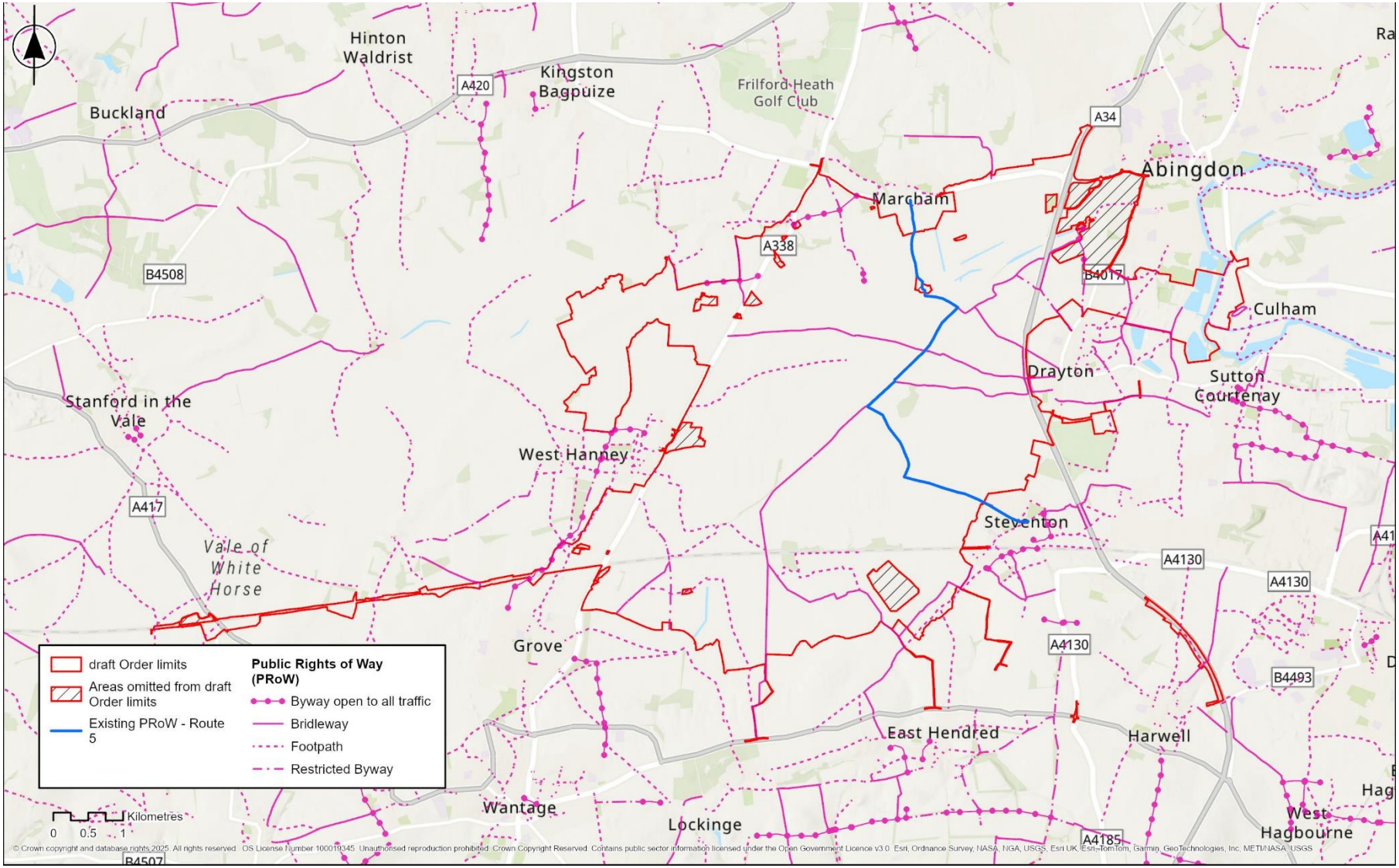


Plate 7.11 Diverted PRoW route 5 - Marcham to Steventon, during construction, based on emerging design

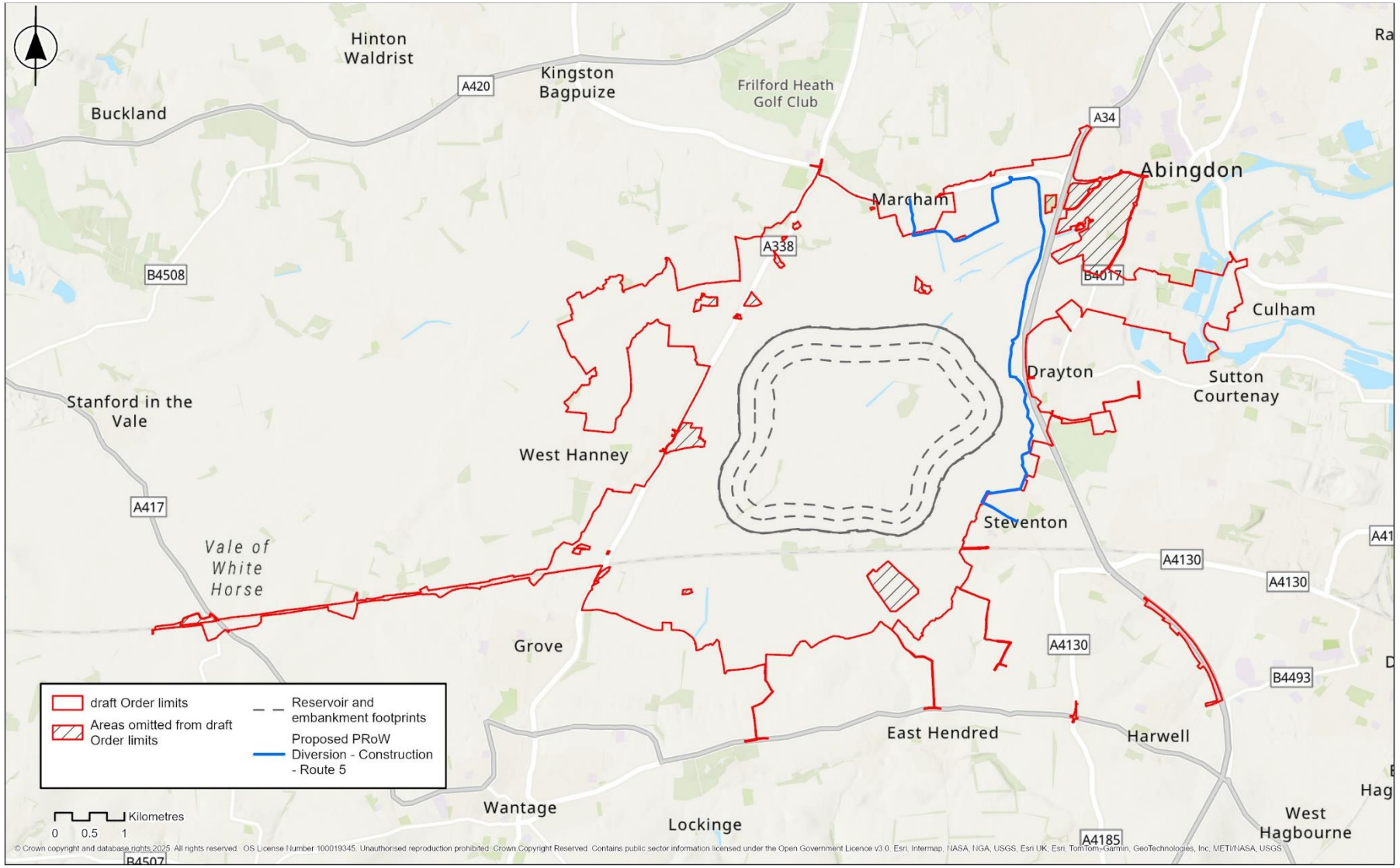


Plate 7.12 Existing PRoW route 6 - Steventon to East Hanney Road

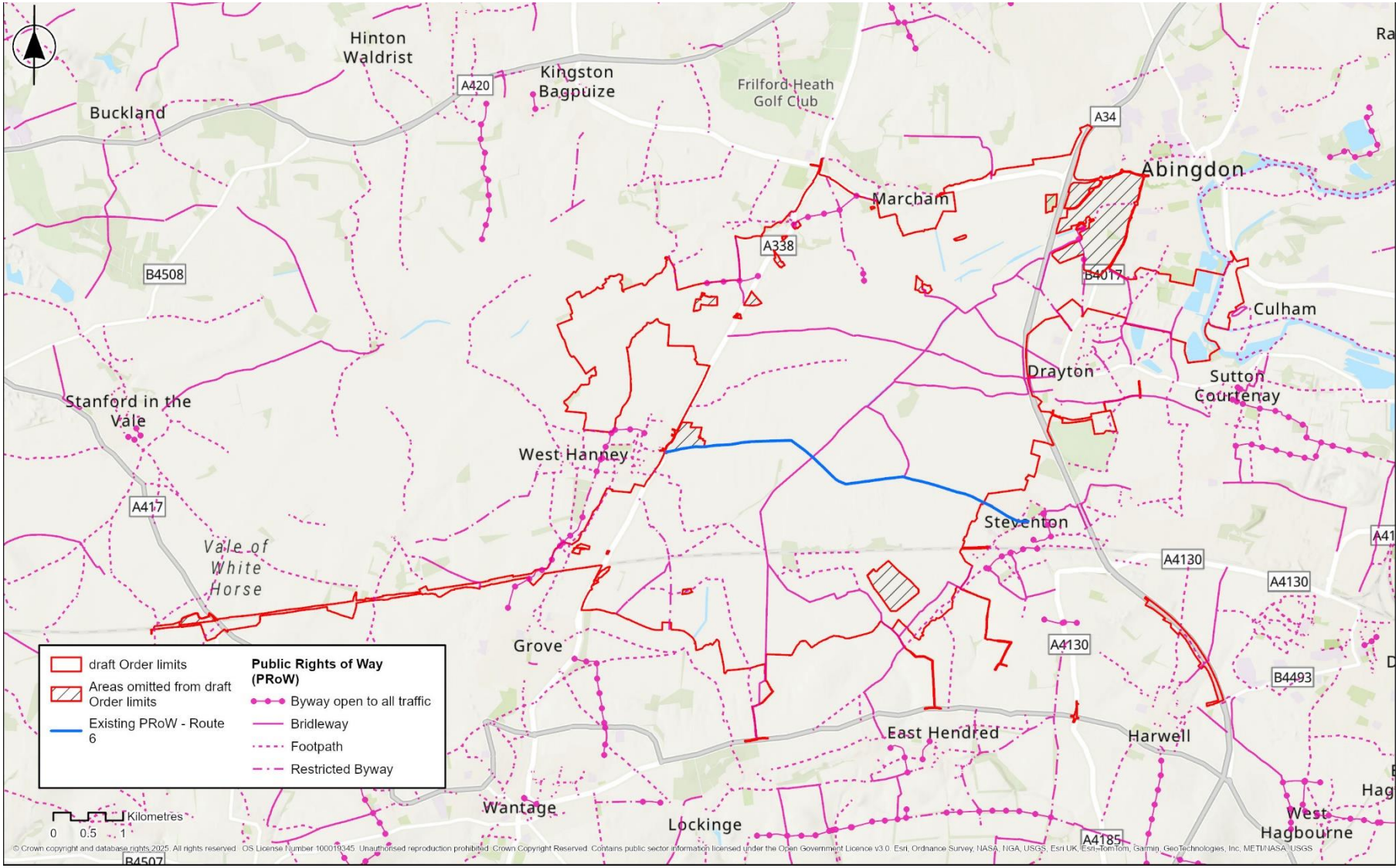
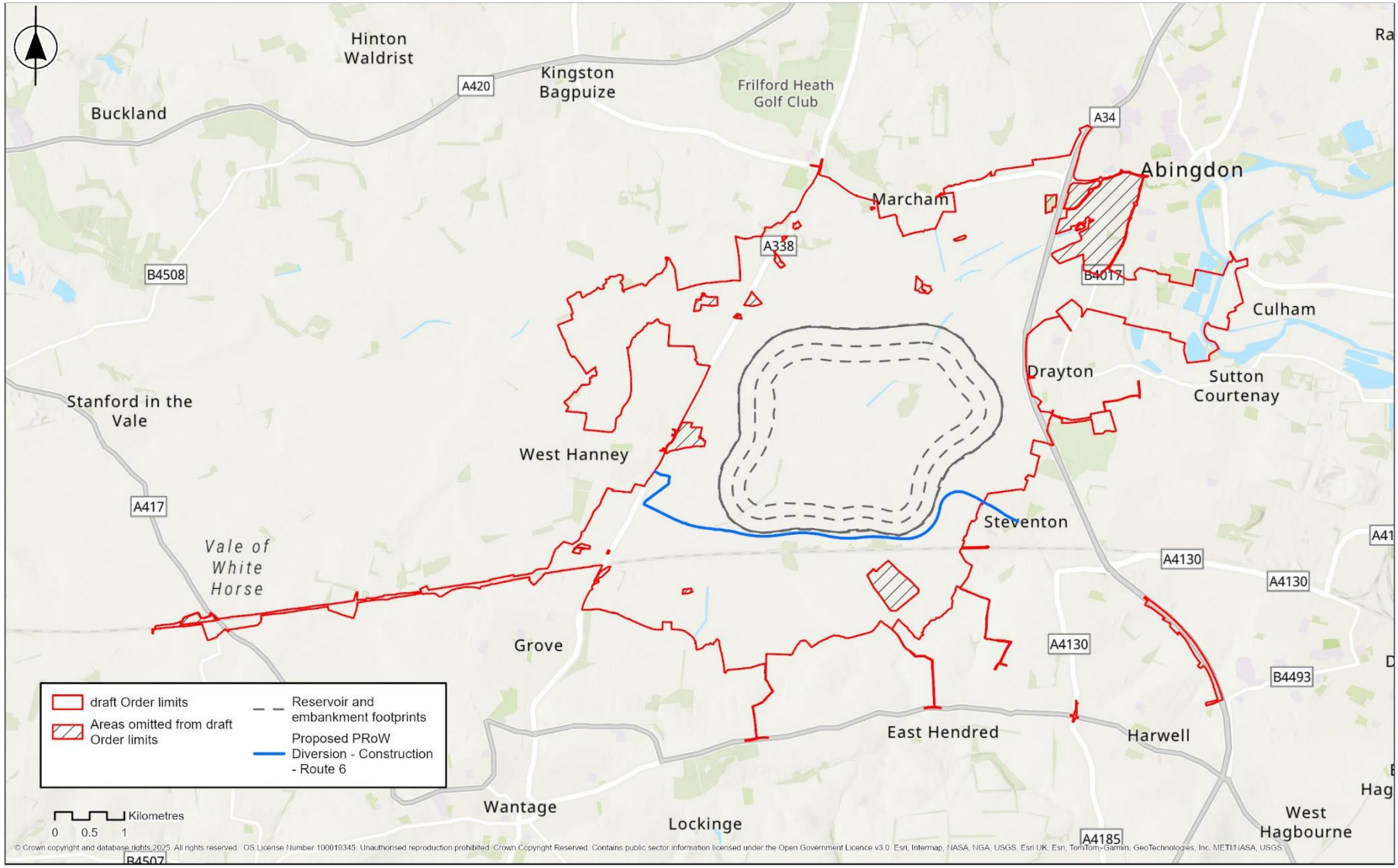


Plate 7.13 Diverted PRoW route 6 - Steventon to East Hanney Road, during construction, based on emerging design



## 7.3 Public transport

7.3.1 No changes are currently proposed to existing public transport services during the construction period. For existing bus users, existing bus route connectivity would therefore be maintained. The X36 would still be able to run between East Hanney and Steventon on the new alignment of the Steventon to East Hanney Road.

7.3.2 At this stage, it is assumed that all construction workers travel by car with an average occupancy of 2.5 people, but this will be subject to further refinement as the Construction Workforce Travel Strategy (within the Code of Construction Practice) is developed. It is likely that organised group transport may be provided by the contractor, such as shuttle buses from Didcot Parkway station or from other centres of population where workers may live temporarily. Further measures would be implemented to encourage more sustainable travel during the construction period.

## 7.4 Highways

### Proposed new junctions

7.4.1 Two new junctions are proposed as part of the Project; the main access located on the A415 east of Marcham and the new roundabout at the end of the diverted East Hanney to Steventon Road on the A338 south of East Hanney. Both junctions have been designed to operate at below 85% saturation in 2036 and 2043 with the Project. Both junctions would be in place before the peak year of construction in 2036.

### Construction peak (2036) traffic modelling

7.4.2 The projected combined worker and HGV trips associated with the peak construction traffic scenario as outlined in Section 6 were added to the 2036 future baseline model scenarios outlined in Section 5.9 to produce models of the performance of each junction in the 'with Project' scenario for that year.

7.4.3 The worst performing arm (RFC or DoS) at each site has been reported for each time period as an indication of junction reserve capacity (i.e. unused capacity). The results are contained in Table 7.1.

Table 7.1 2036 with Project (construction) traffic model results, greatest RFC or DoS per time period

| Ref (see Plate 5.4) | Description | Construction 2036 (RFC or DoS) | | |
|---|---|---|---|---|
| | | AM Peak | PM Peak | Saturday |
| J1 | A338 Oxford Road / A415 Frilford Road, Frilford | 95% | 86% | 82% |
| J2 | A415 / A34 Marcham interchange | 106% | 84% | 62% |
| J3 | B4017 High Street / Hanney Road, Steventon | 81% | 60% | 42% |
| J4 | A4130 / A34 Milton interchange | 81% | 96% | 71% |
| J5 | A4130 Abingdon Road / A417 Reading Road, Rowstock | 72% | 72% | 33% |

| Ref (see Plate 5.4) | Description | Construction 2036 (RFC or DoS) | | |
|---|---|---|---|---|
| | | AM Peak | PM Peak | Saturday |
| J6 | Charlton Village Road / A417 Reading Road , Charlton | 113% | 79% | 84% |
| J7 | Seesen Way / A417 Wallingford Street, Wantage | 57% | 95% | 70% |
| J8 | A338 Grove Street north / Harcourt Way, Wantage | 88% | 91% | 72% |
| J9 | Crown Meadow (A338) / The Green and Main Street, East Hanney | 64% | 50% | 65% |
| J10 | A4130 Abingdon Road / B4017 High Street, Steventon | 84% | 84% | 63% |
| J11 | B4107 Abingdon Road / High Street, Drayton | 73% | 68% | 66% |
| J12 | Malby Way / Denchworth Road, Wantage | 60% | 67% | 44% |
| J14 | Garston Lane / Charlton Rd, Wantage | 97% | 91% | 99% |
| J15 | A338 Newbury Street / B4507 Ormond Road, Wantage | 85% | 72% | 65% |
| J17 | A338 Oxford Road / Abingdon Road, Frilford Heath | 100% | 83% | 69% |
| J18 | A420 / Abingdon Road, Tubney | 59% | 87% | 60% |
| J19 | A420 / A415 Witney Road, Kingston Bagpuize | 77% | 81% | 46% |
| J20 | A420 / A338 roundabout, Tubney Wood | 85% | 74% | 46% |
| J22 | Spring Rd / Ock Street, Abingdon | 91% | 109% | 93% |
| J23 | A4130 Abingdon Road / Grove Road, Rowstock | 72% | 41% | 20% |
| J24N | High Street / Stert Street, Abingdon | 18% | 22% | 25% |
| J24S | Stert Street / Bridge Street, Abingdon | 29% | 15% | 17% |
| J25 | A415 Stratton Way / A4183 Vineyard, Abingdon | 61% | 45% | 42% |
| J26 | A415 Stratton Way / A415 Ock Street, Abingdon | 105% | 99% | 95% |
| J27 | A415 Marcham Road / Nuffield Way, Abingdon | 67% | 87% | 91% |
| J28 | A415 Marcham Road / Colwell Drive, Abingdon | 98% | 90% | 99% |
| J29 | A415 Frilford Road / Mill Road, Marcham | 15% | 22% | 14% |

7.4.4 By comparison with the equivalent future baseline results shown in Table 5.12, the highway-related impacts (i.e. change to the overall junction reserve capacity) arising from construction of the Project are limited to a small number of junctions. In the majority of cases the scale of impact is minor.

7.4.5 The impacts (i.e. the difference between Table 7.1 and Table 5.12) are shown below in Table 7.2.

Table 7.2 2036 with Project (construction) traffic model impacts (change in greatest DoS / RfC in percentage points, pp) per time period

| Ref (see Plate 5.4) | Description | Construction 2036 | | |
|---|---|---|---|---|
| | | AM Peak | PM Peak | Saturday |
| J1 | A338 Oxford Road / A415 Frilford Road, Frilford | 5 pp | 6 pp | - |
| J2 | A415 / A34 Marcham interchange | 24 pp | 2 pp | 2 pp |
| J3 | B4017 High Street / Hanney Road, Steventon | 5 pp | 20 pp | 1 pp |
| J4 | A4130 / A34 Milton interchange | - | 3 pp | -1 pp |
| J5 | A4130 Abingdon Road / A417 Reading Road, Rowstock | 1 pp | 1 pp | - |
| J6 | Charlton Village Road / A417 Reading Road , Charlton | 1 pp | - | 1 pp |
| J7 | Seesen Way / A417 Wallingford Street, Wantage | - | - | - |
| J8 | A338 Grove Street north / Harcourt Way, Wantage | 2 pp | 1 pp | 1 pp |
| J9 | Crown Meadow (A338) / The Green and Main Street, East Hanney | 4 pp | 4 pp | - |
| J10 | A4130 Abingdon Road / B4017 High Street, Steventon | - | - | - |
| J11 | B4107 Abingdon Road / High Street, Drayton | - | - | - |
| J12 | Malby Way / Denchworth Road, Wantage | - | - | - |
| J14 | Garston Lane / Charlton Rd, Wantage | - | - | - |
| J15 | A338 Newbury Street / B4507 Ormond Road, Wantage | - | 1 pp | - |
| J17 | A338 Oxford Road / Abingdon Road, Frilford Heath | - | - | - |
| J18 | A420 / Abingdon Road, Tubney | - | - | - |
| J19 | A420 / A415 Witney Road, Kingston Bagpuize | 2pp | - | - |
| J20 | A420 / A338 roundabout, Tubney Wood | - | - | - |
| J22 | Spring Rd / Ock Street, Abingdon | 1pp | - | - |
| J23 | A4130 Abingdon Road / Grove Road, Rowstock | - | - | - |
| J24N | High Street / Stert Street, Abingdon | - | - | - |
| J24S | Stert Street / Bridge Street, Abingdon | - | - | - |
| J25 | A415 Stratton Way / A4183 Vineyard, Abingdon | 6 pp | - | - |
| J26 | A415 Stratton Way / A415 Ock Street, Abingdon | - | - | - |
| J27 | A415 Marcham Road / Nuffield Way, Abingdon | - | 1 pp | - |
| J28 | A415 Marcham Road / Colwell Drive, Abingdon | 1 pp | 3 pp | -1 pp |
| J29 | A415 Frilford Road / Mill Road, Marcham | - | 1 pp | - |

7.4.6 Four of the sites above include one or more peak hours with a change of five percentage points or greater due to the addition of construction-related traffic. These sites are reported individually below.

### J1: A338 Oxford Road / A415 Frilford Road, Frilford (traffic signals)

7.4.7 At this four-arm, signalised staggered crossroads, the A415 Kingston Road would be approaching capacity in the 2036 AM peak hour at 95% saturated (an increase from 90% in the 2036 future baseline) while the A338 Wantage Road would be 94% saturated in the same peak hour (an increase from 89% in the 2036 future baseline). Conditions in the 2036 PM peak hour and Saturday peak hour, with Project construction, would be better than those in the AM peak hour.

Table 7.3 2036 with Project (construction) modelling results A338 Oxford Road / A415 Frilford Road

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | DoS | Queue | DoS | Queue | DoS | Queue |
| 1 | A338 Oxford Road | 87 | 7 | 84 | 10 | 75 | 6 |
| 2 | A415 Frilford Road | 48 | 7 | 67 | 9 | 48 | 7 |
| 3 | A338 Wantage Road | 94 | 20 | 86 | 8 | 80 | 9 |
| 4 | A415 Kingston Road | 95 | 22 | 84 | 15 | 82 | 14 |

### J2: A415 / A34 Marcham interchange (roundabout)

7.4.8 At this four-arm, grade separated junction the A34 northbound off-slip would operate over capacity in the AM peak hour at 106% saturated (compared to 82% in the 2036 future baseline). In the 2036 PM peak hour and Saturday peak hour, the junction would continue to operate within capacity with Project construction.

Table 7.4 2036 with Project (construction) modelling results: Marcham interchange

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | A34 SB Off-slip | 89% | 8 | 63% | 2 | 37% | 1 |
| 2 | A415 Marcham Road east | 64% | 2 | 69% | 2 | 58% | 2 |
| 3 | A34 NB Off-slip | 106% | 159 | 84% | 5 | 62% | 2 |
| 4 | A415 Marcham Road west | 71% | 3 | 72% | 3 | 60% | 2 |

### J3: B4017 High Street / Hanney Road, Steventon (priority junction)

7.4.9 This T-junction would operate within capacity in all peak hours. During the AM peak hour, Hanney Road would be at 81% saturation (compared to 76% in the 2036 future baseline). In the PM peak hour Hanney Road would be at 60% (compared to 40% in the 2036 future baseline). While the change due to the Project is 20 percentage points in the PM peak, the junction would continue to operate within capacity.

Table 7.5 2036 with Project (construction) modelling results: B4017 High Street / Hanney Road, Steventon

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | B4017 High Street (left-turn / ahead) | - | - | - | - | - | - |
| 2 | Hanney Road | 81% | 5 | 60% | 2 | 42% | 1 |
| 3 | B4017 Abingdon Road (right-turn) | 24% | 1 | 36% | 1 | 22% | 0 |

### J25: A415 Stratton Way / A4183 Vineyard, Abingdon (traffic signals)

7.4.10 In the 2036 AM peak hour at this signalised T-junction construction traffic associated with the Project would increase saturation on Stratton Way by six percentage points from 55% to 61%, although there would still be substantial spare capacity at the junction.

Table 7.6 2036 with Project (construction) modelling results A415 Stratton Way / A4183 Vineyard, Abingdon

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | DoS | Queue | DoS | Queue | DoS | Queue |
| 1 | A415 Stratton Way | 61% | 15 | 45% | 9 | 42% | 9 |
| 2 | A4183 Vineyard | 60% | 18 | 34% | 12 | 42% | 14 |
| 3 | A415 Stert Street (exit only) | - | - | - | - | - | - |

### Conclusions

7.4.11 The impact of the construction phase of the Project from traffic associated with construction workers and the movement of construction materials would be limited to a small number of junctions.

7.4.12 The greatest impact would be at the Marcham interchange which is close to the main site access and is assumed to handle some 72% of all construction-related traffic. Consequently, large numbers of staff and HGVs would use the Marcham interchange to access or leave the A34, or as a route to the intake/outfall works on the River Thames, or to travel between the Site and accommodation in Abingdon.

7.4.13 Proposals for highway improvements at the Marcham interchange are currently being developed to add capacity and improve operation during the peak construction period. These will be developed and included in the assessment presented in the TA with the DCO application.

7.4.14 The A338 / A415 junction in Frilford would experience additional traffic associated with construction worker trips which would increase saturation levels by five to six percentage points in the AM and PM peak hours. The improvements to this junction which form part of

an extant planning permission by another promoter are focussed on improving capacity for the east to west movement. Given the forecast level of operation during the peak Project construction period, further improvements at this location are being considered.

7.4.15 The B4017 High Street / Hanney Road (Steventon) junction and A415 Stratton Way / A4183 Vineyard (Abingdon) junction would both experience impacts of more than five percentage points in saturation, but both sites would continue to operate within capacity and mitigation measures are therefore unlikely to be required.

### Dalton Barracks sensitivity test scenario

7.4.16 An initial sensitivity test has been completed based on the 2036 with project (construction) scenario plus assumed Dalton Barracks traffic.

7.4.17 In 2036 Dalton Barracks is projected to have completed 1,250 residential units. Basic assumptions have been made regarding trip generation and routing related to that level of development based on available knowledge of the proposals.

7.4.18 The impact of Dalton Barracks is projected to be most significant (greater than five percentage points change in capacity) at the following locations:

- J1: A338 Oxford Road / A415 Frilford Road, Frilford
- J2: A415 / A34 Marcham interchange
- J22: Spring Rd / Ock Street, Abingdon
- J26: A415 Stratton Way / A415 Ock Street, Abingdon

# 8 Operational travel demand

## 8.1 Introduction

8.1.1 This section sets out the proposed multi-modal travel demand for visitors and staff once the Project is open and operational. An Outline Operational Travel Strategy is provided in Appendix 1.

## 8.2 Visitor travel demand

8.2.1 The approach used to derive peak hour operational visitor trips is based on information which has been developed to provide a forecast of the number of annual visitors to the Site. Publicly available information for other leisure sites has then been reviewed to distribute the annual figure by month, day and hour.

8.2.2 Mode shares have been considered based on the catchment area of the Site and the likely mode of travel, as well as the taking into consideration the opportunities to promote sustainable travel.

### Annual visitor numbers

8.2.3 The likely number of visitors to the Site was based on reviews of activity at other reservoir sites, estimated penetration rates (the proportion of the population within a 90-minute drive time catchment that might visit the Project) and estimated visit frequency.

8.2.4 Forecasts were made for low, medium and high scenarios, which reflect different assumed levels of leisure facilities within the Site.

8.2.5 This work is subject to further refinement for the DCO application but the current annual visitor forecasts are provided in Table 8.1. The assessment for the PEI Report and PTAR has adopted the high scenario figure, taking into account the facilities proposed as set out in Section 3.

Table 8.1 Estimate of annual visitors

| Estimated visitors | Low | Medium | High |
|---|---|---|---|
| Residents | 368,000 | 704,000 | 887,000 |
| Tourists | 41,000 | 104,000 | 145,000 |
| Organisations | 2,000 | 14,000 | 26,000 |
| **Total** | **411,000** | **822,000** | **1,058,000** |

8.2.6 The above table shows that for the high scenario, over one million visitors are expected a year to the Site, with over 80% being residents.

### Seasonality and daily trips

8.2.7 Further analysis has been undertaken to establish the likely peak number of daily visitor trips. Publicly available information for other leisure / recreational sites have been reviewed, such as for Rutland Water Park, Grafham Water, Carsington Water and Cotswold Water Park. However, whilst annual visitor numbers are available for some of the locations, no data is available to derive a more detailed trip profile.

8.2.8 It is expected that the seasonality of visits (i.e. the variation across different times of year) for the Site is less location-specific and is more associated with prevailing weather and holiday periods which influence leisure and recreation travel. Whilst recognising that the location and scale of facility is different, data from the Queen Elizabeth Country Park (QECP) in Hampshire and the approach used for the proposed Havant Thicket reservoir application (Havant Borough Council planning reference: APP/20/00990) have been adopted to develop peak period trips for the Project.

8.2.9 QECP data used in the Havant Thicket application included the following:

- Hampshire County Council (HCC) Automatic Number Plate Recognition Data (ANPR) for the QECP:
  - Annual profile of visitors month on month
  - The split of weekday and weekend visitors within a given month
  - The average daily arrival profile for winter and summer periods
- The Visitor Number and Recreational Amenity Facilities Review to:
  - Derive the visitor number to vehicle ratio
  - Derive the vehicle mode share assumptions for each visitor user type, and overarching vehicle occupancy
- HCC ticketing information:
  - Ticketing information at QECP was used to inform assumptions on the departure profile of visitors in winter and summer periods.

8.2.10 The monthly profile of visitor trips are shown in Plate 8.1 and assumptions on the weekday and weekend split of trips at different times of year are shown in Table 8.2.

Plate 8.1 Monthly profile of visitor trips

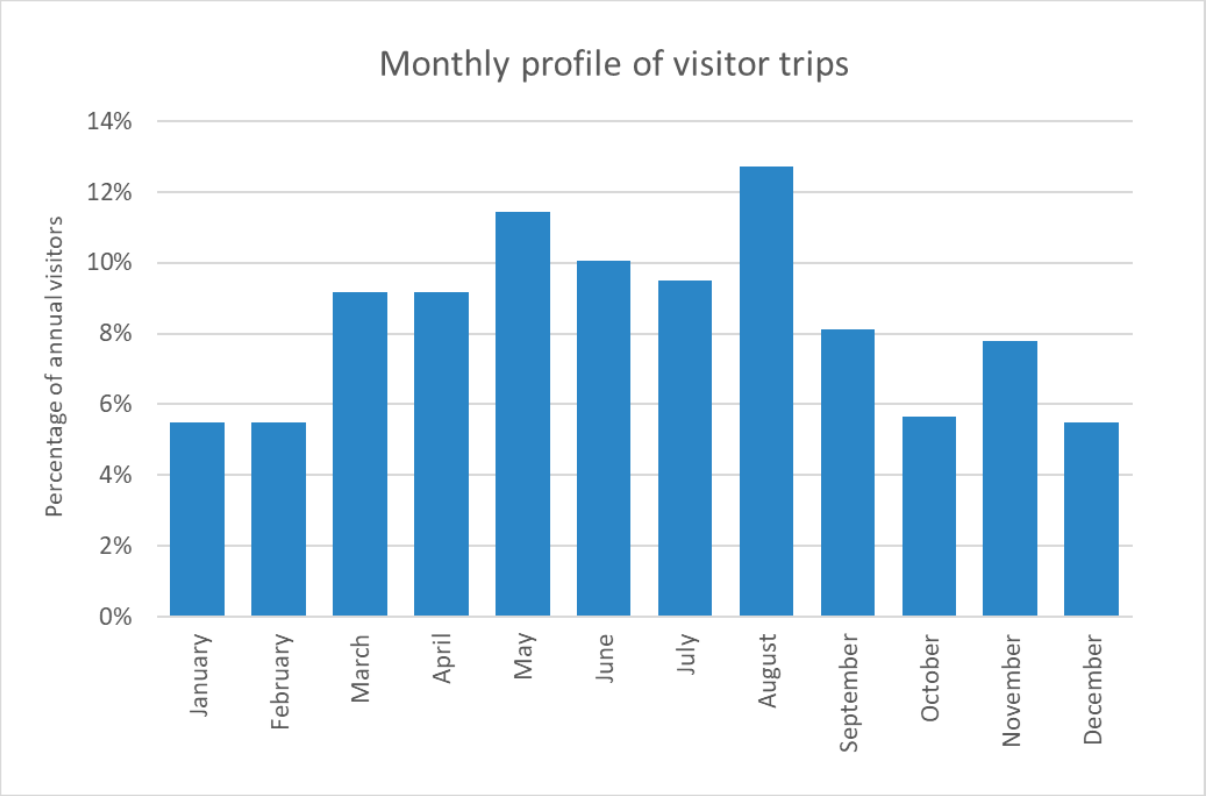
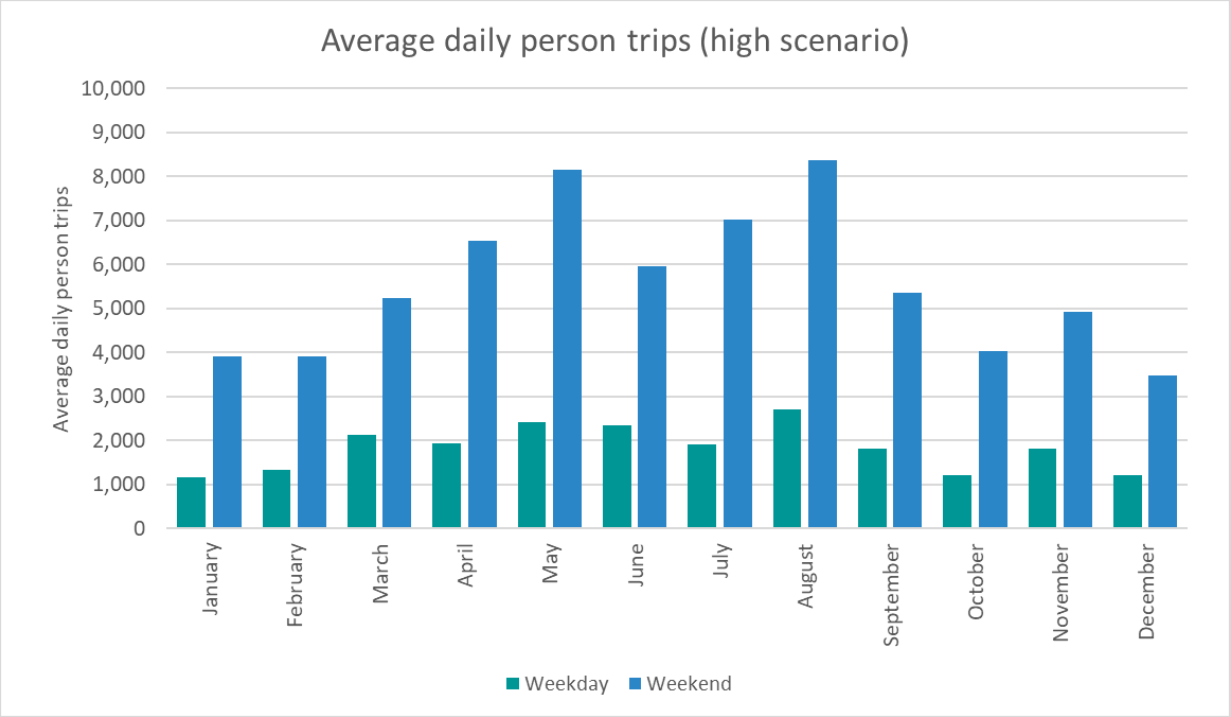



Table 8.2 Assumptions on weekday and weekend split of trips

| Weekday / weekend | June - September | October - May |
|---|---|---|
| Weekday (Monday to Friday) | 44% | 46% |
| Weekend (Saturday and Sunday) | 56% | 54% |

8.2.11 On this basis, the number of daily weekday and weekend person trips by month is shown in Plate 8.2.

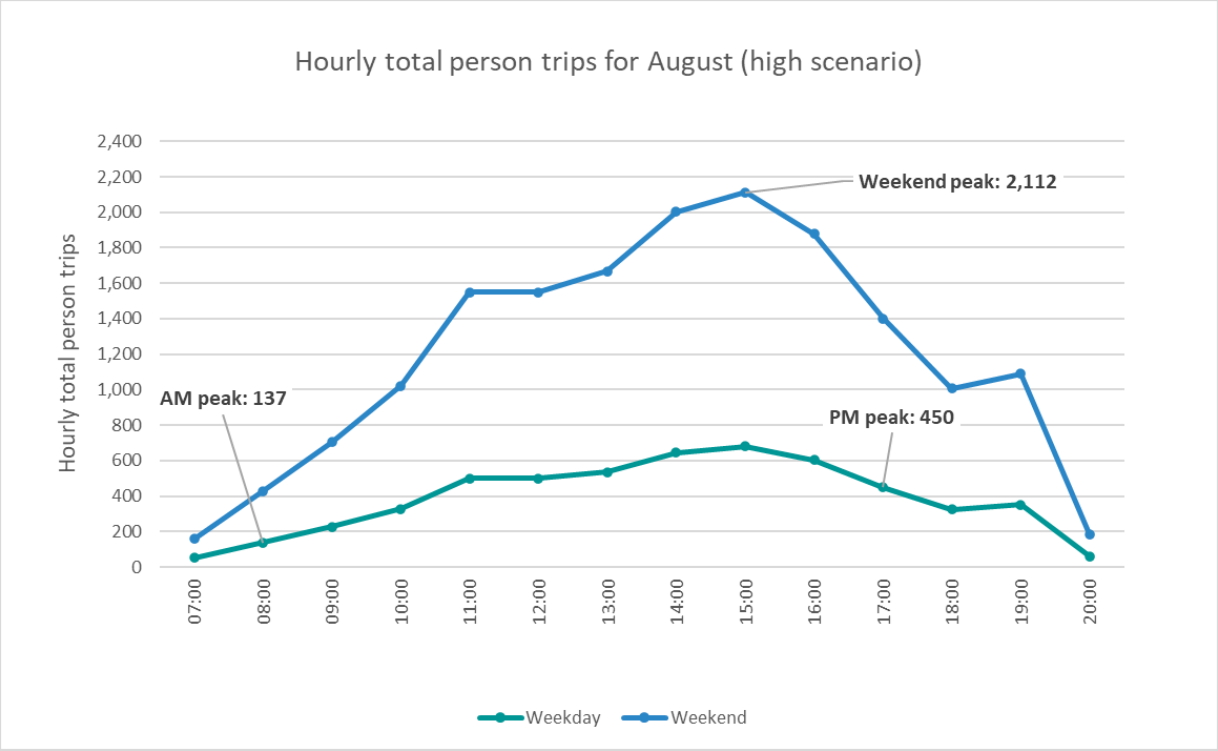
Plate 8.2 Seasonal profile – number of visitors




8.2.12 Plate 8.1 and Plate 8.2 show that in the winter, around 6% for the annual visitors could be expected per month. This increases over spring and summer, with the peak expected to be August which accounts for 13% of the annual visitors. This equates to 2,700 daily weekday visitors and 8,400 daily weekend visitors. This is considered a reasonable assumption given the summer holidays and the proposed leisure uses at the Site.

8.2.13 To assess a robust case, the PEI Report and PTAR are based on the trips in the peak month of August. Data on hourly profile of arrivals and departures is required to determine peak hour trips and as set out in paragraphs 8.2.7 and 8.2.8, this level of detail is not publicly available for existing sites. The QECP hourly profile data is contained in the Havant Thicket planning application and this has been applied to the forecast August visitor numbers for the Project. The hourly profile of total person trips for the Project is shown in Plate 8.3.

Plate 8.3 Proposed hourly profile of visitor person trips (total movements), August




8.2.14 During a typical August weekday, a total of 140 and 450 person trips are estimated for the AM and PM peak hours respectively. Weekends are expected to be more popular for visitors and the peak hour is expected to be in the mid-afternoon, when around 2,100 person trips are expected in total.

### Multi-modal peak hour trips

8.2.15 The annual visitor estimate is based on a residential population catchment of 90 minutes' drive time and assumed penetration rates within each part of that catchment. The proportion of annual trips made by residents and originating in each drive time catchment band is shown in Table 8.3.

Table 8.3 Proportion of residents' trips by catchment

| Drive-time catchment | Proportion of trips |
|---|---|
| Up to 30-minute drive-time | 29% |
| 31 to 60-minute drive-time | 62% |
| 61 to 90-minute drive-time | 9% |
| Total | 100% |

8.2.16 The approach to mode shares is to consider the data from QECP and the Havant Thicket application, together with a more site-specific analysis of the opportunities for active and sustainable travel. The Havant Thicket presented a 70% mode share by car (drivers and passengers, with a vehicle occupancy of 2.2) for residents. The same occupancy was

assumed for tourists and organisations but for a robust case it is assumed that these visitors would all travel by car. No information was provided for the other modes.

8.2.17 Walking trips to and from the Site could include regular trips undertaken by local residents, as well as longer distance, less regular trips to the Site by those who live further afield; or include the Site in a longer walk starting at another location. Based on a 20-minute journey time isochrone from the boundary of the Site, it is expected that that the local settlements of Marcham, East Hanney, Steventon and Drayton could be within regular walking distance. However, the overall population of these settlements is relatively small when compared to the total population catchment. The walking mode share is therefore considered to be in the region of 1% of all visitor trips to the Site.

8.2.18 Cycling catchments have also been reviewed for a 30-minute and 60-minute ride from the reservoir area. Cycling can pick up the residential population in the wider area, including Abingdon, Didcot, Wantage and much of Oxford. It is acknowledged that not all potential visitors within this catchment would choose to cycle and, conversely, there may be leisure cyclists making longer journeys from further afield. For the purposes of the PEI Report and PTAR, it is assumed that a 4% cycling mode share could be achieved.

8.2.19 On public transport, based on preliminary work, there are opportunities to divert or extend existing bus services to the Site or to create new services to cater for visitor demand from larger population settlements such as Oxford. This could include variation to routes which currently terminate in Abingdon, or provision of new direct bus links between the Site and surrounding communities and rail stations. Further work is being undertaken to develop a more detailed public transport proposition, but for the purposes of the PEI Report and PTAR, it is assumed that a 12% bus mode share could be achieved.

8.2.20 For rail, based on the relatively large proportion of visitors between 30 and 90-minutes' drive time, there is a feasible opportunity for longer distance trips to be made by rail, particularly if improved bus connections can be provided between the Site and Didcot Parkway and Oxford Stations. As such, it is considered that an 8% rail mode share is reasonable for the PEI Report and PTAR.

8.2.21 Further development of public transport improvements and the active travel network proposals will be undertaken as part of the development of the DCO application. Based on the above principles, the forecast mode share for resident visitors, tourists and organisations used in the PEI Report and PTAR is as follows:

- 5% of trips by active modes
- 20% of trips by public transport
- 75% of trips by car drivers and passengers

8.2.22 The resulting multi-modal peak hour trips are set out in Table 8.4. It should be noted that within the trip numbers there is the assumption that all tourists and organisations travel by car (as set out in paragraph 8.2.16). This is subject to further development and refinement for the DCO application as it is likely that some organisations would arrange for group travel using minibuses or coaches.

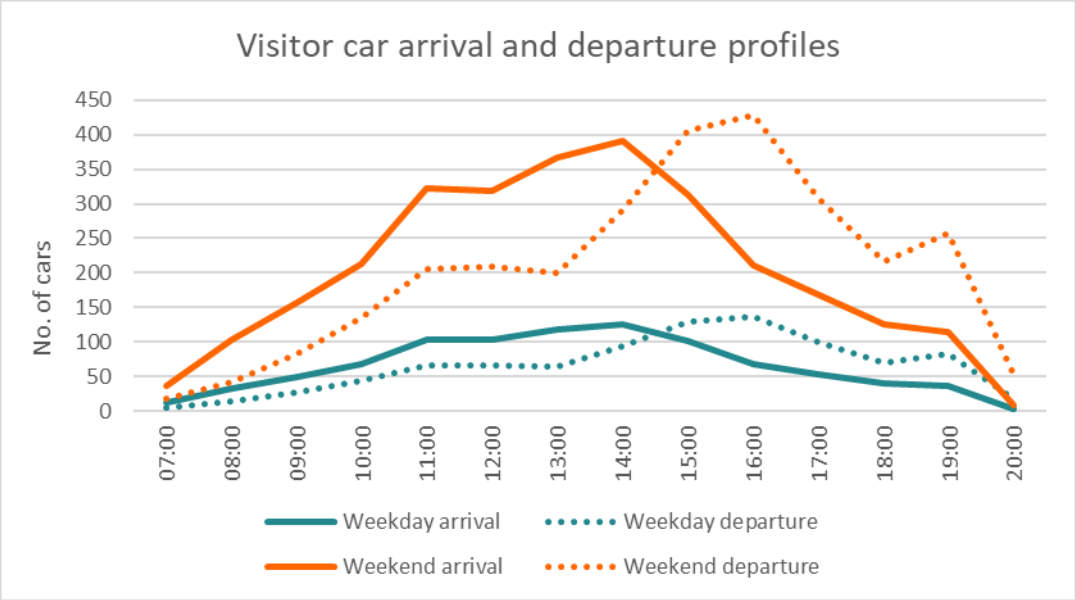
Table 8.4 Visitor multi-modal peak hour trips, August

| Mode | Mode share | Weekday AM peak (0800-0900) | | | Weekday PM peak (1700-1800) | | | Weekend peak (1500-1600) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | In | Out | Total | In | Out | Total | In | Out | Total |
| Walking | 1% | 1 | 0 | 1 | 2 | 3 | 4 | 9 | 12 | 21 |
| Cycling | 4% | 4 | 2 | 5 | 6 | 12 | 18 | 37 | 48 | 84 |
| Bus | 12% | 12 | 5 | 16 | 19 | 35 | 54 | 111 | 143 | 253 |
| Rail | 8% | 8 | 3 | 11 | 13 | 24 | 37 | 75 | 97 | 172 |
| Car driver | 34% | 33 | 14 | 47 | 54 | 99 | 153 | 313 | 405 | 719 |
| Car passenger | 41% | 40 | 17 | 56 | 65 | 119 | 184 | 376 | 486 | 862 |
| **Total** | **100%** | **97** | **40** | **137** | **159** | **291** | **450** | **921** | **1191** | **2112** |

*Note: Car driver and car passenger mode shares takes into account 70% combined car driver and passenger for residents, and 100% for tourists and organisations, with an average vehicle occupancy of 2.2.*

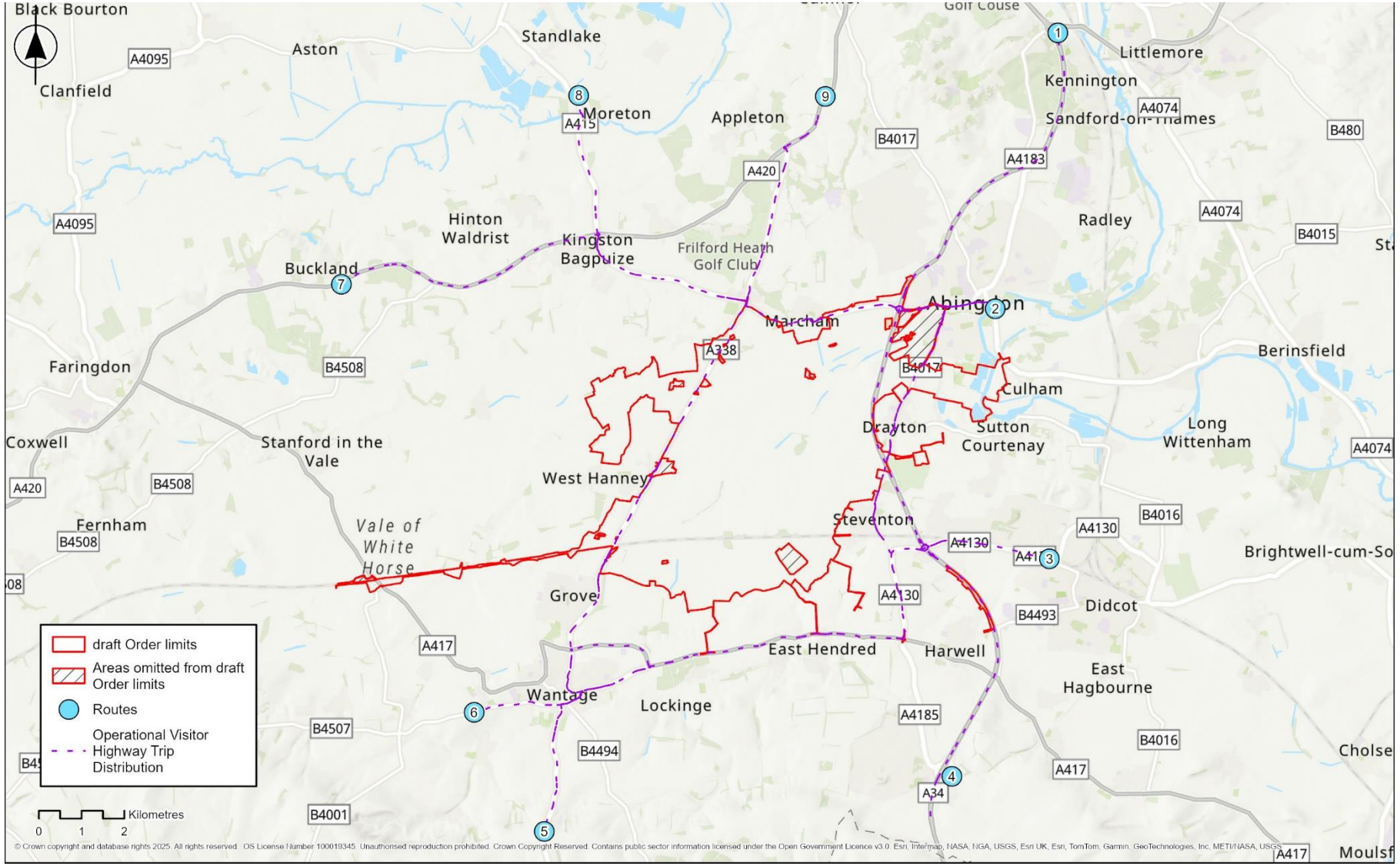
8.2.23 The arrival and departure profiles of car drivers for a weekday and weekend is shown in Plate 8.4.

Plate 8.4 Visitor car arrival and departure profiles, August




8.2.24 The visitor car trips have been distributed onto the highway network based on the population distribution within the 90-minute drive time catchment area. The routes are shown in Plate 8.5.

Plate 8.5 Operational visitor highway trip distribution



## 8.3 Staff travel demand

8.3.1 At this stage, based on the approximate footprint of the Recreation Lakes Centre (3,600 sqm), Water Sports Centre (2,350 sqm) and Nature Education Centres (850 sqm), allowance has been made for approximately 100 staff travelling to and from the Site per day.

8.3.2 This equates to one member of staff per 68sqm of floor area, which is broadly in keeping with employment densities for D2 leisure uses set out in Homes and Communities Agency (HCA) Employment Density Guide (3rd Edition, 2015), although it is acknowledged that the potential range in densities between different leisure uses is large.

8.3.3 The staff mode share is based on Census travel to work data for the workday population in the local area to derive multi-modal trips. The Census data reported 12% walking which could be reflecting existing residents working locally. However, based on the site location and distance from local settlements, the walking mode share has been adjusted to reflect that employees from the local area are more likely to use bus or rail to access the Site. The proposed staff mode share and multi-modal trips are set out in Table 8.5.

Table 8.5 Staff arrival and departure trips (daily)

| Mode | Mode share | Daily trips | | |
|---|---|---|---|---|
| | | In | Out | Total |
| Walking | 4% | 4 | 4 | 8 |
| Cycling | 8% | 8 | 8 | 16 |
| Bus | 10% | 10 | 10 | 20 |
| Rail | 3% | 3 | 3 | 6 |
| Motorcycle | 1% | 1 | 1 | 2 |
| Car driver | 69% | 69 | 69 | 138 |
| Car passenger | 5% | 5 | 5 | 10 |
| **Total** | **100%** | **100** | **100** | **200** |

8.3.4 Based on the daily trips, a peak hour could see 100 staff arriving, of which there would be 69 car drivers. It should be noted that the peak operational staff hours for travelling are, in practice, likely to be different to the highway network peak hour.

### Summary

8.3.5 Based on forecast annual visitor numbers for the Site and further analysis to take into consideration seasonality and weekly profiles, peak hour trips have been derived for August (when the highest proportion of annual trips is expected).

8.3.6 The analysis shows around one million annual visitors to the Site could be expected and daily trips would fluctuate through the year. The Site is expected to be more popular during the weekend, with the peak hour being in the afternoon with over 2,000 person trips in August in total. The proposed mode shares for visitor trips are 5% active travel, 25% by

public transport, and the rest by car, either as car driver or passenger. The number of visitor car trips arising in the August weekend peak hour is forecast to be around 700.

8.3.7 During the weekday, given the nature of the Site being a leisure / recreational destination, the peak periods are during the day, with comparatively fewer trips during the typical highway AM and PM peak periods.

8.3.8 Further refinement of the operational trip generation will be undertaken as part of the development of the assessment for the DCO application, as sustainable transport interventions and related Operational Travel Plan measures become more defined.

# 9 Operation impacts

## 9.1 Introduction

9.1.1 This section sets out the preliminary impacts on the transport network associated with the operation of the Project.

## 9.2 Walking, cycling and horse-riding

### On-site provision

9.2.1 Once the Project is operational, there would be a new comprehensive network of PRoW delivered around the reservoir as set out in Section 3.

9.2.2 A series of existing routes across the Site has been considered, and the existing and these together with the alternatives that would be available are shown in the diagrams in Plate 9.1 to Plate 9.12. The diagrams show that whilst there would be some changes in journey length, alternative routes would be provided for all the key desire lines. In addition, the overall quality of PRoW across the Site would be improved. The detail of the network of PRoW and other active travel routes during operation will be further refined for the DCO application.

9.2.3 Plate 9.1 to Plate 9.12 show the existing routes using PRoW between different destinations around the Site, together with the revised route that would be in place for the operational phase. These changes would lead to the following changes in journey distance:

- Between Abingdon and A417 Reading Road (route 1) an increase of 0.6km from the existing length of 8.4km
- Between Marcham and Drayton (route 2) an increase of 0.9km from the existing length of 4.1km
- Between the A338 and Drayton (route 3) an increase of 1.5km from the existing length of 9.7km
- Between East Hanney and the GWML (route 4) an increase of 0.4km from the existing length of 2.5km
- Between Marcham and Steventon (route 5) a decrease of 1.2km from the existing length of 8.4km
- Between East Hanney and Steventon (route 6) an increase of 0.8km from the existing length of 5.4km

9.2.4 There would be no change to journey distances on NCN Route 5 or on the Thames Path, which would be reinstated to their existing alignments.

Plate 9.1 Existing PRoW route 1 - Abingdon to the A417 Reading Road

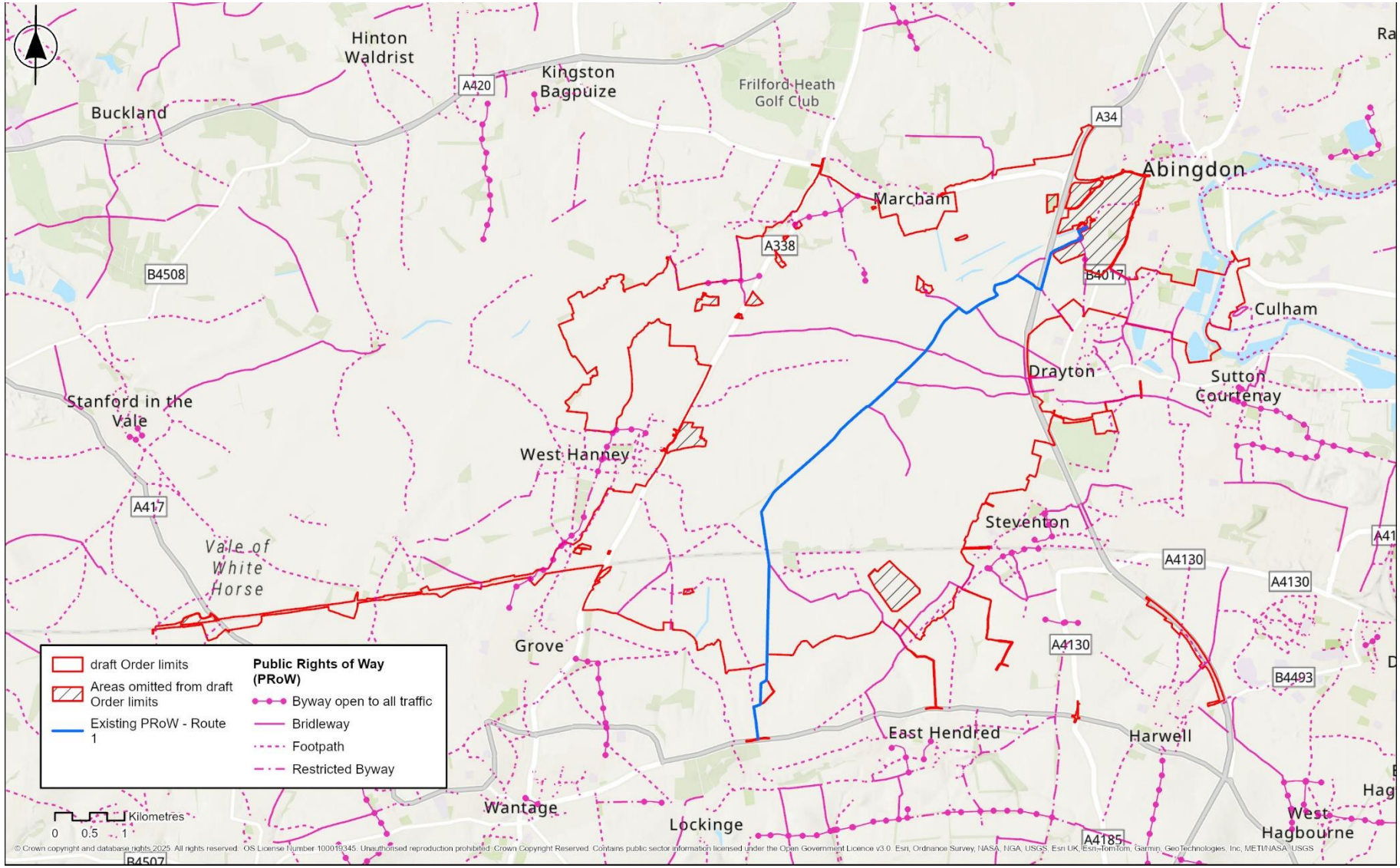


Plate 9.2 Diverted PRoW route 1 - Abingdon to the A417 Reading Road, during operation, based on emerging design

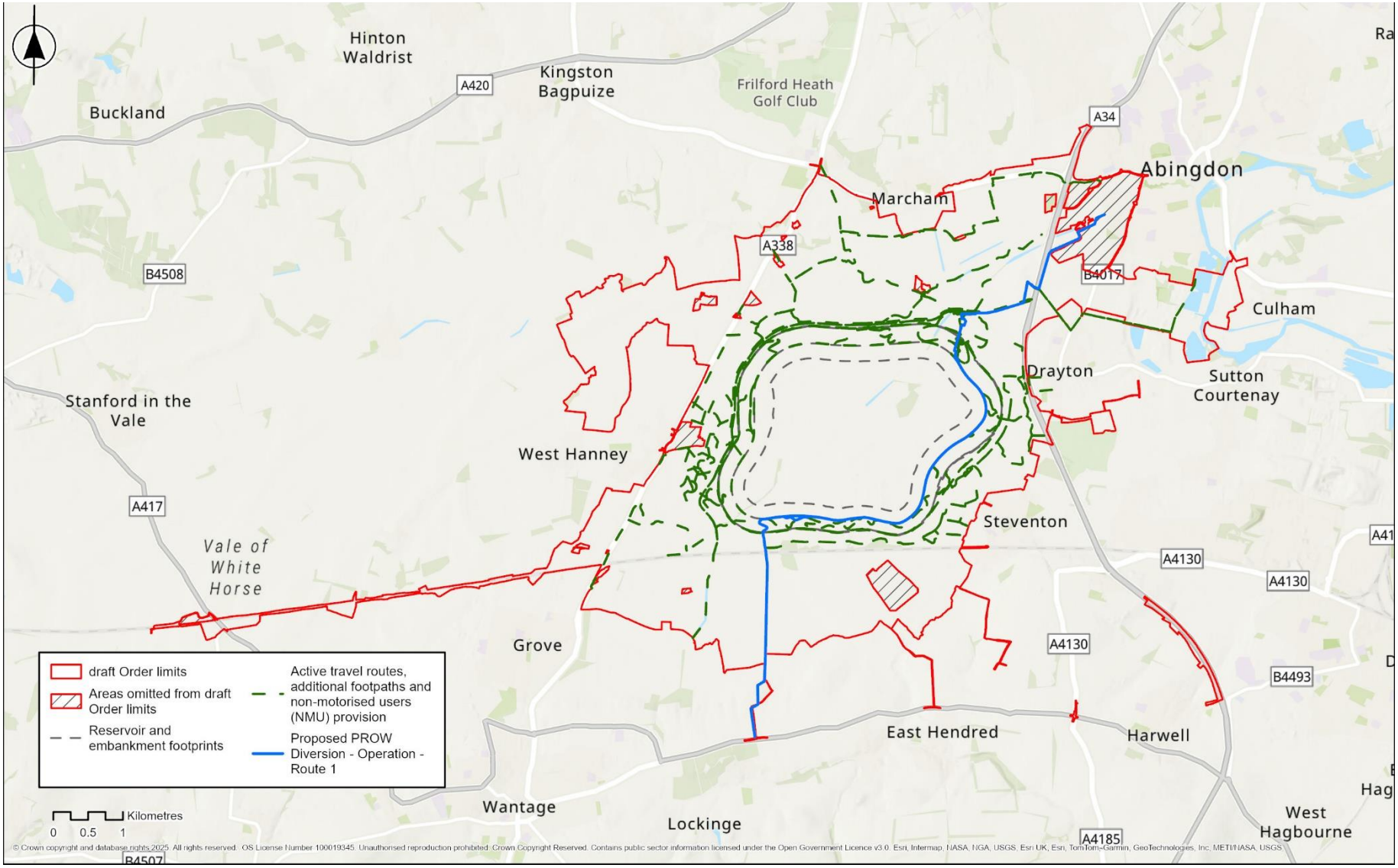


Plate 9.3 Existing PRoW route 2 - Marcham to Drayton

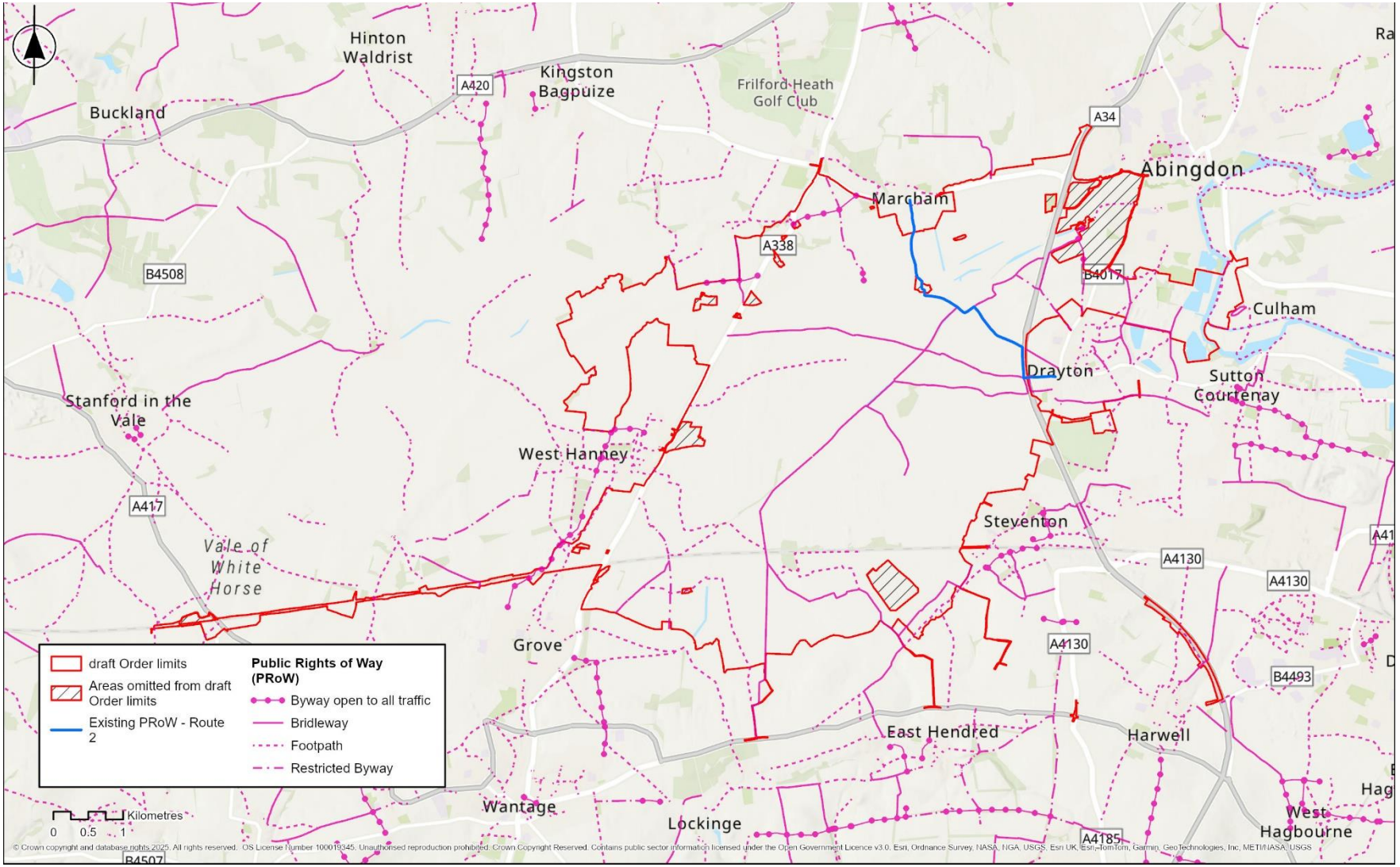


Plate 9.4 Diverted PRoW route 2 - Marcham to Drayton, during operation, based on emerging design

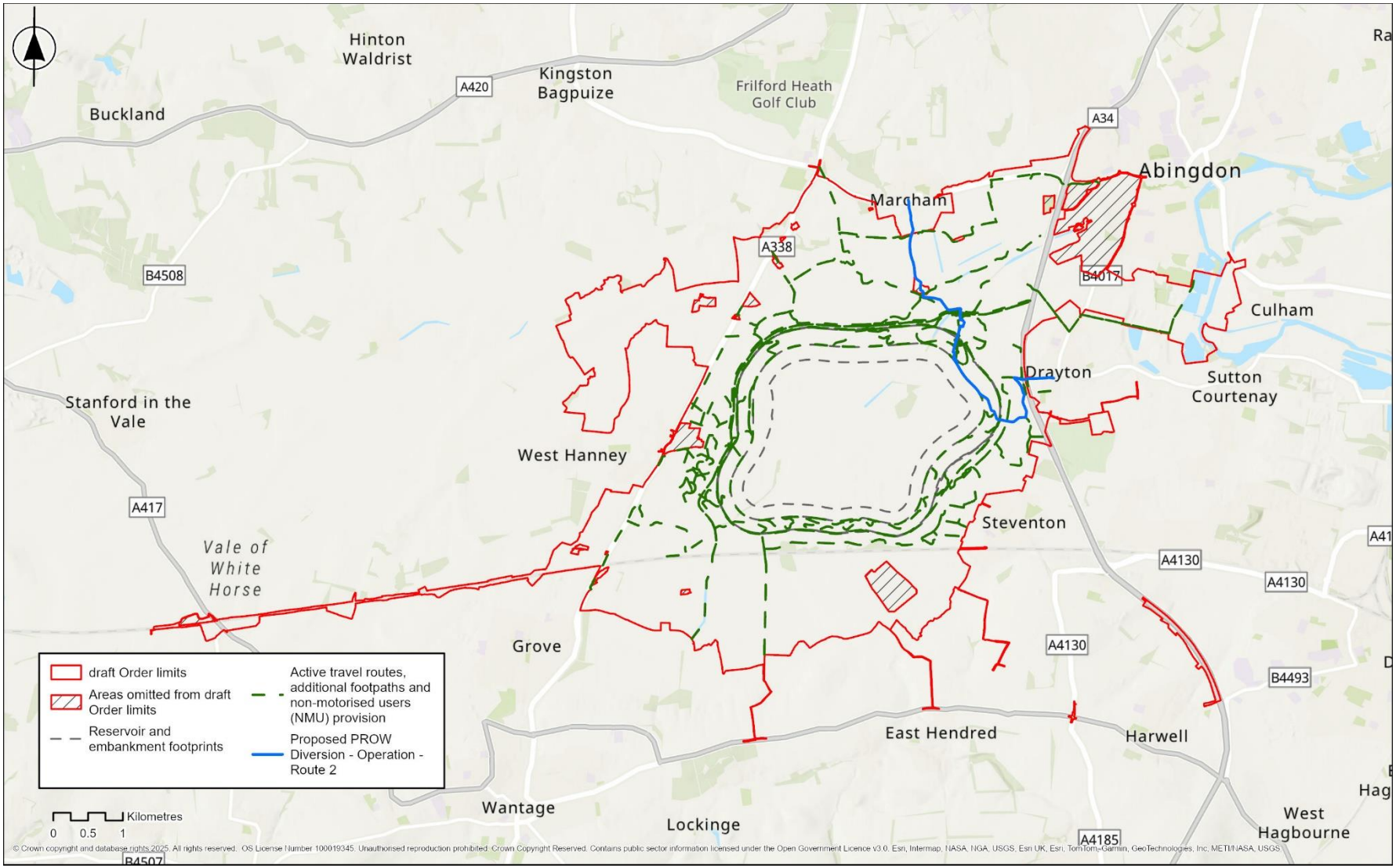


Plate 9.5 Existing PRoW route 3 - A338 to Drayton

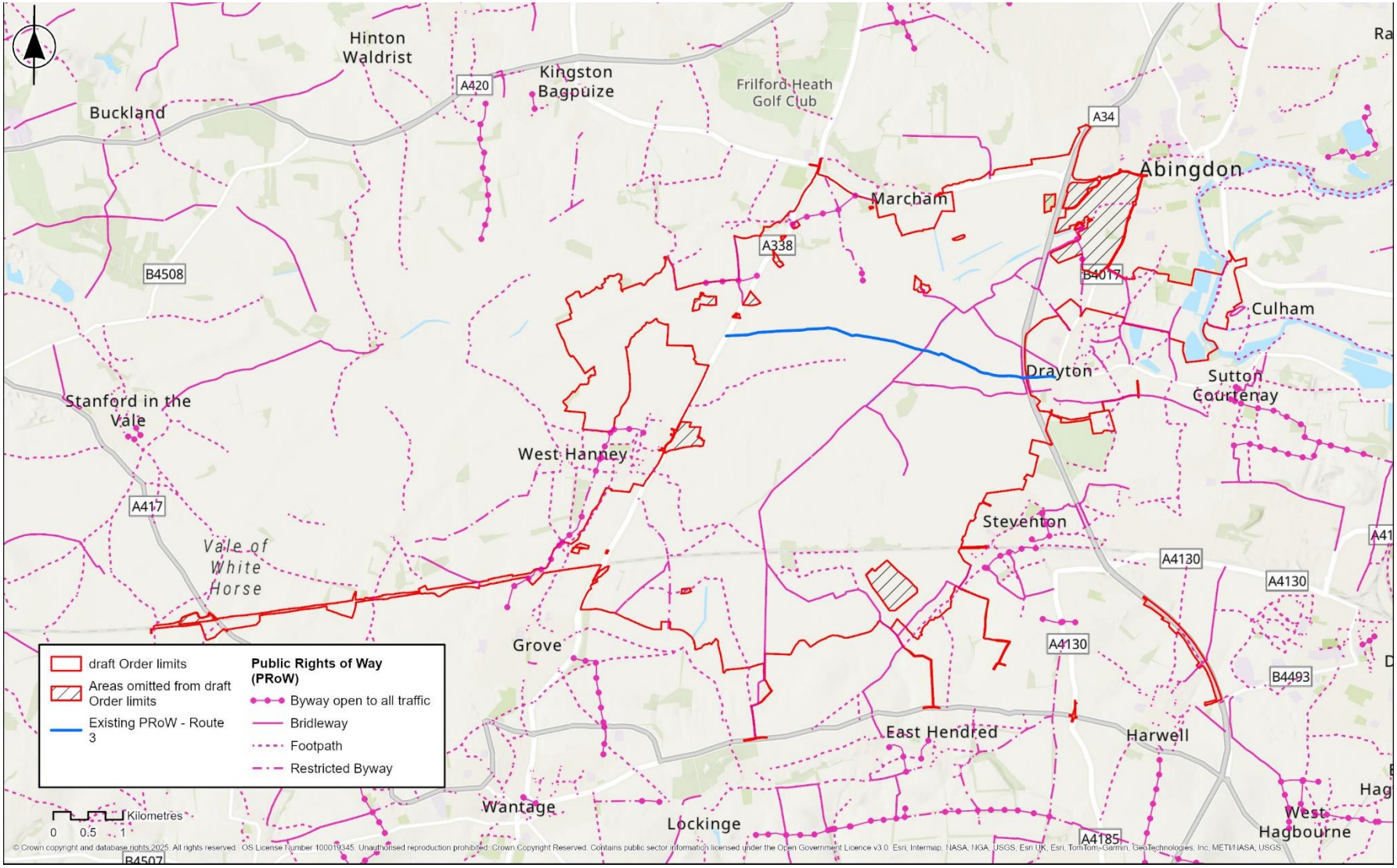


Plate 9.6 Diverted PRoW route 3 - A338 to Drayton, during operation, based on emerging design

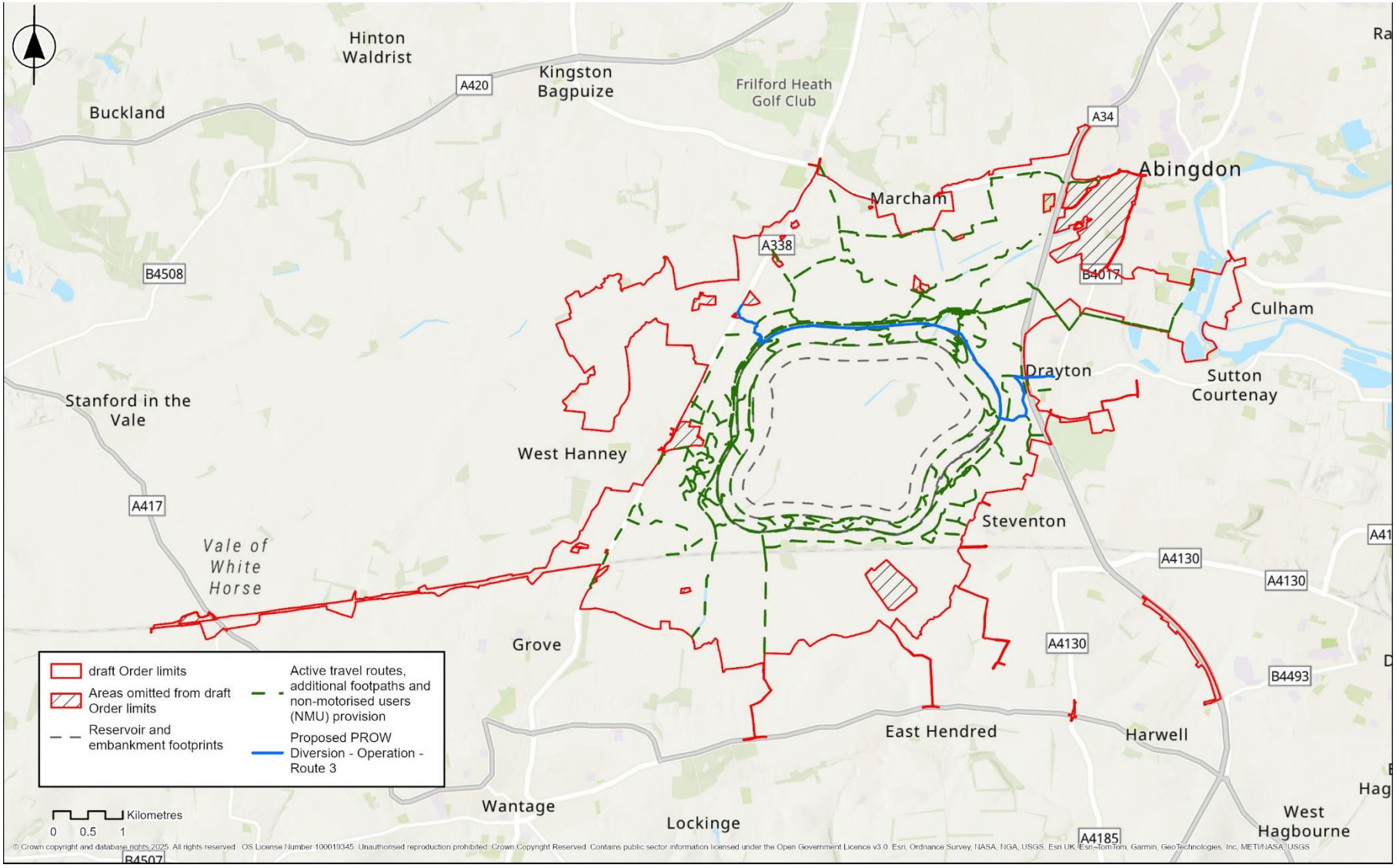


Plate 9.7 Existing PRoW route 4 - East Hanney to the railway line

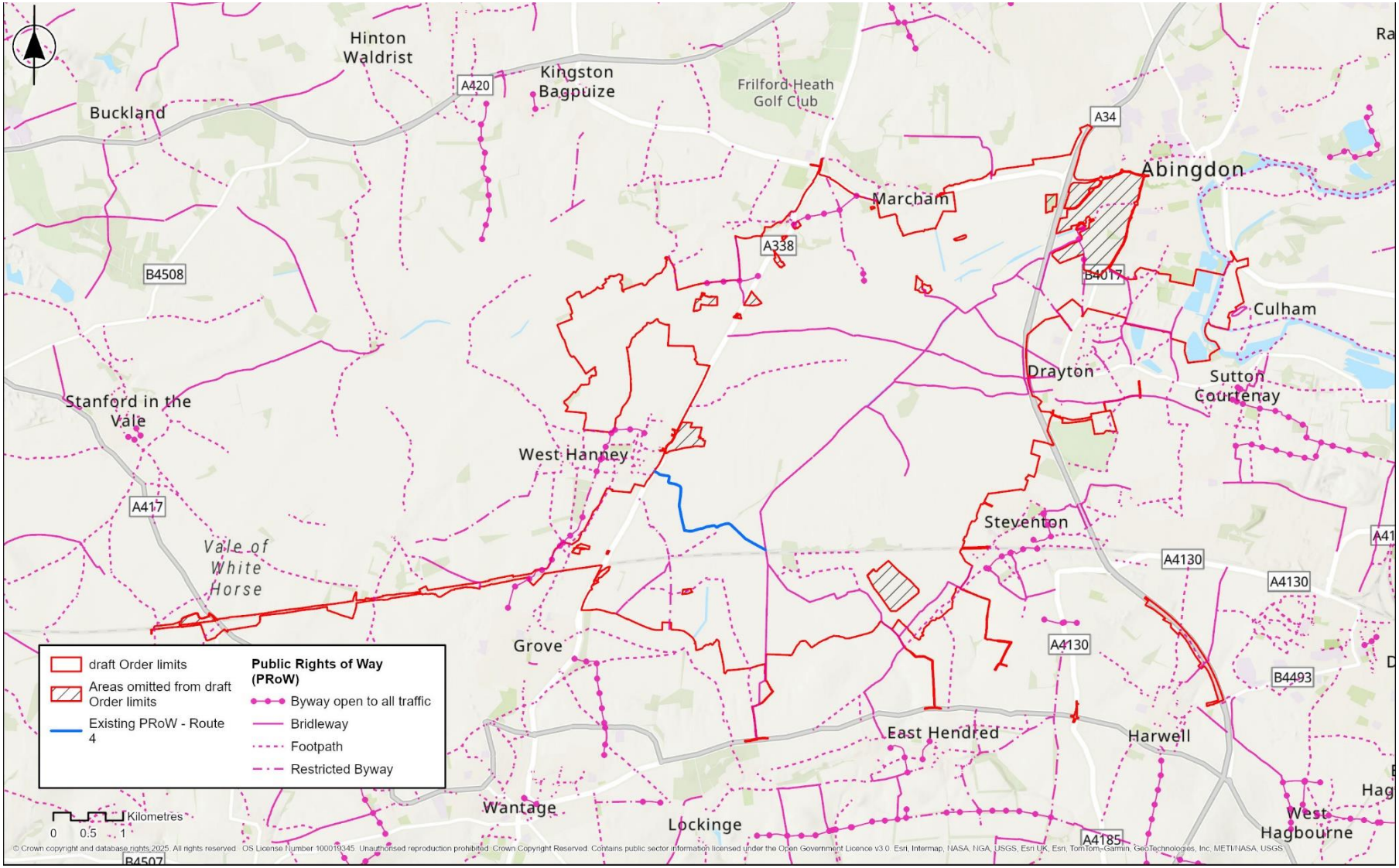


Plate 9.8 Diverted PRoW route 4 - East Hanney to the railway line, during operation, based on emerging design

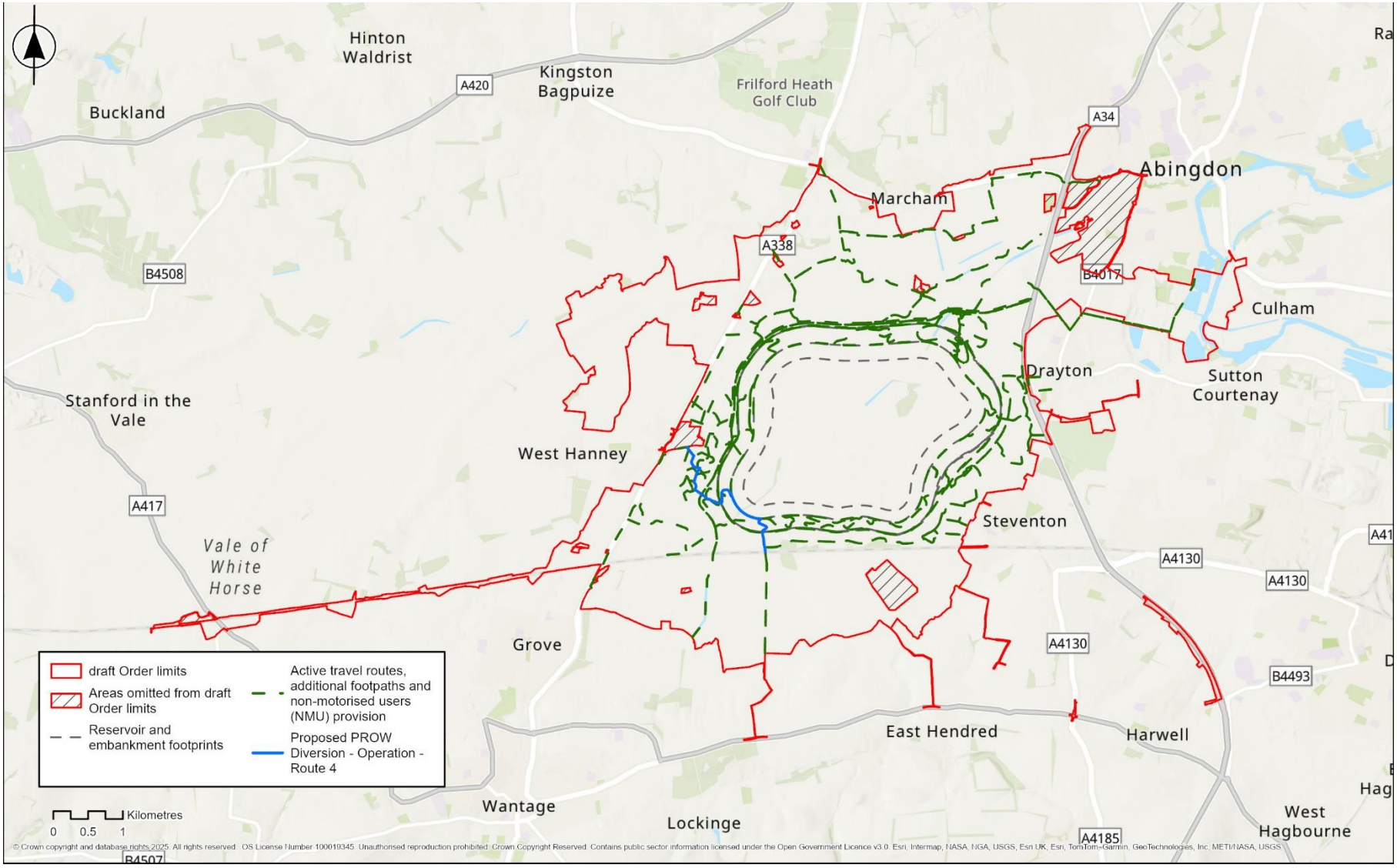


Plate 9.9 Existing PRoW route 5 - Marcham to Steventon

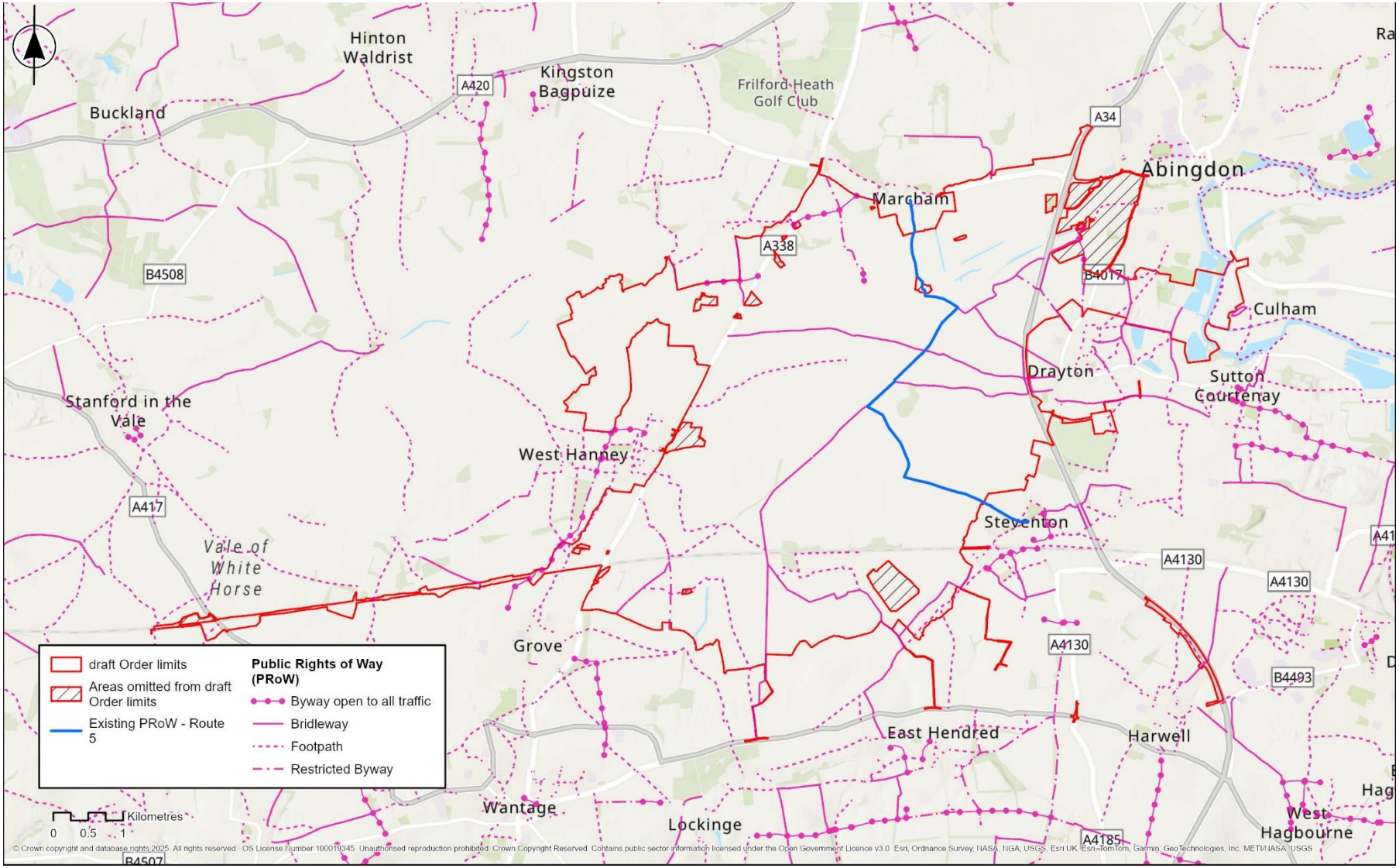


Plate 9.10 Diverted PRoW route 5 - Marcham to Steventon, during operation, based on emerging design

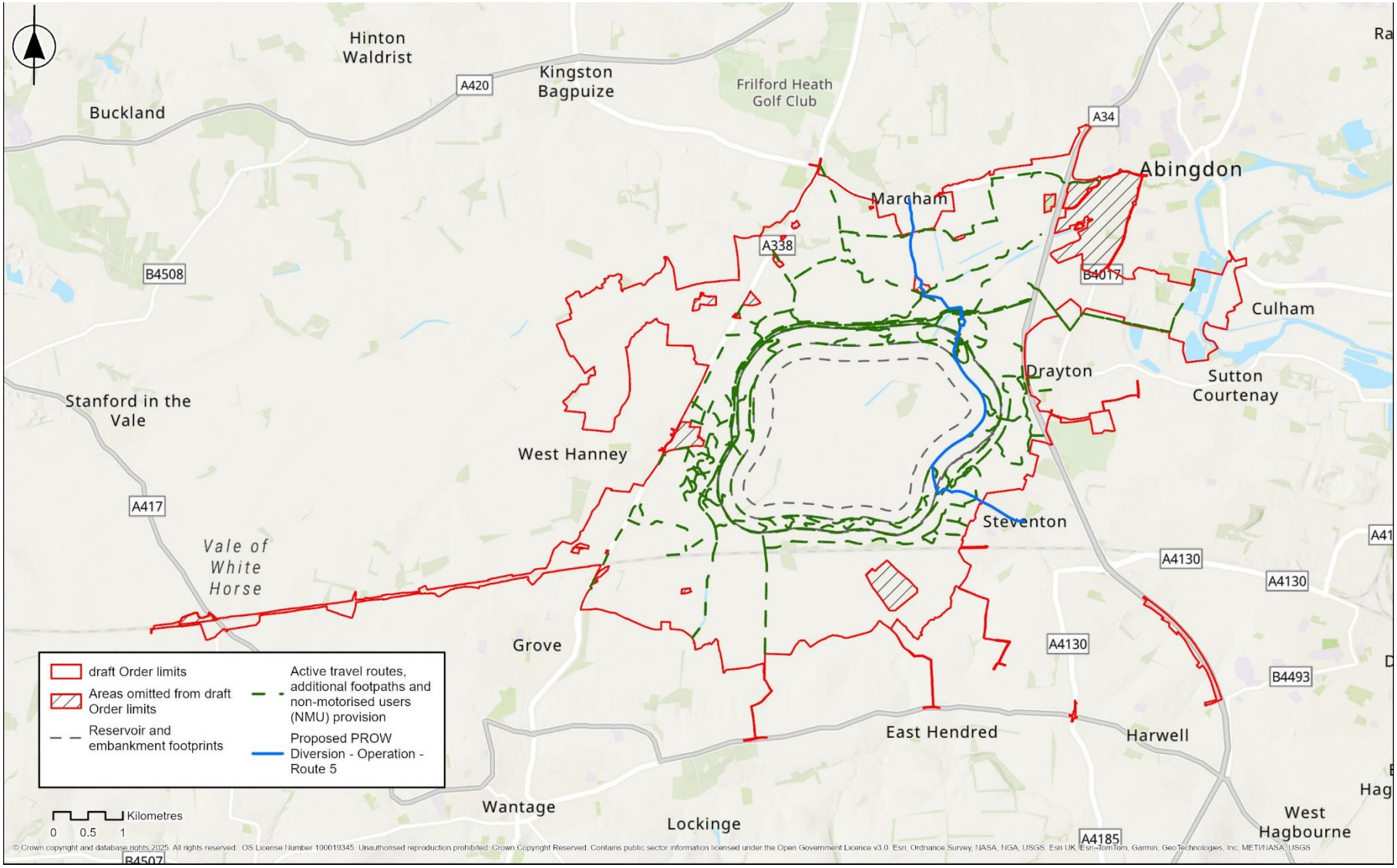


Plate 9.11 Existing PRoW route 6 - Steventon to East Hanney Road

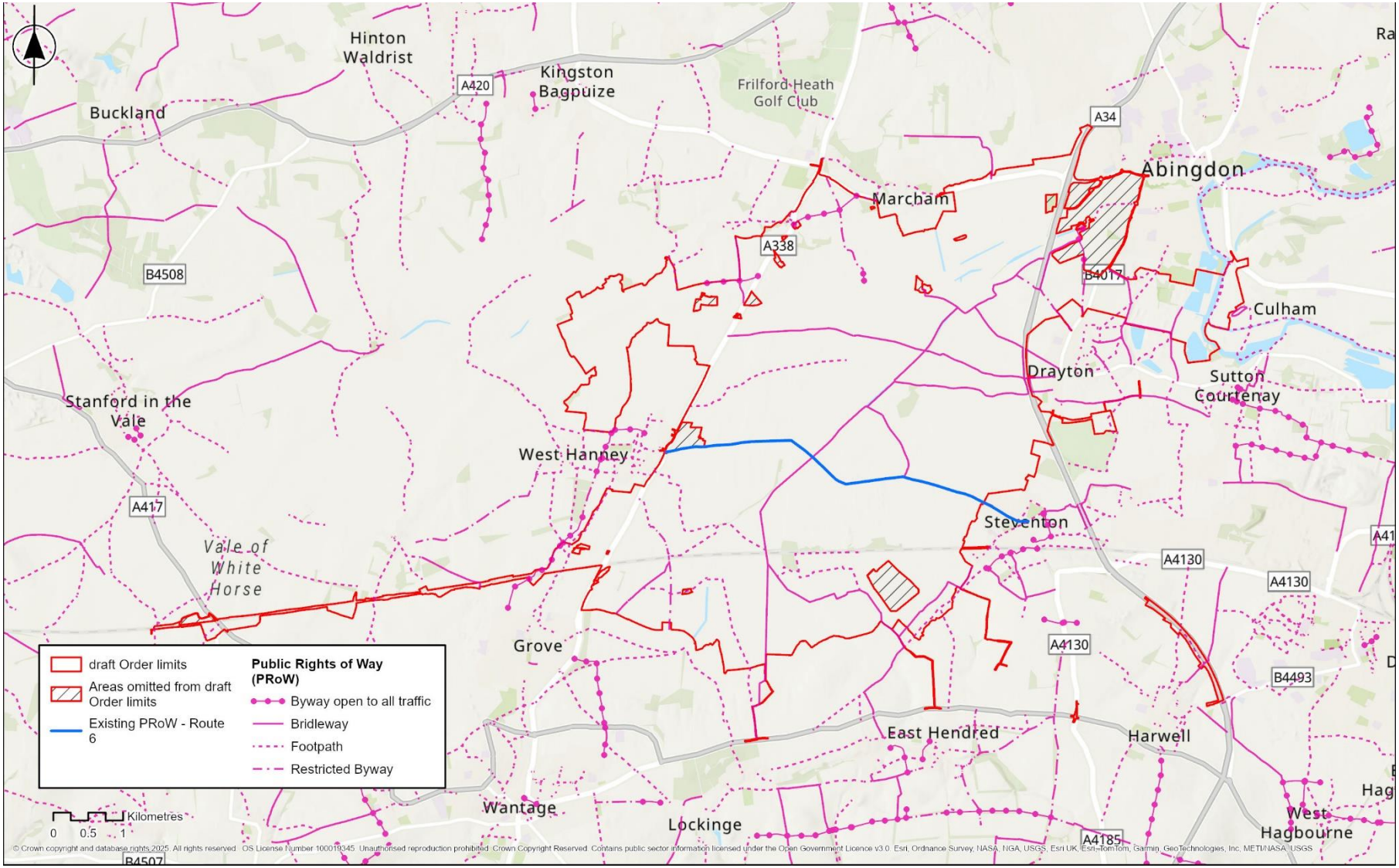
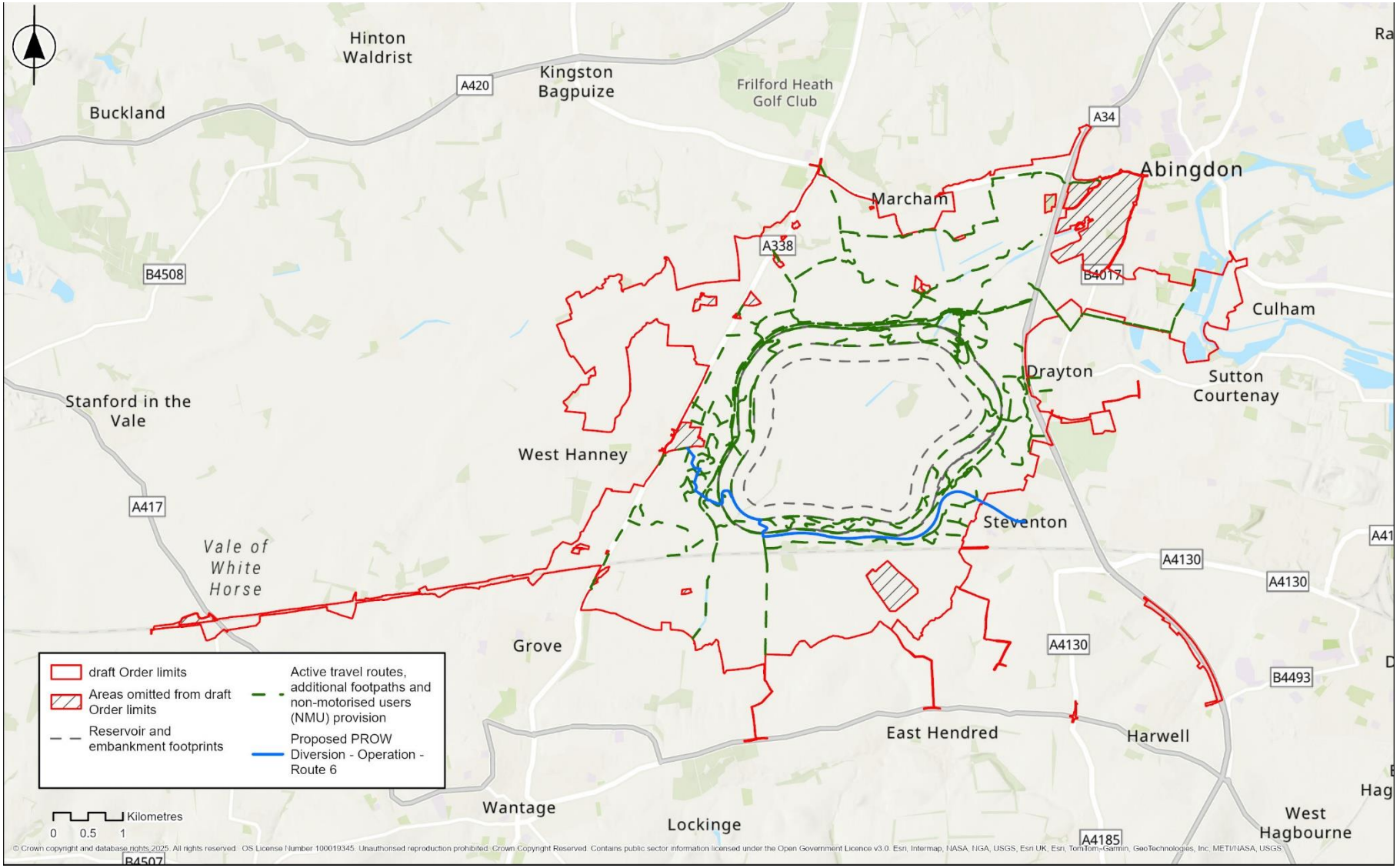


Plate 9.12 Diverted PRoW route 6 - Steventon to East Hanney Road, during operation, based on emerging design



### Wider network provision

9.2.5 Given the proposed improvements and the forecast number of active travel trips, it is not expected that there would be any capacity issues and the focus will therefore be on improved connectivity

9.2.6 As set out in Section 3, off-site walking, cycling and horse-riding improvements have been identified and these would improve connections to the Site as well as safety. This would help to facilitate active travel to and from the Site from the local settlements.

9.2.7 Overall, there are potential opportunities to improve walking provision in the area, by ensuring that there are continuous links through the Site as well as connections to the neighbouring residential areas. These may include new and extended footways, cycleways and crossings in highway corridors together with improved PRoW routes to encourage walking trips and improve connectivity.

9.2.8 Proposals for the walking, cycling and horse-riding network will be developed further for the DCO application.

## 9.3 Public transport

9.3.1 Section 3 provides the principles and opportunities for improving bus connectivity to the Site. It is envisaged that strong bus and cycling connections could be provided to the existing Didcot Parkway station, as well to surrounding settlements and with the potential to connect to a future Wantage and Grove station, should that be delivered by others.

9.3.2 Buses provide the greatest opportunity to replace car trips from the settlements in the local area and bus use could be actively encouraged. In the Saturday peak hour, over 250 bus passengers in total could be expected, equivalent to around four double decker or six single deck buses, based on typical seated capacity.

9.3.3 Proposals will be developed to improve the bus network to meet this order of demand, with a view to establishing long term financial viability of any new bus services. New, extended and / or more frequent bus services would also bring benefit to the existing local communities, including users not visiting with the Project.

9.3.4 In terms of rail trips, around 170 trips are forecast for the Saturday peak hour. There are currently six trains per hour at Didcot Parkway on weekdays and Saturdays, and three trains per hour on Sundays. This forecast level of rail trips is not expected to result in any capacity issues on passenger rail services or at nearby stations. Bus service improvements could consider the linkages to local rail stations so that rail travellers can make connections to the Site by bus.

## 9.4 Highways

### Operational (2043) traffic modelling

9.4.1 The projected operational trips associated with the operation of the Project as outlined in Section 8 were added to the 2043 future baseline model scenarios outlined in Section 5.10 to produce models of the performance of each junction in the 'with Project' scenario for that year.

9.4.2 The worst performing arm (RFC or DoS) at each site has been reported for each time period as an indication of junction reserve capacity (i.e. unused capacity). The results are contained in Table 9.1.

Table 9.1 2043 with Project (operation) traffic model results, greatest RFC or DoS per time period

| Ref (see Plate 5.4) | Description | Operational 2043 (RFC or DoS) | | |
|---|---|---|---|---|
| | | AM Peak | PM Peak | Saturday |
| J1 | A338 Oxford Road / A415 Frilford Road, Frilford | 95% | 84% | 87% |
| J2 | A415 / A34 Marcham interchange | 91% | 89% | 80% |
| J3 | B4017 High Street / Hanney Road, Steventon | 87% | 53% | 64% |
| J4 | A4130 / A34 Milton interchange | 85% | 98% | 76% |
| J5 | A4130 Abingdon Road / A417 Reading Road, Rowstock | 74% | 76% | 35% |
| J6 | Charlton Village Road / A417 Reading Road, Charlton | 117% | 79% | 87% |
| J7 | Seesen Way / A417 Wallingford Street, Wantage | 60% | 99% | 74% |
| J8 | A338 Grove Street north / Harcourt Way, Wantage | 90% | 94% | 74% |
| J9 | Crown Meadow (A338) / The Green and Main Street, East Hanney | 65% | 51% | 73% |
| J10 | A4130 Abingdon Road / B4017 High Street, Steventon | 89% | 88% | 71% |
| J11 | B4107 Abingdon Road / High Street, Drayton | 76% | 71% | 69% |
| J12 | Malby Way / Denchworth Road, Wantage | 63% | 71% | 46% |
| J14 | Garston Lane / Charlton Rd, Wantage | 102% | 98% | 104% |
| J15 | A338 Newbury Street / B4507 Ormond Road, Wantage | 88% | 74% | 68% |
| J17 | A338 Oxford Road / Abingdon Road, Frilford Heath | 110% | 89% | 75% |
| J18 | A420 / Abingdon Road, Tubney | 63% | 94% | 41% |
| J19 | A420 / A415 Witney Road, Kingston Bagpuize | 80% | 85% | 49% |
| J20 | A420 / A338 roundabout, Tubney Wood | 89% | 77% | 48% |
| J22 | Spring Rd / Ock Street, Abingdon | 95% | 113% | 98% |
| J23 | A4130 Abingdon Road / Grove Road, Rowstock | 76% | 43% | 32% |
| J24N | High Street / Stert Street, Abingdon | 18% | 22% | 26% |
| J24S | Stert Street / Bridge Street, Abingdon | 30% | 15% | 18% |
| J25 | A415 Stratton Way / A4183 Vineyard, Abingdon | 63% | 47% | 45% |
| J26 | A415 Stratton Way / A415 Ock Street, Abingdon | 109% | 102% | 100% |
| J27 | A415 Marcham Road / Nuffield Way, Abingdon | 70% | 98% | 96% |
| J28 | A415 Marcham Road / Colwell Drive, Abingdon | 100% | 92% | 100% |
| J29 | A415 Frilford Road / Mill Road, Marcham | 15% | 23% | 16% |

9.4.3 By comparison with the equivalent future baseline results shown in Table 5.21, the highway-related impacts (i.e. change to the overall junction reserve capacity) arising from

operation of the Project are limited to a small number of junctions. In the majority of cases the scale of impact is minor.

9.4.4 The impacts (i.e. the difference between Table 9.1 and Table 5.21) are shown below in Table 9.2.

Table 9.2 2043 with Project (operation) traffic model impacts (change in greatest DoS / RfC in percentage points, pp) per time period

| Ref (see Plate 5.4) | Description | Operational 2043 | | |
|---|---|---|---|---|
| | | AM Peak | PM Peak | Saturday |
| J1 | A338 Oxford Road / A415 Frilford Road, Frilford | 1 pp | - | 2 pp |
| J2 | A415 / A34 Marcham interchange | 4 pp | 2 pp | 16 pp |
| J3 | B4017 High Street / Hanney Road, Steventon | 21 pp | 9 pp | 21 pp |
| J4 | A4130 / A34 Milton interchange | 1 pp | 1 pp | 1 pp |
| J5 | A4130 Abingdon Road / A417 Reading Road, Rowstock | - | - | - |
| J6 | Charlton Village Road / A417 Reading Road , Charlton | - | - | - |
| J7 | Seesen Way / A417 Wallingford Street, Wantage | - | - | - |
| J8 | A338 Grove Street north / Harcourt Way, Wantage | - | - | - |
| J9 | Crown Meadow (A338) / The Green and Main Street, East Hanney | - | 1 pp | 4 pp |
| J10 | A4130 Abingdon Road / B4017 High Street, Steventon | 1 pp | 1 pp | 5 pp |
| J11 | B4107 Abingdon Road / High Street, Drayton | - | - | - |
| J12 | Malby Way / Denchworth Road, Wantage | - | - | - |
| J14 | Garston Lane / Charlton Rd, Wantage | - | - | 1 pp |
| J15 | A338 Newbury Street / B4507 Ormond Road, Wantage | - | - | - |
| J17 | A338 Oxford Road / Abingdon Road, Frilford Heath | - | - | 1 pp |
| J18 | A420 / Abingdon Road, Tubney | - | - | - |
| J19 | A420 / A415 Witney Road, Kingston Bagpuize | 1 pp | - | 1 pp |
| J20 | A420 / A338 roundabout, Tubney Wood | - | - | - |
| J22 | Spring Rd / Ock Street, Abingdon | - | - | 1 pp |
| J23 | A4130 Abingdon Road / Grove Road, Rowstock | - | - | - |
| J24N | High Street / Stert Street, Abingdon | - | - | - |
| J24S | Stert Street / Bridge Street, Abingdon | - | - | - |
| J25 | A415 Stratton Way / A4183 Vineyard, Abingdon | - | - | 1 pp |
| J26 | A415 Stratton Way / A415 Ock Street, Abingdon | - | - | 1 pp |
| J27 | A415 Marcham Road / Nuffield Way, Abingdon | - | 1 pp | - |

| Ref (see Plate 5.4) | Description | Operational 2043 | | |
|---|---|---|---|---|
| | | AM Peak | PM Peak | Saturday |
| J28 | A415 Marcham Road / Colwell Drive, Abingdon | 1 pp | 1 pp | -1 pp |
| J29 | A415 Frilford Road / Mill Road, Marcham | - | 1 pp | - |

9.4.5 Three of the sites above include one or more peak hours with a change of five percentage points or greater due to the addition of operation-related Project traffic. These sites are reported individually below.

### J2: A415 / A34 Marcham interchange (roundabout)

9.4.6 At this four-arm, grade separated junction the A34 northbound off-slip would be approaching capacity in the 2043 AM peak hour at 91% saturated (compared to 87% in the 2043 future baseline). In the 2043 PM peak hour and Saturday peak hour, the junction would continue to operate within capacity in the operational with Project scenario.

Table 9.3 2043 with Project (operation) modelling results: Marcham interchange

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | A34 SB Off-slip | 78% | 4 | 59% | 2 | 53% | 1 |
| 2 | A415 Marcham Road east | 61% | 2 | 74% | 3 | 68% | 2 |
| 3 | A34 NB Off-slip | 91% | 10 | 89% | 8 | 76% | 3 |
| 4 | A415 Marcham Road west | 77% | 3 | 67% | 2 | 80% | 4 |

### J3: B4017 High Street / Hanney Road, Steventon (priority junction)

9.4.7 This T-junction would operate within capacity in all peak hours in 2043, although in the AM peak hour, Hanney Road would operate at 87% saturation (compared to 66% in the 2043 future baseline). Although the change due to the Project is also some 20 percentage points in the Saturday peak hour, the junction would continue to operate within capacity.

Table 9.4 2043 with Project (operation) modelling results: B4017 High Street / Hanney Road, Steventon

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | RFC | Queue | RFC | Queue | RFC | Queue |
| 1 | B4017 High Street (left-turn / ahead) | - | - | - | - | - | - |
| 2 | Hanney Road | 87% | 8 | 53% | 2 | 64% | 2 |
| 3 | B4017 Abingdon Road (right-turn) | 26% | 1 | 38% | 1 | 24% | 0 |

### J10: A4130 Abingdon Road / B4017 High Street, Steventon (traffic signals)

9.4.8 In the 2043 Saturday peak hour the Project would cause a five percentage point change in saturation, but this signalised T-junction would operate well within capacity without the Project. The additional operational traffic would increase the maximum saturation on both A4130 Abingdon Road north and B4017 High Street arms from 66% to 71%, but the junction would continue to operate within capacity.

Table 9.5 2043 with Project (operation) modelling results A4130 Abingdon Road / B4017 High Street, Steventon

| Arm | Description | AM Peak | | PM Peak | | Saturday Peak | |
|---|---|---|---|---|---|---|---|
| | | DoS | Queue | DoS | Queue | DoS | Queue |
| 1 | A4130 Abingdon Rd north | 84% | 8 | 87% | 11 | 71% | 7 |
| 2 | A4130 Abingdon Rd south | 89% | 21 | 88% | 17 | 70% | 11 |
| 3 | B4017 High Street | 85% | 19 | 84% | 11 | 71% | 11 |

### Conclusions

9.4.9 The impact of the operation phase of the Project from traffic associated with visitors and staff would be limited to a small number of junctions.

9.4.10 The greatest impact would at the Marcham interchange which is close to the main site access and the larger visitor car park. Proposals for highway improvements are being developed to add capacity and improve operation during the operational period of the Project. These will be developed and included in the assessment presented in the TA with the DCO application.

9.4.11 The B4017 High Street / Hanney Road (Steventon) junction and A4130 Abingdon Road / B4017 High Street (Steventon) junctions would experience impacts which are above five percentage points change in saturation during the Saturday peak hour, but both sites continue to operate within capacity within this time period.

### Dalton Barracks sensitivity test scenario

9.4.12 An initial sensitivity test has been completed based on the 2043 with Project (operation) scenario plus assumed Dalton Barracks traffic.

9.4.13 In 2043 Dalton Barracks is projected to have completed 2,750 residential units. Basic assumptions have been made regarding trip generation and routing related to that level of development based on available knowledge of the proposals.

9.4.14 The impact of Dalton Barracks is projected to be most significant (greater than five percentage points change in capacity) at the following locations:

- J1: A338 Oxford Road / A415 Frilford Road, Frilford
- J2: A415 / A34 Marcham interchange
- J22: Spring Rd / Ock Street, Abingdon
- J25: A415 Stratton Way / A4183 Vineyard, Abingdon
- J26: A415 Stratton Way / A415 Ock Street

- J29: A415 Frilford Road / Mill Road, Marcham

# 10 Summary and conclusions

10.1.1 This PTAR has been prepared to provide a preliminary assessment of how the Project may influence the operation of the highway, public transport, and active travel networks, as well as outlining enhancements or modifications that may need to be developed in response to identified impacts.

10.1.2 The Project would provide a new reservoir to the south-west of Abingdon in Oxfordshire.. Key transport-related aspects of the Project include the removal and reprovision of the Steventon to East Hanney Road, a new access junction and improvements on the A415 Marcham Road, the provision of active travel infrastructure including a new PRoW network within the Site, and improvements to bus services and public transport accessibility.

10.1.3 A trip generation exercise has been carried out for the construction phase of the Project, which has been used to identify potential transport impacts during that phase. These include the temporary diversion of the Public Right of Way (PRoW) crossing the Site, as well as increased traffic volumes resulting from construction activities. Traffic modelling for the construction scenario indicates that impacts would be limited to a small number of junctions, with the greatest impact observed at the A34 Marcham interchange. No impacts on public transport services have been identified during the construction period.

10.1.4 Forecasts of visitor trip generation have been developed for the operational phase of the Project and used to identify associated transport impacts. These include the provision and reprovision of sections of the PRoW, the introduction of additional walking and cycling infrastructure within the Site, and the need for enhancements to public transport connectivity to support and encourage the use of more sustainable methods of travel. Operational traffic modelling has been undertaken to assess the likely impacts, indicating that effects would be limited to a small number of junctions, with the most significant impact observed at the A34 Marcham interchange.

10.1.5 The assessment in this document will be refined and updated, prior to the DCO application, to reflect further analysis, additional strategic transport modelling and any changes made to the Project description following statutory consultation.

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