

**Land off the A363 White Horse Business Park,
Trowbridge**

Proposed Care Home & Residential Development

Transport Assessment

Client: Castlewood Properties.

16th April 2020

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SECTION 1: INTRODUCTION

General

- 1.1 This Transport Assessment (TA) has been prepared on behalf of Castlewood Properties Ventures Ltd in support of an Outline Planning Application (OPA) for the proposed development of up to 100 residential dwellings and a care home of up to 64 beds on land to the south of the A363 Bradley Road, Trowbridge. The site forms part of policy H2.2 - Land off the A363 at White Horse Business Park as an allocation within the Wiltshire Housing Site Allocation Plan (WHSAP) for 175 dwellings. The local planning authority (LPA) and local highway authority (LHA) is Wiltshire County Council (WCC).

Existing Site

- 1.2 The site is located approximately 2.4km south of Trowbridge Town Centre and 700m to the north west of North Bradley. The existing site comprises approximately 8.37ha of greenfield land which is currently used for agricultural purposes. The site is bordered to the north by the A363 Bradley Road, to the east by the White Horse Business Park, to the south by the Linden Homes site (which forms part of the allocation site) and Westbury Road beyond, and to the west by North Bradley and Woodmarsh.
- 1.3 Access to the site is currently provided along the northern boundary in the form of a gated field access onto the A363 Bradley Road. An additional access is provided to the south of the wider site via Little Common Lane also taking the form of a gated field access as part of the Linden Homes development.

Development Proposals

- 1.4 The proposed development seeks to deliver up to 100 residential dwellings (layout reserved) in addition to a care home of up to 64 beds in the northern parcel of the site. Vehicular access will be provided in the form of a ghost island right-turn arrangement to the north of the site via the A363 Bradley Road providing a reservoir into the site for eastbound traffic without impeding the free flow of traffic on the A363.

Planning Context

- 1.5 The site is identified under Policy H2.2 - Land off the A363 at White Horse Business Park as an allocation within the Wiltshire Housing Site Allocation Plan (WHSAP, February 2020). As demonstrated in Figure A, the 'site', which is the subject of this Transport Assessment, comprises an area of approximately 8.37ha and forms the northern section of this allocation. This site is referred to as 'Site A' throughout this Transport Assessment.
- 1.6 As part of the H2.2 allocation, an additional site is being promoted by Linden Homes for a residential development of up to 100 dwellings to the south of the Castlewood Properties site. This site is referred to as 'Site B' throughout this Transport Assessment.
- 1.7 Whilst Site B has been considered and assessed as part of this Transport Assessment, Site B will be the subject of a separate planning application.
- 1.8 The entire H2.2 allocation within the WHSAP is for approximately 175 dwellings on land off the A363 at White Horse Business Park. The land comprises an area of approximately 20.52ha.

Pre-Application Discussions

- 1.9 On behalf of Castlewood Properties and Linden Homes, Vectos and Badingham Limited submitted a Transport Scoping Note (TSN) to Wiltshire Council on 21st November 2019. The TSN outlined the key parameters and anticipated scope for assessing the highways and transport implications resulting from the development of the allocated site. Whilst the Castlewood Properties site and Linden Homes site will submit standalone planning applications, the key parameters outlined within the TSN are used across both applications.
- 1.10 Following submission of the TSN, an email response was issued from Wiltshire Council Highways on 3rd January 2020. The full Highways response has been included at Appendix A with a summary of the key points outlined below:
- Wiltshire Council are in agreement with the 'Policy and Planning Context' and 'Existing Conditions' scope proposed within the TSN;

- Common Lane is unlikely to be accepted for any development general vehicular access. The end result for Common Lane will be emergency access for vehicles, access to the existing Common Lane properties, and development pedestrian and cycle access only. The Outline Application needs to be submitted that all development traffic will route through the access being proposed on the A363 to the north of the site;
- Cycle parking provision needs to be provided in accordance with the LTP standards;
- The proposals for servicing and emergency vehicles are considered generally OK, however the application must ensure that a site wide approach is taken, ensuring a comprehensive masterplan of the whole allocation area;
- Census data should be used to distribute trips across the network in accordance with the trip distribution derived from Journey to Work 2011 Census Data;
- Trip Rates should be reviewed to explore the disparity between the proposed rates and those used for the Ashton Park strategic site, with a view to increasing the trip rates to above the Ashton Park levels;
- The 2026 growth year is acceptable;
- TEMPRO does not need to be applied providing that Strategic sites for Trowbridge H2.1 – H2.6 are taken into account. This includes Site H2.2 which forms the basis of this Transport Assessment;
- Flows can be extracted from the Trowbridge model to enable the individual junction assessments;
- The A363 / Silver Street Lane / Wiltshire Drive junction should also be assessed; and
- The application must include a framework Residential Travel Plan.

Scope of Transport Assessment

- 1.11 This Transport Assessment considers the highway and transport matters associated with the proposed development. It has been produced with consideration of the National Planning Policy Framework (NPPF) and Planning Practice Guidelines (PPG) and in accordance with local guidance and Policy. This Transport Assessment also incorporates the comments received during pre-application discussions with Wiltshire Council outlined above.

1.12 This Transport Assessment is set out as follows:

- **Section 2 – Policy and Guidance** – A review of the relevant transport planning policy and guidance at a national, regional and local level;
- **Section 3 – Existing Situation** – Details of the existing sites' accessibility credentials in terms of access to local services, walking, cycling and public transport provision and the condition of the existing local highway network and a review of Personal Injury Accidents within the vicinity;
- **Section 4 – Proposed Development** – Analysis of the development proposal in respect of the access arrangements, number of units and outline parking, servicing and internal layout arrangements;
- **Section 5 – Proposed Trip Generation and Distribution** – Sets out the level of trips that are likely to be generated by all modes of travel and distributes them on the network;
- **Section 6 – Development Impact** – Assesses the impact of the proposed development on existing transport networks;
- **Section 7 – Mitigation** - Outlines the proposed mitigation and measures being brought forward as part of the development;
- **Section 8 – Summary** – Summary of the findings of this Transport Assessment.

1.13 This TA is also supported by a Framework Travel Plan (FTP) prepared separately in report reference 'Land at South Trowbridge – TP'.

SECTION 2: POLICY REVIEW

Introduction

- 2.1 This section of the TA reviews the current and emerging transport planning policies and design guidance at national and local government levels and summarises how the proposed development should comply.

National Policy and Design Guidance

National Planning Policy Framework (February 2019)

- 2.2 In February 2019 the revised National Planning Policy Framework (NPPF) was published, setting out a number of transport objectives designed to facilitate sustainable development and contribute to a wider sustainability by giving people a wider choice about how they travel.
- 2.3 At the heart of the NPPF is a presumption in favour of sustainable development. At paragraph 101 it notes that developments should;
- *‘Give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use.’*
- 2.4 The NPPF states at paragraph 111 that all developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport assessment so that likely impacts of the proposal can be assessed.
- 2.5 In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that (paragraph 108):
- Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;
 - Safe and suitable access to the site can be achieved for all users; and

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

2.6 Notably, at paragraph 109 the NPPF states that development should only be refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe. Within this context, applications for development should:

- Give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;
- Address the needs for people with disabilities and reduced mobility in relation to all modes of transport;
- Create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;
- Allow for the efficient delivery of goods, and access by service and emergency vehicles; and
- Be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.

2.7 Paragraph 104 states that planning policies should:

- Support an appropriate mix of uses across an area, and within larger scale sites, to minimise the number and length of journeys needed for employment, shopping, leisure, education and other activities;
- Be prepared with the active involvement of local highways authorities, other transport infrastructure providers and operators and neighbouring councils, so that strategies and investments for supporting sustainable transport and development patterns are aligned;

- Identify and protect, where there is robust evidence, sites and routes which could be critical in developing infrastructure to widen transport choice and realise opportunities for large scale development;
- Provide for high quality walking and cycling networks and supporting facilities such as cycle parking (drawing on Local Cycling and Walking Infrastructure Plans); and
- Provide for any large-scale transport facilities that need to be located in the area, and the infrastructure and wider development required to support their operation, expansion and contribution to the wider economy. In doing so they should take into account whether such development is likely to be a nationally significant infrastructure project and any relevant national policy statements.

2.8 The NPPF states that local authorities should consider the accessibility of a development alongside the type, mix and use of the development as well as looking at local car ownership and the need to ensure an adequate provision of spaces for charging plug-in and other ultralow emission vehicles when determining planning applications.

2.9 The revised NPPF still requires the need for a Travel Plan, Transport Statement or Transport Assessment should a development generate 'significant' amounts of movement, so that the likely impacts can be assessed.

Planning Practice Guidance (PPG) – Travel Plans, Transport Assessments and Statements (March 2014)

2.10 This guidance was updated in March 2014 and sets out the positive contributions that Transport Assessments / Statements and Travel Plans have. At paragraph 7, it also states that these documents should be proportionate to the size and scope, be tailored to particular local circumstances and be established at the earliest practicable stage of a development proposal through collaborative ongoing working between Local Planning Authorities, developers, relevant transport authorities and neighbourhood planning organisations.

2.11 In relation to Transport Assessments / Statements it states at paragraph 15 that they should consider:

- the existing public transport provision, including provision / frequency of services and proposed public transport changes;

- a qualitative and quantitative description of the travel characteristics of the proposed development;
- an assessment of trips from all directly relevant committed development in the area;
- measures to improve the accessibility of the location;
- a description of parking facilities in the area and the parking strategy of the development;
- ways of encouraging environmental sustainability by reducing the need to travel; and
- measures to mitigate the residual impacts of development (such as improvements to the public transport network, introducing walking and cycling facilities, physical improvements to existing roads).

Local Policy

Wiltshire Local Transport Plan (LTP3) 2011-2026

- 2.12 Wiltshire Council's third Local Transport Plan (LTP3) was published in March 2011 and sets out the Council's objectives, strategies and implementation plans for transport within Wiltshire to work towards a sustainable transport system that aids economic growth across communities, allowing people to safely access essential services whilst being sensitive to the built and natural environment, and reducing carbon emissions.
- 2.13 The LTP outlines the Council's approaches to the five national transport goals:
- Support economic growth;
 - Reduce carbon emissions;
 - Contribute to better safety, security and health;
 - Improve quality of life and a healthy natural environment; and
 - Promote equality of opportunity.
- 2.14 The strategic objectives associated with reaching these goals include, but are not limited to:
- SO2: To provide, support and/or promote a choice of sustainable transport alternatives including walking, cycling, buses and rail;

- SO4: To minimise traffic delays and disruption and improve journey time reliability on key routes;
- SO5: To improve sustainable access to a full range of opportunities particularly for those people without access to a car;
- SO8: To improve safety for all road users and to reduce the number of casualties on Wiltshire's roads;
- SO11: To reduce the level of air pollutant and climate change emissions from transport;
- SO12: To support planned growth in Wiltshire and ensure that new developments adequately provide for their sustainable transport requirements and mitigate their traffic impacts;
- SO13: To reduce the need to travel, particularly by private car;
- SO14: To promote travel modes that are beneficial to health;
- SO15: To reduce barriers to transport and access for people with disabilities and mobility impairment; and
- SO17: To improve sustainable access to Wiltshire's countryside and provide a more useable public rights of way network.

2.15 In order to achieve these objectives, the Council aims to:

- Ensure there is a 'whole authority' approach on transport and access issues;
- Work in partnership with other service providers, and the community and voluntary sectors;
- Encourage and support local communities to deal with their transport challenges; and
- Make transparent decisions and consult appropriately with stakeholders, partners and the public.

2.16 Relating to active travel, the LTP states that the "Council will prioritise walking and cycling network improvements on key links in the market towns where the potential for walking and cycling is higher and where they can be combined with supporting measures." The LTP also aims to make journeys taken by foot more enjoyable, encourage the uptake of walking, provide young people with the opportunities and

confidence to independently walk and improve awareness and knowledge of the public realm and streetscenes in their local area.

- 2.17 'Transforming Trowbridge' is a local enterprise partnership (LEP) with the aim of enhancing the town's prosperity and environment in line with its status as Wiltshire's county town. The development potential of significant sites within the town centre along with the aim of the LEP can provide a shift towards a strategic and comprehensive approach to regeneration of the town.
- 2.18 Trowbridge is also mentioned in the context of increasing rail connectivity by supporting rail stations as transport hubs and working with partners to introduce service and corridor improvements between Chippenham, Salisbury and Trowbridge.
- 2.19 The LTP focuses on reducing the need to travel and working towards a modal shift away from private car use. Strategic transport investment priorities are highlighted; showing that buses, the walking network, car parking management and sustainable transport packages are among the highest priority, the cycle network and parking, passenger rail, rights of way, travel plans and smarter travel choices fall within the medium priority category and urban traffic control and road/user hierarchy are amongst the options of low investment priority.

Wiltshire Core Strategy

- 2.20 The Wiltshire Core Strategy was adopted in January 2015 and provides an overarching planning policy framework for Wiltshire up to 2026. The vision of the Core Strategy is to "create stronger, more resilient communities" through:
- Providing for the most sustainable pattern of development that minimises the need to travel and maximises the potential to use sustainable transport;
 - Creating the right environment to deliver economic growth;
 - Managing development to ensure that jobs and the right infrastructure are delivered at the right time to ensure that out commuting, in particular to areas outside of Wiltshire, is not increased and development does not have a detrimental impact on infrastructure;
 - Working towards lowering Wiltshire's carbon footprint;

- Protecting and planning for the enhancement of the natural, historic and built environments;
- Providing high quality, well designed development; and
- Providing the framework to deliver appropriate community-led planning policy documents.

2.21 The Strategy highlights Trowbridge as an employment, administration and service centre within Wiltshire, with good transport links to nearby settlements including Bath and Bristol.

2.22 Strategic Objective 6 aims to ensure that adequate infrastructure is in place to support our communities. Key outcomes of this objective include:

- Providing essential infrastructure (including transport) within all new development;
- Protecting existing infrastructure services, providing new infrastructure with no detrimental impact on the environment;
- Progressing towards reducing greenhouse gas emissions from transport;
- Providing a range of viable and efficient transport alternatives to reduce reliance on private car use;
- Implementing a safer, more integrated transport system that focuses on a major shift towards sustainable transport, including walking, cycling and public transport, and the use of bus and rail networks in Trowbridge;
- Reducing traffic delays and disruption and improving journey time reliability on key routes;
- Optimising existing transport infrastructure through effective design, management and maintenance;
- Improving safety for all road users;
- Removing barriers to transport and access for people with disabilities and mobility impairment; and
- Safeguarding and improving strategic transport corridors in a sustainable way.

2.23 A number of Core Policies are outlined within the document that determine how the principles of the spatial strategy will be applied within Wiltshire.

- 2.24 Within **Core Policy 1: Settlement Strategy**, Trowbridge is identified as a principle settlement and is defined as one of Wiltshire's strategically important centres that are the primary focus for development. Core Policy 1 also states that principal settlements will "provide significant levels of jobs and homes, together with supporting community facilities and infrastructure, meeting their economic potential in the most sustainable way to support better self-containment."
- 2.24 **Core Policy 2: Delivery Strategy** identifies that, as a minimum, 42,000 homes and 178ha of new employment land shall be provided across Wiltshire between 2006 and 2026.
- 2.25 **Core Policy 3: Infrastructure Requirements** states that "all new development will be required to provide for the necessary on-site and, where appropriate, off-site infrastructure requirements arising from the proposal"
- 2.26 The Trowbridge Area Strategy within the Core Strategy document aims to strengthen Trowbridge's principal role as a service centre and to delivery improved infrastructure and facilities within the town. Three Core Policies contribute to the Trowbridge Area Strategy and are as follows:
- Core Policy 28: Trowbridge Central Areas of Opportunity;
 - Core Policy 29: Spatial Strategy: Trowbridge Community Area; and
 - Core Policy 30: Trowbridge Low Carbon, Renewable Energy Network.
- 2.27 A number of core policies relating to transport are included within the Core Strategy that have been informed by detailed topic papers on transport. These policies are described below.

- 2.28 **Core Policy 60: Sustainable Transport** highlights that “the Council will use its planning and transport powers to help reduce the need to travel particularly by private car, and support and encourage the sustainable, safe and efficient movement of people and goods within and through Wiltshire.” This is planned to be achieved through planning developments in accessible locations, promoting sustainable transport alternatives to the private car, maintaining and improving the local transport network, promoting appropriate demand measurement measures, and assessing and mitigating impacts of developments on transport users, local communities and the environment.
- 2.29 **Core Policy 61: Transport and New Development** states that “new development should be located and designed to reduce the need to travel particularly by private car, and to encourage the use of sustainable transport alternatives.” The policy also mentions that transport assessments are required and they must be able to demonstrate the consideration for the needs of all transport users has been given in relation to the following hierarchy:
- Visually impaired and other disabled people;
 - Pedestrians;
 - Cyclists;
 - Public transport;
 - Goods vehicles;
 - Powered two-wheelers; and
 - Private cars.
- 2.30 CP61 goes on to state that safe access to the highway must be achievable from the development proposals and that loading/unloading facilities are required for the normal functioning development that are safe and “fit for purpose”. Furthermore, “where appropriate, contributions will be sought towards sustainable transport improvements, and travel plans will be required to encourage the use of sustainable transport alternatives and more sustainable freight movements.”

- 2.31 **Core Policy 62: Development Impacts on the Transport Network** states that “developments should provide appropriate mitigating measures to offset any adverse impacts on the transport network at both construction and operational stages” and that “proposals for new development should not be accessed directly from the national primary route network outside built-up areas, unless an over-riding need can be demonstrated.”

Wiltshire Housing Site Allocations Plan (February 2020)

- 2.32 Wiltshire’s Housing Site Allocations Plan was adopted on 25 February 2020 and will support the delivery of new housing as set out in the Wiltshire Core Strategy. Two key matter will be addressed within the plan and are as follows:

- “Revise, where necessary, settlement boundaries in relation to the Principal Settlements of Salisbury, Trowbridge, Market Towns, Local Service Centres and Large Villages; and
- Allocate new sites for housing to ensure the delivery of homes across the plan period in order to maintain a five-year land supply in each of Wiltshire’s three Housing Market Areas over the period to 2026.”

- 2.33 Policy H2.2 states that Land off the A363 at White Horse Business Park is suitable for accommodating approximately 175 residential dwellings with vehicular access from the A363 and that development here should include improvements to cycling and walking routes through the site to link to the existing network.

- 2.34 The document highlights that this area of land is “reasonably well located with regard to services and facilities” and that development proposals would need to retain the visual separation of the town’s urban area from North Bradley Village by focusing development in the north-east of the site and screening the development with new planting.

North Bradley Neighbourhood Plan: Referendum Version (January 2020)

- 2.35 The referendum version of the North Bradley Neighbourhood Plan (NBNP) covers the whole parish of North Bradley and runs from 2018 – 2026, coinciding with the end date of the Wiltshire Core Strategy. The intention of the NBNP is not to repeat higher level

policy but to address gaps or provide further detail to add local context to the Wiltshire Core Strategy.

2.36 At paragraph 5.42, the NBNP states that public transport provision in North Bradley is better than in more remote villages, citing a reasonable bus service which provides links to other villages and into Trowbridge, including Trowbridge rail station. The NBNP mentions that there is a reasonable network of paths and bridleways, however there are no dedicated cycleways. It goes on to state that the lack of drop kerbs raises safety and practicality concerns especially for the elderly, children and the disabled.

2.37 At paragraph 6.3, the NDP Vision states that 'there will be an improved and better maintained transport network including foot and cycle paths and speeding vehicles will have been reduced and pedestrian safety improved'.

2.38 Policy 6 of the NBNP outlines the local infrastructure priorities for North Bradley, in which new housing and employment development proposals in the area will be expected to contribute. With regards to transport and highways, the local priorities include:

- Improvement of existing footpaths including the introduction of crossings, dropped curbs and smoother surfaces suitable for electric buggies as well as pedestrians.
- The installation of cycle paths linking the parish with Trowbridge.
- Improvement of local bus services.

*Care must be taken when creating new infrastructure not to impact adversely on the bats of the nearby SAC – for example through the effects of the lighting of footpaths or cycleways.

2.39 The policy was designed to help deliver sustainable development by ensuring good sustainable transport links between Ashton Park and North Bradley parish and between North Bradley and Trowbridge, thereby reducing the need to travel.

Summary

2.40 This Section provides a summary of the relevant national, regional and local policies and shows that the key policies with which the proposed development should comply are:

- Proposed developments should be highly accessible by public transport, walking and cycling, and the use of these forms of transport by residents and visitors to travel to the site should be encouraged;
- The proposals should not cause residual cumulative impacts that are severe in terms of road safety or operation, or cause unacceptable environmental intrusion;
- The scheme should be designed to provide improved accessibility for pedestrians and cyclists where practical; and
- Policy H2.2 states that Land off the A363 at White Horse Business Park is suitable for accommodating approximately 175 residential dwellings with vehicular access from the A363. The site is described as “reasonably well located with regard to services and facilities”.

SECTION 3: EXISTING CONDITIONS

Introduction

- 3.1 This section of the TA describes the baseline transport conditions at the site and in the surrounding area, including site location, existing junctions, local highway network and sustainable modes of transport on offer. This section also takes into account improvements that are occurring as a result of other Committed Developments in the vicinity of the site.

Site Location

- 3.2 The site is located approximately 2.4km south of Trowbridge Town Centre and 700m to the north west of North Bradley. The existing site comprises approximately 8.37ha of greenfield land which is currently used for agricultural purposes. The site is bordered to the north by the A363 Bradley Road, to the east by the White Horse Business Park, to the south by the Linden Homes site and Westbury Road beyond and to the west by North Bradley and Woodmarsh.
- 3.3 Access to the site is currently provided along the northern boundary in the form of a gated field access onto the A363 Bradley Road. An additional access is provided to the wider allocated site via Site B, taking the form of a gated field access off Little Common.

Walking

- 3.4 To enable an assessment of the viability of walking between the site and key destinations in the local area it is appropriate to establish the maximum walking distance that people are generally prepared to walk and the destinations that exist within these distances.
- 3.5 The IHT's guidance, Guidelines for Providing for Journeys on Foot (2000) states that in paragraph 3.32 and Table 2 that preferred maximum walking distances to facilities and local services is circa two kilometres. The distances for various land uses, are summarised in Table 1.

Table 1: Suggested Acceptable Walking Distances

Destination	Town Centres	Commuting / Schools	Elsewhere
Desirable	200m	500m	400m
Acceptable	400m	1,000m	800m
Preferred	800m	2,000m	1,200m

- 3.6 Pedestrian and cycle isochrones, demonstrating the range of amenities, facilities and public transport connections that can be reached within a 30-minute walk and 30-minute cycle of the site have been included within Figure A. Based upon the existing pedestrian infrastructure outlined below, the site is within the 'preferred' maximum distance to North Bradley Primary School (1,350m equating to an 18-minute walk), and within 'acceptable' walking distance to a range of employment opportunities within White Horse Business Park (550m equating to a six-minute walk). As detailed within the adopted Wiltshire Housing Site Allocations Plan, the site is "reasonably well located with regard to services and facilities".
- 3.7 A footway is provided along the A363 Bradley Road to the north of the site, providing a connection between the A363 / Woodmarsh roundabout and White Horse Business Park. The footway benefits from street lighting and is approximately 1.4m-1.6m in width along the entirety of the route, which is above desirable minimum standards.
- 3.8 Approximately 155m to the west of the site access, a pedestrian refuge island is provided on the southern arm of the A363 / Woodmarsh Lane roundabout. This provides a formal crossing facility for pedestrians to access the footways along the A363 Bradley Road (North) for routes to local bus stops and retail facilities along the A363.
- 3.9 To the north of the roundabout, the A363 Bradley Road (North) is provided with good quality, well-lit footways on both sides of the carriageway, providing a pedestrian route between the site and Trowbridge Town Centre. To the south, footways are provided to the west of the carriageway on Woodmarsh, providing a connection to North Bradley village, local bus stops, North Bradley Primary School and local amenities.

- 3.10 Public Footpath (NBRA7) provides a route from Westbury Road to White Horse Business Park, routing through Site B along the southern border of the H2.2 allocated site. NBRA7 extends west to east across the business park, providing access to Newmarket Avenue, Towcester Road and Aintree Avenue before routing north adjacent to the rail line and connecting to the wider PROW network (NBRA9 and NBRA11). There is an extensive network of PROW routes within the vicinity of the site, which provide a range of leisure routes for potential residents.
- 3.11 The existing pedestrian infrastructure provides pedestrians with good and safe connections to a number of local facilities, public transport connections and amenities. This ensures that walking is a viable mode to and from the site and can readily form part of a multi-modal trip.

Cycling

- 3.12 Cycling is considered an important mode of sustainable travel and is generally considered suitable for distances of up to 3 miles (4.8km) for regular journeys in urban areas, and 5 miles (8.0km) for commuting journeys (source: LTN 2/08, Cycle Infrastructure Design).
- 3.13 Whilst there are currently no formal cycle facilities along the A363 or Woodmarsh, the wide carriageway widths and topography provide favourable cycling conditions for cyclists. Further to this, a recommended cycle route is located approximately 150m to the west of the existing access, providing direct access to Trowbridge Town Centre and Trowbridge Rail Station via Drynham Lane and Dursley Road. At present, there is currently no direct connection between the site and the Drynham Lane link. A detailed map containing the network of quiet streets and formal cycling routes within Trowbridge is attached at Appendix B.
- 3.14 In addition to the existing infrastructure, a number of new cycle links and routes are being proposed within the vicinity of the site through developments such as Elm Park to the north of the site and Ashton Park to the east of the site. Further details of these proposals have been further on in this report and within Figure C.

- 3.15 The existing and future cycle infrastructure and recommended routes in the vicinity of the site highlight that cycling is a viable mode of transport to and from the site and can readily form part of a multi-modal journey.

Public Transport

- 3.16 The closest bus stops to the site are located on the A363 Bradley Road (North), approximately 220m (Spitfire Retail Park Southbound) and 240m (Spitfire Retail Park Northbound) north west of the existing site access. As detailed above, a footway is provided along the A363 together with a pedestrian refuge island, providing a suitable route to these bus stops. These bus stops are provided with a bus flag and timetable information.
- 3.17 Additional bus stops are located on Woodmarsh, approximately 330m (northbound) and 350m (southbound) south west of the existing site access off the A363. These bus stops can be accessed by the footway to the south of the A363 and the footway provided along Woodmarsh. Both bus stops on Woodmarsh are provided with shelter, seating and timetable information with the northbound bus stop also provided with a bus cage.
- 3.18 The bus stops mentioned above are served by the D1 Discover service, providing frequent connections to Bath, Bathampton, Winsley, Bradford-on-Avon, Trowbridge, Warminster, Wilton and Salisbury. Additional services, including the 67, 88 and X47, also operate from these stops providing connections to Chippenham, Frome, Westbury and Dilton Marsh. A summary of services available from these bus stops and their destinations and frequencies has been outlined below in Table 2.

Table 2: Bus Service Frequencies

Service	Route	Freq. Mon-Fri	Freq. Saturday	Freq. Sunday
67A	Trowbridge – North Bradley	Hourly	n/a	n/a
67Z	Trowbridge – Hawkeridge - Frome	Hourly	One Service (17:47)	n/a
88	Trowbridge – North Bradley - Westbury	School Service	n/a	n/a
D1	Salisbury – Trowbridge – Bath	30 mins	Hourly	Hourly
X47	Westbury – Dilton Marsh - Frome	One Service	n/a	n/a

- 3.19 Table 2 demonstrates that the site is well served by buses with approximately two-to-three services per hour across a standard weekday. Further to this, the bus routes on offer provide a viable route to a range of employment and retail opportunities in addition to National Rail stations for further onwards travel. With regards to the key commuter travel patterns, early morning and evening services are provided, ensuring that bus travel can form part of a sustainable multi-modal trip to and from key places of employment including Trowbridge, Salisbury, Warminster and Bath.

Local Highway Network

- 3.20 The A363 Bradley Road borders the site to the north, taking the form of a single carriageway two-way road, which is subject to a 40mph speed restriction. The A363 provides a route between Yarnbrook and the A350 to the south east of the site to Bathford and the A4 to the north west. Locally, the A363 provides a bypass route around the village of North Bradley, providing local connections to White Horse Business Park, Trowbridge and Bradford-on-Avon.
- 3.21 Approximately 135m to the west of the existing site access junction, the A363 Bradley Road forms the eastern arm of a three-armed roundabout with Woodmarsh and the A363 Bradley Road (North). Woodmarsh is a two-way single carriageway road which is subject to a 30mph speed limit and has a 7.5t weight restriction for HGVs. Woodmarsh provides access to North Bradley Village in addition to Southwick Road for access to Southwick Village.
- 3.22 An Automatic Traffic Counter (ATC) was placed on the A363 between Friday 22nd November to Thursday 28th November 2019 to record the volume and speed of eastbound and westbound traffic along the site frontage. The results of the ATC survey indicate an eastbound 85th percentile speed of 43.5mph and a westbound 85th percentile speed of 40.7mph. During the network peaks, there were a total of 458 eastbound vehicles and 383 westbound vehicles during the AM peak hour (08:00-09:00) and 432 eastbound vehicles and 418 westbound vehicles during the PM peak hour (17:00-18:00). The full survey data is attached at Appendix C.

- 3.23 In addition to the ATC data, Manual Classified Turning Count (MCTC) surveys were undertaken at the Silver Street Lane / A363 / Wiltshire Drive junction in January 2020 and at the A363 / Woodmarsh roundabout in June 2018. As detailed within Section 5 of this report, these surveys form the basis of the development impact assessment. The full survey data is attached at Appendix C.

Personal Injury Accident Analysis

- 3.24 To establish the road safety record on the local highway network in the vicinity of the site, analysis has been undertaken of the Personal Injury Accident (PIA) data obtained from CrashMap for the most recent three-year period available. This data provides information regarding the date, location, severity, conflict, street lighting and road surface conditions associated with each PIA.
- 3.25 The study area includes the A363 between the A363 / Woodmarsh roundabout and the A363 / Phillips Way / Westbury Way roundabout, in addition to Woodmarsh and Westbury Road. This approach has been scoped and agreed with Wiltshire Council during pre-application discussions.
- 3.26 The study area is shown in Figure B along with a summary of the PIAs in terms of their location and severity. A summary of the incidents is also provided below in Table 3.

Table 3: PIA Incidents

Road User Involved	Fatal Incidents	Serious Incidents	Slight Incidents
Car	0	0	4
Pedal Cycle	0	0	1
Pedestrian	0	0	0
Motorcycle	0	1	5
Goods Vehicle	0	0	0
Bus	0	0	0
Total	0	1	10

- 3.27 Table 3 highlights that over the three-year period there were a total of 11 incidents, of which ten were classified as slight and one serious. Of these incidents, seven involved vulnerable road users including one pedal cyclist and six motorcyclists.

- 3.28 The serious incident occurred at the A363 / Westbury Road / Phillips Way roundabout approximately 1.05km south east of the site. The incident occurred in April 2018 as a result of a collision between a motorcyclist and a car, resulting in the motorcyclist sustaining serious injuries.
- 3.29 In addition to the serious incident outlined above, an additional four incidents have occurred at the A363 / Westbury Road / Phillips Way roundabout within the latest three-year period, all of which resulted in slight injury accidents. Out of these four incidents, two involved motorcyclists; one as a result of a collision between a motorcyclist and a car and another as a result of a collision between a goods vehicle and a motorcyclist. The remaining two incidents involved collisions between two cars.
- 3.30 The remaining six incidents were distributed across the study area with no specific cluster identified:
- One of the incidents occurred at the Southwick Road / Westbury Road / Woodmarsh junction as a result of a collision between two cars;
 - One slight incident occurred to the north of the A363 / Woodmarsh roundabout junction in August 2018 as a result of a collision between a motorcycle and a car;
 - Two incidents occurred to the south of the A363 / Windsor Road roundabout junction, both of these incidents involved a single vehicle; one in September 2017 including a motorcyclist and one in December 2018 including a single car;
 - One incident occurred approximately 70m to the east of the site access on the A363 as a result of a collision between three cars, one of which was classified as a young driver;
 - The final incident occurred approximately 130m to the north of the Westbury Road / A363 / Phillips Way roundabout which involved a single pedal cyclist. No other vehicles were involved in the incident.

- 3.31 It is considered that this level of collisions is representative of roads within the study area, taking into account the characteristics of the A363, Woodmarsh and Westbury Road. The review of the injury accidents in the recorded three-year period has shown that it is not considered that any of the recorded accidents were attributed to the layout or design of the highway, with all of accidents occurring as a result of driver error. It is therefore considered that there are no existing road safety issues in the vicinity of the site that would be exacerbated as a result of the proposed development.

Census Analysis

- 3.32 Analysis of Census 2011 Data on car/van availability data for the resident populations of the Middle Level Output Area (MSOA) in which the site is located (Wiltshire 037) shows that 93% of residents have access to at least one car. A summary of this data is provided in Table 4. The average household has approximately 1.69 cars per dwelling.

Table 4: Car Ownership Data

Mode	Percentage
No cars or vans	7%
1 car or van	37%
2 cars or vans	39%
3 cars or vans	12%
4 cars or vans	4%

- 3.33 Census 2011 Journey to Work data for the Wiltshire 037 MSOA has also been used to estimate the modal share of the local area. It is of note that Census data is now nine years old and with the introduction of the various committed developments in the area there will be a greater number of amenities and services in addition to greater availability of routes for pedestrians and cyclists to encourage a greater proportion of sustainable trips, the information presented is therefore as a guide only.
- 3.34 A summary of the Census 2011 modal share has been provided below in Table 5, however as detailed above this is considered to be extremely robust for the local area with the proportion of trips undertaken on foot and by bicycle expected to be much higher now than in 2011.

Table 5: Modal Split (Wiltshire 037 MSOA)

Mode	Percentage
Work from home	0.0%
Train	2.8%
Bus	1.6%
Taxi	0.1%
Motorcycle	0.8%
Car Driver	83.0%
Car Passenger	4.8%
Bicycle	2.2%
On Foot	4.7%
Total	100.0%

- 3.35 Table 5 demonstrates that 11.3% of journeys to work are undertaken by sustainable modes of transport such as walking (4.7%), cycling (2.2%) and public transport (4.4%) with 1.6% by bus and 2.8% by rail. However, it is of note that Wiltshire 037 MSOA is largely built up of rural settlements including Southwick, Steeple Ashton and West Ashton where car dependency is anticipated to be higher. Given that the site is located on the northern fringe of the MSOA, within walking distance of the business park and public transport stops, it is likely that the proportion of trips undertaken by car will be lower.
- 3.36 The MSOA located directly to the north of the site, Wiltshire 035, covers a much smaller area including residential areas off Wiltshire Drive, Dursley Road and County Way. Journey to work data for Wiltshire 035 indicates that 66.8% of people travel to work by car with over 20% travelling by active modes (16.6% on foot and 4.0% by bicycle), indicating a greater proportion of sustainable trips. Whilst the site is located within the Wiltshire 037 MSOA, it is within 200m of the Wiltshire 035 MSOA which equates to less than three-minute walk; the site characteristics and location are more likely to reflect the travel behaviours in 035 than 037 with a higher proportion of active travel modes used. The figures outlined in Table 5 are likely to under-estimate the proportion of sustainable trips anticipated for future site users. As detailed below, the provision of planned pedestrian and cycling improvements is likely to further increase the propensity to walk and cycle.

Committed Developments and Transport Improvements

- 3.37 The site is allocated in the Wiltshire Council Housing Site Allocations Plan, as 'Land off the A363 White Horse Business Park' (under policy H2.2). This site is appropriate for residential development, and delivery of these homes would be important to meeting identified local needs. As demonstrated above, the site lies in a sustainable location, with good access to local services and facilities. In addition to H.2.2, a total of five other sites have been allocated within the Trowbridge area:
- **H2.1 Elm Grove, Trowbridge:** Allocation for approximately 250 dwellings;
 - **H2.3 Elizabeth Way, Trowbridge:** Allocation for approximately 355 dwellings;
 - **H2.4 Church Lane, Trowbridge:** Allocation for approximately 45 dwellings;
 - **H2.5 Upper Studley, Trowbridge:** Allocation for approximately 45 dwellings;
 - **H2.6 Southwick Court, Trowbridge:** Allocation for approximately 180 dwellings.
- 3.38 Further details regarding the pedestrian and cycle improvements being provided as part of this application have been considered below in Chapter 4. In short, the proposals will provide improved pedestrian and cycle links from within the site boundary, connecting to the Drynham Lane pedestrian and cycle route via improved 2.0m footways and a crossing facility on the A363 Bradley Road.
- 3.39 In addition to this, the Elm Grove development to the north, has proposed to downgrade Drynham Lane carriageway to a Restricted Byway, enhancing the safety and priority of the route for pedestrians and cyclists. Pedestrians are currently able to access Drynham Lane via the footways on Woodmarsh, however there is currently no direct route from the site. The proposed development will seek to improve this connection through the provision of a pedestrian crossing facility together with a new section of footway. These improvements in combination will provide a connection from the site to Trowbridge Town Centre amongst other local amenities and key facilities.
- 3.40 A summary of the site allocations and the associated transport and highways improvements being proposed as part of these allocations is outlined in Figure C.

Summary

- 3.41 This section has evaluated the existing and emerging transport conditions in the vicinity of the site. The site is allocated for residential development and therefore the principle of development on the site is accepted. To support this, this section demonstrates that the site is in a suitable and accessible location. This includes existing provision as well as substantial improvements, which are being brought forward by committed developments and other site allocations, in particular the cycle and pedestrian infrastructure improvements as part of the Elm Grove application. The site is well connected by a range of frequent and regular bus services to higher order settlements and benefits from key cycle routes in the site vicinity.
- 3.42 A review of PIA data for the latest three-year period identifies no existing road safety issues in the vicinity of the site, with no evident clusters and no collisions attributed to the layout or design of the highway. All of the accidents occurred due to driver error as opposed to a defect in the highway, and the level of incidents involving vulnerable road users remains low. Therefore, it is not anticipated that any road safety issues will be exacerbated as a result of the proposed development.
- 3.43 The site is already accessible by a range of transport options and sustainable modes of travel. These will be further enhanced by improvements delivered by other site allocations and committed developments. However, it is important to note that the delivery of the site would not be dependent upon wider improvements coming forward and the site is in a sustainable and is 'reasonably well located with regard to services and facilities', as outlined within the WHSAP. Further to this, whilst the use of Census journey to work data has been used to establish the potential uptake of sustainable trips; it is anticipated that the proportion of trips undertaken by active modes will be greater than the results state for 2011.

SECTION 4: PROPOSED DEVELOPMENT

Development Details

- 4.1 The proposed development seeks to deliver up to 100 residential dwellings (layout reserved) with access taken from the A363 Bradley Road to the north of the site. As detailed above, it was noted in Policy H2.2 that the wider site is suitable for accommodating approximately 175 residential dwellings with vehicular access from the A363. The proposed accommodation is expected to include a mix of 1, 2, 3 and 4 bed units.
- 4.2 In addition to the provision of the residential units, the proposed development will also provide a care home of up to 64 beds in the northern part of the site. Discussions are currently ongoing with care home operators and the exact number of rooms and nature of the care home operation is yet to be confirmed. The parameters plan for the proposed development has been attached at Appendix D.

Proposed Access Junction

- 4.3 Vehicular access will be provided in the form of a priority T-junction to the north of the site via the A363 Bradley Road. The priority junction will be supported by a ghost-right turn arrangement on the A363, providing a reservoir into the site for eastbound traffic without impeding the free flow of traffic on the A363. The ghost-right turn arrangement and priority junction have been designed in accordance with DMRB guidance.
- 4.4 The A363 is currently subject to a 40mph speed limit, reducing to 30mph on the westbound approach to the A363 / Woodmarsh roundabout junction. The proposed development seeks to extend the 30mph speed restriction along the site frontage, ensuring that the proposed access, crossing facility and pedestrian refuge island are located within the 30mph zone. Given that the A363 Bradley Road is bordered to the north and south by allocated residential sites, the extension of the 30mph restriction would provide a safer and more pleasant environment for pedestrians and cyclists within the vicinity.
- 4.5 In order to accommodate the provision of the ghost island right-turn lane and to achieve the required 2.4m x 120m visibility splays along the A363, widening of the A363 is proposed to the south of the carriageway. This widening will make use of land within

the adopted highway boundary in addition to land within the ownership of the Applicant. The carriageway widening, together with the footway provision (further details provided below), will provide a betterment to the existing highway arrangement. The location of the access provides the most suitable spacing from the A363 / Woodmarsh roundabout whilst also complementing the design of the internal highway layout.

- 4.6 In addition to the primary vehicular access outlined above, it is expected that a secondary access will be proposed to the south west of the wider allocated site via Little Common. This access will take the form of an emergency access and will be open to use by pedestrians and cyclists. It is of note that this access routes through Site B, therefore the indicative masterplan for Site A has been incorporated as part of the proposals to ensure a through route from the A363 is provided across both sites in line with WHSAP Policy H2.2.
- 4.7 Initial designs of the access junctions are attached within Appendix E. As aforementioned, these initial designs comply fully with the appropriate design standards, however the junction arrangement will be subject to further detailed design as part of the post planning Section 38 / 278 agreement process.

Internal Highway Layout

- 4.8 The illustrative Masterplan has been provided to demonstrate that the number of dwellings envisaged on site can be delivered whilst meeting relevant policy and local guidance. As such, an examination of the Masterplan is outlined below to provide clarity of what is proposed. The final layouts and other development features, including the internal road layout, vehicle and cycle parking will be subject to reserved matters applications.
- 4.9 The internal carriageway widths measure between 5.5m - 6.0m in width and have been provided to adoptable standards, including footways of 2.0m on at least one side of the carriageway.
- 4.10 Access to the proposed care home will also be provided via the northern priority junction, however a separate internal route will be provided to the care home car parking area, providing clear separation from the residential element of the scheme.

- 4.11 The alignment of the internal highway layout has taken into account the wider H2.2 allocated site, therefore a link road has been provided to the south east of the site to facilitate access to and from Site B.
- 4.12 The internal site layout is therefore considered to provide a high level of permeability and connectivity which caters for pedestrians and cyclists within the development whilst also ensuring key vehicular routes are safe and suitable for use. This includes:
- A street pattern that generates natural surveillance where entrances and frontages face public routes;
 - An internal layout that encourages low vehicle speeds and therefore creates an environment where pedestrians and cyclists are not intimidated by motor traffic;
 - A permeable hierarchy of direct routes within the development area comprising shared, segregated and recreational links which will connect all internal areas of the development to the points of access; and
 - Road geometries which are safe and suitable to accommodate all road users.
- 4.13 The current application is submitted in Outline with an illustrative masterplan. As such, a swept path analysis of the internal highway layout has not been undertaken in its current form. As detailed above, the internal highway layout may change through subsequent reserved matters applications. Therefore, swept path analysis will be undertaken at this stage to ensure that servicing vehicles and emergency vehicles are able to route around the site in forward gear and have sufficient space to manoeuvre as required.

Pedestrian Access

- 4.14 Pedestrian access to the site will be provided along the site frontage via the A363 in the form of a 2.0m footway routing into the site. As detailed above, widening of the carriageway is proposed along the A363 to accommodate the ghost island right-turn lane and visibility splays. The widening will provide sufficient space within the highway boundary and application boundary to accommodate a 2.0m footway to the south of the carriageway.
- 4.15 In addition to the provision of a 2.0m footway, the proposed junction design will provide a controlled crossing facility, complete with dropped kerbs and tactile paving, approximately 110m to the west of the proposed access. In order to provide a continuation of the Drynham Lane pedestrian link, a new section of footway will be provided to the north-east of the A363 / Woodmarsh roundabout. Further to this, a pedestrian refuge island is being proposed to the east of the site access, providing an uncontrolled crossing facility to the Elm Grove site to the north of the carriageway. Initial designs of the access junctions are attached within Appendix E.
- 4.16 In addition to the footways provided off the A363, a separate emergency / pedestrian and cycle access is expected to be proposed via Little Common as part of a separate planning application in relation to Site B. Whilst the delivery of the site is not reliant on the provision of this additional access, should this be delivered, this will provide a footway / cycle link through the wider allocated site to North Bradley to the south.

Car and Cycle Parking

- 4.17 As detailed above, the exact parking provision and overall layout will be considered as part of a future reserved matters application. However, residential car parking provision will be provided in accordance with the adopted Wiltshire Council Car Parking Strategy, which requires the following:
- 1-bed property: Minimum of one parking space;
 - 2-bed / 3-bed property: Minimum of two parking spaces; and
 - 4-bed property: Minimum of three parking spaces.
- 4.18 Car parking for visitors should will be provided at a rate of 0.2 spaces per dwelling.

- 4.19 With regards to the proposed care home, the following standards are outlined with Wiltshire's Car Parking Strategy:
- Sheltered Accommodation: One space per two units + One space per five units;
 - Other 'Retirement' Homes: One space per unit + One space per five units.
- 4.20 Parking provision for the care home element of the scheme will be provided in accordance with the standards outlined above.
- 4.21 Cycle parking will be provided in accordance with the adopted Wiltshire Council Cycling Strategy. For the residential element of the scheme, this equates to:
- 1-3 bed property: Minimum of one covered space per bedroom;
 - 4-bed property: Minimum of three covered spaces per unit; and
 - 5-bed property: Minimum of four covered spaces per unit.
- 4.21 Cycle parking for visitors will be provided at a rate of one space per 20 bedrooms.
- 4.22 The proposed development will provide car and cycle parking in accordance with WCC standards with a mixture of on-plot driveway parking, garages and communal parking areas. This application is for outline only and therefore the level of parking will be further analysed as part of the reserved matters stage, taking into account the relevant WCC guidance.
- 4.23 The illustrative Masterplan for the proposed development outlining the indicative parking arrangements has been provided at Appendix F, this demonstrates that the site can accommodate the car parking provision in accordance with standards.

Delivery, Servicing and Emergency Vehicle Arrangements

- 4.24 As detailed above, the internal layout will be reserved for future consideration and is not fixed within the OPA. As such, the information outlined below is provided to demonstrate that relevant standards can be achieved for the development of up to 100 residential units together with a care home of up to 64 beds. As detailed within the Highways comments received as part of the pre-application process, the provision of suitable routes and connectivity with the wider highway network has been considered for the wider allocation site (including both the Linden Homes site and the Castlewood Properties site).
- 4.25 Access to the proposed site for servicing and deliveries will primarily comprise the following:
- Refuse collection vehicles;
 - Delivery of goods and grocery shopping;
 - Post and mail deliveries and collections; and
 - Ad-hoc removal vans, particularly upon first occupation of the site.
- 4.26 The internal road network is designed to facilitate the manoeuvrability and navigation of refuse vehicles and emergency vehicles throughout the wider development site. As detailed above, the provision of a highways link between the two sites being promoted as part of the allocation ensures that refuse collection vehicles can access the entirety of the site. Further to this, the provision of the link road between Site A and Site B also provides an opportunity for an additional access for emergency vehicles should there be a blockage on the primary vehicle route from the A363 should an additional emergency access point be provided to Site B via Little Common.

Travel Plan

- 4.27 As part of the pre-application comments received from Wiltshire Council, a Framework Travel Plan was requested for submission as part of the OPA.

- 4.28 Travel Plans have become an important tool for the delivery of national, regional and local transport policy and commonly play an integral aspect within the planning process, fulfilling a role in encouraging more sustainable development. TPs are a strategy for managing multi-modal access to a site or development, focusing on promoting and incentivising access by sustainable modes. A successful TP will provide a choice of travel options and encourage more sustainable ones.
- 4.29 A Travel Plan, report reference 'Land at South Trowbridge – TP' has been included in the outline planning application for the development. This has been produced in accordance with WCC's Travel Plan guidance that states that this guidance applies to residential developments of greater than 40 dwellings, as well as guidance produced at a national scale.
- 4.30 The TP sets out how a range of measures will be introduced at the development to actively encourage the new residents to use sustainable modes of travel. The overarching objectives which underpin the Travel Plan are to:
- Reduce the traffic generated by the development to a lower level than would normally be predicted without the implementation of a TP, in order to further increase the benefits along the local highway network;
 - Encourage those travelling to and from the development to use public transport, cycle or walk in a safe and secure manner; and
 - Promote healthy lifestyles and sustainable, vibrant local communities.
- 4.31 The approach and measures set out in the TP accord with national, regional and local Government objectives and seek to:
- Achieve further reductions in traffic on surrounding roads;
 - Promote equal opportunities to residents by offering wider travel choices;
 - Develop places for people that encourage community interaction and avoid a car-dominated environment;
 - Reduce the cost of personal travel and saving households money through promoting opportunities for cost savings such as car-sharing;
 - Improve personal and wider community health; and
 - Reduce air and noise pollution.

- 4.32 Information can be prepared prior to the sale of properties and sales/marketing staff will be encouraged to promote sustainable travel. Before residents have started to occupy the development, a Travel Plan Coordinator (TPC) will be in place and henceforth will work alongside the TPCs from the other Committed Developments within the vicinity, including the adjacent site (Site B).
- 4.33 The Travel Plan together with its associated measures, implementation and monitoring can be delivered voluntarily or secured through a planning condition or obligation.

SECTION 5: TRIP GENERATION

Introduction

- 5.1 This section of the Transport Assessment considers the anticipated trip generation associated with the proposed development, together with the distribution of those trips on the local highway and transport network.
- 5.2 The trip generation methodology has been scoped and agreed with Wiltshire Council prior to submission of this Transport Assessment.

Existing Site Trip Generation

- 5.3 The existing site comprises approximately 8.37ha of greenfield land, which is currently used for agricultural purposes. As such, it is anticipated that the site would generate ad-hoc vehicle movements in its current form, routing from either the existing vehicle crossover access onto the A363 or via an alternative access via Little Common.
- 5.4 However, given that the agricultural use does not currently generate frequent and scheduled trips, for the purpose of this assessment it has been assumed that the site currently generates zero trips. This approach is considered appropriate and robust in assessing the impact of the proposed development.

Proposed Trip Generation

- 5.5 The application for Site A currently comprises the development of up to 100 residential dwellings in addition to care home facility of up to 64 beds. However, in order to provide a robust assessment junction operation assessments outlined in Chapter 6 of this report include a scenario for the full allocation of site H2.2 (Site A + Site B).

Residential

- 5.6 The trip generation for the site has been calculated using trip rates derived from the TRICS database (v7.6.3). The following parameters were used to calculate a trip rate for the residential units which represents the area in which the site is located. It is of note that 'Private Dwellings' were used, as opposed to 'Affordable Housing' in order to provide a robust assessment:
- 03 – Residential – 'Private Dwelling' use class;
 - Multi-modal surveys;
 - Sites in England excluding Greater London;
 - Sites with between 50 – 200 dwellings;
 - Surveys undertaken on Monday – Friday only; and
 - Sites within 'Suburban area', 'Edge of Town' and 'Neighbourhood Centre' only.
- 5.7 The full list of TRICS sites matching parameters outlined above is outlined within the TRICS report attached at Appendix G.
- 5.8 Table 6 summarises the vehicle trip rates extracted from the TRICS database and the resulting vehicle trip generation based upon the development of 100 dwellings. The full outputs from the TRICS database are included in Appendix G.

Table 6: Residential Vehicle Trip Generation

Time Period	Trip Rate			Trip Generation		
	In	Out	Two-Way	In	Out	Two-Way
AM Peak	0.111	0.316	0.427	11	32	43
PM Peak	0.279	0.135	0.414	28	14	42
12 Hour	2.006	2.080	4.086	200	208	408

- 5.9 The results in Table 6 indicate that the proposed residential element of the scheme could result in up to 43 two-way vehicle movements during the AM peak hour (08:00-09:00), 42 two-way vehicle movements in the PM peak hour (17:00-18:00) and up to 408 two-way vehicle movements across a 12-hour period between 07:00-19:00.
- 5.10 Census 2011 Journey to Work data for the resident population of the Middle Layer Super Output Area (MSOA) in which the site is located (Wiltshire 037) has been used to calculate the multi-modal trip generation for the proposed development of up to 100 dwellings at the site. It is considered that this is a more accurate method than using TRICS data as the Census data represents the local modal split patterns of the area in which the site is located. However, as detailed above given the local context of the site and the improved pedestrian and cycling infrastructure being proposed within the vicinity, the uptake of active travel is anticipated to be higher. Whilst the Journey to Work data is gathered for the peak hour commuting trips, this modal split will be used across all hours. The total multi-modal person trips for the site are outlined in Table 7.

Table 7: Residential Multi-Modal Trip Generation

Mode	Modal Share	AM Peak	PM Peak	12 Hour
Work from home	0.0%	0	0	0
Train	2.8%	2	2	14
Bus	1.6%	1	1	8
Taxi	0.1%	0	0	0
Motorcycle	0.8%	0	0	4
Car Driver	83.0%	43	42	408
Car Passenger	4.8%	3	3	24
Bicycle	2.2%	1	1	11
On Foot	4.7%	2	2	23
Other	0.0%	0	0	0
Total	100%	52	51	492

- 5.11 Table 7 demonstrates that the site could generate up to 52 person trips in the AM peak hour (08:00-09:00), 51 person trips in the PM peak hour (17:00-18:00) and 492 person trips across a 12-hour period (07:00-19:00). Of these trips it is predicted that 11.6% could be undertaken by sustainable modes of transport, including walking (4.7%), cycling (2.2%) and public transport (4.4%) with 1.6% by bus and 2.8% by rail.

Care Home

5.12 The trip generation for the site has been calculated using trip rates derived from the TRICS database (v 7.6.3). The following parameters were used to calculate a trip rate for the care home which represents the area in which the site is located:

- 03 – Residential – ‘Sheltered Accommodation’ use class;
- Multi-modal surveys;
- Sites in England excluding Greater London;
- Sites with between 14 – 114 units;
- Surveys undertaken on Monday – Friday only;
- Sites within ‘Edge of Town Centre’, ‘Suburban area’, ‘Edge of Town’ and ‘Neighbourhood Centre’ only.

5.13 The full list of TRICS sites matching parameters outlined above is outlined within the TRICS report attached at Appendix G.

5.14 Table 8 summarises the vehicle trip rates extracted from the TRICS database and the resulting vehicle trip generation based upon the development of a care home of up to 64 beds. The full outputs from the TRICS database are included in Appendix G.

Table 8: Care Home Vehicle Trip Generation

Time Period	Trip Rate			Trip Generation		
	In	Out	Two-Way	In	Out	Two-Way
AM Peak	0.107	0.077	0.184	7	5	12
PM Peak	0.075	0.071	0.146	5	5	10
12 Hour	1.129	1.126	2.255	72	72	144

5.15 The results in Table 8 indicate that the proposed care home could result in up to 12 two-way vehicle movements during the AM peak hour (08:00-09:00), 10 two-way vehicle movements in the PM peak hour (17:00-18:00) and up to 144 two-way vehicle movements across a 12-hour period between 07:00-19:00.

5.16 Census 2011 Journey to Work data for the resident population of the Middle Layer Super Output Area (MSOA) in which the site is located (Wiltshire 037) has been used to calculate the multi-modal trip generation for the proposed care home. It is considered that this is a more accurate method than using TRICS data as the Census data represents the local modal split patterns of the area in which the site is located. However, as detailed above it is anticipated that the proportion of active travel trips would be higher in reality. The total multi-modal person trips for the site are outlined in Table 9.

Table 9 Care Home Multi-Modal Trip Generation

Mode	Modal Share	AM Peak	PM Peak	12 Hour
Work from home	0.0%	0	0	0
Train	2.8%	0	0	5
Bus	1.6%	0	0	3
Taxi	0.1%	0	0	0
Motorcycle	0.8%	0	0	1
Car Driver	83.0%	12	10	144
Car Passenger	4.8%	1	1	8
Bicycle	2.2%	0	0	4
On Foot	4.7%	1	1	8
Other	0.0%	0	0	0
Total	100.00%	14	12	173

5.17 Table 9 demonstrates that the care home could generate up to 14 person trips in the AM peak hour (08:00-09:00), 12 person trips in the PM peak hour (17:00-18:00) and 173 person trips across a 12-hour period (07:00-19:00). Of these trips it is predicted that 11.3% could be undertaken by sustainable modes of transport, including walking (4.7%), cycling (2.2%) and public transport (4.4%) with 1.6% by bus and 2.8% by rail.

Total Trip Generation (Site A: 100 Dwellings & 64-bed Care Home)

5.18 A summary of the total multi-modal trip generation for the proposed development has been outlined below in Table 10. This has been calculated by combining the residential trip generation for up to 100 dwellings (Table 7) with the trip generation for the care home facility of up to 64 beds (Table 9).

Table 10: Total Development Multi-Modal Trip Generation

Mode	AM Peak	PM Peak	12 Hour
Work from home	0	0	0
Train	2	2	19
Bus	1	1	11
Taxi	0	0	0
Motorcycle	0	0	5
Car Driver	55	52	552
Car Passenger	4	4	32
Bicycle	1	1	15
On Foot	3	3	31
Other	0	0	0
Total	66	63	665

5.19 As detailed above, the proposed development is anticipated to result in up to 55 two-way car trips during the AM peak hour, 52 during the PM peak hour and up to 552 over the daily period. With regards to sustainable travel the proposed development is anticipated to result in up to 31 pedestrian trips over the daily period with an additional 15 by bicycle, 19 via train (likely to form part of a linked trip with walking and cycling assumed for access to and from the rail station) and 11 by bus. As detailed above, the pedestrian and cycle improvements being proposed within the vicinity, including enhanced pedestrian and cycle links to the railway station and town centre is likely to encourage a greater proportion of trips by active travel modes.

Trip Distribution

5.20 Trip distribution from the site has been estimated based on an analysis of the existing 2011 Census data. The site is located within the Wiltshire 037 Middle Super Output Area (MSOA). As such the distribution of trips has been equated through analysis of the 2011 census data using the 'WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level).

5.21 A summary of the distribution of the journeys from the site, sorted by destination, is outlined below in Table 11.

Table 11: Trip Distribution

Destination	Proportion of Trips
Trowbridge	34.7%
Calne, Melksham and Devizes	12.6%
Bath and North East Somerset	9.3%
Westbury	8.2%
Cosham and Chippenham	6.7%
Shaftbury, Mere and Warminster	4.6%
Frome and Mendip	3.9%
Bradford on Avon	3.7%
Salisbury, Amesbury and Salisbury Plain	3.2%
Gloucestershire, Stroud and the Cotswolds	2.2%
Hampshire	2.1%
Bristol and North Somerset	1.8%
Swindon	1.5%
Thames Valley	1.1%
Other	1.1%
North Wiltshire	1.0%
Taunton and South Somerset	0.6%
London	0.6%
Dorset, Poole and Bournemouth	0.5%
South Wales	0.4%
Marlborough	0.4%
Total	100%

5.22 Key destinations outlined above are all accessible via public transport routes available within 400m of the site or as part of a linked trip using rail services from Trowbridge Station. Whilst bus routes are available to Trowbridge town centre and can form part of a sustainable multi-modal trip, it is also considered likely that a large proportion of these trips would travel into the town centre via active modes, using the enhancements proposed via Drynham Lane.

- 5.23 An online journey planner has been used to calculate the quickest journey times and routes between the site and each of the journey to work locations. Where multiple route options with similar journey times were available an equal split has been assumed. The proposed distribution is outlined below in Table 12.

Table 12: Vehicle Trip Distribution

Route	Distribution
A363 North	41%
A363 Westbury Road E	43%
Phillips Way	0%
Silver Street Lane	6%
Wiltshire Drive	3%
Woodmarsh	7%
Total	100%

- 5.24 The proposed development traffic flows distributed across the network are included within Appendix H.

Summary

- 5.25 The trip methodology outlined within this section has been discussed previously with Wiltshire Council prior to undertaking the assessments.
- 5.26 The existing site comprises approximately 8.37ha of greenfield land, which is currently used for agricultural purposes. However, for the purpose of this assessment it has been assumed that the site currently generates zero trips.
- 5.27 The residential element of the scheme is anticipated to result in up to 43 two-way vehicle movements during the AM peak hour (08:00-09:00), 42 two-way vehicle movements in the PM peak hour (17:00-18:00) and up to 408 two-way vehicle movements across a 12-hour period between 07:00-19:00. In addition to this, the care home is anticipated to result in up to 12 two-way vehicle movements during the AM peak hour (08:00-09:00), 10 two-way vehicle movements in the PM peak hour (17:00-18:00) and up to 144 two-way vehicle movements across a 12-hour period between 07:00-19:00.

SECTION 6: DEVELOPMENT IMPACT

Introduction

- 6.1 This section evaluates the potential impact of this proposed development on the surrounding highway network by considering the trip generation and assignment discussed in Section 5 and undertaking operational assessments at junctions in the vicinity of the site.

Forecast Years and Traffic Growth

- 6.2 As agreed with Wiltshire Council during pre-application discussions, the assessment year shall be in line with the Core Strategy (2026). As agreed with Wiltshire Council during pre-application discussions, the use of TEMPro growth rates was not considered appropriate for use as part of this assessment given that the TEMPro forecasts have not been reflective of the observed traffic level changes during the same period.

Committed Developments

- 6.3 As detailed within the Highways response received from Wiltshire Council, the use of TEMPro was not considered appropriate for the site given that Trowbridge Strategic Sites H2.1 – H2.6 were included as part of the assessment. The expectation is that these sites will be delivered by 2026, therefore these sites provide a suitable level of traffic growth for the Core Strategy period. A summary of the committed developments considered within the junction assessments is detailed below with a map showing all committed developments attached at Figure C:

- **H2.1 Elm Grove, Trowbridge:** Allocation for approximately 250 dwellings;
- **H2.2 Land off the A363:** Allocation for approximately 175 dwellings;
- **H2.3 Elizabeth Way, Trowbridge:** Allocation for approximately 355 dwellings;
- **H2.4 Church Lane, Trowbridge:** Allocation for approximately 45 dwellings;
- **H2.5 Upper Studley, Trowbridge:** Allocation for approximately 45 dwellings;
- **H2.6 Southwick Court, Trowbridge:** Allocation for approximately 180 dwellings.

- 6.4 Wiltshire Council has developed a SATURN model for the wider Trowbridge area as part of site selection process for the Wiltshire Housing Site Allocations Plan. This model includes all committed development together with the relevant growth forecasts for the period. It is of note that the development at Ashton Park has been included within the Trowbridge Model, therefore this has been assessed as a committed development as part of the sensitivity assessment. A summary of the flows taken from the Trowbridge Model have been included within Appendix I.

Junction Assessments

- 6.5 The following junctions have been agreed with Wiltshire Council as requiring detailed capacity assessments:
- **Junction 1:** Site Access onto the A363 Bradley Road;
 - **Junction 2:** Bradley Road / Woodmarsh Roundabout;
 - **Junction 3:** A363 / Westbury Road / Phillips Way Roundabout;
 - **Junction 4:** Wiltshire Drive / Bradley Road Mini-Roundabout; and
 - **Junction 5:** Bradley Road / Silver Street Lane Mini-Roundabout.
- 6.6 Operational assessments of the local junctions have been undertaken using the Transport Research Laboratory (TRL) modelling software Junctions 9 (PICADY and ARCADY).
- 6.7 The geometries entered for each junction have been established using the following sources:
- **Junction 1:** Proposed Site Access General Arrangement Drawing (Drawing No.002); included as Appendix E;
 - **Junction 2:** CDA Elm Grove Transport Assessment (agreed parameters) *
 - **Junction 3:** Obtained from a combination of on-site measurements and presented on Google Mapping;
 - **Junction 4:** CDA Elm Grove Transport Assessment (agreed parameters) *
 - **Junction 5:** CDA Elm Grove Transport Assessment (agreed parameters) *

- 6.8 *The CDA Elm Grove TA parameters are set out within each junction modelling output provided in Appendix L, M and N of the TA. Each geometry has been spot-checked by Badingham to ensure their consistency. No issues have been raised with the CDA geometries.

Assessment Parameters

- 6.9 Operational assessments have been undertaken using the Transport Research Laboratory (TRL) modelling software Junctions 9 (PICADY and ARCADY).
- 6.10 Junctions 9 provides three main measures of junction capacity and operation, namely traffic intensity (RFC), queue length and delay. These measurements are discussed briefly below:

Traffic Intensity (RFC)

- 6.11 Within Junctions 9 the RFC (ratio of flow to capacity) provides the primary measure of the capacity within a junction and is reported for each entry arm. When RFC exceeds 1.0 the arm is considered to be operating over capacity, and queuing will occur. As a general rule, a ratio of 0.85 or less provides an acceptable design criterion.

Queue Length

- 6.12 Queue Length (Q) provides a measure of queue lengths which can be used to assess any interference with adjacent junctions together with an indication of how the overall junction performance may affect adjacent junctions on the highway network and is measured in PCUs

Delay

- 6.13 The delay figure represents the maximum value of average delay per arriving vehicle and is represented in seconds.

Capacity Assessments

6.14 The remainder of this section presents the results of the local junction capacity modelling assessment undertaken in the following scenarios:

- 2020 Base
- 2026 Base + Elm Grove Site
- 2026 Base + Elm Grove Site + Proposed Development (Site A – Castlewood Properties Site);
- 2026 Base + Elm Grove Site + Proposed Development (Site A – Castlewood Properties Site) + Linden Homes Site (Site B – Linden Homes Site);
- Sensitivity Test: '2026 Baseline' (including all Trowbridge Strategic Sites H2.1 – H2.6 taken from the Trowbridge Model).

6.15 The site access junction has been modelled using the '+ development' scenarios only.

Junction 1: Proposed Site Access onto the A363 Bradley Road

6.16 The proposed site access onto the A363 Bradley Road has been designed in accordance with DMRB requirements to accommodate development traffic as demonstrated in Drawing Number 002. Distribution analysis presented in Section 4 shows that 43% of vehicles are likely to exit and enter the site to/from the east, with 57% of vehicles likely to exit and enter the site to/from the west.

6.17 The results of the detailed junction modelling are presented in Table 13, with the full PICADY outputs found at **Appendix J**.

Table 13: Proposed Site Access Junction Capacity Assessment

Stream	Arm Name	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
		RFC	Q	Delay (s)	RFC	Q	Delay (s)
2026 Base + Elm Grove + Proposed Development							
B-AC	Site Access to Bradley Road	0.09	0	8.39	0.04	0	8.05
C-AB	A363 Bradley Road (West) to Site Access/Bradley Road (East)	0.02	0	5.77	0.03	0	5.90
2026 Base + Elm Grove + Proposed Development + Linden Homes (H2.2)							
B-AC	Site Access to Bradley Road	0.16	0	9.22	0.07	0	7.53
C-AB	A363 Bradley Road (West) to Site Access/Bradley Road (East)	0.03	0	5.85	0.06	0	6.12
Sensitivity Test: 2026 Baseline							
B-AC	Site Access to Bradley Road	0.21	0	12.28	0.12	0	13.20
C-AB	A363 Bradley Road (West) to Site Access/Bradley Road (East)	0.03	0	5.87	0.08	0	7.90

6.18 The results in Table 13 demonstrate that the proposed development will have a limited impact upon the operation of the junction and it will operate within capacity in all future scenarios. A maximum RFC of 0.21 is experienced in the 2026 Baseline scenario on the minor arm right turn movement, with an associated queue of 0 vehicles.

Junction 2: A363 Bradley Road/Woodmarsh Roundabout;

- 6.19 The A363 Bradley Road/ Woodmarsh junction is a three arm, 'standard' roundabout. It is anticipated that, of the 57% development traffic travelling through this junction, 50% will turn right onto the A363 Bradley Road North, with 7% turning left onto Woodmarsh.
- 6.20 The results of the detailed junction modelling are presented in Table 14, with the full ARCADY outputs found at **Appendix J**.

Table 14: A363 Bradley Road / Woodmarsh Junction Capacity Assessment

Arm	Arm Name	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
		RFC	Q	Delay (s)	RFC	Q	Delay (s)
2020 Base							
A	A363 Bradley Road East	0.32	1	4.05	0.60	2	7.81
B	Woodmarsh	0.22	0	3.98	0.31	1	5.68
C	A363 Bradley Road West	0.59	1	5.41	0.63	2	6.03
2026 Base + Elm Grove							
A	A363 Bradley Road East	0.35	1	4.26	0.62	2	8.11
B	Woodmarsh	0.22	0	4.09	0.32	1	5.77
C	A363 Bradley Road West	0.59	1	5.52	0.66	2	6.55
2026 Base + Elm Grove + Proposed Development							
A	A363 Bradley Road East	0.37	1	4.38	0.63	2	8.34
B	Woodmarsh	0.22	0	4.15	0.32	1	5.85
C	A363 Bradley Road West	0.60	2	5.61	0.68	2	6.80
2026 Base + Elm Grove + Proposed Development + Linden Homes (H2.2)							
A	A363 Bradley Road East	0.38	1	4.49	0.63	2	8.51
B	Woodmarsh	0.23	0	4.20	0.32	1	5.91
C	A363 Bradley Road West	0.60	2	5.67	0.69	2	7.02
Sensitivity Test: 2026 Baseline							
A	A363 Bradley Road East	0.35	1	4.07	0.76	3	12.53
B	Woodmarsh	0.49	1	6.07	0.31	1	5.90
C	A363 Bradley Road West	0.80	4	11.30	0.67	2	6.71

6.21 The results in Table 14 demonstrate that the addition of the proposed development is having a limited impact upon the operation of the junction and it will operate within capacity in all future scenarios. A maximum RFC of 0.80 is experienced in the 2026 Baseline scenario on the Bradley Road West arm, with an associated queue of 4 vehicles.

Junction 3: A363 Westbury Road/Phillips Way Roundabout

- 6.22 The A363 Westbury Road/ Phillips Way junction is a four arm, 'standard' roundabout. It is anticipated that all development traffic travelling through this junction (43%) will turn left onto the A363 Westbury Road (East). 6.23 The results of the detailed junction modelling are presented in Table 15, with the full ARCADY outputs found at **Appendix J**.

Table 15: A363 Westbury Road / Phillips Way Junction Capacity Assessment

Arm	Arm Name	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
		RFC	Q	Delay (s)	RFC	Q	Delay (s)
2020 Base							
A	Westbury Road (East)	0.49	1	5.70	0.56	1	7.05
B	Phillips Way (South)	0.35	1	3.93	0.29	0	3.89
C	Westbury Road (West)	0.51	1	5.76	0.26	0	3.41
D	Phillips Way (North)	0.40	1	4.46	0.57	1	5.67
2026 Base + Elm Grove							
A	Westbury Road (East)	0.50	1	5.82	0.58	1	7.47
B	Phillips Way (South)	0.36	1	3.96	0.30	0	4.01
C	Westbury Road (West)	0.52	1	5.83	0.26	0	3.49
D	Phillips Way (North)	0.43	1	4.65	0.59	1	5.89
2026 Base + Elm Grove + Proposed Development							
A	Westbury Road (East)	0.51	1	5.90	0.59	2	7.72
B	Phillips Way (South)	0.36	1	3.99	0.30	0	4.06
C	Westbury Road (West)	0.52	1	5.88	0.26	0	3.52
D	Phillips Way (North)	0.44	1	4.76	0.60	2	5.98
2026 Base + Elm Grove + Proposed Development + Linden Homes (H2.2)							
A	Westbury Road (East)	0.53	1	6.38	0.61	2	7.95
B	Phillips Way (South)	0.36	1	4.00	0.30	0	4.10
C	Westbury Road (West)	0.48	1	5.48	0.27	0	3.55
D	Phillips Way (North)	0.48	1	5.39	0.60	2	6.05
Sensitivity Test: 2026 Baseline							
A	Westbury Road (East)	0.62	2	9.12	1.31	164	533.65
B	Phillips Way (South)	0.38	1	4.24	0.72	3	12.60
C	Westbury Road (West)	0.55	1	6.40	0.59	1	7.20
D	Phillips Way (North)	0.95	14	40.84	0.91	8	28.17

- 6.24 The results in Table 15 demonstrate that the addition of the proposed development is having a limited impact upon the operation of the junction and it will operate within capacity during the '+ development' scenario'. A maximum RFC of 0.61 is experienced in the 2026 Base + H2.2 development with an associated queue of two vehicles. The impact of the development of the wider H2.2 site is therefore considered negligible in comparison with the 2026 Base scenario.
- 6.25 When assessing the 'sensitivity test', including all Committed Developments, the junction is shown to approach its theoretical capacity on the Phillips Way (North) arm in the AM Peak period with an RFC of 0.95, an average queue length of 14 vehicles and an average delay of approximately 40 seconds. In the PM peak hour, the junction operates over its theoretical capacity with an RFC of more than 1.0 and an average queue length of 164 vehicles on the Westbury Road (East) arm. However, it is important to note that, once an RFC approaches 1.0, any results must be treated with caution, and queue lengths and delays can increase exponentially thereafter. The Junctions 9 User Helpguide recognises this and explains that ARCADY and PICADY should be used as an aid only to junction design.
- 6.26 Whilst the junction is shown to exceed its theoretical capacity within the 2026 Baseline Sensitivity assessment, the additional traffic flows generated by the development of the wider H2.2 site are shown to have a negligible impact on the operation of the junction. When compared to the 2026 base scenario, the addition of the H2.2 development would not result in any additional queues during the AM peak and a maximum increase of two vehicles in the average queue lengths during the PM peak hour. The impacts of the RFC and delay are negligible across both peak periods. This level of impact associated with the development of the H2.2 site is marginal and is not considered to constitute a severe impact in the context of the NPPF.

Junction 4: Wiltshire Drive/A363 Bradley Road Mini-Roundabout and Junction 5: A363 Bradley Road/Silver Street Lane Mini-Roundabout.

- 6.27 The Wiltshire Drive/Bradley Road junction is a three arm, 'mini' roundabout. It is located approximately 40m to the south of a second mini roundabout – the A363 Bradley Road/Silver Street Lane junction. Whilst not currently 'linked', these junctions are within 40m of one another and therefore should be considered together, as queueing back from one junction could affect the second.
- 6.28 The results of the detailed junction modelling are presented in Table 16 (Junction 4) and Table 17 (Junction 5), with the full ARCADY outputs found at **Appendix J**.

Table 16: Wiltshire Drive / Bradley Road Junction Capacity Assessment

Arm	Arm Name	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
		RFC	Q	Delay (s)	RFC	Q	Delay (s)
2020 Base							
A	Wiltshire Drive	0.88	6	60.04	0.29	0	10.01
B	A363 Bradley Road (South)	0.58	1	7.02	0.71	2	9.42
C	A363 Bradley Road (North)	0.84	5	20.46	0.73	3	12.42
2026 Base + Elm Grove							
A	Wiltshire Drive	0.94	8	82.93	0.32	1	10.93
B	A363 Bradley Road (South)	0.62	2	7.85	0.73	3	10.01
C	A363 Bradley Road (North)	0.85	5	22.16	0.78	4	15.28
2026 Base + Elm Grove + Proposed Development							
A	Wiltshire Drive	0.95	9	89.98	0.33	1	11.28
B	A363 Bradley Road (South)	0.64	2	8.19	0.74	3	10.33
C	A363 Bradley Road (North)	0.86	6	23.43	0.80	4	16.53
2026 Base + Elm Grove + Proposed Development + Linden Homes (H2.2)							
A	Wiltshire Drive	0.96	10	94.51	0.33	1	11.59
B	A363 Bradley Road (South)	0.65	2	8.53	0.74	3	10.56
C	A363 Bradley Road (North)	0.87	6	24.49	0.81	4	17.66

Arm	Arm Name	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
		RFC	Q	Delay (s)	RFC	Q	Delay (s)
Sensitivity Test: 2026 Baseline							
A	Wiltshire Drive	1.28	64	612.83	0.89	6	62.94
B	A363 Bradley Road (South)	0.77	3	12.62	0.94	11	37.11
C	A363 Bradley Road (North)	1.14	83	257.86	0.92	9	36.06

- 6.29 The results demonstrate that the Wiltshire Drive/Bradley Road Mini-Roundabout currently operates within its' theoretical capacity in the 2020 Base scenario, although is shown to approach its theoretical capacity on the Wiltshire Drive arm in the AM Peak period with an RFC of 0.88, an average queue length 6 vehicles and an average delay of approximately one minute.
- 6.30 When comparing the 2026 '+ Proposed Development' scenario with the 2026 + Elm Park, an increase in average queue of just two vehicles across the entire junction is shown in the AM Peak period, with no increase in queueing in the PM Peak. The junction continues to operate within its' theoretical capacity with RFCs of less than 1.0 on all arms.
- 6.31 When assessing the 'sensitivity test', including all Committed Developments, the junction operates over its theoretical capacity in the AM Peak period with RFCs of more than 1.0 on the Wiltshire Drive and A363 Bradley Road (North). It is important to note that, once an RFC approaches 1.0, any results must be treated with caution, and queue lengths and delays can increase exponentially thereafter. The Junctions 9 User Helpguide recognises this and explains that ARCADY and PICADY should be used as an aid only to junction design.
- 6.32 Whilst the junction is shown to approach its theoretical capacity within the 2020 base scenario, the additional traffic flows generated by the development of the wider H2.2 site is shown to have a negligible impact on the operation of the junction. Further to this, the level of impact associated with the development of the H2.2 site is marginal and is not considered to constitute a severe impact in the context of the NPPF.
- 6.33 As detailed within the Transport Assessment submitted as part of the Elm Grove planning application, the A363 / Wiltshire Drive junction operates above its theoretical

capacity within the 2026 baseline sensitivity assessment (including all committed developments). An in-principle mitigation strategy including the provision of traffic signals has been proposed as part of the application which will form the basis of further capacity assessments and detailed design as part of the Section 278 delivery process. The mitigation strategy has been tested as part of the Transport Assessment which states that the introduction of traffic signals would enable the junction to operate at approximately 86% capacity in the AM peak and 82% in the PM peak. The provision of this strategy would accommodate the trip generation associated with the development of allocated sites H2.1 – H2.6. The traffic signalisation scheme has been included as a planning obligation as part of the Highways comments submitted for the Elm Grove planning application.

- 6.34 Whilst a wider mitigation strategy has been proposed, it is considered that the development of up to 200 residential dwellings (Castlewood Properties + Linden Homes) and a care home of up to 64 beds can be delivered in full without the need for off-site highway mitigation.

Table 17: Silver Street Lane / Bradley Road Junction Capacity Assessment

Arm	Arm Name	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
		RFC	Q	Delay (s)	RFC	Q	Delay (s)
2020 Base							
A	A363 Bradley Road (South)	0.97	16	66.83	1.06	40	142.86
B	Silver Street Lane	0.81	4	35.16	0.65	2	21.64
C	A363 Bradley Road (North)	0.63	2	7.78	0.57	1	6.50
2026 Base + Elm Grove							
A	A363 Bradley Road (South)	1.04	34	123.50	1.09	51	175.29
B	Silver Street Lane	0.83	4	40.28	0.68	2	23.82
C	A363 Bradley Road (North)	0.64	2	8.00	0.61	2	7.15
2026 Base + Elm Grove + Proposed Development							
A	A363 Bradley Road (South)	1.06	41	145.58	1.10	56	188.82
B	Silver Street Lane	0.84	4	41.93	0.68	2	24.29
C	A363 Bradley Road (North)	0.65	2	8.15	0.62	2	7.39

Arm	Arm Name	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
		RFC	Q	Delay (s)	RFC	Q	Delay (s)
2026 Base + Elm Grove + Proposed Development + Linden Homes (H2.2)							
A	A363 Bradley Road (South)	1.08	48	166.68	1.11	60	199.65
B	Silver Street Lane	0.84	6	43.29	0.69	2	24.72
C	A363 Bradley Road (North)	0.65	2	8.27	0.63	2	7.61
Sensitivity Test: 2026 Baseline							
A	A363 Bradley Road (South)	1.18	92	351.91	1.39	228	876.71
B	Silver Street Lane	1.20	59	425.51	0.59	1	16.77
C	A363 Bradley Road (North)	0.72	3	10.96	0.72	3	10.19

- 6.35 The A363 Bradley Road/ Silver Street junction operates within its' theoretical capacity in the 2020 Base AM Peak period, however the A363 Bradley Road South arm operates over capacity with an RFC of 1.06 in the PM Peak Base scenario. With the addition of the Elm Grove site, this arm operates over its theoretical capacity in both Peak scenarios.
- 6.36 The proposed development does result in an increase in RFC and delay, with an increase in queue length of approximately 7 vehicles in the AM Peak and 5 vehicles in the PM Peak on this arm. However, as noted above, any increases in queue length or delay must be treated with caution when an arm is shown to operate with an RFC of more than 1.0. As such, this increase may not accurately reflect the 'actual' increase in traffic as a result of the proposed development.
- 6.37 When assessing the sensitivity test, whereby all Committed Developments are included, the junction is shown to operate over its' theoretical capacity on the A363 Bradley Road (South) arms and also the Silver Street Lane arm.
- 6.38 A review of the junctions' distance from one another has been undertaken to ascertain when queuing back from one may affect the other. The junctions are located approximately 40m from each other. The A363 Bradley Road southbound arm, between the two junctions, is provided with two lanes from approximately 16m back from the give way line. This equates to total queuing capacity of approximately 56m (or

9-10 PCUs). The A363 Bradley Road northbound arm has only one lane on its' approach to the junction, and therefore has capacity of 40m, or 6-7 vehicles.

- 6.39 With the addition of the proposed development, the queue length on the Bradley Road (North) arm (Junction 4) is shown to be less than three vehicles in each scenario; and therefore, no queueing back to the next junction is expected to occur. However, on the Bradley Road South arm (Junction 5), the queue is anticipated to be 16 vehicles (AM) and 40 vehicles (PM) in the 2020 Base scenario; and therefore, any existing queueing would impact.
- 6.40 Due to the significant number of emerging developments in the vicinity of the site, it is anticipated that a wider mitigation scheme should be suitable at this junction. It is of note that a mitigation strategy has been outlined at Appendix T of the Elm Grove Transport Assessment, comprising the widening of Bradley Road to facilitate an additional southbound lane between the Bradley Road / Silver Lane junction and the Bradley Road / Wiltshire Drive junction. This strategy also proposes to signalise the Wiltshire Drive junction together with the creation of two entry lanes on the Silver Street Lane approach. These improvements are considered to mitigate for the impacts of the Elm Grove development, in addition to other allocated sites, whilst also providing capacity benefits to the overall operation of Bradley Road in between these junctions. Highways comments submitted by Wiltshire Council state that the arrangements are considered satisfactory and that the plan is also under consideration by the Traffic Services team.
- 6.41 However, as detailed above, the proposed development's impact is shown to be marginal compared with the existing capacity constraints. It is therefore considered appropriate that this development could provide a contribution towards such improvements; proportionate to its' marginal impact, should this be required by the LHA.

Summary

- 6.42 The junction capacity assessments have demonstrated that the traffic impacts associated with the development of the wider H2.2 site allocation would not have a detrimental impact on the operation of the local highway network.

- 6.43 The results indicate that the proposed site access junction and the A363 / Woodmarsh junction would operate within its theoretical capacity under all scenarios. The Westbury Road / Phillips Way roundabout is anticipated to operate within its theoretical capacity under all '+ development' scenarios, however when assessing the 'sensitivity test', including all Committed Developments, the junction is shown to approach its theoretical in both the AM and PM peak periods. Nevertheless, the level of impact associated with the development of the H2.2 site is marginal and is not considered to constitute a severe impact in the context of the NPPF.
- 6.44 The Bradley Road / Wiltshire Drive junction operates within its' theoretical capacity in the 2020 Base scenario and within the '+ development scenario', however under the 2026 sensitivity test (including all committed developments), the junction operates beyond its theoretical capacity. Whilst a wider mitigation strategy has been proposed, it is considered that the development of up to 200 residential dwellings (Castlewood Properties + Linden Homes) and a care home of up to 64 beds can be delivered in full without the need for off-site highway mitigation.
- 6.45 The Bradley Road / Silver Street Lane junction operates above its theoretical capacity within the 2026 base assessment with an RFC of 1.06 in the PM peak period. The junction continues to operate above capacity during the '+ development' and 'sensitivity assessment', however the proposed developments' impact is shown to be marginal compared with the existing capacity constraints. A satisfactory mitigation strategy has been proposed as part of the Elm Grove application, however should the LHA consider it appropriate to contribute towards mitigation of this junction, this development could provide a contribution towards such improvements; proportionate to its' marginal impact.
- 6.46 Based on the above modelling, it is therefore considered that the full H2.2 development could be delivered in full without the need for off-site highway mitigation. However, should Wiltshire Council determine that a suitable mitigation scheme is required, this development could provide a contribution towards such improvement that is proportionate to its marginal impact.

SECTION 7: MITIGATION

Introduction

- 7.1 This section describes the mitigation measures that would be implemented as part of the proposed development.

Walking and Cycling Improvements

- 7.2 The internal roads will be designed to encourage walking and cycling, with footways and wide carriageways sufficient to accommodate a cyclist alongside a vehicle. The development proposals will open up the site to the local area by connecting directly to the walking links within the Linden Homes site and through facilitating access to the footways along the A363 Bradley Road (North).
- 7.3 In addition to this, the proposed development will provide pedestrian infrastructure improvements along the A363 in the form of a 2.0m footway to the south of the carriageway together with a controlled crossing facility, providing access to Drynham Lane. This will provide a continuation of the Drynham Lane pedestrian / cycle link into the site, providing a more attractive and formal route for future users travelling by foot or bicycle to Trowbridge town centre. This provision is in line with the Wiltshire Housing Site Allocations Plan.

Travel Plan

- 7.4 The Travel Plan will bring forward an array of measures to encourage sustainable travel together with financial commitments. The Travel Plan, report reference is submitted alongside this Transport Assessment and will be delivered voluntarily or can be secured by a planning condition or obligation.

Construction Traffic Management

- 7.5 A Construction Traffic Management Plan (CTMP) can be conditioned and submitted to provide measures to minimise the impact of the proposals.

SECTION 8: SUMMARY

- 8.1 This Transport Assessment (TA) has been prepared on behalf of Castlewood Commercial Properties in support of an Outline Planning Application (OPA) for a proposed development of up to 100 residential dwellings and a care home of up to 64 beds on land to the south of the A363 Bradley Road. The TA has been produced in accordance with national and local policies in addition to the pre-application comments received by Wiltshire Council.
- 8.2 The site is identified under policy H2.2 - Land off the A363 at White Horse Business Park as an allocation within the Wiltshire Housing Site Allocation Plan (WHSAP) for the development of 175 residential units. This site is therefore considered to be appropriate for residential development, and delivery of these homes would be important to meeting identified local needs. The site lies in a sustainable location, with good access to local services and facilities.
- 8.3 The proposed development will seek to deliver up to 100 residential dwellings (layout reserved) in addition to a care home of up to 64 beds in the northern part of the site. Vehicular access will be provided in the form of a priority T-junction to the north of the site via the A363 Bradley Road. The priority junction will be supported by a ghost-right turn arrangement on the A363, providing a reservoir into the site for eastbound traffic without impeding the free flow of traffic on the A363.
- 8.4 The site has been demonstrated to be located in a sustainable and accessible location which includes existing provision as well as substantial improvements which are planned as part of nearby committed developments. It is considered that development in this location will be able to make the best possible use of wider planned and committed improvements and ensure that its viability in sustainable transport terms remains a positive option for future residents.
- 8.5 A review of PIA data demonstrates that there are no existing road safety issues in the vicinity of the site. Therefore, it is anticipated that any road safety issues will not be exacerbated due to the proposed development.

- 8.6 The illustrative site layout provides sufficient space to WCC's car and cycle parking standards to be met, however the detailed provision will be analysed further during the Reserved Matters Stage.
- 8.7 A Travel Plan has been produced, which sets out a range of measures to encourage the use of sustainable travel to and from the site. The Travel Plan sets out not just the measures, but the monitoring strategy, timescales, targets and methods of commitment to ensure that the Travel Plan fulfils its potential.
- 8.8 The residential element of the scheme is anticipated to result in up to 43 two-way vehicle movements during the AM peak hour (08:00-09:00), 42 two-way vehicle movements in the PM peak hour (17:00-18:00) and up to 408 two-way vehicle movements across a 12-hour period between 07:00-19:00. In addition to this, the care home is anticipated to result in up to 12 two-way vehicle movements during the AM peak hour (08:00-09:00), 10 two-way vehicle movements in the PM peak hour (17:00-18:00) and up to 144 two-way vehicle movements across a 12-hour period between 07:00-19:00.
- 8.9 As requested by Wiltshire Highways Officers, key junctions have been assessed on the local highway impact to determine the impact of the proposed development. It has been demonstrated that the impact of development traffic would not have a material impact on the operation of these junctions which is outside of usual daily variations. It is therefore considered that the full H2.2 development could be delivered in full without the need for off-site highway mitigation. However, should Wiltshire Council determine that a suitable mitigation scheme is required, this development would provide a contribution towards such improvement that is proportionate to its marginal impact.
- 8.10 The proposed development would seek to provide the associated pedestrian and cycle improvements specified within the allocation for site H2.2, further promoting the use of active travel amongst future residents.
- 8.11 It is therefore considered that the proposed development would be in accordance with the requirements of the WHSAP and would not have a detrimental impact on the operation of the local highway or transport networks or highway safety and therefore

that the development would not result in a severe residual impact in accordance with the NPPF.

FIGURES

APPENDIX A

Wiltshire Highways Response

APPENDIX B

Trowbridge Cycle Map

APPENDIX C

Traffic Survey Data

APPENDIX D

Parameters Plan

APPENDIX E

Preliminary Access Design

APPENDIX F

Illustrative Masterplan

APPENDIX G

TRICS Outputs

APPENDIX H

Traffic Flows

APPENDIX I

Trowbridge Model Flows

APPENDIX J

Junctions 9 Outputs