

# Land off Cambridge Road, Great Shelford

Transport Assessment

May 2025



**Woods Hardwick**

Architecture | Engineering | Planning | Surveying

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# Report Reference

18926/TA

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First Issue	N/A	YK	GBR	17/01/2023
Second Issue		SE	GBR	May 2025

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# Introduction

# Introduction

The following paragraphs state the purpose of this document. A summary of existing and future site details; together with relevant pre-planning correspondence is also provided.

- 1.1 This Transport Assessment (TA) has been prepared by Woods Hardwick Ltd on behalf of Great Shelford Ten Acres Limited in support of an Outline Planning Application for a proposed residential development on land known as 'Land off Cambridge Road, Great Shelford'. A Site Location Plan is included in **Appendix A**.
- 1.2 The application site currently consists of agricultural land. The land is split into two parcels by Almond Close, which provides access to Shelford Rugby Club to the west of the site.
- 1.3 Development proposals are for the construction of 120 residential units. The proposals also include associated access, parking, an urban square, public open space (POS) and a local equipped area for play (LEAP). A Site Layout Plan is included in **Appendix B**.
- 1.4 The purpose of this TA is to gauge the potential impact of the proposed development on the surrounding highway network and to identify sustainable alternatives to single occupancy vehicle (SOV) use. This Transport Assessment is written in accordance with the Department for Communities and Local Government's Planning Practice Guidance (PPG) and other relevant planning policy at both the national and local level.
- 1.5 In terms of Highways and Transport, the development site lies under the responsibility of Cambridgeshire County Council (CCC), who represent the Local Highway Authority (LHA) for the area. A Highway Scoping Note was prepared and submitted to CCC in order to obtain highway and transport specific Pre-Planning Advice (PPA). A response was obtained from CCC in July 2022 and the requirements of this Transport Assessment were agreed in principle. A copy of the Highway Scoping Note is included in **Appendix C**; and a copy of the Pre-Planning Advice is included in **Appendix D**.
- 1.6 Through scoping it was agreed to take into account traffic generation, distribution and impacts on the local highway network. Therefore, the impact assessment exercise has been undertaken in the actual AM and PM peak hours derived from the survey results for the listed junctions:
  - Junction 1 - Site Access / Cambridge Road / Unnamed Access Road (Crossroads)
  - Junction 2 - A1031 (N) / Addenbrooke's Road (E) / A1301 (S) / Addenbrooke's Road (W) (Signalised Crossroads)

- 1.7 Existing traffic data was obtained through Manual Classified Count (MCC) surveys carried out by Streetwise Services in April 2025. The surveys recorded the number of vehicles, vehicle classification and corresponding movement made at each junction in question. Traffic flow information obtained from the surveys will be used for the junction modelling included within this report.
- 1.8 It should be noted that the traffic counts will include any traffic movements from the Shelford Rugby Club within the modelling period. Traffic flows from the rugby club have therefore been accounted for within the junction modelling contained in this report.
- 1.9 The Trip End Model Presentation Program (TEMPro) software has been used to calculate growth factors which have been applied as necessary to the traffic counts in order to provide future equivalent traffic flows up to the year 2035 and beyond.
- 1.10 This report addresses the potential transportation and highway issues raised by the development and concludes that the site lies in a sustainable location. The impact of the development on the local highway network is not considered to be significant.
- 1.11 It has also been concluded that an appropriate level of parking provision will be available to serve the proposed development site.
- 1.12 It is therefore concluded that that there is no reason in terms of highways and transport why the proposed development should not be fully supported through the planning process.**

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# Site Location and Proposed Development

# Site Location and Proposed Development

The following paragraphs provide detail on the existing and proposed future residential development site; in relation to location, land uses, topography; as well as accessibility by sustainable modes of travel.

## Existing Site

- 2.1 The proposed development site is located off Cambridge Road, to the south of Trumpington and to the north west of the village of Great Shelford. The site is located approximately 2.5km to the south of Trumpington, 2km to the north of Great Shelford village centre and 5km to the south of Cambridge City Centre.
- 2.2 By road, the site is accessible from all directions. The A1301 Cambridge Road runs in a north-west south-east direction to the east of the site, and provides a direct link between Great Shelford to the south and Trumpington to the north. The M11 motorway, which runs between east London and Cambridge, is situated approximately 1km to the west of the site and can be accessed from the site via the A1301 Cambridge Road, Addenbrooke's Road and A1309 Hauxton Road.
- 2.3 The application site currently consists of arable fields. The site is split into two parcels by Almond Close, which forms the access road for Shelford Rugby Club. The site is abutted by Shelford Rugby Club to the west; and existing residential dwellings to the east, north and south.
- 2.4 Within the immediate vicinity of the site, Cambridge Road is approximately 8.9m wide and operates under a 30mph speed restriction with footpaths and street lighting on both sides of the carriageway.
- 2.5 The closest Public Right of Way (PRoW) to the site is the '198/1' footpath which runs between Cambridge Road and Grahams Road, crossing Hobson's Brook, in the northern part of Great Shelford. An extract of the PRoW map is presented in Figure 2.1.

**Figure 2.1: PRoW Map Extracted from Cambridgeshire County Council**



- 2.6 National Cycle Route 11 is the closest formal cycle route to the site. At its closest point, Route 11 is accessible from Graham's Road, and is accessible within a 6-minute cycle from the site. Route 11 connects Harlow, Essex and Wigginhall St Germans and Norfolk, via Cambridge and Ely.
- 2.7 The site is well placed with regards to access to public transport services. The site is located approximately 500m from both the 'Stonehill Road' and 'Westfield Road' bus stops, which are accessible within a short 6-minute walk from the site. Services from these bus stops facilitate travel to Cambridge and Saffron Walden. Additionally, Shelford Train Station is located approximately 2.2km to the south east of the site and is accessible within a 25-minute walk or 8-minute cycle.

#### **Proposed Development**

- 2.8 Development proposals are for the construction of 120 residential units. This includes a range of detached, semi-detached and terraced properties; with associated access and parking. The development proposals also include an urban square, public open space (POS) and a local equipped area for play (LEAP).
- 2.9 Vehicular access will be provided via the existing priority T-junction between Cambridge Road and Almond Close. The development at 125 Cambridge Road proposes to formalise this current access. The formalised access road has been designed as a 5.5m wide carriageway, with 2m wide footpaths either side. A copy of the access drawing prepared for the development at 125 Cambridge Road is included in **Appendix E**. It is proposed to extend this access through the proposed development site and to the Rugby Club.
- 2.10 It should be noted that the internal site layout will be designed in accordance with the fire authority's requirements. As stated in the Building Safe: Designing Out Fire (2016) document; "Design of road layouts need to consider the speed of response and manoeuvrability/size of fire engines and their ability to access an emergency incident ideally by means of an 'in/out' system. The impact of a road related incident affecting the main access roads to the development should be considered."
- 2.11 Non-vehicular access for pedestrians and cyclists will be via the same primary site access off Cambridge Road. It is proposed that 2m wide footways are provided on both sides of the spine road from the site access, which will tie into the existing provisions on Cambridge Road.

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# Transportation Policy

# Transportation Policy

The following paragraphs provide detail on the transport related planning policies that help define the scope of requirements that should be adhered to when considering development at the proposed site.

- 3.1 This TA considers the guidance set out in the Department for Transport (DfT) document 'Guidance on Transport Assessment' published in March 2007, as well as the relevant sections of the Department for Communities and Local Government's more recent guidance contained within the Planning Practice Guidance (PPG). In accordance with this guidance a review of relevant transportation policy at a national, regional and local level is included in this section.

## National Guidance

- 3.2 Within the 'Travel Plans, Transport Assessments and Statements' section of the DCLG, PPG; the definition of a Transport Assessment is as follows:

*'Transport Assessments ... are ways of assessing the potential transport impacts of developments (and they may propose mitigation measures to promote sustainable development. Where that mitigation relates to matters that can be addressed by management measures, the mitigation may inform the preparation of Travel Plans)'*

- 3.3 The **National Planning Policy Framework (NPPF: December 2024)** aims to bring about sustainable development and create positive growth, to create economic, environmental and social progress for current and future generations. This revised document supersedes the previous NPPF, published in 2012, 2018, 2019, 2021 and 2023.
- 3.4 Section 9 of the NPPF focuses on promoting sustainable transport. NPPF Paragraph 118 states that all applications for developments that will generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment.

- 3.5 NPPF Paragraph 115 states that in assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:
- Sustainable transport modes are prioritised taking account of the vision for the site, the type of development and its location;
  - Safe and suitable access to the site can be achieved for all users; and
  - The design of streets, parking areas, other transport elements and the content of associated standards reflect the current national guidance, including the National Design Guide and the National Model Design Code; 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.
- 3.6 NPPF Paragraph 110 states that significant development should be focused on locations which are, or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. Opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be considered in both plan-making and decision-making.
- 3.7 NPPF Paragraph 117 states that developments should be located and designed to:
- Give priority first to pedestrian and cycle movements, both within the scheme and within 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 of 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
  - Where possible, be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations
- 3.8 NPPF Paragraph 116 states that development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios.

- 3.9 The requirement for developers (in partnership with local authorities) to submit plans for the implementation and maintenance of measures that will minimise the traffic generated by their development and that encourage walking and cycling is also outlined in the Department for Transport Circular 02/13.
- 3.10 **Manual for Streets (MfS) (March 2007)** also recognises the significance of the design of a development in encouraging sustainable modes of transport as paragraph 2.2.5 of MfS states that:
- “Attractive and well-connected permeable street networks encourage more people to walk and cycle to local destinations, improving health while reducing motor traffic, energy use and pollution”.*
- 3.11 Walking is widely considered to be the most important mode of travel at the local level; and Paragraph 4.4.1 of MfS states that ‘walking offers the greatest potential to replace short car trips, particularly for journeys of less than 2km’. It is also important to provide sustainable routes for journeys of greater distances through the provision of a high quality, safe, secure and reliable network of routes, with good interchanges, which match the pattern of travel demand in order to maximise public transport patronage.
- 3.12 The ‘Road User Hierarchy’ as described in Department for Transport publications MfS and ‘Building Sustainable Transport into New Developments’ (2008), also puts forward walking and cycling as the two preferred modes of travel, followed by public transport, specialist service vehicles and lastly other motor traffic. It is recommended that where possible, a scheme should follow this proposed hierarchy.
- 3.13 As advised in MfS Paragraph 6.1.3 and summarised in Manual for Streets 2 (MfS2) (September 2010) Paragraph 5.1.3; encouraging walking has many benefits, including reductions in vehicle emissions and traffic collisions, and improvements in personal health. In summary the documents advise that:
- The propensity to walk is influenced not only by distance, but also by the quality of the walking experience. A 20-minute walk alongside a busy highway can seem endless, yet in a rich and stimulating street, such as a town centre, it can pass without noticing.
  - Good sightlines and visibility towards destinations and intermediate points are important for way-finding and personal security.
  - Pedestrian routes need to be direct and match desire lines as closely as possible, including across junctions, unless site-specific reasons preclude it.
  - Pedestrian networks need to be connected. Where routes are separated by heavily-trafficked routes, appropriate surface-level crossings should be provided where practicable.
  - Pedestrians should generally be accommodated on multifunctional streets rather than on routes segregated from motor traffic. In situations where it is appropriate to provide traffic-free routes they should be short, well-overlooked and relatively wide.
  - Obstructions on the footway should be minimised. Street furniture on footways can be a hazard for vulnerable people.

- There is no maximum width for footways; widths should take account of pedestrian volumes and composition.
- 3.14 As with walking, MfS and MfS2 advise that cycling can bring about benefits in terms of vehicular emissions, traffic collisions and public health. To summarise, MfS2 Paragraph 6.1.3 states that:
- Cyclists should be accommodated on the carriageway.
  - Cyclists prefer direct, barrier-free routes that avoid the need to dismount. Routes that take cyclists away from their desire lines and require them to concede priority to side road traffic are less likely to be used.
  - Off-carriageway cycle tracks that bring cyclists into conflict with side road traffic can be more hazardous than routes that stay on the main carriageway.
  - Cyclists are sensitive to traffic conditions; high speeds or high volumes of traffic tend to discourage cycling. If traffic conditions are inappropriate for on-street cycling, they should be addressed to make on-street cycling satisfactory.
  - Junctions should be designed to accommodate cyclist's needs. Over-generous corner radii that lead to high traffic speed should be avoided.

#### Local Guidance

- 3.15 At a local level, transport related policy is set out in the '**Third Cambridgeshire Local Transport Plan (2011-2031)**' (LTP3). The LTP3, sets out how CCC intend to accommodate the growth that is planned for the city and the district of South Cambridgeshire. Within the LTP3, eight major challenges for transport are identified which form the basis of the CCC Strategy, the challenges of particular relevance to new developments and transport are as follows;
- Challenge 1 - Improving the reliability of journey times by managing demand for road space, where appropriate and maximising the capacity and efficiency of the existing network.
  - Challenge 2 - Reducing the length of commute and the need to travel by private car.
  - Challenge 3 - Making sustainable modes of transport a viable and attractive alternative to the private car.
- 3.16 Further information on the aforementioned LTP3 transport objectives and the LTP3 contribution towards these can be found in the '**Third Cambridgeshire Local Transport Plan (2011-2031)**' (LTP3).

3.17 The **Cambridgeshire Long Term Transport Strategy (LTTS) (2015-2031)** is referred to within the LTP3 and provides a high-level view of the more substantial infrastructure and service enhancements that are needed across the country. Most broadly, the LTTS is based on the vision that:

*“The people of Cambridgeshire will benefit from an integrated transport network which enables efficient and reliable travel between key destinations in support of a thriving local economy. A high-quality passenger transport network of rail, guided bus and bus services will enable efficient journeys between Cambridge, Peterborough, the Market towns and district centres in and around Cambridgeshire. This network will prioritise passenger transport on key corridors and link up with community transport connections to access more rural areas. This will be fed by a comprehensive system of long-distance cycle / pedestrian routes connecting key destinations.”*

3.18 The key objectives of the LTTS are outlined below:

- To ensure that the transport network supports sustainable growth and continues economic prosperity.
- To improve accessibility to employment and key services.
- To encourage sustainable alternatives to the private car, including rail, bus, guided bus, walking and cycling, car sharing and low emission vehicles.
- To encourage healthy and active travel, supporting improved wellbeing.
- To make the most efficient use of the transport network.
- To reduce the need to travel.
- To minimise the impact of transport on the environment.
- To prioritise investment where it can have the greatest impact.

3.19 Additionally, **Policy TI/2: Planning for Sustainable Travel** contained within the **South Cambridgeshire District Council (SCDC) Local Plan (Adopted September 2018)** outlines that development must be located and designed to reduce the need to travel, particularly by car, and should promote sustainable appropriate to its location.

3.20 Further transport related policy and objectives for the South Cambridgeshire area are contained within the ‘**Transport Strategy for Cambridge and South Cambridgeshire (TSCSC)**’ (Adopted March 2014). The TSCSC has two main roles;

- It provides a detailed policy framework and programme of schemes for the area, addressing current problems, and is consistent with the Cambridgeshire Local Transport Plan 2011-26. It is part of how the Council manages and develops the local transport network of the County as a whole
- It supports the Cambridge and South Cambridgeshire Local Plans, and takes account of future levels of growth in the area. It details the transport infrastructure and services necessary to deliver this growth

3.21 The **Greater Cambridge Partnership (GCP) Transport Vision** aims to create ‘better and greener transport networks, connecting people to homes, jobs, study and opportunity’. The GCP aims to:

- Ease congestions and prioritise greener and active travel, making it easier for people to travel by bus, rail, cycle or on foot to improve average journey times.
- Keep the Greater Cambridge area well connected to the regional and national transport network, opening up opportunities by working closely with strategic partners.
- Reallocate limited road space in the city centre and invest in public transport (including Park & Ride) to make bus travel quicker and more reliable.
- Build an extensive network of new cycle ways, directly connecting people to homes, jobs, study and opportunity, across the city and neighbouring villages.
- Help make peoples journeys and lives easier by making use of research and investing in cutting edge technology.
- Connect Cambridge with strategically important towns and cities by improving our rail stations, supporting the creation of new ones and financing new rail links.

#### Parking Standards

3.22 Parking for residents and their visitors will be provided on site in accordance with the guidance contained in the South Cambridgeshire District Council Local Plan. The vehicle and cycle parking standards for Land Use Class C3: residential Dwellings are outlined in Table 3.1 below.

**Table 3.1 Vehicle Parking Standards**

Use Class	Indicative Car Parking Provision	Minimum Cycle Parking Provision	Notes
C3: Residential Dwellings	2 spaces per dwelling - 1 space to be allocated within the curtilage	1 space per bedroom	Additional provision may be needed for visitors, service vehicles, salesman

3.23 Cycle parking standards are also presented in Table 3.1. Cycle parking will be provided on site in accordance with these standards.

3.24 The vehicle and cycle parking proposals can be viewed on the Site Layout Plan included in **Appendix B**. The Site Layout shows that this level of car parking and cycle storage can be accommodated on the application site in an acceptable fashion.

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# Existing and Proposed Transport Infrastructure and Use



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# Existing and Proposed Transport Infrastructure and Use

The following paragraphs consider existing travel conditions in the vicinity of the site, focusing on the opportunities that exist for sustainable travel such as walking, cycling and public transport.

- 4.1 A summary of the sustainable transportation options available for residents and visitors to the site is presented below. A review of the existing travel habits of existing local residents is also supplied within this chapter. Data has been taken from the 2011 Census Output Area - 'Great Shelford: E00078842'; in which the site is located.
- 4.2 A Green Travel Plan (GTP) has also been prepared for the development. The document provides a detailed assessment of the existing sustainable alternatives to the private car that are available to use from the site and proposes measures to assist in achieving the modal shift target of the GTP.
- 4.3 As detailed in the GTP, a Travel Plan Coordinator (TPC) will be appointed to oversee the management and monitoring of the Plan to ensure that all available options are capitalised upon, thereby ensuring that the site is as sustainable as possible.

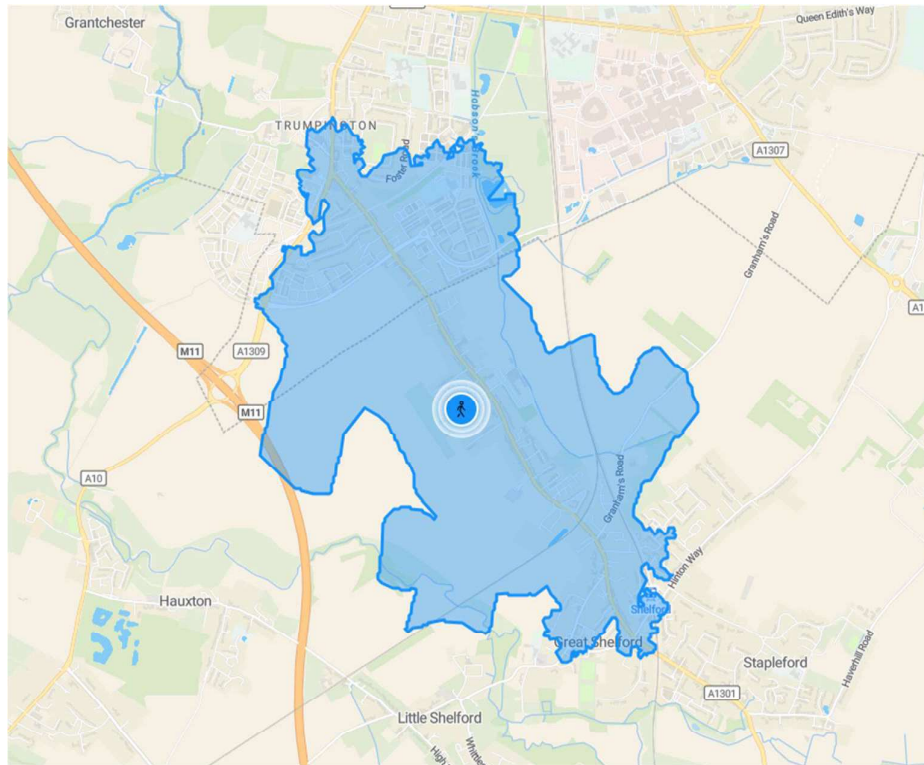
## Pedestrian Infrastructure

- 4.4 Walking is widely considered to be the most important mode of travel at the local level. Based on the Chartered Institution of Highway and Transportation (CIHT) publication 'Providing Journeys on Foot' and Paragraph 4.4.1 of MfS; the preferred maximum walking distance for the purposes of commuting / school journeys / sight-seeing is 2km. It can be appreciated that the villages of Great Shelford and Trumpington are both accessible within 2km of the site.
- 4.5 Within the vicinity of the site, cars, cyclists and pedestrians are generally able to follow the same routes, which are easily navigable towards the centre of the village. This feature is of great benefit to pedestrians who benefit from the legible design of roads within an area. Additionally, routes through existing residential areas are overlooked by residential dwellings, which allows pedestrians to feel safer along their route. This is in line with the recommendations detailed in MfS, and it is proposed that these principles will be continued within the site.
- 4.6 The nearest pedestrian infrastructure is accessible on the A1301 Cambridge Road to the east of the site, which has footpaths on both sides of the carriageway. This pedestrian infrastructure extends into both Great Shelford and Trumpington to the south and north of the site respectively. A number of services and facilities are therefore available to residents and visitors of the site within a comfortable walking distance.

- 4.7 The pedestrian infrastructure along Cambridge Road also facilitates quick and convenient access to public transport services; namely the ‘Westfield Road’ and ‘Stonehill Road’ bus stops, situated approximately 500m to the north and south of the site, respectively. These bus stops can be accessed within a 6-minute walk. Additionally, Shelford Train Station is accessible within a 25-minute walk, via the A1301 Cambridge Road and Station Road.
- 4.8 The closest Public Right of Way (PRoW) to the site is ‘198/1’ footpath which runs between Cambridge Road and Grahams Road, crossing Hobson’s Brook, in the northern part of Great Shelford.
- 4.9 It should be noted that in paragraph 38 of the appeal decision (APP/W0530/A/07/2050690) for a previous application on the site; concerns were raised about the ‘remoteness’ of the site from local facilities accessible by walking. It was also stated in Paragraph 36 that the walking route over the bridge was ‘exposed’ which reduced the attractiveness of this walking route to access services in Great Shelford, although it should be noted that part of the bridge is overlooked by residential dwellings.
- 4.10 The CIHT document ‘Providing Journeys on Foot’ states that the average walking speed can be assumed to be 1.4m/s which roughly equates to 3mph (4.8kph). From this it can be concluded that a journey time of 2km is anticipated to take around 25 minutes. As noted above, a distance of 2km is considered to be the preferred maximum walking distance for commuting purposes.
- 4.11 A list of destinations considered to be accessible within a 2km walking journey from the development site, together with the corresponding journey distances and times are shown in Table 4.1. A walking isochrone map showing the extent of all possible journeys up to 25 minutes from the proposed site access are shown in Figure 4.1.

**Table 4.1: Destinations Accessible within a 25-minute Walk from the Development Site**

Destination	Journey Distance and Time
Scotsdales Garden Centre, Austin Drive Play Area, Trumpington Food and Wine, Buckingham & Stanley Group (Used Car Dealers), Cambridgeshire Care Home, Shelford Lodge (Hotel), Cambridge Guitar Studio, Shelford Rugby Club, Cambridge Camping and Caravanning Club Site, Great Shelford Cemetery, Great Shelford Community Garden, Shelford Fitness Personal Training.	Up to 1.2km Accessible within 15 minutes
The Plough Public House, Great Shelford Kebab, NYWines of Cambridge, Roseum Gardens, Exeter Close Play Area, Cornwell Park, Trumpington Park and Ride, Trumpington Park Primary School, Clay Farm Community Garden, Waitrose & Partners Cambridge, Shell Garage, Rumbles Fish Bar Trumpington, Radhika Flowers, The Bun Shop Café, Cooke Curtis & Co (Estate Agents), Anstey Hall Hotel, Great Shelford Free Church (Baptist), Granta Medical Practices, Shelford Spice Indian Takeaway, Forum House Chinese, Days Bakery, Tesco Express, Antonios Barber Shop, Great Shelford Library, Shelford Delicatessen, Great Shelford Memorial Hall, Co-op Food Convenience Store, Shelford Railway Station, Square & Compasses Public House.	1.2km to 1.9km Accessible within 25 minutes

**Figure 4.1: Walking Isochrone Extract for a 25-minute Journey from the Development Site**

#### **Existing Pedestrian Behaviour**

- 4.12 2011 Census data shows that 4.6% of the residents that regularly commute to work as recorded for the 'E04001794: Great Shelford' area, in which the site is located; do so by foot. This is less than the national average of 10.8%.
- 4.13 Census data from 2011 also shows 9.4% of commuters live within 2km of their place of work. Therefore, there remains potential for the use of this mode of travel to increase.

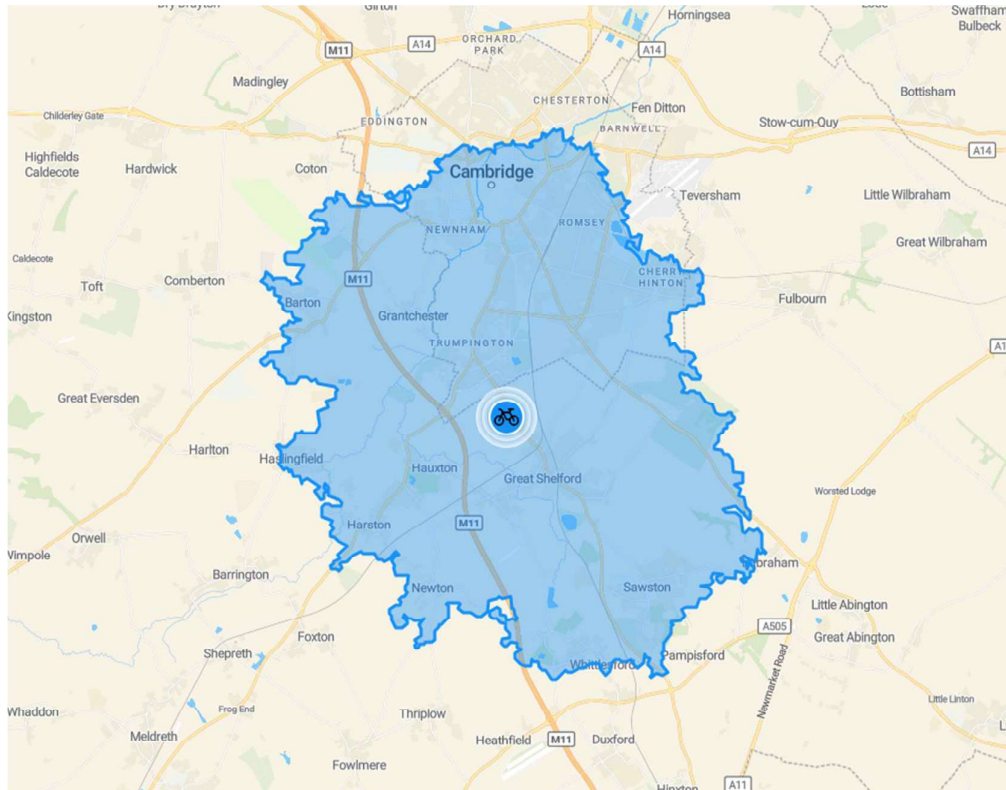
#### **Existing Cycling Infrastructure**

- 4.14 It is widely recognised that cycling has the potential to substitute for short car trips, particularly those of less than 5km. It can be appreciated that all of Great Shelford; in addition to the villages of Little Shelford, Hauxton, Sawston, and the southern extents of Cambridge lie within a 5km cycling distance from the site.
- 4.15 Within the immediate vicinity of the site, Cambridge Road has a new designated on-road cycle way, which begins approximately 80m to the north of the site, on both sides of the carriageway. This cycle route extends northwards into Trumpington, providing access to a number of services and facilities; in addition to providing direct and convenient access by bicycle to Addenbrooke's Hospital.

- 4.16 National Cycle Route 11 also passes nearby the site. At its closest point, Route 11 is accessible from Graham's Road, which is approximately a 6-minute cycle from the site. Route 11 connects Harlow, Essex and Wigginhall St Germans and Norfolk via Cambridge and Ely. Route 11 is a remarkably flat, mostly agricultural route which follows a mixture of on-road and traffic-free routes. In the vicinity of the site, Route 11 runs alongside the railway track between Great Shelford and Trumpington.
- 4.17 Cycling is well suited to form part of longer journeys made by public transport. Therefore, it is important to note that Shelford (Cambs) Train Station, which is situated approximately 2km to the south east of the site, is accessible within a 6-minute cycle. Shelford Station provides cycle storage for up to 6 bicycles.
- 4.18 It is also important to note that Addenbrooke's Hospital has a number of bike parks which staff are able to use. This will be beneficial to potential occupants of the site that may work at the Hospital who are able to access the hospital within a 12-minute cycle.
- 4.19 As noted above, a distance of 5km is considered to be a reasonable travel distance by bicycle. According to the DfT document 'Cycle Infrastructure Design' Local Transport Note (LTN 1/20), the cycling speed for the average adult travelling on road is considered to be circa 15.5kph (9.6mph). Given the speeds riders are considered to be capable of, the average rider would travel 5km in approximately 20 minutes. However, to remain consistent with the assessment carried out for walking in the surrounding area, this section of the report will consider cycling destinations accessible within a 25-minute cycling journey.
- 4.20 A list of destinations considered to be accessible within a 25-minute cycle journey from the development site, together with the corresponding journey distances and times are shown in Table 4.2. A cycling isochrone map showing the extent of all possible journeys up to 25 minutes from the proposed site access are shown in Figure 4.2

**Table 4.2: Destinations Accessible within a 25-minute Cycle from the Development Site**

Destination	Journey Distance and Time
<p><b>Great Shelford</b> - Nine Wells Nature Reserve, Shelford Train Station, Square &amp; Compasses Public House, Granta Medical Health Centre, Great Shelford Tennis Club, Great Shelford Sports Pavilion, Shelford Delicatessen, Great and Little Shelford C of E Primary School, DernFord Reservoir, The Parish Church of St Mary the Virgin, Great Shelford Tennis Club, Great Shelford Memorial Hall, Boots Pharmacy, Forum House Chinese, Days Bakery, Tesco Express, Arthur Rank Hospice (Charity Shop), Antonios Barber Shop, Great Shelford Library, Co-op Food Convenience Store.</p> <p><b>Trumpington</b> - Wildlife Trust NCN Trumpington Meadows Local Centre, Trumpington Meadows Primary School, Waitrose &amp; Partners Cambridge, Trumpington Pavilion, Hudson’s Ale House Public House, Lord Byron Inn, Green Man Public House Cambridge, CPDC Cambridge Professional Development Centre, Fawcett Primary School, Trumpington Park Primary School, The Perse Preparatory School, Cambridge Lakes Golf Course, Brookside Family Consultation Clinic, Latham Road Playing Fields, Nuffield Health Cambridge Hospital, Trumpington Skatepark, Rainbow Day Nursery.</p> <p><b>Sawston</b> - Wisdom Box Park &amp; Garden, Sawston Sports Centre, Huckeridge Hill.</p> <p><b>Stapleford</b> - Stapleford Community Primary School, Johnson Memorial Hall, Jubilee Pavilion, The Tree Horseshoes Public House, The Rose public House, SPAR, ESSO.</p>	<p>Up to 5.0km Accessible within 15-minutes</p>
<p><b>Stapleford</b> - Stapleford Community Primary School, Johnson Memorial Hall, Jubilee Pavilion, The Tree Horseshoes Public House, The Rose public House, SPAR, ESSO.</p> <p><b>Sawston</b> - Sawston Medical centre, The Co-Operative Food, Sawston Village College, The Tickle Arms Public House, various takeaways and public houses, The Icknield Primary School.</p> <p><b>Cambridge</b> - Numark Pharmacy, Hills Road Sports &amp; Tennis Centre, Nightingale Recreation Ground, Tenpin Bowling Cambridge, Cambridge Train Station, Cambridge Orthodontic Practice, Cambridge Escape Rooms, Queen Emma Primary School, The Netherhall School, Queen Edith Community Primary School, The Queen Edith Public House, The Dumping Tree Bar &amp; Restaurant, Robin Hood Pub &amp; Grill, Rock Public House, Addenbrooke’s Hospital.</p>	<p>5.0km to 8km Accessible within 25-minutes</p>

**Figure 4.2: Cycling Isochrone Extract for a 25-minute Journey from the Development Site**

### Existing Cycling Behaviour

- 4.21 2011 Census data shows that 19.0% of people commuting to places of work from within the 'E04001794: Great Shelford' output area; do so by bicycle. This is significantly higher than the national average of 3.0%.
- 4.22 Census data from 2011 also shows that 41.9% of 'E04001794: Great Shelford' area commuters live within 5km of their place of work, where 9.4% are considered to live within a walkable commute to work. Therefore, 32.5% of residents from the aforementioned area, could reasonably take up cycling as a main mode of travel to work whilst maintaining a journey time that does not exceed 25 minutes. Although a significant proportion of those who could cycle already do so, there is some potential to further increase the level of cycling amongst residents within the surrounding area.

### Public Transport

#### Bus Services

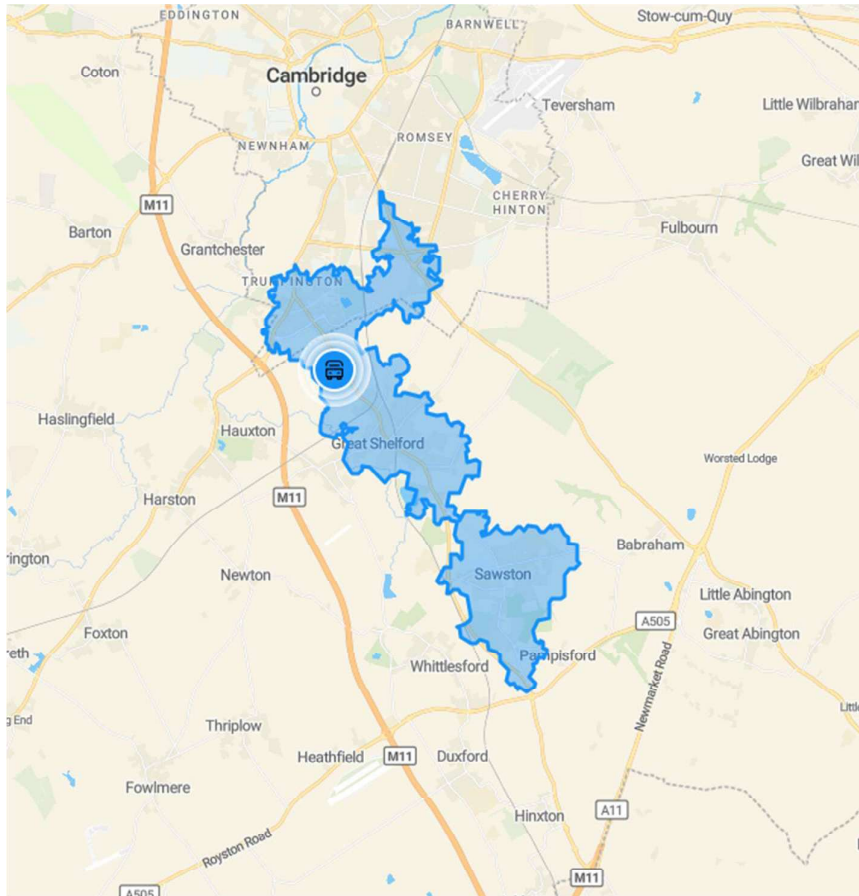
- 4.23 The nearest bus stops to the site, named 'Westfield Road' and 'Stonehill Road', are located on A1301 Cambridge Road, approximately 500m from the proposed site and are accessible within a 6-minute walk. The aforementioned bus stops are served by routes 7, 607 and 132 which are operated by Stagecoach and C G Myall and Son respectively. The aforementioned routes facilitate access between Cambridge, Saffron Walden and Swaston Village College; in addition to Addenbrooke's Hospital. Copies of the bus timetables are included in **Appendix F**.

- 4.24 The ‘Westfield Road’ and ‘Stonehill Road’ bus stops are currently unsheltered, and include a sign post highlighting the location of the stop, the bus route being served; in addition to a copy of the relevant routes’ timetables. Cambridge Road on which the bus stops are situated benefit from footpaths on both sides of the carriageway, in addition to the presence of street lighting.
- 4.25 To access a wider range of bus services, residents and visitors can use Trumpington Park and Ride, which is located approximately 2km from the proposed site access and is accessible in a 23-minute walk or 8-minute cycle. Trumpington Park and Ride has a number of services that facilitate access to Cambridge City Centre and the surrounding villages. In addition to this, the Park and Ride is also served by National Express which operates routes to destinations including Norwich, Birmingham, Central London, Stevenage, Bury St Edmunds and Newmarket.
- 4.26 Similar to the assessment carried out for walking and cycling, it can be concluded that a journey time of approximately 25 to 30 minutes for commuting purposes by a single mode of travel is generally the preferred acceptable limit. Details of the bus routes available from the ‘Westfield Road’ and ‘Stonehill Road’ bus stops are provided in Table 4.3. A public transport isochrone map showing the extent of all possible journeys up to 30 minutes from the proposed site access is shown in Figure 4.3.

**Table 4.3: Bus Destinations, Route Numbers, Journey Distances and Times**

Service	Route	Operator	Frequency
7	Saffron Walden - Sawston - Great Shelford - Cambridge	Stagecoach East	Monday - Saturday (approximately every 30 minutes) between around 06:30 and 19:30 then every hour till 22:30. Sundays (every hour) between around 09:00 and 18:00.
7A	Trumpington - Fowlmere	A2B Bus and Coach	Monday to Friday. Two buses a day at around 10:00 and 13:00.
132	Cambridge - Duxford - Saffron Walden	C G Myall & Son	Sundays. Two buses a day at around 09:30 and 18:50
607	Trumpington - Great Shelford - Sawston Village College	Stagecoach East	Monday - Friday School Service
T3	Grantchester Bridle Way - Great Shelford - Fulbourn Ida Darwin Hospital	Stagecoach East	Monday to Friday (from Tuesday 27 May 2025). One bus an hour between around 06:30 and 21:30. Saturdays (from 31 <sup>st</sup> May 2025). One bus an hour between around 06:30 and 21:30.

**Figure 4.3: Public Transport - Bus Isochrone Extract for a 30-minute Journey from the Development Site**



- 4.27 As can be appreciated from the bus service information outlined in Table 4.3; it can be appreciated that the bus services that are accessible from the bus stops closest for the site are particularly beneficial to the development proposals; as route 7 provides a quick, direct service to Addenbrooke's Hospital (from Westfield Road bus stop to Addenbrooke's Hospital takes 11 minutes via bus route 7). Additionally, route 607 may be beneficial for accessing Sawston Village College for any younger residents; this route provides access to the school within an 18-minute bus journey. The new Route T3 service will provide frequent buses between Grantchester Bridle Way and Fulbourn Ida Darwin Hospital via Great Shelford.

#### **Existing Bus Patronage**

- 4.28 2011 Census data shows that 5.6% of residents that regularly commute to work from within the 'E04001794: Great Shelford' area; do so by bus. This is less than the national average of 7.5%.
- 4.29 Census data from 2011 shows that 74.7% of Great Shelford commuters live within 10km of their place of work. However; it should be noted that around 41.9% of these residents are considered to live within a reasonable walking/cycling distance. Therefore; 32.8% of residents are considered to live a sufficient distance from their place of work that would specifically benefit from travel by bus.

- 4.30 It can be appreciated that from the 41.9% of residents who live within the aforementioned area and would specifically benefit from daily commutes by public bus, approximately 5.6% already do so. Based on these findings, it is evident that there is potential for this figure to increase.

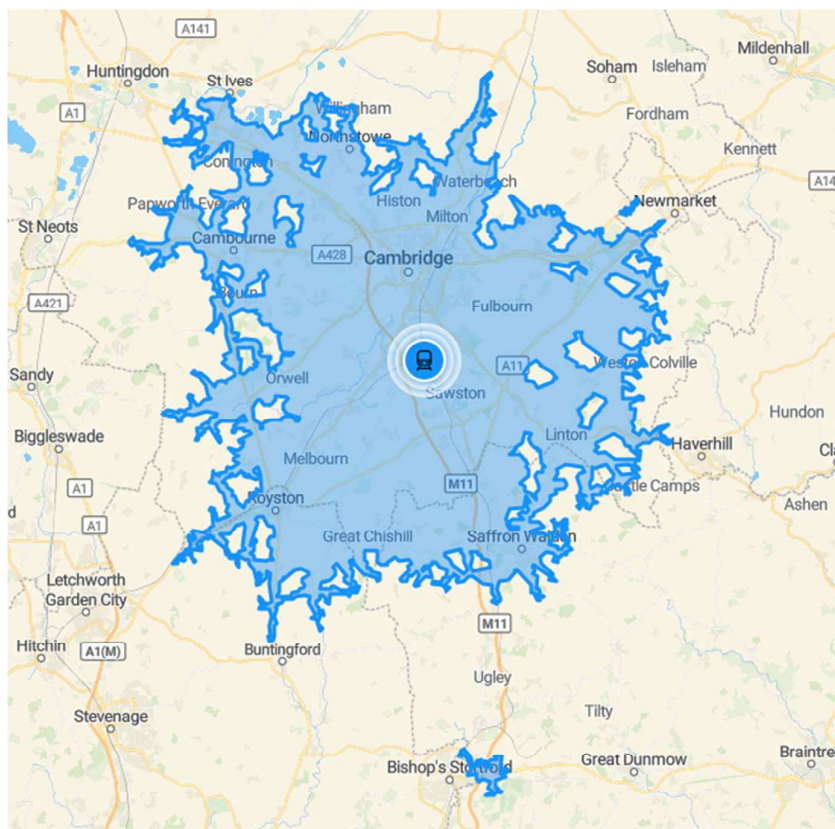
### **Train Services**

- 4.31 The nearest railway to the site is Shelford (Cambs) Train Station, which is located approximately 2km to the south east of the site, equating to a 5-minute drive, 24-minute walk or 8-minute cycle. The station is located on the West Anglia Main Line between Whittlesford Parkway and Cambridge. The station is managed by Greater Anglia who operate services between London Liverpool Street and Cambridge.
- 4.32 As previously mentioned, a commuting journey time between 25 and 30 minutes by a single mode of travel is generally considered to be the preferred acceptable limit for the surrounding area. When travelling by train it is appreciated that a number of patrons will combine this journey with another form of transport such as the public bus or private car. Therefore, it is important to note that Shelford Station benefits from cycle parking.
- 4.33 The weekday average frequency and journey times for direct trains between Shelford (Cambs) and key destinations are given in Table 4.4. A public transport and car isochrone map showing the extent of all possible journeys up to 30 minutes from the proposed site access is shown in Figure 4.4.

**Table 4.4: Direct Rail Services from Shelford (Cambs) Train Station**

Destination	Frequency	Average Journey Time
London Liverpool Street	1 service per hour	1h 20 mins
Harlow Town	Between 1 and 2 services per hour	44 mins
Cambridge	Between 1 and 2 services per hour	9 mins
Cambridge (North)	Between 1 and 2 services per hour	20 mins

**Figure 4.4: Public Transport and Car Isochrone Extract for a 30-minute Journey from the Development Site**



#### **Existing Train Patronage**

- 4.34 2011 Census data shows that 5.9% of the residents that regularly commute to work from within 'E04001794: Great Shelford' area; do so by train. This is slightly higher than the national average of 5.4%.
- 4.35 Census data from 2011 also shows that 25.3% of 'E04001794: Great Shelford' area commuters live further than 10km from their place of work. Therefore, approximately 25.3% of the aforementioned area would potentially be able to travel to their place of work via train as part of their daily commute.
- 4.36 Given the Census data percentages for train patronage, it can be appreciated that there is potential for the number of residents travelling by train as their main mode of travel to increase.

#### **Services and Facilities Accessible by Non-Vehicular Modes of Travel**

##### *Accessibility*

- 4.37 Accessibility includes access to all land uses that are required to sustain day-to-day living. These will include employment opportunities, retail facilities, education establishments and recreation facilities.

- 4.38 The location of the site in relation to the surrounding land uses ensures that it is well placed with regard to the mix of services, facilities and employment opportunities within a 2km walk and 5km cycle.
- 4.39 Addenbrooke's Hospital is situated approximately 3.5km to the north east of the site; and is accessible within a 20-minute bus journey (via route 7), 15-minute cycle or 8-minute drive. Due to the close proximity of the site to the hospital, and the fact that it is likely residents will be travelling to/from the Addenbrooke's Hospital; it is possible for these residents to utilise more sustainable modes of transport such as cycling, car sharing or public transport.

#### *Access to Employment*

- 4.40 Main commercial centres tend to contain the main employment opportunities within an area. Large employment areas such as Cambridge are accessible within a reasonable travelling distance.
- 4.41 The proposed development is within walking distance of Addenbrooke's Hospital, which is likely to be an employer for many residents living on the site. Aside from this it is assumed that the main employment hub would be Cambridge City.

#### *Access to Schools*

- 4.42 Access to education is considered to be particularly important on the site as it is anticipated that occupants may include young families. Therefore, trips for educational purposes may potentially account for a significant proportion of the overall site trip generation.
- 4.43 The closest nursery to the site, named Trumpington Park Early Years and Childcare, is located 1.7 km to the north of the site equating to a 21-minute walk or a 6-minute cycle. The closest lower school, named Trumpington Park Primary School, is located next door to the aforementioned nursery and is therefore located 1.7km to the north of the site and is accessible within a 21-minute walk or a 6-minute cycle. The closest secondary school to the site, named Trumpington Community College is located 2.5km to the north of the site and is accessible within an 8-minute cycle from the site.

#### *Access to Shopping Facilities*

- 4.44 In respect of convenience goods, although it is anticipated that many will seek opportunities to purchase convenience goods on the way home from work (particularly with regards to 'top-up' shopping), the presence of Trumpington Food and Wine Convenience Store, Waitrose & Partners and Tesco Express in the vicinity of the site ensures that accessibility to such facilities remains local and convenient. Additionally, Cambridge provides access to a greater range of shopping facilities to suit a wider range of needs and preferences.

#### *Leisure and Recreation*

- 4.45 Within the vicinity of Great Shelford and the surrounding villages of Trumpington and Stapleford, there are a number of leisure and recreation opportunities including Little Shelford Cricket Club, Great Shelford Tennis Club, Great Shelford Sports Pavilion, Shelford Rugby Club, Nine Wells Nature Reserve and various parks in Trumpington all of which are easily accessible by foot, bicycle or public transport services. The bus services from Great Shelford, Trumpington Park and Ride and the rail services from Shelford Train Station also provide direct access to a number of other leisure opportunities including retail stores, cinemas, restaurants and cafes within the surrounding areas.

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# Recorded Accident Data

# Recorded Accident Data

The following paragraphs consider the number, frequency and severity of recorded road collisions observed on the surrounding highway network within the most recent 5-year period.

- 5.1 This chapter of the report assesses the available recorded accident data from the Cambridge Insight website (<https://cambridgeshireinsight.org.uk/cambridgeshire-collision-data/>) to identify any accident patterns on the adjacent highway. It also considers whether the proposed development may result in a significant adverse impact on the health and safety of road users on the immediate highway network.
- 5.2 The data that has been obtained shows the area of concern, as well as highlighting collision locations and the corresponding severity. A copy of the extract taken from the Cambridgeshire Insight website is enclosed in **Appendix G**. The data shown on the extract is correct as of 2<sup>nd</sup> May 2025.
- 5.3 At the time of writing this report the most recent 5-year period of recorded accidents noted on the website occurred between 2020 and 2025. A summary of the identified collisions within 500m of the study area; in additions to Junctions 1 and 2 is provided below.

## A1301 (south of proposed site access)

- 5.4 One collision occurred along this section of carriageway. This accident occurred on 07/04/2023 at the junction between Cambridge Road and The Hectare. This collision was recorded as 'serious' severity, involving two vehicles and three casualties.

## A1301 (north of proposed site access)

- 5.5 Two collisions occurred along this section of carriageway. A summary of these incidents is provided below:
- The first incident occurred on 09/11/2022 on Cambridge Road, approximately 30m north of the proposed site access, between the junction of Almond Close and Walnut Drive. This accident was recorded as 'slight' severity, involving two vehicles and one casualty.
  - The second incident occurred on 29/04/2023 on Cambridge Road, approximately 30m north of the proposed site access, between the junction of Almond Close and Walnut Drive. This accident was recorded as 'slight' severity, involving two vehicles and one casualty.
  - The third incident occurred on 14/04/2022 at the junction between Cambridge Road and Westfield Road, approximately 170m north of the proposed site access. This accident was recorded as 'slight' severity, involving two vehicles and one casualty.

- The fourth incident occurred on 18/04/2021 on Cambridge Road approximately 550m to the north of the proposed site access. This accident was recorded as 'serious', involving two vehicles and one casualty.
- The fifth incident occurred on 18/05/2023 just south of the junction between Cambridge Road and Red Hill Lane, approximately 600m north of the proposed site access. This accident was recorded as 'serious', involving two vehicles and one casualty.

#### **Junction 1: Site Access / Cambridge Road / Scotsdale Garden Centre**

- 5.6 One collision occurred along this section of carriageway. It occurred on 18/06/2021 at the junction between Cambridge Road and Almond Close. This collision was recorded as 'slight' severity, involving two vehicles and two casualties.

#### **Junction 2: A1031 (N) / Addenbrooke's Road (E) / A1301 (S) / Addenbrooke's Road (W)**

- 5.7 A total of six incidents were recorded either on or within the immediate vicinity of this junction. A summary of these incidents is provided below:
- The first incident occurred on 31/10/2022 and was classed as 'slight' in nature, involving two vehicles and two casualties.
  - The second incident occurred 28/10/2023 and was classed as 'slight' in nature, involving two vehicles and one casualty.
  - The third incident occurred on 07/07/2022 and was classed as 'serious' in nature, involving two vehicles and two casualties.
  - The fourth incident occurred on 21/10/2022 and was classed as 'slight' in nature, involving two vehicles and two casualties.
  - The fifth incident occurred on 09/10/2023 and was classed as 'slight' in nature, involving two vehicles and two casualties.

#### **Summary**

- 5.8 As can be appreciated from the accident data outlined above, the accidents which have occurred within the study area are relatively infrequent and are generally 'slight' in nature.
- 5.9 In conclusion, the number of accidents is not considered to be excessive in relation to the volume of traffic using the junctions in question, and there is no indication from the accident data which suggests that the proposed development would cause a significant or adverse impact on the safety of existing road users on the surrounding highway network.

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# Impact Assessment

# Impact Assessment

The following paragraphs provide a detailed review of the proposed development's resultant impact on the surrounding highway network.

- 6.1 This chapter of the report outlines the existing and proposed trip generation associated with the development and explains how suitable trip rates for the site have been derived to assess the impact of the proposed development on the surrounding highway network.
- 6.2 This chapter also provides an analysis of the junction capacity assessments that have been undertaken on the local highway network.

## Proposed Trip Generation

- 6.3 The standard methodology for calculating the anticipated trip generation for a proposed development, is to use trip rate figures contained within the TRICS database. Trip rates are based on average traffic surveys conducted at similar sites throughout England (excluding Greater London).
- 6.4 The trip rates outlined below have been extracted from the '03/K - Residential - Mixed Private Housing' category of the TRICS database. They have also been based on the traditional AM and PM peak hours of 08:00 - 09:00 and 17:00 - 18:00 respectively.
- 6.5 The trip rates and resultant trip generations, based on the proposed number of dwellings are presented in Table 6.1. A full copy of the TRICS output is included in **Appendix H**.

**Table 6.1: Proposed Development Trip Generation**

Peak Hour	Trip Rate (per dwelling)		Trip Generation (based on 120 dwellings)	
	Arrivals	Departures	Arrivals	Departures
AM (08:00-09:00)	0.150	0.330	18	40
PM (17:00-18:00)	0.295	0.143	35	17

- 6.6 From the figures presented in Table 6.1, it can be appreciated that the proposed development of 120 residential dwellings at the site has been calculated to generate a total of 58 two-way trips during the AM peak hour and a total of 52 two-way trips during the PM peak hour.

### Traffic Impact

- 6.7 A Highway Scoping Note (a copy of which is included in **Appendix C**) was prepared by Woods Hardwick Ltd and submitted to Cambridgeshire County Council seeking to agree the scope of the assessment for this site. A response was received from CCC, in which it was agreed to take into account traffic generation, distribution and impacts on the local area network. A copy of the response from CCC is included in **Appendix D**.
- 6.8 In light of this, it was considered appropriate to undertake capacity assessments at key locations within the village and as such this section of the report includes capacity assessments at the following junction locations:
- **Site Access / A1301 Cambridge Road (N) / Unnamed Access / A1301 Cambridge Road (S) (crossroads)** - from this point onwards will be referred to as **Junction 1**.
  - **A1301 Shelford Road (N) / Addenbrooke's Road (E) / A1301 Shelford Road (S) / Addenbrooke's Road (W) (crossroads)** - from this point onwards will be referred to as **Junction 2**.
- 6.9 Both of the aforementioned junctions will be assessed for the actual AM (09:00 - 10:00) and PM (16:00 - 17:00) peak periods using the TRL software Junctions 10 for Junction 1 and LinSig for Junction 2. The actual peak hours have been determined from the MCC data.
- 6.10 Existing traffic data for the above-named junctions were undertaken by Streetwise Services in April 2025. The data was obtained via Manual Classified Count (MCC) Surveys, which recorded the number of vehicles, vehicle classification and corresponding movements made at the junctions in question.
- 6.11 The MCC survey data was recorded by installing temporary telescopic cameras at locations which monitored all vehicle movements at all junctions. The recorded traffic flows will provide the baseline data required for the junction modelling contained in this report. For avoidance of doubt, all surveys were undertaken outside of school holidays on a neutral day of the week. Full copies of the MCC surveys are enclosed in **Appendix I**.

### Junction Modelling Scenarios

- 6.12 The junction modelling carried out as part of this assessment includes six separate scenarios, all of which are listed below:
- Demand Set 1 - Do Nothing 2025, AM
  - Demand Set 2 - Do Nothing 2025, PM
  - Demand Set 3 - Do Nothing 2035, AM
  - Demand Set 4 - Do Nothing 2035, PM
  - Demand Set 5 - Do Something 2035, AM
  - Demand Set 6 - Do Something 2035, PM

### Definition of Scenarios Used

- 6.13 **Do Nothing 2025** - This scenario includes the Manual Classified Counts (MCC) data, which represent the current 2025 base flows.
- 6.14 **Do Nothing 2035** - This scenario is made up of the MCC survey data multiplied by the appropriate TEMPro Growth factors to represent the future 2035 flows. In general, a 5-year growth period is applied to developments of this size; however, we have allowed for a 10-year growth period for robustness.
- 6.15 **Do Something 2035** - This scenario will be the summation of the 'Do Nothing 2035' and the Proposed Development traffic flows generated by the site.
- 6.16 No allowance will be made within this TA for the reduction in trip generation which is expected to come about as a result of the implementation of measures identified within the site's Green Travel Plan (GTP) document. The final junction modelling results of this TA can therefore be considered conservative over estimates.

### Committed Developments

- 6.17 It is considered important to include the impact of developments in the vicinity of the site that are likely to generate more than 30 additional two-way trips onto the junctions being assessed within the TA that will support a future planning application.
- 6.18 The development at 125 Cambridge Road was reviewed for inclusion as a committed development, due to the fact that traffic movements from this development will also use the site access off Cambridge Road. However, the Transport Statement for the 125 Cambridge Road site states that the proposed development will only generate a total of 4 two-way vehicle trips during the AM and PM peak hours respectively. Additionally, the Transport Statement does not undertake any trip distribution. In light of the above, it was not considered necessary to include these trips as committed development.
- 6.19 Advice was also sought in the Scoping Note as to any other committed developments that the Highway Authority would require to be included in any assessment. Within the Highway Authority's pre-app response and subsequent correspondence, it was suggested that proposed developments at the Cambridge Biomedical Campus, namely Astra Zenica and sites for Research & Development were suggested for inclusion. Initially this information was not found on the planning portal, and therefore further information was sought from the council requesting specific planning application references of the committed developments to be included. No response was received, and therefore transport information from these developments was not included in the assessment.
- 6.20 It should be noted that the traffic counts have included any traffic movements from the Shelford Rugby Club; therefore, traffic flows from the rugby club have been accounted for within the junction modelling contained in this report.

### Growth Factors

- 6.21 As previously mentioned, the base traffic flows taken from MCC surveys will be multiplied by AM and PM peak growth factors using TEMPro Version 8.

- 6.22 The site is located within the 2011 Census Merged Local Authority area of 'E02003786: South Cambridgeshire 012', in which the site is located. Therefore, the growth rates taken from the TEMPro database and used in this report have been based on this location.
- 6.23 A summary of the TEMPro criteria used to determine the growth factors are shown in Table 6.2; these growth factors were agreed with the Highway Authority during pre-application advice. A full copy of the TEMPro Output is included in **Appendix J**.

**Table 6.2: TEMPro Criteria**

NTEM 8.0 definitive datasets	Version 8.1
Geographic Regions	
Result Type	Trip ends by time period
Base Year	2025
Future Year	2035
Trip Purpose Group	All purposes
Time Period	Weekday AM peak period (0700-0959) Weekday PM peak period (1600-1759)
Trip End Type	Origin/Destination
<b>Local Growth Figure 2025 - 2035</b>	<b>AM = 1.0915 PM = 1.0917</b>

**Traffic Distribution**

- 6.24 The distribution of the trip generation for the site within the wider highway network has been determined using a 'Gravity Model' which has been based on the 2011 UK Census dataset for region 'E02003786: South Cambridgeshire 012'; in which the site is located. The data used identifies the workplace locations for people living within Great Shelford at the time.
- 6.25 A total of 87 workplace destinations were identified, where 1,415 residents were recorded to commute. In order to narrow down the number of locations to the most popular workplaces, only the destinations which received greater than the average 16 resident journeys were considered for analysis in this report. Using this filtering method, 7 destinations were identified. Although the number of workplace destinations has been reduced; all of the above locations still account for 92% of all work-related journeys within the 'E02003786: South Cambridgeshire 012' area.
- 6.26 Due to the proportions of some residents within each area, a number of the destinations were split into sections i.e. Cambridge was split into north, south, east and west. For example, it is clear that a resident travelling from the site to the north of Cambridge would not take the same route as a resident travelling to the south. This was done in order to obtain the most accurate route for each destination. A summary of the destinations used are shown in Table 6.3.

**Table 6.3 Workplace Destinations According to UK 2011 Census Data for Output Area 'E00078842'**

Place	Population
Cambridge (N)	150
Cambridge (S)	150
Cambridge (E)	150
Cambridge (W)	150
Forest Heath	16
Huntingdonshire	43
North Hertfordshire	22
South Cambridgeshire (N)	141
South Cambridgeshire (S)	141
South Cambridgeshire (E)	141
South Cambridgeshire (W)	141
St Edmundsbury	17
Uttlesford	38

- 6.27 The quickest routes to each town/city were determined using the Google Maps journey planner tool, and the route through the junctions that were suggested were placed into a 'gravity model' table using Junction Arm Naming Conventions to determine the distribution pattern.
- 6.28 A full copy of the gravity model showing the trip distribution alongside the corresponding arrival and departure route is contained within **Appendix K**. An example of how this was determined is shown in Table 6.4.
- 6.29 Each destination was allocated its individual traffic flow based on the percentage of the resident population currently travelling to each destination. The total number of vehicles which make up the HGV classification were recorded separately during the traffic counts and so the exact HGV turning proportion recorded at each of the existing junctions has been used in the modelling of background traffic.

Table 6.4 Example of Trip Distribution

<i>Example of Trip Distribution based on Arm Naming Conventions for Individual Junctions</i>
<b>Destination:</b> Huntingdonshire
<b>Expected Departure Route using Arm Naming Conventions:</b> J1BC-J2AB-J3BC Junction 1 (Arm B to Arm C) > Junction 2 (Arm A to Arm B)
<b>Expected Departure Route using Road Names:</b> Junction 1: Site Access to A1301 Cambridge Road (N) Then onto Junction 2: A1301 Cambridge Road (N) to Addenbrooke's Road (W)

### Network Diagrams

- 6.30 The vehicle network diagrams showing how the site trips have been distributed throughout the road network being modelled are enclosed in **Appendix L**.
- 6.31 From the network diagrams it can be appreciated that in the AM peak hour 40 vehicles will be leaving the site (25 heading north and 15 heading south) and 18 vehicles will be arriving to the site (11 from the north and 7 from the south). (Please note numbers have been rounded to the nearest whole number). It is also predicted that in the PM peak hour, the development is predicted to generate 17 vehicles leaving the site (10 heading north and 7 heading south) and 35 vehicles arriving to the site (21 from the north and 14 from the south).

### Junction Modelling

#### *Junctions 10*

- 6.32 The capacity of a non-signalised junction is usually expressed in terms of its Ratio of Flow to Capacity (RFC) value. The calculated capacities are an average and the values can vary about this average from day to day.
- 6.33 An RFC value typically lies between 0 and 1. An RFC of 1 indicates that the junction is operating at its maximum theoretical capacity, although it is commonly accepted that junctions do continue to operate above this level albeit with some delays. Where RFC values remain less than 0.85, the junction arm in question is considered to remain within operating capacity. An RFC value of 0.85 is the preferred maximum for operational capacity typically accepted by LHA's. Where developments cause junctions to operate over this preferred upper limit, mitigation measures may need to be considered.

- 6.34 The junction modelling assesses the actual AM and PM peak hours of 09:00 - 10:00 and 16:00 - 17:00, split into 15-minute segments. The proposed scheme traffic flow has been split evenly across each time segment. A summary of the analyses undertaken for Junction 1 is shown in Table 6.5. A full copy of the Junctions 10 outputs is contained in **Appendix M**.

### *LinSig*

- 6.35 For signal-controlled junctions modelled using the LinSig software, the capacity of the overall junction is usually expressed in terms of its Practical Reserved Capacity (PRC) percentage. The PRC is calculated from the maximum degree of saturation on a lane controlled by the stage stream and is a measure of how much additional traffic could pass through a junction controlled by the stage stream whilst maintaining a maximum degree of saturation of 90% on all lanes.
- 6.36 For signal-controlled junctions, the Degree of Saturation (Deg Sat) is defined as the ratio of flow to capacity for the lane. For ideal designs, the Deg Sat for any lane during the worst-case simulation should typically not exceed 90%; which allows for an extra 10% of storage within junction arms for an exceptionally busy day. However, a lane is not considered to be operating at its theoretical capacity until the Deg Sat has reached a value of 100%.
- 6.37 The junction modelling assesses the actual AM and PM peak hours of 09:00 - 10:00 and 16:00 - 17:00. A summary of the analyses undertaken for Junction 2 is shown in Table 6.6. A full copy of the LinSig results are included in **Appendix N**.
- 6.38 In LinSig, long lanes represent the section of the carriageway which can extend to a point far enough upstream to meet the preceding junction. Long lanes are also used to feed vehicular traffic into an adjacent short lane i.e. where traffic can be diverted from the main route into a dedicated left turn only lane or similar.
- 6.39 Considering the above, it is understandable that the short lanes shown on the LinSig output file generally show higher Degree of Saturation values, in comparison to their adjacent long lane. This is mainly due to the fact that short lanes are generally given the shorter green times in an attempt to utilise the storage being provided for the short lanes. Therefore, the summaries provided in Table 6.6 only show the Degree of Saturation for the worst long lane modelled on each arm as this is representative for all traffic using the arm in question.
- 6.40 It should be noted that the junction modelling results presented are for worst case scenarios, and the modelling makes no allowance for the modal shift target as a result of the Green Travel Plan for the site and its associated measures. The results should therefore be considered conservative over estimates.

### *Junction 1*

- Arm A - A1301 Cambridge Road (S)
- Arm B - Site Access
- Arm C - A1301 Cambridge Road (N)
- Arm D - Unnamed Road

Table 6.4 Summary of Junction 1 Performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
<b>Do Nothing 2025</b>								
Stream B-ACD	0.3	13.34	0.20	B	0.9	17.04	0.47	C
Stream A-BCD	0.0	5.09	0.01	A	0.0	4.27	0.03	A
Stream D-AB	0.0	9.89	0.01	A	0.0	6.25	0.03	A
Stream D-BC	0.0	10.22	0.01	B	0.0	11.12	0.04	B
Stream C-B	0.2	7.74	0.19	A	0.1	7.38	0.10	A
<b>Do Nothing 2035</b>								
Stream B-ACD	0.3	14.58	0.23	B	1.2	20.20	0.54	C
Stream A-BCD	0.0	4.99	0.01	A	0.0	4.14	0.03	A
Stream D-AB	0.0	10.68	0.01	B	0.0	6.49	0.03	A
Stream D-BC	0.0	11.04	0.01	B	0.1	12.22	0.05	B
Stream C-B	0.3	8.11	0.22	A	0.1	7.68	0.11	A
<b>Do Something 2035</b>								
Stream B-ACD	0.3	15.10	0.24	C	1.2	20.82	0.55	C
Stream A-BCD	0.1	5.20	0.05	A	0.2	4.52	0.11	A
Stream D-AB	0.1	6.80	0.05	A	0.1	6.50	0.05	A
Stream D-BC	0.1	11.65	0.05	B	0.1	13.13	0.07	B
Stream C-B	0.3	8.19	0.22	A	0.1	7.82	0.11	A

- 6.41 Junction 1 has been calculated to operate with spare capacity for all scenarios. The worst-case scenario for Junction 1 occurs during the 'Do Something 2035, PM' scenario for stream B-ACD with an RFC value of 0.55.
- 6.42 Based on the results, it can be concluded that Junction 1 provides sufficient capacity to accommodate the anticipated development traffic; and will continue to have a significant amount of spare capacity for future traffic growth in 2035. The design of the access junction is therefore considered to be appropriate to accommodate the proposed development.

## Junction 2

Arm A - A1301 Shelford Road (S)

Arm B - Addenbrooke's Road (W)

Arm C - A1301 Shelford Road (N)

Arm D - Addenbrooke's Road (E)

**Table 6.5 Summary of Junction 2 Performance**

	AM		PM	
	Avg. Delay (s/PCU)	Deg Sat (%)	Avg. Delay (s/PCU)	Deg Sat (%)
Scenario 1 - Do Nothing 2025, Cycle Time: 120 sec				
PRC = -10.2%		PRC = 4.9%		
Arm A	94.7	97.6%	54.4	81.8%
Arm B	82.0	99.2%	62.9	80.8%
Arm C	42.8	42.2%	54.9	63.6%
Arm D	128.3	94.6%	49.2	85.8%
Scenario 2 - Do Nothing 2035, Cycle Time: 120 sec				
PRC = -20.5%		PRC = -2.9%		
Arm A	192.3	106.5%	64.6	89.5%
Arm B	204.1	108.4%	72.9	87.6%
Arm C	43.7	45.9%	57.7	69.3%
Arm D	189.9	102.5%	61.3	92.6%
Scenario 3 - Do Something 2035, Cycle Time: 120 sec				
PRC = -21.4%		PRC = -4.8%		
Arm A	207.5	107.7%	65.2	90.1%
Arm B	216.2	109.2%	79.0	92.5%
Arm C	43.7	46.3%	58.3	70.3%
Arm D	189.9	102.5%	68.4	94.3%

- 6.43 Based on the PRC, Junction 2 is forecast to operate with spare capacity for the 2025 PM scenario; but over capacity for all other scenarios that have been assessed.
- 6.44 In the 'Do Nothing 2035' scenario the junction recorded a PRC of -20.5% in the AM peak and -2.9% in the PM peak. Under the 'Do Something 2035' scenario the junction recorded a PRC of -21.4% in the AM peak and -4.8% in the PM peak.
- 6.45 The change in the PRC value between the 'Do Nothing 2035' scenario and 'Do Something 2035' scenario is considered minimal (0.9% increase in the AM and 1.9% increase in the PM).

- 6.46 In all scenarios assessed, junction arms with a DoS value exceeding 100% are Arm A, Arm B and Arm D in the AM peak of 'Do Nothing 2035' and 'Do Something 2035'. The development traffic resulted in the increase of 1.2% in Arm A, 0.8% in Arm B and no increase in Arm D.
- 6.47 It is worth highlighting that within the PM peak of the 'Do something 2035' scenario all arms of the junction are still within the 100% Deg Sat.
- 6.48 Based on the above findings, the proposed development is not considered to result in a material impact on the operation of Junction 2. It is therefore not considered necessary to undertake any mitigation works as a direct consequence of the proposed development.

#### **Mitigation Measures**

- 6.49 Based on the vehicular assessment included within this chapter, there is no need to consider mitigation measures at any of the junctions as a result of the proposed development.
- 6.50 Notwithstanding the above, as good practice and as a way of helping the site developer achieve their social responsibility in reducing the number of single occupancy vehicle trips generated from the site, the Applicant has produced a Green Travel Plan document for the site.
- 6.51 The Green Travel Plan document includes measures which will be implemented to help the site achieve its target of reducing single occupancy vehicle journeys. A Travel Plan Coordinator will be appointed by the Developer to oversee the day-to-day operations of the Travel Plan.
- 6.52 It is important to note that none of the junction capacity assessments make allowance for the reduction in vehicular trip generation which will occur as a result of the Travel Plan measures. The capacity assessments also make no allowance for changing patterns of travel to work behaviour, including increased levels of home working, which means the final junction modelling results are likely to represent an overestimate.
- 6.53 The measures and initiatives which are included within the Travel Plan are:
- Provision of a 'Travel Information Pack' to all future residents which outlines the aims of the Travel Plan and includes up-to-date walking, cycling and public transport information.
  - Promotion of walking, cycling and public transport through provision of up-to-date route and timetable information which will be displayed in a prominent position.
  - Promotion of national events such as Cycle to Work Week.
  - Promotion of existing Car Share Schemes such as Liftshare.
  - Information on how to set up a site-specific car sharing group.
  - Potential implementation of a Bicycle User Group.
- 6.54 The measures listed above are not exhaustive and as such the Travel Plan Co-Ordinator will be free to implement other measures which he/she feels will improve the sustainability credentials of the site; subject to agreements with the future residents.

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# Summary and Conclusions

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# Summary and Conclusions

The following paragraphs summarise the findings of this report and provides a factually conclusive recommendation for whether the development should be supported through the planning process.

- 7.1 This Transport Assessment (TA) has been prepared by Woods Hardwick Ltd behalf of Great Shelford Ten Acres Limited in support of an Outline Planning Application for a proposed residential development on a site known as 'Land off Cambridge Road, Great Shelford'.
- 7.2 Development proposals are for the construction of 120 residential units. The proposals also include associated access, parking, an urban square, public open space (POS) and a local equipped area for play (LEAP). A Site Layout Plan is included in **Appendix B**.
- 7.3 Vehicular access will be provided via the existing priority T-junction between Cambridge Road and Almond Close. The development at 125 Cambridge Road proposes to formalise this current access. The formalised access road has been designed as a 5.5m wide carriageway, with 2m wide footpaths either side. A copy of the access drawing prepared for the development at 125 Cambridge Road is included in **Appendix E**. It is proposed to extend this access through the proposed development site and to the Rugby Club. It should be noted that the internal site layout will be designed in accordance with the fire authority's requirements.
- 7.4 Non-vehicular access for pedestrians and cyclists will be via the same primary site access off Cambridge Road. It is proposed that 2m wide footways are provided on both sides of the spine road from the site access, which will tie into the existing provisions on Cambridge Road.
- 7.5 A preliminary audit of the sustainable travel options which will be available to the site has been conducted. The preliminary audit demonstrated that the site can be considered to lie in a sustainable location in terms of walking, cycling and accessibility to public transport services; in addition to access to local services and facilities.
- 7.6 From the recorded accident data, it is not considered that there is any specific accident-related problem that exists in the vicinity of the site. It is also not anticipated that the safety of existing and future road users would be put at significant risk as a result of the proposed development.
- 7.7 An impact assessment has been undertaken to calculate the likely vehicular trip generation of the site. Based upon the figures extracted from the TRICS database, the proposed development of 120 dwellings at the site has been calculated to generate a total of 58 two-way trips during the AM peak hour and a total of 52 two-way trips during the PM peak hour.

- 7.8 The impact assessment exercise has been undertaken in the traditional AM and PM peak hours for the following junction locations:
- Site Access / Cambridge Road (N) / Unnamed Road / Cambridge Road (S) (Unsignalised Junction)
  - A1031 (N) / Addenbrooke's Road (E) / A1301 (S) / Addenbrooke's Road (W) (Signalised Crossroads)
- 7.9 The distribution of the trip generation of the site within the wider highways network has been determined using a gravity model which has been based upon the 2011 UK Census Data for Output Area of 'E02003786: South Cambridgeshire 012'. The data used identifies the work place locations for people living within the area at the time the Census data was recorded.
- 7.10 From the analyses included within this document, it can be concluded that the surrounding highway network provides sufficient capacity to accommodate the additional traffic expected to be generated from the development during the peak hours and will continue to have spare capacity for future traffic growth to 2035 and beyond.
- 7.11 **From the evidence provided within this Transport Assessment, there is no reason in Highways and Transportation terms, why the proposed development at 'Land off Cambridge Road, Great Shelford', should not be fully supported through the planning process.**

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# Appendix A

## Site Location Plan



**Woods Hardwick**

Architecture | Engineering | Planning | Surveying

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Land off Cambridge  
Road, Great Shelford  
National Grid Reference:  
TL 45354 53325